FINAL

Program Environmental Impact Report for the

City of Vista 2008 Sewer Master Plan Update

State Clearinghouse No. 2007091072

MAY 2008

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ACRONYMS

ACOE	Army Corps of Engineers
ADT	Average daily traffic
AIA	Airport impact area
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
APCD	Air Pollution Control District
AT&SF	Atchison, Topeka, and Santa Fe
BMP	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFG	California Department of Fish & Game
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CMWP	Carlsbad Municipal Water District
CO	Carbon monoxide
DIP	Ductile iron pipe
DPW	Department of Public Works
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
I-5	Interstate 5
JURMP	Jurisdictional Urban Runoff Management Program
LOS	Lever of service
LWD	Leucadia Wastewater District
MHCP	Multi Habitat Conservation Plan
MRZ	Mineral Resource Zone
MWD	Metropolitan Water District
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Communities Conservation Program
NCTD	North County Transit District
NO_2	Nitrogen dioxide

NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
O_3	Ozone
OMWD	Olivenhain Municipal Water District
PM_{10}	Particulate matter less than or equal to 10 micrometers in size
PVC	Polyvinyl chloride
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SDCRAA	San Diego Regional Airport Authority
SDCWA	San Diego County Water Authority
SDGE	San Diego Gas & Electric
SDRAQS	San Diego Regional Air Quality Strategy
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SR-76	State Route 76 or Mission Avenue
SR-78	State Route 78
SSMP	Sewer System Management Plan
SSO	sewer system overflows
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
TCP	Traffic control plan
TMDL	Total maximum daily load
TSP	Total suspended particulates
USFWS	U.S. Fish and Wildlife Service
VID	Vista Irrigation District
VOCs	Volatile organic compounds
VCP	Vitrified clay pipe
VWD	Vallecitos Water District
WDR	Waste discharge requirement
YBP	Years before present

PREFACE

PREFACE TO THE FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT

This Final Program EIR includes revisions made to the Draft Program EIR as a result of responding to written comments received during the 45-day public review period for the Draft Program EIR, as well as minor corrections and revisions initiated by City of Vista staff based on their ongoing review. The revisions/additions to the Final Program EIR text are highlighted by underlined text. Text removed is denoted by ~~strikeout~~ text. For the list of commenters, written comments, and responses to comments received on the Draft Program EIR, refer to *Appendix D*.

The City of Vista (City) released for public review a Draft Program EIR for the proposed the 2008 Sewer Master Plan Update (proposed project) on March 6, 2008. The public review period for the Draft EIR began March 6 and ended on April 21, 2008. During this timeframe, the document was made available for review to various state, regional, and local agencies, as well as by interested organizations. Written comments were received from three public agencies. Refer to *Appendix D* for additional information.

EXECUTIVE SUMMARY

ES.1 Introduction/Background

The City of Vista (City) proposes to implement the 2008 Sewer Master Plan Update (proposed project), which is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001. The proposed project is a product of expanded hydraulic modeling prepared to address newly imposed state regulations. The 2008 Sewer Master Plan Update provides a set of recommended projects for inclusion in the City's overall Capital Improvement Program (CIP). The 2008 Sewer Master Plan categorizes the project components as capacity-related or non-capacity-related. All capacity-related project components would be replaced and/or relocated. All non-capacity-related projects would be rehabilitated, replaced, and/or relocated. This Program Environmental Impact Report (EIR) addresses the potential environmental consequences of the proposed rehabilitation, replacement, and relocation sewer pipeline projects that constitute the recommended CIP identified in the 2008 Sewer Master Plan Update.

The City is responsible for maintenance, operations, and management of both the City of Vista and Buena Sanitation District (District) wastewater (or sewer) collection systems. The City of Vista City Council is the decision making body for the City's sewer collection system. The City also assumes the role of the Buena Sanitation District Board of Directors per Resolution No. 98-289 as adopted by the County of San Diego Board of Supervisors in 1998. The City and Buena Sanitation District sewer collection systems are operated and maintained by the City's Department of Public Works (DPW).

The City's collection system is located primarily in the Buena Vista Drainage Area and is comprised of 35 sub-drainage areas as defined by the City. Three sub-drainage areas are located in the Agua Hedionda Drainage Basin. Sewer flows generated from the City drain to the Encina Wastewater Treatment plant via the Vista-Carlsbad Interceptor or the Buena Interceptor. The City sewer collection system includes approximately 215 miles of sanitary sewers ranging in size from 6 to 42 inches in diameter. The majority of the pipelines are made from vitrified clay pipe (VCP) and the remaining pipelines are generally constructed of polyvinyl chloride (PVC).

The Buena Sanitation District is located primarily in the Agua Hedionda Drainage Area. The Buena sewer collection system is comprised of approximately 101 miles of sanitary sewers and force mains ranging in size from 4 to 30 inches in diameter. Sewer flows are ultimately drained to the Buena Pump Station and then are conveyed to Encina Wastewater Treatment Plant via the Buena Force Main and the Buena Interceptor.

ES.2 Purpose and Scope

The purpose of an EIR is to: **(1)** inform the public and decision-makers of the potential environmental impacts of a proposed project; **(2)** identify methods that could reduce the magnitude of potentially significant impacts of a project; and **(3)** identify alternatives that could reduce the magnitude of environmental impacts or propose more effective uses of the project site. The purpose of this Program EIR is to analyze the potential physical environmental impacts associated with implementation of the proposed 2008 Sewer Master Plan Update. This document is intended for use by both decision makers and the public. It provides relevant information concerning the potential environmental effects associated with rehabilitation, replacement and relocation of the existing sewer system components identified in the 2008 Sewer Master Plan Update operated and maintained by the City of Vista. The lead agency for the project is the City.

ES.3 Environmental Procedures Under The California Environmental Quality Act

This Program EIR has been prepared by the City of Vista, the CEQA lead agency, in accordance with the requirements of CEQA and the State CEQA Guidelines, as amended. While CEQA requires that major consideration be given to avoiding environmental damage, the lead agency must balance adverse environmental effects against other public objectives, including economic and social goals, in determining whether and in what manner a project should be approved.

To identify key issues and concerns relevant to the scope of the Program EIR, the City encouraged participation in the environmental review process from public agencies, special interest groups, and the general public. A major component of this process is public scoping. Scoping is a process designed to determine the breadth of issues to be addressed in the Program EIR. The aspects of the public scoping discussed in this section include the Notice of Preparation (NOP) and areas of controversy identified as a result of public scoping.

ES.4 Notice of Preparation

In compliance with Section 15082 of the CEQA Guidelines, the City of Vista Planning Department circulated a Notice of Preparation (NOP), dated July 27, 2007, to interested agencies, groups and individuals. The NOP was circulated to the State Clearinghouse (SCH) on September 14, 2007 with a review period ending on October 15, 2007. The SCH assigned number 2007091072 to the project. All comments received during the NOP public notice period were considered during the preparation of the Draft Program EIR. A public scoping meeting was held on August 6, 2007. The NOP and NOP comment letters are included in *Appendix A* of this Program EIR.

ES.5 Use of the Program EIR

The 2008 Sewer Master Plan Update EIR is intended to be a "program" level document, which is used to analyze the first-tier effects of the 2008 Sewer Master Plan Update. A Program EIR is prepared for a series of actions that can be characterized as one large project, with each action related as logical parts in the chain of contemplated actions (CEQA Guidelines §15168(a)). Typically, such a project involves actions that are closely related geographically (Cal. Code of Regs., Title 14, § 15168(a)(1)), for agency programs (§ 15168(a)(3)), or as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways (§ 15168(a)(4)). Program EIRs generally analyze broad environmental effects of the program with the acknowledgment that site-specific environmental review may be required for particular aspects of portions of the program when those aspects are proposed for implementation (§ 15168(a)). Once the Program EIR is prepared for the 2008 Sewer Master Plan Update, subsequent (or second-tier) activities within the program must be evaluated by the City to determine whether additional CEQA analysis needs to be conducted.

ES.6 Project Objectives

The development of the proposed project is intended to update and identify a recommended prioritized CIP that addresses the capacity and non-capacity-related improvement projects necessary to ensure safe and reliable operation of the existing sewer system. The following objectives have been identified for this project:

- Reduce the potential for sewer overflows;
- Make facility improvements on age, material, and condition related infrastructure;
- Restore, maintain, and/or enhance existing sewer service; and
- Prioritize a list of projects.

ES.7 Project Location

The proposed project is located in the northern part of San Diego County within the Cities of Vista, Oceanside, Carlsbad, San Marcos, and unincorporated portion of the County of San Diego (see *Figures 2-1, Regional Map* and *2-2, Vicinity Map*). Project components are located both within and outside the City and Buena Sanitation District boundaries as shown in these figures.

ES.8 Project Description

The proposed project entails a combination of capacity replacement and non-capacity-related rehabilitation and/or replacement projects (or "project components") in order to minimize

potential for interruptions associated with structurally unsound elements of the existing sewer system. These pipeline project components are identified in the 2008 Sewer Master Plan Update and are components recommended for inclusion in the City's overall CIP. The proposed project does not entail upgrades and/or repairs to any existing lift station or the installation of any new lift stations.

The City of Vista developed a system in order to map and keep track of the pipelines that constitute the existing sewer system. Each manhole throughout the system has a 6 to 7 digit alphanumeric code (i.e., B01097 or V32T400). The first 3 digits of this code typically dictates the sub-basin in which the manhole is located. The last 3 digits provide a unique manhole number (also called the Node ID). Proposed project components are essentially pipeline segments consisting of an upstream and downstream manhole number (i.e., B04099.00 – B04100.00). The segment of pipeline between two manholes can range between a small linear footage (approximately 30 feet) to a large linear footage (approximately 500 feet). Throughout this EIR, a proposed project component or segment refers to a segment of pipeline between two manholes. *Appendix C* provides a complete list of proposed project components that make up the 2008 Sewer Master Plan (the proposed project). A total of 2,261 proposed project components were identified within the 2008 Sewer Master Plan and evaluated throughout this EIR.

Capacity-Related CIP Projects

The 2008 Sewer Master Plan Update identified 20 groups of capacity-related project components. Each group of proposed project components was given a name as provided in *Table S-1 Project Name* (e.g., B5 or B1). A total of 272 project components make up these 20 groups as presented in *Appendix C, Proposed Project Components.*

The project groups are divided between the City and District and prioritized within each respective jurisdiction. Several capacity-related CIP project components are also in need of repair based on conditions such as age, materials and regulatory size upgrades. *Table S-1* prioritizes and describes each pipeline improvement, and identifies the need for each project group. Projects listed first are of a greater priority than projects listed last within each jurisdiction. All capacity-related project groups would be rehabilitated via pipeline replacement.

Table S-1
Capacity-Related CIP Projects

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
Buena Sanitation District Project Components			
Buena Outfall Force Main Phase III	7,200	Capacity Related	This project is required to divert 3.75 MGD of sewage flow from the Buena Sanitation District to Vallecitos Interceptor. Construct 24" of Force main and 18" and 15" of Gravity Sewer in Palomar Airport Road and west of El Camino Real to divert flows to Vallecitos Interceptor.
B5 – Watson to Green Oak Upsize and Realignment	3,795	Capacity and Condition Related	Upsize and realign existing 18" and 8" sewer lines along Oleander Avenue and Watson Way between Green Oak Road and Lupine Hills Drive to 24", 21", and 18".
B2 – Watson Upsize and Realignment	3,019	Capacity and Condition Related	Upsize existing 15" and 8" sewer lines along Watson Way and Sycamore Avenue and between Watson Way and the intersection of Thibodo Road /Plumosa Avenue to 21", 18", and 15".
B1 – Green Oak Upsize	4,944	Capacity Related	Upsize existing 21", 18", and 12" sewer lines along Green Oak Road and between the Buena lift station and Grand Avenue to 27", 24", and 15".
B4 – Robelini/Buena Creek Upsize	4,724	Capacity and Condition Related	Upsize existing 12" sewer line along Robelini Drive and Buena Creek Road and between intersection of Sycamore Avenue/Robelini Drive and Lakeside Road to 15".
OV2 – Buena Outfall Phase IV	8,847	Capacity and Condition Related	Upsize existing 24", 21", 18" Buena Interceptor to 27", 24", and 21".
B3 – El Valle Opulento Upsize	918	Capacity and Condition Related	Upsize existing 10" sewer line along El Valle Opulento and between El Valle Opulento and El Copa Lane to 15".
Vista Sanitation District Project Components			
V1 – West Vista Way Replacement and Upsize	6,344	Capacity and Condition Related	Upsize existing 12", 10", and 8" sewer lines along Sunset Drive, Vista Way, Huff Street, and Durian Street and between the intersection of Via Centre/Sunset Drive and Cedar Road and Hill Drive to 15" and 12".
V10 – North Sana Fe/ Cananea/Calera Upsize	2,830	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Cananea Street and Calera Street to 15" and 12".
V8 – Vista South Santa Fe Phase II Upsize	8,358	Capacity and Condition Related	Upsize existing 8" sewer line along Santa Fe Avenue, Service Place, and Monte Vista and between Escondido Avenue and Service Place to 15" and 12".
V2 – Hacienda/Vista Village Upsize	4,026	Capacity and Material Related	Upsize existing 33", 30", 24", 21", and 12" sewer lines along Hacienda Drive, Vista Village Drive and between La Tortuga and Lado De Loma Drive to 42", 36", 27", 21", 18" and 15".
V7 – Vista South Santa Fe Phase I Upsize	3,171	Capacity and Condition Related	Upsize existing 12", 8", and 6" sewer lines along Santa Fe Avenue, Mercantile Street, and Pala Vista Drive between Main Street and Rincon Street to 18", 15", and 12".

Table S-1
Capacity-Related CIP Projects

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
V6 – South Melrose Upsize	1,910	Capacity and Material Related	Upsize existing 10" sewer line along Melrose Drive between Hacienda Drive and County Complex to 15".
V3 – North Melrose Upsize	5,500	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Melrose Drive between Hacienda Drive and Olive Avenue to 15" and 12".
V4 – Broadway/Main Santa Fe Upsize	3,347	Capacity Related	Upsize existing 18" along Santa Fe Avenue, Broadway, Citrus Avenue, Main Street and Vista Village Drive between Santa Fe Avenue and Intersection of Vista Village Drive/Escondido Avenue/Hillside Terrace/Vista Way to 24" and 21".
V11 – East Vista Way/Vale Terrace Upsize	1,853	Capacity Related	Upsize 18" and 8" sewer line along Vista Way and Vale Terrace and between Townsite Drive and intersection of Bel Air Drive/Williamston Street to 21", 18", and 15".
V9 – North Santa Fe Upsize	3,979	Capacity Related	Upsize existing 18" and 15" sewer lines along Santa Fe Avenue between Orange Street and intersection of Los Angeles Drive/Townsite Drive to 24" and 18".
V5 – Eucalyptus Upsize	3,037	Capacity Related	Upsize existing 12", 10", and 8" sewer lines along Citrus Avenue, Eucalyptus Avenue, and Escondido Avenue and between intersection of Broadway/Citrus Avenue and Avalon Drive to 18", 15", and 12".
R1 – Faraday Easement Upsize	1,431	Capacity Related	Upsizing existing undersized 12" sewer line west of Melrose Drive and between the Raceway Pump Station and Faraday to 15".
TOTAL	79,223 ft (15 miles)		

Non-Capacity-Related CIP Projects

The 2008 Sewer Master Plan Update addresses looming age, material, and condition related replacements or rehabilitation projects to ensure the integrity of the existing sewer system. *Table S-2* presents the total length of pipelines being replaced and/or rehabilitated based on existing conditions, size, age, and materials. All ductile iron pipe (DIP) and non VCP/PVC pipes are proposed for rehabilitation or replacement as well as pipes that are over 50 years old. Current regulations also require a replacement of all 6-inch pipes with 8-inch pipes. The 2008 Sewer Master Plan Update proposes approximately 451,624 feet (85.5 miles) of condition-related rehabilitation or replacement. This number excludes the capacity-related project components that are also condition or material-related as presented in *Table S-1*.

Table S-2
Condition-Related CIP Projects

Project Type	Number of Projects	Approximate Length (ft)
Minimum Size	625	123,701
Condition Related	1,131	239,555
Age Related	270	38,426
Material Related	195	49,942
TOTAL	N/A*	451,624 ft (85.5 miles)

*Total number of project components is not applicable in this table due to presence of pipeline segments with overlapping project types.

Operations and Maintenance

Since sewage carries a variety of waste products, regular maintenance is required to assure that adequate flow is maintained. Operation and maintenance of the sewer system typically consists of routine patrolling, emergency repair, and periodic pipeline dewatering to allow for interior inspections or repairs. Sewer flow is also maintained via cleansing and flushing activities with a variety of tools. The Wastewater Maintenance Division of the City of Vista has an ongoing maintenance program, which entails inspections of designated pipelines once a year, and hotspots up to 3 or 4 times a year. Video inspections are performed on all new sewer mains and on selected sections of the existing mains.. The pipes are accessed through regular spaced openings, which are covered and commonly referred to as clean outs and manholes. Manholes are large enough to allow large equipment and personnel to enter the system. Operations and maintenance activities also include no-dig rehabilitations such as epoxy coatings, polyurethane coatings, slip liners, and cured-in-place resin compound liners. Maintenance for elements of the proposed 2008 Master Plan Update would include activities similar to those performed throughout the existing sewer collection system.

ES.9 Affected Environment

The environmental setting for the proposed 2008 Sewer Master Plan Updates includes all project components within the Cities of Vista, Carlsbad, Oceanside, San Marcos, and the County of San Diego, CA. The environmental setting is described in terms of its general characteristics in *Chapter 3.0*. The environmental setting for each issue area is discussed in more detail in *Chapter 4.0* of this document.

ES.10 Approach to Impact Analysis

The analysis of each environmental issue area in *Chapter 4.0* includes a description of the existing conditions within the project study area; the criteria for determining significance; an evaluation of how the specific resources would be affected by implementation of the proposed

project; program-level mitigation measures to reduce significant impacts; and identification of residual level of impacts after mitigation is incorporated.

The analysis contained in this Program EIR is considered to be a first-tier level of analysis for the 2008 Sewer Master Plan Updates. *Appendix C, Proposed Project Components*, provides a complete list of proposed project components that make up the 2008 Sewer Master Plan (the proposed project). *Table S-3* identifies those project components which could result in potentially significant environmental impacts and therefore may require additional CEQA review. Following *Table S-3, Table S-4* provides an index to the list of mitigation measures associated with each project component. Project components that are identified in *Appendix C*, but not listed on *Table S-3*, are not expected to result in potentially significant environmental impacts and are expected to be exempt from further CEQA analysis.

Table S-3 is designed to serve as a guide for the evaluation of each project component as it comes forward for approval or implementation. *Table S-3* is based on known conditions and an evaluation of probable future conditions. Since future conditions may change, the first step in environmental review of future projects under this Program EIR should be to ascertain if future conditions are different from present assumptions, and to determine if environmental review has already been accomplished. For example, where pipelines are assumed in this Program EIR to be located in street rights-of-way, this first check should include affirming the assumption. Conditions evaluated at this stage for any change could include sizing, location, site disturbance, or other factors. City staff shall use the following procedure to establish mitigation on a project-specific basis for all issues where the potential for mitigation requirements is indicated.

- Each project shall be reviewed to determine if local environmental review has been carried out by the local land use jurisdiction as part of a project for which the local land use jurisdiction was the lead agency under CEQA.
- If local review was carried out under CEQA, the lead agency (in this case the City) will determine if that review was sufficient to meet CEQA requirements. The City will also determine if that review for each issue was sufficient to meet the City's requirements. If so, further environmental review by the City shall not be required.
- If further environmental review by the City is required, the City shall review project plans to determine if there is a potential for the project to have a significant effect on the environment using the *Table S-3* as a guide, but with the possibility of changed future conditions in mind.
- Where indicated, environmental review of subsequent projects with the potential for a significant effect or effects shall include the applicable studies, surveys, coordination, or other procedures specified in *Chapter 4.0* of this Program EIR. Biological or cultural

resource surveys or jurisdiction coordination for traffic issues, for instance, may be needed to establish project-specific conditions and mitigation measures.

- Where project-specific studies or other information indicate that significant effects not previously identified in the Program EIR would result, and feasible mitigation could be implemented to reduce the effect to a level below significance, a Mitigated Negative Declaration may be prepared for the project under review.
- If project-specific studies indicate that any significant effect would result that was not previously identified in the Program EIR, and cannot be mitigated to a level below significance, a separate project-specific EIR shall be prepared to address any potential significant effects.

ES.11 Summary of Impacts and Mitigation

Table S-3 presents potential environmental impacts, and mitigation as applicable, for identified 2008 Sewer Master Plan components within the scope of this Program EIR. The table is intended to guide City staff in subsequent environmental assessment of each project. Mitigation measures are required in order to reduce potentially significant impacts pertaining to Biological Resources, Cultural Resources, Hydrology and Water Quality, and Land Use and Planning. Project components resulting in impacts to Land Use and Planning are identical to those identified in *Section 4.3 Biological Resources* threshold (6), and as such no additional mitigation measures are required beyond those identified to reduce impacts to biological resources.

Table S-4 provides an index to the list of mitigation measures associated with each project component. Mitigation measures are provided to reduce all impacts from identified pipeline projects to below a level of significance. In *Table S-3*, references to the City of Vista mean the City of Vista or the Buena Sanitation District, as applicable. For all environmental issue areas, residual impacts would not be significant with implementation of mitigation measures.

As described in *Section ES.8* and *4.0*, proposed project components (or segments) are defined as the linear length of pipeline from manhole to manhole. In order to keep track of the proposed project components, unique descriptors are used which entail the upstream manhole and the downstream manhole. See the example as follows:

B01100.00 – B01101.00

The first 3 digits (B01) typically indicate the sewer sub-basin as determined by the City of Vista. The next 3 digits (100 or 101) provide the unique manhole number. The unique manhole number may be 3 or 4 digits in length.

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Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V32T400.00-V32T399.00	20_11	32	24											WQ1	WQ2								
V32T398.00-V32T397.00	20_11	232	24											WQ1	WQ2								
V34105.A0-V34105.00	32_11	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B02005.00-B02006.00	30_15	280	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01118.00-B01119.00	29_13	281	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01117.00-B01118.00	29_13	285	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01115.00-B01116.00	29_12	205	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01108.00-B01109.00	29_13	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01101.00-B01127.00	29_12	446	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
B01100.00-B01101.00	29_12	521	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
B01099.00-B01100.00	29_13	524	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
B01097.00-B01099.00	28_13	383	21											WQ1	WQ2								
B01013.00-B01014.00	30_14	428	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V29129.00-V32T093.00	21_11	357	8											WQ1	WQ2	WQ3							
V32T093.00-V32T092.00	21_11	251	30	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3							
V32T094.00-V32T093.00	21_11	774	30	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3							
B01011.00-B01013.00	30_14	499	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01009.00-B01010.00	30_14	150	6														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01007.00-B01010.00	30_14	405	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01006.00-B01007.00	30_14	401	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01005.00-B01006.00	30_15	354	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01003.00-B01004.00	30_15	257	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01001.00-B01003.00	30_15	507	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01096.00-B01097.00	28_13	440	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
B01093.00-B01096.00	28_13	54	21											WQ1	WQ2								
V33036.00-V33037.00	27_11	188	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T013.00-V32T012.00	24_01	388	36											WQ1	WQ2	WQ3							
V32T014.00-V32T013.00	24_01	305	36											WQ1	WQ2	WQ3							
V32T015.00-V32T014.00	24_01	318	36											WQ1	WQ2								
V32T016.00-V32T015.00	24_01	364	36											WQ1	WQ2								
V32T017.00-V32T016.00	24_01	340	36											WQ1	WQ2								
V32T018.00-V32T017.00	24_02	481	36											WQ1	WQ2								
V32T021.00-V32T019.00	23_02	378	36											WQ1	WQ2	WQ3							
V32T019.00-V32T018.00	24_02	256	36											WQ1	WQ2								
V32T022.00-V32T021.00	23_02	155	42											WQ1	WQ2	WQ3							
V32T022.A0-V32T022.00	23_02	144	42											WQ1	WQ2	WQ3							
V32T023.00-V32T022.A0	23_02	329	42											WQ1	WQ2	WQ3							
V32T024.00-V32T023.00	23_02	552	42											WQ1	WQ2	WQ3							
V32T025.00-V32T024.00	23_02	203	42											WQ1	WQ2	WQ3							
V32T026.00-V32T025.00	23_02	529	42	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3							
V32T027.00-V32T026.00	23_03	408	42	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3							
V32T027.A0-V32T027.00	23_03	347	42											WQ1	WQ2	WQ3							

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																			
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V32T028.00-V32T027.A0	23_03	76	42											WQ1	WQ2	WQ3							
V32T029.00-V32T028.00	23_03	207	42											WQ1	WQ2	WQ3							
V32T030.00-V32T029.00	23_03	460	36											WQ1	WQ2	WQ3							
V32T031.00-V32T030.00	23_03	422	36											WQ1	WQ2	WQ3							
V32T032.00-V32T031.00	23_03	471	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3							
V32T033.00-V32T032.00	23_03	478	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V32T034.00-V32T033.00	23_04	458	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V32T035.00-V32T034.00	23_04	430	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V32T036.00-V32T035.00	24_04	553	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V32T038.00-V32T037.00	24_04	222	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V32T037.00-V32T036.00	24_04	433	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V32T039.00-V32T038.00	24_04	508	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V32T040.00-V32T039.00	24_05	614	36											WQ1	WQ2								
V32T041.00-V32T040.00	23_05	373	36											WQ1	WQ2								
V32T042.00-V32T041.00	23_05	550	36											WQ1	WQ2								
V32T043.00-V32T042.00	23_05	558	36											WQ1	WQ2								
V32T045.00-V32T044.00	23_05	102	36											WQ1	WQ2								
V32T046.00-V32T045.00	23_05	224	36											WQ1	WQ2								
B01017.00-B01018.00	30_14	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T047.00-V32T046.00	23_05	468	36											WQ1	WQ2								
V05046.00-V05047.00	21_11	224	12											WQ1	WQ2								
B15045.00-B15050.00	26_11	300	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01127.00-B01128.00	29_12	55	21											WQ1	WQ2								
B01122.00-B01123.00	29_12	221	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01120.00-B01121.00	29_13	183	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33080.B0-V33080.H0	28_11	145	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01073.00-B01074.00	29_13	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35149.00-V35204.00	32_12	363	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V09021.00-V09023.00	18_11	153	8													WQ3							
V32T397.00-V32T395.00	20_11	95	21											WQ1	WQ2	WQ3							
B01016.00-B01017.00	30_14	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01015.00-B01016.00	30_15	400	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35184.00-V35186.00	32_13	241	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35182.00-V35183.00	32_13	276	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V14103.C0-V14103.D0	16_13	317.25	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V14103.D0-V14103.00	16_13	336.07	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35126.00-V35144.00	32_13	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35047.00-V35048.00	31_14	179	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35044.00-V35045.00	31_14	330	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35037.00-V35038.00	31_14	387	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35035.00-V35036.00	31_14	278	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35033.00-V35037.00	31_14	360	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V05047.00-V05048.00	21_11	104	12											WQ1	WQ2	WQ3							
V33057.00-V33080.00	28_11	246	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33072.B0-V33072.00	27_11	162	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33076.00-V33077.00	28_12	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01076.00-B01079.00	29_13	292	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33069.C0-V33069.E0	28_11	242	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01074.00-B01075.00	29_13	306	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33069.00-V33080.A0	28_11	279	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01070.00-B01071.00	30_13	167	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01068.00-B01093.00	28_13	502	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
B01065.00-B01068.00	28_13	278	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
V33142.00-V33143.00	28_12	277	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01063.00-B01065.00	28_13	247	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ2									
V33080.C0-V33080.D0	28_11	315	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01061.00-B01062.00	28_14	404	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3							
B01058.00-B01060.00	28_14	479	12											WQ1	WQ2	WQ3							
B01031.E0-B01031.F0	30_13	333.6	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B10085.00-B10089.00	25_16	268	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7					WQ2	WQ3							
V35213.00-V35214.00	32_12	240	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35211.00-V35212.00	32_12	332	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35207.00-V35208.00	32_12	498	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35203.00-V35204.00	33_12	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15111.00-B15112.00	27_12	247	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V22126.00-V22127.00	19_13	154	8											WQ1	WQ2								
B01037.00-B01038.00	30_13	326	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01036.00-B01037.00	30_13	325	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01035.00-B01036.00	30_13	263	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01034.00-B01035.00	30_13	334	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01032.00-B01033.00	30_13	240.05	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01028.00-B01030.00	30_13	364.57	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35204.00-V35205.00	32_12	496	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V36T020.00-V36T019.00	35_05	304	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V36T018.00-V36T017.00	35_05	400	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V36T017.00-V36T016.00	35_04	491	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V36T016.00-V36T015.00	35_04	163	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V36T015.00-V36T014.00	35_04	247	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
B15114.00-B15127.00	25_13	479	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32052.00-V32T075.00	21_09	40	8													WQ3							
V32T011.00-V32T010.00	23_01	103	36											WQ1	WQ2	WQ3							
V16042.00-V16043.00	17_14	425	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V16043.00-V16044.00	17_14	252	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30057.CD-V30057.C0	21_11	259	8											WQ1	WQ2	WQ3							

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
B14300.00-B14301.00	27_14	397	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3							
B10091.00-B10092.00	25_16	221	8													WQ3							
B10083.00-B10084.00	25_16	236	12													WQ3							
V12118.00-V12119.00	19_12	185	18													WQ3							
V12117.00-V12118.00	19_12	297	18													WQ3							
V12115.00-V12119.00	19_12	427	8													WQ3							
V12114.00-V12115.00	19_12	174	8													WQ3							
V12113.00-V12115.00	19_12	210	8													WQ3							
V12112.00-V12113.00	19_12	531	8													WQ3							
V36T028.00-V36T027.00	35_06	718	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V36T027.00-V36T026.00	35_06	139	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V32T209.00-V32T208.00	23_05	175	27											WQ1	WQ2								
V27011.00-V26001.00	21_15	204	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V27010.00-V27011.00	21_15	160	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V26003.00-V26009.00	21_15	187	8													WQ3							
V26008.00-V26009.00	21_15	177	8													WQ3							
V26009.00-V26010.00	21_15	318	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
B08043.00-B08048.00	26_15	213	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08108.00-B07059.00	27_14	233	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V22127.00-V22128.00	19_13	165	8											WQ1	WQ2								
B15110.00-B15111.00	27_12	500	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24063.00-V24064.A0	19_12	536	6											WQ1	WQ2	WQ3							
B08018.A0-B08018.B0	26_15	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08018.00-B08019.00	26_15	337	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V05088.00-V05092.00	20_10	155	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15264.00-B15265.00	28_13	190	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33086.00-V33087.00	29_10	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33082.00-V33083.00	28_10	320	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24054.B0-V24054.G0	21_13	160	6													WQ3							
B04055.00-B04056.00	27_16	242	10											WQ1	WQ2								
V29049.00-V32T094.00	20_11	303	8											WQ1	WQ2	WQ3							
B04041.00-B04042.00	27_16	233	8											WQ1	WQ2	WQ3							
B15329.00-B15330.00	28_12	498.4	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15321.00-B15322.00	28_12	171	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15318.00-B15329.00	28_12	219.35	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15303.00-B15304.00	28_12	305.31	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15324.00-B15325.00	28_12	442.14	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15314.00-B15315.00	28_12	336.61	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15312.00-B15313.00	28_12	221.76	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15308.00-B15307.00	28_12	284.12	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15306.00-B15305.00	28_12	264.34	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15297.00-B15298.00	27_12	362	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
B15287.00-B15288.00	28_12	397	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15285.00-B15286.00	27_12	268	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15270.00-B15278.00	27_12	426	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V05104.00-V05105.00	21_11	343	8											WQ1	WQ2								
V05100.00-V05101.00	21_10	386	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V05098.00-V05099.00	21_10	258	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15258.00-B15259.00	27_13	361	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15253.00-B15254.00	27_13	385	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15247.00-B15251.00	27_13	383	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15241.00-B15242.00	27_12	226.9	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15238.00-B15239.00	27_12	296.38	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B07073.00-B07074.00	28_14	296	18											WQ1	WQ2	WQ3							
B07070.00-B07071.00	28_14	226	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
B07063.00-B07064.00	27_14	247	8													WQ3							
B10089.00-B10092.00	25_16	342	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7					WQ2	WQ3							
V21180.00-V21181.00	18_14	324	12													WQ3							
V35089.00-V35091.00	31_13	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35087.00-V35088.00	30_13	371	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35061.00-V35063.00	31_14	529	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35056.00-V35057.00	31_14	310	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35054.00-V35055.00	30_14	348	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B10084.00-B10085.00	25_16	290	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7					WQ2	WQ3							
V35120.00-V35121.00	32_13	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33013.00-V33118.00	28_10	219	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33010.00-V33011.00	28_10	354	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33008.00-V33009.00	27_10	143	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33006.00-V33007.00	28_10	345	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33004.00-V33005.00	28_10	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33001.00-V33002.00	28_10	359	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24054.H0-V24054.I0	21_13	92	6													WQ3							
V35112.00-V35114.00	32_13	340	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35110.00-V35111.00	32_13	207	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34084.00-V34085.00	31_12	251	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34078.00-V34079.00	31_12	234.58	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34076.00-V34077.00	31_12	236	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35064.00-V35065.00	31_14	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B04047.00-B04048.00	27_16	280	8											WQ1	WQ2	WQ3							
OV5081.00-OV5083.00	13_11	348	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6		BIO8	BIO9	BIO10										
V34070.00-V34071.00	31_12	227	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34063.00-V34065.00	31_12	346.89	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34057.00-V34058.00	31_12	276	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15260.00-B15263.00	27_13	146	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
B07059.00-B07065.00	27_14	570	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3							
B04040.00-B04041.00	27_16	160	8											WQ1	WQ2								
V35109.00-V35125.00	32_13	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35108.00-V35109.00	31_13	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01111.A0-B01111.B0	30_12	223.59	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35101.00-V35102.00	32_13	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35098.00-V35099.00	31_13	266	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B12042.00-B12043.00	22_18	256	8													WQ3							
B12030.00-B12031.C0	22_18	384	8													WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35024.00-V35025.00	31_14	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35022.00-V35023.00	31_14	296	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B09088.00-B09089.00	26_16	293	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B14301.00-B14302.00	27_14	353	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B14302.00-B07059.00	27_14	292	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3							
B07071.00-B07072.00	28_14	213	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
B07072.00-B07073.00	28_14	378	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
B07064.00-B07065.00	27_14	80	8													WQ3							
B07065.00-B07066.00	27_14	220	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2								
B07066.00-B07069.00	27_14	344	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3							
B07069.00-B07070.00	28_14	255	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
B07068.00-B07069.00	27_14	26	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
B07067.00-B07069.00	27_14	23	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
B08021.00-B08028.00	26_15	245	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08019.00-B08020.00	26_15	340	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08013.00-B08014.00	25_15	222	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08011.00-B08012.00	25_15	336	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B10088.00-B10089.00	25_16	71	8													WQ3							
V32019.00-V32020.00	21_10	345	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24035.00-V24036.00	20_12	527	6													WQ3							
V22159.00-V22161.00	19_12	162	18											WQ1	WQ2								
V24052.B0-V24052.C0	21_13	360	15													WQ3							
V24054.M0-V24054.N0	21_13	239	8													WQ3							
V24054.N0-V24054.O0	21_13	130	8													WQ3							
V24056.00-V24057.00	20_12	18	12											WQ1	WQ2	WQ3							
V24057.00-V24058.00	20_12	102	12											WQ1	WQ2	WQ3							
V24059.00-V24060.00	20_12	149	12											WQ1	WQ2	WQ3							
V24065.00-V24066.00	19_12	146	6													WQ3							
B15051.00-B15052.00	26_11	165	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34105.00-V34106.00	32_11	346	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34100.00-V34101.00	32_12	275	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34055.00-V34056.00	31_12	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34052.00-V34053.00	30_12	248.28	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V34038.00-V34039.00	30_13	210	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34033.00-V34034.00	30_12	265	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34031.00-V34032.00	30_12	254.54	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34027.00-V34028.00	30_12	242	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34024.00-V34025.00	30_12	254.14	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34019.00-V34020.00	30_12	227	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34017.00-V34018.00	30_12	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34012.00-V34013.00	30_12	292.64	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34008.00-V34009.00	29_12	275.05	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34007.00-V34008.00	29_12	299.17	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34004.00-V34006.00	30_12	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34003.00-V34015.00	29_12	316.05	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34001.00-V34002.00	29_12	348.54	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33169.00-V33171.00	28_12	322	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33165.00-V33166.00	29_12	355.93	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33163.00-V33164.00	28_12	325.39	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33160.00-V33161.00	28_13	345.84	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33156.00-V33173.00	29_12	346	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33149.00-V33150.00	29_11	445	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33148.00-V33149.00	29_11	446	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33146.00-V33148.00	28_11	381	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33137.00-V33140.00	27_12	304	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33136.00-V33137.00	27_12	251	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33130.00-V33131.00	28_11	324	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33121.00-V33123.00	28_11	335	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33109.00-V33110.00	28_11	247	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33107.00-V33108.00	28_11	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33105.00-V33106.00	28_11	339	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33100.00-V33101.00	28_11	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33099.00-V33102.00	28_11	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33097.00-V33098.00	29_11	263	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33093.00-V33095.00	29_10	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33092.00-V33103.00	28_10	175	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B04102.00-B04103.00	28_15	40	8											WQ1	WQ2								
B04103.00-B04104.00	28_15	230	8											WQ1	WQ2								
B04104.00-B04105.00	28_15	201	8											WQ1	WQ2	WQ3							
B10094.00-B08022.00	25_15	264	12													WQ3							
B13231.00-B08022.00	25_15	317	10													WQ3							
B08022.00-B08024.00	25_15	344	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV2025.A0-OV2025.B0	23_09	306.01	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V01052.00-V01056.00	22_07	364	10											WQ1	WQ2								
V01005.00-V01006.00	22_07	163.363	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

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Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
B12087.00-B12088.00	22_18	396	8													WQ3							
B12063.00-B12064.00	22_18	295	8													WQ3							
B12062.00-B12063.00	22_18	337	8													WQ3							
B02066.00-B02067.00	28_15	195	8											WQ1	WQ2	WQ3							
B02067.00-B02068.00	28_15	23	8											WQ1	WQ2	WQ3							
B15328.A0-B15328.B0	28_12	266.7	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15328.E0-B15328.F0	28_12	215.88	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33144.00-V33146.00	28_11	346	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33151.00-V33152.00	29_12	453	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V09035.00-V09046.00	18_11	290	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V22099.00-V22145.00	19_12	413	10											WQ1	WQ2								
V24014.00-V24015.00	21_13	250	6													WQ3							
V24085.00-V24086.00	20_12	221	6											WQ1	WQ2								
V24086.00-V24088.00	20_12	254	6											WQ1	WQ2								
B04046.00-B04058.00	27_16	148	8											WQ1	WQ2	WQ3							
V03174.A0-V03174.B0	21_09	184	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03183.00-V03184.00	21_09	362	8													WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03184.00-V03187.00	21_09	106	8													WQ3							
V03186.00-V03187.00	21_08	126	8													WQ3							
V03185.G0-V03185.00	21_08	306	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03166.00-V03167.00	21_08	396	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03166.B0-V03166.00	21_08	388	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04019.00-V04023.00	20_10	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04020.00-V04021.00	20_10	140	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08051.00-B08052.00	26_15	371.869	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08030.00-B08032.00	26_15	365	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V16050.00-V21192.00	17_13	577.53	18														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V21192.00-V21193.00	17_13	233	18											WQ1	WQ2								
V21193.00-V21194.00	18_13	230	18											WQ1	WQ2								
V21188.B0-V21188.C0	18_13	203.02	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B07074.00-B01061.00	28_14	252	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
B01060.00-B01061.00	28_14	112	12											WQ1	WQ2	WQ3							
B15010.B0-B15010.C0	26_11	292	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01062.00-B01063.00	28_14	499	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2								
B04096.00-B04097.00	28_16	310	6											WQ1	WQ2	WQ3							
V01021.B0-V01021.C0	22_07	300	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V01021.00-V01022.00	22_07	282	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V01055.00-V01056.00	22_08	110	8											WQ1	WQ2								
V01054.00-V01055.00	22_08	206	8											WQ1	WQ2								
V01053.00-V01054.00	22_08	190	8											WQ1	WQ2								
V19114.00-V19115.00	17_14	300	6														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35205.00-V35206.00	32_12	317	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V03164.00-V03165.00	21_08	351	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03185.B0-V03185.D0	21_08	295	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03154.00-V03155.00	21_08	330	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5151.00-OV5152.00	13_10	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5149.00-OV5150.00	13_11	300	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5143.00-OV5144.00	14_10	239.42	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5141.00-OV5142.00	14_11	320	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5124.00-OV5125.00	14_11	284	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5079.00-OV5080.00	13_11	337	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6		BIO8	BIO9	BIO10										
OV5080.00-OV5081.00	13_11	349	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5132.00-OV5133.00	14_11	204	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5037.00-OV5039.00	14_13	440.96	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B02037.00-B02038.00	28_15	30	8											WQ1	WQ2								
B15001.B0-B15001.C0	26_11	144.04	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02091.00-V02092.00	21_08	250	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02080.00-V02081.00	21_08	336	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02085.00-V02097.00	22_08	351	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02095.00-V02096.00	21_08	349	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03172.00-V03173.00	21_09	332	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03175.00-V03176.00	21_09	267	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03180.00-V03181.00	21_09	349	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V11004.00-V11005.00	14_12	328	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V13011.00-V13013.00	17_13	205	6														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04080.00-V04081.00	21_09	251	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V17057.00-V17058.00	16_14	392	10													WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V17067.00-V17068.00	16_14	350	8													WQ3							
V17068.00-V17069.00	16_14	276	10													WQ3							
V17069.00-V17070.00	16_14	300	10													WQ3							
V12019.00-V12020.00	17_13	173	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08093.00-B08094.00	27_15	120	15													WQ3							
B08092.00-B08093.00	27_15	369	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V04076.00-V04077.00	21_09	178	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04068.00-V04069.00	20_10	145	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04071.00-V04072.00	20_09	375	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V06008.00-V06009.00	19_10	374	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V10010.00-V10011.00	16_11	270	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26002.00-V26003.00	21_15	170	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
B10093.00-B10094.00	25_16	349	12													WQ3							
B10092.00-B10093.00	25_16	310	12													WQ3							
B08070.00-B08071.00	26_15	270	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08064.00-B08066.00	26_15	484	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08062.00-B08063.00	26_15	360.719	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V32042.00-V32043.00	21_09	26	8											WQ1	WQ2	WQ3							
V15121.00-V16048.00	17_13	397	8													WQ3							
V15112.00-V16050.00	17_13	461	12													WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V15111.00-V15112.00	17_13	400	12													WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V10020.00-V10021.00	15_11	175	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26217.00-V26227.00	22_13	45	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6														
V26185.00-V26186.00	21_14	178	8													WQ3							
B08091.00-B08092.00	27_15	100	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V32036.00-V32037.00	21_10	64	10													WQ3							
V32021.00-V32022.00	22_10	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B10075.00-B10076.00	25_16	413	12													WQ3							
B10074.00-B10075.00	25_16	321	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7					WQ2								
B10072.00-B10073.00	24_16	293	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7					WQ2								
V19026.00-V19027.00	15_15	305	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30056.00-V30057.C0	21_11	454	10													WQ3							
V29031.00-V29032.00	20_11	310	8													WQ3							
V25072.00-V25077.00	21_13	376	8													WQ3							
V17070.00-V17071.00	16_14	317	10													WQ3							
V18011.00-V18012.00	15_15	148	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30056.A0-V30056.00	21_11	291	10											WQ1	WQ2								
V26190.00-V26191.00	21_13	365	8													WQ3							
V25068.00-V25071.00	21_13	347	8													WQ3							
V22151.00-V22152.00	18_13	214	8											WQ1	WQ2	WQ3							
V22148.00-V22149.00	18_13	486	18														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V22123.00-V22124.00	19_13	364	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V25071.00-V25072.00	21_13	347	8													WQ3							
V26010.00-V26017.B0	21_15	233	8													WQ3							
V15105.00-V15106.00	16_14	293	12													WQ3							
B08094.00-B08095.00	27_15	120	15													WQ3							
V13043.00-V13044.00	18_12	302	6														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V13040.00-V13041.00	17_12	333	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26189.00-V26190.00	21_13	387	8													WQ3							
V26188.00-V26189.00	21_13	212	6													WQ3							
V21045.00-V21058.00	18_15	350	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24054.I0-V24054.J0	21_13	44	6													WQ3							
V15110.00-V15111.00	17_14	359	12													WQ3							
V15117.00-V15118.00	17_14	360	8													WQ3							
V15118.00-V15119.00	17_14	330	8													WQ3							
B08097.00-B08098.00	27_15	113	15													WQ3							
B08096.00-B08097.00	27_15	258	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
B08095.A0-B08095.00	27_15	122	8													WQ3							
V26191.00-V26236.00	21_13	363	8													WQ3							

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V32046.00-V32047.00	21_10	322	8											WQ1	WQ2	WQ3							
V32043.00-V32044.00	21_10	106	8											WQ1	WQ2	WQ3							
V32118.00-V32119.00	22_09	293.791	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32006.00-V32007.00	21_10	278	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30057.C0-V30057.00	21_11	353	10											WQ1	WQ2	WQ3							
V32120.00-V32121.00	21_09	399	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V20007.00-V20013.00	18_16	345	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V20014.00-V20015.00	18_16	205	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V20001.00-V20002.00	18_16	215	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08098.00-B08099.00	27_14	249	15													WQ3							
V24018.00-V24031.00	20_12	109	6													WQ3							
V24017.00-V24018.00	20_12	41	6													WQ3							
V22161.00-V22162.00	19_12	169	18											WQ1	WQ2								
V12119.00-V12120.00	19_12	335	18													WQ3							
V30048.00-V30049.00	22_11	310.4	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V29066.00-V29067.00	21_12	260	8											WQ1	WQ2								
V28134.00-V28135.00	21_13	373	6													WQ3							
V28092.00-V28127.00	21_13	505	6													WQ3							
V25077.00-V25078.00	21_13	375	8													WQ3							
V25057.00-V25078.00	21_13	306	8													WQ3							
V26223.00-V26225.00	22_13	125	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6														
B08095.00-B08096.00	27_15	225	15													WQ3							
V26026.00-V26029.00	22_14	362	8													WQ3							
V26018.00-V26026.00	22_14	270	8													WQ3							
V32114.00-V32115.00	22_09	318.35	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32029.00-V32030.00	21_10	300	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V28141.00-V28142.00	20_12	438	8													WQ3							
V29043.B0-V29043.C0	21_12	302	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26226.00-V26227.00	22_13	74	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6														
V26228.00-V26229.00	22_13	127	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6														
V26186.00-V26187.00	21_14	379	8													WQ3							
V28142.00-V28166.00	20_12	330	8													WQ3							
V24094.00-V24095.00	20_12	143	18													WQ3							
V24088.00-V24089.00	20_12	125	6											WQ1	WQ2	WQ3							
V24084.00-V24085.00	20_12	224	6											WQ1	WQ2								
V24083.00-V24084.00	20_12	226	6											WQ1	WQ2								
V24069.00-V24070.00	20_12	97	6											WQ1	WQ2	WQ3							
V24066.00-V24069.00	20_12	385	6											WQ1	WQ2	WQ3							
V24064.A0-V24064.00	19_12	536	6													WQ3							
V24064.00-V24066.00	19_12	257	6											WQ1	WQ2	WQ3							
V24061.00-V24062.00	20_12	121	12											WQ1	WQ2	WQ3							
V24060.00-V24061.00	20_12	347	12													WQ3							

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Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V24055.00-V24056.00	20_12	54	8											WQ1	WQ2								
V24049.00-V24050.00	20_12	252	6											WQ1	WQ2	WQ3							
V24039.A0-V24039.00	20_12	623	6											WQ1	WQ2	WQ3							
V24039.00-V24050.00	20_12	184	6											WQ1	WQ2	WQ3							
V24038.A0-V24038.00	19_12	526	6											WQ1	WQ2	WQ3							
V24038.00-V24039.A0	19_12	623	6											WQ1	WQ2	WQ3							
V24037.00-V24038.A0	19_12	526	6											WQ1	WQ2								
V24036.00-V24051.00	20_12	313	6													WQ3							
V24031.00-V24036.00	20_12	329	6													WQ3							
B03028.00-B03067.00	29_16	350	8											WQ1	WQ2								
V30050.B0-V30050.C0	22_10	346	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30044.00-V30050.00	22_11	363	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V28140.00-V28141.00	21_12	483	8													WQ3							
V28139.00-V28140.00	21_13	470	8													WQ3							
V28135.00-V28137.00	21_13	200	6													WQ3							
V28127.00-V28139.00	21_13	344	8													WQ3							
V28126.00-V28127.00	21_13	273	6													WQ3							
V26239.00-V26240.00	21_13	263	8													WQ3							
V24054.L0-V24054.M0	21_13	226	8													WQ3							
V24054.K0-V24054.L0	21_13	126	6													WQ3							
V22158.00-V22159.00	19_12	430	18											WQ1	WQ2								
V22157.00-V22158.00	19_12	426	18											WQ1	WQ2								
V22132.00-V22133.00	19_12	139	8											WQ1	WQ2								
V22131.00-V22132.00	19_13	403	8											WQ1	WQ2								
V22130.00-V22131.00	19_13	40	8											WQ1	WQ2								
V22129.00-V22130.00	19_13	177	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6			BIO9	BIO10	WQ1	WQ2								
V22128.00-V22129.00	19_13	197	8											WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32002.00-V32003.00	21_10	266	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26187.00-V26189.00	21_13	387	8													WQ3							
V25067.00-V25068.00	21_13	350	8													WQ3							
V21191.00-V21192.00	18_13	370	8											WQ1	WQ2								
V25066.00-V25067.A0	21_13	335	8													WQ3							
V25067.A0-V25067.00	21_13	335	8													WQ3							
B15070.00-B15071.00	27_11	352	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26241.A0-V26241.00	21_13	74	8													WQ3							
V26241.00-V26242.00	21_13	50	8													WQ3							
V26236.00-V26237.00	21_13	339	8													WQ3							
V32018.00-V32020.00	21_09	329	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V28095.00-V28097.00	21_12	383	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26030.00-V26070.00	22_14	242	8													WQ3							
V12064.00-V12065.00	18_13	150	6														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V12045.A0-V12045.B0	17_13	225	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

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Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V26071.00-V26072.00	22_14	232	8													WQ3							
V26070.00-V26071.00	22_14	232	8													WQ3							
V12051.00-V12053.00	18_13	251	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26177.00-V26182.00	22_14	321	8													WQ3							
V26175.00-V26176.00	22_14	321	8													WQ3							
V26073.00-V26087.00	22_14	244	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V26072.00-V26073.00	22_14	240	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V22146.00-V22147.00	18_13	223	6											WQ1	WQ2								
V21195.00-V21196.00	18_13	298	18											WQ1	WQ2								
B15116.00-B15117.00	25_13	253	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15066.00-B15067.00	27_11	326	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V28144.00-V28145.00	21_12	305	6														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26182.00-V26183.00	22_14	291	8													WQ3							
V26183.00-V26185.00	21_14	291	8													WQ3							
B15054.00-B15055.00	27_11	354	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26184.A0-V26184.00	22_14	292	8													WQ3							
V26237.00-V26241.00	21_13	375	8													WQ3							
V26224.00-V26225.00	22_13	120	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6														
V26222.00-V26223.00	22_13	30	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6														
V25050.00-V25051.00	20_13	246	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26225.00-V26226.00	22_13	102	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6														
V26181.00-V26182.00	22_14	206	8													WQ3							
V21056.00-V21057.00	18_15	363	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V27009.00-V27010.00	21_15	310	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V26001.00-V26002.00	21_15	333	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
V26017.B0-V26017.00	21_15	233	8													WQ3							
V26017.00-V26018.00	21_15	176	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3							
B15127.00-B15128.00	25_12	334	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V22150.00-V22151.00	18_13	169	8											WQ1	WQ2								
B15109.00-B15110.00	26_12	350	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30051.A0-V30051.B0	22_11	223.2	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T088.00-V32T087.A0	21_11	12	30											WQ1	WQ2	WQ3							
V32T087.A0-V32T087.00	21_11	233	30											WQ1	WQ2	WQ3							
V29048.00-V29049.00	21_11	202	8													WQ3							
B14298.00-B14299.00	26_14	406	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B02065.00-B02066.00	28_15	191	8											WQ1	WQ2								
B02064.00-B02065.00	28_15	72	8											WQ1	WQ2								
B02063.00-B02064.00	28_15	163	8											WQ1	WQ2								
B02038.00-B02039.00	28_15	200	8											WQ1	WQ2	WQ3							
V28166.00-V28167.00	20_12	166	8											WQ1	WQ2	WQ3							
B15063.00-B15064.00	27_11	312	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15059.00-B15062.00	27_11	197	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

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Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
V32T065.00-V32T064.00	22_08	407	36											WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T064.00-V32T063.00	22_08	474	36											WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T063.00-V32T062.00	22_08	605	36											WQ1	WQ2								
V32T062.00-V32T061.00	22_08	553	36											WQ1	WQ2								
V32T061.00-V32T060.00	22_07	301	36											WQ1	WQ2								
V32T060.00-V32T059.00	22_07	550	36											WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T059.00-V32T058.00	23_07	431	36											WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T058.00-V32T057.00	23_07	443	36											WQ1	WQ2								
V32T057.00-V32T056.00	23_07	443	36											WQ1	WQ2								
V32T056.00-V32T055.00	23_07	443	36											WQ1	WQ2								
V32T054.00-V32T053.00	23_06	323	36											WQ1	WQ2								
V32T052.00-V32T051.00	23_06	362	36											WQ1	WQ2								
V32T051.00-V32T050.00	23_06	466	36											WQ1	WQ2								
V24030.00-V24031.00	20_12	188	6													WQ3							
V24016.00-V24017.00	20_12	346	6													WQ3							
V24013.00-V24016.00	20_12	133	6													WQ3							
V24015.00-V24016.00	20_12	717	6													WQ3							
V22145.00-V24090.00	19_12	413	10											WQ1	WQ2								
V12116.00-V12117.00	19_12	296	18													WQ3							
V21196.00-V22147.00	18_13	358	18											WQ1	WQ2								
B14282.00-B14300.00	27_14	190	15														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V12112.F0-V12112.G0	19_13	346	8											WQ1	WQ2								
V30060.00-V30061.00	21_11	24	10													WQ3							
V30059.00-V30060.00	21_11	162	10											WQ1	WQ2	WQ3							
V30058.00-V30059.00	21_11	147	10											WQ1	WQ2	WQ3							
V30057.00-V30058.00	21_11	462	10											WQ1	WQ2	WQ3							
V32T092.A0-V32T091.00	21_11	440	30											WQ1	WQ2	WQ3							
V05048.00-V05091.A0	21_11	153	12													WQ3							
V05105.00-V05106.00	21_11	230	10											WQ1	WQ2	WQ3							
V05106.00-V32T090.00	21_11	9	10													WQ3							
V32T090.00-V32T089.00	21_11	70	30													WQ3							
V32T084.00-V32T083.00	21_10	457	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6		BIO8	BIO9	BIO10	WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T083.00-V32T083.A0	21_10	477	36											WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T083.A0-V32T082.00	21_10	120	36											WQ1	WQ2	WQ3							
V04031.00-V32T082.00	21_10	197	8											WQ1	WQ2	WQ3							
V32T082.00-V32T081.00	21_10	383	36											WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15013.00-B15014.00	27_10	388	8											WQ1	WQ2								
V32T081.00-V32T080.00	21_10	461	36											WQ1	WQ2								
V32T079.00-V32T078.00	21_09	403	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2								
V32T078.00-V32T077.00	21_09	161	36											WQ1	WQ2	WQ3							
V04081.00-V32T078.00	21_09	240	8											WQ1	WQ2								
V32T077.00-V32T076.00	21_09	150	36											WQ1	WQ2	WQ3							

Table S-3
Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																		
				Biological Resources										Hydrology and Water Quality			Cultural Resources					
V32T076.00-V32T075.00	21_09	153	36											WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T075.00-V32T074.00	21_09	323	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
V32T074.00-V32T073.00	21_09	341	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
V32T073.00-V32T072.00	21_09	443	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T072.00-V32T071.00	21_09	112	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
V32T071.00-V32T070.00	21_09	464	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
V32T070.00-V32T069.00	21_09	464	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
V32T069.00-V32T068.00	21_09	398	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T068.00-V32T067.00	21_08	397	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8			WQ1	WQ2	WQ3							
V32T067.00-V32T066.00	22_08	499	36											WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T066.00-V32T065.00	22_08	483	36											WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B12003.W0-B12003.X0	21_19	74.34	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T050.00-V32T049.00	23_06	350	36											WQ1	WQ2								
V32T049.00-V32T048.00	23_06	200	36											WQ1	WQ2								
V32T048.00-V32T047.00	23_06	468	36											WQ1	WQ2								
B15010.00-B15011.00	26_11	375	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15004.00-B15005.00	26_11	245	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15002.00-B15009.00	26_11	354	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02082.00-V02083.A0	22_08	289	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15001.00-B15002.00	26_11	426	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T096.00-V32T097.A0	20_11	341	24											WQ1	WQ2	WQ3							
V32T086.00-V32T085.00	21_10	374	30											WQ1	WQ2	WQ3							
V01056.00-V32T228.00	22_08	190	10											WQ1	WQ2								
V24054.A0-V24054.B0	21_13	268	6													WQ3							
V04028.D0-V04028.00	20_10	293	6														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V12068.00-V12112.D0	18_13	142	10													WQ3							
V22156.00-V22157.C0	19_13	196	18													WQ3							
V32T395.00-V32T095.A0	20_11	70	33											WQ1	WQ2	WQ3							
V32T095.A0-V32T094.00	20_11	28	33													WQ3							
V08072.C0-V08072.A0	19_12	219.68	18														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V08072.CB-V08072.CD	19_12	267.55	18														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V29133.00-V32T410.00	20_11	259	8											WQ1	WQ2	WQ3							
V24096.A0-V24100.00	20_12	219	18											WQ1	WQ2	WQ3							
V08061.00-V08138.00	20_11	144	6													WQ3							
B01113.B0-B01113.C0	29_12	230.06	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34062.C0-V34062.D0	31_12	264.11	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35037.A0-V35037.B0	31_14	209.94	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35202.K0-V35202.L0	33_12	145.94	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35202.I0-V35202.J0	33_13	302.62	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01128.B0-B01128.00	29_12	314	6											WQ1	WQ2								
BTP001.00-BTP002.00	28_13	558.494	16														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
BTP002.00-BTP003.00	28_13	760	16											WQ1	WQ2								

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Significant Impacts and Mitigation

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																			
				Biological Resources										Hydrology and Water Quality			Cultural Resources						
BTP004.00-BTP005.00	29_12	1473	16											WQ1	WQ2								
BTPFM01-BTPFM02	29_12	2415.6	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

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INDEX	MITIGATION MEASURES
Biological Resources	
BIO-1	Construction monitoring shall be conducted in order to avoid unintended impacts to sensitive resources. A qualified biologist shall review construction techniques including the Storm Water Pollution Prevention Plan (SWPPP) and related Best Management Practices (BMPs), lighting, and construction timing in relation to breeding seasons. Marking of construction area limits with single-strand wire, high-visibility plastic construction fencing or high-visibility construction tape shall be included where sensitive biological resources are present. Marking devices shall be passable by wildlife if it is located within a wildlife corridor. Equipment laydown areas, vehicle turn-around areas, pads for the placement of large equipment and similar areas designated for construction activity shall be included within the marked disturbance area. A qualified biologist shall attend the pre-construction meeting, monitor construction on an as-needed basis, and shall have the authority to stop construction if permit conditions are not met. The biologist shall provide a construction monitoring report to the City within 90 days of completion of construction.
BIO-2	~~Avoidance of~~ Impacts to special-status species and habitats potentially supporting special-status species shall be avoided and minimized to the maximum extent practicable through project relocation, redesign, or specific construction techniques. Both permanent and temporary impacts shall be avoided or minimized; thus permanent access roads shall be located in the least environmentally damaging, practicable location and shall be of a minimum width. Construction techniques shall be selected based on both direct and indirect impacts to special-status biological resources are avoided or minimized to the maximum extent practicable, to the satisfaction of the City of Vista Planning Department.
BIO-3	For projects with the potential of impacting seasonally detectable plant species listed by the USFWS or CDFG, covered by a local HCP/NCCP, or listed by CNPS as List 1 or 2, focused surveys for such species shall be conducted at the appropriate time of year, depending on the species. Where feasible, avoidance and minimization of impacts to rare, threatened, or endangered plants will be employed. If avoidance and/or minimization of impacts cannot be achieved, tunneling and/or boring underneath sensitive plant populations shall be analyzed at the project level as potential mitigation measures to avoid or minimize impacts to sensitive plant species. Indirect impacts to plant species, including depletion of water and hydrologic regime quality, shall be avoided through the use of BMPs, including strict limitations for all construction and maintenance activities within the identified impact area. For unavoidable impacts, translocation or propagation of sensitive plant species shall be conducted. If translocation is not feasible, then offsite conservation of the sensitive plant species at a 4:1 ratio shall be implemented. Conservation shall include recordation of a conservation easement and implementation of a long-term management plan.
BIO-4	The Biological Resources Technical Report for a specific project component may suggest further study as to the presence/absence of threatened, endangered or otherwise sensitive species. Focused surveys shall occur in accordance with USFWS/CDFG protocols; impacts shall be documented in a report. This focused survey report shall include an analysis of impacts, both direct (*i.e.*, removal of habitat or species) and indirect (*i.e.*, noise disturbances), avoidance and minimization mechanisms, and mitigation measures. Mitigation for the identified direct impacts can be achieved through habitat replacement, as identified in mitigation

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	measures under Threshold of Significance No. 2. In addition to like habitat replacement, additional mitigation shall be required in order to reduce impacts to specific state- and federally-listed threatened or endangered species to below a level of significance. It should be noted that due to the state and/or federal listing status of the following species, a take authorization permit per the state and/or federal Endangered Species Act shall be necessary for project construction (unless the area of impact is within a jurisdiction with an adopted HCP/NCCP that includes take authorization for the species; if so, see mitigation measures under Threshold of Significance No. 5). Mitigation measures for state- or federally-listed species with a moderate to high likelihood to occur within some portion of the sewer master plan study area include the following: • *California gnatcatcher:* Should the biological resources technical report suggest California gnatcatcher habitat exists onsite, additional surveys, in accordance with federal protocols, shall be required to determine the exact location of nesting and foraging habitat. Survey results shall be documented in a focus species survey report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. All impacts to the federally-threatened California gnatcatchers shall be mitigated at a minimum 1:1 ratio (based on number of pairs impacted) and a 2:1 ratio (based on acreage of habitat impacted) (i.e. habitat that supports gnatcatchers must be mitigated through the conservation of like habitat at a minimum 2:1 ration and conserved habitat mustthat also supports the at least the same number of gnatcatcher pairs as being impacted All clearing and grubbing within suitable habitat shall occur outside the breeding season of the California gnatcatcher (*i.e.*, between February 15 and August 31) unless nesting surveys conducted within 72 hours confirm lack of breeding activity. In addition, prior to construction activities, a qualified biologist shall survey the preserved habitat areas adjacent to the project site (up to 500 feet) to determine if any gnatcatcher nests are within a distance potentially affected by noise from these activities. If no nesting gnatcatchers are located, no additional measures need to be taken to mitigate indirect impacts. However, if nesting coastal California gnatcatcher are observed, no activity shall occur without noise attenuation (e.g., noise barriers) to ensure that noise levels within occupied habitat do not exceed 60 dBA Leq. • *Western snowy plover, peregrine falcon, California brown pelican, Belding's savannah sparrow, golden eagle, white-tailed kite, light-footed clapper rail, California least tern, southwestern willow flycatcher and least Bell's vireo:* Should the Biological Resources Technical Report suggest applicable habitat for these species exists onsite, additional nesting bird surveys, in accordance with federal protocol, shall be required in the year that project grading or construction commences. Survey results shall be documented in a focus species survey report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. If any of these species are found, avoidance through appropriate construction techniques and facility maintenance activities shall be required (*i.e.*, avoidance of construction during nesting season or reduction of all noise impacts to a level below 60 CNEL in construction areas during the breeding season). Further, any permanent loss of nesting habitat for these bird species shall be mitigated at a 1:1 ratio of occupied habitat including the replacement of like habitat. Should purchase of off-

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	site habitat be the only option for mitigation, purchase shall occur in areas that supports at least a 1:1 ratio of the impacted species. The same noise mitigation described for the California gnatcatcher shall apply for indirect impacts to these nesting bird species within 500 feet of construction. • *Other State- of Federally-listed Wildlife Species:* All other state- or federally-listed wildlife species are considered to have low potential to occur within the sewer master plan study area due to lack of current documented occurrences in or near the study area. If any of these species is found within a project component site, avoidance of impacts will likely be required because the locality will likely represent an expansion in the range of highly threatened species and therefore would be a high priority for conservation.
BIO-5	For unavoidable temporary impacts to sensitive natural communities or riparian habitat, the habitat area shall be restored and conserved at a 1:1 ratio. Temporary impacts include areas where no future maintenance is required. A Conceptual Habitat Restoration Plan shall be prepared prior to construction. Such a plan shall be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan shall include, at a minimum: (a) assessment of the impact site and conservation potential (b) the plant species to be used (c) a schematic depicting the mitigation area (d) time of year that planting will occur (e) a description of the irrigation methodology (f) measures to control exotic vegetation on site (g) success criteria (h) a detailed monitoring and maintenance program (I) contingency measures shall be the success criteria not be met (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity
BIO-6	For unavoidable permanent impacts to sensitive natural upland communities, the habitat area shall be mitigated through the conservation (i.e., placement of conservation easement and implementation of long-term management plan) in accordance with the ratios below (unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction): (a) Coastal sage scrub (including disturbed coastal sage scrub and other associated upland scrub species): 2:1 (b) Southern Mixed Chaparral: 2:1 (c) Native Grasslands: 3:1 (d) Non-native Grasslands: 0.5:1 (e) Oak Woodlands: 3:1 (f) Maritime Succulent Scrub/Maritime Chaparral: 3:1

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	For project segments that are constructed in jurisdictions where an HCP/NCCP Subarea Plan has yet to be adopted, impacts to moderate or high-value coastal sage scrub habitat occupied by the coastal California gnatcatcher will require an Interim Habitat Loss Permit (HLP) in accordance with Section 4(d) of the federal Endangered Species Act (ESA). Impacts to unoccupied, low-value habitat of less than 1.0 acre, will require and HLP Exemption. Either scenario requires mitigation through one or more of the following options: acquisition and preservation of habitat, dedication of lands, management agreements, habitat restoration, payment of fees, transfer of development rights or other measures approved by CDFG or USFWS. Mitigation by off-site land acquisition must meet the following criteria: (1) contains existing coastal sage/maritime succulent scrub of sufficient size and habitat quality to match or exceed the value of the area to be affected; (2) is located adjacent to or in close proximity to publicly owned/preserve natural lands or planned natural open space; (3) contributes to the implementation of the applicable MHCP/NCCP and applicable conservation planning goals; (4) contains sensitive plant and animal taxa in numbers approximating those that will be affected and (5) is predominantly undisturbed in nature. The City of Vista's first priority or preference is to ensure that the conservation area(s) is/are within the City or its unincorporated areas. For lands within the City of Vista, credit authorization will be required from the City if CSS is affected. The City does not possesses credit under Section 4(d) of the ESA for the MHCP, which allocated interim take credits of CSS until the Subarea Plan is adopted. Therefore credits must be allocated by the County of San Diego through an exchange process administered by the County. This process generally involves payment of habitat acquisition fees or purchase of conservation of land in the County. <u>However, based on a November 2, 2007, letter, the USFWS has suspended interim take allowance under Section 4(d) for all MHCP participants, except the City of Oceanside. Based on this current suspension, interim take under Section 4(d), including take that involves that allocation of credits from the County of San Diego, is not allowed within the City of Vista. Until such time as interim take in reinstated or a subregional HCP/NCCP is adopted, any loss of coastal sage scrub would require evaluation under Section 7 or Section 10 of the federal ESA. Based on that evaluation, a Biological Opinion or Habitat Conservation Plan may be required.</u>
BIO-7	For projects affecting riparian areas or wetlands, mitigation for unavoidable permanent impacts shall be developed prior to project implementation pursuant to consultation and permitting requirements of the ACOE, RWQCB and CDFG for issuance of federal Clean Water Act Section 404/401 permits and state Section 1600 Streambed Alteration Agreements. Mitigation will be provided through habitat creation/restoration (at a minimum 1:1 ratio) and additional habitat creation/restoration or enhancement, as required. Habitat creation/restoration and/or enhancement will be outlined in a Conceptual Wetlands Mitigation and Monitoring Plan that shall include, at a minimum the following components: (a) assessment of the mitigation site and conservation potential (b) the plant species to be used (c) a schematic depicting the mitigation area (d) time of year that planting will occur (e) a description of the irrigation methodology

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	(f) measures to control exotic vegetation on site (g) success criteria (h) a detailed monitoring and maintenance program (I) contingency measures shall be the success criteria not be met (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity k) preparation of a cost estimate for installation (typically a 120-day period), initial maintenance and monitoring (typically a 5-year period), and long-term maintenance, monitoring, and management (in perpetuity) for the mitigation site Unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction, the following mitigation ratios (including a minimum 1:1 habitat creation/restoration, with the remainder satisfied through creation/restoration or enhancement) shall apply to each type of disturbed habitat (ACOE or CDFG may require additional mitigation through the permitting process): (a) Intertidal, tidal, tidal marsh, and mudflats: 4:1 (b) Southern willow scrub, southern sycamore-alder riparian, southern riparian scrub, southern cottonwood-willow riparian, south coast live oak riparian and other woody-riparian habitats: 3:1 (c) Mulefat scrub and alkali marsh:2:1 (d) Freshwater marsh, unvegetated stream channels, open water: 1:1
BIO-8	If a project component is located within a wildlife movement corridor, construction shall be timed in such a manner as to reduce potential impacts to wildlife. Depending on the species using the area, construction hours may be restricted, noise may be capped at 60 dB during peak movement periods or in cases where the entire corridor is temporarily blocked, an alternative passage route will be established. Design of these mitigation measures shall occur through the consultation of a qualified biologist.
BIO-9	Currently the only local policy or ordinance protecting biological resources is within the City of Carlsbad through the HMP Implementation Ordinance. As such, project components with the HMP area shall demonstrate compliance with the HMP conservation provisions and acquire an HMP permit from the City of Carlsbad.
BIO-10	Biological Resources Technical Reports for project components that may affect natural vegetation shall evaluate affects on the adopted MHCP. Although the cities of Vista, Oceanside and San Marcos have not adopted Subarea Plan or received take authorization, project components shall be designed in a manner which does not preclude the assemblage of regional preserves in compliance with the adopted MHCP. Project components may require redesign or limited permanent access routes in order to meet MHCP regional preserve design goals and objectives.
Cultural Resources	
CULT-1	An archaeological survey of each project component identified in *Table S-1* shall be completed by a qualified archaeologist. This survey shall include a review of records information or an updated records search to locate all previously recorded archaeological sites within the project area. Any historic or prehistoric sites identified during the survey shall be recorded at the South Coastal Information Center, or, if already recorded, updated forms shall be submitted.
CULT-2	If the pipeline or related construction activities will potentially impact an archaeological site, a testing program shall be required to

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	fully record the resources, and to evaluate the site. The testing program shall include mapping of all site features and artifacts, and subsurface excavations (shovel test pits or test units) to search for subsurface deposits of cultural materials and assess the content of the deposits. Related laboratory work shall be conducted to treat the materials that are recovered from any archaeological investigations.
CULT-3	A technical report shall be prepared that presents all of the information gathered from the survey and any site investigations. The report shall identify any significant cultural resources and evaluate the potential impacts to those resources. If any site evaluated as significant will be impacted by a proposed project, additional mitigation measures shall be required to reduce the level of impacts. These mitigation measures shall include one of the following: • A data recovery program to recover sufficient cultural materials to exhaust the research potential of the site such that construction will no longer represent a source of adverse impacts; or, • Demonstration that the construction corridor can be relocated away from the significant cultural site(s), thereby avoiding significant effects.
CULT-4	Implementation of mitigation measures must be part of the conditions of approval of any pipeline or facilities improvement project that is identified as potentially impacting significant cultural resources. Data recovery shall be employed whenever a grading or trenching project will directly impact an archaeological site. This process shall include the excavation of a sufficiently large percentage of a subsurface deposit that the research potential of the deposit will be exhausted. Typically, a 5 to 15 percent sample within the trench corridor will be required to complete the data recovery process. Laboratory analysis and research will also be conducted to catalog and analyze all materials and to interpret the data.
CULT-5	Indirect impacts may be identified for pipeline projects where the actual grading and trenching are situated adjacent to a significant resource. In cases where construction activities intrude into sites by construction equipment, impacts may be mitigated by placing a temporary fence around the site to curtail any intrusions into the site area. Indirect impacts must be addressed during the initial archaeological survey and testing phase of work, with measures adopted as conditions of approval.
CULT-6	Project components that pass through or near recorded archaeological sites or which will be constructed through areas where resources may be encountered shall require archaeological monitoring. Monitoring of construction grading and trenching will facilitate the identification of any unrecorded resources uncovered by the excavation process. In the event that such resources are discovered, work at that location shall be suspended while the archaeological deposit is evaluated. If this evaluation process confirms the deposit is significant, mitigation measures will be required to complete a data recovery program. Any mitigation measures must be approved by the City before implementation.
CULT-7	If human remains are encountered on the project site, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a Most Likely Descendant can be designated.

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Hydrology and Water Quality	
WQ-1	The mitigation measure listed below shall be implemented in order to reduce impacts to 303(d) listed water bodies • Potential water quality impacts to 303(d) listed water bodies will be assessed as part of project level water quality analyses for each individual project component with a potential to affect these water bodies.
WQ-2	Mitigation measures listed below shall be implemented in order to reduce impacts to jurisdictional waters • Prior to construction, the City of Vista shall obtain all necessary permits to comply with the federal Clean Water Act, state discharge permitting requirements, and local grading ordinances. Copies of each permit shall be maintained at the project site for the duration of construction. • Biological Resources mitigation measure BIO-7 provides mitigation for projects affecting federally protected wetlands. This mitigation measure also applies in order to reduce impacts to jurisdictional waters. See *Section 4.3, Biological Resources.*
WQ-3	For projects proposed within the 100-year floodplain, a scour analysis of the floodplains associated with the Buena Vista and Agua Hedionda Creeks shall be completed during final project design to determine the likelihood for washout of a pipeline or project facility during a flood event. Design and construction specification of the pipeline will incorporate recommendation from the report to ensure that potential impacts from scouring do not comprise the integrity of the pipeline.

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For the geographic location of pipeline components, all pipeline components identified as resulting in potentially significant environmental impacts (see *Table S-3*) are linked to the City of Vista's Sewer Atlas. The Sewer Atlas provides a precise map of the entire City of Vista and Buena Sanitation District sewer system. A hard copy of the Sewer Atlas is available at the City of Vista Engineering Department or available online at the following URL address:

http://www.cityofvista.com/departments/engineering/GISSewerAtlas.cfm

The following 3 steps should be followed in order to pinpoint the exact location of a pipeline component identified in *Table S-3*:

1. Locate the Sewer Atlas Map Page (via the URL above)
2. If the sewer sub-basin (1st three characters) is shown on the sheet, look within its boundaries to locate the manhole numbers (next three characters). The manhole number is also called the "node ID" in the Sewer Atlas.
3. If the sewer sub-basin is not on the map, call the City of Vista, Public Works, GIS Coordinator or engineering department at 760.726.1340.

Based on the analysis in *Chapter 4.0* and *Chapter 8.0,* project components identified in the 2008 Sewer Master Plan Update were found to not have significant impacts to Aesthetics; Air Quality; Agricultural Resources; Geology and Soils; Hazards and Hazardous Materials; Noise; Population and Housing; Public Services; Recreation; or Utilities and Service Systems. As such, these issue areas are not shown in *Table S-4*.

In addition, some issue areas are not shown in *Table S-3* because, for that issue area, either all project components would require site-specific studies, or the specific project components requiring additional studies cannot be determined at this program level of analysis. The additional issue areas and requirements presented as follows are incorporated into the overall project design and construction measures:

- For Geology and Soils, all project components would require site-specific geotechnical studies for engineering and design, which would determine the actual level of environmental impact to geology and soils.

- For impacts to Paleontological Resources, specific locations of potential impacts would be those locations considered to be high- to moderately sensitive in paleontological resources. This specific information would become available at the time of grading. Only those considered to be high- to moderately sensitive in paleontological resources would require additional investigation.

- For Hazards and Hazardous Materials, additional project-level analysis is required to determine the significance of potential hazard effects for all project components. Since hazardous materials sites are subject to changing conditions; e.g., closure of known sites, discovery of new hazardous materials sites, site leakages, and/or remediation of existing sites, it is not appropriate to make a significance determination at this program level of analysis. Details on the known hazardous materials locations would need to be investigated at the project level of analysis for individual project components to determine the specifics on location, type, and status of hazardous materials sites that may be affected.

- For Transportation and Traffic impacts, the City shall prepare a traffic control plan (TCP) implemented for all affected roadways for each project component. The TCP will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. The TCP will ensure that congestion and traffic delays are not substantially increased as a result of project construction and that any traffic impacts will be short-term in nature.

  Additionally, several project components would encroach within the SR-78 right-of-way. Determination of whether a project falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way, the following shall occur: The City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. This process will include submittal of project plans, review of plans by the respective authorities, possible revisions of the plans relative to concerns brought forth by the issuing agency and issuance of the respective permit. Potential permitting agencies include Caltrans, North County Transit District, cities, and the County of San Diego. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored.

ES.12 Standard Design Features and Construction Measures

In addition to the mitigation measures presented above, the City, through codes and standard design and construction practices, has incorporated project design features and construction measures into the project that help to reduce the potential for environmental effects. These measures apply to all project components (see *Appendix C*) including those determined not to result in a significant impact per CEQA. These measures are presented below in *Table S-5 Summary of Standard Project Design Features and Construction Measures* as discussed in *Section 2.0 Project Description* and are referenced throughout the impact discussions in *Section*

4.0 of this Program EIR. Throughout the PEIR including *Table S-5*, reference to the City of Vista means the City of Vista or the Buena Sanitation District, as applicable.

Construction would be performed by qualified contractors and contract documents, plans and specifications and would incorporate stipulations regarding standard City requirements and acceptable construction practices including, but not limited to, safety measures, vehicle operation and maintenance, excavation stability, erosion control, drainage alteration, groundwater disposal, traffic circulation, public safety, dust control and noise generation. Also, the project would be designed in accordance with State of California Building Code and applicable jurisdictional Municipal Code requirements.

Table S-5
Summary of Standard Project Design Features and Construction Measures

Aesthetics	• Demolition debris shall be removed in a timely manner for off-site disposal. • Tree and vegetation removal shall be limited to those depicted on construction drawings. • Construction lighting shall be shielded or directed away from adjacent residences.
Air Quality	• Water or dust control agents shall be applied to active grading areas, unpaved surfaces, and dirt stockpiles as necessary to prevent or suppress particulate matter from becoming airborne. All soil to be stockpiled over 30 days shall be protected with a secure tarp or tackifiers to prevent windblown dust. • Covering/tarping will occur on all vehicles hauling dirt or spoils on public roadways unless additional moisture is added to prevent material blow-off during transport. • Grading and other soil handling operations shall be suspended when wind gusts exceed 25 miles per hour. The construction supervisor shall have a hand-held anemometer for evaluating wind speed. • Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadway shall be swept or vacuumed and disposed of at the end of each workday to reduce resuspension of particulate matter caused by vehicle movement. During periods of soil export or import, when there are more than six trips per hour, dirt removal from paved surfaces shall be done at least twice daily. • Disturbed areas shall be revegetated as soon as work in the area is complete. • Electrical power shall be supplied from commercial power supply wherever feasible, to avoid or minimize the use of engine-driven generators. • Air filters on construction equipment engines shall be maintained in clean condition according to manufacturers' specifications. • The construction contractor shall comply with the approved traffic control plan to reduce non-project traffic congestion impacts. Methods to reduce construction interference with existing traffic and the prevention of truck queuing around local sensitive receptors shall be incorporated into this plan. • Staging areas for construction equipment shall be located as far as practicable from residences. • Trucks and equipment shall not idle for more than 15 minutes when not in service.
Biological Resources	• Native vegetation disturbance shall be limited to the construction zones as indicated by flagging or fencing. Prior to the commencement of construction, the limits of grading shall be clearly delineated by a survey crew prior to brushing, clearing, or grading. The limits shall be checked by a biological monitor before initiation of construction grading. The City shall be responsible to mitigate impacts to sensitive biological resources beyond those identified in this report or any subsequent reports that occur as a direct result of construction activities. • Erosion and siltation into off-site areas during construction shall be minimized. The City shall

Table S-5
Summary of Standard Project Design Features and Construction Measures

	prepare an erosion control plan in accordance with applicable local code requirements. The construction supervisor shall be responsible for ensuring that the erosion control plan is developed and implemented. • Appropriate post-construction fencing and signage shall be installed to prohibit access and avoid potential impacts to sensitive resources adjacent to project sites. • Lighting shall be diverted away from any native habitat and shall consist of low-sodium or similar lighting equipped with shields to focus light downward onto the appropriate subject. • Unless authorized as part of construction, existing roads or disturbed areas shall be used to access project sites. • Topsoil from the project sites shall be stockpiled within the construction sites where feasible. If topsoil from off-site construction must be stockpiled, it shall be stockpiled in disturbed areas. Stockpile areas shall be delineated on the grading plans and reviewed by a qualified biologist. • On-site staging areas shall be used where feasible. Staging areas shall be delineated on the grading plans and reviewed by a qualified biologist. If staging areas outside the construction footprint are used, then they shall be surveyed for biological resources prior to their use. • The use of native plants to the greatest extent feasible in the landscape areas adjacent mitigation or open space areas (including wetland and riparian areas) will be implemented. The City will not plant, seed, otherwise introduce invasive exotic plant species to the landscaped area(s). Exotic plant species not be used include those species listed on Lists A and B of the California Exotic Pest Plant Council's "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999." This list includes such species as pepper trees, pampas grass, fountain grass, ice plant, myoporum, black locust, and capeweed.
Cultural Resources	• Specific locations of potential impacts to paleontological resources would be those locations considered to be high- to moderately sensitive in paleontological resources. This specific information would become available at the time of grading. Only those considered to be high- to moderately sensitive in paleontological resources would require additional investigation. • A paleontological monitor shall be on site at all times during grading activities that disturb undocumented fill soils or underlying geologic formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until a complete assessment of the resources can be conducted.
Geology and Soils	• All segments of the 2008 Sewer Master Plan Update will be constructed in accordance with Uniform Building Code Standards and accepted standards for public works construction. These standards pertain to protection against seismic activity, settlement, liquefaction, and other integrity issues. • A Geotechnical Study shall be conducted during final design for all project components. Each respective component shall adhere to the findings of the Geotechnical study including recommendations regarding soil compaction and replacement.
Hazards and Hazardous Materials	• Fire safety information shall be disseminated to construction crews during regular safety meetings. Fire management techniques shall be applied during project construction as deemed necessary by the lead agency and depending on site vegetation and vegetation of surrounding areas. • A brush management plan will be incorporated during project construction by the City or its contractors, as necessary. Construction within areas of dense foliage during dry conditions will be avoided, when feasible. In cases where avoidance is not feasible, necessary brush fire prevention and management practices will be incorporated. Specifics of the brush management program will be determined as site plans for the project are finalized. • A site-specific record search for the locations and type of hazardous materials will be conducted during final design of the individual project components. • The use, storage, transportation, and disposal of chemicals and use of petroleum fuel during construction and operation of the project will be regulated by the County Department of

Table S-5
Summary of Standard Project Design Features and Construction Measures

	Hazardous Waste Management, and will be conducted according to all applicable state, federal and local regulations. • In order to ensure that the project does not cause a significant hazard to the public or the environment through release of or transport of hazardous materials during construction and operation, the City through its contractors will implement the following project design features: – Pipelines of the project components would be constructed with PVC pipe, or other material, which is highly resistant to rupture. • Prior to construction, the City will prepare a traffic control plan in accordance with the cities of Vista, Carlsbad, Oceanside, San Marcos, and the County of San Diego traffic control guidelines that will specifically address construction traffic during construction of project components within the public right-of-ways of the affected jurisdiction(s). See Transportation/Traffic Section below.
Hydrology and Water Quality	• During construction, the City will comply with the current California Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) permit for construction dewatering (Order Number 98-67 or current permit) and obtain a NPDES permit for stormwater and runoff discharge for project components resulting in grading of more than 1 acre. In compliance with the RWQCB requirements and the NPDES permit a Best Management Practices (BMP) program for stormwater pollution control and Storm Water Pollution Prevention Program (SWPPP) will be implemented. • Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance and install BMPs to ensure that sediment is not transported beyond the project limits or into sensitive areas such as wetland and waterbodies. A dewatering permit will be obtained when required. • Material stockpiled during construction shall placed such that interference with onsite drainage patterns will be minimized or avoided. During rain events, stockpiles shall be covered with impermeable materials such as tarps in order to allow flow from the construction site to occur without excessive sediment loading. • BMPs shall include both sediment control measures to prevent rainfall from contacting exposed soil surfaces, and erosion control measures (e.g., gravel bags) to prevent eroded material from leaving construction areas, especially from flat graded areas, in accordance with the required erosion control plan. • A construction spill contingency plan shall be prepared in accordance with County Department of Environmental Health regulations and retained on site by the construction manager. If soil is contaminated by a spill, the soil shall be properly removed and transported to a legal disposal site. • If groundwater is encountered and dewatering is required, then the groundwater shall be disposed of by pumping to the sanitary sewer system or discharging to the storm drain system according to the conditions of the appropriate discharge permit. • The lead agency will consider using pervious or semi-pervious surfaces where possible to reduce the increase in the velocity of peak flows. • For all potential impacts to natural drainages (i.e., pre-development hydrology), BMPs on-site shall be used to fully reduce the potential for project-related contaminants in the surface flows prior to their discharge to streams.
Noise	• Heavy equipment shall be repaired at sites as far as practical from nearby residences. • Construction equipment, including vehicles, generators and compressors, shall be maintained in proper operating condition and shall be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures). • Construction work, including on-site equipment maintenance and repair, shall be limited to the hours specified in the noise ordinance of the affected jurisdiction. • Electrical power shall be supplied from commercial power supply, wherever feasible, in order to avoid or minimize the use of engine-driven generators. • Staging areas for construction equipment shall be located as far as practicable from residences.

Table S-5
Summary of Standard Project Design Features and Construction Measures

	• Operating equipment shall be designed to comply with all applicable local, state, and federal noise regulations. • If lighted traffic control devices are to be located within 500 feet of residences, the devices shall be powered by batteries, solar power, or similar sources, and not by an internal combustion engine. • The City or its construction contractors shall provide advance notice, between two and four weeks prior to construction, by mail to all residents or property owners within 300 feet of the alignment. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more that 7 days occur, an additional notice shall be made, either in person or by mail. The City shall also publish a notice of impending construction in local newspapers, stating when and where construction will occur. • The City shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise and other construction disturbance. The City shall also establish a program for receiving questions or complaints during construction and develop procedures for responding to callers. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with the information above.
Transportation/Traffic	• Prior to construction, the City shall prepare a traffic control plan (TCP) implemented for all affected roadways. The TCP shall be prepared in accordance with Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones [1996 (Revision 2) edition]. Each of the affected municipalities' traffic control guidelines, as applicable, will also be incorporated in the TCP. The TCP will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. Additionally, the TCP will ensure that congestion and traffics delays are not substantially increased as a result of project construction and that any traffic impacts will be short-term in nature. The TCP will show all signage and striping, and will delineate detours, flagging operations and any other procedures that will be used during construction to guide motorists safely through the construction zone and allow for a minimum of one lane of travel. The TCP will also include provisions for coordinating with local emergency service providers regarding construction times and locations of lane closures as well as specifications for bicycle lane safety. The limits of construction work area(s) and suggested alternate traffic routes for through traffic will be published in a local newspaper periodically throughout the construction period. In addition, the construction contractor or the City shall provide a minimum two-week written notice prior to the start of construction by mailing to owners/occupants along streets to be impacted during construction. During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to and from public facilities (e.g., public utility stations and community centers). If normal access to these facilities is blocked by construction, an alternative access shall be provided. Should this occur, the City shall coordinate with each facility's administrators in preparing a plan for alternative access. During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to commercial/industrial establishments during regular business hours. If normal access to business establishments is blocked, alternative access shall be provided. Should this occur, the City shall coordinate with the businesses in preparing a plan for alternative access. During construction, the City shall maintain continuous vehicular and pedestrian access to residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. For example, when a given pipeline segment is initially being excavated, access to individual driveways may

Table S-5
Summary of Standard Project Design Features and Construction Measures

	be closed during the course of a workday. Access shall be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the construction contractor shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure. Methods to maintain safe, vehicular and pedestrian access include the installation of temporary bridge or steel plates to cross over unfilled excavations. Whenever sidewalks or roadways are removed for construction, the contractor shall place temporary sidewalks or roadways promptly after backfilling until the final restoration has been made. The TCP shall include provisions to ensure that the construction contractor's work in any public street does not interfere unnecessarily with the work of other agencies vehicles, such as emergency service providers, mail delivery, school buses, waste services, or transit vehicles. • Determination of whether a project component falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way, the following shall occur: The City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. This process will include submittal of project plans, review of plans by the respective authorities, possible revisions of the plans relative to concerns brought forth by the issuing agency and issuance of the respective permit. Potential permitting agencies include Caltrans, North County Transit District, cities, and the County of San Diego. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored. • During project design, the City shall coordinate with each jurisdiction that may be affected by the project, including its own transit division, to determine the exact limits of project construction. All work proposed within the State right-of-way shall be dimensioned in metric units. The coordination effort shall be followed by specific measures to avoid conflicts resulting from other construction projects occurring within the direct vicinity of the project and within the same time period. Coordination with the following entities shall occur in conjunction with the proposed project: Caltrans County of San Diego Traffic Engineering NCTD Vista Traffic Engineering Carlsbad Traffic Engineering Oceanside Traffic Engineering San Marcos Traffic Engineering

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SECTION 1.0
INTRODUCTION

1.1 Project Background

The City of Vista (City) proposes to implement the 2008 Sewer Master Plan Update (proposed project), which is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001. The proposed project is a product of expanded hydraulic modeling prepared to address newly imposed state regulations. In May 2006, the State Water Resources Control Board adopted the Waste Discharge Requirements (WDR) to eliminate sanitary sewer overflows (SSOs) in the State of California. In order to attain this goal, each sewer operator must develop a Sewer System Management Plan (SSMP), which requires the following primary elements:

- Operations and Maintenance Program
- System Evaluation and Capacity Assurance Program
- Fats, Oils, and Grease Program
- Overflow Emergency Response Program
- Rehabilitation and Replacement Program
- Funding Program
- Long and Short Term Capital Improvement Program

The 2008 Sewer Master Plan Update meets many of the requirements of the SSMP via system evaluation and capacity assurance, and provision of a set of recommended projects for inclusion in the City's overall Capital Improvement Program (CIP). This Program Environmental Impact Report (EIR) addresses the potential environmental consequences of the proposed rehabilitation, replacement, and relocation sewer pipeline projects that constitute the recommended CIP identified in the 2008 Sewer Master Plan Update.

The City is responsible for maintenance, operations, and management of both the City of Vista and Buena Sanitation District (District) wastewater (or sewer) collection systems. The City of Vista City Council is the decision making body for the City's sewer collection system. The City also assumes the role of the Buena Sanitation District Board of Directors per Resolution No. 98-289 as adopted by the County of San Diego Board of Supervisors in 1998. The City and Buena Sanitation District sewer collection systems are operated and maintained by the City's Department of Public Works (DPW).

The City's sewer collection system is located primarily in the Buena Vista Drainage Area and is comprised of 35 sub-drainage areas as defined by the City. Three sub-drainage areas are located in the Agua Hedionda Drainage Basin. (See *Figure 2-3, Sewer Sub-basin Designations,* in

Section 2.0.) Sewer flows generated from the City drain to the Encina Wastewater Treatment plant via the Vista-Carlsbad Interceptor or the Buena Interceptor. The City of Vista wastewater collection system includes approximately 215 miles of sanitary sewers ranging in size from 6 to 42 inches in diameter. The majority of the pipelines are made from vitrified clay pipe (VCP) and the remaining pipelines are generally constructed of polyvinyl chloride (PVC).

The Buena Sanitation District is located primarily in the Agua Hedionda Drainage Area. The Buena sewer collection system is comprised of approximately 101 miles of sanitary sewers and force mains ranging in size from 4 to 30 inches in diameter. Sewer flows are ultimately drained to the Buena Pump Station and then are conveyed to Encina Wastewater Treatment Plant via the Buena Force Main and the Buena Interceptor.

1.2 Purpose and Scope of the EIR

The purpose of an EIR is to: **(1)** inform the public and decision-makers of the potential environmental impacts of a proposed project; **(2)** identify methods that could reduce the magnitude of potentially significant impacts of a project; and **(3)** identify alternatives that could reduce the magnitude of environmental impacts or propose more effective uses of the project site. The purpose of this Program level EIR is to analyze the potential physical environmental impacts associated with implementation of the proposed 2008 Sewer Master Plan Update. *Section 1.4* below further defines the purpose of a Program level EIR. This document is intended for use by both decision makers and the public. It provides relevant information concerning the potential environmental effects associated with rehabilitation, replacement and relocation of the existing sewer system components identified in the 2008 Sewer Master Plan Update operated and maintained by the City of Vista. The lead agency for the project is the City of Vista.

1.3 CEQA Requirements

CEQA Compliance

This Program EIR has been prepared in accordance with CEQA (Public Resources Code Sections 21000 et. seq); the CEQA Guidelines published by the Resources Agency of the State of California (California Code of Regulations Sections 15000 et. seq, as amended) and the City of Vista Environmental Review Procedures.

Notice of Preparation

In compliance with Section 15082 of the CEQA Guidelines, the City of Vista Planning Department circulated a Notice of Preparation (NOP), dated July 27, 2007, to interested agencies, groups and individuals. The NOP was circulated to the State Clearinghouse (SCH) on

September 14, 2007 with a review period ending on October 15, 2007. The SCH assigned number 2007091072 to the project. All comments received during the NOP public notice period were considered during the preparation of this Draft Program EIR. A public scoping meeting was held on August 6, 2007. The NOP is included in *Appendix A* of this Program EIR. Based on the scope of analysis for this Program EIR, the following issues were determined to be potentially significant and are therefore addressed in *Sections 4.0* through *8.0* of this document:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Hazards/Hazardous Materials
- Hydrology/Water Quality
- Land Use
- Noise
- Traffic/Circulation
- Utilities

1.4 Uses of this Program EIR

As Lead Agency under CEQA, the City of Vista has assumed responsibility for preparing this Program EIR. The City of Vista City Council is the decision making body for the City of Vista and assumes the role of the Buena Sanitation District Board of Directors. This Draft Program EIR has been made available for review to the public and public agencies for 45 days to provide comments on the "sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (Section 15204 of the CEQA Guidelines).

The proposed 2008 Sewer Master Plan Update EIR is intended to be a program-level document, which is used to analyze the first-tier effects of the 2008 Master Plan Update. A Program EIR is prepared for a series of actions that can be characterized as one large project, with each action related as logical parts in the chain of contemplated actions (CEQA Guidelines §15168(a).). Typically, such a project involves actions that are closely related geographically (Cal. Code of Regs., Title 14, § 15168(a)(1)), for agency programs (§ 15168(a)(3)), or as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways (§ 15168(a)(4)). Program EIRs generally analyze broad environmental effects of the program with the acknowledgment

that site-specific environmental review may be required for particular aspects of portions of the program when those aspects are proposed for implementation (§ 15168(a)).

Once the Program EIR is prepared for the 2008 Sewer Master Plan Update, subsequent (or second-tier) activities within the program must be evaluated to determine whether any additional CEQA review is necessary. *Table S-3* is designed to serve as a guide for the evaluation of each project component as it comes forward for approval or implementation. *Table S-3* is based on known conditions and an evaluation of probable future conditions. Since future conditions may change, the first step in environmental review of future projects under this Program EIR should be to ascertain if future conditions are different from present assumptions, and to determine if environmental review has already been accomplished. For example, where pipelines are assumed in this Program EIR to be located in street rights-of-way, this first check should include affirming the assumption. Conditions evaluated at this stage for any change could include sizing, location, site disturbance, or other factors.

If the Program EIR addresses the program's effects as specifically and comprehensively as possible, many subsequent activities could be found to be within the Program EIR scope. If the City determines that a proposed subsequent project would have no additional effect on the environment beyond that which was identified in the Program EIR, and that no new or additional mitigation measures or alternatives are required, then no new environmental documentation is required per CEQA (§ 15168(c)). However, the City is to make a written finding that the subsequent project is within the scope of the project covered by the Program EIR.

If a subsequent activity would have effects that are not within the scope of the Program EIR, the City would need to prepare a new Initial Study leading to either a Negative Declaration, Mitigated Negative Declaration, or an EIR. Subsequent CEQA documents would incorporate by reference the general discussions from this broader Program EIR, primarily concentrating on the issues specific to the action being evaluated.

1.5 Areas of Known Controversy

A total of three comment letters were received during the NOP scoping period. Issues were raised concerning impacts to Native American resources as well as impacts associated with hazards and hazardous materials. These impacts are addressed within the Program EIR.

1.6 Consultation and Coordination

The City of Vista has been coordinating with the following agencies:

- Buena Sanitation District
- California Regional Water Quality Control Board (San Diego, Region 9)
- City of Carlsbad
- City of Oceanside
- City of San Marcos
- County of San Diego
- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- San Diego Archaeological Society
- Native American Heritage Commission
- California Coastal Commission
- California Office of Historic Preservation
- California Department of Transportation, District 11
- SDG&E
- Vista Irrigation District
- Cox
- SBC
- PacBell
- San Luis Rey Indian Band (Tribe)

SECTION 2.0
PROJECT DESCRIPTION

This section provides a description of the proposed project, the environmental effects of which are evaluated in *Chapter 4.0* of this Program EIR. The project location and project objectives are described in this section followed by a description of project characteristics and a summary of project approvals that would be required.

2.1 Project Location

The proposed project is located in the northern part of San Diego County within the Cities of Vista, Oceanside, Carlsbad, San Marcos, and unincorporated portion of the County of San Diego (see *Figures 2-1, Regional Map* and *2-2, Vicinity Map*). The City of Vista wastewater (or sewer) collection system is located primarily in the Buena Vista Drainage Area and the Buena Sanitation District sewer collection system is located primarily in the Agua Hedionda Drainage Area. The City and District service area are divided into sewer sub basins as depicted in *Figure 2-3, Sewer Sub Basin Designations*. Project components are located both within and outside the City of Vista and Buena Sanitation District boundaries as shown in these figures.

2.2 Project Objectives

The development of the proposed project is intended to update and identify a recommended prioritized CIP that addresses the capacity and non-capacity-related improvement projects necessary to ensure safe and reliable operation of the existing sewer system. The following objectives have been identified for this project:

- Reduce the potential for sewer overflows;
- Make facility improvements on age, material, and condition related infrastructure;
- Restore, maintain, and/or enhance existing sewer service; and
- Prioritize a list of projects.

2.3 Project Components

This Program EIR addresses the environmental impacts associated with the 2008 Sewer System Master Plan Update which is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001 by Powell/PBS&J. Previous Utility Master Plans were also prepared by Wilson and Associates in May 1993 and by Fraser, Wilson and Associates in March 1982.

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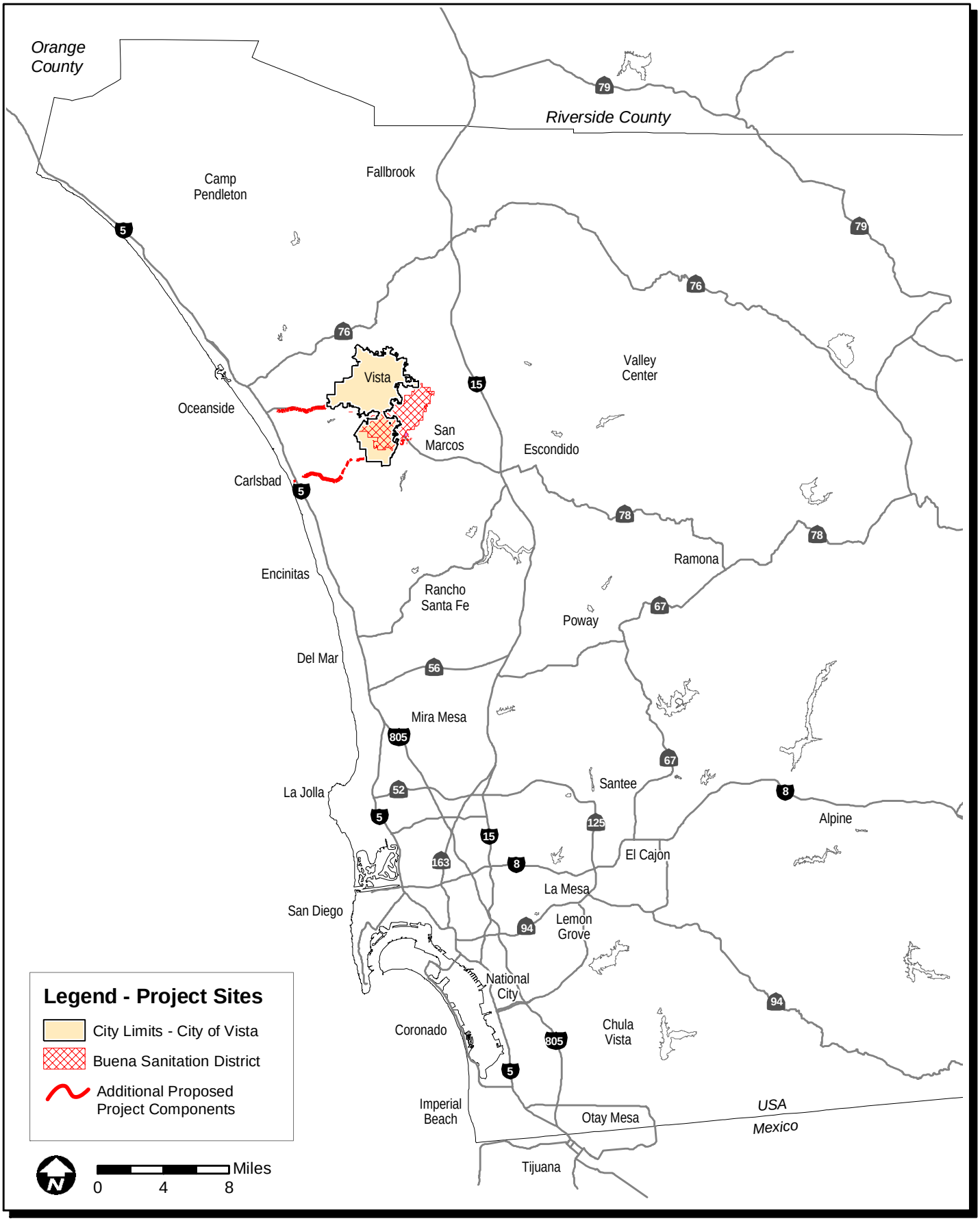

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Map

FIGURE 2-1

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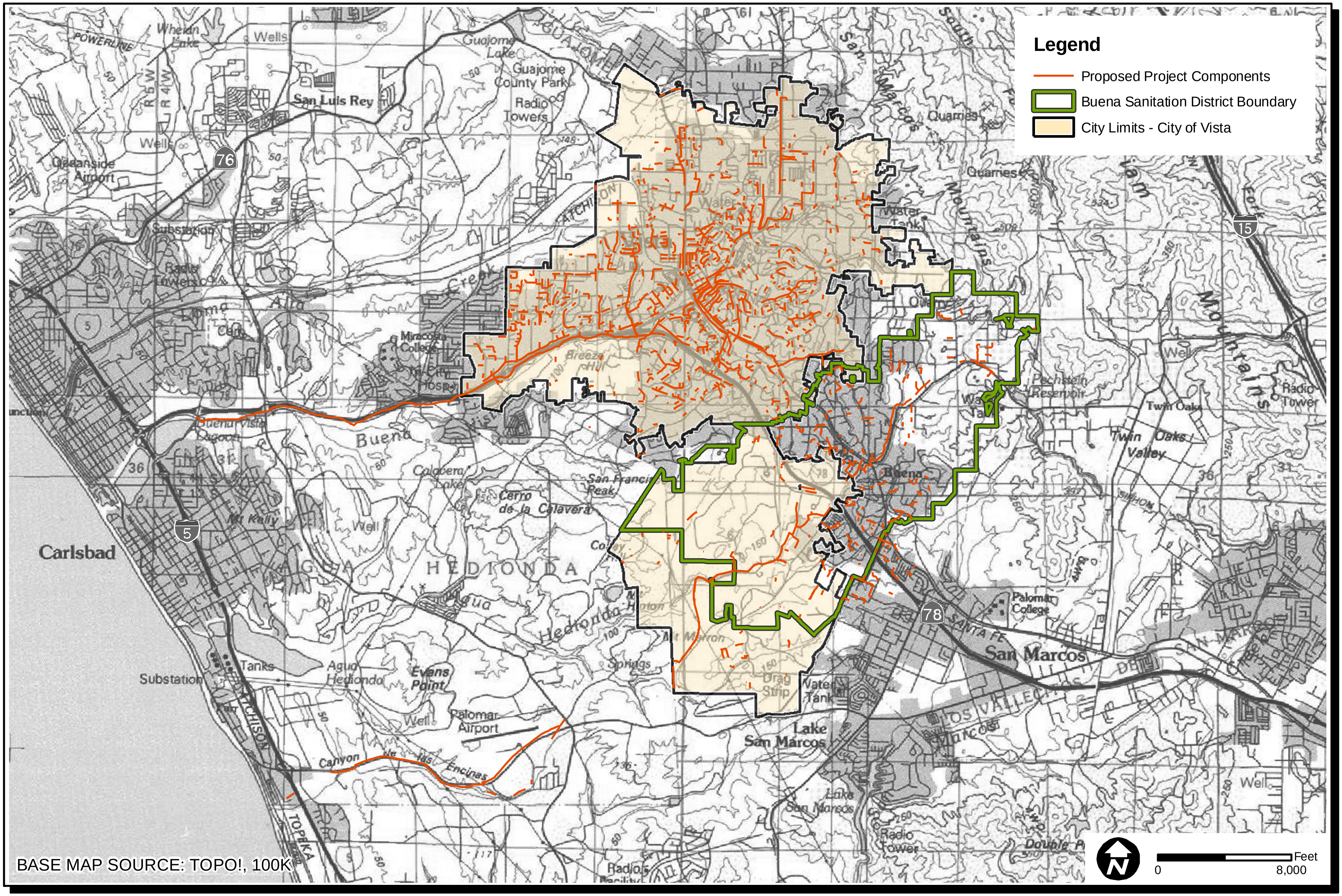

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Vicinity Map

FIGURE 2-2

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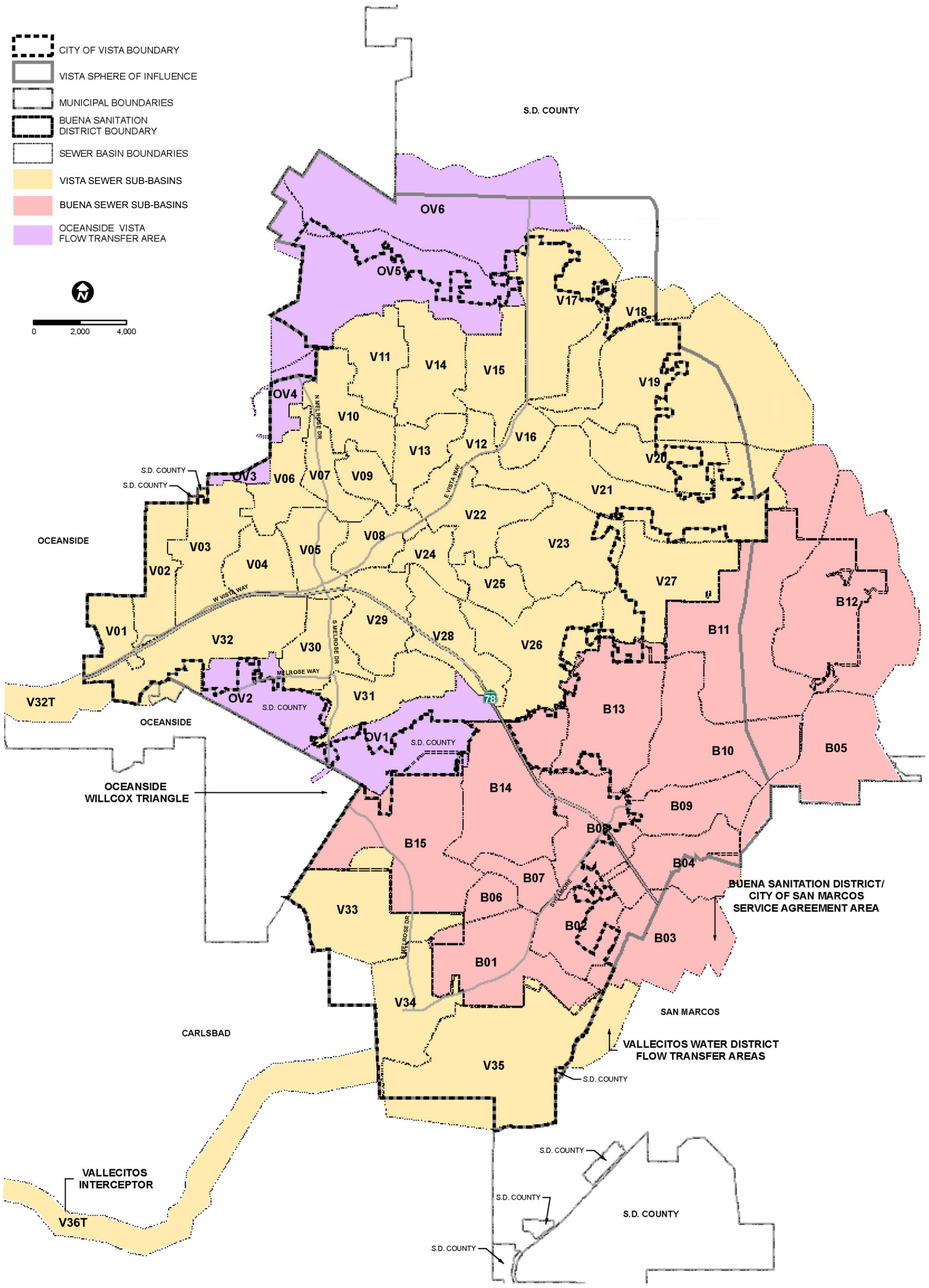

SOURCE: City of Vista & Buena Sanitation District Sewer Master Plan Update August 2007

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Sewer Sub-Basin Designations

FIGURE 2-3

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In order to minimize the potential for system overflows and interruptions associated with structurally unsound elements of the existing sewer system, the 2008 Sewer Master Plan Update identifies a combination of capacity replacement and non-capacity-related rehabilitation and/or replacement projects that constitute the recommended updated CIP. These projects were identified through hydraulic modeling and capacity analysis and review of known conditions. Capacity restoration would be provided through installation of larger replacement pipes, and by reducing extraneous defect flows. Non-capacity-related projects include projects related to age, material, minimum size, and condition of the existing system. Non-capacity-related CIP projects entail increased operations and maintenance to improve the system and/or replacement of pipelines. The 2008 Sewer Master Plan Update establishes a structured program of system improvements that would minimize the potential for system overflows over a 20-year planning period. The proposed project does not entail upgrades and/or repairs to any existing lift station or the installation of any new lift stations.

The City of Vista developed a system in order to map and keep track of the pipelines that constitute the existing sewer system. Each manhole throughout the system has a 6- to 7- digit alphanumeric code. The first 3 digits of this code typically dictates the sub-basin in which the manhole is located. The next 3 digits provide a unique manhole number (also called the Node ID). Pipeline segments can be tracked between manholes using this coding system. The segment of pipeline between two manholes can range between a small linear footage (approximately 30 feet) to a larger linear footage (approximately 500 feet). Throughout this PEIR, a proposed project component or segment refers to a segment of pipeline between two manholes. *Appendix C* provides a complete list of proposed project components that make up the 2008 Sewer Master Plan. A total of 2,261 proposed project components were identified in the 2008 Sewer Master Plan and evaluated in this PEIR.

For the geographic location of pipeline components, all pipeline components identified as resulting in potentially significant environmental impacts (see *Table S-3*) are linked to the City of Vista's Sewer Atlas. The Sewer Atlas provides a precise map of the entire City of Vista and Buena Sanitation District sewer system. A hard copy of the Sewer Atlas is available at the City of Vista Engineering Department or available online at the following URL address:

http://www.cityofvista.com/departments/engineering/GISSewerAtlas.cfm

The following 3 steps should be followed in order to pinpoint the exact location of a pipeline component identified in *Table S-3*:

1. Locate the Sewer Atlas Map Page (via the URL above)
2. If the sewer sub-basin (1st three characters) is shown on the sheet, look within its boundaries to locate the manhole numbers (next three characters). The manhole number is also called the "node ID" in the Sewer Atlas.
3. If the sewer sub-basin is not on the map, call the City of Vista, Public Works, GIS Coordinator or engineering department at 760.726.1340.

Capacity-Related CIP Projects

The 2008 Sewer Master Plan Update identified 20 groups of capacity-related project components. Each group of proposed project components was given a name as provided in *Table S-2, Project Name* (e.g., B5 or B1). A total of 272 project components make up these 20 groups as presented in *Appendix C, Proposed Project Components.*

The project groups are divided between the City and District and prioritized within each respective jurisdiction. Projects addressing capacity restrictions are ranked highest in priority. Several capacity-related CIP project components are also in need of repair based on conditions such as age, materials and regulatory size upgrades. *Table 2-1* below describes each pipeline improvement and identifies the need for each project component. Projects listed first are of a greater priority than projects listed last within each jurisdiction. All capacity-related project groups will be rehabilitated via pipeline replacement. *Figure 2-4, Capacity-Related Projects,* shows all proposed capacity-related project components

Table 2-1
Capacity-Related CIP Projects

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
Buena Sanitation District Project Components			
Buena Outfall Force Main Phase III	7,200	Capacity Related	This project is required to divert 3.75 MGD of sewage flow from the Buena Sanitation District to Vallecitos Interceptor. Construct 24" of Force main and 18" and 15" of Gravity Sewer in Palomar Airport Road and west of El Camino Real to divert flows to Vallecitos Interceptor.
B5 – Watson to Green Oak Upsize and Realignment	3,795	Capacity and Condition Related	Upsize and realign existing 18" and 8" sewer lines along Oleander Avenue and Watson Way between Green Oak Road and Lupine Hills Drive to 24", 21", and 18".
B2 – Watson Upsize and Realignment	3,019	Capacity and Condition Related	Upsize existing 15" and 8" sewer lines along Watson Way and Sycamore Avenue and between Watson Way and the intersection of Thibodo Road /Plumosa Avenue to 21", 18", and 15".

Table 2-1
Capacity-Related CIP Projects

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
B1 – Green Oak Upsize	4,944	Capacity Related	Upsize existing 21", 18", and 12" sewer lines along Green Oak Road and between the Buena lift station and Grand Avenue to 27", 24", and 15".
B4 – Robelini/Buena Creek Upsize	4,724	Capacity and Condition Related	Upsize existing 12" sewer line along Robelini Drive and Buena Creek Road and between intersection of Sycamore Avenue/Robelini Drive and Lakeside Road to 15".
OV2 – Buena Outfall Phase IV*	8,847	Capacity and Condition Related	Upsize existing 24", 21", 18" Buena Interceptor to 27", 24", and 21".
B3 – El Valle Opulento Upsize	918	Capacity and Condition Related	Upsize existing 10" sewer line along El Valle Opulento and between El Valle Opulento and El Copa Lane to 15".
Vista Sanitation District Project Components			
V1 – West Vista Way Replacement and Upsize	6,344	Capacity and Condition Related	Upsize existing 12", 10", and 8" sewer lines along Sunset Drive, Vista Way, Huff Street, and Durian Street and between the intersection of Via Centre/Sunset Drive and Cedar Road and Hill Drive to 15" and 12".
V10 – North Sana Fe/ Cananea/Calera Upsize	2,830	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Cananea Street and Calera Street to 15" and 12".
V8 – Vista South Santa Fe Phase II Upsize	8,358	Capacity and Condition Related	Upsize existing 8" sewer line along Santa Fe Avenue, Service Place, and Monte Vista and between Escondido Avenue and Service Place to 15" and 12".
V2 – Hacienda/Vista Village Upsize	4,026	Capacity and Material Related	Upsize existing 33", 30", 24", 21", and 12" sewer lines along Hacienda Drive, Vista Village Drive and between La Tortuga and Lado De Loma Drive to 42", 36", 27", 21", 18" and 15".
V7 – Vista South Santa Fe Phase I Upsize	3,171	Capacity and Condition Related	Upsize existing 12", 8", and 6" sewer lines along Santa Fe Avenue, Mercantile Street, and Pala Vista Drive between Main Street and Rincon Street to 18", 15", and 12".
V6 – South Melrose Upsize	1,910	Capacity and Material Related	Upsize existing 10" sewer line along Melrose Drive between Hacienda Drive and County Complex to 15".
V3 – North Melrose Upsize	5,500	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Melrose Drive between Hacienda Drive and Olive Avenue to 15" and 12".
V4 – Broadway/Main Santa Fe Upsize	3,347	Capacity Related	Upsize existing 18" along Santa Fe Avenue, Broadway, Citrus Avenue, Main Street and Vista Village Drive between Santa Fe Avenue and Intersection of Vista Village Drive/Escondido Avenue/Hillside Terrace/Vista Way to 24" and 21".

Table 2-1
Capacity-Related CIP Projects

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
V11 – East Vista Way/Vale Terrace Upsize	1,853	Capacity Related	Upsize 18" and 8" sewer line along Vista Way and Vale Terrace and between Townsite Drive and intersection of Bel Air Drive/Williamston Street to 21", 18", and 15".
V9 – North Santa Fe Upsize	3,979	Capacity Related	Upsize existing 18" and 15" sewer lines along Santa Fe Avenue between Orange Street and intersection of Los Angeles Drive/Townsite Drive to 24" and 18".
V5 – Eucalyptus Upsize	3,037	Capacity Related	Upsize existing 12", 10", and 8" sewer lines along Citrus Avenue, Eucalyptus Avenue, and Escondido Avenue and between intersection of Broadway/Citrus Avenue and Avalon Drive to 18", 15", and 12".
R1 – Faraday Easement Upsize	1,431	Capacity Related	Upsizing existing undersized 12" sewer line west of Melrose Drive and between the Raceway Pump Station and Faraday to 15".
TOTAL	79,233 ft (15 miles)		

*OV1 and OV3 are identified in the Sewer Master Plan Update. Carlsbad is the lead agency for improvements to the Vista-Carlsbad Interceptor Sewer. Therefore, project impacts are not considered in this report and will be separately addressed by the City of Carlsbad.

Non-Capacity-Related CIP Projects

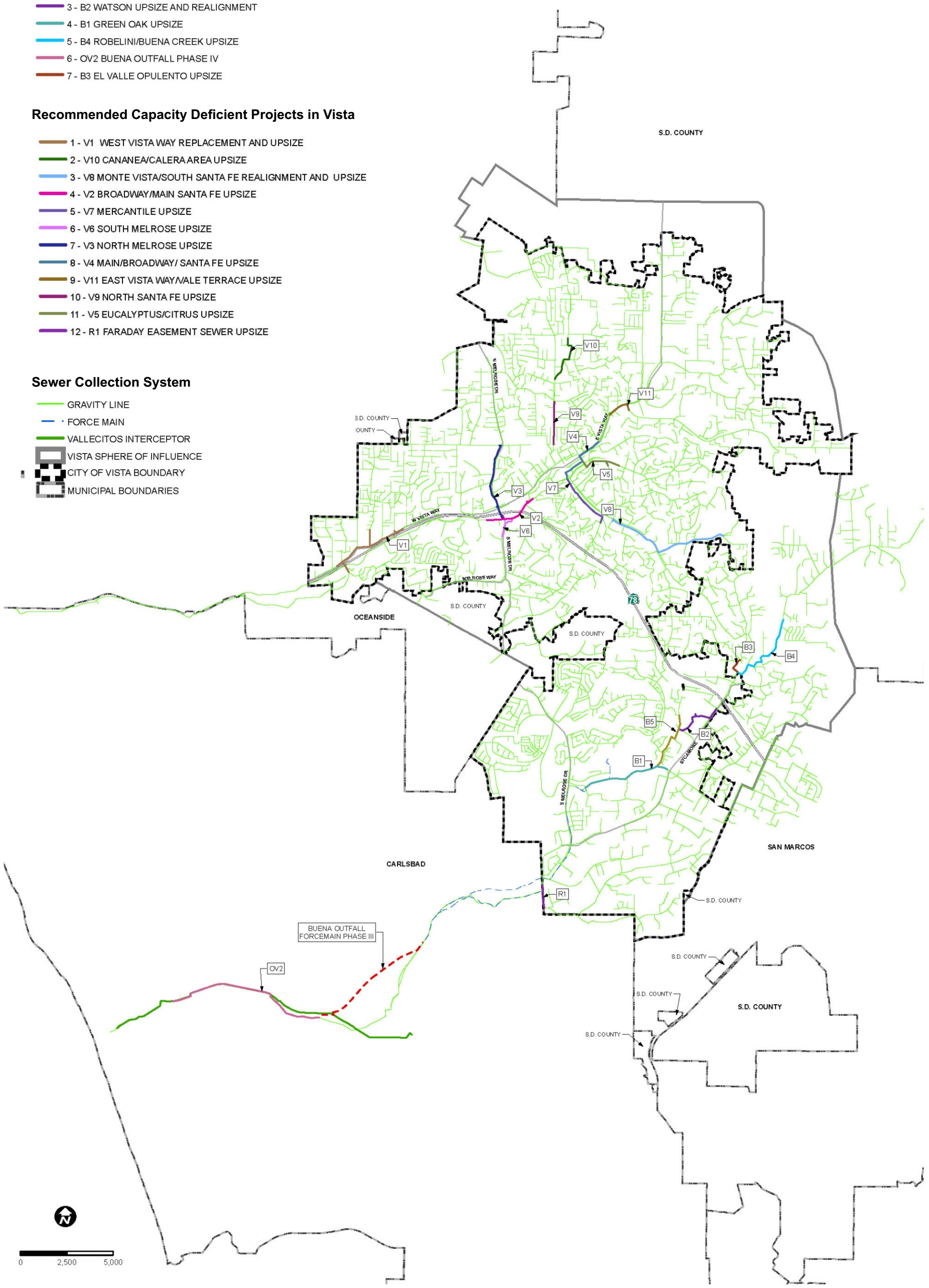
The 2008 Sewer Master Plan Update addresses looming age, material, and condition related replacement or rehabilitation projects to ensure the integrity of the existing sewer system. *Table 2-2* below presents the total length of pipelines being replaced and/or rehabilitated based on existing conditions, size, age, and materials. All ductile iron pipe (DIP) and non VCP/PVC pipes are proposed for rehabilitation or replacement as well as pipes that are over 50 years old. Current regulations also require a replacement of all 6" pipes with 8" pipes. The 2008 Sewer Master Plan Update proposes approximately 451,624 feet (85.5 miles) of condition related rehabilitation or replacement. (This number excludes the capacity-related project components that are also considered condition or material-related as stated above.) *Figure 2-5, Project Component Index Map,* shows all proposed project components inclusive of non-capacity related CIP projects. *Figures 2-5a* through *2-5j* provide a closer look at the proposed project components.

Recommended Capacity Deficient Projects in Buena

- 1 - BUENA OUTFALL FORCEMAIN PHASE III
- 2 - B5 WATSON TO GREEN OAK UPSIZE AND REALIGNMENT
- 3 - B2 WATSON UPSIZE AND REALIGNMENT
- 4 - B1 GREEN OAK UPSIZE
- 5 - B4 ROBELINI/BUENA CREEK UPSIZE
- 6 - OV2 BUENA OUTFALL PHASE IV
- 7 - B3 EL VALLE OPULENTO UPSIZE

Recommended Capacity Deficient Projects in Vista

- 1 - V1 WEST VISTA WAY REPLACEMENT AND UPSIZE
- 2 - V10 CANANEA/CALERA AREA UPSIZE
- 3 - V8 MONTE VISTA/SOUTH SANTA FE REALIGNMENT AND UPSIZE
- 4 - V2 BROADWAY/MAIN SANTA FE UPSIZE
- 5 - V7 MERCANTILE UPSIZE
- 6 - V6 SOUTH MELROSE UPSIZE
- 7 - V3 NORTH MELROSE UPSIZE
- 8 - V4 MAIN/BROADWAY/ SANTA FE UPSIZE
- 9 - V11 EAST VISTA WAY/VALE TERRACE UPSIZE
- 10 - V9 NORTH SANTA FE UPSIZE
- 11 - V5 EUCALYPTUS/CITRUS UPSIZE
- 12 - R1 FARADAY EASEMENT SEWER UPSIZE



SOURCE: City of Vista & Buena Sanitation District Sewer Master Plan Update January 2008

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Capacity-Related Project Components

FIGURE 2-4

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Table 2-2
Condition-Related CIP Projects

Project Type	Number of Projects	Approximate Length (ft)
Minimum Size	625	123,701
Condition Related	1,131	239,555
Age Related	270	38,426
Material Related	195	49,942
TOTAL	N/A*	451,624 ft (85.5 miles)

*Total number of project components is not applicable in this table due to presence of pipeline segments with overlapping project types.

Operations and Maintenance

Since sewage carries a variety of waste products, regular maintenance is required to assure that adequate flow is maintained. Operation and maintenance of the sewer system typically consists of routine patrolling, emergency repair, and periodic pipeline dewatering to allow for interior inspections or repairs. Sewer flow is also maintained via cleansing and flushing activities with a variety of tools. The Wastewater Maintenance Division of the City of Vista has an ongoing maintenance program, which entails inspections of designated pipelines once a year, and hotspots up to 3 or 4 times a year. Video inspections are performed on all new sewer mains and on selected sections of the existing mains. The pipes are accessed through regular spaced openings, which are covered and commonly referred to as clean outs and manholes. Manholes are large enough to allow large equipment and personnel to enter the system. Operations and maintenance activities also include no-dig rehabilitations such as epoxy coatings, polyurethane coatings, slip liners, and cured-in-place resin compound liners. Maintenance for elements of the proposed Sewer 2008 Master Plan Update would include activities similar to those performed throughout the existing sewer collection system.

2.4 Construction Schedule

Construction of the proposed project is varied, depending on the timing for individual projects. The 2008 Sewer Master Plan Update schedules improvements over a 20-year period.

2.5 Standard Design Features and Construction Measures

The City, through codes and standard design and construction practices, has incorporated project design features and construction measures into the project that help to reduce the potential for environmental effects. Construction would be performed by qualified contractors and contract documents, plans and specifications and would incorporate stipulations regarding standard City

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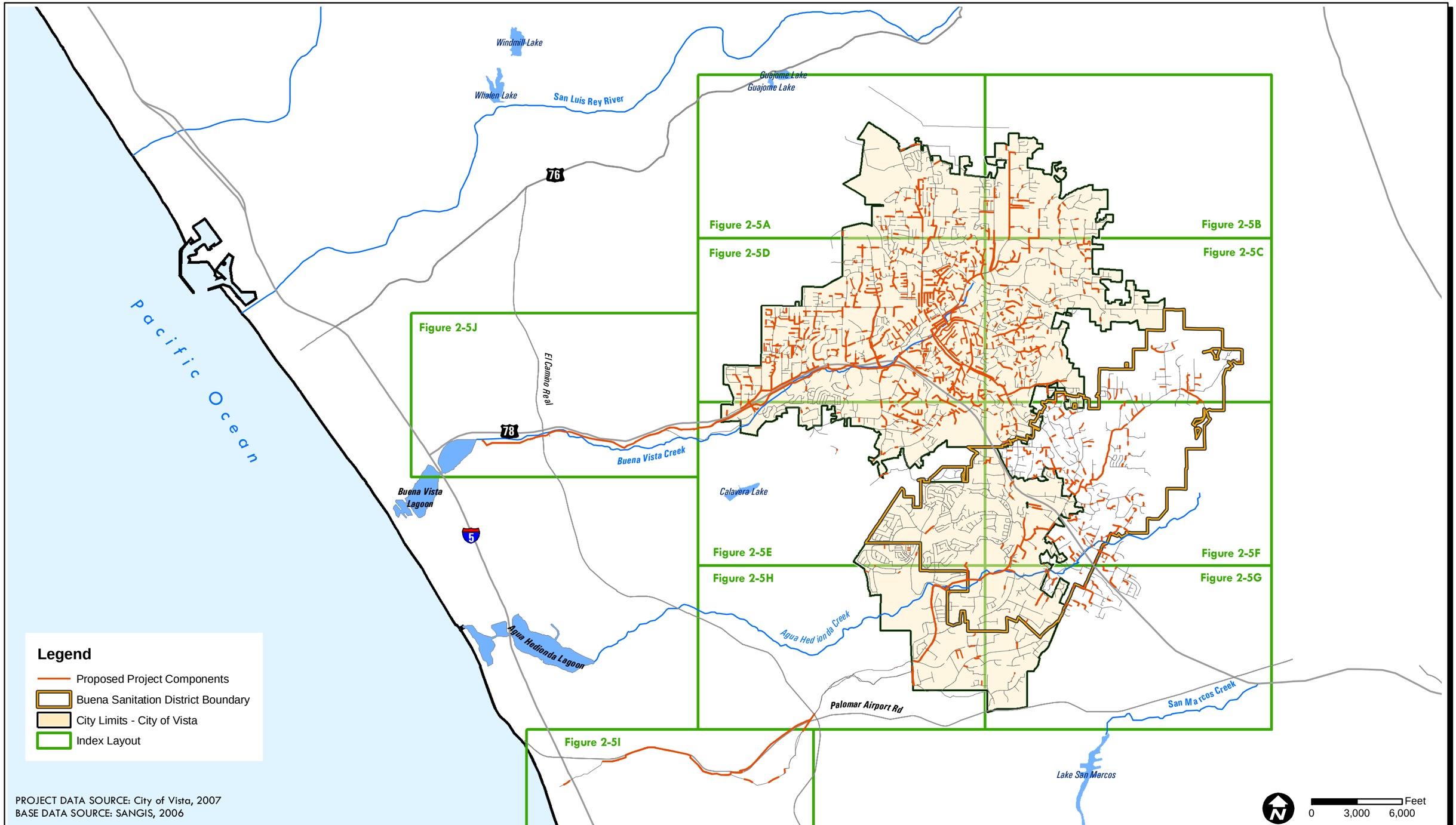

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Component Index Map

FIGURE 2-5

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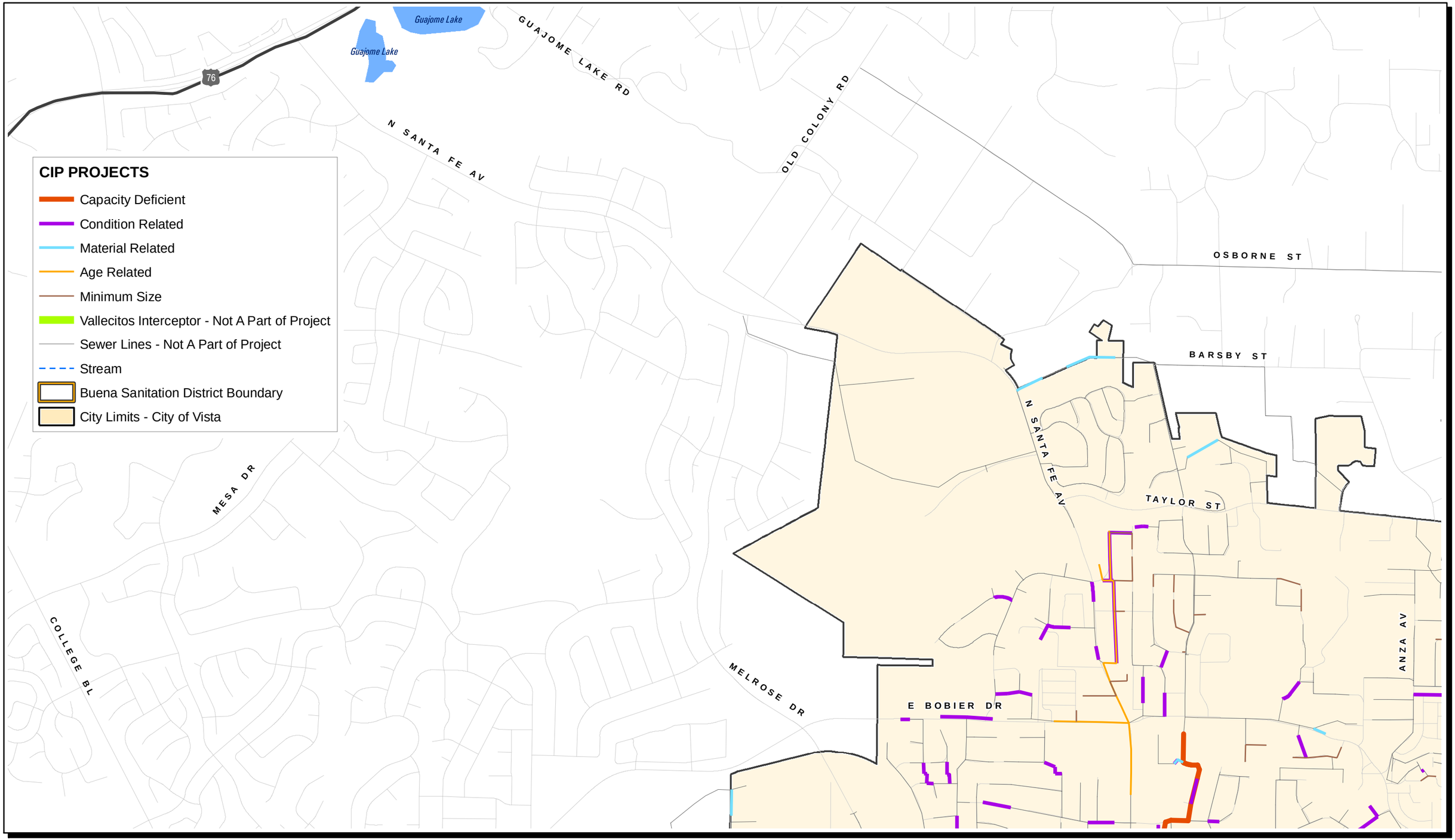

PROJECT DATA SOURCE: City of Vista, 2007

Feet
0 1,200

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5A

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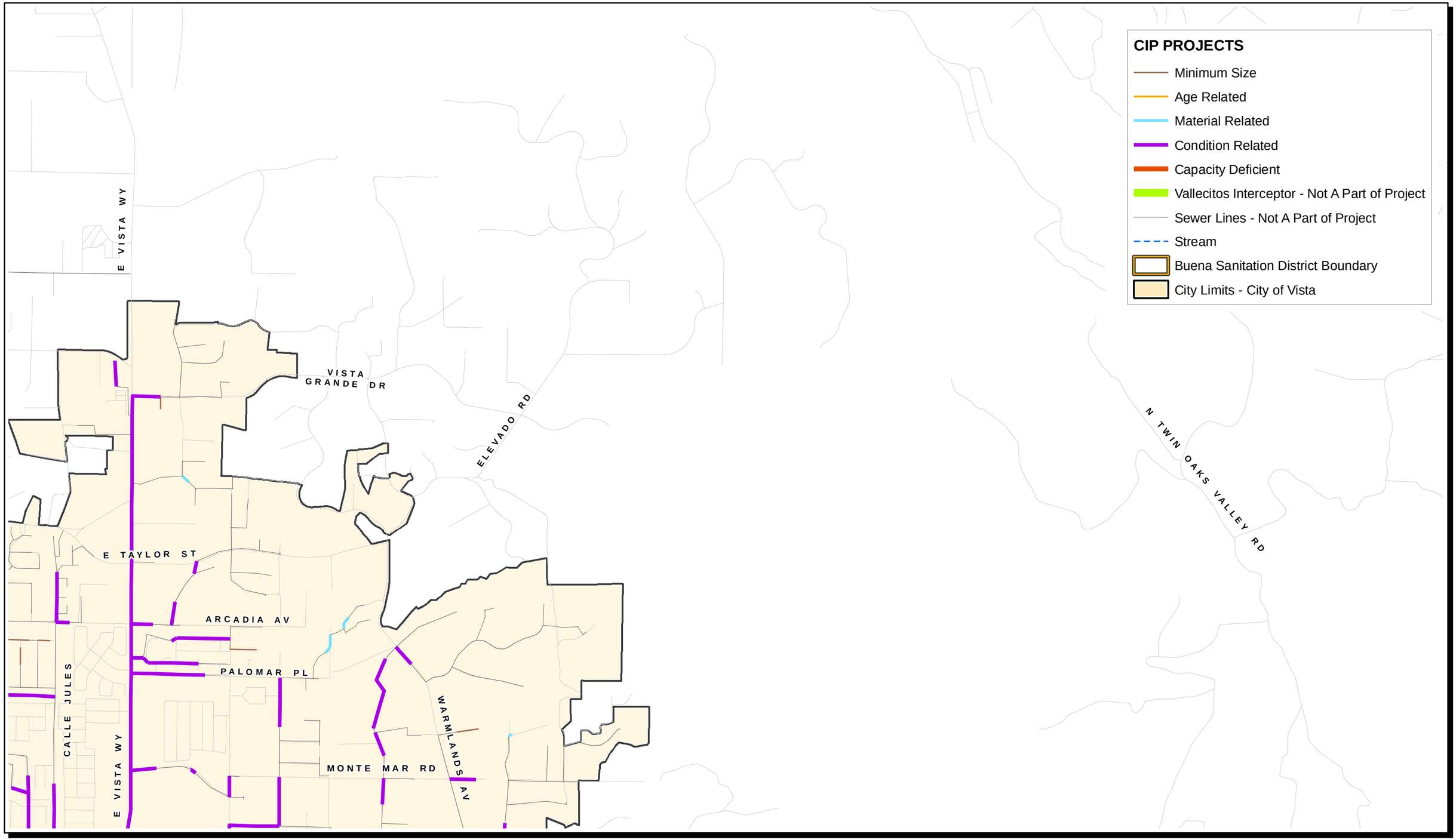

PROJECT DATA SOURCE: City of Vista, 2007

Feet
0 1,200

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5B

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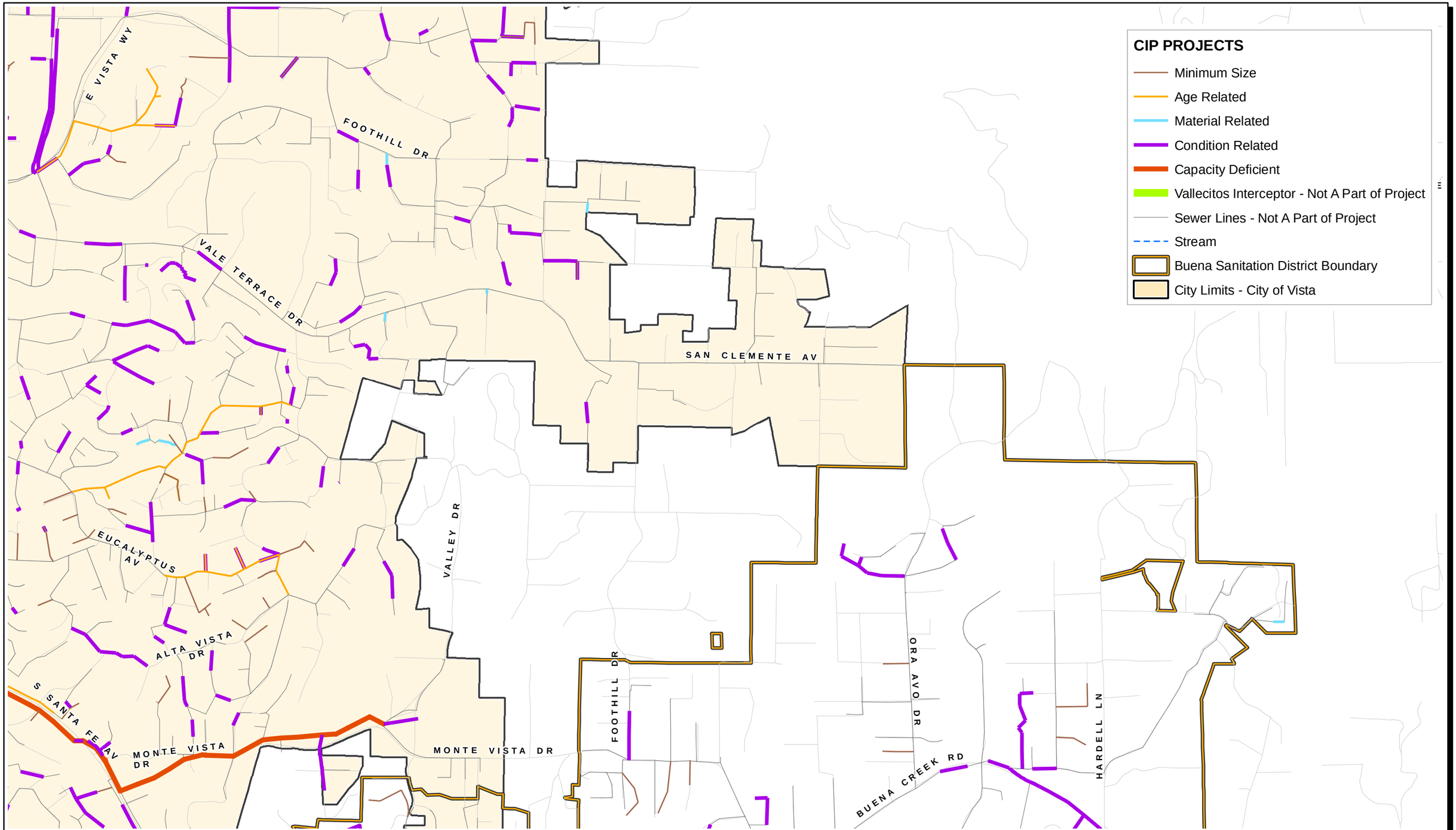

PROJECT DATA SOURCE: City of Vista, 2007

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0 Feet 1,200

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5C

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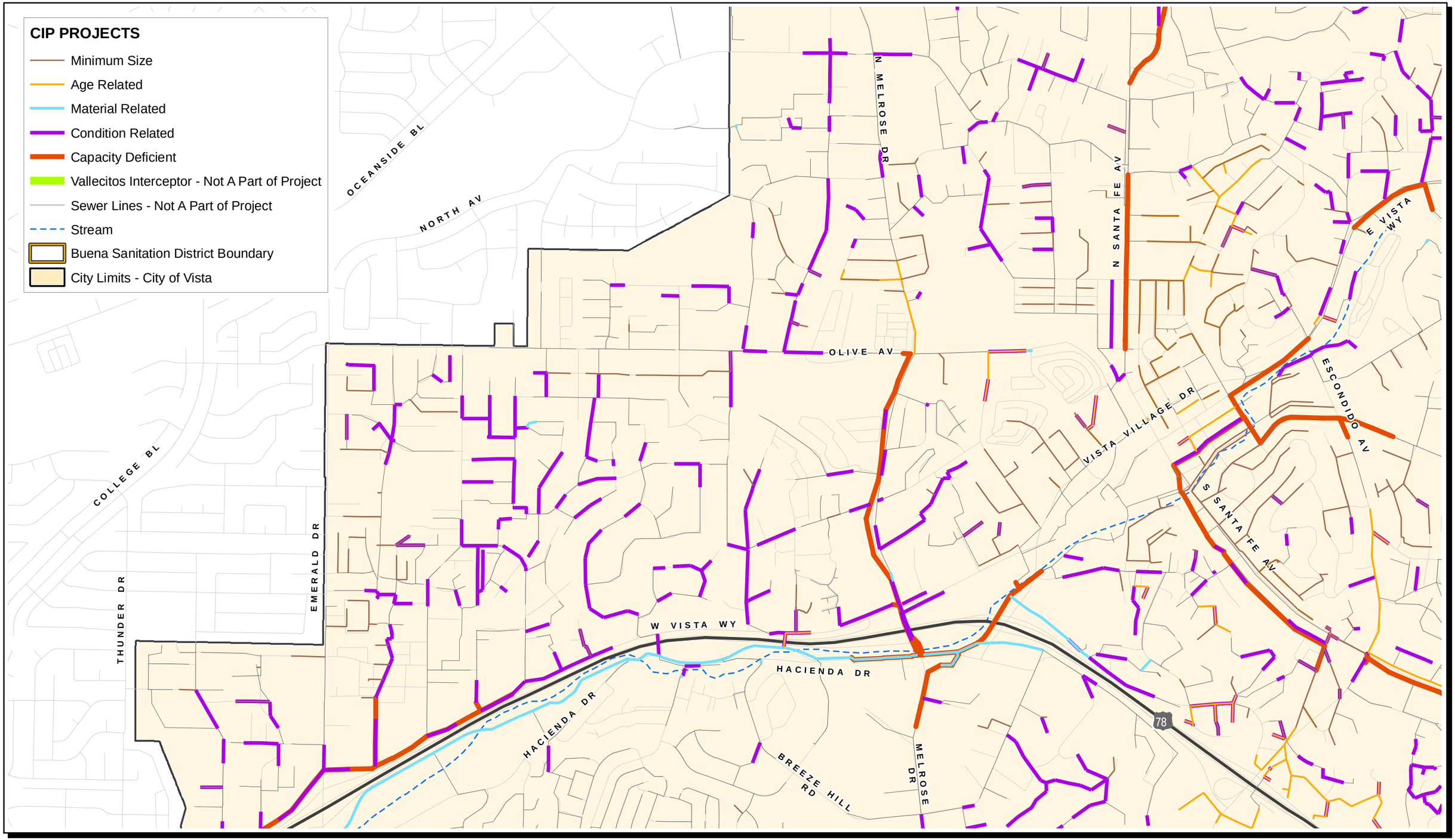

PROJECT DATA SOURCE: City of Vista, 2007

Feet
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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5D

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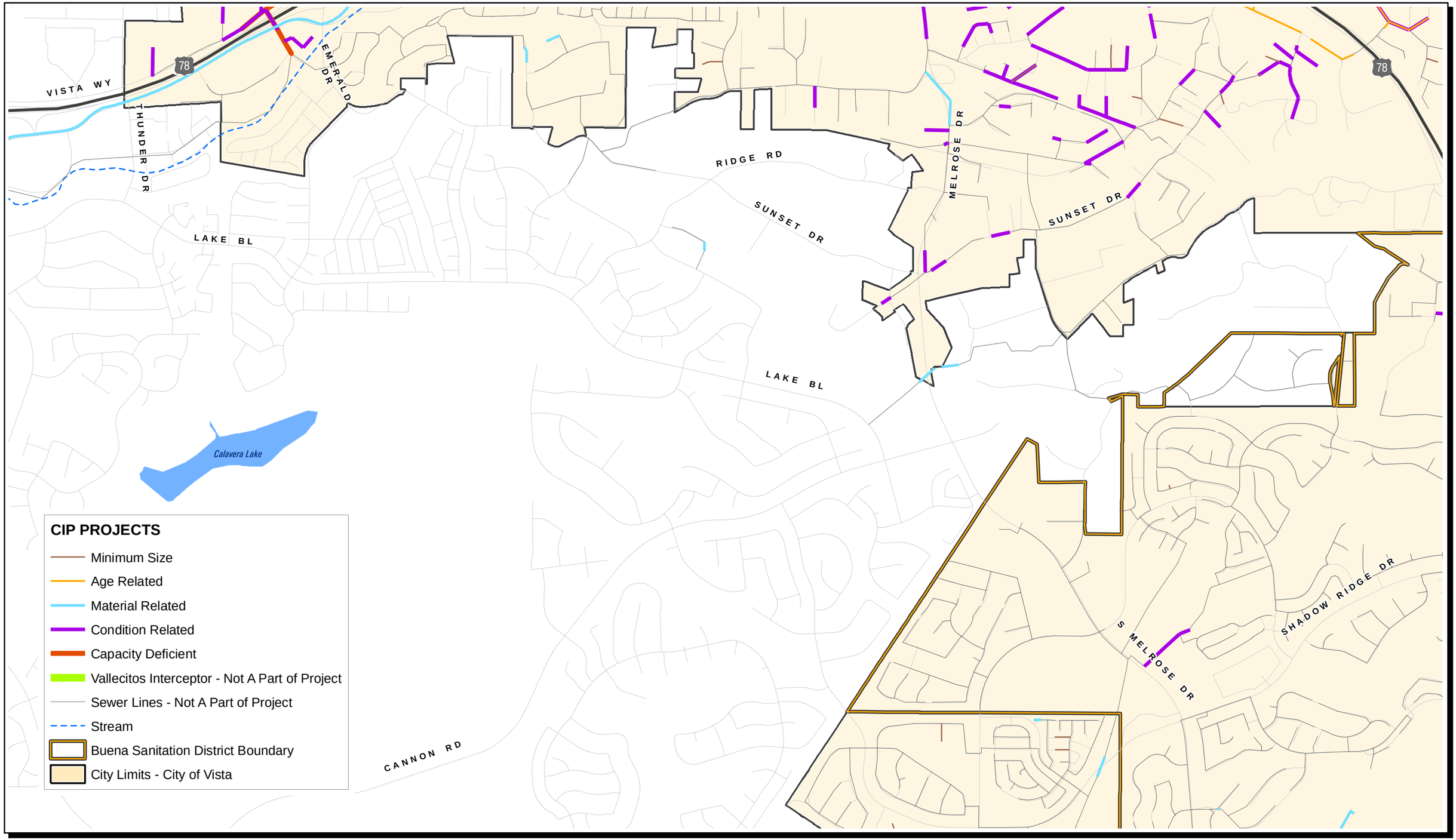

PROJECT DATA SOURCE: City of Vista, 2007

0 1,200 Feet

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5E

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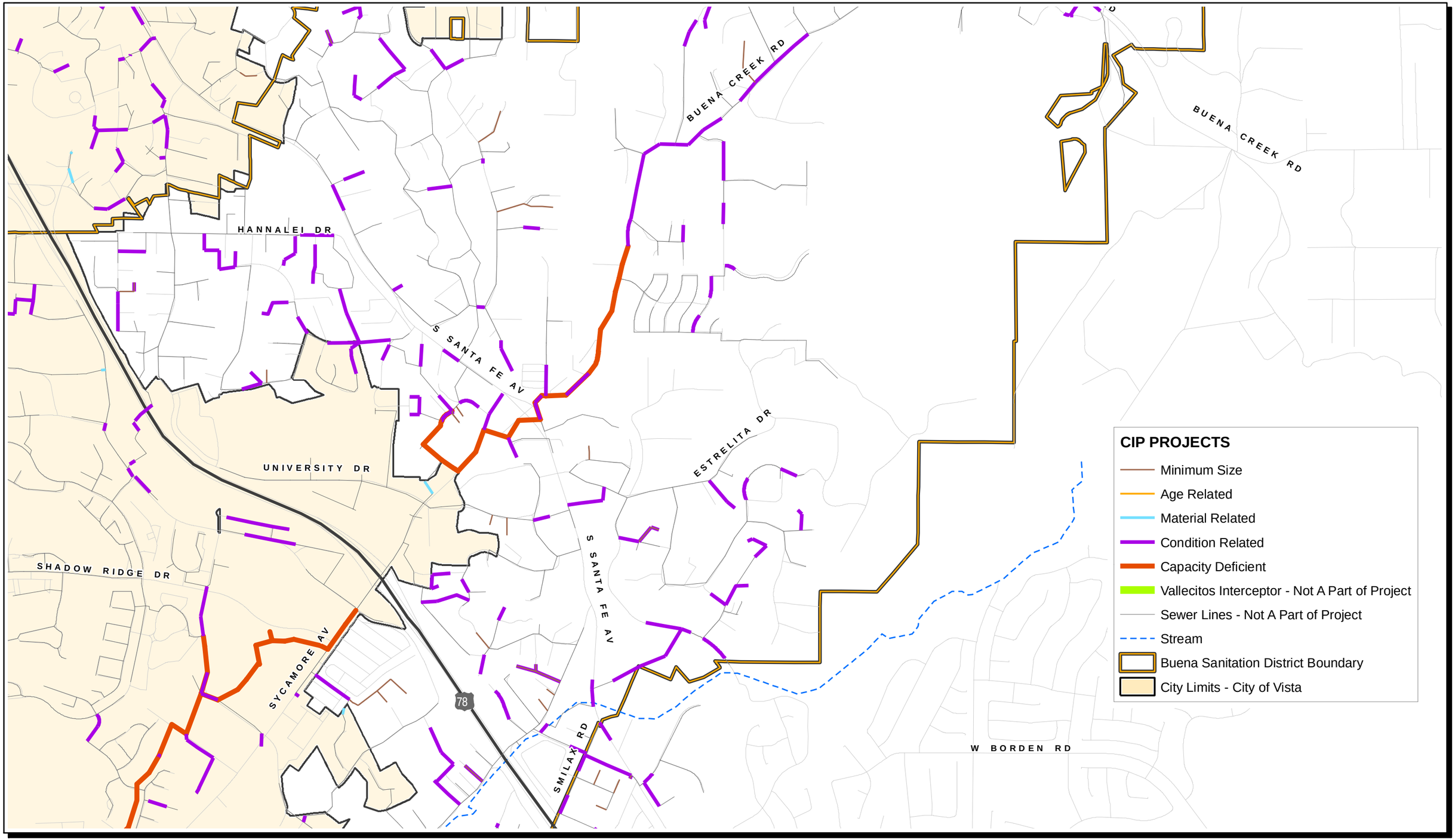

PROJECT DATA SOURCE: City of Vista, 2007

Feet
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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5F

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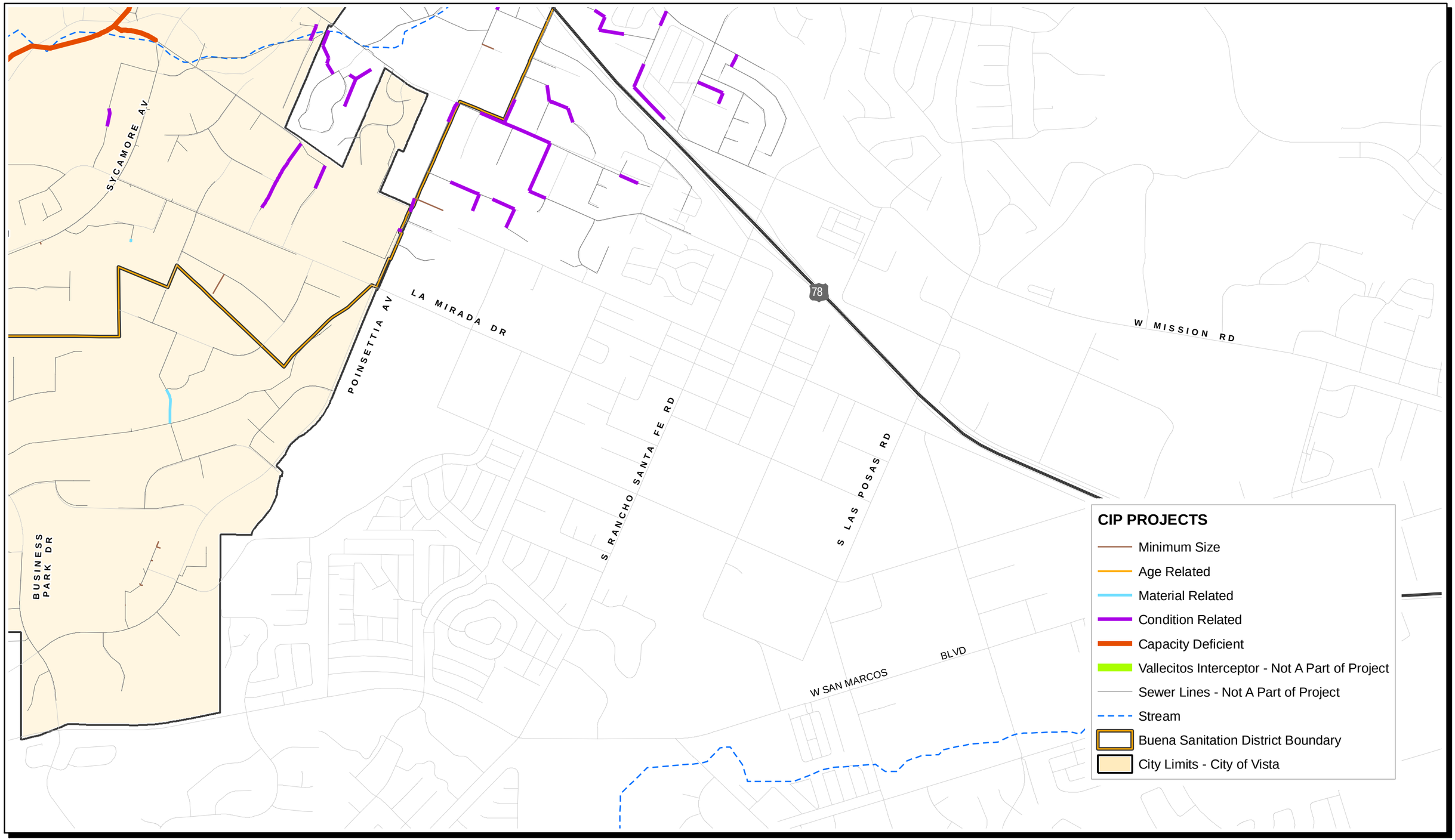

PROJECT DATA SOURCE: City of Vista, 2007

Feet
0 1,200

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5G

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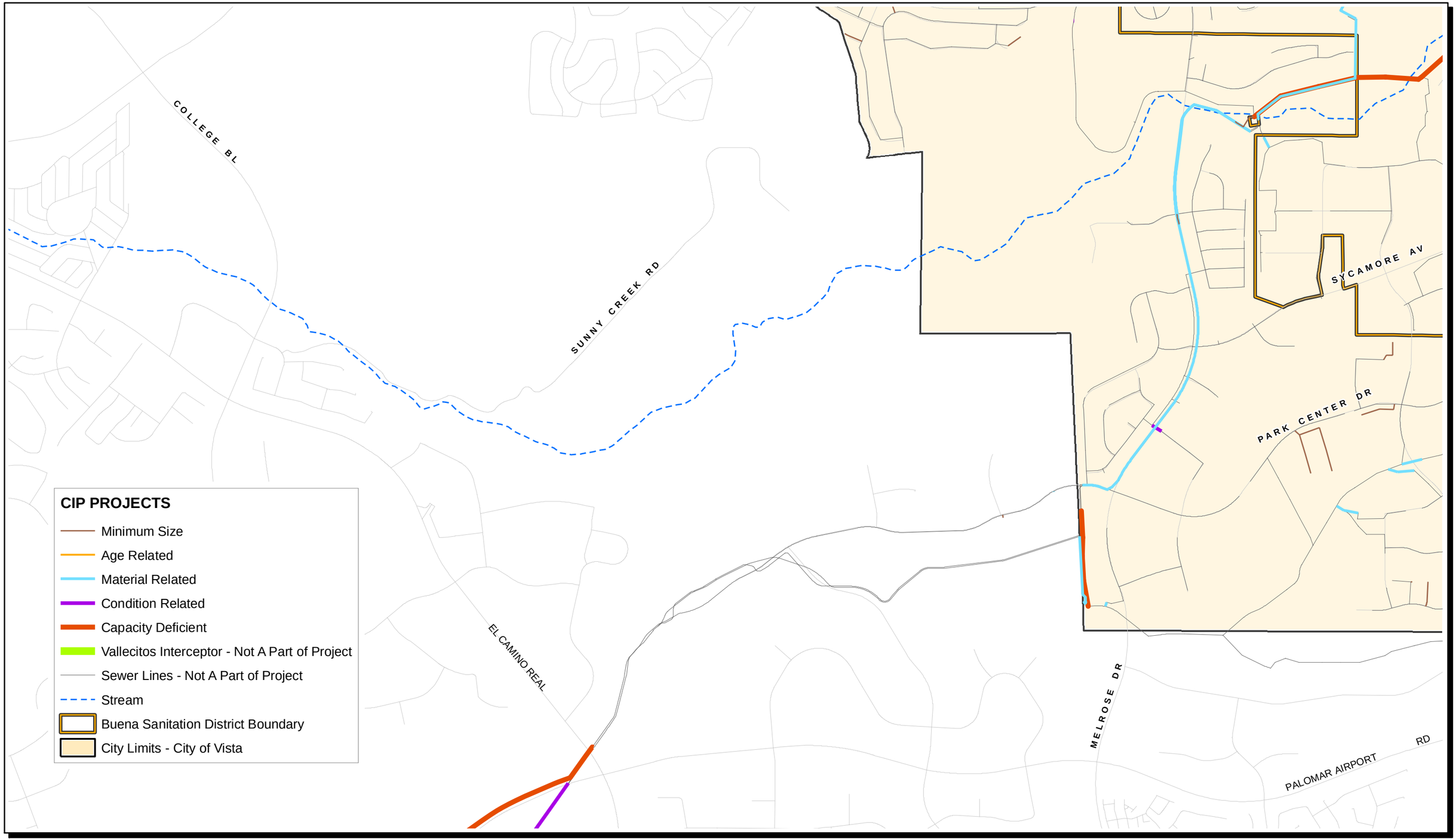

PROJECT DATA SOURCE: City of Vista, 2007

0 Feet 1,200

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5H

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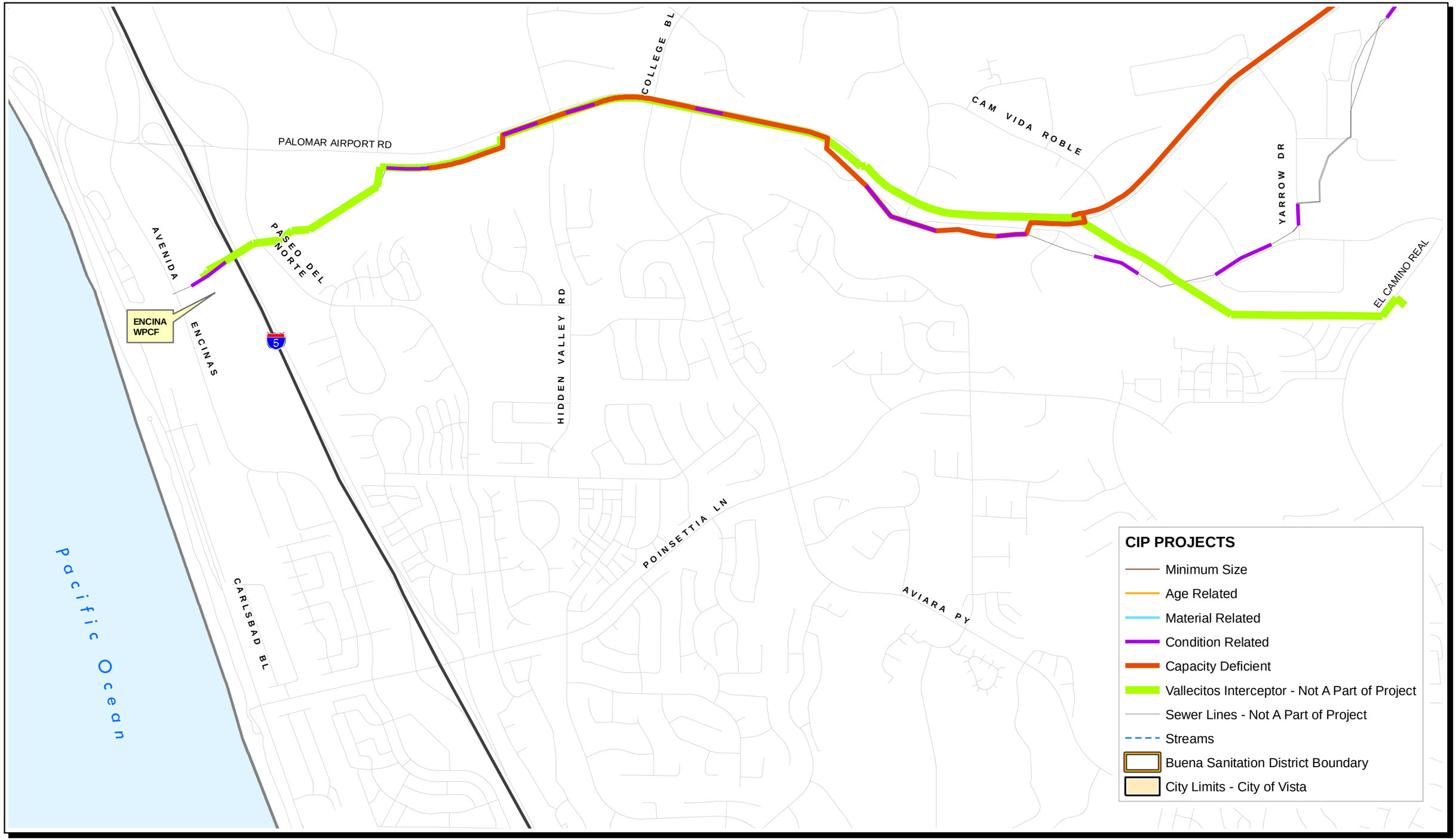

PROJECT DATA SOURCE: City of Vista, 2007

N

0 Feet 1,200

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5I

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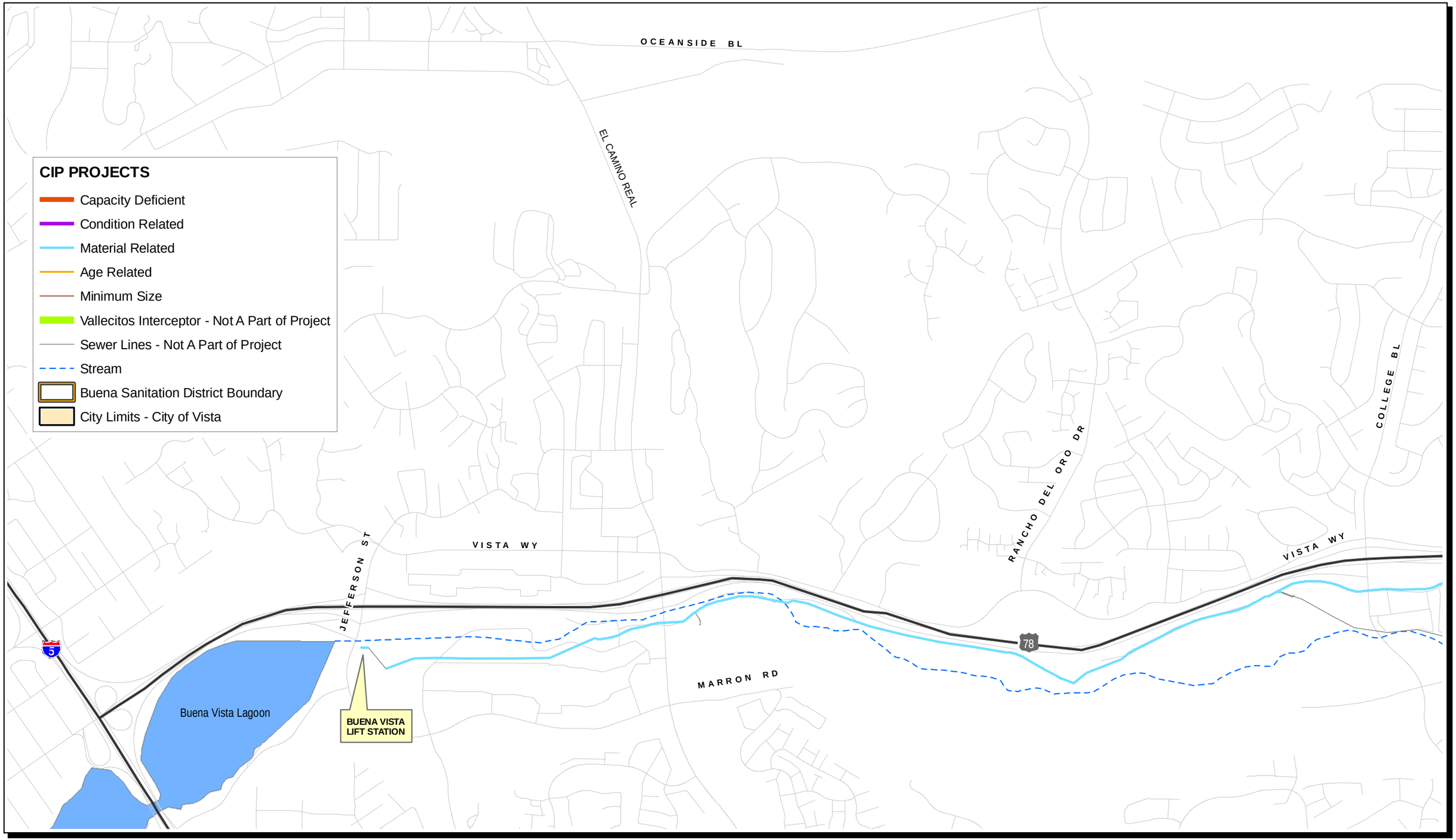

PROJECT DATA SOURCE: City of Vista, 2007

Feet
0 1,200

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Proposed Project Components

FIGURE 2-5J

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requirements and acceptable construction practices including, but not limited to, safety measures, vehicle operation and maintenance, excavation stability, erosion control, drainage alteration, groundwater disposal, traffic circulation, public safety, dust control and noise generation. Also, the project would be designed in accordance with State of California Building Code and applicable jurisdictional Municipal Code requirements. These measures are included in *Table 2-3, Summary of Standard Project Design Features and Construction Measures,* and are referenced throughout the impact discussions in *Section 4.0* of this Program EIR.

The City of Vista is the lead agency in preparation of this EIR and is responsible for maintenance, operations, and management of both the City of Vista and Buena Sanitation District sewer collection systems. Throughout the PEIR including *Table 2-3,* reference to the City - Vista means the City of Vista or the Buena Sanitation District, as applicable.

Table 2-3
Summary of Standard Project Design Features and Construction Measures

Aesthetics	• Demolition debris shall be removed in a timely manner for off-site disposal. • Tree and vegetation removal shall be limited to those depicted on construction drawings. • Construction lighting shall be shielded or directed away from adjacent residences.
Air Quality	• Water or dust control agents shall be applied to active grading areas, unpaved surfaces, and dirt stockpiles as necessary to prevent or suppress particulate matter from becoming airborne. All soil to be stockpiled over 30 days shall be protected with a secure tarp or tackifiers to prevent windblown dust. • Covering/tarping will occur on all vehicles hauling dirt or spoils on public roadways unless additional moisture is added to prevent material blow-off during transport. • Grading and other soil handling operations shall be suspended when wind gusts exceed 25 miles per hour. The construction supervisor shall have a hand-held anemometer for evaluating wind speed. • Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadway shall be swept or vacuumed and disposed of at the end of each workday to reduce resuspension of particulate matter caused by vehicle movement. During periods of soil export or import, when there are more than six trips per hour, dirt removal from paved surfaces shall be done at least twice daily. • Disturbed areas shall be revegetated as soon as work in the area is complete. • Electrical power shall be supplied from commercial power supply wherever feasible, to avoid or minimize the use of engine-driven generators. • Air filters on construction equipment engines shall be maintained in clean condition according to manufacturers' specifications. • The construction contractor shall comply with the approved traffic control plan to reduce non-project traffic congestion impacts. Methods to reduce construction interference with existing traffic and the prevention of truck queuing around local sensitive receptors shall be incorporated into this plan. • Staging areas for construction equipment shall be located as far as practicable from residences. • Trucks and equipment shall not idle for more than 15 minutes when not in service.
Biological Resources	• Native vegetation disturbance shall be limited to the construction zones as indicated by flagging or fencing. Prior to the commencement of construction, the limits of grading shall be clearly delineated by a survey crew prior to brushing, clearing, or grading. The limits shall be checked by a biological monitor before initiation of construction grading. The City shall be responsible to mitigate

Table 2-3
Summary of Standard Project Design Features and Construction Measures

	impacts to sensitive biological resources beyond those identified in this report or any subsequent reports that occur as a direct result of construction activities. • Erosion and siltation into off-site areas during construction shall be minimized. The City shall prepare an erosion control plan in accordance with applicable local code requirements. The construction supervisor shall be responsible for ensuring that the erosion control plan is developed and implemented. • Appropriate post-construction fencing and signage shall be installed to prohibit access and avoid potential impacts to sensitive resources adjacent to project sites. • Lighting shall be diverted away from any native habitat and shall consist of low-sodium or similar lighting equipped with shields to focus light downward onto the appropriate subject. • Unless authorized as part of construction, existing roads or disturbed areas shall be used to access project sites. • Topsoil from the project sites shall be stockpiled within the construction sites where feasible. If topsoil from off-site construction must be stockpiled, it shall be stockpiled in disturbed areas. Stockpile areas shall be delineated on the grading plans and reviewed by a qualified biologist. • On-site staging areas shall be used where feasible. Staging areas shall be delineated on the grading plans and reviewed by a qualified biologist. If staging areas outside the construction footprint are used, then they shall be surveyed for biological resources prior to their use. • The use of native plants to the greatest extent feasible in the landscape areas adjacent mitigation or open space areas (including wetland and riparian areas) will be implemented. The City will not plant, seed, otherwise introduce invasive exotic plant species to the landscaped area(s). Exotic plant species not be used include those species listed on Lists A and B of the California Exotic Pest Plant Council's "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999." This list includes such species as pepper trees, pampas grass, fountain grass, ice plant, myoporum, black locust, and capeweed.
Cultural Resources	• Specific locations of potential impacts to paleontological resources would be those locations considered to be high- to moderately sensitive in paleontological resources. This specific information would become available at the time of grading. Only those considered to be high- to moderately sensitive in paleontological resources would require additional investigation. • A paleontological monitor shall be on site at all times during grading activities that disturb undocumented fill soils or underlying geologic formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until a complete assessment of the resources can be conducted.
Geology and Soils	• All segments of the 2008 Sewer Master Plan Update will be constructed in accordance with Uniform Building Code Standards and accepted standards for public works construction. These standards pertain to protection against seismic activity, settlement, liquefaction, and other integrity issues. • A Geotechnical Study shall be conducted during final design for all project components. Each respective component shall adhere to the findings of the Geotechnical study including recommendations regarding soil compaction and replacement.
Hazards and Hazardous Materials	• Fire safety information shall be disseminated to construction crews during regular safety meetings. Fire management techniques shall be applied during project construction as deemed necessary by the lead agency and depending on site vegetation and vegetation of surrounding areas. • A brush management plan will be incorporated during project construction by the City or its contractors, as necessary. Construction within areas of dense foliage during dry conditions will be avoided, when feasible. In cases where avoidance is not feasible, necessary brush fire prevention and management practices will be incorporated. Specifics of the brush management program will be determined as site plans for the project are finalized. • A site-specific record search for the locations and type of hazardous materials will be conducted during final design of the individual project components.

Table 2-3
Summary of Standard Project Design Features and Construction Measures

	• The use, storage, transportation, and disposal of chemicals and use of petroleum fuel during construction and operation of the project will be regulated by the County Department of Hazardous Waste Management, and will be conducted according to all applicable state, federal and local regulations. • In order to ensure that the project does not cause a significant hazard to the public or the environment through release of or transport of hazardous materials during construction and operation, the City through its contractors will implement the following project design features: – Pipelines of the project components would be constructed with PVC pipe, or other material, which is highly resistant to rupture. • Prior to construction, the City will prepare a traffic control plan in accordance with the cities of Vista, Carlsbad, Oceanside, San Marcos, and the County of San Diego traffic control guidelines that will specifically address construction traffic during construction of project components within the public right-of-ways of the affected jurisdiction(s). See Transportation/Traffic section below.
Hydrology and Water Quality	• During construction, the City will comply with the current California Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) permit for construction dewatering (Order Number 98-67 or current permit) and obtain a NPDES permit for stormwater and runoff discharge for project components resulting in grading of more than 1 acre. In compliance with the RWQCB requirements and the NPDES permit a Best Management Practices (BMP) program for stormwater pollution control and Storm Water Pollution Prevention Program (SWPPP) will be implemented. • Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance and install BMPs to ensure that sediment is not transported beyond the project limits or into sensitive areas such as wetland and waterbodies. A dewatering permit will be obtained when required. • Material stockpiled during construction shall placed such that interference with onsite drainage patterns will be minimized or avoided. During rain events, stockpiles shall be covered with impermeable materials such as tarps in order to allow flow from the construction site to occur without excessive sediment loading. • BMPs shall include both sediment control measures to prevent rainfall from contacting exposed soil surfaces, and erosion control measures (e.g., gravel bags) to prevent eroded material from leaving construction areas, especially from flat graded areas, in accordance with the required erosion control plan. • A construction spill contingency plan shall be prepared in accordance with County Department of Environmental Health regulations and retained on site by the construction manager. If soil is contaminated by a spill, the soil shall be properly removed and transported to a legal disposal site. • If groundwater is encountered and dewatering is required, then the groundwater shall be disposed of by pumping to the sanitary sewer system or discharging to the storm drain system according to the conditions of the appropriate discharge permit. • The lead agency will consider using pervious or semi-pervious surfaces where possible to reduce the increase in the velocity of peak flows. • For all potential impacts to natural drainages (i.e., pre-development hydrology), BMPs on-site shall be used to fully reduce the potential for project-related contaminants in the surface flows prior to their discharge to streams.
Noise	• Heavy equipment shall be repaired at sites as far as practical from nearby residences. • Construction equipment, including vehicles, generators and compressors, shall be maintained in proper operating condition and shall be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures). • Construction work, including on-site equipment maintenance and repair, shall be limited to the hours specified in the noise ordinance of the affected jurisdiction.

Table 2-3
Summary of Standard Project Design Features and Construction Measures

	• Electrical power shall be supplied from commercial power supply, wherever feasible, in order to avoid or minimize the use of engine-driven generators. • Staging areas for construction equipment shall be located as far as practicable from residences. • Operating equipment shall be designed to comply with all applicable local, state, and federal noise regulations. • If lighted traffic control devices are to be located within 500 feet of residences, the devices shall be powered by batteries, solar power, or similar sources, and not by an internal combustion engine. • The City or its construction contractors shall provide advance notice, between two and four weeks prior to construction, by mail to all residents or property owners within 300 feet of the alignment. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more that 7 days occur, an additional notice shall be made, either in person or by mail. The City shall also publish a notice of impending construction in local newspapers, stating when and where construction will occur. • The City shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise and other construction disturbance. The City shall also establish a program for receiving questions or complaints during construction and develop procedures for responding to callers. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with the information above.
Transportation/Traffic	• Prior to construction, the City shall prepare a traffic control plan (TCP) implemented for all affected roadways. The TCP shall be prepared in accordance with Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones [1996 (Revision 2) edition]. Each of the affected municipalities' traffic control guidelines, as applicable, will also be incorporated in the TCP. The TCP will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. Additionally, the TCP will ensure that congestion and traffics delays are not substantially increased as a result of project construction and that any traffic impacts will be short-term in nature. The TCP will show all signage and striping, and will delineate detours, flagging operations and any other procedures that will be used during construction to guide motorists safely through the construction zone and allow for a minimum of one lane of travel. The TCP will also include provisions for coordinating with local emergency service providers regarding construction times and locations of lane closures as well as specifications for bicycle lane safety. The limits of construction work area(s) and suggested alternate traffic routes for through traffic will be published in a local newspaper periodically throughout the construction period. In addition, the construction contractor or the City shall provide a minimum two-week written notice prior to the start of construction by mailing to owners/occupants along streets to be impacted during construction. During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to and from public facilities (e.g., public utility stations and community centers). If normal access to these facilities is blocked by construction, an alternative access shall be provided. Should this occur, the City shall coordinate with each facility's administrators in preparing a plan for alternative access. During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to commercial/industrial establishments during regular business hours. If normal access to business establishments is blocked, alternative access shall be provided. Should this occur, the City shall coordinate with the businesses in preparing a plan for alternative access.

Table 2-3
Summary of Standard Project Design Features and Construction Measures

	During construction, the City shall maintain continuous vehicular and pedestrian access to residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. For example, when a given pipeline segment is initially being excavated, access to individual driveways may be closed during the course of a workday. Access shall be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the construction contractor shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure. Methods to maintain safe, vehicular and pedestrian access include the installation of temporary bridge or steel plates to cross over unfilled excavations. Whenever sidewalks or roadways are removed for construction, the contractor shall place temporary sidewalks or roadways promptly after backfilling until the final restoration has been made. The TCP shall include provisions to ensure that the construction contractor's work in any public street does not interfere unnecessarily with the work of other agencies vehicles, such as emergency service providers, mail delivery, school buses, waste services, or transit vehicles. • Determination of whether a project component falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way, the following shall occur: The City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. This process will include submittal of project plans, review of plans by the respective authorities, possible revisions of the plans relative to concerns brought forth by the issuing agency and issuance of the respective permit. Potential permitting agencies include Caltrans, North County Transit District, cities, and the County of San Diego. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored. • During project design, the City shall coordinate with each jurisdiction that may be affected by the project, including its own transit division, to determine the exact limits of project construction. All work proposed within the State right-of-way shall be dimensioned in metric units. The coordination effort shall be followed by specific measures to avoid conflicts resulting from other construction projects occurring within the direct vicinity of the project and within the same time period. Coordination with the following entities shall occur in conjunction with the proposed project: Caltrans County of San Diego Traffic Engineering NCTD Vista Traffic Engineering Carlsbad Traffic Engineering Oceanside Traffic Engineering San Marcos Traffic Engineering

2.6 Discretionary Actions

The decision to implement the 2008 Sewer Master Plan Update is within the purview of the City of Vista City Council, which acts as the decision making body for both the City of Vista and

Buena Sanitation District. The Vista City Council will use the information included in this Program EIR to consider potential impacts to the physical environment associated with the project when making the decision to implement the proposed project.

The RWQCB will use the Program EIR and supporting documentation in its decision to issue water quality permits, such as a National Pollutant Discharge Elimination System (NPDES) General Construction Activity Storm Water Permit, Clean Water Act 401 Water Quality Certification, and/or a General Dewatering Permit.

If federally listed species are affected by project components, the U.S. Fish and Wildlife Service (USFWS) will use the Program EIR and supporting documentation in its decision to issue relevant permits, such as take permits under Section 10 of the Endangered Species Act.

Should wetlands or water of the U.S. be affected, the U.S. Army Corps of Engineers (ACOE) will review the Program EIR and supporting documentation in its decision to issue relevant permits, such as a 404 or Nationwide Permit.

The California Department of Fish & Game (CDFG) will use the Program EIR and supporting documentation in this decision to issue a Streambed Alteration Agreement under Section 1602 of Fish and Game Code or a California Endangered Species Act incidental take permit.

The Cities of Carlsbad, Oceanside, and San Marcos, and the County of San Diego will use the Program EIR and supporting documentation in their respective decision to issue encroachment permits for construction within each jurisdiction's right-of-way.

The Cities of Carlsbad and Oceanside will use the Program EIR and supporting documentation in their respective decision to issue Coastal Development Permits (CDPs) for any portion of the project lying within the coastal zone (possibly also the California Coastal Commission).

For construction within existing San Diego Gas & Electric (SDGE) easements, SDGE would use the Program EIR and supporting documentation in its decision to issue encroachment permits.

SECTION 3.0
ENVIRONMENTAL SETTING

In accordance with Section 15125 of the CEQA Guidelines, the general environmental setting for the project area is provided in this section. More detailed descriptions of the setting specifically pertaining to each environmental issue are provided at the beginning of each impact issue area addressed in *Section 4.0*.

3.1 Physical Setting

The environmental setting for the proposed project includes all 20 capacity-related replacement project groups and approximately 85.5 miles of non-capacity-related projects within the cities of Vista, Oceanside, Carlsbad, San Marcos, and the County of San Diego, California.

The City of Vista is a predominantly residential community with a semi-rural atmosphere. It is located approximately eight miles east of the Pacific Ocean, and surrounded by the cities of Oceanside to the west, Carlsbad to the south, San Marcos to the east and the rural San Diego County community of Bonsall to the north. Existing land use within the City includes residential, commercial, industrial, civic and open space.

The City of Oceanside's existing land use consists of a range of uses, including the intensively-developed downtown area adjacent to the coast, to the residential communities in the central portion of the City, to the rural agricultural and vacant land in the eastern portion of the City. Residential use represents the predominant land use within the City. The central portion of the City and coastal zones are predominantly residential and commercial. In addition to strip commercial along Hill Street and Oceanside Boulevard, most community-serving shopping centers are located within this area. Higher-density residential development also exists, as well as some industrial uses along the Atchison, Topeka, and Santa Fe (AT&SF) railway, which parallels the coastline. The northwestern portion of the City also supports residential development. However, there are more diverse land uses occurring, including larger concentrations of commercial activities, than the central portion of the City.

The City of Carlsbad is a coastal jurisdiction bordered generally on the north by the cities of Oceanside and Vista, on the east by Vista and San Marcos, and on the south by Encinitas. The City of Carlsbad is developed with a variety of land uses including residential, commercial and/or industrial, and open space. A small portion of the developed areas consists of public uses and utility right-of-ways. The majority of existing commercial development within the City is located along El Camino Real, immediately south of Highway 78, and south of Cannon Road along I-5. In addition, existing commercial uses predominate the City's downtown along with

numerous hotels and service stations along I-5. Industrial land uses are primarily concentrated within the City's centralized industrial corridor which surrounds Palomar Airport and extends in a broad band generally to the eastern and western City limits.

The City of San Marcos is located in the County of San Diego, generally bounded by the cities of Carlsbad and Vista and unincorporated County lands to the west, unincorporated County lands to the north and south, and the City of Escondido and more unincorporated County lands to the east. The City of San Marcos is comprised of eight distinct community, neighborhood and district plans.

The portion of the project proposed within the County of San Diego lies within the North County Metro Subregion, which is comprised of many non-contiguous "island" areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista and Oceanside with the most easterly portion adjacent to Valley Center. The North County Metro Subregion includes the communities of Hidden Meadows and Twin Oaks as well as a number of smaller unrepresented areas. The unrepresented areas generally consist of industrial and commercial land uses. The incorporated cities of Escondido, San Diego, San Marcos, Vista and Oceanside serve many of the commercial, industrial and office professional needs of this diverse subregion.

Major roadways include I-5 which runs north to south along the coastal corridor, and State Route 78 (SR-78) and Mission Avenue (SR-76), which provide inter-regional access, moving vehicles through or around the study area.

Hydrologically, the study area is located within the San Diego Hydrologic Region, which drains west into the Pacific Ocean. The San Diego Hydrologic Region encompasses approximately 3,900 square miles and is further subdivided into 11 major watersheds. The project components occur primarily in the Carlsbad Watershed. The Carlsbad Watershed occupies approximately 210 square miles, extending from Lake Wohlford on the east to the Pacific Ocean on the west and from Vista on the north to Cardiff-by-the-Sea on the south. This watershed includes the cities of Oceanside, Carlsbad, Encinitas, Vista, and Escondido. The watershed is drained by Buena Vista, Agua Hedionda, San Marcos and Escondido creeks and contains four coastal lagoons, including Buena Vista, Agua Hedionda, Batiquitos and San Elijo lagoons.

SECTION 4.0
ENVIRONMENTAL IMPACTS

This section describes the existing conditions of the project study area and the environmental impacts that would occur with implementation of the proposed project. The analysis of each environmental issue area includes a description of the existing conditions within the project study area, the thresholds for determining significance of the impacts and evaluation of how the specific resource would be affected by implementation of the proposed project, program level mitigation measures to reduce significant impacts, and residual impacts after mitigation. Alternatives to the project are discussed in *Section 7.0, Alternatives*.

CEQA requires a lead agency to determine the impacts of a project based on the project's expected effects when compared to certain thresholds of significance. The applicable significance thresholds used in this document are those adopted by the City of Vista. These thresholds follow Appendix G of the state CEQA Guidelines.

The study area analyzed in this document focuses on the relatively broad geography encompassed by the 2008 Sewer Master Plan Update, as shown in *Figures 2-2 and 2-5*. The study area includes the locations where potential environmental impacts are anticipated and includes the footprints of each project component. Changes in the environment, as a result of the project, would be reflected within the study area. For certain environmental issue areas, including Biological Resources (*Section 4.3*) and Cultural Resources (*Section 4.4*), the area of potential effect encompasses areas extending beyond the project footprint to include ground-disturbing activities required for construction or operation of the project. For Transportation/Traffic (*Section 4.10*), the study area includes the adjacent streets that would be potentially affected by the proposed project.

This program level impact analysis was conducted primarily through use of mapping data available through Geographic Information Systems (GIS). Proposed project components were imposed on relevant layers of information (e.g., the 100-year flood hazards zones, vegetation, hydrologic units) in order to determine environmental impacts per CEQA. Proposed project components are identified throughout each section using a unique tracking code developed by the City of Vista. Each manhole throughout the system has a 6-to 7-digit alphanumeric code (e.g., B01097 or V32T400). The first 3 digits of this code typically dictates the sub-basin in which the manhole is located. The next 3 digits provide a unique manhole number (also called the Node ID). Project components are pipeline segments consisting of an upstream and downstream manhole (i.e. B04099.00 – B04100.00). The segment of pipeline between two manholes can range between a small linear footage (approximately 30 feet) to a larger linear footage (approximately 500 feet). *Appendix C* provides a complete list of proposed project

components that make up the 2008 Sewer Master Plan. A total of 2,261 proposed project components were identified within the 2008 Sewer Master Plan and evaluated throughout this PEIR.

4.1 Aesthetics

4.1.1 Introduction and Methodology

This section focuses on the components of the project which may result in visual impacts or affect visual character upon implementation. A brief description of visual resources is given followed by the visual impact analysis.

4.1.2 Existing Conditions

City of Vista

The City of Vista is a predominantly residential community with a semi-rural atmosphere. The City is noted for its rolling terrain which adds to the rural atmosphere. This visual landscape consists of a mixture of urban uses, infrastructure, and hillsides. The City's landform varies from lowland areas along creek beds to steep slopes along the San Marcos Mountains to the east. Elevations range from approximately 250 feet above mean sea level (AMSL) to over 700 feet AMSL at the base of the San Marcos Mountains with its steep slopes reaching 1,200 feet. Two major creeks flow through the area, Agua Hedionda Creek and Buena Vista Creek.

City of Oceanside

The City of Oceanside is located along the coast of San Diego County, and stretches from the coastline on the west to the inland valleys on the east. The visual landscape within the City includes a relatively narrow beach and dunes area; broad, flat floodplain; marine terrace; dissected terraces, with mesa and canyon systems; and the rolling foothills of the San Marcos Mountains. Elevations within the City range from sea level to about 1,050 AMSL. The principal waterway within the City is the San Luis Rey River, a perennial stream which flows along the northern edge of the City and empties into Oceanside Harbor. Loma Alta Creek is a seasonal, partially channelized waterway which flows through the central portion of the City. Existing land use within the city consist of a range of uses including, the intensively-developed downtown area adjacent to the coast, to the residential communities in the central portion of the City, to the rural agricultural and vacant land in the eastern portion of the City.

City of Carlsbad

The City of Carlsbad is aesthetically characterized by a mixture of natural and urban landforms. The natural environment is made up of diverse landforms, rock outcrops, plants and animal resources, natural colors and hues and panoramic public views of the horizon, foothills, lagoons,

and the Pacific Ocean. The natural scenic landscape includes rugged coastal bluffs, several expansive low lying coastal lagoons, and numerous valleys and small canyons surrounded by rolling foothills. The urban environment includes historic buildings, landscaping, signage/monuments, and works of art. There is no dominant architectural theme throughout the City; however, there is a concentration of older Victorian style structures in the northwestern portion of the City and many Spanish and Western Ranch style buildings in the southeastern portion. The industrial portion of the City is characterized by large industrial parks nestled into the hills with a variety of glass/concrete office, manufacturing, and warehouse buildings.

City of San Marcos

San Marcos is located in a picturesque area of San Diego County. Landforms, such as the mountain ranges in the northern and southern portions of the City, contribute to its scenic corridors and open space atmosphere. San Marcos is located in the Peninsular Range Province, which is characterized by northwest trending mountain ranges separated by subparallel fault zones. The most prominent landforms within San Marcos consist of several mountain ranges including the Merriam Mountains, and San Marcos Mountains in the northern portion of the City; and Owen Mountain in Twin Oaks Valley and the College Area Community. Primary and secondary ridgelines in the northern and southern mountain ranges vary in elevation from 600 feet to 1,736 feet. These mountain ranges, in conjunction with San Marcos Creek and its tributaries, create several distinctive geologic landforms including valleys, canyons, washes, natural open space areas, and alluvial fans. San Marcos Creek and its tributaries extend in virtually all of the communities, contributing to the City's rich environment, scenic corridors and open space areas.

San Diego County – North County Metropolitan Subregion

The North County Metropolitan Subregion of the County of San Diego is comprised of many non-contiguous "island" areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista and Oceanside with the most easterly portion adjacent to Valley Center. The North County Metro Subregion includes the communities of Hidden Meadows and Twin Oaks as well as a number of smaller unrepresented areas. Twin Oaks is located west of I-15 and Hidden Meadows is located east of I-15. South Santa Fe is one of the unincorporated areas within the City of Vista. This area generally consists of industrial and commercial land uses. The incorporated cities of Escondido, San Diego, San Marcos, Vista and Oceanside serve many of the commercial, industrial and office professional needs of this diverse subregion.

Regulatory Setting

The State of California enacted a Scenic Highway program in 1963 to protect and enhance California's natural beauty and to protect the social and economic values provided by the state's scenic resources. In addition, the City of Vista has adopted goals and policies relevant to visual resources in the Community Identity and Scenic Roadways Element of the General Plan. The City of Oceanside has adopted goals, policies and action programs in its Environmental Resource Management Element of the General Plan. The City of Carlsbad's Open Space Element of its General Plan outlines goals, policies, and implementing policies and action programs related to scenic resources. The City of Carlsbad has also prepared Scenic Corridor Guidelines that identify methods to preserve and enhance the character of scenic corridors. The City of San Marcos has adopted visual resource conservation goals, policies and implementing strategies in the Conservation Element of the General Plan, and the North County Metropolitan Subregion has adopted scenic highway and conservation policies in the North County Metropolitan Subregional Plan of the San Diego County General Plan, which supplements all existing elements of the San Diego General Plan.

4.1.3 Thresholds of Significance

The City of Vista adopted threshold criteria, which are derived from Appendix G of the CEQA Guidelines. Impacts to aesthetics would be significant if the proposed action would result in any of the following:

(1) Have a significant adverse effect on a scenic vista;

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

(3) Substantially degrade the existing visual character or quality of the site and its surroundings; or

(4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.1.4 Environmental Impacts

Evaluation of project impacts with regard to aesthetics is related to the potential change in views from areas surrounding the project site. Implementation of the 2008 Sewer Master Plan Update would require temporary disturbance of project sites to access pipelines and components, and would predominantly take place in public roadways and below ground. Potential visual impacts

could result from construction-related activities, such as grading, pavement removal, trenching, stockpiling of excavated soils, construction materials/equipment storage, and backfilling of trenches. Visual disturbance from construction is short term in nature, and the lead agency has included commitments in the project design to restore road surfaces, in both public and private rights-of-way, to their pre-existing visual condition or better (refer to *Table 2-3*). No long-term visual changes would result since all project components would be buried.

(1) Would the project have a significant adverse effect on a scenic vista?

Temporary impacts to a scenic vista could occur during construction. However, as mentioned above, the majority of the project components proposed under the 2008 Sewer Master Plan Update are located along existing road rights-of-way and involve below-ground installations. For those projects located in areas outside existing road rights-of-way, in landscaped areas, or where there is native vegetation, visual effects could result in short-term significant impacts. However, vegetation that is removed would be replaced, or in the case of natural areas, revegetated to blend with adjacent natural areas. All disturbed areas would be returned to pre-construction conditions. Furthermore, any above-ground sewer line work would include upgrades to existing facilities and no new above-ground pipelines or other components are proposed as part of the 2008 Sewer Master Plan Update. Therefore, no scenic views would be affected in the long-term and no permanent visual effects on a scenic vista are anticipated.

(2) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Views from scenic roadways could be impacted during construction-related activities. However, no mobile viewers from a scenic roadway would be able to view project construction for any substantial length of time, and given the relatively small visual change associated with construction activities, impacts would be less than significant.

(3) Would the project substantially degrade the existing visual character or quality of the site and its surrounding?

The visual character of the project area and its surroundings would not be adversely affected once construction is completed and the disturbed surfaces are restored to pre-existing conditions. Also, the relatively small scale associated with such pipeline construction activities would not substantially degrade the existing visual character. Consequently, the project will not result in any significant long-term visual impacts to its surroundings.

(4) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction of projects included in the 2008 Sewer Master Plan Update may require outdoor flood lighting for emergency nighttime work, which would occur under rare circumstances. Because project-related lighting would be short-term and would not be required after the construction period, impacts would be less than significant.

4.1.5 Level of Significance Prior to Mitigation

Long-term aesthetics impacts would be less than significant, as analyzed in *Section 4.1.4.* Potential short-term impacts to aesthetic visual resources would also be less than significant given the identified project design measures in *Table 2-3*, including compliance with applicable municipal development codes and policies (see *Table 2-3, Summary of Standard Project Design Features and Construction Measures*).

4.1.6 Mitigation Measures

No significant visual impacts have been identified; no mitigation measures are required.

4.1.7 Level of Significance after Mitigation

There are no significant aesthetic impacts.

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4.2 Air Quality

4.2.1 Introduction and Methodology

The purpose of this section is to assess general air quality conditions and identify potential air quality impacts as a result of the proposed project. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Site-specific air quality analyses were not performed for the project areas. A global climate change evaluation is also provided in this section.

4.2.2 Existing Conditions

Meteorology/Climate

The project site is located within the San Diego Air Basin. The climate of the San Diego Air Basin is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high pressure cell comes into contact with cool marine air, which results in the boundary between the two layers creating a temperature inversion that traps pollutants. Radiation inversions develop on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone, commonly known as smog.

The study area, encompassing parts of the Cities of Vista, San Marcos, Oceanside, Carlsbad and unincorporated San Diego County enjoys a Mediterranean climate characterized by warm, dry summers, mild winters, and infrequent rainfall. The principal climatic features include the Pacific semi-permanent subtropical ridge with a shallow marine layer and pronounced low-level inversion, along with the cool California current that moderates temperature variations. With a less-pronounced moderating oceanic influence than coastal communities, the City of Vista experiences greater variability in annual minimum and maximum temperatures than coastal portions of the basin.

Air Quality Regulatory Setting

The federal Clean Air Act (CAA) has resulted in national air quality regulation being a role of the EPA. In California, the task of air quality management and regulation has been legislatively granted to the California Air Resources Board (CARB) with subsidiary responsibilities assigned to local air quality management districts (regional level) and air pollution control districts (county level). The EPA is responsible for enforcing the federal CAA of 1970 and its 1977 and 1990 amendments. The CAA required the EPA to establish the National Ambient Air Quality Standards. The National Ambient Air Quality Standards (NAAQS) may not be exceeded more than once a year. Annual standards are not to be exceeded any time of the year. The NAAQS identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the EPA established both primary and secondary standards for several pollutants (called "criteria" pollutants). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere.

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The CARB established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California Clean Air Act (CCAA) of 1988 and also established California Ambient Air Quality Standards for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be non-attainment areas for that pollutant. *Table 4.2-1, Ambient Air Quality Standards,* presents a summary of the Ambient Air Quality Standards adopted by the federal and California Clean Air Acts. The San Diego Air Basin is currently classified as a non-attainment area under the California Ambient Air Quality Standards for ozone (O_3) and particulate matter less than or equal to 10 micrometers in size (PM_{10}).

Table 4.2-1
Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Method	Primary	Secondary	Method
Ozone	1 hour[a]	0.09 ppm (180 μg/m³)	Ultraviolet Photometry	0.12 ppm (235 μg/m³)	0.12 ppm (235 μg/m³)	Ethylene Chemiluminescence
	8 hours	0.07 ppm[b] (137 μg/m³)		0.08 ppm (157 μg/m³)	0.08 ppm (157 μg/m³)	
Carbon Monoxide	8 hours	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Spectroscopy	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Spectroscopy
	1 hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		

Table 4.2-1
Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Method	Primary	Secondary	Method
Nitrogen Dioxide (NO_2)	Annual Average	--	Gas Phase Chemilumines-cence	0.053 ppm (100 μg/m³)	0.053 ppm (100 μg/m³)	Gas Phase Chemiluminescence
	1 hour	0.25 ppm (470 μg/m³)		--	--	
Sulfur Dioxide (SO_2)	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 μg/m³)	--	Pararosaniline
	24 hours	0.04 ppm (105 μg/m³)		0.14 ppm (365 μg/m³)	--	
	3 hours	--		--	0.5 ppm (1,300 μg/m³)	
	1 hour	0.25 ppm (655 μg/m³)		--	--	
Respirable Particulate Matter (PM_{10})	24 hours	50 μg/m³	Gravimetric or Beta Attenuation	150 μg/m³	150 μg/m³	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m³		50 μg/m³	50 μg/m³	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m³	Gravimetric or Beta Attenuation	15 μg/m³	--	Inertial Separation and Gravimetric Analysis
	24 hours	--		65 μg/m³	--	
Sulfates	24 hours	25 μg/m³	Ion Chromatography	--	--	--
Lead	30-day Average	1.5 μg/m³	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 μg/m³	1.5 μg/m³	
Hydrogen Sulfide Vinyl Chloride	24 hours	0.010 ppm (26 μg/m³)	Gas Chroma-tography	--	--	--

Sources: Scientific Resources Associated, July 25, 2006; California Air Resources Board 2002.

Notes: ppm= parts per million; μg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter.

[a] The 1-hour National Ambient Air Quality Standard was rescinded on July 15, 2005; however, the South Coast Air Quality Management District Ozone State Implementation Plan is currently based on the 1-hour National Ambient Air Quality Standard pending update to reflect the 8-hour National Ambient Air Quality Standard.

[b] The 8-hour California Ambient Air Quality Standard for ozone was approved by the Air Resources Board on April 28, 2005, and is anticipated to become effective in early 2006.

The CCAA requires areas that have not attained state ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to prepare plans to attain the standards by the earliest practicable data. San Diego County has been designated by the CARB as a non-attainment area for O_3 and PM_{10}. Because the region is a non-attainment area for ozone, the Air Pollution Control District (APCD) and SANDAG have jointly developed the San Diego Regional Air Quality Strategy (SDRAQS) to identify feasible emission control measures to

achieve compliance with the state ozone standard. SDRAQS addresses volatile organic compounds (VOCs) and oxides of nitrogen (NOx), which are the precursors to the photochemical formation of ozone. The SDRAQS (2004) identifies feasible control measures that can be implemented from 2004 to 2007. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Diego APCD is the local agency responsible for the administration and enforcement of air quality regulations for San Diego County.

The APCD and SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the San Diego Air Basin. The SDRAQS outlines the APCD's plans and control measures designed to attain the state air quality standards for O_3. The APCD has also developed the air basin's input to the State Implementation Plan (SIP), which is required under the federal CAA for areas that are out of attainment of air quality standards. The SIP includes the APCD's plans and control measures for attaining the O_3 NAAQS. The San Diego Air Basin has been designated as an O_3 attainment area for the 1-hour NAAQS for ozone; however, as discussed below, the San Diego Air Basin has been designated as a basic non-attainment area for the new 8-hour NAAQS for O_3.

The SDRAQS relies on information from CARB and SANDAG, including mobile area source emissions and information regarding projected growth in the County, to project future emissions and then determine the strategies necessary for reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of the County's General Plan. As such, projects that propose development that is consistent with the growth anticipated by the General Plan and SANDAG's growth forecasts would be consistent with the SDRAQS and the SIP. In the event that a project would propose development that is less dense than anticipated within the General Plan, the project would be consistent with the SDRAQS. If a project proposes development that is greater than that anticipated in the General Plan, a comparison with SANDAG's growth projections for the major statistical area can evaluate whether the project is consistent with the SDRAQS and SIP. If the project proposes growth that is not accounted for in SANDAG's growth projections, the project might conflict with the SDRAQS and SIP and might have a potentially significant impact on air quality.

The SIP relies on the information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the APCD to control emissions

from stationary sources. These SIP–approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the State Implementation Plan and thereby impact attainment of the NAAQS for O_3.

Existing Pollution Constituents and Attainment Status

Each criteria pollutant is either in "attainment" or in "non-attainment" status. The criteria for non-attainment designation vary by pollutant. A system of monitoring stations which measure ambient air quality has been established to assist in the enforcement of the standards. The nearest ambient monitoring stations to the project site are the Camp Pendleton station, the Escondido East Valley Parkway station, and the San Diego 12th Avenue Station. Since the Escondido and San Diego 12th Avenue monitoring stations are located in areas where there is substantial traffic congestion, it is likely that pollutant concentrations measured at those stations are higher than concentrations that would be observed or measured at the proposed project areas and would thus provide a conservative estimate of background ambient air quality. *Table 4.2-2, Ambient Background Concentrations* displays the ambient concentrations of pollutants over the last three years.

Table 4.2-2
Ambient Background Concentrations of Air Pollutants (2003 – 2005)

	Maximum Observed Concentration (in ppm, unless otherwise noted)						
Pollutant	Averaging Time	2003	2004	2005	CAAQS	NAAQS	Monitoring Station
Ozone	8 hour	0.084	0.095	0.074	0.070	0.08	Camp Pendleton
	1 hour	0.099	0.110	0.090	0.09	0.12	Camp Pendleton
PM_{10}	Annual	32.7µg/m³	27.3 µg/m³	22 µg/m³	20 µg/m³	50 µg/m³	Escondido
	24 hour	179[2] µg/m³	57 µg/m³	36 µg/m³	50 µg/m³	150 µg/m³	Escondido
$PM_{2.5}$	Annual	14.2 µg/m³	14.1 µg/m³	12.3 µg/m³	12 µg/m³	15 µg/m³	Escondido
	24 hour	69.2[2] µg/m³	67.3 µg/m³	43.1 µg/m³	N/A	0.65 µg/m³	Escondido
NO_2	Annual	0.012	0.012	0.011	N/A	0.053	Escondido
	1 hour	0.095	0.099	0.077	0.025	N/A	Escondido
CO	8 hour	10.64[2]	3.61	3.10	9.0	9	Escondido
	1 hour	12.7[2]	6.3	5.9	20	35	Escondido
SO_2	Annual	0.004	0.004	0.002	N/A	0.03	San Diego
	24 hour	0.008	0.008	0.007	0.4	0.14	San Diego
	3 hour	0.019	0.020	0.019	N/A	0.5[1]	San Diego
	1 hour	0.036	0.042	0.040	0.25	0.25	San Diego

Source: Scientific Resources Associated, July 25, 2006.
Notes: CAAQS= California Ambient Air Quality Standard; NAAQS= National Ambient Air Quality Standard; ppm= parts per million; µg/m= micrograms per cubic meter.
[1] Secondary NAAQS
[2] Maximum concentration measured during the Cedar Fire event in 2003.

As seen in *Table 4.2-2, Ambient Background Concentrations* the federal 8-hour ozone standard was exceeded at the Camp Pendleton Monitoring station twice in 2004. In addition the federal

24-hour PM_{10} standard was exceeded once at the Escondido monitoring station in 2003; however this occurred during the Cedar Fire event in San Diego County. The Escondido monitoring station measured exceedances of the state O_3, PM_{10} and $PM_{2.5}$ standards during the period from 2003 to 2005. The data from the monitoring stations indicated that air quality is in attainment for all other National Ambient Air Quality Standards.

It should be noted that concentrations of CO at the Escondido monitoring station tends to be among the highest in the San Diego Air Basin, due to the fact that the monitor is located along East Valley Parkway, which is a congested area in Escondido. The station displays higher concentrations of CO than have historically been measured elsewhere in San Diego County, therefore the background data is not likely representative of background ambient CO concentration at the proposed project site. Since 2000, CO has not been monitored at other stations in northern San Diego County.

The particulate matter identified in *Table 4.2-2, Ambient Background Concentrations of Air Pollutants (2003 to 2005),* is discussed below.

Ozone

Ozone (O_3) (smog) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases; it is not being directly emitted. Ozone is a pungent, colorless gas typical of Southern California smog. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors, such as the sick, elderly, and young children. Ozone levels peak during summer and early fall. San Diego County is currently designated as a non-attainment area for ozone standards.

Carbon Monoxide

Carbon monoxide (CO) is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions.

The San Diego Air Basin has not exceeded federal or state standards for CO in the past 5 years.[1] The San Diego Air Basin is designated as an attainment area for federal and state CO standards.

[1] Spikes in air quality pollutant constituents resulting from wildfires in October 2003 are considered anomalous and are, therefore, not considered for attainment consideration purposes.

Nitrogen Oxides

Nitrogen oxide (NO_X) compounds are a primary component of the photochemical smog reaction. They also contribute to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. Nitrogen dioxide (NO_2), a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. NO_2 decreases lung function and may reduce resistance to infection.

The San Diego Air Basin has not exceeded federal or state standards for nitrogen dioxide in the past 5 years. It is designated as an attainment area under the federal and state standards.

Sulfur Dioxide and Sulfates

Sulfur dioxide (SO_2) is a colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. In humid atmospheres, SO_2 may be changed to sulfur trioxide and sulfuric acid mist, with some of the latter eventually reacting with other materials to produce sulfate particulates. At sufficiently high concentrations, sulfur dioxide irritates the upper respiratory tract. At lower concentrations, when in combination with particulates, SO_2 may injure lung tissues. Sulfur oxides, in combination with moisture and oxygen, can yellow the leaves of plants, dissolve marble, and corrode iron and steel. Sulfur oxides can also react to form sulfates (SO_4), which reduce visibility and cut down the light from the sun.

The San Diego Air Basin has not exceeded federal or state standards for SO_2 in the past 5 years. The San Diego Air Basin is in attainment with all applicable federal and state SO_2/SO_4 standards.

Particulate Matter

Particulate matter is the mixture of solid particles and liquid droplets found in the air. Coarse particles (all particles less than or equal to 10 micrometers in diameter, or PM_{10}) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers in diameter, or $PM_{2.5}$) often come from fuel combustion, power plants, and diesel buses and trucks. Fine particles can also be formed in the atmosphere through chemical reactions. Coarse particles (PM_{10}) can accumulate in the respiratory system and aggravate health problems such as asthma.

The EPA's scientific review concluded that fine particles ($PM_{2.5}$), which penetrate deeply into the lungs, are more likely than coarse particles to contribute to adverse health effects.

The EPA has not designated a federal PM_{10} attainment classification for the San Diego Air Basin, but the area is designated as a non-attainment area for state PM_{10} standards. Concentrations of $PM_{2.5}$ in the San Diego Air Basin are considered in non-attainment with the federal and state standards.

Global Climate Change

Recognizing public interest regarding climate change and recent California legislation on this topic, this section provides information and analysis on climate change related to the proposed project for purposes of public disclosure and providing for informed decision-making as called for in the CEQA Guidelines (California Code of Regulations, Title 14, Section 15146). The information provided is based on recently established State of California goals for reducing greenhouse gas (GHG) emissions. Data for this section are derived from the Association of Environmental Professionals (AEP) White Paper on Global Climate Change, March 5, 2007.

Global climate change caused by GHGs is currently one of the most important and widely debated scientific, economic, and political issues in the United States. Global climate change is a change in the average weather of the Earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Some data indicate that the current temperature record differs from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm CO_2-equivalent concentration is required to keep global mean warming below 2°C, which is assumed to be necessary to avoid dangerous climate change (AEP 2007, June).

Greenhouse Gases

Gases that trap heat in the atmosphere are often called greenhouse gases, or GHGs. GHGs are emitted by natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without these natural GHGs, the Earth's surface would be about 61°F cooler. Emissions from human activities, such as electricity production and vehicles, have elevated the concentration of these gases in the atmosphere (AEP 2007).

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference

gas" (USEPA 2006a). The reference gas for GWP is carbon dioxide; carbon dioxide has a GWP of 1. For example, methane has a GWP of 21, which means that it has a greater global warming effect than carbon dioxide on a molecule-per-molecule basis. One teragram of carbon dioxide equivalent (Tg CO_2e) is the emissions of the gas multiplied by the GWP (1 Tg is equal to 1 million metric tons). The carbon dioxide equivalent is a good way to assess emissions because it gives weight to the GWP of the gas. The atmospheric lifetime and GWP of selected GHGs are summarized in *Table 4.2-3*. As shown in the table, GWP ranges from 1 (carbon dioxide) to 23,900 (sulfur hexafluoride).

Table 4.2-3
Global Warming Potentials and Atmospheric Lifetimes

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon dioxide	50 – 200	1
Methane	12 ± 3	21
Nitrous oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: tetrafluoromethane (CF_4)	50,000	6,500
PFC: hexafluoroethane (C_2F_6)	10,000	9,200
Sulfur hexafluoride (SF_6)	3,200	23,900

Source: USEPA 2006b.

Patterns of energy use and energy supply change over time. Any new construction in the absence of the retirement of existing buildings is associated with an absolute interest in greenhouse gas emissions. However, there are significant differences in the intensity of energy use and greenhouse gas emissions. Residential energy demand per household declined by 27 percent between 1970 and 1993 reflecting changes in occupancy levels, fuels, and efficiency measures (e.g., appliance efficiency standards and building thermal performance). Commercial energy use intensity has also changed. For example, natural gas use per square foot of conditioned space decreased by 26 percent, while electricity use increased by 5 percent from 1975 to 1991 – this primarily reflects increases in energy-intensive equipment and air conditioning in offices. In aggregate, total energy use per unit of economic output in California decreased by 28 percent between 1978 and 1990.

Changes in construction practices will be aided by implementation of California's Renewable Portfolio Standards (RPS). This will reduce the greenhouse gas intensity of purchased electricity

by increasing the proportion of GHG-free electricity available on the state grid. It is important to note that these factors contribute to reductions in greenhouse gas emissions intensity, not absolute greenhouse gas emissions. These changes in building construction and the regional electricity grid are complemented by the potential for reductions in per capita or per dwelling unit transportation-related greenhouse gas emissions. These are somewhat more complicated to quantify, because they require assumptions about use and behavior associated with places previously occupied by new users and residents (e.g., there is a chain reaction when a resident or tenant moves into new buildings, such as those in the project). The implementation of a state-mandated Low Carbon Fuel Standard (LCFS) will reduce the GHG-intensity of motor fuels and reduce emissions per vehicle mile. Federal Corporate Average Fuel Economy (CAFE) Standards: The 2007 Energy Bill creates new requirements for increases in fleet-wide fuel economy for passenger vehicles and light trucks. The legislation requires a fleet-wide average of 35 mpg to be achieved by 2020.

In 2004, total global GHG emissions were 20,135 Tg CO_2e, excluding emissions/removals from land use, land use change, and forestry (UNFCCC 2006). In 2004, the United States contributed the most GHG emissions (35 percent of global emissions). In 2004, GHG emissions in the United States were 7,074.4 Tg CO_2e, which is an increase of 15.8 percent from 1990 emissions (AEP 2007).

California is a substantial contributor of global GHGs as it is the second largest contributor in the United States and the sixteenth largest in the world. In 2004, California produced 492 Tg CO_2e (AEP 2007), which is approximately 7 percent of U.S. emissions. The major source of GHG in California is transportation, contributing 41 percent of the state's total GHG emissions. Electricity generation is the second largest source, contributing 22 percent of the state's GHG emissions (AEP 2007, June).

Regulatory Framework

International and Federal Legislation

In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess "the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation" (AEP 2007).

On March 21, 1994, the United States joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected

impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change (AEP 2007).

The Kyoto Protocol is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. More than 160 countries, 55 percent of global emissions, are under the protocol. United States Vice President Al Gore symbolically signed the Protocol in 1998. However, in order for the Protocol to be formally ratified, it must be adopted by the U.S. Senate, which was not done during the Clinton administration. The current President, George W. Bush, has indicated that he does not intend to submit the treaty for ratification.

In October 1993, President Clinton announced his Climate Change Action Plan, which had a goal of returning GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions. Data on progress on the 50 initiatives are not readily available.

California Legislation

The International and Federal efforts have been largely policy oriented. In addition to the national and international efforts described above, many local jurisdictions have adopted climate change policies and programs. However, thus far little has been done to assess the significance of the affects new development project may have on climate change.

California Assembly Bill No. 1493 (AB 1493), enacted on July 22, 2002, required the CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce GHG emissions from the light-duty/passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030, compared to today (AEP 2007).

Senate Bill No. 97 (SB 97) recognizes that climate change in relation to environmental issues and requires analysis under CEQA. SB 97, approved in August 2007, provides direction to the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for feasible mitigation of GHG emissions or the effects of GHG emissions by July 1, 2009 The Resources Agency is required to certify or adopt those guidelines by January 1, 2010. This bill also protects projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 from claims of inadequate analysis of GHG as a legitimate cause of action. This latter provision will be repealed on January 1, 2010. Thus, this “protection” is highly

limited to a handful of projects and for a short time period (California Air Pollution Control Officers Association, CAPCOA 2008).

SB 1078 established the Renewal Portfolio Standard program which requires an annual increase in renewable generation by the utilities equivalent to at least one percent of sales, with an aggregate goal of 20 percent by 2017. The California Public Utilities Commission (CPUC) accelerated the goal, requiring utilities to obtain 20 percent of their power from renewable sources by 2010 (SB 107). Currently, CPUC is considering ways to achieve 33 percent renewable energy by 2020 and is working collaboratively with the California Energy Commission to implement the Renewable Portfolio Standard program.

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-03-05, GHG emission reduction targets as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels. Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020. To meet the identified targets, the Governor directed the Secretary of the CalEPA to coordinate with the Secretary of the Business, Transportation and Housing Agency, Secretary of the Department of Food and Agriculture, Secretary of the Resources Agency, Chairperson of the CARB, Chairperson of the Energy Commission and President of the Public Utilities Commission on development of a Climate Action Plan (CAPCOA 2008).

The Secretary of CalEPA leads a Climate Action Team made up of representatives from the agencies listed above to implement global warming emission reduction programs identified in the Climate Action Plan and report on the progress made toward the goals established in Executive Order S-03-05. The Climate Action Plan report to the Governor contains recommendations and strategies to help ensure the targets in Executive Order S-03-05 are met.

The USEPA does not currently regulate GHGs. Notwithstanding the lack of USEPA regulation of GHG emissions, in 2006 the California State Legislature adopted Assembly Bill No. 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires the CARB, the state agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. AB 32 establishes a multi-year timeline for the development and implementation of GHG reporting and mitigation policy. The first step is the development of “early action” measures by June 30, 2007. A draft version of these early action measures was circulated for public comment beginning on April 20, 2007. The measures represent discrete opportunities to achieve GHG reductions that are proposed to be implemented by January 1, 2010. As the policy-making process continues, CARB will consider a broader set of mitigation measures, including carbon sequestration projects and best management practices that are technologically feasible and cost-effective. GHGs as defined

under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Existing Onsite Conditions

Natural vegetation and soils temporarily store carbon as part of the terrestrial carbon cycle. Carbon is assimilated into plants and animals as they grow and then dispersed back into the environment when they die. There are two existing sources of carbon storage on the Master Plan project components varied sites: natural vegetation and soils.

Natural Vegetation
Section 4.3, Biological Resources of this PEIR describes the existing vegetation on the project component sites. Living vegetation stores carbon, however, carbon in natural vegetation is likely to be released into the atmosphere through wildfire every 20 to 150 years.

Soils
The majority of carbon within the project component sites is stored in the soil. Soil carbon accumulates from inputs of plant and animal matter, roots, and other living components of the soil ecosystem (e.g., bacteria, worms). Soil carbon is lost through biological respiration, erosion, and other forms of disturbance. Overall, soil carbon moves more slowly through the carbon cycle, and it offers greater potential for long-term carbon storage. Field observations suggest that urban soils can sequester relatively large amounts of carbon, particularly in residential areas where management increases inputs to the soil and reduces disturbance. Observations from across the United States suggest that cities in warmer and drier climates may have slightly higher soil organic matter levels when compared to equivalent areas before development.

4.2.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to air quality would be significant if the proposed project would:

(1) Conflict with or obstruct implementation of the applicable air quality plan;

(2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

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

standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);

(4) Expose sensitive receptors to substantial pollutant concentrations; or

(5) Create objectionable odors affecting a substantial number of people.

At the project level, in order to determine whether a project would **(1)** result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or **(2)** result in a cumulatively net increase of PM_{10} or exceed quantitative thresholds for O_3 precursors, NO_X, and VOCs, project emissions project emissions are evaluated quantitatively. At this program level of analysis, evaluation is generally qualitative; however, when possible assumptions are made to conduct quantitative discussions.

A significance threshold for global climate change has not been established for the proposed project, as the primary source of GHG emissions would include construction emissions that would occur on a short-term basis. Based on the environmental research and the professional judgment of the EIR preparer, it has been determined that no meaningful threshold could be established at this time in the planning process for GHG emissions directly related to construction emissions.

4.2.4 Environmental Impacts

(1) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Project consistency with any regional air quality plan is determined in terms of whether overall growth has been correctly anticipated in any given subregion. Projects that propose development that is consistent with the growth anticipated by the City of Vista General Plan, City of Carlsbad General Plan, City of San Marcos General Plan, County of San Diego General Plan, and SANDAG's growth forecasts would be consistent with the SDRAQS and SIP. The proposed project, as discussed in *Section 4.8, Land Use, Planning, and Zoning,* would be consistent with the land use and growth assumptions included in these regional plans. Therefore, impacts to applicable air quality plans would be less than significant.

(2) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction

Air quality impacts will result primarily from short-term construction activities, emissions from vehicles used by the City of Vista employees, and the operation of other power-consuming city facilities. Standard equipment used for the rehabilitation and replacement of pipelines can include dozers, rollers, dewatering pumps, backhoes, loaders, delivery and haul trucks, and other equipment. The equipment to be found at any one time on a given construction site varies with the type of project.

Short-term impacts will also result from dust generated by surface disturbance to construct the project components. Such dust potentially will be a soiling nuisance to parked cars, landscaping/ vegetation or other surfaces. Heavy equipment (mainly diesel-powered) will generate exhaust emissions from on-site activity and hauling of excess dirt offsite, pipe and other construction materials. These impacts are generic to pipeline construction and rehabilitation activities. A discussion of these impacts is provided below. All other impacts associated with construction, relative to combustion emissions and fugitive dust, would also be applicable to the project.

Fugitive Dust

The CARB estimates that each acre under construction disturbance generates about 100 pounds of total suspended particulates (TSP) or dust per day, if no dust control measures are implemented. Dust control measures, such as frequent watering and periodic street washing near construction access, as required by San Diego APCD rules and City of Vista code requirements, can reduce the dust generation rate by approximately 50 percent. The PM_{10} fraction for TSP is typically less than half. For purposes of this analysis, a one-acre disturbance site was presumed to generate 30 pounds of TSP and 25 pounds of PM_{10} when the site is under active disturbance when "standard" dust control measures are utilized.

During construction, it was determined that the active disturbance area on any given day would be no more than approximately 200 feet by 30 feet at any given site, or 0.14 acre. Daily regional PM_{10} emissions would be approximately 3.5 pounds per day for each area of construction. Even if multiple segments were under construction, the PM_{10} emissions would still be substantially less than the significance threshold of 150 pounds per day. PM_{10} emissions resulting from project construction would therefore be considered less than significant. However, the PM_{10} levels in the SDAB are above the state standard; therefore, while PM_{10} emissions during construction are short-term and less than significant, measures are required to minimize the generation of airborne dust to the maximum extent feasible. These measures have been

incorporated into the project by design, as shown in *Table 2-3*. No further measures would be required.

Dust deposited on parked cars, outdoor furniture or other exposed surfaces from construction related activities including the hauling of excavated materials from the site may create a soiling nuisance. EPA studies have shown that the zone of impact for heavy soiling nuisance extends 50 feet or less from the activity (EPA 1995). Where construction occurs within 50 feet of sensitive receptors, soiling nuisance would occur. Project design features included in *Table 2-3* would ensure that construction effects would be less than significant. No additional measures would be required.

Combustion Emissions

Equipment exhaust emissions are negligible due to the limited equipment necessary to complete the proposed construction. Exhaust from construction activities would not result in substantial concentrations of pollutants, either locally or regionally.

Total daily construction activity impacts from equipment exhaust and fugitive dust cannot be specifically calculated at this program-level of analysis; however, given the type of project, it is likely that impacts would not exceed identified significance thresholds, and would be less than significant. However, the O_3 and PM_{10} levels in the SDAB are above national and state AAQS; therefore, while combustion emissions during construction are short-term and less than significant, project design features have been incorporated into the project to reduce effects to the extent feasible (*Table 2-3*). No additional measures would be necessary.

Additional concerns during construction include traffic delays that may occur as a result of construction vehicles interfering with existing traffic flow, and potential truck queuing near sensitive receptors. Detours, delays and congestion from potential lane closures or slow moving vehicles may cause vehicular emissions of CO and ROG to increase. With an effective traffic control plan in place (as described in *Section 2.3* and *Table 2-3*) air quality impacts would be maintained at a level below significance (see *Section 4.2.4* below).

With implementation of the required dust abatement and exhaust pollution minimization measures found in *Table 2-3,* emissions associated with project implementation would be further reduced to a level below significant. Implementation of these measures would ensure that project-related emissions remain below a level of significance by controlling construction-generated respirable particulate matter (PM_{10}) through dust abatement procedures and controlling construction-generated O_3 and NO_x through proper maintenance of construction vehicles, and traffic/construction vehicle management.

Operational Impacts

Long-term air quality impacts are not anticipated as a result of implementation of the proposed 2008 Sewer Master Plan Update. No above ground sewer facilities are proposed as part of the project. Operation and maintenance of the pipelines associated with the 2008 Sewer Master Plan update would result in routine patrolling and emergency repairs, which would generate a minimal amount of increased traffic, and no-dig rehabilitations, which would not generate emissions. Therefore, operation of the proposed project would not result in a violation of applicable air quality standards, and impacts would be less than significant.

(3) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

The SDAB is currently in a non-attainment zone for ozone and suspended fine particulates. The proposed project would represent a contribution to a cumulatively considerable potential net increase in emissions throughout the air basin. As described above, however, emissions associated with the proposed project would be minimal. As supported by the preceding discussions, given the limited emissions potentially associated with the proposed project, air quality would be essentially the same whether or not the proposed project is implemented. The proposed project's contribution to the cumulative impact would be less than significant.

(4) Would the project expose sensitive receptors to substantial pollutant concentrations?

The approximate 85.5 miles of rehabilitation pipelines projects and 15.5 miles of capacity related projects are generally located within the existing street system of the City of Vista, Carlsbad, San Marcos, and Oceanside as well as the County of San Diego. Sensitive receptors (e.g., schools or hospitals) exist within the vicinity of the project components. Air quality impacts associated with the project are predominantly associated with construction impacts. As stated above, project design features would ensure that these impacts remain below a level of significance. Operation of the proposed project would not result in substantial air quality impacts. Therefore, impacts to sensitive receptors would be less than significant.

(5) Would the project create objectionable odors affecting a substantial number of people?

The proposed project could generate fumes from the operation of construction equipment, which may be considered objectionable by some people. Such exposure would be short-term and transient. In addition, the number of people exposed to such impacts is not considered substantial. The proposed underground sewer lines and improvements would include no new above ground structures. Manholes would be sealed and opened only for maintenance or service to the line(s) in order to minimize impacts. Therefore potential odors would be minimized, and effects would not be significant.

(6) Consideration of the Project as it Relates to Climate Change

In the context of CEQA, climate change issues associated with the proposed project may be addressed in two ways:

- How does the project affect climate change? At this time there is not enough evidence or data available to reasonably conclude the extent to which the project will affect or change global climate conditions. Additional discussion is provided below.

- How does climate change affect the project? Due to the global nature of climate change, this cannot be forecast in a project-specific manner, but potential effects of global change on factors such as tsunami and wildfire hazard are discussed.

Project's Effect to Climate Change

Project construction will result in GHG emissions from the following construction related sources: (1) construction equipment emissions and (2) emissions from construction workers personal vehicles traveling to and from construction site. The proposed project is scheduled to complete construction activities prior to 2020, which is the base year for implementation of AB 32. Therefore the construction emissions would occur prior to the baseline year for implementation of AB 32.

Construction-related GHG emissions vary depending on the level of activity, length of the construction period, specific construction operations, types of equipment, and number of personnel. The primary emissions that would result occur as CO_2 from gasoline and diesel combustion, with more limited vehicle tailpipe emissions of N2O, and CH4, as well as other GHG emissions related to vehicle cooling systems. Although GHG emissions such as CO_2 can persist in the atmosphere for decades, construction emissions are a one time event.

Recent federal engine and fuel regulations will play a role in reducing carbon emissions. Specifically, these include: 1) current U.S. Environmental Protection Agency (EPA) rules which set standards for all new on-road engines; 2) pending EPA rules requiring similar reductions for all new nonroad engines (to phased in between 2008 and 2014); and 3) federal fuel standards for low sulfur and ultra low sulfur. This combination of engine and fuel standards will allow for the use of new advanced retrofit technologies, which could potentially reduce GHG emissions. However, as stated previously, no regulations have been approved to date by EPA to directly reduce GHG emissions.

Overall, there is no evidence that the proposed project would interfere with the state's ability to meet GHG reductions goals and strategies for 2020.

Climate Change Effects to Project

Sea Level Rise

The project sites are located several miles inland from the Pacific Ocean, in areas that would not likely be impacted by sea level rise.

Wildfire Hazard

Although not quantified, climate change is predicted to lead to increased year-round temperatures, not necessarily altering precipitation patterns. Any climate change-induced effects to wildfire hazard are not anticipated to affect the project component sites because they are mostly located in urban areas.

4.2.5 Level of Significance prior to Mitigation

Air quality emissions would be generated during the construction phase of the proposed project and minimally during operation and maintenance activities; however, emission levels would be below all significance criteria thresholds due to the provided project design features and construction measures, as shown in *Table 2-3*.

4.2.6 Mitigation Measures

No significant air quality impacts have been identified; no mitigation measures are required.

4.2.7 Level of Significance after Mitigation

There would be no significant air quality impacts.

4.3 Biological Resources

4.3.1 Introduction and Methodology

The purpose of this section is to discuss general biological conditions in the project areas and identify components which have potential to affect sensitive biological resources. A study area was defined to include the entire City of Vista and portions of adjacent cities (Oceanside, San Marcos, Carlsbad) that include project components.

In order to describe the existing biological conditions throughout the study area, the following georeferenced data sources were utilized:

- North San Diego Multi-Habitat Conservation Plan (MHCP) Vegetation Map (SANDAG 1995)
- Carlsbad (HMP) Vegetation Map (City of Carlsbad 2005)
- False color, digital photographic image (AirPhotoUSA 2006)
- U.S. Fish and Wildlife Service (USFWS) Federally-listed species occurrence data (USFWS 2007)
- California Natural Diversity Database (CNDDB) (CDFG 2007)
- U.S. Department of Agriculture Soils Mapping (Bowman 1973)

The project components were overlayed onto these data layers with ArcView 3.2 mapping software. Following the evaluation of project components with ArcView 3.2, those components which were determined to have potentially significant impacts to biological resources were further evaluated by visually examining the project location in the City's Sewer Atlas (Vista 2006/2007). The Sewer Atlas contains the most accurate available mapping of project locations and easements overlain on an aerial photo image. *Section 4.3.4* describes the methodology of the impact assessment in more detail.

In addition to georeferenced data, a literature review was conducted to determine potential occurrence of sensitive biological resources. For sensitive plant and wildlife species, USFWS (1997a-b, 1999, 2000, 2001, 2002, 2003, 2006), California Department of Fish and Game (CDFG) (2006a-b and 2007a-c), and California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants (2007), Reiser (2001), Burrowing Owl Consortium (1993), Sogge, et al. (1997) were reviewed. General information regarding wildlife species present in the region was obtained from Unitt (2006) and AOU (2003) for birds, Bond (1977), Jones, et al. (1997), and Hall (1981) for mammals, Stebbins (2003) for reptiles and amphibians, and Emmel and Emmel (1973) for butterflies. Information regarding vegetation communities was reviewed

from Holland (1986). The Final MHCP (SANDAG 2003) was also reviewed to understand the regional conservation planning context and any sensitive species known to occur in the vicinity.

4.3.2 Existing Conditions

Vegetation

Below is a brief description of the characteristics of each of the vegetation communities found within the overall study area. The following descriptions are from Holland, and the following *Figures 4.3-1a-j* depicts the Sewer Master Plan segments overlayed on the MHCP vegetation map. In order to make *Figures 4.3-1a-j* more readable, the Holland categories on the map were collapsed into 22 major vegetation types summarized below in 11 habitat categories. Each habitat description below notes which general category it fits within for ease in comparing the text with the map.

Grassland

Grassland is a component to the larger group of grasslands, meadows and other herb communities. Annual non-native grassland is the most common type of grassland found in the study area and in California. Where the native habitat has been disturbed frequently or intensively by grazing, fire, agriculture, or other activities, the native community is usually incapable of recovering. These areas are characterized by weedy, introduced annuals, primarily grasses, including slender wild oat (*Avena barbata*), bromes (*Bromus* spp.), mustards (*Brassica* and *Sisymbrium* ssp.), filaree (*Erodium botrys* and *E. cicutarium*), and russian thistle (*Salsola tragus*).

Except for small (generally less than one acre) patches in urban areas, annual (non-native) grassland is considered sensitive by the resource agencies because it can function as foraging habitat for several species of raptors. Additionally, a number of sensitive plant and wildlife species may occur within this habitat type. Grasslands can also be important to preserve design in helping to create linkages between other areas of native vegetation.

Valley and foothill grassland is a distinct category of grassland, also referred to as valley needlegrass grassland. It is a native grassland characterized by the presence of perennial bunchgrasses (10 percent cover or greater), such as needlegrass (*Nassella* ssp.). This plant community typically alternates with coastal sage scrub on some clay soils, often on more mesic exposures and at the bases of slopes, but also may occur in large patches. A number of sensitive plant species may occur in valley needlegrass grassland and resource agencies consider this grassland type sensitive, regardless of size.

Coastal Sage Scrub

Coastal sage scrub is a member of the larger scrub and chaparral habitat family. Coastal sage scrub is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), California buckwheat *(Eriogonum fasciculatum*), and sages (*Salvia spp.*), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*) and toyon (*Heteromeles arbutifolia*). It typically occurs on south-facing slopes and other xeric situations.

Much of the coastal sage scrub in the vicinity is dominated by California sagebrush and California buckwheat with laurel sumac, redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), toyon and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat.

Coastal sage scrub is recognized as a sensitive plant community by local, state and federal resource agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75 to 80 percent of its historical coverage throughout southern California (Holland 1986). It is the focus of the current State of California Natural Communities Conservation Program (NCCP). CSS is the primary habitat of the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*).

In some coastal situations, scrub communities include more succulent species and are considered maritime succulent scrub or coastal bluff scrub. Species which are indicators of this community type include Shaw's agave *(Agave shawii),* goldenspined cereus *(Bergerocactus emoryi),* cliff spurge *(Euphorbia misera), and* California box-thorn (*Lycium californicum).*

Chaparral

Chaparral habitats are components of the larger scrub and chaparral habitat category. Southern mixed chaparral is a drought-resistant and fire-adapted community of woody shrubs, frequently forming dense, impenetrable stands. This is the most common type of chaparral in San Diego County. It develops primarily on mesic north-facing slopes and in canyons and is characterized by crown- or stump- sprouting species that regenerate following burns or other ecological catastrophes. This association is typically a mixture of chamise (*Adenostoma fasciculatum*),

mission manzanita (*Xylococcus bicolor*), ceanothus (*Ceanothus* ssp.), shrub oak (*Quercus berberidifolia*), laurel sumac and black sage (Holland 1986). Southern maritime chaparral, chamise chaparral and coastal sage-chaparral scrub are also potentially located within the study area. Few sensitive species are known to occur in chaparral, however focused surveys may still be required. As a native habitat, it is typically considered sensitive by resource agencies.

Eucalyptus Woodland

Eucalyptus woodland is a component of the larger non-native vegetation habitat category. Eucalyptus refers to areas that support a predominance of eucalyptus trees (*Eucalyptus* sp.) and often other ornamental plants. Eucalyptus and ornamental, non-native vegetation are of limited value to native species and are not considered sensitive. However, trees that support raptor nests often are considered sensitive resources.

Oak Woodland

According to Holland (1986) coast live oak woodland is a broad-leaved sclerophyllous woodland dominated by a single evergreen species-coast live oak (*Quercus agrifolia*). Canopy height ranges from 10-25 meters. The shrub layer is poorly developed, usually only comprised of poison oak (*Toxicodendron diversilobum*) and the herb component is dominated by a variety of introduced taxa.

Coast live oak woodland is considered a sensitive habitat due to the presence of oak trees which are used by a number of sensitive species, including raptors which may rely on them for nest sites.

Oak Riparian Forest

Oak riparian forest is a subcategory of the large riparian and bottom land habitat category. Southern coast live oak riparian forest is an open to locally dense evergreen riparian woodland dominated by coast live oak. According to Holland (1986) it is richer in herbs and poorer in understory shrubs than other riparian communities. It typically occurs in bottom lands and outer floodplains along larger streams, on fine grained, rich alluvium.

Often this community is represented by western sycamore and coast live oak, Gooding's black willow, mulefat and an understory that includes poison-oak, California buckwheat, San Diego sagewort (*Artemisia palmeri*), western ragweed (*Ambrosia psilostachya*), arroyo lupine (*Lupinus succulentus*), and several other native and non-native annuals.

Riparian habitats such as southern coast live oak riparian forest and southern willow scrub represent high quality wildlife habitat, providing structural diversity during much of the year. They are important sites of primary productivity and play a vital role in nutrient recycling and maintenance of water quality. Many species of animals that are resident in adjacent scrub habitat forage in riparian areas during the drier time of the year.

Often southern coast live oak riparian forest is under the jurisdiction of the California Department of Fish and Game (CDFG), pursuant to Section 1601-1603 of the California Fish and Game Code and the U.S. Army Corps of Engineers (ACOE), under Section 404 of the federal Clean Water Act.

Riparian Wetlands

Riparian habitats are components of the larger riparian and bottom land habitat category. Riparian habitats are comprised of southern willow woodland, southern willow scrub, and mulefat scrub. These habitats develop along relatively undisturbed streams, floodplains, and streamlines. A number of species are associated exclusively or are highly dependent for essential activities, such as breeding, on riparian habitats. They furnish forage, water, and cover for a variety of native wildlife species, and because they form linear corridors, may function as valuable wildlife corridors if uninterrupted. These riparian habitats are under the jurisdiction of the CDFG, pursuant to Section 1601-1603 of the California Fish and Game Code and the ACOE pursuant to Section 404 of the Clean Water Act.

Marsh/Disturbed & Temporal Wetlands

Marsh habitats are subcategories of the larger Bog and Marsh general habitat association. Coastal and Valley freshwater marsh (freshwater marsh) is a wetland habitat type that develops where the water table is at or just above the ground surface, such as around the margins of lakes, ponds, slow-moving streams, ditches, and seepages. It typically is dominated by tall, emergent monocots, such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.).

South coastal salt marsh is also located within lagoon habitats within the study area. This habitat type occurs in bays, lagoons and estuaries along the coast from about Point Conception to the Mexican border (Holland 1986). Both types of marshes are typically regulated as wetlands by ACOE and CDFG and are considered sensitive community types.

Disturbed wetlands are often present in urban drainages where nuisance runoff supports common, weedy hydrophytic vegetation such as cocklebur *(Xanthium strumarium)*, Bermuda grass *(Cynodon dactylon)*, and castor bean *(Ricinis communis)*. Temporal wetlands typically include vernal pools or sometime man-made impoundments which periodically support ponded

water during the rainy season. In many situations, these wetlands support unique indicator species some of which are rare or endangered. Each of these categories of wetlands would be considered sensitive by resource agencies due to their limited distribution and relatively important ecological function.

Open Water

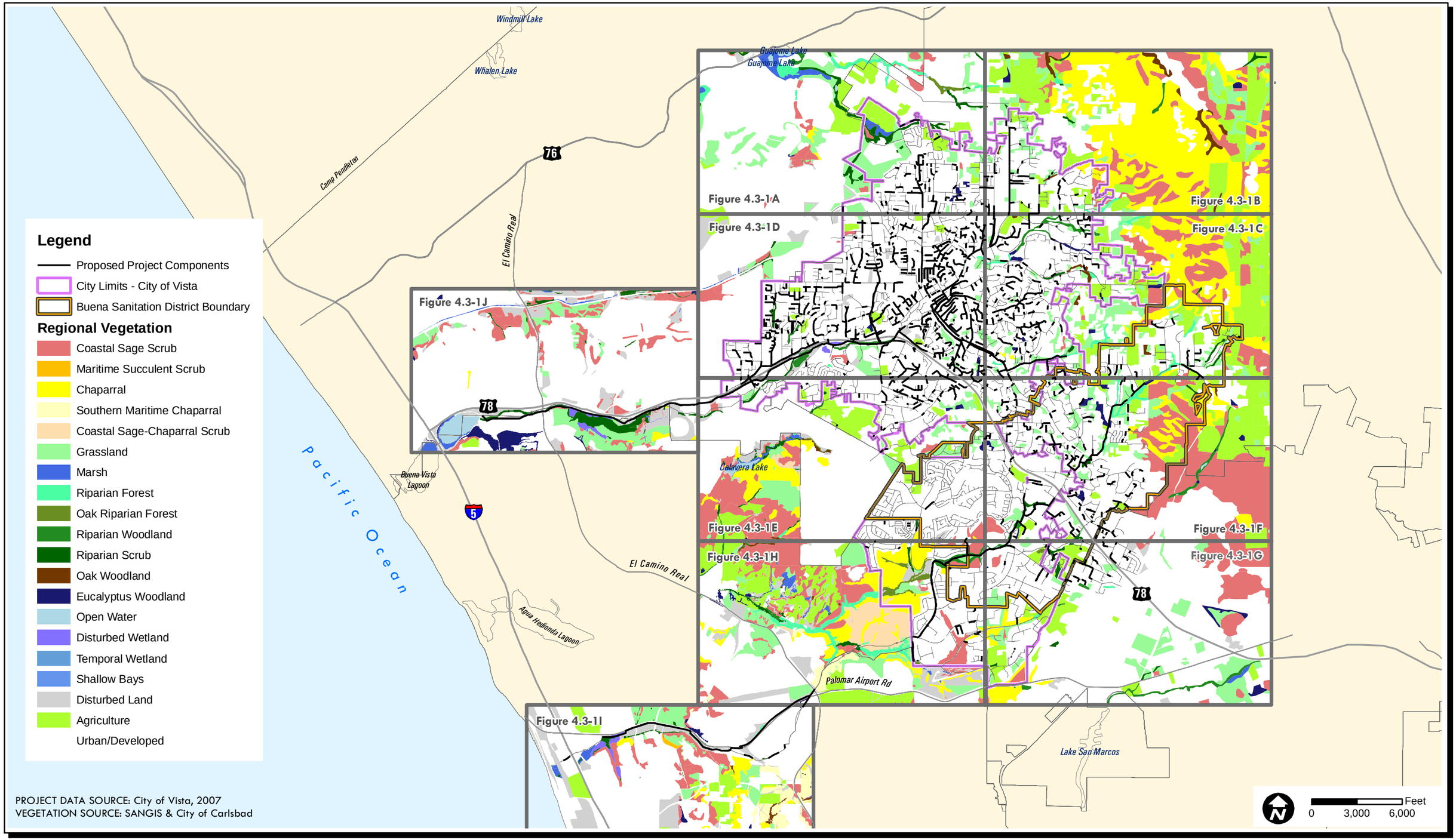
Open water is a land cover type that typically does not support substantial vegetation. In this region, large open water areas include the Pacific Ocean and various coastal lagoons and bays, which may be more finely classified as deep or shallow bays. Smaller occurrences of open water may include stock ponds, reservoirs; most of these situations arise from man-made impoundments. Open water may support important resident or foraging habitat for a variety of wildlife species, especially migratory birds and therefore is generally considered a sensitive land cover type.

Agriculture

Agriculture is a subcategory of the general agriculture habitat category. Agriculture is a developed land use type which generally refers to areas which are actively being used for farming or ranching purposes, including crop fields, animal pasture, orchards, nurseries and other intensive or extensive agricultural practices. Agriculture areas typically do not contain a predominance of native plant species and are not considered sensitive.

Disturbed Land & Urban/Developed Land

Disturbed land generally includes access roads and graded areas that have not been converted to development but are regularly maintained such that native vegetation is limited to less than 20 percent cover. Urban/Developed land includes areas occupied by structures, paving and other impermeable surfaces that do not support vegetation. Disturbed Land & Urban/Developed land cover types are not considered sensitive by the resource agencies due to the lack of resources for plants or animals.



PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION SOURCE: SANGIS & City of Carlsbad

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation Index Map

FIGURE
4.3-1

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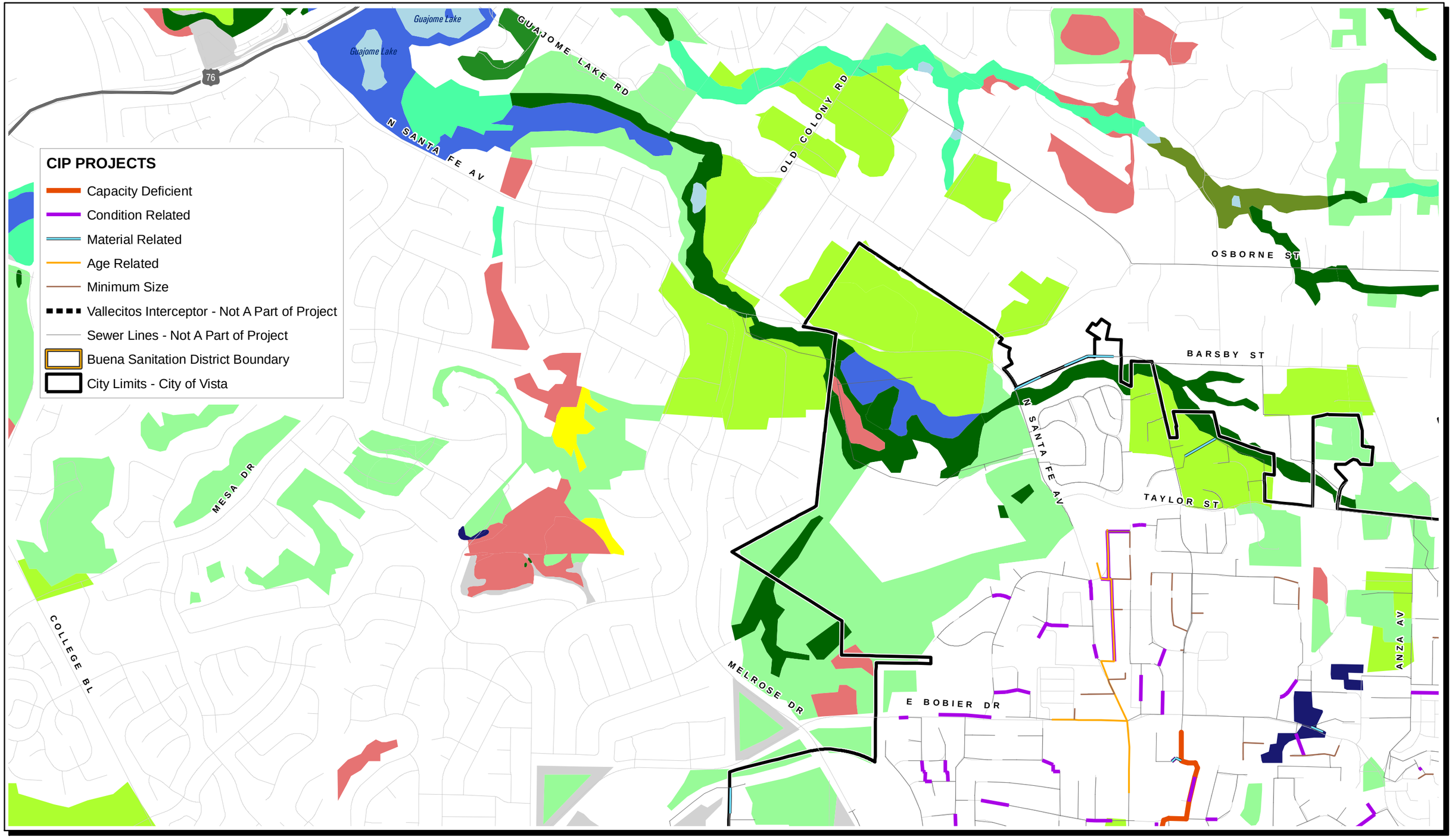

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend

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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1A

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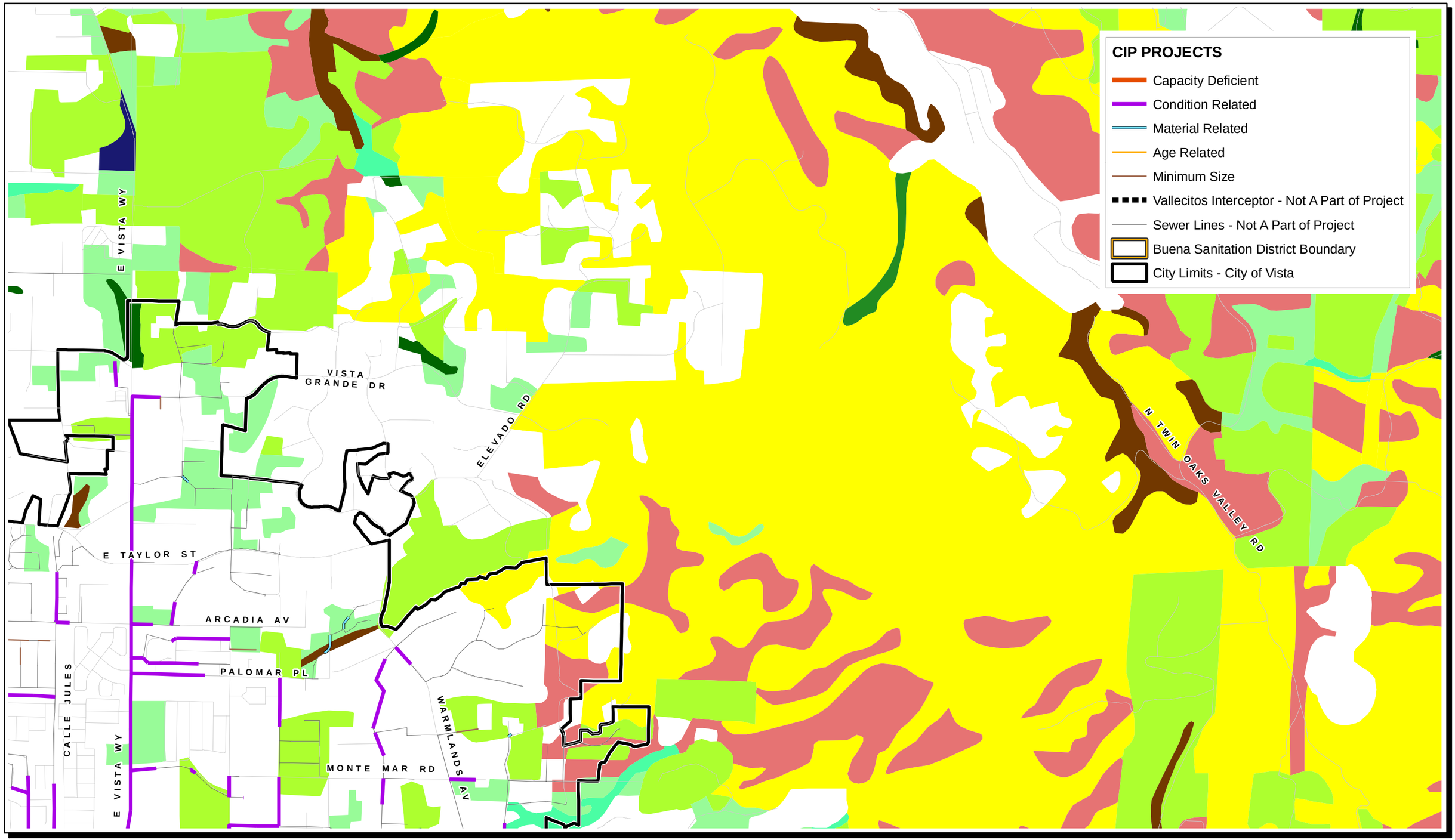

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

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See Figure 4.3-1 for Regional Vegetation Legend

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1B

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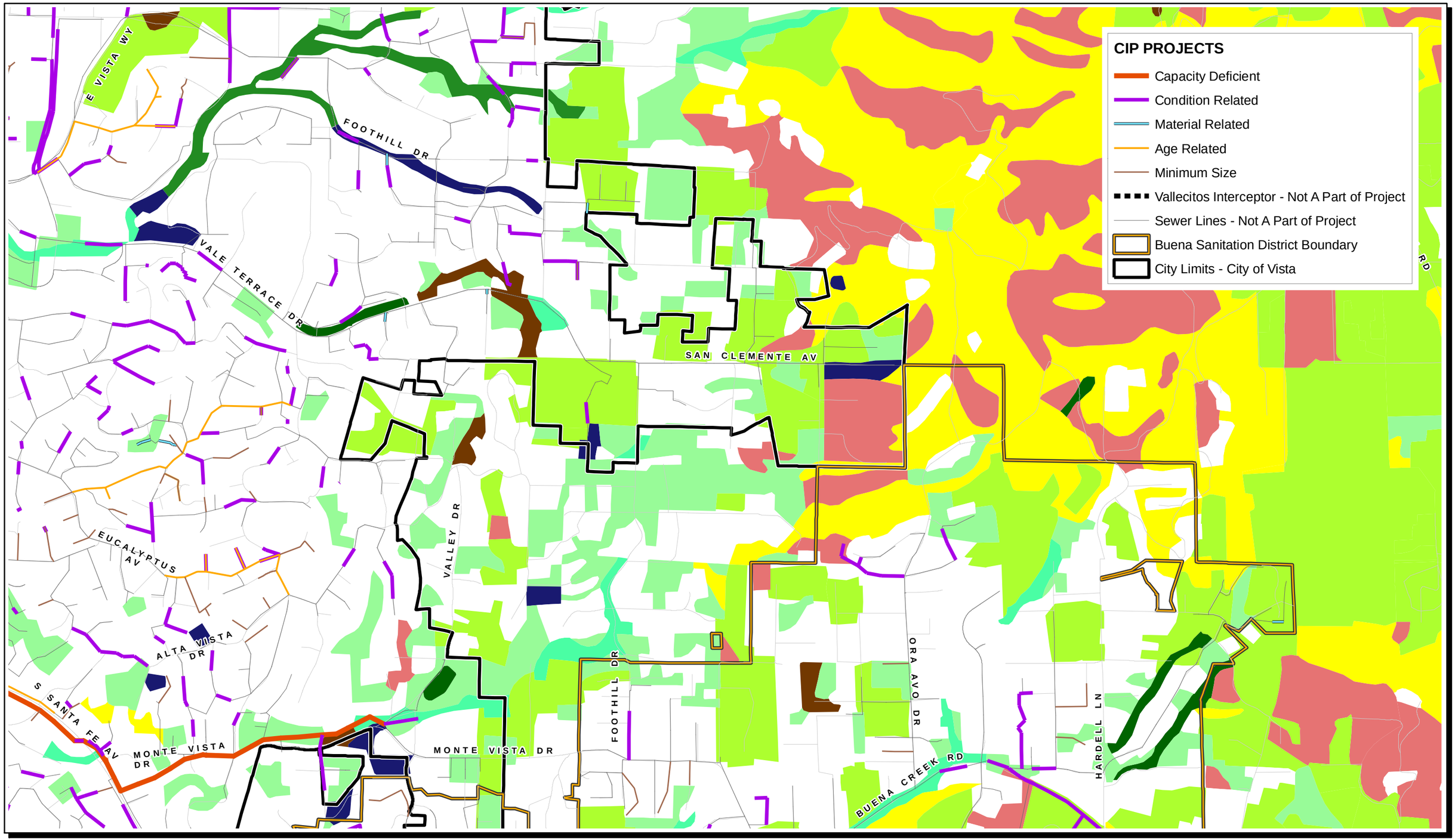

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend

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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1C

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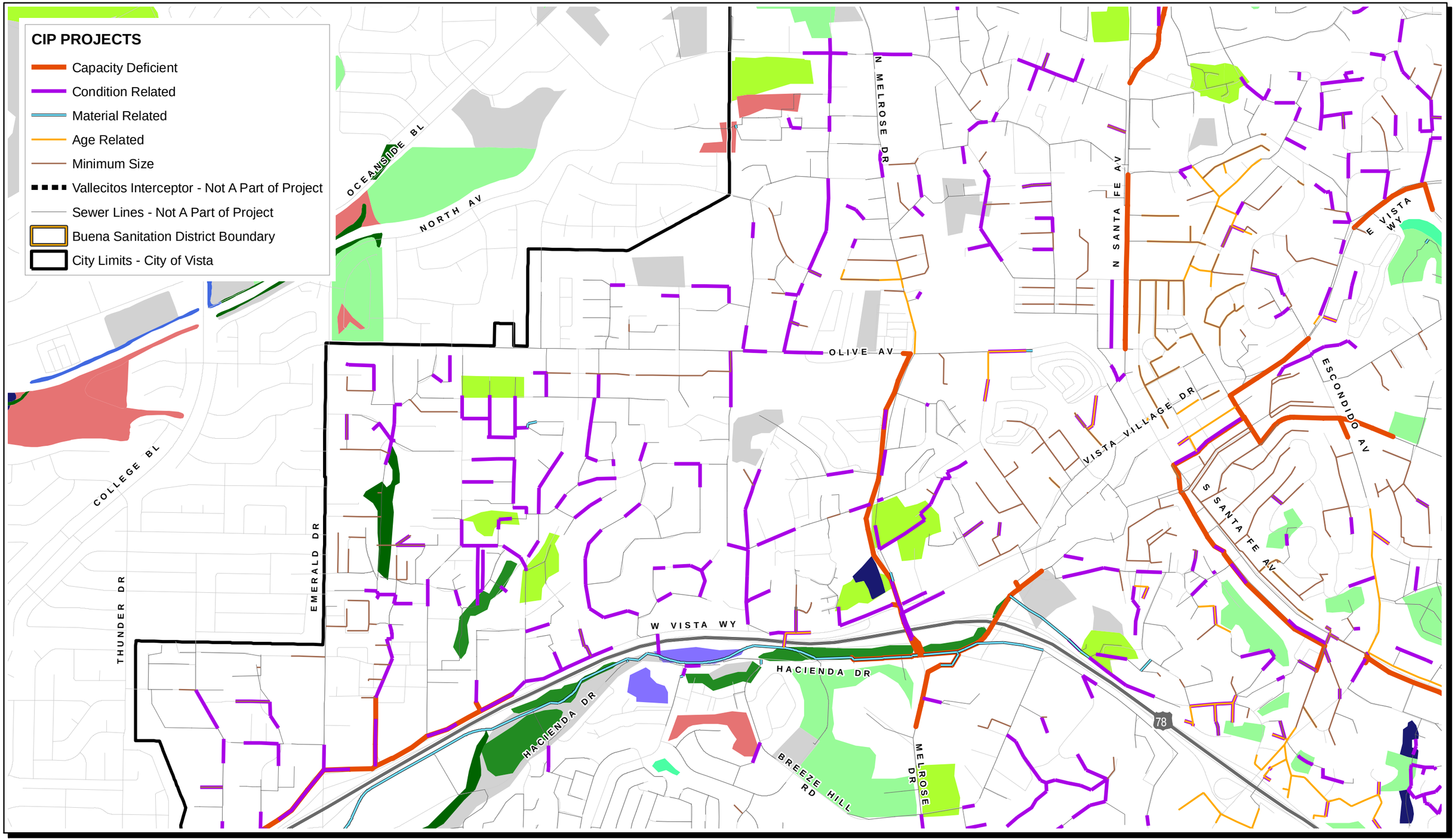

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend

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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE
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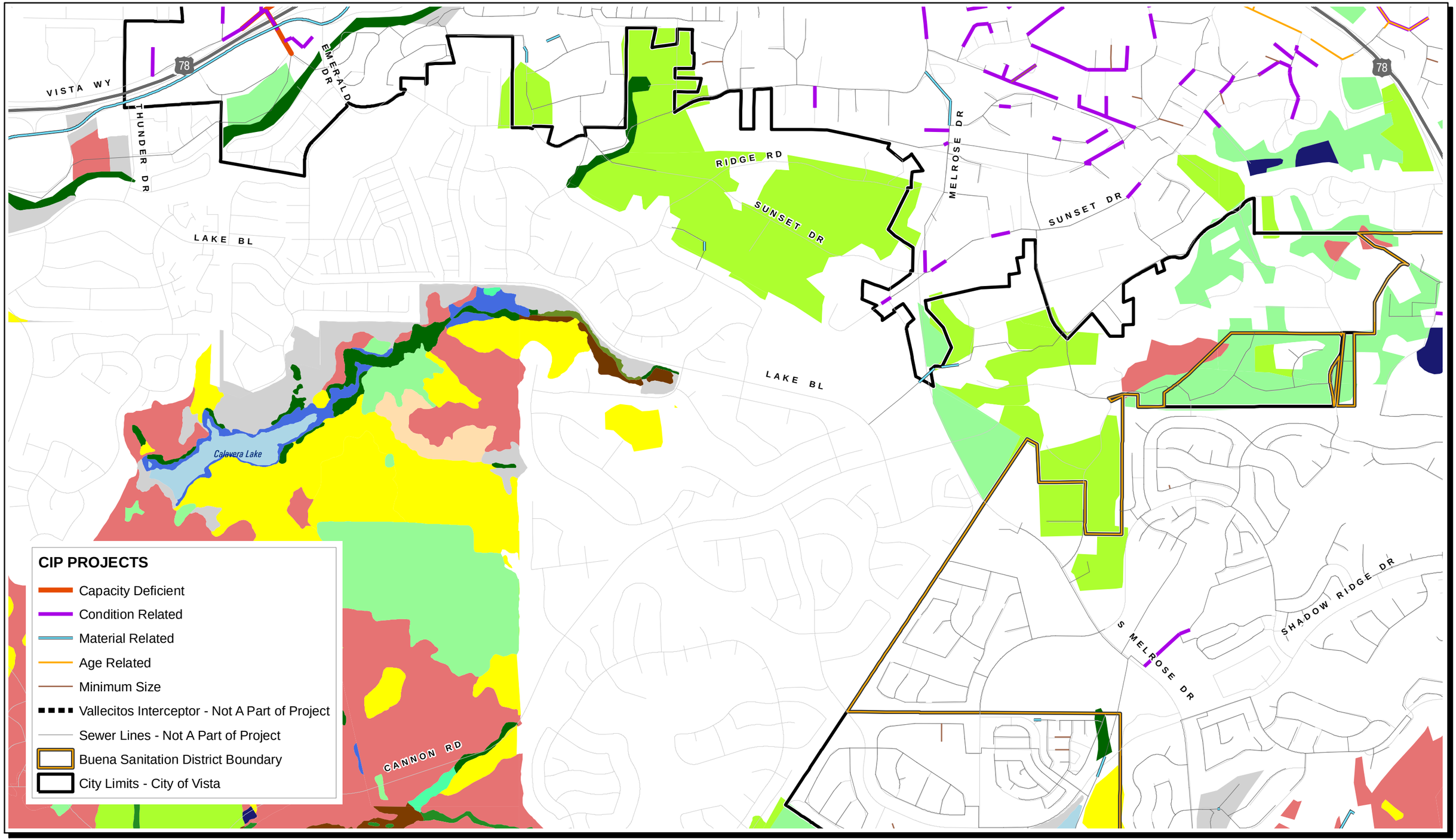

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend

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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1E

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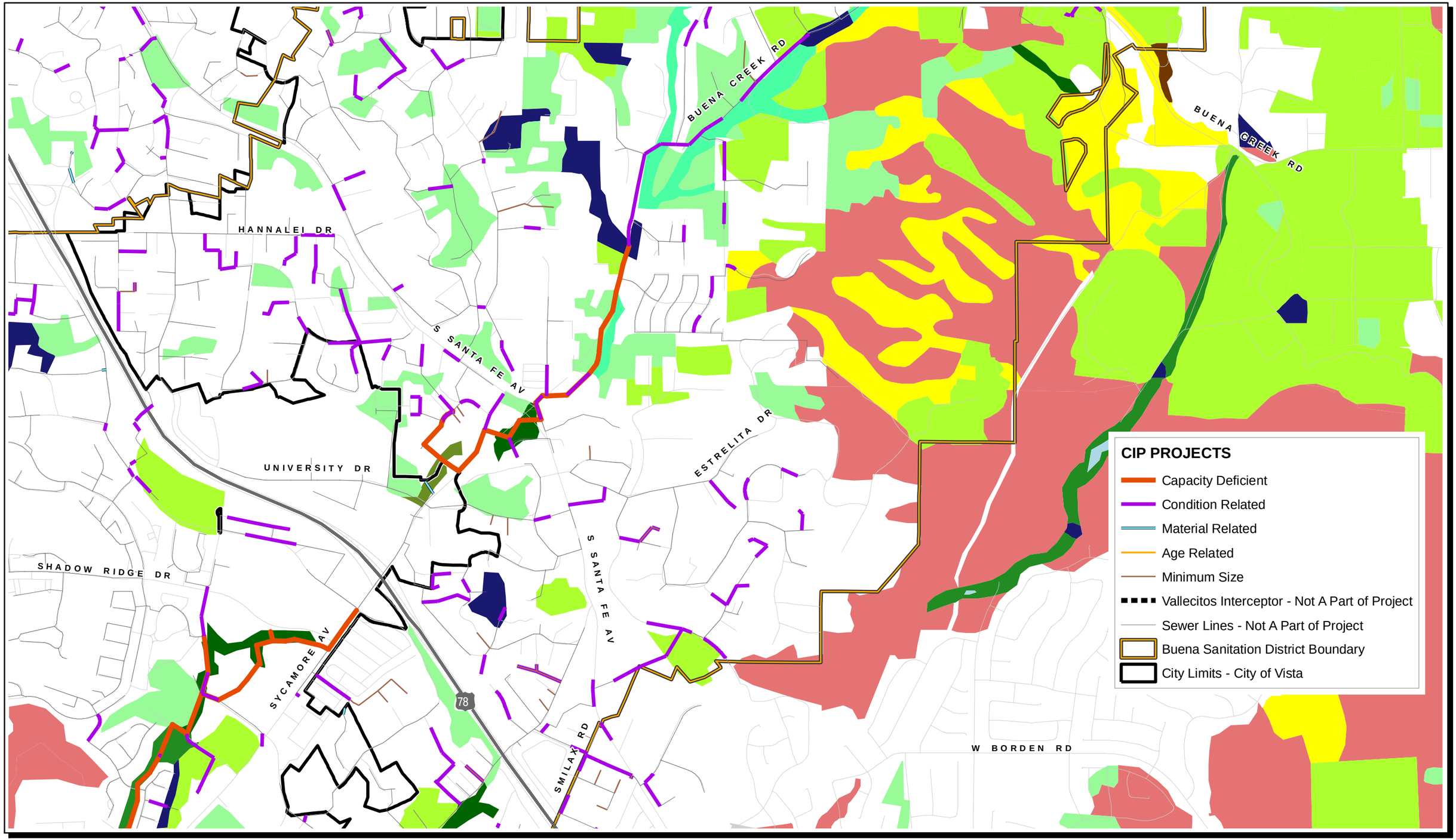

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

Feet
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See Figure 4.3-1 for Regional Vegetation Legend

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE
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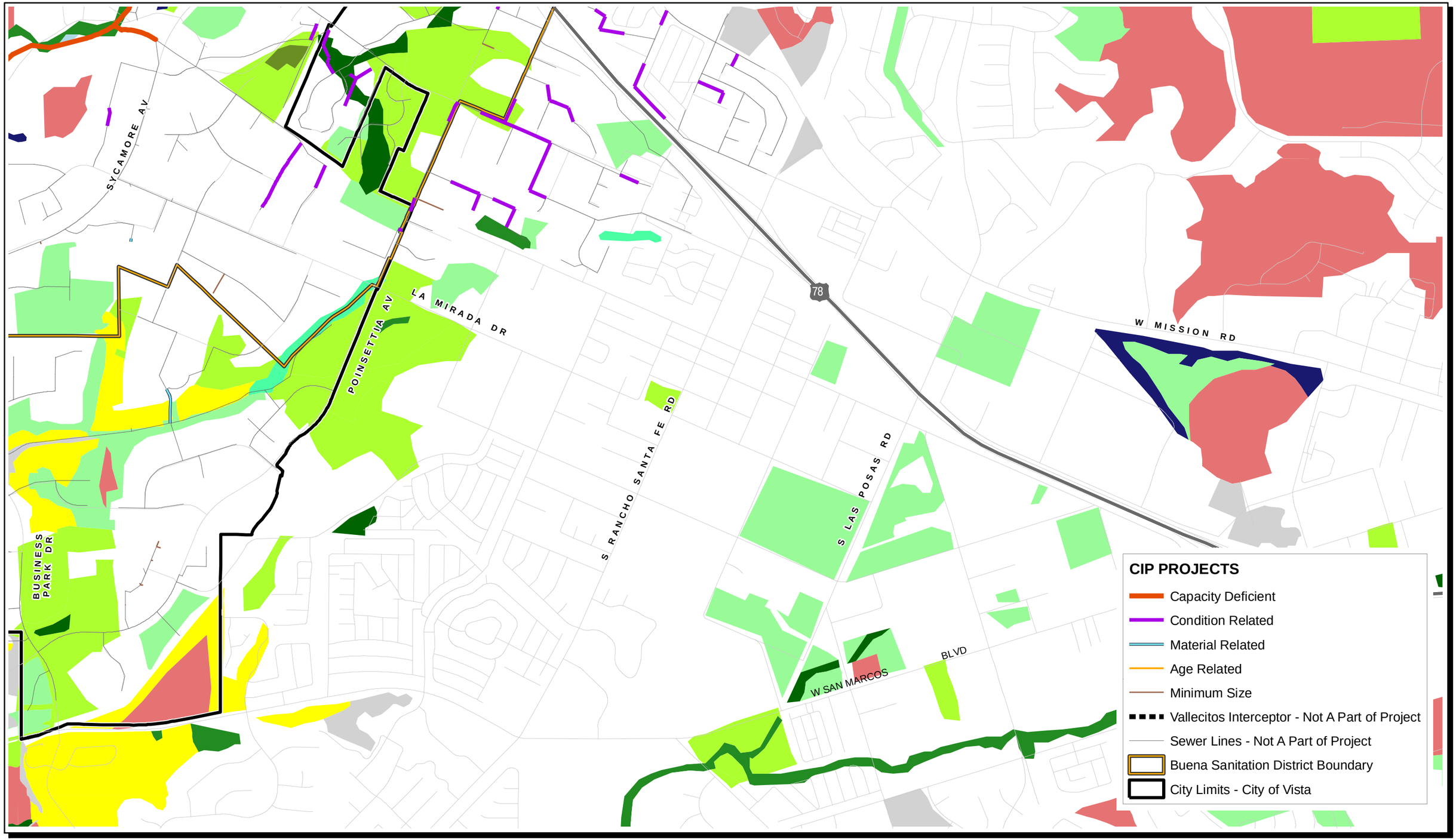

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend

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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1G

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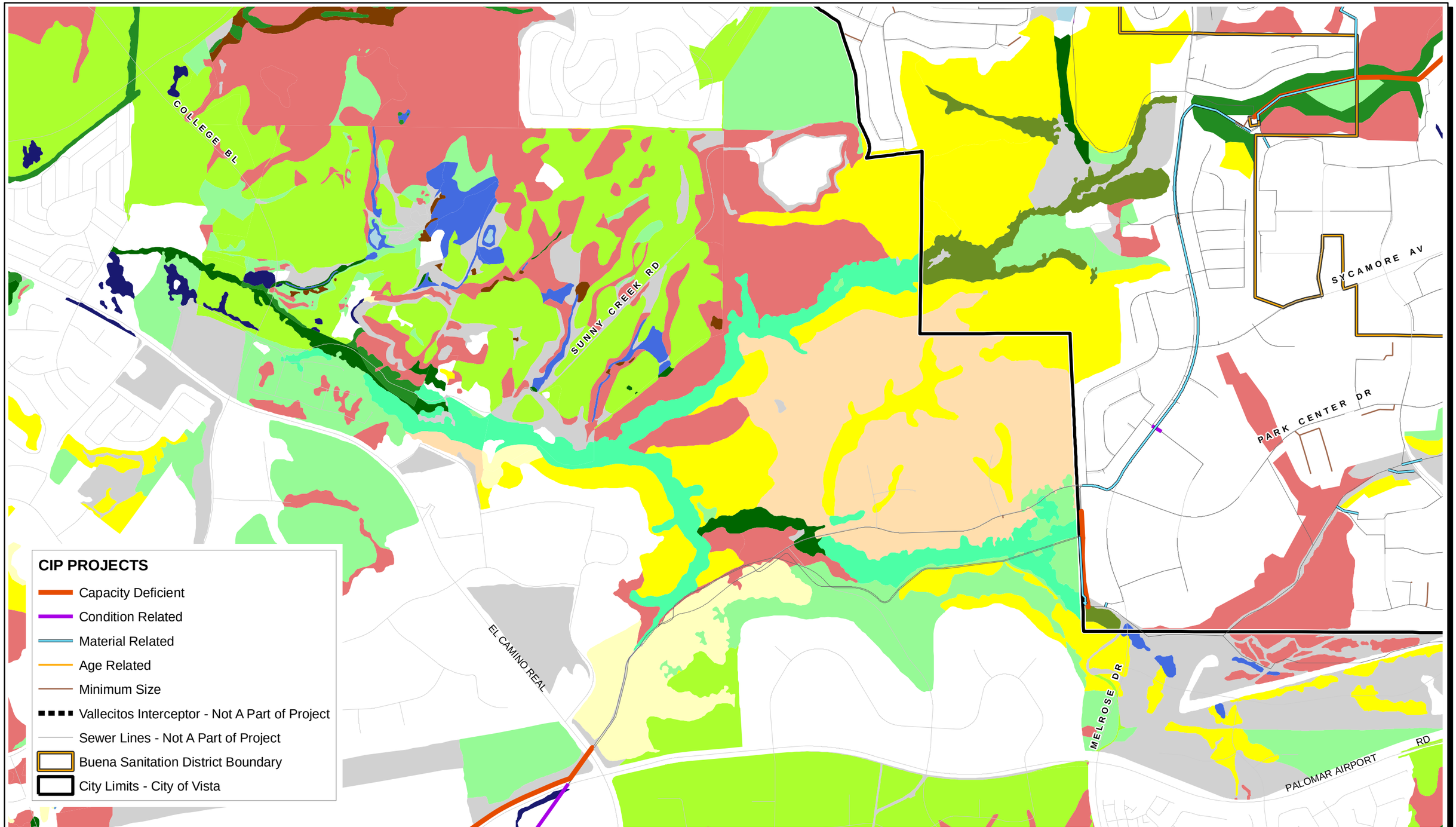

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

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See Figure 4.3-1 for Regional Vegetation Legend

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1H

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PALOMAR AIRPORT RD
COLLEGE BL
CAM VIDA ROBLE
YARROW DR
EL CAMINO REAL
AVENIDA ENCINAS
PASEO DEL NORTE
ENCINA WPCF
5
HIDDEN VALLEY RD
POINSETTIA LN
AVIARA PY
CARLSBAD BL
Pacific Ocean

CIP PROJECTS

- Capacity Deficient
- Condition Related
- Material Related
- Age Related
- Minimum Size
- Vallecitos Interceptor - Not A Part of Project
- Sewer Lines - Not A Part of Project
- Buena Sanitation District Boundary
- City Limits - City of Vista

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend

0 1,200 Feet

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1I

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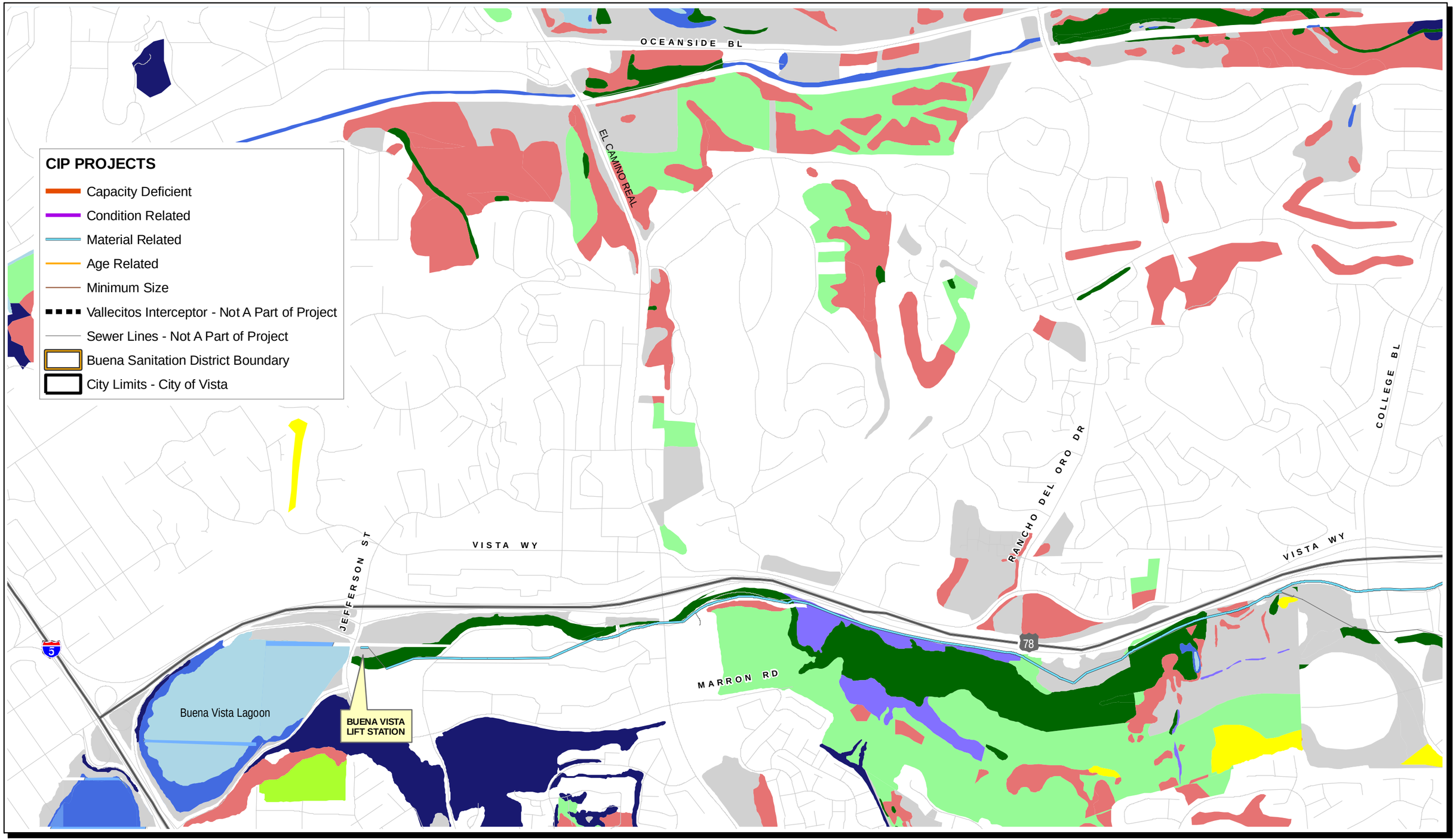

PROJECT DATA SOURCE: City of Vista, 2007
VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend

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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Regional Vegetation

FIGURE 4.3-1J

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Sensitive Plants

Table 4.3-1 lists the sensitive plants that may exist within the Sewer Master Plan study area. Each sensitive plant species is listed with general vegetation habitat and environmental affiliations. Also provided is a general evaluation of the potential for the species to occur within the study area.

Although many of the species are considered to have low potential due to lack of known occurrences within the study area, project component sites which have suitable habitat characteristics (may be a combination of vegetation community type, soils, slope, aspect, etc.) would require further, site-specific evaluation to determine presence/absence. For many species, such suitable habitat characteristics are only present in near coastal situations, most likely only present in project component areas located in the cities of Oceanside or Carlsbad. A total of nine species are considered to have a moderate potential to occur nearly anywhere in the Sewer Master Plan study area: California adolphia *(Adolphia californica)*, San Diego barrel cactus *(Ferocactus viridescens)*, mesa horkelia *(Horkelia cuneata* ssp. *puberula)*, San Diego marsh-elder *(Iva hayesiana)*, felt-leaved monardella *(Monardella hypoleuca* ssp. *lanata)*, San Diego goldenstar *(Muilla clevelandii)*, Engelmann oak *(Quercus engelmannii)*, Nuttall's scrub oak *(Quercus dumosa)*, and Parry's tetracoccus *(Tetracoccus dioicus)*; none of these species has any state or federal listing status.

Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Abronia villosa var. *aurita* Chaparral sand-verbena	Federal: None State: None CNPS: 1B.1	Chaparral, coastal scrub, desert dunes (sandy soils)	Low, not known from study area except in lagoon areas.
Acanthomintha ilicifolia San Diego *thorn*-mint	Federal: Threatened State: Endangered CNPS: 1B.1	Grasslands, coastal sage scrub (clay soils)	Low, not known from study area.
Adolphia californica California adolphia	Federal: None State: None CNPS: 2.1	Chaparral, coastal sage scrub, valley and foothill grassland (clay soils)	Moderate, known from areas near study area.
Ambrosia pumila San Diego ambrosia	Federal: Proposed Endangered State: None CNPS: 1B.1	Riparian (natural flood channels), grasslands, coastal sage scrub	Low, not known from study area.
Aphanisma blitoides Aphanisma	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub (immediate coastal zone)	Low; moderate along coast/lagoons and river terraces.
Arctostaphylos glandulosa ssp. *crassifolia* Del Mar manzanita	Federal: Endangered State: None CNPS: 1B.1	Southern maritime chaparral (sandy mesas, bluffs)	Low; only potential in near coastal areas.

Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Atriplex pacifica South coast saltscale	Federal: Species of Concern State: None CNPS: 1B.2	Coastal bluff scrub, coastal sage scrub, playas	Low, not known from study area.
Baccharis vanessae Encinitas baccharis	Federal: Threatened State: Endangered CNPS: 1B.1	Chaparral (sandstone)	Low, not known from study area.
Brodiaea filifolia Thread-leaved brodiaea	Federal: Threatened State: Endangered CNPS: 1B.1	Grasslands, open scrub habitat (mesic areas; clay soils)	Moderate, not known from study area but known from surrounding area.
Brodiaea orcuttii Orcutt's brodiaea	Federal: None State: None CNPS: 1B.1	Riparian (seasonal streams), grasslands (mesic areas; clay soils)	Low, not known from study area.
Camissonia lewisii Lewis's evening primrose	Federal: None State: None CNPS: 3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal sage scrub, valley and foothill grassland, (sandy or clay soils)	Low, not known fro study area.
Ceanothus verrucosus Wart stemmed ceanothus	Federal: None State: None CNPS: 2.2	Chaparral	Low, not known from study area.
Centromadia [Hemizonia] parryi spp. *australis* Southern tarplant	Federal: Species of Concern State: None CNPS: 1B.1	Valley and foothill grasslands (vernally mesic), estuary margins, vernal pools	Moderate in lagoon and drainage areas only.
Centromadia [Hemizonia] pungens ssp. *laevis* Smooth tarplant	Federal: Species of Concern State: None CNPS: 1B.1	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland	Moderate in drainage areas only.
Chorizanthe orcuttiana Orcutt's spineflower	Federal: Endangered State: Endangered CNPS: 1B.1	Chaparral, closed-cone conifer forest, coastal sage scrub (near coast, sandstone)	Low, not known from study area.
Chorizanthe polygonoides var. *longispina* Long-spined spineflower	Federal: Species of Concern State: None CNPS: 1B.2	Chaparral, coastal sage scrub, meadows and seeps, valley and foothill grassland (often clay)	Low, not known from study area.
Clarkia delicate Delicate clarkia	Federal: None State: None CNPS: 1B.2	Chaparral, cismontane woodland	Low, not known from study area.
Corethrogyne filaginifolia var. *linifolia* Del Mar Mesa sand aster	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub (sandstone soils)	Low, not known from study area.
Comarostaphylis diversifolia ssp. *diversifolia* Summer holly	Federal: None State: None CNPS: 1B.2	Chaparral	Low, not known from study area.

Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Coreopsis maritime Sea dahlia	Federal: None State: None CNPS: 2.2	Coastal bluff scrub, coastal sage scrub	Low, except in lagoon areas.
Dudleya blochmaniae ssp. *blochmaniae* Blochman's dudleya	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub, coastal bluff scrub (clay soils)	Low, not known from study area.
Dudleya brevifolia Short-leaved dudleya	Federal: Species of Concern State: Endangered CNPS: 1B.1	Maritime chaparral (sandstone)	Low, not known from study area.
Dudleya multicaulis Many-stemmed dudleya	Federal: Species of Concern State: None CNPS: 1B.2	Chaparral, coastal sage scrub, valley and foothill grassland, (clays)	Low, not known from study area.
Dudleya viscida Sticky dudleya	Federal: Species of Concern State: None CNPS: 1B.2	Coastal sage scrub (steep slopes or cliffs)	Low, not known from study area.
Dudleya variegata Variegated dudleya	Federal: Species of Concern State: None CNPS: 1B.2	Coastal sage scrub (sandstone/clay soils)	Low, not known from study area.
Eryngium aristulatum var. *parishii* San Diego button-celery	Federal: Endangered State: Endangered CNPS: 1B.1	Vernal pools	Low, not known from study area.
Euphorbia misera Cliff spurge	Federal: None State: None CNPS: 2.2	Coastal sage scrub, coastal bluff scrub, and maritime succulent scrub (immediate coastal zone)	Low, not known from study area except for north shore of Agua Hedionda Lagoon.
Ferocactus viridescens San Diego barrel cactus	Federal: None State: None CNPS: 2.1	Coastal sage scrub	Moderate, not known from study area but relatively common in sage scrub.
Hazardia orcuttii Orcutt's hazardia	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub	Low, not known from study area.
Horkelia cuneata ssp. *puberula* Mesa horkelia	Federal: None State: None CNPS: 1B.1	Chaparral, cismontane woodland, coastal scrub (sandy or gravelly)	Moderate, known from areas near study area.
Horkelia truncate Ramona horkelia	Federal: None State: None CNPS: 1B.3	Chaparral, cismontane woodland (clays)	Low, not known from study area.
Isocoma menziesii var. *decumbens* Decumbent goldenbush	Federal: None State: None CNPS: 1B.2	Coastal sage scrub (sandy, often disturbed areas)	Low, only in coastal areas.
Iva hayesiana San Diego marsh-elder	Federal: None State: None CNPS: 2.2	Lagoon, marshes (alkali marshes), riparian	Moderate, not known from study area but relatively common in drainages in region.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	Federal: None State: None CNPS: 1B.1	Saltwater marsh and swamps, playas, vernal pools	Low, only in lagoon areas.

Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Lotus nuttallianus Nuttall's lotus	Federal: None State: None CNPS: 1B.1	Coastal bluff scrub (immediate coastal zone)	Low, not known from study area.
Monardella hypoleuca ssp. *lanata* Felt-leaved monardella	Federal: None State: None CNPS: 1B.2	Chaparral, cismontane woodland	Moderate, known from near study area.
Muilla clevelandii San Diego goldenstar	Federal: None State: None CNPS: 1B.1	Grasslands (mesic areas), coastal sage scrub (clay soils)	Moderate, not known from study area but is found in adjacent areas.
Myosurus minimus ssp. *apus* Little mousetail	Federal: Species of Concern State: None CNPS: 3.1	Vernal pools	Low, not known from study area.
Navarretia fossalis Spreading navarretia	Federal: Threatened State: None CNPS: 1B.1	Vernal pools	Low, not known from study area.
Nemacaulis denudata var. *denudate* Coast woolly-heads	Federal: None State: None CNPS: 1B.2	Coastal dunes	Low, only in coastal areas.
Nolina cismontana Chaparral beargrass	Federal: None State: None CNPS: 1B.2	Chaparral	Low, not known from study area.
Orcuttia californica California Orcutt's grass	Federal: Endangered State: Endangered CNPS: 1B.1	Vernal pools	Low, not known from study area.
Pinus torreyana ssp. *torreyana* Torrey pine	Federal: Species of Concern State: None CNPS: 1B.2	Pine forest (coastal), Maritime chaparral	Low, not known from study area.
Quercus engelmannii Engelmann oak	Federal: None State: None CNPS: 4.2	Grasslands, oak woodland	Moderate, not known from study area but is found in adjacent areas.
Quercus dumosa Nuttall's scrub oak	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub (near coastal zone)	Moderate, not known from study area but is found in adjacent areas.
Tetracoccus dioicus Parry's tetracoccus	Federal: None State: None	Coastal sage scrub (gabbro-derived soils)	Moderate, not known from study area but is found in adjacent areas.

Sensitive Wildlife

Table 4.3-2 lists the sensitive wildlife species that may exist within the Sewer Master Plan study area. Each sensitive wildlife species is listed with general habitat affiliations. It should be noted that several species require more than one habitat type depending on their life cycle stage, and these habitat affiliations are noted in the table. Also provided is a general evaluation of the potential for the species to occur within the study area.

Although many of the species are considered to have low potential due to lack of known occurrences within the study area, project component sites which have suitable habitat characteristics (may be a combination of vegetation community type, hydrology, etc.) would require further, site-specific evaluation to determine presence/absence. For many species, such suitable habitat characteristics are only present in near-coastal situations, most likely only present in project component areas located in the cities of Oceanside or Carlsbad. No sensitive invertebrate or amphibian species are expected to occur within the sewer master plant study area; 13 sensitive reptile species, 11 sensitive bird species, and 10 sensitive mammal species have a moderate or high likelihood to occur throughout the study area; of these species, only the coastal California gnatcatcher and least Bell's vireo are state or federally listed.

Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Invertebrates			
Streptocephalus wootoni Riverside fairy shrimp	Federal: Endangered State: None	Vernal pools	Low, not known from study area.
Branchinecta sandiegonensis San Diego fairy shrimp	Federal: Endangered State: None	Vernal pools	Low, not known from study area.
Cicindela hirticollis gravida Oblivious tiger beetle	Federal: Species of Concern State: None	Sand dunes/beach	Low, not known from study area.
Cicindela latesignata obliviosa Oblivious tiger beetle	Federal: Species of Concern State: None	Intertidal mudflats in lagoons/estuaries	Low, not known from study area.
Coelus globosus Globose dune beetle	Federal: Species of Concern State: None	Sand dunes/beach	Low, not known from study area.
Euphyes vestris harbisoni Harbison's dun skipper	Federal: Species of Concern State: None	Lagoon and mars, oak woodlands	Low, not known from study area.
Panoquina errans Saltmarsh skipper	Federal: Species of Concern State: None	Lagoon and marsh	Low, except around lagoons
Lycaena hermes Hermes copper butterfly	Federal: Species of Concern State: None	Coastal sage scrub	Low, not known from study area.
Euphydryas editha quino Quino checkerspot butterfly	Federal: Endangered State: Species of Concern	Grasslands, coastal sage scrub	Low, not known from study area. Outside of FWS Survey Area.
Amphibians & Reptiles			
Ensatina klauberi Large-blotched salamander	Federal: None State: Species of Concern	Oak woodland, chaparral, coastal sage scrub, coastal dunes, conifer forest	Low, not known from study area.
Scaphiopus hammondi Western spadefoot toad	Federal: None State: Species of Concern	Grasslands, coastal sage scrub, vernal pools	Low, not known from study area except lagoon areas.

Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Bufo microscaphus californicus Arroyo southwestern toad	Federal: Endangered State: Species of Concern	Riparian and adjacent grasslands, coastal sage scrub	Low, not known from study area.
Rana aurora draytonii California red-legged frog	Federal: Threatened State: Species of Concern	Riparian	Low, not known from study area.
Clemmys marmorata pallida Southwestern pond turtle	Federal: Species of Concern State: Species of Concern	Lagoon and marsh	Low, not known from study area except lagoon areas.
Anniella pulchra pulchra Silvery legless lizard	Federal: None State: Species of Concern	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats	Moderate; document near boundaries of study area.
Arizona elegans occidentalis Coastal (California) glossy snake	Federal: None State: None	Grassland, chaparral, coastal sage scrub, woodlands in sandy and rocky substrates	Moderate; document near boundaries of study area.
Phrynosoma coronatum (blainvillei population) San Diego horned lizard	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Moderate; documented near boundaries of study area and lagoon areas.
Aspidoscelis [Cnemidophorus] hyperythrus beldingi Belding's orange-throated whiptail	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Moderate; documented near boundaries of study area.
Aspidoscelis [Cnemidophorus] tigris stejnegri Coastal western whiptail	Federal: None State: Species of Concern	Coastal sage scrub, chaparral	Moderate potential.
Charina trivirgata roseofusca Coastal rosy boa	Federal: None State: None	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	Moderate potential.
Coleonyx variegatus abbotti San Diego banded gecko	Federal: None State: None	Cismontane chaparral, coastal sage scrub, desert scrub; granite outcrops	Moderate potential.
Crotalus ruber ruber Northern red-diamond rattlesnake	Federal: None State: Species of Concern	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	Moderate potential.
Diadophis punctatus similis San Diego ringneck snake	Federal: None State: None	Moist habitats; woodland, forest, grassland, chaparral; typically found under debris	Moderate potential.
Eumeces skiltonianus interparietalis Coronado Island skink	Federal: None State: Species of Concern	Grassland, riparian and oak woodland; found in litter, rotting logs, under flat stones	Low, not known from study area.

Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Salvadora hexalepis virgultea Coast patch-nosed snake	Federal: None State: Species of Concern	Chaparral, washes, sandy flats, rocky areas	Moderate potential.
Sceloporus orcuttii orcuttii Granite spiny lizard	Federal: None State: None	Granite rock outcrops within forest, woodland, chaparral and coastal sage scrub habitats	Moderate potential.
Thamnophis hammondii Two-striped garter snake	Federal: None State: Species of Concern	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Moderate potential.
Thamnophis sirtalis South Coast garter snake	Federal: None State: Species of Concern	Marshes, meadows, sloughs, ponds, slow-moving water courses	Moderate within lagoon areas only.
Xantusia henshawi henshawi Granite night lizard	Federal: None State: None	Rock outcrops in desert, chaparral and woodland habitats	Moderate potential.
		Birds	
Pelecanus occidentalis californicus California brown pelican	Federal: Endangered State: Endangered	Lagoon and marsh	No breeding potential, only known from lagoon areas.
Pelecanus erythrorhynchos American white pelican	Federal: None State: Species of Concern	Open water, coastal bays, large inland lakes	Moderate in lagoon areas only.
Plegadis chihi White-faced ibis	Federal: None State: Species of Concern	Lagoon and marsh, riparian	Low, not known from study area except lagoon areas.
Phalacrocorax auritus Double-crested cormorant	Federal: None State: Species of Concern	Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes	Moderate in lagoon areas only.
Piranga rubra Summer tanager	Federal: None State: Species of Concern	Nests in riparian woodland; winter habitats include parks and residential areas	Moderate potential.
Circus cyaneus Northern harrier	Federal: None State: Species of Concern	Lagoon and marsh, grasslands, coastal sage scrub	Low breeding potential, high foraging potential.
Accipiter cooperii Cooper's hawk	Federal: None State: Species of Concern	Riparian, coastal sage scrub, oak woodlands	Low breeding potential, high foraging potential.
Accipiter striatus Sharp-shinned hawk	Federal: None State: Species of Concern	Nests in coniferous forests; winters in lowland woodlands and other habitats	Low breeding potential, moderate foraging potential.
Asio flammeus Short-eared owl	Federal: None State: Species of Concern	Grassland, prairies, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands	Low potential

Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Asio otus Long-eared owl	Federal: None State: Species of Concern	Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest	Low potential
Botaurus lentiginosus American bittern	Federal: None State: Species of Concern	Emergent habitat of freshwater marsh and vegetation borders of ponds and lakes	Moderate within lagoon areas only.
Buteo regalis Ferruginous hawk	Federal: None State: Species of Concern	Open, dry country, grasslands, open fields, agriculture	No nesting, low foraging potential.
Buteo swainsoni Swainson's hawk	Federal: None State: Threatened	Open grassland, shrublands, croplands	No nesting, low foraging potential.
Pandion haliatus Osprey	Federal: None State: Species of Concern	Lagoon and marsh	Low breeding potential, high foraging potential in lagoon areas.
Aquila chrysaetos Golden eagle	Federal: None State: Species of Concern	Grasslands, coastal sage scrub, oak woodlands	Low potential, no known records from study area except lagoon areas.
Falco peregrinus anatum Peregrine falcon	Federal: Delisted State: Endangered	Lagoon and marsh, riparian	Low potential, no known records from study area except lagoon areas.
Elanus leucurus White-tailed kite	Federal: None State: Protected	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	Moderate potential for nesting and foraging.
Rallus longirostris levipes Light-footed clapper rail	Federal: Endangered State: Endangered	Lagoon and marsh	Moderate within lagoon areas only.
Charadrius alexandrinus nivosus Western snowy plover	Federal: Threatened State: Species of Concern	Lagoon and marsh	Moderate within lagoon areas only.
Charadrius montanus Mountain plover	Federal: None State: Species of Concern	Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts	Low potential.
Chlidonias niger Black tern	Federal: None State: Species of Concern	Freshwater lakes, marshes, ponds, coastal lagoons	Moderate within lagoon areas only.
Numenius americanus Long-billed curlew	Federal: Species of Concern State: Species of Concern	Lagoon and marsh, grasslands	Moderate within lagoon areas only.
Sterna elegans Elegant tern	Federal: Species of Concern State: Species of Concern	Lagoon and marsh	Moderate within lagoon areas only.
Sterna antillarum browni California least tern	Federal: Endangered State: Endangered	Lagoon and marsh	Moderate within lagoon areas only.

Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Athene cunicularia Burrowing owl	Federal: None State: Species of Concern	Grasslands	Moderate; documented near boundaries of study area and lagoon areas.
Empidonax traillii Southwestern willow flycatcher	Federal: Endangered State: Endangered	Riparian	Low, not known from study area.
Vireo bellii pusillus Least Bell's vireo	Federal: Endangered State: Endangered	Riparian	Moderate; documented near boundaries of study area and lagoon areas.
Eremophila alpestris actia California horned lark	Federal: None State: Species of Concern	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	Moderate potential.
Falco columbarius Merlin	Federal: None State: Species of Concern	Nests in open country, open coniferous forest, prairie; winters in open woodlands, grasslands, cultivated fields, marshes, estuaries and sea coasts	Moderate within lagoon areas only.
Falco mexicanus Prairie falcon	Federal: None State: Species of Concern	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Moderate potential.
Campylorhynchus brunneicapillus cousei Coastal cactus wren	Federal: None State: Species of Concern	Coastal sage scrub	Low, not known from study area.
Polioptila californica californica Coastal California gnatcatcher	Federal: Threatened State: Species of Concern	Coastal sage scrub	High, known from study area.
Ixobrychius exilis Least bittern	Federal: None State: Species of Concern	Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water	Low potential.
Laterallus jamaicensis coturniculus California black rail	Federal: None State: Species of Concern	Saline, brackish, and fresh emergent wetlands	Low, not known from study area.
Lanius ludovicianus Loggerhead shrike	Federal: None State: Species of Concern	Open ground including grassland, coastal sage scrub, broken chaparral, agriculture, riparian, open woodland	Moderate potential.
Numenius americanus Long-billed curlew	Federal: None State: Species of Concern	Nests in upland shortgrass prairies and wet meadows in northeast California; winters in coastal estuaries, open grasslands and croplands	Moderate in lagoon areas only.

Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Nycticorax nycticorax Black-crowned night heron	Federal: None State: None	Marshes, ponds, reservoirs, estuaries; nests in dense-foliaged trees and dense fresh or brackish emergent wetlands	Moderate in lagoon areas only.
Sialia mexicana Western bluebird	Federal: None State: None	Grasslands, oak woodlands	Moderate, not known from study area but known from nearby areas.
Icteria virens Yellow-breasted chat	Federal: None State: Species of Concern	Riparian	Moderate, not known from study area but known from nearby areas.
Aimophila ruficeps canescens Southern California rufous-crowned sparrow	Federal: None State: Species of Concern	Coastal sage scrub	High, known from study area.
Passerculus sandwichensis beldingi Belding's Savannah sparrow	Federal: Species of Concern State: Endangered	Lagoon and marsh	Moderate within lagoon areas only.
Passerculus sandwichensis rostratus large-billed Savannah sparrow	Federal: Species of Concern State: Species of Concern	Lagoon and marsh	Low within lagoon areas only.
Amphispiza belli belli Bell's sage sparrow	Federal: None State: Species of Concern	Coastal sage scrub, chaparral	Moderate, not known from study area but known from nearby areas.
Ammodramus savannarum Grasshopper sparrow	Federal: None State: None	Grasslands	Moderate, not known from study area but known from nearby areas.
Agelaius tricolor Tricolored blackbird	Federal: None State: Species of Concern	Lagoon and marsh, riparian, grasslands	Moderate within lagoon areas only.
Mammals			
Antrozous pallidus Pallid bat	Federal: None State: Species of Concern	Rocky outcrops, cliffs, and crevices with access to open habitats for foraging	Moderate potential.
Choeronycteris mexicana Mexican long-tongued bat	Federal: None State: Species of Concern	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings.	Low potential.
Corynorhinus townsendii pallescens Townsend's western big-eared bat	Federal: Species of Concern State: Species of Concern	Oak woodlands, riparian, chaparral	Moderate, not known from study area but known from nearby areas.
Eumops perotis californicus California western mastiff bat	Federal: Species of Concern State: Species of Concern	Rock outcrops, cliffs	Moderate, not known from study area but known from nearby areas.

Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
Nyctinomops femorosaccus Pocketed free-tailed bat	Federal: None State: Species of Concern	Rocky desert areas with high cliffs or rock outcrops	Low potential.
Nyctinomops macrotis Big free-tailed bat	Federal: None State: Species of Concern	Rugged, rocky canyons	Low potential.
Dipodomys stephensi Stephen's kangaroo rat	Federal: Endangered State: Threatened	Grasslands, coastal sage scrub	Low, not known from study area.
Perognathus longimembris pacificus Pacific little pocket mouse	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Low, not known from study area.
Chaetodipus californicus femoralis Dulzura (California) pocket mouse	Federal: None State: Species of Concern	Coastal sage scrub, chaparral, riparian-scrub ecotone; more mesic areas	Moderate potential.
Chaetodipus fallax fallax Northwestern San Diego pocket mouse	Federal: None State: Species of Concern	Coastal sage scrub	Moderate, not known from study area but known from nearby areas.
Dipodomys simulans Dulzura kangaroo rat	Federal: None State: None	Coastal sage scrub, chaparral, grassland	Moderate potential.
Neotoma lepida intermedia San Diego desert woodrat	Federal: None State: Species of Concern	Coastal sage scrub, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	Moderate potential.
Onychomys torridus ramona Southern grasshopper mouse	Federal: None State: Species of Concern	Grassland, sparse coastal sage scrub	Moderate potential.
Lepus californicus bennettii San Diego black-tailed jackrabbit	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Moderate, not known from study area but known from nearby areas.
Taxidea taxus American badger	Federal: None State: Species of Concern	Dry, open treeless areas, grasslands, coastal sage scrub	Low potential.
Felis concolor Mountain lion	Federal: None State: None	Riparian, coastal sage scrub, oak woodlands	Low, not known from study area.
Odocoileus hemionus fuliginata Mule deer	Federal: None State: Regulated Game Species	Riparian, coastal sage scrub, oak woodlands	High, known from study area.

Regional Corridors and Linkages

Within the project study area, corridors and linkages largely coincide with waterways and low-lying valleys where urban development has not occurred. Many of these corridors are being considered as part of the regional preserve system being established under the MHCP (discussed

below). Under that plan, the only corridor identified within the City of Vista is along Agua Hedionda Creek.

Regional Resource Planning Context

San Diego Multiple Habitat Conservation Program. The study area is located within the North San Diego County MHCP planning area. The MHCP is a regional effort conducted in conjunction with Section 10a of the Federal Endangered Species Act and the California Natural Communities Conservation Planning Act and is the framework for development of a regional habitat preserve for many increasingly rare plant and wildlife species in northwestern San Diego County. The MHCP is a multi-jurisdictional planning effort which has included the cities of Oceanside, Vista, San Marcos, Escondido, Encinitas, Carlsbad, and Solana Beach. Each city is tasked with developing a sub-area plan in order to set about policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP.

Subarea plans will describe the specific conservation, management, facility siting, land use, and other actions the City will use to implement the goals, guidelines, and standards of the MHCP plan. Each city will submit its subarea plan to the USFWS and CDFG to support application for permits and authorizations to incidentally "take" listed threatened or endangered species or other species of concern. All cities with the exception of Solana Beach are currently preparing subarea plans for the MHCP.

The final MHCP was adopted in 2003 and included review and approval by CDFG and RWQCB. Proposed hardline and softline Focused Planning Areas (FPAs) have been developed and are considered in this analysis as a potential preserve system. It is acknowledged that the final preserve system may differ from the currently available draft FPA areas.

City of Vista Subarea Habitat Conservation and Natural Community Conservation Plan. The City of Vista Draft Subarea Plan is currently in the data collection and analysis stages and has not yet been submitted to CDFG or USFWS. According to the City, all CIPs proposed as part of the 2008 Sewer Master Plan Update have been included in the Subarea Plan under preparation. As such, the project would be consistent with Draft Subarea Plan once adopted.

City of Oceanside Subarea Habitat Conservation and Natural Community Conservation Plan. The 2008 Sewer Master Plan Update is not considered an existing, known, public infrastructure project in the City of Oceanside Subarea Plan and as such, is not guaranteed take authority under the City's forthcoming take authorization. However, as indicated in the subarea plan, additional public projects are constructable within reserve areas provided that they do not inhibit the goals and objectives of the subarea plan (City of Oceanside 2002).

Natural Community Conservation Plan (NCCP) for the City of San Marcos. The Sewer Master Plan Update is not considered a known, public infrastructure project in the City of San Marcos Subarea Plan and is not guaranteed take authority under the City's forthcoming take authorization. However, as indicated in the subarea plan, additional public projects are constructable within reserve areas provided that they do not inhibit the goals and objectives of the subarea plan (City of San Marcos 2002).

City of Carlsbad Habitat Management Plan (HMP). The City of Carlsbad's HMP was adopted in November 2004 and does not include specific provisions for known public infrastructure projects; therefore the project would need to demonstrate consistency with the HMP similar to any development or infrastructure project (City of Carlsbad 2004).

San Diego County Multiple Species Conservation Plan North San Diego County Subarea Plan. In conjunction with the San Diego Multiple Species Conservation Plan (MSCP), the County is preparing the North San Diego County Subarea Plan in conjunction with the overall policy directives contained in the San Diego MSCP. This planning effort is currently in the data collection and analysis stages.

4.3.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to biological resources would be significant if the proposed action would:

(1) 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 CDFG or U.S. Fish and Wildlife Service;

(2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or U.S. Fish and Wildlife Service;

(3) 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, and coastal) through direct removal, filing, hydrological interruption, or other means;

(4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites;

(5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

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

4.3.4 Environmental Impacts

This Program EIR analyzes the project components at a much broader scale than a project level CEQA analysis. Actual impacts to biological resources will be determined during future biological studies. The future biological studies will describe site-specific conditions and suggest mitigation measures for the issues outlined in this Program EIR section. Impacts will presumably be reduced to a less than significant level following the site specific analysis and implementation of mitigation measures, and as such, no ummitigable significant impacts are anticipated. Some project components may require future project-level environmental review to determine actual, site-specific impacts to biological resources and determination of adequate mitigation measures to reduce impacts to below a level of significance. Other components would be located within highly disturbed areas such as existing roadways and would be exempt from subsequent CEQA review.

The potential for a project component to result in impacts to biological resources was evaluated qualitatively based on existing mapped biological resources and the potential for sensitive species occurrence. Project components which were identified as having no potential to impact biological resources were determined as such because of their location within existing roads or existing developed and disturbed areas. This evaluation presumes that project construction would involve ground disturbance. If ground disturbance can be avoided through use of in-situ construction techniques, then impacts to sensitive biological resources may be avoided without further evaluation. The project components identified as having the potential to impact biological resources, presuming construction would involve ground disturbance, would be required to undergo further environmental review pursuant to CEQA. The following detailed discussion includes recommendations for focused surveys based on the existing mapped resources in the vicinity of each project component site. However, the need for these surveys shall be re-evaluated and updated as more detailed information is collected from processing of the individual project components or from other adjacent development projects.

At the Master Plan, programmatic stage, precise evaluation of direct, indirect, permanent, and temporary impacts cannot be made. Detailed plans are needed to determine the limits of permanent access road and temporary construction easements in order to determine what areas

would be permanently versus temporarily impacted. That said, the following description of potential impact types is provided as a guide for future evaluation of project-level information.

Project impacts may be direct, indirect, and/or cumulative; direct and indirect impacts may either be permanent or temporary. In general, the project components involve installation of new pipelines, repair and replacement of pipelines and manholes, construction of new or re-establishment of access roads, or the repair of existing access roads.

Pipeline construction (i.e., new installation, repair, or replacement of pipelines and/or manholes) generally involves direct impacts where ground excavation/trenching is required. Depending on the location of the access road, the excavation/trenching area may be considered a direct, permanent impact (if it is within the footprint of the access road) or direct, temporary (if it is located outside the footprint of the access road). Access road construction (i.e., new installation, re-establishment, or repair) generally involves direct impacts where grading is required. The footprint of the access road would be considered a direct, permanent impact where as the graded slopes, if revegetated with native vegetation communities, may be considered a direct, temporary impact. Any construction activity has the potential to result in indirect impacts. In general, since construction occurs for a relatively short time period, these impacts are considered temporary. Such impacts include noise disturbance of wildlife behavior and increase dusts temporarily effecting plant viability. Pipelines generally do not result in permanent indirect effects, with the possible exception of situations where the pipeline substantially affects the root zone of a tree(s) thus indirectly affecting the viability of the tree. Access roads, on the other hand, can have permanent indirect effects such as the potential for introduction of non-native species due to periodic human traffic along the road.

(1) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFG or U.S. Fish and Wildlife Service?

The majority of the project components would not result in significant biological resource impacts based on this program level of analysis. The majority of the pipeline components are located in road rights-of-way or in existing developed and disturbed areas. However, 79 of the project components have been determined to result in potentially significant impacts to biological resources. These segments are described below. Each of these 79 components has been analyzed and is located within or adjacent to habitat for sensitive plants and/or wildlife. The discussion below groups the project components based on location and biological sensitivities. Exact location of each pipeline component can be identified in *Table S-3* and

through use of the City of Vista Sewer Atlas. A general discussion of the biological setting of the identified project components follows each group.

CAPACITY PROJECTS

Group 1

1. V27011.00-V26001.00
2. V26001.00-V26002.00
3. V26002.00-V26003.00
4. V26009.00-V26010.00
5. V26017.00-V26018.00
6. V26072.00-V26073.00
7. V26073.00-V26087.00

These segments are generally located northwest of the intersection of Valley Drive and Monte Vista Drive. These segments are part of the "V8" and "V8-extended" reaches of the project within sub-basins V-26 and 27. These segments were designated as having "access problems", meaning they are difficult to access for rehabilitation and maintenance purposes due to right-of-way conflicts and/or the potential to disturb natural resources. Portions of these segments are located within sensitive vegetation communities and/or habitat for sensitive species including: grassland, oak woodland, riparian forest, and eucalyptus woodland. Additionally, a portion of these segments crosses a draft FPA preserve. Soils with the potential to support rare plant species within grasslands were not mapped in any of these segments. Vegetation mapping, wetlands delineation and surveys for nesting birds (including raptors) and riparian bird species are recommended prior to project construction.

Group 2

8. B10072.00-B10073.00
9. B10074.00-B10075.00
10. B10084.00-B10085.00
11. B10085.00-B10089.00
12. B10089.00-B10092.00

These segments generally extend south adjacent to Buena Creek Road and continue towards Robellini Drive. These segments are part of the V8 and V8-extended capacity projects within sub-basins B-10 and B-8 and were designated in the 2008 Sewer Master Plan Update as having access problems. These segments are located within sensitive habitat including: riparian forest, oak riparian forest, grassland, riparian scrub and eucalyptus woodland. The areas within grasslands also contain soils suitable for rare plant species. Therefore, rare plant surveys are recommended in addition to vegetation mapping, wetland delineations, riparian bird surveys, rare plant surveys, and nesting bird surveys.

Group 3

13. B07074.00-B01061.00
14. B07072.00-B07073.00
15. B07071.00-B07072.00
16. B07070.00-B07071.00
17. B07069.00-B07070.00
18. B07066.00-B07069.00
19. B07068.00-B07069.00
20. B07067.00-B07069.00
21. B07065.00-B07066.00

22. B07059.00-B07065.00
23. B14302.00-B07059.00
24. B14301.00-B14302.00
25. B14300.00-B14301.00

These segments are generally located northwest of the intersection of Green Oak Road and Sycamore Avenue. These segments are part of the B4 capacity project located within sub-basins B-7 and B-14. They are designated as having access problems. Additionally, they are located within riparian woodland, riparian scrub, grasslands and the Agua Hedionda drainage system. Vegetation mapping, wetlands delineation, and riparian bird surveys are recommended.

Group 4

26. B01101.00-B01127.00
27. B01100.00-B01101.00
28. B01099.00-B01100.00
29. B01096.00-B01097.00
30. B01068.00-B01093.00
31. B01065.00-B01068.00
32. B01063.00-B01065.00
33. B01062.00-B01063.00
34. B01061.00-B01062.00

These segments extend to the west near the eastern segment of Green Oak Road. These segments are part of the B1 capacity project located within sub-basin B-1. They are designated as having access problems. Additionally, these segments are located within riparian woodland, open water, grassland, and are located adjacent to coastal sage scrub. Portions are also located within the Agua Hedionda drainage system and preserve area. Recommended focused surveys include vegetation mapping, California gnatcatcher surveys, wetlands delineation, riparian bird surveys, and a nesting bird survey.

Group 5

35. V36T015.00-V36T014.00
36. V36T016.00-V36T015.00
37. V36T017.00-V36T016.00
38. V36T018.00-V36T017.00
39. V36T020.00-V36T019.00
40. V36T027.00-V36T026.00
41. V36T028.00-V36T027

These segments are generally located southeast of the intersection of Palomar Airport Road and Hidden Valley Road. These segments are located within the OV2 and OV2-condition capacity project in sub-basin V-36T, which is adjacent to a draft FPA preserve containing riparian scrub and CSS. Recommended surveys include vegetation mapping, wetlands delineation, riparian bird surveys, and California gnatcatcher surveys.

Group 6

42. V32T093.00-V32T092.00
43. V32T094.00-V32T093.00

These segments are generally located northwest of the intersection of Hacienda Drive and Vista Village Drive. These segments are located within the V2 and V2-material capacity projects

within sub-basin V-5, V-29, and V-30. They are adjacent to a draft FPA preserve and riparian woodland. Portions occur outside of a roadway within the Buena Vista drainage system. Recommended focused surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 7

44. B08091.00-B08092.00
45. B08092.00-B08093.00
46. B08096.00-B08097.00

These segments are generally located southwest of the intersection of Sycamore Avenue and Shadow Ridge Drive. These segments lie within capacity project B2 and within sub-basin B-8. Portions of the segment lie within preserves and within riparian scrub contained in the Agua Hedionda drainage system. Some of these segments appear to be located outside of roadways. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 8

47. B08108.00-B07059.00

This segment is generally located south of the intersection of Watson Way and Brooktree Lane. This segment lies within B2-condition capacity project and within the B-8 and B-7 sub-basin. It is located within a draft FPA preserve containing riparian scrub and is designated as having access problems. Additionally, this segment is within the Agua Hedionda drainage system. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

NON-CAPACITY PROJECTS

Group 9

48. V26217.00-V26227.00
49. V26226.00-V26227.00
50. V26225.00-V26226.00
51. V26224.00-V26225.00
52. V26223.00-V26225.00
53. V26222.00-V26223.00
54. V26228.00-V26229.00

These segments are generally located northwest of the Vista Bonita Drive and Phillips Street intersection. These segments are located in grassland which is adjacent to Eucalyptus woodland and are designated as having “access problems”. These segments are located in sub-basin V-26. A nesting raptor surveys is recommended.

Group 10

55. V32T039.00-V32T038.00
56. V32T038.00-V32T037.00
57. V32T037.00-V32T036.00
58. V32T036.00-V32T035.00
59. V32T035.00-V32T034.00
60. V32T034.00-V32T033.00
61. V32T033.00-V32T032.00
62. V32T032.00-V32T031.00

These segments are generally located west of the intersection of Plaza Drive and College Boulevard. These segments are located in sub-basin V-32T. They are designated as having access problems as well as being located within a draft FPA preserve area that contains riparian scrub, disturbed wetland, and grassland along the Buena Vista drainage system. These segments contain soils that are suitable for sensitive plants. Recommended surveys include vegetation mapping, riparian bird surveys, nesting bird surveys, wetlands delineation, and sensitive plant surveys.

Group 11

63. OV5079.00-OV5080.00

This segment is generally located northeast of the intersection of North Santa Fe Avenue and Camino Largo. This segment in sub-basin OV-5 is located within a draft FPA preserve, but contains no sensitive habitat. Recommended surveys include a general habitat assessment and vegetation mapping.

Group 12

64. OV5081.00-OV5083.00

This segment is generally located immediately northeast of the intersection of North Santa Fe Avenue and Camino Largo. This segment is located in sub-basin OV-5 and within a draft FPA preserve. However they contain no sensitive habitat. Recommended surveys include a general habitat assessment and vegetation mapping.

Group 13

65. V22129.00-V22130.00

This segment is generally located northeast of the intersection of Escondido Avenue and Alta Vista Drive. These segments are located within sub-basin V-22 and are within a draft FPA preserve which contains no sensitive habitat. A general habitat assessment is recommended.

Group 14

66. V27010.00-V27011.00
67. V27009.00-V27010.00

These segments are generally located south of the intersection of Valley Drive and Fireside Lane. These segments are located within a draft FPA preserve containing riparian forest and grassland. Recommended surveys include vegetation mapping, wetlands delineation, riparian bird surveys, and a nesting raptor survey.

Group 15

68. V32T079.00-V32T078.00

This segment is generally located north of the intersection of Hacienda Drive and Pomelo Drive. This segment is adjacent to a draft FPA preserve containing riparian woodland, within sub-basin V-32. They are also located within the drainage system of the Buena Vista creek. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 16

69. V32T084.00-V32T083.00

This segment is generally located north of the intersection of Hacienda Drive and La Toruga Drive. These segments are located within a draft FPA preserve that contains a disturbed wetland along the Buena Vista drainage system. Recommended surveys include vegetation mapping, wetlands delineation, and a habitat assessment for wildlife.

Group 17

70. V32T068.00-V32T067.00
71. V32T069.00-V32T068.00
72. V32T070.00-V32T069.00
73. V32T071.00-V32T070.00
74. V32T072.00-V32T071.00
75. V32T073.00-V32T072.00
76. V32T074.00-V32T073.00
77. V32T075.00-V32T074.00

These segments are generally located northeast of the intersection of Hacienda Drive and South Emerald Drive. These segments are located within sub-basin V-32 along the Buena Vista drainage system. They are mapped within a draft FPA preserve containing riparian woodland. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 18

78. V32T026.00-V32T025.00
79. V32T027.00-V32T026.00

These segments are generally located northeast of the intersection of Haymar Drive and El Camino Real. These segments are located on the boundary of a draft FPA preserve within sub-

basin V-32T along the Buena Vista drainage system. They are mapped within areas of riparian scrub. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

(2) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or U.S. Fish and Wildlife Service?

Each of the 79 project components listed above have the potential to impact a sensitive natural community. The following 69 project components were determined to result in potentially significant impacts to existing mapped riparian habitat:

1. V27011.00-V26001.00
2. V26001.00-V26002.00
3. V26002.00-V26003.00
4. V26009.00-V26010.00
5. V26017.00-V26018.00
6. V26072.00-V26073.00
7. V26073.00-V26087.00
8. B10072.00-B10073.00
9. B10074.00-B10075.00
10. B10084.00-B10085.00
11. B10085.00-B10089.00
12. B10089.00-B10092.00
13. B07074.00-B01061.00
14. B07072.00-B07073.00
15. B07071.00-B07072.00
16. B07070.00-B07071.00
17. B07069.00-B07070.00
18. B07066.00-B07069.00
19. B07068.00-B07069.00
20. B07067.00-B07069.00
21. B07065.00-B07066.00
22. B07059.00-B07065.00
23. B14302.00-B07059.00
24. B14301.00-B14302.00
25. B14300.00-B14301.00
26. B01101.00-B01127.00
27. B01100.00-B01101.00
28. B01099.00-B01100.00
29. B01096.00-B01097.00
30. B01068.00-B01093.00
31. B01065.00-B01068.00
32. B01063.00-B01065.00
33. B01062.00-B01063.00
34. B01061.00-B01062.00
35. V36T015.00-V36T014.00
36. V36T016.00-V36T015.00
37. V36T017.00-V36T016.00
38. V36T018.00-V36T017.00
39. V36T020.00-V36T019.00
40. V36T027.00-V36T026.00
41. V36T028.00-V36T027.00
42. V32T093.00-V32T092.00
43. V32T094.00-V32T093.00
44. V05048.00-V05091.A0
45. B08091.00-B08092.00
46. B08092.00-B08093.00
47. B08096.00-B08097.00
48. B08108.00-B07059.00
49. V32T039.00-V32T038.00
50. V32T038.00-V32T037.00
51. V32T037.00-V32T036.00
52. V32T036.00-V32T035.00
53. V32T035.00-V32T034.00
54. V32T034.00-V32T033.00
55. V32T033.00-V32T032.00
56. V32T032.00-V32T031.00
57. V27010.00-V27011.00
58. V27009.00-V27010.00
59. V32T079.00-V32T078.00
60. V32T068.00-V32T067.00
61. V32T069.00-V32T068.00
62. V32T070.00-V32T069.00
63. V32T071.00-V32T070.00
64. V32T072.00-V32T071.00
65. V32T073.00-V32T072.00
66. V32T074.00-V32T073.00
67. V32T075.00-V32T074.00
68. V32T026.00-V32T025.00
69. V32T027.00-V32T026.00

(3) Would the project 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, and coastal) through direct removal, filling, hydrological interruption, or other means?

The project components listed under threshold No. 2 above as potentially impacting riparian habitat, would also potential affect federally protected wetlands. These segments were within

mapped riparian scrub, forest, or woodland and/or are located within the Agua Hedionda creek drainage or the Buena Vista creek drainage.

(4) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?

The majority of the project components are located in urban/developed or disturbed land; however the following 64 project segments may impact wildlife corridors.

1. V27011.00-V26001.00
2. V26001.00-V26002.00
3. V26002.00-V26003.00
4. V26009.00-V26010.00
5. V26017.00-V26018.00
6. V26072.00-V26073.00
7. V26073.00-V26087.00
8. B07074.00-B01061.00
9. B07072.00-B07073.00
10. B07071.00-B07072.00
11. B07070.00-B07071.00
12. B07069.00-B07070.00
13. B07066.00-B07069.00
14. B07068.00-B07069.00
15. B07067.00-B07069.00
16. B07065.00-B07066.00
17. B07059.00-B07065.00
18. B14302.00-B07059.00
19. B14301.00-B14302.00
20. B14300.00-B14301.00
21. B01101.00-B01127.00
22. B01100.00-B01101.00
23. B01099.00-B01100.00
24. B01096.00-B01097.00
25. B01068.00-B01093.00
26. B01065.00-B01068.00
27. B01063.00-B01065.00
28. B01062.00-B01063.00
29. B01061.00-B01062.00
30. V36T015.00-V36T014.00
31. V36T016.00-V36T015.00
32. V36T017.00-V36T016.00
33. V36T018.00-V36T017.00
34. V36T020.00-V36T019.00
35. V36T027.00-V36T026.00
36. V36T028.00-V36T027.00
37. V32T093.00-V32T092.00
38. V32T094.00-V32T093.00
39. B08091.00-B08092.00
40. B08092.00-B08093.00
41. B08096.00-B08097.00
42. B08108.00-B07059.00
43. V32T039.00-V32T038.00
44. V32T038.00-V32T037.00
45. V32T037.00-V32T036.00
46. V32T036.00-V32T035.00
47. V32T035.00-V32T034.00
48. V32T034.00-V32T033.00
49. V32T033.00-V32T032.00
50. V32T032.00-V32T031.00
51. OV5079.00-OV5080.00
52. OV5081.00-OV5083.00
53. V32T079.00-V32T078.00
54. V32T084.00-V32T083.00
55. V32T068.00-V32T067.00
56. V32T069.00-V32T068.00
57. V32T070.00-V32T069.00
58. V32T071.00-V32T070.00
59. V32T072.00-V32T071.00
60. V32T073.00-V32T072.00
61. V32T074.00-V32T073.00
62. V32T075.00-V32T074.00
63. V32T026.00-V32T025.00
64. V32T027.00-V32T026.00

Corridors generally coincide with waterways and associated drainages where urban development has not occurred. Additionally, any portions of the draft MHCP reserve system would be considered as a potential pathway for wildlife movement.

(5) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Components located within the City of Carlsbad may require conformance with the City's Habitat Management Plan (HMP) implementing ordinance. The OV2 project components in the V36T sub-basin may potentially conflict with the HMP for the City of Carlsbad and would

require further studies to assure compliance with the HMP. The following 15 OV2 project components were identified within the V36T sub-basin:

1. V36T015.00-V36T014.00
2. V36T016.00-V36T015.00
3. V36T017.00-V36T016.00
4. V36T018.00-V36T017.00
5. V36T019.00-V36T018.00
6. V36T020.00-V36T019.00
7. V36T021.00-V36T020.00
8. V36T022.00-V36T021.00
9. V36T022.A0-V36T022.00
10. V36T023.00-V36T022.A0
11. V36T024.00-V36T023.00
12. V36T025.00-V36T024.00
13. V36T026.00-V36T025.00
14. V36T027.00-V36T026.00
15. V36T028.00-V36T027.00

(6) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The following 91 project components are located within or adjacent to a draft hardline or softline FPA preserve as described in the MHCP.

1. V27011.00-V26001.00
2. V26001.00-V26002.00
3. V26002.00-V26003.00
4. V26003.00-V26009.00
5. V26009.00-V26010.00
6. V26017.B0-V26017.00
7. V26017.00-V26018.00
8. V26018.00-V26026.00
9. V26026.00-V26029.00
10. V26030.00-V26070.00
11. V26070.00-V26071.00
12. V26072.00-V26073.00
13. V26073.00-V26087.00
14. V26071.00-V26072.00
15. B01101.00-B01127.00
16. B01100.00-B01101.00
17. B01099.00-B01100.00
18. B01096.00-B01097.00
19. B01068.00-B01093.00
20. B01065.00-B01068.00
21. B01063.00-B01065.00
22. B01062.00-B01063.00
23. B01061.00-B01062.00
24. V36T015.00-V36T014.00
25. V36T016.00-V36T015.00
26. V36T017.00-V36T016.00
27. V36T018.00-V36T017.00
28. V36T019.00-V36T018.00
29. V36T020.00-V36T019.00
30. V36T021.00-V36T020.00
31. V36T022.00-V36T021.00
32. V36T022.A0-V36T022.00
33. V36T023.00-V36T022.A0
34. V36T024.00-V36T023.00
35. V36T025.00-V36T024.00
36. V36T026.00-V36T025.00
37. V36T027.00-V36T026.00
38. V36T028.00-V36T027.00
39. V32T086.00-V32T085.00
40. V32T087.A0-V32T087.00
41. V32T088.00-V32T087.A0
42. V32T090.00-V32T089.00
43. V32T091.00-V32T090.00
44. V32T092.A0-V32T091.00
45. V32T093.00-V32T092.00
46. V32T094.00-V32T093.00
47. B08091.00-B08092.00
48. B08092.00-B08093.00
49. B08093.00-B08094.00
50. B08094.00-B08095.00
51. B08095.00-B08096.00
52. B08096.00-B08097.00
53. B08108.00-B07059.00
54. V34108.00-V34109.00
55. V34107.00-V34108.00
56. V34106.00-V34107.00
57. V34105.00-V34106.00
58. V32T039.00-V32T038.00
59. V32T038.00-V32T037.00
60. V32T037.00-V32T036.00
61. V32T036.00-V32T035.00
62. V32T035.00-V32T034.00
63. V32T034.00-V32T033.00
64. V32T033.00-V32T032.00
65. V32T032.00-V32T031.00
66. V32T031.00-V32T030.00
67. OV5079.00-OV5080.00
68. OV5081.00-OV5083.00
69. V19065.00-V19068.00
70. V19068.00-V19069.00
71. V19066.00-V19067.00
72. V20077.00-V20078.00
73. V21179.00-V21180.00
74. V21180.00-V21181.00
75. V22128.00-V22129.00
76. V22129.00-V22130.00
77. V22151.00-V22152.00
78. V22150.00-V22151.00
79. V27010.00-V27011.00
80. V27009.00-V27010.00
81. V32T079.00-V32T078.00
82. V32T083-V32T084.00
83. V32T068.00-V32T067.00
84. V32T069.00-V32T068.00
85. V32T070.00-V32T069.00
86. V32T071.00-V32T070.00
87. V32T072.00-V32T071.00

88. V32T073.00-V32T072.00
89. V32T074.00-V32T073.00
89. V32T075.00-V32T074.00
90. V32T026.00-V32T025.00
91. V32T027.00-V32T026.00

4.3.5 Level of Significance Prior to Mitigation

All of the segments listed above have been assessed and determined to have potentially significant impacts to biological resources. Until the results of the focused surveys are determined, it is impossible to determine if implementation of the specific project would have significant impacts to biological resources. Therefore, it is assumed that all these segments would have potentially significant impacts to biological resources.

4.3.6 Mitigation Measures

Based on the results of this first-tier program level analysis, the following procedure will be required to be followed by the City of Vista to ensure that prescribed mitigation measures fully reduce identified significant biological resource impacts to below a level of significance. The City will be required to implement these measures as part of subsequent, second-tier review.

First, if natural vegetation communities exist within the planned project study area, the City biologist will assess the proposed 2008 Sewer Master Plan component for impacts to sensitive natural communities, sensitive plants, wildlife, wetlands and waters of the U.S., wildlife movement and consistency with regional resource planning documents such as general plans, habitat conservation plans (HCPs) or NCCPs. The assessment shall be contained within a Biological Resources Technical Report. This report shall include recommendations for additional focused surveys for detection of sensitive endangered, threatened or otherwise sensitive species (*e.g.*, focused survey for the California gnatcatcher, least Bell's vireo or a rare plant survey). This technical report shall also include recommendations for minimization and mitigation of impacts appropriate to the resources affected. Mitigation measures are presented below for each threshold under which an impact may be considered significant. The Biological Resources Technical Report for each project component will specify which mitigation measures apply to that project component and if necessary, add additional detail.

The following mitigation measure will apply to the identified significant impacts under any of the thresholds of significance presented in *Section 4.3.4*.

BIO-1 Construction monitoring shall be conducted in order to avoid unintended impacts to sensitive resources. A qualified biologist shall review construction techniques including the Storm Water Pollution Prevention Plan (SWPPP) and related Best Management Practices (BMPs), lighting, and construction timing in relation to breeding seasons. Marking of construction area limits with single-strand wire, high-

visibility plastic construction fencing or high-visibility construction tape shall be included where sensitive biological resources are present. Marking devices shall be passable by wildlife if it is located within a wildlife corridor. Equipment laydown areas, vehicle turn-around areas, pads for the placement of large equipment and similar areas designated for construction activity shall be included within the marked disturbance area. A qualified biologist shall attend the pre-construction meeting, monitor construction on an as-needed basis, and shall have the authority to stop construction if permit conditions are not met. The biologist shall provide a construction monitoring report to the City within 90 days of completion of construction.

Threshold of Significance No. 1 – Special-Status Species

BIO-2 Impacts to special-status species and habitats potentially supporting special-status species shall be avoided and minimized to the maximum extent practicable through project relocation, redesign, or specific construction techniques. Both permanent and temporary impacts shall be avoided or minimized; thus permanent access roads shall be located in the least environmentally damaging, practicable location and shall be of a minimum width. Construction techniques shall be selected based on both direct and indirect impacts to special-status biological resources are avoided or minimized to the maximum extent practicable, to the satisfaction of the City of Vista Planning Department.

Sensitive Plant Species

BIO-3 For projects with the potential of impacting seasonally detectable plant species listed by the USFWS or CDFG, covered by a local HCP/NCCP, or listed by CNPS as List 1 or 2, focused surveys for such species shall be conducted at the appropriate time of year, depending on the species.

Where feasible, avoidance and minimization of impacts to rare, threatened, or endangered plants will be employed. If avoidance and/or minimization of impacts cannot be achieved, tunneling and/or boring underneath sensitive plant populations shall be analyzed at the project level as potential mitigation measures to avoid or minimize impacts to sensitive plant species.

Indirect impacts to plant species, including depletion of water and hydrologic regime quality, shall be avoided through the use of BMPs, including strict limitations for all construction and maintenance activities within the identified impact area.

For unavoidable impacts, translocation or propagation of sensitive plant species shall be conducted. If translocation is not feasible, then offsite conservation of the sensitive plant species at a 4:1 ratio shall be implemented. Conservation shall include recordation of a conservation easement and implementation of a long-term management plan.

Sensitive Wildlife Species

BIO-4 The Biological Resources Technical Report for a specific project component may suggest further study as to the presence/absence of threatened, endangered or otherwise sensitive species. Focused surveys shall occur in accordance with USFWS/CDFG protocols; impacts shall be documented in a report. This focused survey report shall include an analysis of impacts, both direct (*i.e.*, removal of habitat or species) and indirect (*i.e.*, noise disturbances), avoidance and minimization mechanisms, and mitigation measures. Mitigation for the identified direct impacts can be achieved through habitat replacement, as identified in mitigation measures under Threshold of Significance No. 2. In addition to like habitat replacement, additional mitigation shall be required in order to reduce impacts to specific state- and federally-listed threatened or endangered species to below a level of significance. It should be noted that due to the state and/or federal listing status of the following species, a take authorization permit per the state and/or federal Endangered Species Acts shall be necessary for project construction (unless the area of impact is within a jurisdiction with an adopted HCP/NCCP that includes take authorization for the species; if so, see mitigation measures under Threshold of Significance No. 5). Mitigation measures for state- or federally-listed species with a moderate to high likelihood to occur within some portion of the sewer master plan study area include the following:

- ***California gnatcatcher:*** Should the biological resources technical report suggest California gnatcatcher habitat exists onsite, additional surveys, in accordance with federal protocols, shall be required to determine the exact location of nesting and foraging habitat. Survey results shall be documented in a focus species survey report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. All impacts to the federally-threatened California gnatcatchers shall be mitigated at a minimum 1:1 ratio (based on number of pairs impacted) and a 2:1 ratio (based on acreage of habitat impacted) (i.e., habitat that supports gnatcatchers must be mitigated through the conservation of like habitat at a minimum 2:1 ratio and conserved habitat must

also supports the at least the same number of gnatcatcher pairs as being impacted).

All clearing and grubbing within suitable habitat shall occur outside the breeding season of the California gnatcatcher (*i.e.*, between February 15 and August 31) unless nesting surveys conducted within 72 hours confirm lack of breeding activity. In addition, prior to construction activities, a qualified biologist shall survey the preserved habitat areas adjacent to the project site (up to 500 feet) to determine if any gnatcatcher nests are within a distance potentially affected by noise from these activities. If no nesting gnatcatchers are located, no additional measures need to be taken to mitigate indirect impacts. However, if nesting coastal California gnatcatcher are observed, no activity shall occur without noise attenuation (*e.g.*, noise barriers) to ensure that noise levels within occupied habitat do not exceed 60 dBA Leq.

- ***Western snowy plover, peregrine falcon, California brown pelican, Belding's savannah sparrow, golden eagle, white-tailed kite, light-footed clapper rail, California least tern, southwestern willow flycatcher and least Bell's vireo:*** Should the Biological Resources Technical Report suggest applicable habitat for these species exists onsite, additional nesting bird surveys, in accordance with federal protocol, shall be required in the year that project grading or construction commences. Survey results shall be documented in a focus species survey report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. If any of these species are found, avoidance through appropriate construction techniques and facility maintenance activities shall be required (*i.e.*, avoidance of construction during nesting season or reduction of all noise impacts to a level below 60 CNEL in construction areas during the breeding season). Further, any permanent loss of nesting habitat for these bird species shall be mitigated at a 1:1 ratio of occupied habitat including the replacement of like habitat. Should purchase of off-site habitat be the only option for mitigation, purchase shall occur in areas that supports at least a 1:1 ratio of the impacted species.

  The same noise mitigation described for the California gnatcatcher shall apply for indirect impacts to these nesting bird species within 500 feet of construction.

- ***Other State- or Federally-listed Wildlife Species:*** All other state- or federally-listed wildlife species are considered to have low potential to occur within the sewer master plan study area due to lack of current documented occurrences in or

near the study area. If any of these species is found within a project component site, avoidance of impacts will likely be required because the locality will likely represent an expansion in the range of highly threatened species and therefore would be a high priority for conservation.

Threshold of Significance No. 2 – Riparian Habitat or Other Sensitive Natural Community

BIO-5 For unavoidable temporary impacts to sensitive natural communities or riparian habitat, the habitat area shall be restored and conserved at a 1:1 ratio. Temporary impacts include areas where no future maintenance is required. A Conceptual Habitat Restoration Plan shall be prepared prior to construction. Such a plan shall be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan shall include, at a minimum:

(a) assessment of the impact site and conservation potential
(b) the plant species to be used
(c) a schematic depicting the mitigation area
(d) time of year that planting will occur
(e) a description of the irrigation methodology
(f) measures to control exotic vegetation on site
(g) success criteria
(h) a detailed monitoring and maintenance program
(I) contingency measures shall be the success criteria not be met
(j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity

BIO-6 For unavoidable permanent impacts to sensitive natural upland communities, the habitat area shall be mitigated through the conservation (i.e.., placement of conservation easement and implementation of long-term management plan) in accordance with the ratios below (unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction):

- Coastal sage scrub (including disturbed coastal sage scrub and other associated upland scrub species): 2:1
- Southern Mixed Chaparral: 2:1
- Native Grasslands: 3:1
- Non-native Grasslands: 0.5:1

- Oak Woodlands: 3:1
- Maritime Succulent Scrub/Maritime Chaparral: 3:1

For project segments that are constructed in jurisdictions where an HCP/NCCP Subarea Plan has yet to be adopted, impacts to moderate or high-value coastal sage scrub habitat occupied by the coastal California gnatcatcher require an Interim Habitat Loss Permit (HLP) in accordance with Section 4(d) of the federal Endangered Species Act (ESA). Impacts to unoccupied, low-value habitat of less than 1.0 acre, require HLP Exemption. Either scenario requires mitigation through one or more of the following options: acquisition and preservation of habitat, dedication of lands, management agreements, habitat restoration, payment of fees, transfer of development rights or other measures approved by CDFG or USFWS. Mitigation by off-site land acquisition must meet the following criteria: **(1)** contains existing coastal sage/maritime succulent scrub of sufficient size and habitat quality to match or exceed the value of the area to be affected; **(2)** is located adjacent to or in close proximity to publicly owned/preserve natural lands or planned natural open space; **(3)** contributes to the implementation of the applicable MHCP/NCCP and applicable conservation planning goals; **(4)** contains sensitive plant and animal taxa in numbers approximating those that will be affected and **(5)** is predominantly undisturbed in nature. The City of Vista's first priority or preference is to ensure that the conservation area(s) is/are within the City or its unincorporated areas.

For lands within the City of Vista, credit authorization will be required from the City if CSS is affected. The City does not possess credit under Section 4(d) of the ESA for the MHCP, which allocated interim take credits of CSS until the Subarea Plan is adopted. Therefore credits must be allocated by the County of San Diego through an exchange process administered by the County. This process generally involves payment of habitat acquisition fees or purchase of conservation of land in the County.

However, based on a November 2, 2007, letter, the USFWS has suspended interim take allowance under Section 4(d) for all MHCP participants, except the City of Oceanside. Based on this current suspension, interim take under Section 4(d), including take that involves that allocation of credits from the County of San Diego, is not allowed within the City of Vista. Until such time as interim take in reinstated or a subregional HCP/NCCP is adopted, any loss of coastal sage scrub would require evaluation under Section 7 or Section 10 of the federal ESA. Based on that evaluation, a Biological Opinion or Habitat Conservation Plan may be required.

BIO-7 For projects affecting riparian areas or wetlands, mitigation for unavoidable permanent impacts shall be developed prior to project implementation pursuant to consultation and permitting requirements of the ACOE, RWQCB and CDFG for issuance of federal Clean Water Act Section 404/401 permits and state Section 1600 Streambed Alteration Agreements. Mitigation shall be provided through habitat creation/restoration (at a minimum 1:1 ratio) and additional habitat creation/restoration or enhancement, as required. Habitat creation/restoration and/or enhancement shall be outlined in a Conceptual Wetlands Mitigation and Monitoring Plan that shall include, at a minimum the following components:

(a) assessment of the mitigation site and conservation potential
(b) the plant species to be used
(c) a schematic depicting the mitigation area
(d) time of year that planting will occur
(e) a description of the irrigation methodology
(f) measures to control exotic vegetation on site
(g) success criteria
(h) a detailed monitoring and maintenance program
(i) contingency measures shall be the success criteria not be met
(j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity
(k) preparation of a cost estimate for installation (typically a 120-day period), initial maintenance and monitoring (typically a 5-year period), and long-term maintenance, monitoring, and management (in perpetuity) for the mitigation site

Unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction, the following mitigation ratios (including a minimum 1:1 habitat creation/restoration, with the remainder satisfied through creation/restoration or enhancement) shall apply to each type of disturbed habitat (ACOE or CDFG may require additional mitigation through the permitting process):

- Intertidal, tidal, tidal marsh, and mudflats: 4:1
- Southern willow scrub, southern sycamore-alder riparian, southern riparian scrub, southern cottonwood-willow riparian, south coast live oak riparian and other woody-riparian habitats: 3:1
- Mulefat scrub and alkali marsh: 2:1
- Freshwater marsh 1:1 or 2:1, based on an evaluation of habitat quality
- Unvegetated stream channels, open water: 1:1

For impacts affecting Buena Vista Creek, to the extent feasible, mitigation shall occur in coordination with a regional conservation entity to maximize the effectiveness of drainage-wide efforts to restore this heavily damaged drainage system. In general, mitigation in the form of invasive species removal should occur first in the upper watershed and progress downstream and larger, consolidated mitigation sites are preferred over smaller, more widespread sites. Mitigation shall be coordinated and approved by the City of Vista Planning Department.

Threshold of Significance No. 3 – Federally Protected Wetlands

The mitigation measure provided in BIO-2, BIO-5, and BIO-7 apply for impacts to federally protected wetlands.

Threshold of Significance No. 4 – Movement of Fish or Wildlife Species

The mitigation measure provided in BIO-2, BIO-5, and BIO-6 apply for impacts to movement of fish or wildlife species. In addition BIO-8 will be required.

BIO-8 If a project component is located within a wildlife movement corridor, construction shall be timed in such a manner as to reduce potential impacts to wildlife. Depending on the species using the area, construction hours may be restricted, noise may be capped at 60 dB during peak movement periods or in cases where the entire corridor is temporarily blocked, an alternative passage route shall be established. Design of these mitigation measures shall occur through the consultation of a qualified biologist.

Threshold of Significance No. 5 – Local Policies or Ordinances Protecting Biological Resources

The mitigation measure provided in BIO-2 applies for impacts to local policies or ordinances protecting biological resources. In addition BIO-9 will be required.

BIO-9 Currently the only local policy or ordinance protecting biological resources is within the City of Carlsbad through the HMP Implementation Ordinance. As such, project components within the HMP area shall demonstrate compliance with the HMP conservation provisions and acquire an HMP permit from the City of Carlsbad.

Threshold of Significance No. 6 – Adopted HCP or NCCP

The mitigation measure provided in BIO-2 and BIO-9 applies for impacts to adopted HCP or NCCPs. In addition BIO-10 will be required.

BIO-10 Biological Resources Technical Reports for project components that may affect natural vegetation shall evaluate affects on the adopted MHCP. Although the cities of Vista, Oceanside and San Marcos have not adopted Subarea Plan or received take authorization, project components shall be designed in a manner which does not preclude the assemblage of regional preserves in compliance with the adopted MHCP. Project components may require redesign or limited permanent access routes in order to meet MHCP regional preserve design goals and objectives.

4.3.7 Residual Impact After Mitigation

With implementation of mitigation measures listed above residual impacts would be less than significant.

4.4 Cultural and Paleontological Resources

4.4.1 Introduction and Methodology

This section focuses on the project's potential to impact existing cultural resources within the study area. The analysis is based on the *Cultural Resources Evaluation for the Vista and Buena Sanitation District 2007 Sewer Master Plan Update*, prepared by Brian F. Smith and Associates (see *Appendix B* to this EIR) in September 2007. Detailed references to specific previous studies used to prepare the Cultural Resources Study can be found in that appendix. Cultural resource field reconnaissance work was not performed for each project component as part of this Program EIR.

The Cultural Resources Study included an archaeological records search and data review of the project area to determine the recorded patterns of cultural resources within the sewer district boundaries. From this information, assessments could be made regarding the potential for impacts to cultural resources within the general vicinity of pipelines and facilities. This information also indicated where existing development has precluded the possibility of any cultural resources. As such, this Program EIR section will identify those project components that will require additional cultural resource investigation when more detailed design project information becomes available.

In order to assess the potential of the 2008 Sewer Master Plan Update project components to impact cultural resources, records searches were obtained from the South Coastal Information Center at San Diego State University. The records searches principally focused on the locational information for recorded sites. The data from the information center was transferred onto the USGS project maps to assess possible conflicts with proposed project components. Per the evaluation, pipeline segments within 100 and 500 feet of known cultural resource sites have the potential to impact cultural resources.

The following summarizes information on existing conditions and uses the Appendix G CEQA Significance Thresholds, specifically the cultural resource thresholds, to determine if cultural resource impacts are considered significant under CEQA.

4.4.2 Existing Conditions

Background – Cultural Setting

San Diego County has a very rich and extensive record of prehistoric activity. The archaeological time periods include the Paleo-Indian San Dieguito Complex, the Milling Stone

Horizon La Jolla Complex, and the Late Prehistoric (Luiseno and Kumeyaay) Periods. The Historic Period includes the Spanish, Mexican, and Anglo American Periods.

Pre-Historic Setting

The San Dieguito Complex/Paleo-Indian. The term "San Dieguito Complex" is a cultural distinction used to describe a group of people that occupied sites in the region between 11,500 and 7,000 years before present (YBP) and appear to be related to or contemporaneous with the Paleo-Indian groups in the Great Basin area and the Midwest. The San Dieguito Complex is the least understood of the cultures that occupied the southern California region. There is debate as to whether the San Dieguito sites are actually different activity areas of the early Encinitas Tradition peoples, whether the San Dieguito Complex people had a separate origin and culture from the Encinitas Tradition or whether the San Dieguito Complex gave rise to the Encinitas Tradition all together. Diagnostic San Dieguito artifacts include finely crafted scraper planes, choppers, scrapers, crescentics, elongated bifacial knives and intricate leaf-shaped points.

The La Jolla Complex/Encinitas Tradition/Milling Stone Horizon. Between 9,000 and 8,000 YBP, a widespread complex was established in the southern California region, primarily along the coast. This complex is locally known as the La Jolla Complex, which is regionally associated with the Encinitas Tradition, and shared cultural components with the widespread Milling Stone Horizon. The coastal expression of this complex, with a focus on coastal resources and development of deeply-stratified shell middens located primarily around bays and lagoons, appeared in the southern California coastal areas, where the older sites associated with this expression are located at Topanga Canyon, Newport Bay, Agua Hedionda Lagoon, and some of the Channel Islands. Radiocarbon dates from sites attributed to this complex span a period of over 7,000 years in this region, beginning over 9,000 YBP.

The Encinitas Tradition is best recognized for its pattern of large coastal sites characterized by shell middens, grinding tools closely associated with the marine resources of the area, cobble-based tools, and flexed human burials. The coastal lagoons in northwestern San Diego County supported large Milling Stone Horizon populations circa 6,000 YBP, as shown by numerous radiocarbon dates from the many sites adjacent to the lagoons. The ensuing millennia were not stable environmentally, and by 3,000 YBP, many of the coastal sites in northern San Diego County had been abandoned.

By 5,000 YBP, an inland expression of the La Jolla Complex, which exhibits influences from the Campbell Tradition from the north, is evident in the archaeological record. These inland Milling Stone Horizon sites have been termed “Pauma Complex.” By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusc remains, have a

greater tool variety (including atl-atl dart points and quarry-based tools), and seem to express a more sedentary lifestyle with a subsistence economy based on the use of a broad variety of terrestrial resources. Although originally viewed as a separate culture from the coastal La Jolla Complex, it appears that these inland sites may be part of a subsistence and settlement system utilized by the coastal peoples. Evidence from the 4S Project in inland San Diego County suggests that these inland sites may represent seasonal components within an annual subsistence round by La Jolla Complex populations. Including both coastal and inland sites of this time period in discussions of the Encinitas Tradition, therefore, provides a more a complete appraisal of the settlement and subsistence system exhibited by this cultural complex.

***Late Prehistoric*.** Approximately 1,300 YBP, a Shoshonean-speaking group from the Great Basin region moved into San Diego County, marking the transition to the Late Prehistoric Period. This period is characterized by higher population densities, and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, but effective technological innovations, such as the bedrock mortar for use in acorn processing. Atl-atl darts are replaced by smaller arrow points to be sued with the bow and arrow.

The period is divided into two phases, including San Luis Rey I and San Luis Rey II, based upon the introduction of pottery. Through radiocarbon dating, the introduction of pottery and the initiation of the San Luis Rey II phase began at approximately 1300 A.D. San Luis Rey I is characterized by the use of portable shaped or unshaped slab metates, and non-portable bedrock milling features. Manos and pestles can also be shaped or unshaped. Cremations, bone awls, and stone and shell ornaments are also prominent in the material culture. The later San Luis Rey II assemblage is augmented by pottery cooking and storage vessels, cremation urns, and polychrome pictographs. The fluorescence of rock art likely appeared as the result of increased populations sizes, and increased sedentism. Flaked stone dart points are dominated by the Cottonwood Triangular series, but Desert Side-notched, Dos Cabazas Serrated, leaf-shaped, and stemmed styles also occur. Subsistence is thought to be focused on the utilization of acorns, a storable species that allowed for relative sedentism and increased population sizes.

Ethnohistorical and ethnographic evidence indicates that the Shoshonean-speaking group that occupied the northern portion of San Diego County were the Luiseño. Along the coast, the Luiseño made use of the marine resources available by fishing and collecting molluscs for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. The elaborate kinship and clan systems between the Luiseño and Cahuilla and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian, resources from the eastern deserts, and steatite from the Channel

Islands. The Luiseno occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsula Range Mountains at San Jacinto, including Palomar Mountain to the south and Santiago Peak to the north, on the south by Agua Hedionda Lagoon and on the north by Aliso Creek.

Historic Setting

Spanish Period (1769-1821). The Spanish occupation of the claimed territory of Alta California took place during the reign of King Carlos III of Spain. Actual colonization of the San Diego area began on July 16, 1769, when the first Spanish exploring party arrived in San Diego to secure California for the Spanish crown (Palou 1926). Missions were constructed from San Diego to as far north as San Francisco. As an extension of territorial control by the Spanish empire, each mission was placed so as to command as much territory and as large a population as possible. An increasing numbers of Spanish and Mexican people, and later Americans during the Gold Rush, settled in the area, the Indian populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983).

Mexican Period (1821-1846). By 1821, Mexico had gained independence from Spain, and the northern territories were subject to political repercussions. By 1834, all of the mission lands had been removed from the control of the Francisco Order under the Acts of Secularization. Without proper maintenance, the missions quickly began to disintegrate and after 1836, missionaries ceased to make regular visits inland to minister the needs of the Indians.

Anglo-American Period (1846-Present). California was invaded by the United States troops during the Mexican-American War of 1846-48. The acquisition of strategic Pacific ports and California land was one of the principal objectives of the water (Price 1967). The cattle ranchers of the "counties" of southern California prospered during the cattle boom of the early 1850s.

During the first two decades of the twentieth century, the population of San Diego County continued to grow. The population of the inland county declined during the 18902, but between 1900 and 1910 it rose by about 70 percent. Railroads had broken the relative isolation of southern California, and life in San Diego County became similar to other communities throughout the west.

4.4.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to cultural or historical resources would be significant if the proposed project would:

(1) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Section 15064.5;

(2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5;

(3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or

(4) Disturb any human remains, including those interred outside of formal cemeteries.

Thresholds (1) and (2) above identify CEQA Section 15064.5. Due to its length, it is not repeated verbatim. Please refer to www.ceres.ca.gov for the full text of this section.

4.4.4 Environmental Impacts

(1) Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Section 15064.5?

(2) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?

For the assessment of impacts to cultural resources, data from the records searches was organized in categories for each pipeline. These categories included the following: 1) presence of recorded sites within 100 feet of sensitive cultural resources, 2) presence of recorded sites within 500 feet or sensitive cultural resources, 3) disturbed and/or developed setting, and 4) undisturbed or partially disturbed setting. A complete listing of pipeline segments within 100 and 500 feet to sensitive cultural resources, and the potentially impacted cultural resources site number, is provided in Table 4.0-1 of the Cultural Resources Evaluation, which can be found in *Appendix B* of this Program EIR.

The information gathered from various sources indicates that 146 pipeline components are situated within 100 feet of a recorded archaeological site. Of this group, 107 components are situated in undisturbed or partially disturbed areas and retain a high potential for the presence of cultural resources within these particular projects. A potentially important site is included in the group, Site SDI-638, which is a major prehistoric encampment or village. At least two sites have reported human burials, Sites SDI-8736 and SDI-10,782. The majority of the recorded sites are listed as surface scatters of lithic materials or milling tools; however, most of these sites have not been tested or evaluated for significance. Thirty-nine of the reaches are situated in previously

disturbed or developed settings, and the potential of encountering elements of the recorded sites is very unlikely as the archaeological materials are assumed to be disturbed or destroyed by previous grading impacts.

A total of 301 pipeline components are situated within 500 feet of a recorded archaeological site. Of this group, 227 segments have the potential to encounter archaeological materials because the recorded cultural resources within 500 feet are situated in settings that are either undisturbed or partially disturbed. A total of 74 components pass through areas where the recorded sites are situated within disturbed or developed areas and the potential for any remaining archaeological materials is very remote.

The analysis of the data regarding recorded cultural resources and areas that may contain unrecorded resources has identified 448 pipeline components that could potentially impact historic or prehistoric sites. These impacts would result from clearing, trenching, and grading activities associated with the construction of pipelines or other related facilities and any rehabilitations of existing pipes, which may result in disturbing native soil. Impacts may be direct or indirect, depending on the proximity of the construction to any particular resource. Impacts to resources that are determined to be important under criteria provided in CEQA (Section 15064.5) would represent significant impacts. Because of the nature of program-level EIR studies, the exact type of impacts represented by the 448 segments is uncertain. Therefore, for the purposes of this study, all impacts are assumed to be potentially significant and would require the implementation of mitigation measures.

(3) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Activities that could disturb paleontological resources include grading during excavation and site development when geologic formations that have resource-bearing potential are disturbed. Specific locations of potential impacts to paleontolgoical resources would be those locations considered to be high- to moderately -sensitive in paleontological resources. This specific information would become available at the time of grading. In order to reduce potential construction-related impacts to paleontological resources, *Table 2-3* indicates that additional investigation would be required for those projects that impact high to moderately sensitive paleontological resources. A paleontological monitor shall be on site at all times during grading activities that disturb undocumented fill soils or underlying geologic formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until such a time that a complete assessment of the resources can be conducted. Incorporation of these project design and construction measures ensures impacts would remain less than significant.

(4) Would the project disturb any human remains, including those interred outside of formal cemeteries?

The potential exists to find human remains during excavation and grading activities. Disturbance of human remains would be a potentially significant impact. As stated in threshold (1) above, at least two sites have reported human burials, Sites SDI-8736 and SDI-10,782, which are located within 100 feet of several pipeline segments. All sites have the potential to encounter undiscovered human remains. Mitigation is provided below in order to reduce potentially significant impacts associated with disturbances to human remains.

4.4.5 Level of Significance prior to Mitigation

The 448 project components within 100 and 500 feet of identified archaeological and historic resources sites would result in potentially significant cultural resources impacts. The potential to disturb human remains during excavation and grading activities is also considered a significant impact.

4.4.6 Mitigation Measures

The following mitigation measures are provided to reduce impacts to cultural resources to less than significant levels:

CULT-1 An archaeological survey of each project component identified in *Table S-3* shall be completed by a qualified archaeologist. This survey shall include a review of records information or an updated records search to locate all previously recorded archaeological sites within the project area. Any historic or prehistoric sites identified during the survey shall be recorded at the South Coastal Information Center, or, if already recorded, updated forms shall be submitted.

CULT-2 If the pipeline or related construction activities will potentially impact an archaeological site, a testing program shall be required to fully record the resources, and to evaluate the site. The testing program shall include mapping of all site features and artifacts, and subsurface excavations (shovel test pits or test units) to search for subsurface deposits of cultural materials and assess the content of the deposits. Related laboratory work shall be conducted to treat the materials that are recovered from any archaeological investigations.

CULT-3 A technical report shall be prepared that presents all of the information gathered from the survey and any site investigations. The report shall identify any significant

cultural resources and evaluate the potential impacts to those resources. If any site evaluated as significant will be impacted by a proposed project, additional mitigation measures shall be required to reduce the level of impacts. These mitigation measures shall include one of the following:

- A data recovery program to recover sufficient cultural materials to exhaust the research potential of the site such that construction will no longer represent a source of adverse impacts; or,
- Demonstration that the construction corridor can be relocated away from the significant cultural site(s), thereby avoiding significant effects.

CULT-4 Implementation of mitigation measures must be part of the conditions of approval of any pipeline or facilities improvement project that is identified as potentially impacting significant cultural resources. Data recovery shall be employed whenever a grading or trenching project will directly impact an archaeological site. This process shall include the excavation of a sufficiently large percentage of a subsurface deposit that the research potential of the deposit will be exhausted. Typically, a 5 to 15 percent sample within the trench corridor will be required to complete the data recovery process. Laboratory analysis and research will also be conducted to catalog and analyze all materials and to interpret the data.

CULT-5 Indirect impacts may be identified for pipeline projects where the actual grading and trenching are situated adjacent to a significant resource. In cases where construction activities intrude into sites by construction equipment, impacts may be mitigated by placing a temporary fence around the site to curtail any intrusions into the site area. Indirect impacts must be addressed during the initial archaeological survey and testing phase of work, with measures adopted as conditions of approval.

CULT-6 Project components that pass through or near recorded archaeological sites or which will be constructed through areas where resources may be encountered shall require archaeological monitoring. Monitoring of construction grading and trenching will facilitate the identification of any unrecorded resources uncovered by the excavation process. In the event that such resources are discovered, work at that location shall be suspended while the archaeological deposit is evaluated. If this evaluation process confirms the deposit is significant, mitigation measures will be required to complete a data recovery program. Any mitigation measures must be approved by the City before implementation.

The following mitigation measure is provided to reduce potential impacts to human remains to less than significant levels:

CULT-7 If human remains are encountered on the project site, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a Most Likely Descendant can be designated.

4.4.7 Residual Impacts and Level of Significance after Mitigation

Because of the minimal information available, it is assumed that all impacts are mitigable to levels below significant by the implementation of measures listed above. Adherence to project design and construction measures in *Table 2-3* strengthens this finding. No residual impacts are expected.

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4.5 Geology and Soils

4.5.1 Introduction and Methodology

The purpose of this section is to assess general geologic conditions and identify potential geologic and geotechnical hazards in the project areas. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Site-specific geotechnical analyses were not performed for the project areas.

General geologic and soil resource conditions were researched through the use of reports and data produced by the California Department of Conservation (DOC), the California Geological Survey (CGS, formerly the Division of Mines and Geology), San Diego State University Geology Department, applicable city General Plans and associated General Plan EIRs, the City and County of San Diego online geographical data (SanGIS 2006) and the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS, formerly the Soil Conservation Service). A complete listing of these references is included in *Chapter 9.0.*

4.5.2 Existing Conditions

Soils

The study area contains six general soil types. These six soil types are categorized in three groups, Group IV, Group VI and Group VII as indicated by the San Diego County Soil Survey (1996). The following discussion outlines these soil classifications.

Group IV: Somewhat excessively drained to moderately well drained in nearly level to steep areas; loamy coarse sands to clay loams on terraces in foothill and coastal plain areas.

- **Ramona-Placentia Association:** This association consists of well drained and moderately well drained sandy loams to sandy clay over granitic alluvium. This soil type is largely in foothills between 200 and 1,800 feet above mean sea level and occurs on grades of 2 to 15 percent.

- **Marina-Chesterton Association:** This association consists of somewhat excessively drained to moderately well drained loamy coarse sands and fine sandy loams that have a subsoil of sandy clay over a hardpan. This soil type is located between sea level and 400 feet above mean sea level and occurs on grades of 2 to 15 percent (NRCS 1973).

Group VI: Excessively drained to moderately well drained, gently sloping to very steep sandy loams. Silt loams on uplands and foothills.

- **Fallbrook-Vista Association (Rocky):** These soils consist of well-drained sandy loams and coarse sandy loams that have a subsoil of sandy clay loam and sandy loam over decomposed granodiorite. These soils occur between 200 and 2,500 feet above mean sea level and occur on 9 to 30 percent slopes.

- **Cieneba-Fallbrook Association (Very Rocky):** These soils are excessively drained to well-drained coarse sandy loams and sandy loams that have a sandy clay loam subsoil over decomposed granodiorite. These soils occur between 200 and 3,000 feet above mean sea level and occur on 9 to 75 percent slopes.

- **Friant-Escondido Association (Eroded):** These soils are excessively well drained fine sandy loams and very fine sandy loams over metasedimentary rock. These soils occur between 400 and 3,500 feet above mean sea level and occur on 30 to 70 percent slopes (NRCS 1973).

Group VII: Well drained and moderately sloping to very steep loamy fine sands to clays on uplands in coastal plain areas.

- **Diablo-Las Flores Association:** This association consists of well drained clays and moderately well drained loamy fine sands that have a subsoil of sandy clay. These soils occur between 100 and 600 feet above mean sea level and occur on 9 to 30 percent slopes (NRCS 1973).

Faulting and Seismicity

The 2008 Sewer Master Plan Update study area is located within seismically active southern California. Although this region in known to be akin to seismic events, there are no known active faults within the area. The primary off-shore faults include the Coronado Bank, San Diego Trough and San Clemente systems. The main fault system in western San Diego County is the Rose Canyon Fault which originates in Mission Bay, drops off into the Pacific Ocean at La Jolla Shores and then runs north along the coast to Oceanside. Several smaller faults exist on the San Diego Mesa, largely within the City of San Diego. These faults include the Texas Street Fault, the Fortieth Street Fault, the La Nacion Fault and the Florida Canyon Fault. Regional fault systems, including the San Jacinto, San Andreas and Elsinore Faults are located to the east and north of the study area.

Liquefaction and dynamic settlement of soils can be caused by strong vibratory motion resulting from seismic activity. Research and historical data indicate that loose, granular soils are susceptible to these effects, while the stability of most silty clay and clay soils is not adversely affect by vibratory motion. Among granular soils, finer textured varieties are most susceptible to liquefaction than coarse-grained types, and soils of uniform grain size are more likely to liquefy than well-graded materials. Liquefaction is generally known to occur only in saturated or near-saturated soils at depth shallower than about 100 feet.

Within the project area, liquefaction is likely to exist in low elevation areas (less than 100 feet below sea level), where water resources are located on a year-round or perennial basis. This may include San Marcos Creek and its tributaries, Buena Vista Creek, alluvial areas west of El Camino Real, within the lagoons and along the beaches.

The project is considered to be within a seismically active area. In general, hazards associated with seismic activity in the project area include strong ground motion, ground surface rupture, liquefaction, and seismically induced settlement.

Mineral Resources

The Surface Mining and Reclamation Act of 1975 requires the State Board of Mining and Geology and the State Geologist to prepare mineral resource reports that designate mineral deposits of statewide or of regional significance. The process involves classification and designation. Classification inventories select mineral commodities within a defined study area. These are areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists. Designation identifies deposits of regional or statewide significance which are available from a land use perspective. The CGS characterizes mineral potential according to their Mineral Resource Zone (MRZ) categories. Areas classified as MRZ-1 are considered to have little likelihood of containing significant deposits suitable for production as high-quality aggregate. Areas classified as MRZ-2 have a high likelihood that significant deposits of PCC grade aggregate exist. Areas classified as MRZ-3 are areas containing aggregate deposits, the significance of which cannot be evaluated from existing data or available information. And finally, MRZ-4 denotes areas where not enough information is known to determine if mineral deposits are present or if they are significant. These areas do not fit into any other MRZ zone (CGS 1996).

According to CGS 1996, the study area is entirely within a MRZ-3 Zone. The project components along the Buena Vista Creek are situated north of a region classified as a MRZ-2 zone.

4.5.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts related to geology and soils would be significant if the proposed action would result in any of the following:

(1) Exposure of 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 for the area or based on other substantial evidence of a known fault;
   (b) Strong seismic ground shaking;
   (c) Seismic-related ground failure, including liquefaction; or
   (d) Landslides.

(2) Substantial soil erosion or the loss of topsoil;

(3) Location 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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

(4) Location on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or

(5) Soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for disposal of wastewater.

4.5.4 Environmental Impacts

At this program level of analysis, the actual level of impact cannot be determined. That is, project components would require site-specific geotechnical studies for engineering and design, which would determine the actual level of environmental impact. These future geotechnical investigations will describe site-specific conditions and suggest mitigation measures for the issues outlined in this program EIR section. As such, impacts would be presumably reduced to less than significant at the project level once detailed project data can be assessed and mitigation measures are implemented. No unmitigable significant impacts are anticipated. More detailed analysis follows.

(1) Would the project result in exposure of 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 for the area or based on other substantial evidence of a known fault?

(b) Strong seismic ground shaking?

(c) Seismic-related ground failure, including liquefaction?

(d) Landslides.

The 2008 Sewer Master Plan Update project components are not anticipated to traverse known faults associated with the Rose Canyon Fault System and project components have not been identified within an Alquist-Priolo Earthquake Fault Zone. Surface rupture as a result of seismic activity is therefore unlikely. However, the study area is located within seismically active southern California, and is subject to seismic events similar to much of southern California. Via incorporation of the project design features in *Table 2-3*, which requires that all project components be constructed in accordance with Uniform Building Code requirements related to protection against seismic instability, subsidence and liquefaction hazards, impacts associated with seismic activity would be less than significant.

The proposed project components may be locally subject to seismically induced secondary effects related to liquefaction, lateral spreading, local subsidence of soil, and vibrational damage. Pipelines are replaced or rehabilitated typically by trenching and backfill underground. The pipe is supported on bedding material and at least six to eight inches of clearance is left between the pipe and trench walls. Suitable granular pipe zone material is placed around and on top of the pipe. Backfill must consist of suitable material free of organic material, debris, and large rocks. This construction method absorbs energy during seismic events and relieves susceptibility to ground motion that would cause rupture of the pipe. Because of the construction specifications described above as well as project design features as already mentioned, impacts associated with seismic hazards are not considered significant.

City engineering requirements implemented during the planning and design of the proposed pipeline replacements and rehabilitation projects require a thorough geotechnical evaluation before final plans are approved. Recommendation for remedial action, if needed, that are identified in the geotechnical report must be implemented by the City. This process is designed to avoid the potential for significant seismic and geological hazards associated with such facilities.

(2) Would the project result in substantial soil erosion or the loss of topsoil?

Topsoil would be removed during grading and excavation operations associated with construction of the proposed project. This loss of buried topsoils would not be considered a substantial loss of topsoil. The majority of the project components are within roadways and existing right of way and would not result impacts to agricultural land uses. Therefore, impacts to topsoil would be less than significant.

Construction and grading activities would temporarily expose soils to wind and water erosion. *Section 4.7.4 Hydrology and Water Quality* threshold No. 1 addresses potential impacts from erosion associated with the proposed project. As stated above, the majority of the project components are within roadways and existing rights of way and would not result in substantial amounts of erosion. Regardless, standard design features and construction measures incorporated in the project (see *Table 2-3*) include compliance with the Construction General Permit which requires the development and implementation of a SWPPP as well as implementation of BMPs for project components impacting more than 1 acre during grading operations. Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance in addition to implementation of BMPs. General BMPs include erosion controls, sediment controls, tracking controls, wind erosion control, non-storm water management, and materials and water management. Implementation of these BMPs and SWPPP would ensure that erosion impacts would remain below a level of significance.

(3) 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-site or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse?

The design of each project component would be accompanied by a geotechnical evaluation that would indicate if geology and soils hazards were present. Potentially significant construction-related impacts associated with the 2008 Sewer Master Plan Update include encountering unstable soil and rock conditions and exposure of oversize rock material during grading. The proposed project would be required to adhere to the recommendations of the geotechnical study in order to reduce significant impacts.

The specific soil types each project component will impact at this time are unknown. Assuming a site-specific geotechnical study is completed, additional information regarding content, stability, potential for subsidence and compaction ability will be determined during project planning and design. Appropriate mitigation measures would be incorporated into the design to reduce the potential for significant effects. As such, a less than significant impact is assumed for this program level of analysis.

(4) 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?

The potential for expansion to occur at the project site is unknown at this time. As stated above, the design of each project component would be accompanied by a geotechnical evaluation that would indicate if such hazards were present. The proposed project would be required to adhere to the recommendations of the geotechnical study in order to reduce significant impacts. Therefore, the impact due to expansive soils is anticipated to be less than significant.

(5) Would the project be located on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for disposal of wastewater?

The proposed project by nature entails pipeline replacement, relocation, and rehabilitation of an existing sewer components. Alternative wastewater disposal systems and septic tanks are not a component of the proposed project. Therefore, there would be no impact.

4.5.5 Level of Significance prior to Mitigation

Potential impacts associated with Geology and Soils would remain below a level of significance via adherence to project design measures listed in *Table 2-3*. This includes preparation of a Geotechnical Study for each project component and adherence to the findings of this study.

4.5.6 Mitigation Measures

No significant geology and soils impacts have been identified; no mitigation measures are required.

4.5.7 Level of Significance after Mitigation

There are no significant geology and soils impacts.

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4.6 Hazards and Hazardous Materials

4.6.1 Introduction and Methodology

The purpose of this hazards and hazardous materials section is to identify potential hazards associated with development of project components, and to identify project design features and mitigation measures that will reduce potential impacts to a less than significant level. No Environmental Site Assessments were conducted for this Program EIR, due to the large number and scale of project components.

Potential hazards associated with implementation of the proposed project include natural hazards such as those associated with development of a project component in high fire hazard areas. Other potential hazards are related to human activities such as the potential for leaks or spills of raw sewage from pipelines, the potential for leaks or spills of petroleum fuels during construction and operation of the project, and the potential for disturbance of a site containing hazardous materials. The project could also cause hazards due to its proximity to the McClellan-Palomar Airport in the City of Carlsbad.

4.6.2 Existing Conditions

Airport Safety Hazard

McClellan-Palomar Airport is a general aviation, publicly owned airport facility located in the Carlsbad vicinity. The San Diego Regional Airport Authority (SDCRAA) acts as the Airport Land Use Commission (ALUC) for the San Diego region as provided in Section 21670.3 of the California Public Utilities Code, and is charged with developing Airport Land Use Compatibility Plans (ALUCPs) for each airport in the County. SDCRAA prepared an ALUCP for the McClellan-Palomar Airport in order to: (1) provide for the orderly growth of the airport and the area surrounding the airport; and (2) safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general (SDCRAA 2004). The most recent ALUCP was amended in October 4, 2004, and the SDCRAA is currently in the process of additional updates.

The ALUCP identifies an Airport Influence Area (AIA) to designate the general area in which current and future airport-related noise, over flight, safety, and/or airspace protection factors may affect land uses or necessitate restrictions on the uses. Implementation of the ALUCP should reduce the adverse impacts from aircraft noise, limit the increase in the number of people exposed to airport approach hazards, and ensure that no structures are erected that are deemed by the Federal Aviation Administration (FAA) to be hazards and that no obstructions are erected

that either individually or cumulatively cause and adverse safety affect on air navigation as determined by the FAA.

The project site is generally located within two miles of McClellan-Palomar Airport and within the AIA

Wildfire Hazards

The project components would primarily be located within developed areas and roadways; however, portions of the proposed project are located within and adjacent to open space areas with potentially flammable materials such as brush, grass or trees.

4.6.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts from hazards and hazardous materials would be significant if the proposed project would:

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

(2) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

(3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school;

(4) Be located on a site that 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;

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

(6) 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;

(7) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or

(8) 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.

4.6.4 Environmental Impacts

(1) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

(2) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Relatively small amounts of hazardous substances, such as fossil fuels, lubricants, and solvents would be used onsite for construction of the project. There is a potential for construction debris to accumulate and for hazardous materials to be contained in stockpiles on the project site. Impacts could include soils and water contamination, which would be considered a significant impact. However, all hazardous materials shall be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. In addition, as shown in *Table 2-3 Summary of Standard Project Design Features and Construction Measures*, the proposed project would include the proper removal and disposal of all construction debris as mandated by applicable regulations. Consequently, use of these materials for their intended purpose would not pose a significant risk to the public or environment, and impacts would be less than significant.

Upon completion of construction, the transport, use, or disposal of hazardous materials would be limited to substances associated with operation and maintenance of the improved and/or rehabilitated sewer system. These materials too would be handled in accordance with standard local, state, and federal health and safety requirements. As a result, the project is not expected to create a significant hazard to the public or the environment.

During the operational phase of the proposed project, pipe rupture could result in spillage of raw sewage and exposure of the public and the environment to health hazards. However, the proposed project by nature entails improvements to the existing system via replacement and rehabilitation of capacity, material, age, and size deficiencies. Pipelines would be constructed with PVC pipe, which is highly resistant to rupture. Should emergency leaks or spills occur, the

Sewer Prevention and Response Plan for both the City of Vista Sanitation District and the Buena Sanitation District would be implemented.

(3) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school?

Schools are located within proximity of the proposed 2008 Sewer Master Plan Update pipeline project components. As addressed above, in this section, via adherence to all applicable local, state, and federal regulations governing the transport, use, and storage of hazardous materials as well as incorporation of project design features as presented in *Table 2-3*, risks associated with hazardous materials usage would be less than significant. The proposed project does not entail the installation of new sewer pipelines adjacent to schools, but rather entails improvements to the existing sewer system via replacement and rehabilitation of capacity, material, age, and size deficiencies. Should emergency leaks or spills occur, the Sewer Prevention and Response Plan for both the City of Vista Sanitation District and the Buena Sanitation District would be implemented. Regardless, additional project level analysis is required to determine the significance of potential hazards affects for all project components. Accordingly, a project design feature to prepare a site-specific hazardous materials analysis has been incorporated in *Table 2-3* to ensure impacts remain below a level of significance.

(4) Would the project be located on a site that 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?

It is unknown at this project level of analysis whether any of the project components are included on a list of hazardous materials sites complied pursuant to Government Code Section 65963.5. Details on the known hazardous materials locations would need to be investigated at the project level of analysis for individual project components to determine the specifics on location, type, and status of hazardous materials sites that may be affected. Accordingly, a project design feature to prepare a site-specific hazardous materials analysis has been incorporated in *Table 2-3* to ensure impacts remain at a less than significant level.

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

Several project components would be located within the AIA and within two miles of the Palomar-McClellan Airport. The project does not propose "intensive development" involving large groups of people, and a permanent hazard within the airport land use plan would not occur.

Due to the nature of the proposed activities related to the proposed project, aircraft activities at Palomar-McClellan Airport would be unaffected by the proposed project. Therefore, impacts would be less than significant.

(6) 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?

There are no private airstrips located within the vicinity of the project site. Therefore, the project would not result in a safety hazard for people residing or working in the project area.

(7) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Some temporary traffic hazards could occur during construction activities, which might interfere with emergency response plans or evacuation plans. In order to reduce potential interference with evacuation routes, a traffic control plan (TCP) would be developed, as described in *Table 2-3*. With incorporation of the prescribed traffic control plan and adherence to applicable regulations, the project would not significantly impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

(8) Would the project 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?

Due to the undeveloped nature of land and potentially flammable materials such as brush, grass or trees surrounding several project components, construction would pose a slight risk of wildland fires. The project design feature listed in *Table 2-3* to prepare a brush management plan and to disseminate fire safety information to construction crews would help to ensure impacts would not be significant.

4.6.5 Level of Significance prior to Mitigation

Via adherence to all applicable local, state, and federal regulations governing hazardous materials and implementation of project design features outlined in *Table 2-3* inclusive of a site-specific analysis of hazardous materials sites prior to construction, impacts would be less than significant.

4.6.6 Mitigation Measures

No significant hazards and hazardous materials impacts have been identified; no mitigation measures are required.

4.6.7 Level of Significance after Mitigation

There are no significant hazards and hazardous materials impacts.

4.7 Water Quality and Hydrology

4.7.1 Introduction and Methodology

The purpose of this section is to assess general surface water hydrology and water quality conditions and identify potential hydrology and water quality impacts in the project areas. The information used in this analysis is derived from the most readily available information found in applicable resource and planning documents. Site-specific hydrology reports or drainage studies were not performed for the project areas.

The general surface water hydrology and water quality conditions of the project area was based on review of the *Water Quality Control Plan for the San Diego Basin* (State of California 1994), applicable city general plans and associated general plan EIRs, and the City and County of San Diego online geographical database (SanGIS 2006). A complete listing of these references is included in *Chapter 9.0.*

4.7.2 Existing Conditions

The project components are located within the San Diego Hydrologic Region, which ultimately drains west into the Pacific Ocean. The San Diego Hydrologic Region encompasses approximately 3,900 square miles and is further subdivided into 11 major watersheds. The project components occur primarily in the Carlsbad Watershed. The Carlsbad Watershed occupies approximately 210 square miles, extending from Lake Wohlford on the east to the Pacific Ocean on the west and from Vista on the north to Cardiff-by-the-Sea on the south (*Figure 4.7-1*). This watershed includes the cities of Oceanside, Carlsbad, Encinitas, Vista, and Escondido. The watershed is drained by Buena Vista, Agua Hedionda, San Marcos, and Escondido creeks and contains four coastal lagoons, including Buena Vista, Agua Hedionda, Batiquitos, and San Elijo lagoons (*Figure 4.7-1*). The Carlsbad Watershed is comprised of the following six drainage basins: Loma Alta, Buena Vista Creek, Agua Hedionda, Encinas, San Marcos, and Escondido Creek. The project components occur within the Loma Alta, Buena Vista Creek, Agua Hedionda and Encinas drainage basins. Several of the project components are within close proximity to Buena Vista Creek, Agua Hedionda Creek, San Luis Rey River, and San Marcos Creek and some of the major project components are located near Buena Vista and Agua Hedionda lagoons.

A small number of project components are located within the San Luis Rey Watershed, located immediately north of the Carlsbad Watershed (*Figure 4.7-1*). This watershed is drained by the San Luis Rey River. The project components are located within the Lower San Luis drainage basin.

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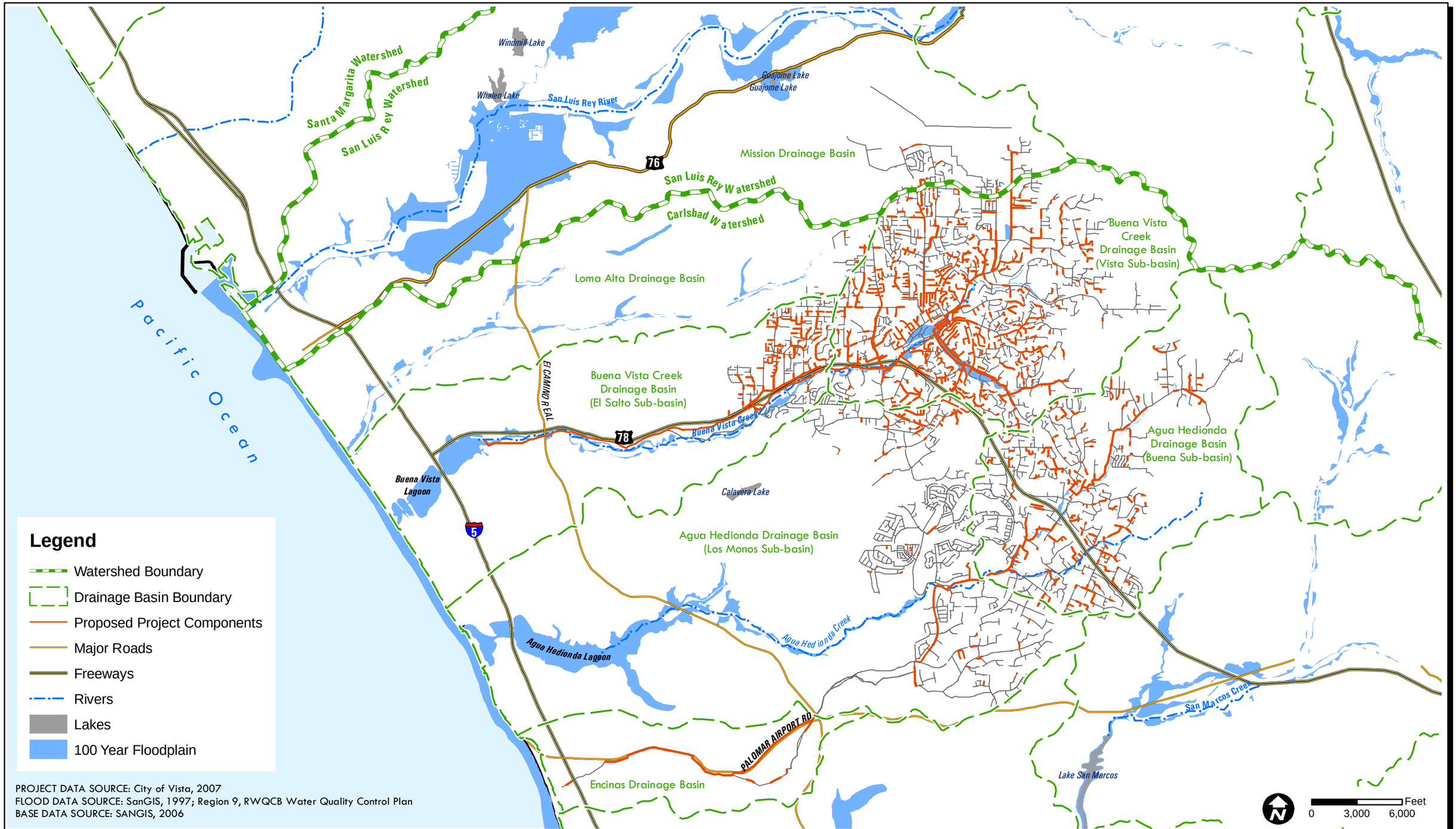

PROJECT DATA SOURCE: City of Vista, 2007
FLOOD DATA SOURCE: SanGIS, 1997; Region 9, RWQCB Water Quality Control Plan
BASE DATA SOURCE: SANGIS, 2006

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Study Area Hydrology Map

FIGURE
4.7-1

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Regulatory Environment

Several local, state, and federal regulations govern discharges associated with construction and post-construction stormwater runoff to protect water quality of receiving waters. The following is a summary of the regulatory framework that has been established to protect water resources.

Federal

Federal Clean Water Act. Increasing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act. The Act established basic guidelines for regulating discharges of pollutants into the waters of the United States. The Clean Water Act requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the Act.

- ***Section 401.*** Section 401 of the Clean Water Act requires an applicant for a federal permit, such as the construction or operation of a facility that may result in the discharge of a pollutant, to obtain certification of those activities from the state in which the discharge originates. This process is known as the Water Quality Certification for the project. For projects in San Diego County, the San Diego Regional Water Quality Control Board (RWQCB) issues Section 401 permits.

- ***Section 402.*** Section 402 of the Clean Water Act established the National Pollution Discharge Elimination System (NPDES) to control water pollution by regulating point sources that discharge pollutants into waters of the United States. In the State of California, the EPA has authorized the State Water Resource Control Board (SWRCB) permitting authority to implement the NPDES program. In general, the state Water Resource Control Board issues two baseline general permits: one for industrial discharges and one for construction activities. The Phase II Rule that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than one acre.

- ***Section 404.*** Section 404 of the Clean Water Act established a permitting program to regulate the discharge of dredged or filled material into waters of the United States. The definition of waters of the United States includes wetlands adjacent to national waters. This permitting program is administered by the Army Corps of Engineers (ACOE) and is enforced by the Environmental Protection Agency (EPA).

- ***Section 303(d).*** Under Section 303(d) of the Clean Water Act, the SWRQB is required to develop a list of water quality limited segments for jurisdictional waters of the United States. The RWQCBs are responsible for establishing priority rankings and developing action plans, referred to as total maximum daily loads (TMDLs), to improve water quality of waterbodies included in the 303(d) list. The most recent 303(d) List of Water Quality Limited Segments approved by the EPA is from 2003; however, a draft updated list was prepared in 2006 and is still being finalized. This report references the 2006 list. The list includes pollutants causing impairment to receiving waters or, in some cases, the condition leading to impairment.

State

Porter-Cologne Water Quality Control Act. The Porter-Cologne Act, Division 7 of the California Water Code, is the basic water quality control law for California. The goal of the Porter-Cologne Act was to create a regulatory program to protect water quality and beneficial uses of the state's waters. As such, the state and regional boards were established to implement and enforce the Clean Water Act and state-adopted water quality control plans.

The SWRQB is responsible for issuing stormwater permits in accordance with the NPDES program. For projects disturbing one or more acres of land, the applicant must file a Notice of Intent for coverage under the General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) and prepare a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) to prevent pollutants from contacting stormwater and procedures to control erosion and sedimentation.

San Diego County falls within the jurisdiction of the RWQCB (Region 9). Each RWQCB is responsible for water quality control planning within its region, often in the form of a basin plan. The RWQCB is also responsible for enforcing the General Permit.

Local

Water Quality Control Plan for the San Diego Basin (Region 9). The federal Clean Water Act, NPDES program, California Water Code, and Porter-Cologne Water Quality Control Act, require that the RWQCB adopt a water quality control plan to guide and coordinate the management of water quality in the region. The San Diego Basin Plan's purpose is to **(1)** designate beneficial uses of the region's surface water and groundwater, **(2)** designate water quality objectives for the reasonable protection of those uses, and **(3)** establish an implementation plan to achieve the objectives. This basin plan was adopted in 1994 and has been

subject to several amendments. This plan outlines water quality planning guidelines for the San Diego region watersheds.

Municipal Storm Water Permit. Municipalities in San Diego County collect and discharge storm water and urban runoff containing pollutants through their storm water conveyance systems. The San Diego RWQCB issued a NPDES Municipal Storm Water Permit on January 24, 2007 by the San Diego RWQCB (Order No. R9-2007-0001) to local jurisdictions including the City of Vista, City of San Marcos, City of Carlsbad, City of Oceanside, and County of San Diego. The recently issued permit renews Permit No. CAS0108758, which was first issued on July 16, 1990 (Order No. 90-42) and later renewed on February 21, 2001. The permit requires the development and implementation of BMPs in planning and construction of private and public development projects. Development projects are also required to include BMPs to reduce pollutant discharges from the project site in the permanent design. BMPs associated with the final design are described in the Model Standard Urban Storm Water Mitigation Plan (SUSMP). The RWQCB's Municipal Permit requires each member in the region to develop a Jurisdictional Urban Runoff Management Program (JURMP).

Water Resources

Surface Water

The San Diego region has 13 stream systems originating in the western highlands that flow to the Pacific Ocean. Most of the streams of the San Diego region are interrupted and have both perennial and ephemeral components due to the rainfall pattern and the development of surface water impoundments. The nearest surface water resources to the project site are the Agua Hedionda Creek, Agua Hedionda Lagoon, Buena Vista Creek, San Luis Rey River, Buena Vista Lagoon, and San Marcos Creek.

The proposed project falls within the San Diego Basin Plan. A major purpose of the Basin Plan is to define beneficial uses of surface water and groundwater. Beneficial uses are defined as "the uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social and environmental goals of mankind. Examples include drinking, swimming, industrial and agricultural water supply and the support of fresh and saline aquatic habitats" (State of California 1995). Water quality objectives seek to protect the most sensitive of the beneficial uses designated for a specific water body. Beneficial uses have been identified for each of the water bodies the project could potentially impact and are listed below:

Beneficial Uses

- ***Agua Hedionda Creek.*** Beneficial water uses include municipal and domestic supply, agricultural supply, industrial service supply, contact water recreation, non-contact water recreation, warm freshwater habitat and wildlife habitat.

- ***Agua Hedionda Lagoon.*** Beneficial water uses include industrial service supply, contact water recreation, non-contact water recreation, commercial and sport fishing, warm freshwater habitat, estuarine habitat, wildlife habitat, biological habitats, rare, threatened, or end, marine habitat, migration of aquatic organisms, aquaculture, shellfish harvesting, spawning, reproduction, and/or early development.

- ***Buena Vista Creek and San Luis Rey River.*** Beneficial water uses include municipal and domestic supply, agricultural supply, industrial surface supply, freshwater replenishment, hydropower generation, contact water recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, and wildlife habitat.

- ***Buena Vista Lagoon***. Beneficial water uses include contact water recreation, non-contact water recreation, wildlife habitat; rare, threatened or endangered species habitat; preservation of biological habitats of special significance; warm freshwater habitat; and marine habitat. A potential beneficial use is estuarine habitat.

- ***San Marcos Creek***. Beneficial water uses include agricultural supply, contact recreation, non-contact recreation, warm freshwater habitat, and wildlife habitat.

Groundwater

Groundwater is subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated. Aquifers are groundwater-bearing formations sufficiently permeable to transmit and yield significant quantities of water. Areas of high groundwater may result in excavation problems.

Water Quality and Drainage

Water quality refers to the effect of natural and human activities on the composition of water. Water quality is expressed in terms of measurable physical and chemical qualities that can be degraded by urban runoff, illicit discharges, and planned water use. It is generally agreed that urban runoff transported by municipal stormwater conveyance systems is one of the principal causes of water quality problems in most urban areas. Stormwater that accumulates on

impervious surfaces (e.g., such as parking lots, roof tops, and streets) drains directly and indirectly to water resources.

Stormwater conveyance systems are often separate from the sanitary sewer system, and therefore do not receive any treatment prior to being discharged into streams, bays, and the ocean. The primary pollutants of concern in urban runoff are sediment, nutrients, heavy metals, organic compounds, trash and debris, oils, bacteria, and pesticides. Construction-related pollutants include sediment, concrete, paints and solvents, and hazardous materials associated with operation and maintenance of heavy equipment.

Flooding

A 100-year flood event is a flood that has a 1 percent chance of being equaled or exceeded in any given year. The 100-year flood is the standard used by most federal and state agencies and the National Flood Insurance Program as the standard for floodplain management. Several project components would cross areas located within a 100-year floodplain or a 100-year floodway (*Figure 4.7-1*).

Tsunamis and Seiches

A tsunami is a sea wave generated by submarine earthquakes, landslides, or volcanic activity that displaces a relatively large volume of water in a very short period of time. Seiches are defined as oscillations in a semi-confined body of water due to seismic shaking. Several project components extend west of I-5 near the Pacific Ocean, which is an area at risk for such hazards.

4.7.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to water quality and hydrology would be significant if the proposed project would:

(1) Violate any water quality standards or waste discharge requirements;

(2) 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 that permits have been granted);

(3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site;

(4) 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 flow rate or amount (volume) of surface runoff in a manner that would result in flooding on or off site;

(5) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

(6) Otherwise substantially degrade water quality (marine, surface, groundwater, or wetland waters);

(7) 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 delineation map;

(8) Place within 100-year-flood hazard area structures that would impede or redirect flood flows;

(9) 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; or

(10) Result in inundation by seiche, tsunami, or mudflow.

4.7.4 Environmental Impacts

This section presents the evaluation of potential impacts to hydrology, floodplains, and water quality as a result of implementation of the 2008 Sewer Master Plan Update. Project design features that would help minimize impacts to water quality and hydrology are included in *Table 2-3*.

For this program level of analysis, a qualitative assessment of the potential impacts to water resources was conducted. As future project-specific information comes forth for individual project components, subsequent analyses pursuant to CEQA will be conducted that may incorporate a quantitative evaluation of impacts.

(1) Would the project violate any water quality standards or waste discharge requirements?

The proposed project may result in the transport of sediment and pollutants into local drainage systems during construction. These impacts are considered short-term. In particular, project components built during the rainy season could impact water quality as a result of runoff and sediment transport during construction activities. Construction and operation of a number of project components may require dewatering of pipeline trenches in order to place infrastructures underground. Dewatering of groundwater may result in potential impacts to surface water quality if not performed in accordance with applicable discharge permits. Standard design features and construction measures incorporated in the project (see *Table 2-3*) address applicable protocol to minimize water quality impacts. Project components would require adherence to different standards conditional on the amount of land impacted during grading activities.

In the event that a proposed project component would impact more than one acre of land during grading activities, the City would comply with the Construction General Permit, which requires the development and implementation of a SWPPP. The SWPPP typically contains a site map which shows the construction site perimeter, proposed structures, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP lists BMPs used to protect storm water runoff and the placement of BMPs. General BMPs include erosion controls, sediment controls, tracking controls, wind erosion control, non-storm water management, and materials and water management. Additionally, the City SWPPP contains a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Implementation of these BMPs and SWPPP would protect water quality in the project area due to erosion and sedimentation from construction.

Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance and install BMPs to ensure that sediment is not transported beyond the project limits or into sensitive areas such as wetland and waterbodies. BMPs to control sedimentation within the project limits may include but are not limited to, perimeter silt fence, straw wattles (where slope is less than 5 percent), weed free straw bales, and/or sand or gravel bags as appropriate.

As stated in *Section 4.7.1,* there are a number of project components located within vicinity of the Agua Hedionda Creek and Lagoon, the Buena Vista Creek and Lagoon, San Marcos Creek, and the San Luis Rey River. The Agua Hedionda Creek and Lagoon and the Buena Vista Creek and Lagoon are identified on the SWRCB's draft 2006 Section 303(d) List of Water Quality

Limited Segments. TMDLs have not yet been established for these identified bodies of water. The project components under the 2008 Sewer Master Plan Update that have the potential to affect the 303(d) waterbodies during both construction and operation. Operation and maintenance of the sewer system typically consists of routine patrolling, emergency repair, and periodic pipeline dewatering to allow for interior inspections or repairs. Though infrequent, these activities could result in runoff to the existing drainage system. Despite adherence to applicable measures pertaining to water quality as discussed above, potential impacts to the 303(d) waterbodies would result in potentially significant impacts to water quality and require mitigation measures. *Table S-3* identifies all pipeline segments with the potential to impact 303(d) listed waterbodies. The 192 pipeline segments listed below would result in potential impacts to 303(d) listed waterbodies. *Table S-3* also identifies these segments.

1. V32T011.00-V32T010.00
2. V32T013.00-V32T012.00
3. V32T014.00-V32T013.00
4. V32T015.00-V32T014.00
5. V32T016.00-V32T015.00
6. V32T017.00-V32T016.00
7. V32T018.00-V32T017.00
8. V32T019.00-V32T018.00
9. V32T021.00-V32T019.00
10. V32T022.00-V32T021.00
11. V32T022.A0-V32T022.00
12. V32T023.00-V32T022.A0
13. V32T024.00-V32T023.00
14. V32T025.00-V32T024.00
15. V32T026.00-V32T025.00
16. V32T027.00-V32T026.00
17. V32T027.A0-V32T027.00
18. V32T028.00-V32T027.A0
19. V32T029.00-V32T028.00
20. V32T030.00-V32T029.00
21. V32T031.00-V32T030.00
22. V32T032.00-V32T031.00
23. V32T033.00-V32T032.00
24. V32T034.00-V32T033.00
25. V32T035.00-V32T034.00
26. V32T036.00-V32T035.00
27. V32T038.00-V32T037.00
28. V32T037.00-V32T036.00
29. V32T039.00-V32T038.00
30. V32T040.00-V32T039.00
31. V32T041.00-V32T040.00
32. V32T042.00-V32T041.00
33. V32T043.00-V32T042.00
34. V32T045.00-V32T044.00
35. V32T046.00-V32T045.00
36. V32T209.00-V32T208.00
37. V32T047.00-V32T046.00
38. V32T048.00-V32T047.00
39. V32T049.00-V32T048.00
40. V32T050.00-V32T049.00
41. V32T051.00-V32T050.00
42. V32T052.00-V32T051.00
43. V32T054.00-V32T053.00
44. V32T056.00-V32T055.00
45. V32T057.00-V32T056.00
46. V32T058.00-V32T057.00
47. V32T059.00-V32T058.00
48. V32T060.00-V32T059.00
49. V32T061.00-V32T060.00
50. V32T062.00-V32T061.00
51. V32T063.00-V32T062.00
52. V32T064.00-V32T063.00
53. V32T065.00-V32T064.00
54. V32T066.00-V32T065.00
55. V32T067.00-V32T066.00
56. V32T068.00-V32T067.00
57. V32T069.00-V32T068.00
58. V32T070.00-V32T069.00
59. V32T071.00-V32T070.00
60. V32T072.00-V32T071.00
61. V32T073.00-V32T072.00
62. V32T074.00-V32T073.00
63. V32T075.00-V32T074.00
64. V32T076.00-V32T075.00
65. V32T077.00-V32T076.00
66. V32T078.00-V32T077.00
67. V32T081.00-V32T080.00
68. B15013.00-B15014.00
69. V32T082.00-V32T081.00
70. V32T083.A0-V32T082.00
71. V32T083.00-V32T083.A0
72. V32T084.00-V32T083.00
73. V32T086.00-V32T085.00
74. V32T087.A0-V32T087.00
75. V32T088.00-V32T087.A0
76. V32T092.A0-V32T091.00
77. V32T093.00-V32T092.00
78. V30059.00-V30060.00
79. V30058.00-V30059.00
80. V30057.00-V30058.00
81. V30057.C0-V30057.00
82. V30056.A0-V30056.00
83. V30057.CD-V30057.C0
84. V05105.00-V05106.00
85. V05047.00-V05048.00
86. V05104.00-V05105.00
87. V05046.00-V05047.00
88. V04031.00-V32T082.00
89. V32042.00-V32043.00
90. V32043.00-V32044.00
91. V32046.00-V32047.00
92. V04081.00-V32T078.00
93. V01052.00-V01056.00
94. V01056.00-V32T228.00
95. V01055.00-V01056.00
96. V01054.00-V01055.00
97. V01053.00-V01054.00
98. V29129.00-V32T093.00
99. V32T094.00-V32T093.00
100. V32T395.00-V32T095.A0
101. V32T096.00-V32T097.A0
102. V32T398.00-V32T397.00

103. V32T397.00-V32T395.00
104. V29049.00-V32T094.00
105. V29133.00-V32T410.00
106. V24088.00-V24089.00
107. V24083.00-V24084.00
108. V24084.00-V24085.00
109. V24085.00-V24086.00
110. V24086.00-V24088.00
111. V24061.00-V24062.00
112. V24059.00-V24060.00
113. V24057.00-V24058.00
114. V24056.00-V24057.00
115. V28166.00-V28167.00
116. V24055.00-V24056.00
117. V24069.00-V24070.00
118. V24066.00-V24069.00
119. V24064.00-V24066.00
120. V24063.00-V24064.A0
121. V24039.A0-V24039.00
122. V24038.00-V24039.A0
123. V24038.A0-V24038.00
124. V24037.00-V24038.A0
125. V24096.A0-V24100.00
126. B03028.00-B03067.00
127. V24039.00-V24050.00
128. V24049.00-V24050.00
129. V22159.00-V22161.00
130. V22161.00-V22162.00
131. V22145.00-V24090.00
132. V22099.00-V22145.00
133. V12112.F0-V12112.G0
134. V22157.00-V22158.00
135. V22158.00-V22159.00
136. V22132.00-V22133.00
137. V22131.00-V22132.00
138. V22130.00-V22131.00
139. V22129.00-V22130.00
140. V22128.00-V22129.00
141. V22127.00-V22128.00
142. V22126.00-V22127.00
143. V29066.00-V29067.00
144. V22151.00-V22152.00
145. V22150.00-V22151.00
146. V21196.00-V22147.00
147. V21195.00-V21196.00
148. V21193.00-V21194.00
149. V21192.00-V21193.00
150. V21191.00-V21192.00
151. V22146.00-V22147.00
152. B01128.B0-B01128.00
153. B01127.00-B01128.00
154. B01101.00-B01127.00
155. B01100.00-B01101.00
156. B01099.00-B01100.00
157. B01097.00-B01099.00
158. B01096.00-B01097.00
159. B01093.00-B01096.00
160. B01068.00-B01093.00
161. B01065.00-B01068.00
162. V32T400.00-V32T399.00
163. B01062.00-B01063.00
164. B01061.00-B01062.00
165. B01060.00-B01061.00
166. B01058.00-B01060.00
167. BTP002.00-BTP003.00
168. BTP004.00-BTP005.00
169. B02038.00-B02039.00
170. B02037.00-B02038.00
171. B02063.00-B02064.00
172. B02064.00-B02065.00
173. B02065.00-B02066.00
174. B02066.00-B02067.00
175. B02067.00-B02068.00
176. B04046.00-B04058.00
177. B04055.00-B04056.00
178. B04041.00-B04042.00
179. B04040.00-B04041.00
180. B04096.00-B04097.00
181. B04104.00-B04105.00
182. B04103.00-B04104.00
183. B04102.00-B04103.00
184. B04047.00-B04048.00
185. B07074.00-B01061.00
186. B07073.00-B07074.00
187. B07072.00-B07073.00
188. B07071.00-B07072.00
189. B07070.00-B07071.00
190. B07069.00-B07070.00
191. B07068.00-B07069.00
192. B07067.00-B07069.00

In addition to potential impacts to the Buena Vista Creek and Lagoon and Agua Hedionda Creek and Lagoon, proposed project components may result in impacts to federally protected wetlands (see *Section 4.3 Biological Resources*). These water resources are considered jurisdictional waters. Impacts to jurisdictional waters is considered a significant impact under CEQA. Projects that directly impact jurisdictional wetlands or waterbodies will require authorization and/or permits from the Army Corps of Engineers, California Department of Fish and Game and the RWQCB. Additionally, authorization may be required from the USFWS if protected species are impacted (refer to *Section 4.3, Biological Resources*). Through the permitting process, mitigation measures will be imposed by the jurisdictional agencies as permit conditions to reduce impacts associated with specific construction and operational activities. Project components with the potential to impact jurisdictional waters include those that would result in 303(d) impacts as well as those identified in *Section 4.3 Biological Resources,* threshold No. 3. The pipeline segments presented in the Biological Resources threshold No. 3 are reiterated below.

1. V27011.00-V26001.00
2. V26001.00-V26002.00
3. V26002.00-V26003.00
4. V26009.00-V26010.00
5. V26017.00-V26018.00
6. V26072.00-V26073.00
7. V26073.00-V26087.00
8. B10072.00-B10073.00
9. B10074.00-B10075.00
10. B10084.00-B10085.00
11. B10085.00-B10089.00
12. B10089.00-B10092.00
13. B07074.00-B01061.00
14. B07072.00-B07073.00
15. B07071.00-B07072.00
16. B07070.00-B07071.00
17. B07069.00-B07070.00
18. B07066.00-B07069.00
19. B07068.00-B07069.00
20. B07067.00-B07069.00
21. B07065.00-B07066.00
22. B07059.00-B07065.00
23. B14302.00-B07059.00
24. B14301.00-B14302.00
25. B14300.00-B14301.00
26. B01101.00-B01127.00
27. B01100.00-B01101.00
28. B01099.00-B01100.00
29. B01096.00-B01097.00
30. B01068.00-B01093.00
31. B01065.00-B01068.00
32. B01063.00-B01065.00
33. B01062.00-B01063.00
34. B01061.00-B01062.00
35. V36T015.00-V36T014.00
36. V36T016.00-V36T015.00
37. V36T017.00-V36T016.00
38. V36T018.00-V36T017.00
39. V36T020.00-V36T019.00
40. V36T027.00-V36T026.00
41. V36T028.00-V36T027.00
42. V32T093.00-V32T092.00
43. V32T094.00-V32T093.00
44. V05048.00-V05091.A0
45. B08091.00-B08092.00
46. B08092.00-B08093.00
47. B08096.00-B08097.00
48. B08108.00-B07059.00
49. V32T039.00-V32T038.00
50. V32T038.00-V32T037.00
51. V32T037.00-V32T036.00
52. V32T036.00-V32T035.00
53. V32T035.00-V32T034.00
54. V32T034.00-V32T033.00
55. V32T033.00-V32T032.00
56. V32T032.00-V32T031.00
57. V27010.00-V27011.00
58. V27009.00-V27010.00
59. V32T079.00-V32T078.00
60. V32T068.00-V32T067.00
61. V32T069.00-V32T068.00
62. V32T070.00-V32T069.00
63. V32T071.00-V32T070.00
64. V32T072.00-V32T071.00
65. V32T073.00-V32T072.00
66. V32T074.00-V32T073.00
67. V32T075.00-V32T074.00
68. V32T026.00-V32T025.00
69. V32T027.00-V32T026.00

(2) Would the project 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 that would not support existing land uses or planned uses for which permits have been granted)?

The construction and operation of the proposed project would not use groundwater and would not directly affect groundwater levels. Dewatering may be required to prepare sites for pipeline installation; however, the potential impact to groundwater would be temporary and would not substantially deplete groundwater supplies. Also, the amount of groundwater that would be directed to stormwater drainage systems would not exceed capacity for those systems. Therefore, impacts to groundwater supplies would be less than significant.

(3) Would the project substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?

(4) Would the project substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the

flow rate or amount (volume) of surface runoff in a manner that would result in flooding on or off site?

The proposed project entails rehabilitation, remediation, and replacement of existing sewer pipelines. All project components are located underground and would ultimately result in restoration of the project site to original conditions. The proposed project would not alter the course of a stream or river. Therefore, impacts would be less than significant.

(5) Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The proposed project would temporarily contribute runoff to the existing stormwater system during construction and maintenance activities. The amount of runoff generated during such activities would be minimal and short-term. Furthermore, the proposed project would be required to adhere to Section 402 of the NPDES, which requires implementation of a SWPPP and BMPs to address water quality impacts. The proposed project would not exceed the capacity of the existing stormwater system, nor would the project provide substantial sources of polluted runoff. Therefore, impacts would be less than significant.

(6) Would the project otherwise substantially degrade water quality?

See Significance Threshold No. 1 above. There are a number of project components located adjacent to the Agua Hedionda Creek and Buena Vista Creek and Lagoon, which are identified on the SWRCB's draft 2006 Section 303(d) List of Water Quality Limited Segments. TMDLs have not yet been established for these identified bodies of water. The project components under the 2008 Sewer Master Plan Update that have the potential to affect the 303(d) water bodies are identified in *Table S-3* and would result in potentially significant impacts to water quality. Mitigation measures are provided below. Stormwater runoff during construction activities would be addressed via adherence to the General Construction Permit which requires development of a SWPPP and BMPs. Compliance with the General Permit and implementation of BMPs would reduce potential impacts to water quality to below a level of significance.

(7) Would the project place housing within a 100-year-flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project does not involve construction of housing; therefore, no impacts associated with the placement of housing within a 100-year-flood hazard area would occur.

(8) Would the project place within a 100-year-flood hazard area structures that would impede or redirect flood flows?

Several project components are located in a 100-year flood hazard area. It is unlikely that the project components occurring within a 100-year floodplain or floodway would impede or redirect flow because all project components are underground. All areas within the flood hazard area would be returned to pre-construction contours. Flood capacity would not be altered as a result of project components. However, project components within the flood hazard area could be exposed and/or damaged as a result of scour. The 241 pipeline segments that traverse within a 100-year flood hazard area are presented below. This impact is considered potentially significant and mitigation is provided.

1. B01061.00-B01062.00
2. B01060.00-B01061.00
3. B01058.00-B01060.00
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240. V26001.00-V26002.00
241. V27011.00-V26001.00

(9) Would the project 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?

Several project components follow Agua Hedionda Creek, which ultimately leads to the Agua Hedionda Lagoon. These project components are within a dam inundation zone (SanGIS 2006). However, all project components would be placed underground. Thus, impacts associated with exposure of people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, would be less than significant.

(10) Would the project be subject to inundation by seiche, tsunami, or mudflow?

Several project components are located west of I-5, which is less than 1 mile east the Pacific Ocean. However, all project structures will be installed underground. Exposure of structures to inundation by seiche, tsunami, or mudflow is unlikely; therefore, less than significant impacts are anticipated.

4.7.5 Level of Significance prior to Mitigation

Potential impacts to water quality and hydrology would be reduced via adherence to project design measures listed in *Table 2-3*. The proposed project would result in potentially significant impacts due to potential discharges to 303(d) listed bodies of water or other sensitive water resources and due to the presence of project components within the FEMA 100-year floodplain prior to mitigation.

4.7.6 Mitigation Measures

The following mitigation measures are proposed in order to reduce potentially significant impacts:

WQ-1 The mitigation measure listed below shall be implemented in order to reduce impacts to 303(d) listed water bodies.

- Potential water quality impacts to 303(d) listed water bodies will be assessed as part of project level water quality analyses for each individual project component with a potential to affect these water bodies. The list of project components that will potentially affect the 303 (d) water bodies is found under threshold No. 1 above as well as in *Table S-3*.

WQ-2 Mitigation measures listed below shall be implemented in order to reduce impacts to jurisdictional waters. The list of project components that will potentially affect jurisdictional waterbodies is found under threshold No. 1 above as well as in *Table S-3*.

- Prior to construction, the City of Vista shall obtain all necessary permits to comply with the federal Clean Water Act, state discharge permitting requirements, and local grading ordinances. Copies of each permit shall be maintained at the project site for the duration of construction.
- Biological Resources mitigation measure BIO-7 provides mitigation for projects affecting federally protected wetlands. This mitigation measure also applies in order to reduce impacts to jurisdictional waters. See *Section 4.3, Biological Resources*.

WQ-3 For projects proposed within the 100-year floodplain, a scour analysis of the floodplains associated with the Buena Vista and Agua Hedionda Creeks shall be completed during final project design to determine the likelihood for washout of a pipeline or project facility during a flood event. Design and construction specification of the pipeline will incorporate recommendation from the report to ensure that potential impacts from scouring do not comprise the integrity of the pipeline. The list of project located within the 100-year floodplain is found in threshold No. 8 above as well as in *Table S-3.*

4.7.7 Residual Impacts and Level of Significance after Mitigation

With implementation of mitigation measures listed above as well as implementation of project design and construction measures listed in *Table 2-3,* residual impacts would be less than significant.

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4.8 Land Use, Planning, and Zoning

4.8.1 Introduction and Methodology

This chapter evaluates the physical and policy-level impacts of the proposed project on existing, planned, and proposed land uses. Planned land use information was obtained from applicable planning documents of the affected jurisdictions. Aside from impacts to the existing and planned land uses analyzed by this section, a number of additional land use related topics are addressed elsewhere in this Program EIR. Aesthetics is discussed in *Section 4.1;* Air Quality issues are described in *Section 4.2;* Noise is discussed in *Section 4.9*, and Traffic issues are discussed in *Section 4.10.*

4.8.2 Existing Conditions

Existing Site Conditions and Surrounding Land Uses

Land use planning and development approval is guided by federal, state, and local governmental agencies and their adopted policies and ordinances. Each jurisdiction is responsible for maintaining a quality environment for its citizens and users through adoption of long-range planning documents. These documents contain goals, policies, implementation procedures, and regulatory controls to guide and enforce conformance. The most common guide used by local jurisdictions to define land use patterns is the general plan. Land use elements of general plan documents typically contain those policies and maps governing land use compatibility within the jurisdiction. All zoning within a jurisdiction must be consistent with the plans, programs, and policies of the general plan. Because the proposed project includes multiple components, and a large number of linear features that are geographically dispersed, several different jurisdictions are involved – the Cities of Vista, Oceanside, Carlsbad, San Marcos, and the North County Metro community within the County of San Diego. For illustrative purposes, *Figure 2-3* shows the general location of project components in relation to the affected jurisdictional entities. The applicable jurisdictions and their adopted planning documents are discussed below, with an emphasis on the policies contained in the respective community facility and land use elements.

Land Use Plans and Policies

City of Vista

Existing Land Use

The City of Vista is a predominantly residential community with a semi-rural atmosphere. It is located approximately eight miles east of the Pacific Ocean, and surrounded by the cities of

Oceanside to the west, Carlsbad to the south, San Marcos to the east, and the rural San Diego County communities of Bonsall and Fallbrook to the north. The North County Metro Subregion is interspersed among the City of Vista and consists of the communities of Hidden Meadows and Twin Oaks. Existing land use within the City includes residential, commercial, industrial, civic and open space. Open space occupies approximately 4.7 percent of the total land area which typically conforms to the mountainous areas to the east and the riparian areas. Residential land uses account for 80.8 percent of the total land area while commercial and industrial uses comprises 6.7 percent and 6.0 percent, respectively. Civic and Park areas account for the remaining 1.4 percent of the land. Distribution of these land uses generally has the more intense residential uses in and around the inner core or downtown area, with residential uses having lower densities located further out toward the periphery of the City. Commercial uses are generally found as strip development along the major corridors such as North Santa Fe, East Vista Way and South Santa Fe. The downtown area of the City is a commercial center of an older "main street" variety. Uses found in these areas are commercial retail, office, and light service activities. Additionally, clusters of commercial sites are located adjacent to freeway access. Industrial activities are concentrated along Olive Avenue near downtown, the industrial complex/business park located along Sycamore in the southern portion of the City, and along North Melrose near the northwestern boundary with Oceanside. Dispersed Civic activities such as schools, parks, city buildings and storage yards are located throughout the City.

Regulations and Planning Policies

A primary goal of the Community Facilities Element of the City's General Plan is to ensure that sewer plants and effluent lines are provided concurrent with the need to accommodate the safe disposal of waste. A stated policy within this element encourages the City to provide incentives for development in areas that are fully or partially serviced by existing public facilities and designated for urbanized development by the Land Use Element. The Community Facilities Element also sets citywide public facility standards which allow specific actions to be taken by the City to provide needed public infrastructure. As such, the City has prepared the 2008 Sewer Master Plan Update which includes minimum standards and design criteria for the safe and efficient disposal of waste.

The City of Vista and Buena Sanitation District, in order to track and predict the future rate of growth and development in their service areas, maintain a database to project the amount of planned, approved, and implemented future growth. The data are assembled from SANDAG growth and population forecasts and the City of Vista General Plan. The City and District also consider planning forecasts for other districts with service agreements in effect.

City of Carlsbad

Existing Land Use

The City of Carlsbad is a coastal jurisdiction bordered generally on the north by the cities of Oceanside and Vista, on the east by Vista and San Marcos, and on the south by Encinitas. As of 1990 approximately 68 percent of the City is undeveloped, with the remainder being developed with a variety of land uses. Of the developed areas, 55 percent are residential uses, 17 percent is commercial and/or industrial use, and another 17 percent is comprised of open space uses. The remaining 10 percent of the developed areas consist of public uses and utility right-of-ways. The majority of existing commercial development within the City is located along El Camino Real, immediately south of Highway 78, and south of Cannon Road along I-5. In addition, existing commercial uses predominate the City's downtown along with numerous hotels and service stations along I-5. Industrial land uses are primarily concentrated within the City's centralized industrial corridor which surrounds Palomar Airport and extends in a broad band generally to the eastern and western City limits. The majority of developed areas located immediately north of Palomar Airport in the Carlsbad Research Center and at the I-5 and Poinsettia Lane interchange consist of mixed industrial/commercial uses. The majority of open space land is composed of three major lagoons located within the City, including Buena Vista, Agua Hedionda and Batiquitos and their associated tributaries. Other major open space areas include Calavera Lake and the Veteran's Memorial Park site. Dispersed Civic activities such as schools, parks, city buildings and storage yards are located throughout the City.

Regulations and Planning Policies

The Growth Management and Public Facilities Section of the City's General Plan Land Use Element contains goals and objectives, which outline the City's desire to ensure the timely provision of public facilities, and maintenance of its existing facilities, which will adequately serve the projected population and preserve the quality of life of residents. Policies within this Element of the General Plan require the City to ensure trunk line capacity will meet demand, as determined by the appropriate sewer district, concurrently with development, and cooperate with other jurisdictions to ensure the timely provision of sewage disposal capacity. The Public Utility and Storm Drainage Facilities Section of the City's Circulation Element also contains relevant policies for the provision and maintenance of sewer infrastructure. These policies include maintaining master plans for the expansion of local sewer facilities, coordinating the planning and construction of public utilities with existing public utilities in adjoining neighborhoods, and ensuring continued coordination between the City and special utility districts and public utility companies operating in Carlsbad.

City of Oceanside

Existing Land Use

Existing land use within the City of Oceanside consist of a range of uses including, the intensively-developed downtown area adjacent to the coast, to the residential communities in the central portion of the City, to the rural agricultural and vacant land in the eastern portion of the City. Residential use represents the predominant land use within the City. The central portion of the City and coastal zones are predominantly residential and commercial. In addition to strip commercial along Hill Street and Oceanside Boulevard, most community-serving shopping centers are located within this area. Higher-density residential development also exists, as well as some industrial uses along the Atchison, Topeka, and Santa Fe (AT&SF) railway, which parallels the coastline. The northwestern portion of the City also supports residential development. However, there are more diverse land uses occurring, including larger concentrations of commercial activities, than the central portion of the City. Oceanside Harbor, and the Municipal Airport are located within the northwestern portion of the City, including much of the older areas of the City along the coastline and north of Oceanside Boulevard. The beach and the San Luis Rey River Valley offer the primary open space lands within the northwestern area. Existing land use within the southeastern portion of the City consist primarily of residential, along with some commercial areas near the intersection of SR-78 and College Boulevard. Industrial development occupies a relatively small percentage of land within the City, and is predominantly concentrated along the AT&SF railway within the southeastern portion of the City. The most rural areas of the City exist within the northeastern area. Predominant uses are agriculture (particularly in the Morrow Hills area), vacant land, and low-density residential development. There is also an existing industrial area located along Oceanside Boulevard. The San Luis Rey River flows from east to west along the northern periphery of the City, and provides a continuous corridor of open space. Commercial uses are mainly small and scattered near the dispersed residential alcoves.

Regulations and Planning Policies

The primary objectives found in the Community Facilities Management section of the City's General Plan Land Use Element are to provide a consistent level of quality and affordable public services and facilities, and to effectively manage development to ensure that a consistent service level is continued. General Plan policy encourages the design of a citywide sewage collection and treatment system which will be designed for a logical service unit to allow for full development of the service area at the intensity proposed by the General Plan.

City of San Marcos

Existing Land Use

The City of San Marcos is located in the County of San Diego, generally bounded by the cities of Carlsbad and Vista and unincorporated County lands to the west, unincorporated County lands to the north and south, and the City of Escondido and more unincorporated County lands to the east. The City of San Marcos is comprised of eight distinct community, neighborhood and district plans.

Regulations and Planning Policies

The Land Use Element of the City of San Marcos General Plan is a long-range guide to the development and use of all land within the planning area. As such, it sets forth goals, policies and standards to guide the location, density and distribution of various land use activities. A primary goal of this element is to control the rate and distribution of growth within the City in a manner reflecting the needs and desires of its citizens and reinforcing the quality and stability of the community. A stated objective in helping further this General Plan goal is to ensure the adequate and timely provision of public services, facilities and amenities required by future growth within the City. General plan policies which help enforce these goals and objectives include: a City policy to establish specific land use designations for public facilities and uses within each planning area; public facilities and services should be located to maximize public accessibility and improve levels of service; and the needs of special districts serving the City shall be identified and provided for to ensure the maintenance of adequate levels of public services and facilities.

North County Metro Area of San Diego County

Existing Land Use

The North County Metro Subregion is comprised of many non-contiguous "island" areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista and Oceanside with the most easterly portion adjacent to Valley Center. The North County Metro Subregion includes the communities of Hidden Meadows and Twin Oaks as well as a number of smaller unrepresented areas. Twin Oaks is located west of I-15 and Hidden Meadows is located east of I-15. South Santa Fe is one of the unrepresented unincorporated areas within the City of Vista. The unrepresented areas generally consist of industrial and commercial land uses. The incorporated cities of Escondido, San Diego, San Marcos, Vista and Oceanside serve many of the commercial, industrial and office professional needs of this diverse subregion.

Regulations and Planning Policies

San Diego County's General Plan is the master document for planning for growth in the County. The General Plan is the official county policy regarding the location of housing, business, industry, roads, parks, and other land uses, protection of the public from noise and other environmental hazards, and for the conservation of natural resources. At the time of preparation of this Program EIR, the County was undergoing a comprehensive general plan update, entitled General Plan 2020 (GP 2020 Draft Land Use Plan). Begun in 1998, its preparation is a multiyear effort, although the date of adoption of the plan is currently unknown.

Conservation Element. Part X, Conservation Element, of the San Diego County General Plan is intended to identify and describe the natural resources of San Diego County and provide policies and action programs to conserve these resources (County of San Diego 2002). Each chapter of the Conservation Element consists of findings grouped into topics such as general conservation, water, vegetation and wildlife, minerals, astronomical dark sky and cultural resources. These findings help guide land use decisions in order to provide for the protection of these resources.

Public Facility Element. Part XII, Public Facility Element, of the San Diego County General Plan was written to ensure a strong linkage between public facility planning and land use planning (County of San Diego 2005). The Public Facility Element sets forth a comprehensive strategy for the planning, siting and funding of public facilities necessary to meet San Diego County's existing and future demands. Section 2, Coordination of Facility Planning, Financial Programs and Land Use Planning outlines goals and objectives for facility development. General applicable objectives include establishment of a framework for coordination between land use planning and capital facilities planning and regional and subregional coordination and cooperation on public facility planning.

North County Metropolitan Subregional Area. The North County Metropolitan Plan Text supplements all existing elements of the San Diego General Plan with specific emphasis on the planning needs of the Community Plan area. The plan is intended to promote order development, protect environmental and man-made resources, and implement the County's objectives for growth management and the structure of government for the Subregion. The Sewer Section of the Community Plan Text states that the need fore sewer service will expand greatly as growth continues, particularly within the designated Current Urban Development Areas and that the problem with septic tank failure throughout the region will worsen over time. The associated Community Plan Policy aims at providing sewer service inside the current urban development area and where septic tank failures have been experienced wherever feasible.

Agricultural Land Uses

Agriculture is governed by the Department of Conservation (DOC), Division of Land Resource Protection's Farmland Mapping and Monitoring Program. As mapped on the California Department of Conservation *1998 Important Farmland Maps*, lands in the project area are delineated in the following categories:

Prime Farmland. Prime Farmland is land with the best combination of physical and chemical characteristics able to sustain long tem production of agricultural crops. This land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.

Farmland of Statewide Importance. Farmland of Statewide Importance is land with a good combination of physical and chemical characteristics for agricultural production, having only minor shortcomings, such as less ability to store soil moisture, compared to Prime Farmland. This land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.

Unique Farmland. Unique Farmland is land used for production of the state's major crops on soils not qualifying for Prime or Statewide Importance. This land is usually irrigated, but may include non-irrigated fruits and vegetables as found in some climatic zones in California.

Farmlands of Local Importance. Farmlands of Local Importance include areas of soils that meet all the characteristics of Prime, Statewide, or Unique and which are not irrigated. The lands are not covered by any of the other Department of Conservation farmland categories, but are of high economic importance to the community. These farmlands include dryland grains of wheat, barley, oats, and dryland pasture.

Grazing Land. Grazing Land is land on which the existing vegetation is suitable for grazing of livestock. The minimum mapping unit for this category is 40 acres.

Urban and Built-Up Land. Urban and Built-Up Land is land with a density of at least six units per ten-acre parcel, as well as land used for industrial and commercial purposes, golf courses, landfills, airports, sewage treatment, and water control structures.

Other Land. Land which does not meet the criteria of any other category. Common examples include low-density rural developments, wetlands, dense brush and timberlands, gravel pits, and small water bodies.

The City of Vista has a long history of agricultural production. Row crop production is viable within the southern area of Vista, because of the coastal influence, and a relative frost free suitable soil. Constraints to agricultural preservation in this area include endangered species territory, and approved residential and industrial park specific plans in the area. The north-central portion of the City, generally known as Strawberry Hill, is also a core agricultural area. The City of Vista is almost entirely composed of Urban and Built-Up Land. There are some small isolated areas of Grazing Land in the central and northern portions of the City. There are a few very small areas of Unique Farmland, and Prime Farmland in the western and southern portions of the City.

Agriculture is an important resource in Carlsbad. The City's agricultural policies are intended to support agricultural activities while planning for the possible future transition of the land to more urban uses consistent with the policies of the General Plan and the Carlsbad Local Coastal Program (LCP). The City's LCP protects agricultural lands from the premature conversion to more urban land uses by establishing programs which require mitigation for conversion of agricultural property to urban uses. It also has established methods to benefit agriculture in the community by providing financial assistance through cash programs. As stated in the Open Space and Conservation Element of the City's General Plan, it is the City's intention to support and utilize all measures available to secure agricultural land uses for as long as possible prior to development, and to promote the long-term economic viability of agricultural uses. However, the projected pattern of development in Carlsbad is such that the extensive areas generally required for economic agricultural operations are unlikely to be available in the long-term. The City of Carlsbad consists mainly of Urban and Built-Up Land along the western, southern, and northwestern portions of the City, with large areas of Other Land interspersed throughout the eastern and central portions.

The agriculture industry in Oceanside accounts for approximately 10 percent of San Diego County's agricultural output. The primary crops include avocados, tomatoes, citrus and nursery stock. Agricultural areas typically involve contiguous tracts of agricultural land uses with only a very minor intrusion of non-agricultural land uses. These non-agricultural land uses are only of the type and size to service the special needs of the agricultural area. There are two primary areas of significant agricultural production in the City, Morro Hills and Rancho del Oro. The majority of the City of Oceanside is shown as Urban and Built-Up Land, however there is one relatively large contiguous area of agricultural land in the northeast corner of the City, with smaller areas of isolated agricultural land scattered within the City. A relatively large area of land in the northeast corner of the City is shown as Unique Farmland, with small areas of Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance interspersed.

San Marcos contains approximately 3,240 acres of agricultural land, including land used for the production of avocados, citrus, tomatoes, dairy products and flowers. The dominant agricultural

area is Twin Oaks Valley with 2,135 acres in agricultural production. Most existing agriculture in the City is centered around small scale commercial production. Avocado orchards and citrus groves are among the other agricultural uses. In general, agricultural land in San Marcos is not a valuable resource in terms of soil fertility, because soils are generally rocky, erosive, contain a high clay content, and/or are subject to limitations caused by nearly impervious bedrock or hardpan within the existing rooting depth. Non-crop agricultural uses include stables and dairies. The City of San Marcos is generally composed of Urban and Built-Up Land in the central portions of the City, with Other Land to the north and south. There are some scattered areas of Unique Farmland, Farmland of Statewide Importance, and Prime farmland in Twin Oaks Valley in the northern area of the City. South of Lake San Marcos and in the southeastern area of the City are some areas of Unique Farmland. A small area of Grazing Land is located in the central portion of the City, and some scattered areas of Farmland of Local Importance are located in the central and northern portions of the City.

San Diego Multiple Habitat Conservation Program

The study area is located within the North San Diego County MHCP planning area. The MHCP is a regional effort conducted in conjunction with Section 10a of the Federal Endangered Species Act and the California Natural Communities Conservation Planning Act and is the framework for development of a regional habitat preserve for many increasingly rare plant and wildlife species in northwestern San Diego County. The MHCP is a multi-jurisdictional planning effort which has included the cities of Oceanside, Vista, San Marcos, Escondido, Encinitas, Carlsbad, and Solana Beach. Each city is tasked with developing a sub-area plan in order to set about policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP.

Subarea plans will describe the specific conservation, management, facility citing, land use, and other actions the City will use to implement the goals, guidelines, and standards of the MHCP plan. Each city will submit its subarea plan to the USFWS and CDFG to support application for permits and authorizations to incidentally "take" listed threatened or endangered species or other species of concern. All cities with the exception of Solana Beach are currently preparing subarea plans for the MHCP.

The MHCP planning effort is ongoing, available in draft form but not yet adopted by the CDFG, USFWS, and the seven cities included in the participating local jurisdictions. The MHCP, as a policy-level document, does not contain directives for infrastructure siting or construction and operation within reserve areas. These kind of policies are included in each draft subarea plan.

Other Applicable Regional Plans

The project's consistency with other applicable regional plans are analyzed in the respective section of this Program EIR. These include the SANDAG Congestion Management Plan (CMP) and Regional Transportation Plan (RTP), which are addressed in *Section 4.10*; the Regional Air Quality Strategy (refer to *Section 4.2*); and the RWQCB Basin Plan for the San Diego Basin (as identified in *Section 4.7*).

4.8.3 Thresholds of Significance

The City of Vista adopted threshold criteria which are derived from Appendix G of the CEQA Guidelines. Impacts to land use, planning, and zoning would be significant if the proposed action would:

(1) Physically divide an established community;

(2) Conflict with any applicable 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; or

(3) Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.8.4 Environmental Impacts

(1) Would the project physically divide an established community?

The project components include below-ground pipelines of which the majority are installed in easements or right-of-way. While elements of the proposed project may result in temporary disturbances to established communities during construction activities, no components would physically divide an established community. Pipeline projects would not be visible following construction. Therefore, impacts would be less than significant.

(2) Would the project conflict with any applicable 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, zoning ordinance, etc.) adopted for the purpose of avoiding or mitigating an environmental effect?

The 2008 Sewer Master Plan Update has been designed to be consistent with and implement the policies of the affected jurisdictional general plan land use elements and community facilities elements. *Table 2-3* provides a list of project design features intended to ensure project consistency with applicable land use plans, policies, and regulations. Where project design features do not ensure consistency, mitigation measures have been included in this Program EIR that reduce conflicts with applicable plans, policies and regulation to a level less than significant. This is further discussed below.

Environmental issues associated with the proposed project requiring mitigation include the following: 1) potential impacts associated with traffic during construction due to encroachment within the right-of-way of SR-78, 2) impacts to biological or cultural resources where pipelines leave public street rights-of-way thereby disturbing sensitive natural resources, 3) water quality and hydrology impacts for pipelines near 303(d) listed water resources including the Buena Vista Creek and Lagoon as well as the Agua Hedionda Creek and Lagoon, and 4) potential impacts to jurisdictional waters. It is the policy of the City that wherever such impacts from project within the scope of the Program EIR may occur, they will be mitigated to a level below significance. General mitigation guidelines are established in this Program EIR and are to be followed on a project-specific basis as discussed in the Biological Resources, Cultural Resources, and Hydrology and Water Quality sections of this EIR. These mitigation measures are designed to reduce the potential impacts to below a level of significance, and are thus consistent with City policy.

Land Use Compatibility

The proposed 2008 Sewer Master Plan Update was developed after a careful survey of existing and planned development, General Plan designations, and other land use planning features and documents. The 2008 Sewer Master Plan Update was designed to provide the City with orderly plans for the development of sewer utilities to meet the present and future needs of the City of Vista and Buena Sanitation District consistent with the General Plan Land Use and Circulation Elements.

From a standpoint of local land use designations and zoning, all project components are either compatible with local land use regulations or would be compatible, subject to use permit limitation. The projects components are underground, and once construction is complete the linear pipelines would not be noticeable. Land use impacts would be less than significant.

Several project components are located within the Coastal Zone. These projects will be subject to a Coastal Development Permit (CDP). All projects in the coastal zone will require review for consistency with the applicable Local Coastal Program (LCP) and California Coastal Act prior to

issuance of a CDP. The future required review and issuance of CDPs would ensure that infrastructure projects, particularly those located outside of public rights-of-way or property or in sensitive areas, will be consistent with the LCP. Individual components would require this review on a project by project basis to ensure that impacts would be less than significant.

For other development approval by local jurisdictions outside the City of Vista but within the City's service areas, project design engineers are required to coordinate the design with the City. These project might also require discretionary permits. Future potential land use impacts that might result from a need for necessary infrastructure improvements would be evaluated at the time of project design and review.

The project proposed in the 2008 Sewer Master Plan Update would not conflict with any existing General Plan, coastal plan or any other land use plan or policy. Consequently, no adverse impacts to land use planning would result from implementation of the proposed project.

SANDAG Regional Growth Management Strategy

The proposed project would be consistent with the SANDAG Regional Growth Management Strategy in that project design features, construction measures, and project design features and mitigation measures have been incorporated into the project to reduce impacts associated with transportation/congestion management, water sewage disposal, and sensitive lands and open space preservation.

The proposed project would not exceed official regional or local population projections. Future sewer flows in the 2008 Sewer Master Plan Update were derived from the City of Vista's Zoning and the SANDAG Designated Land Use. As such, the project components identified in the 2008 Master Plan Update were identified to serve projected service populations consistent with SANDAG.

Other Applicable Regional Plans

The project's consistencies with other applicable regional plans are analyzed in the respective sections of this Program EIR. The proposed project is consistent with the SANDAG Regional Roadways policies set forth in the RTP. The project is also consistent with the goals of Congestion Management Plan. These issues are further discussed in *Section 4.10, Transportation and Traffic*. The project's relationship to the Regional Air Quality Strategy is discussed in *Section 4.2, Air Quality*. The project consistency with the MHCP is discussed below under Significance Threshold No. 3 and in *Section 4.3, Biological Resources*.

(3) Would the project conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan?

A consistency evaluation with the adopted and applicable conservation plans is included in *Section 4.3, Biological Resources*. Several project components are located within or adjacent to a draft hardline or softline FPA preserve as described in the MHCP. Threshold (6) in *Section 4.3* provides a list of project components located within or adjacent to a draft hardline or softline FPA preserve as described in the MHCP. As stated therein, this impact would be significant and mitigation measures are provided in *Section 4.3*.

4.8.5 Level of Significance Prior to Mitigation

As presented in *Section 4.3, Biological Resources*, impacts to adopted HCP or NCCPs would be significant. No additional significant land use impacts were identified.

4.8.6 Mitigation Measures

Refer to the mitigation measures provided in BIO-2, BIO-9, and BIO-10 in *Section 4.3*, which apply for impacts to adopted HCP or NCCPs.

4.8.7 Level of Significance after Mitigation

With implementation of mitigation measures as presented in *Section 4.3, Biological Resources* threshold (6), residual impacts would be less than significant.

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4.9 Noise

4.9.1 Introduction and Methodology

This section considers noise-related impacts from construction and operation of the proposed project. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Specific noise assessments were not performed for the project components.

4.9.2 Existing Conditions

General Characteristics of Community Noise

To describe environmental noise and to assess project impacts on areas that are sensitive to community noise, a measurement scale that simulates human perception is customarily used. The basic terminology and concepts of noise are described below. Technical terms are defined in *Table 4.9-1, Noise Definitions.*

Table 4.9-1
Noise Definitions

Term	Definitions
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Community Noise Equivalent Level (CNEL)	The average equivalent A-weighted sound level during a 24-hour day, calculated by adding 5 dB to sound levels in the evening (7 pm to 10 pm) and adding 10 dB to sound levels in the night (10 pm to 7 am).
Decibel, (dB)	A unit for measuring sound pressure level equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.
Time-Average Sound Level	The sound level corresponding to a steady-state sound level containing the same total energy as a time varying signal over a given sample period. Time-average sound level is designed to average all of the loud and quiet sound levels occurring over a time period.

Sound (noise) levels are measured in decibels (dB). Community noise levels are measured in terms of A-weighted sound level. *Table 4.9-2* depicts common sound levels for various noise sources. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria.

Table 4.9-2
Typical Sound Levels Measured In The Environment And Industry

Noise Source	A-Weighted Sound Level in Decibels	Noise Environment	Subjective Impression
Civil Defense Siren (100 ft.)	130		
	120		Threshold of Pain
	110	Rock Music Concert	
Pile Driver (50 ft.)	100		Very Loud
Power Lawn Mower (3 ft.)			
Motorcycle (25 ft.)	90	Boiler Room	
Diesel Truck (50 ft.)		Printing Press Plant	
Garbage Disposal (3 ft.)	80		
Vacuum Cleaner (3 ft.)	70		Moderately Loud
Normal Conversation (3 ft.)	60		
		Department Store	
Light Traffic (100 ft.)	50	Private Business Office	
Bird Calls (distant)	40		Quiet
Soft Whisper	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

People are generally more sensitive and annoyed by noise during the evening and nighttime hours. Thus, another noise descriptor used in community noise assessments, termed the community noise equivalent level (CNEL), was introduced. CNEL is the average A-weighted sound level during a 24-hour day. A 5 dB penalty is added during the evening hours of 7:00 p.m. to 10:00 p.m., and a 10 dB penalty is added during the nighttime hours of 10:00 p.m. to 7:00 a.m. The 5 and 10 dB penalties are applied to account for increased noise sensitivity during the evening and nighttime hours.

Human activities cause community noise levels to be widely variable over time. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (Leq). The Leq, or equivalent sound level, is a single value (in dBA) for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually 1 hour. The noise level that is exceeded 50 percent of the time (L_{50}) is a level that is normally less than the Leq, except for especially steady noise levels, in which case, it may be similar to or slightly greater than the Leq.

Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to

60 dBA range, and high above 60 dBA. In wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas (e.g., areas located near downtown Vista), and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, these higher levels are nevertheless considered to be adverse to public health.

Existing Conditions

City of Vista

Noise environments within the City vary greatly, but some general observations hold. In general, noise in urbanized areas is dominated by motor vehicle traffic, especially on heavily traveled roads. The primary noise-sensitive land use in the City of Vista is residential land use. Libraries, churches and some passive parks and recreation areas also represent noise sensitive land uses. Traffic represents the most significant noise source in the City of Vista. SR-78 is the primary transportation corridor which runs through the city. It provides inter-regional access, moving an estimated 14,400 passenger cars per hour through or around the City (City of Vista 2002). Traffic generated noise along this corridor currently impacts a variety of land uses including, residential, commercial, and open space uses. The AT&SF Railroad, which extends from the northwest side of Vista through the City to the southeast, also creates noise impacts to a variety of land uses within the City.

General Plan

The Noise Element of the City of Vista General Plan outlines the definition, effects, sources, and the regulation of noise. It specifies maximum desirable interior noise levels by land use category and activity area. The maximum interior CNEL for single family and multiple unit residential is 45 and 50, respectively. For commercial land use, a maximum of 60 CNEL is specified in activity areas. For manufacturing, 65 CNEL is specified in working areas. Any residential development proposed within the 65 CNEL area as shown by the Transportation Noise Contour lines requires a special review, including review of its design to ensure reasonable peace and quiet inside the buildings and outdoor private recreational areas. Construction level noise abatement is planned to be achieved in part by federal regulations governing decibel output of various types of construction equipment. The City controls construction noise through limiting construction to daylight hours. The City's noise policy also contains specific objectives including development of a noise program and providing adequate equipment and personnel to help protect citizens from adverse noise.

Noise Control Ordinance

The City of Vista noise control ordinance (Municipal Code Chapter 8.32) legally sets exterior property line noise limits for various land uses in terms of 1-hour Leq (average noise level over a period of time) value ($Leq_{(h)}$), unless a variance has been applied for (citing mitigation circumstances as applicable) and granted. As specified therein, residential areas are restricted in the amount of noise that can legally be generated at the property line to 50 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m. For commercial uses, applicable exterior property line noise limits are 60 dBA between 7:00 a.m. and 10:00 p.m. and 55 dBA between 10:00 p.m. and 7:00 a.m. Moreover, in the event that the alleged offensive noise contains music or speech conveying informational content, the 1-hour Leq limit is reduced by 5 dB.

In addition, the City of Vista has incorporated by reference the provisions of San Diego County Ordinance No. 6212. As stated therein, construction equipment is prohibited from operating Sundays and holidays. Construction activities are allowed between 7:00 a.m. and 7:00 p.m., Monday through Saturday, provided that the noise level at the property line does not exceed 75 dBA for more than eight hours during any 24 hour period.

City of Oceanside

Primary noise sources in the City occur from mobile and stationary sources. Mobile sources within the City include highway traffic, railway use of the AT&SF Railroad and air traffic use of the Oceanside Municipal Airport. Traffic noise is recognized as the most prevalent noise source within the City. Stationary sources of noise include industrial and commercial land uses. However, manufacturing and industrial activities are generally localized near the airport and adjacent to Oceanside Boulevard, where there are no sensitive receptors.

General Plan

The City of Oceanside's Noise Element establishes goals, objectives, policies and recommendations to abate noise problems. The overall goal expresses the City's desire to minimize the effects of excessive noise and improve the City's environment. The element defines noise, its health effects, areas impacted by noise, and presents recommendations which would effectively abate or reduce undesirable noises.

Noise Control Ordinance

The City of Oceanside's noise control ordinance (Municipal Code Chapter 38 Article III § 38.12) legally sets exterior property line noise limits for various land uses in terms of 1-hour Leq value. As specified therein, low/medium density residential, agricultural, and open space areas are restricted in the amount of noise that can legally be generated at the property line to 50 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m (high density residential is allowed an increase of 5 dBA for the same time periods). Applicable exterior property line noise limits for commercial uses are 65 dBA between 7:00 a.m. and 10:00 p.m. and 60 dBA between 10:00 p.m. and 7:00 a.m. For Industrial uses the allowable noise limits are 70 dBA between 7:00 p.m. and 10:00 p.m. and 65 dBA between 10:00 p.m. and 7:00 a.m. Moreover, in the event where property lines form the joint boundary between two base district zones, the sound level limit is the mean of the limit applicable to each of the two zones.

City of Carlsbad

The primary noise-sensitive land use in the City of Carlsbad is residential land use. Libraries, churches and some passive parks and recreation areas also represent noise sensitive land uses. Traffic represents the most significant noise source in Carlsbad. I-5 has the greatest existing and projected roadway noise emissions. In addition, I-5 impacts the greatest number of existing dwellings. Additional noise sources located within the city include: Palomar Airport, located west of El Camino Real, just north of Palomar Airport Road; the AT&SF Railroad, which runs parallel to the coastline through its 6.5-mile length in Carlsbad; and motor boats which utilize the Agua Hedionda Lagoon.

General Plan

The primary goal of the Noise Element of the Carlsbad General Plan is to achieve and maintain an environment which is free from objectionable, excessive or harmful noise. It establishes goals, objectives and policies to help mitigate existing and future environmental noise levels from sources within and adjacent the City, and provides policies and action programs to implement the goals and objectives.

Noise Control Ordinance

The City of Carlsbad does not have a comprehensive noise ordinance. However, Chapter 8.48 limits hours of construction to normal weekday working hours. Specifically, construction noise is not allowed after sunset any day; before 7:00 a.m. weekdays; before 8:00 a.m. Saturday, Sunday, and on seven holidays. The City enforces the California Penal Code Section 415 when annoying noise occurs.

City of San Marcos

The primary noise-sensitive land use in the City of San Marcos is residential land use. Libraries, churches and some passive parks and recreation areas also represent noise sensitive land uses. Traffic represents the most significant noise source in San Marcos. State Route 78, the Anza Freeway, is the only highway or freeway within the San Marcos City limits and traverses San Marcos in an east-west direction, roughly bisecting the city in half. Noise generated on SR-78 affects land uses within the Business/Industrial District, Richmar Neighborhood, Barham/Discovery Community and Richland Neighborhood of San Marcos. Additional noise sources within and surrounding the City include the AT&SF Railroad which traverse the City south of and parallel to Mission Road, and the Palomar Airport and Carlsbad Raceway which are located just outside the City limits within the jurisdictional boundary of Carlsbad.

General Plan

The Noise Element of the City of San Marcos General Plan is designed to protect the health and welfare of the community by promoting community development which is compatible with noise standards. It includes implementation measures and possible solutions to existing and foreseeable noise problems, and serves as a guideline for compliance with State noise insulation standards.

Noise Control Ordinance

The City noise ordinance (San Marcos Chapter 10.24) prohibits loud, annoying, or unnecessary noises. Pursuant to general plan policies, the City has used specific noise standards adopted by San Diego County. The County Ordinance is discussed on page 4.9-7 as it pertains to the North County Metropolitan Subregion as well.

North County Metropolitan Subregion

This subregion is subject to County policies regarding noise. The County follows various noise policies and standards from the County's General Plan Noise Element and the County Noise Ordinance.

County General Plan Noise Element and Planning Department Noise Criteria

The County has established exterior noise guidelines in the "Noise Element" section of the County's adopted General Plan (County of San Diego 2006). These guidelines identify compatible exterior noise levels for various land use types. The maximum acceptable exterior

noise level for residential development is 60 decibels (dB) CNEL. The A-weighted scale measures noise levels corresponding to the human hearing frequency response. All sound levels discussed in this report are A-weighted. This criterion is applied at the outdoor noise sensitive area. In addition, the County requires that interior noise levels not exceed a 45 dB CNEL.

Noise Control Ordinance

The County uses a quantitative noise ordinance to control excessive noise generated in the County (County of San Diego 2005). The noise ordinance limits are in terms of a one-hour average sound level. The allowable noise limits depend upon the County's zoning district and time of day. Construction noise is also governed by the County's noise ordinance. Specifically, it shall be unlawful to operate any construction equipment so as to cause at or beyond the property line of any property upon which a legal dwelling unit is located an average sound level greater than 75 dB between the hours of 7:00 a.m. through 7:00 p.m., Monday through Saturday excluding legal holidays. The County interprets the average sound level to mean the one-hour average sound level.

4.9.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to noise would be significant if the proposed project would result in any of the following:

(1) 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;

(2) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

(3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

(4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

(5) 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, expose people residing or working in the project area to excessive noise levels; or

(6) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

4.9.4 Environmental Impacts

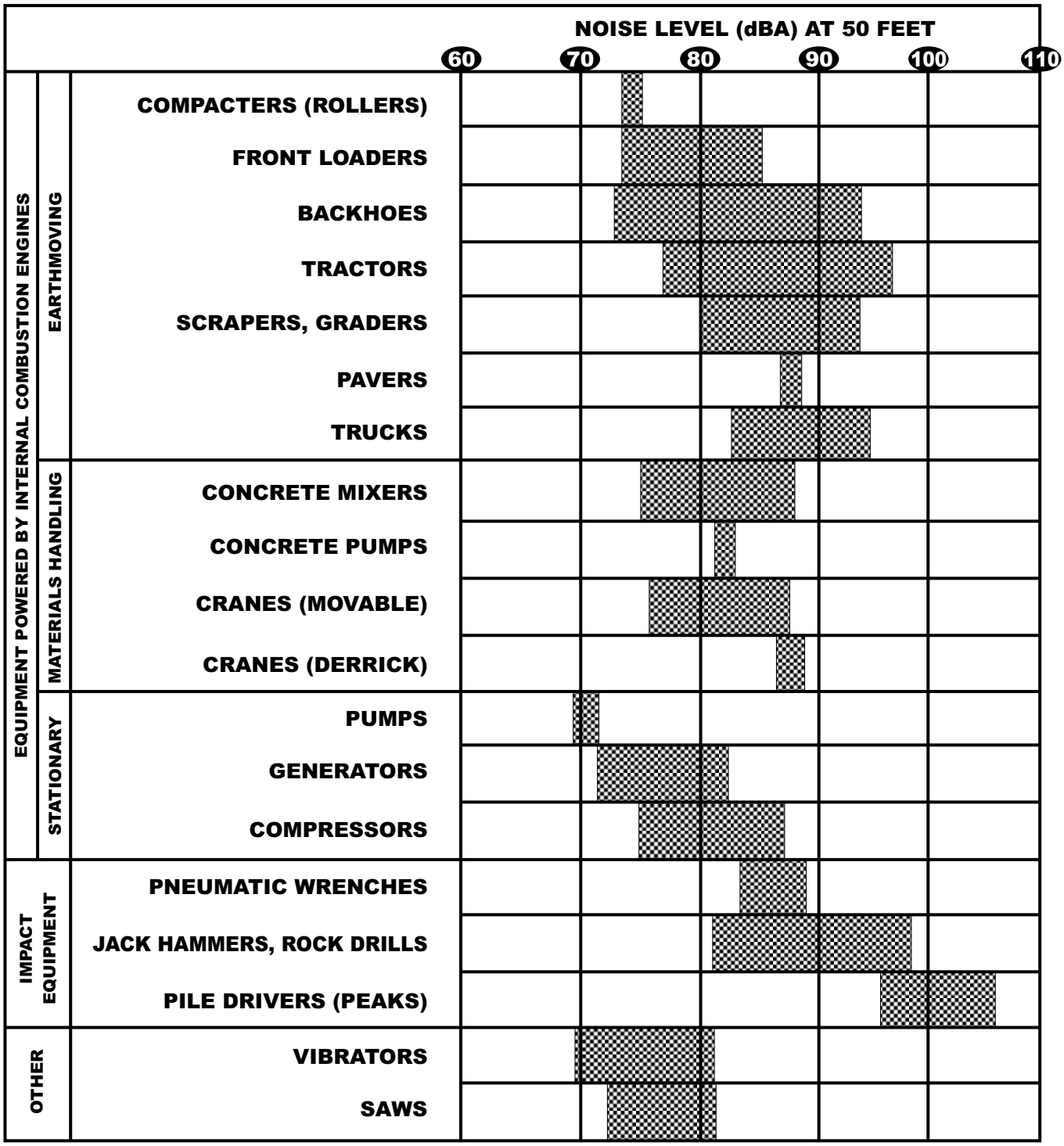
(1) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance or applicable standards of other agencies?

Construction Noise

Construction activities generate short-term noise impacts. Associated noise levels will be higher than the existing ambient noise levels, but would subside once construction is completed. Two types of noise impacts should be considered during the construction phase. First, the transport of workers and equipment to the construction areas would incrementally increase noise levels along the roadways leading to and from the project areas. Second, noise would be generated by the actual on-site construction activities.

The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, and the condition of the equipment. The highest noise levels associated with construction typically occur with earth moving equipment which includes excavating machinery (backhoes, bulldozers, excavators, trenchers, front loaders, etc) and road building equipment (compactors, scrapers, graders, etc.) The average sound level of the construction activity also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period. The range of maximum noise levels for various types of construction equipment is depicted in *Figure 4.9-1, Typical Construction Equipment Noise Generation Levels*. The maximum construction noise levels from most construction equipment at 50 feet would range up to approximately 90 dB for the type of equipment expected to be used for the proposed project.

Construction and rehabilitation efforts for the project components would result in noise impacts to various types of sensitive receptors including, residences, businesses, schools, and libraries. The associated construction activities would increase the ambient noise levels above existing conditions, which could be perceived as annoying to sensitive receptors in the area. However,



NOTE: Based on limited available data samples.

SOURCE: EPA PB 206717, Environmental Protection Agency, Dec. 31, 1971, "Noise from Construction Equipment & Operations"

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR

Typical Construction Equipment Noise Generation Levels

FIGURE 4.9-1

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this impact is temporary and would disappear once construction is completed. Provided that all construction activities are limited to each respective jurisdiction's allowable construction hours and days (i.e., 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 6 p.m. on Saturdays), no significant impacts would result from construction. Construction activities are not anticipated to exceed the noise standards of affected jurisdictions. To help minimize the impacts of construction the City shall provide public noticing for their proposed construction activities, and will appoint a public liaison who will respond to concerns of neighboring residents about noise and other construction disturbance (refer to *Table 2-3*).

Noise impacts from construction activities would be minimal within industrial and manufacturing districts, as these areas do not contain sensitive receptors and their associated ambient noise levels are generally high. Similarly, project related construction noise would have no impact within Open Space areas, as these areas are located in remote locations and devoid of human sensitive receptors. However, the associated noise could potentially affect wildlife species which utilize the affected Open Space areas for habitat or migration. Construction related noise impacts to wildlife are discussed in *Section 4.3, Biological Resources.* No significant noise related impacts would occur within industrial, manufacturing or open space areas as a result of short-term construction activities.

Construction traffic associated with the proposed project would generally involve the export of dirt and concrete debris and occasional loaded cement trucks. Construction traffic is anticipated to be minimal. The construction traffic would not result in the generation of noise in excess of existing standards or ordinances. Therefore, impacts would be less than significant.

Operational Noise

Operation of the project facilities would not create a significant impact on any sensitive receptors with regard to noise. Once constructed, the pipeline segments would not result in any noise impacts as the fluid flow of wastewater within an underground pipeline would not be audible. Occasional maintenance and emergency repair activities would generate some additional noise; however, these activities are sporadic in nature and do not occur at the same location for long periods of time. The 2008 Sewer Master Plan Update does not entail replacement or rehabilitation to any wastewater pump stations, which are typically the primary source of noise generated from wastewater facilities. Therefore, no long-term operational noise impacts are anticipated to occur as a result of the project.

(2) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

No components of the proposed project would require blasting; therefore, people would not be exposed to excessive groundbourne vibration or noise levels. Impacts would be less than significant.

(3) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

See discussion under Significance Threshold No. 1, above.

(4) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

As discussed under Significance Threshold No. 1 above, this project would result in a temporary increase in ambient noise levels in the project vicinity above levels existing without the project due to construction. Noise may include periodic bursts of backhoe or mechanical tool noise during construction. However, compliance with each respective jurisdiction's Noise Ordinance would ensure that construction activity occurs during appropriate daytime work hours, and a temporary increase would not significantly impact any sensitive receptors. Therefore, a less than significant impact would occur.

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

As introduced in *Section 4.6, Hazards and Hazardous Materials,* although a number of the proposed project components would be located within two miles of and within the AIA of the McClellan-Palomar Airport, the project would not expose people residing on or working in the project area to excessive noise levels. The construction of the facilities in the airport vicinity would be short–term and would not contribute to a long-term noise effect.

(6) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The project is not within the vicinity of a private airstrip. Therefore, the project would not expose people working in the project area to excessive noise levels.

4.9.5 Level of Significance prior to Mitigation

Compliance with the City of Vista, City of San Marcos, City of Oceanside, City of Carlsbad, and County of San Diego Municipal Codes and incorporation of the standard project design features and construction measures shown in *Table 2-3* would ensure that noise impacts from construction and operational activities remain below level of significance.

4.9.6 Mitigation Measures

No significant noise impacts have been identified; no mitigation measures are required.

4.9.7 Level of Significance after Mitigation

There are no significant noise impacts.

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4.10 Transportation and Traffic

4.10.1 Introduction and Methodology

The purpose of this section is to address the proposed project's potential impacts on transportation and circulation within the project area. The study area for this analysis includes roadways directly affected by the proposed project and is based on existing and planned roadway classifications obtained from the affected jurisdictions. The following analysis provides information on the existing area roadways and identifies current lane configurations, average daily traffic (ADT) volume, roadway capacity, and level of service (LOS). Roadway capacity has been defined as the maximum number of vehicles that can pass over a roadway during a given period of time under prevailing roadway and traffic conditions. The maximum capacity is determined from roadway factors (such as right-of-way widths, lateral clearance, shoulders, surface conditions, alignment and grades) as well as traffic factors (such as vehicle composition, distribution by lane, peaking characteristics and traffic control devices, intersections, etc.). Capacity is usually given as the hourly service volume at the upper limit of LOS, which indicates the maximum number of vehicles that could be expected to travel a section of roadway in a day.

4.10.2 Existing Conditions

City of Vista

The Circulation System within the City of Vista has several components ranging from regional facilities, such as freeways, to local residential streets. The major arterial streets in Vista are Melrose Drive, Vista Village Drive, Sycamore Avenue, Santa Fe Avenue, East Vista Way, and Bobier Drive. The major collector streets are Emerald Drive, Olive Avenue, West Vista Way, Sunset Drive, Escondido Avenue, and Monte Vista Drive. Each of the arterial streets connects to another major roadway which provides regional access for the City. State Route 78 (SR-78) provides inter-regional access, moving vehicles through or around the City.

City of Oceanside

The major east/west roadways located within the City of Oceanside are SR-78, Oceanside Boulevard and Mission Avenue (SR-76). These roadways extend from the westernmost portion of the City to beyond the eastern City limits. Major north/south streets are I-5, Hill Street and El Camino Real. Major north/south traffic east of I-5 is presently limited to El Camino Real.

City of Carlsbad

The City of Carlsbad's transportation system is generally meandering, due to the presence of natural topographic constraints (e.g., steep hills, lagoons). Portions of I-5 and SR-78 bring regional traffic into and through the City. Several of the City's existing major arterials also carry through traffic as well as local traffic. The City of Carlsbad contains three major arterial roads, including El Camino Real, which runs north and south through the center of the City; Palomar Airport Road, which runs east/west through the center of the City; and Rancho Santa Fe Road, which runs along the southern and easterly boundary of the City.

City of San Marcos

SR-78 provides regional access to the City of San Marcos, connecting the City with I-15 on the east and I-5 on the west. SR-78 is currently a six-lane divided freeway. East/west travel within the City of San Marcos is accommodated by two arterial highways (Mission Road and San Marcos Boulevard) and several collectors. North/south travel within the City is accommodated by three principal routes – Twin Oaks Valley Road, Rancho Santa Fe Road and Nordahl Road.

North County Metropolitan Subregional Area of San Diego County

SR-78 and I-15 provide regional access to the North County Metropolitan Subregional area. Deer Springs Road is a prime arterial through Twin Oaks. Major roads include South Santa Fe Avenue, Monte Vista Drive, Buena Vista Creek Road, El Norte Parkway, Mountain Meadow Road, and Champagne Boulevard. Community collectors and light collectors include Twin Oaks Valley Road, Mesa Rock Road, Las Posas Road, Foothill Drive, Sunset Drive, Mar Vista Avenue, Jesmond Dene Road, North Ash Street, and North Broadway.

4.10.3 Thresholds of Significance

Significance thresholds for traffic impacts are based upon the City of Vista Impacts Significance Criteria and Appendix G of the CEQA Guidelines. Transportation and traffic impacts would be significant if the proposed action would result in any of the following:

(1) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections). This would occur under any of the following scenarios:

(i) The addition of project traffic results in an intersection LOS dropping from LOS D or better to LOS E or F.
(ii) An intersection is operating at LOS E or F and the project adds more than an additional 2 seconds of average vehicle delay.
(iii) In the cumulative (Year 2030) condition, if the addition of the project traffic results in an intersection LOS dropping from LOS D or better to LOS E or F, or if an intersection is operating at LOS E or F and the project contributes to the average vehicle delay, the project is determined to have a cumulatively significant impact.

(2) Exceed, either individually or cumulatively, an LOS standard established by the County Congestion Management Agency for designated roads or highways;

(3) 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;

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

(5) Result in inadequate emergency access;

(6) Result in inadequate parking capacity; or

(7) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

4.10.4 Environmental Impacts

(1) Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?

The project would result in short-term traffic effects during construction of the various project components. These short-term effects include traffic increases and impacts to the roadways themselves. Traffic generated during construction would primarily be from workers traveling to and from the sites, delivery of equipment and materials, and removal of construction debris. Although the number will vary depending on the project component, the number of construction workers and truck trips required on a given pipeline is anticipated to be minimal. Approximately 8 to 12 construction workers are expected on a daily basis for each segment of pipe being

constructed and/or rehabilitated. An average of four trucks per day to and from the site is anticipated for delivery and removal of materials. Project construction within study area roadways could consist of excavation, pipeline construction, backfilling and repaving. A typical pipeline construction area would be approximately 30 feet wide and would progress at a rate of approximately 200 feet per day. Multiple project components may be constructed simultaneously.

Pipeline work may require lane closures, which could result in short-term impacts to traffic patterns and temporary traffic congestion. Construction or rehabilitation of various pipeline segments would also cause temporary disruption of access to residences and businesses along the construction route. Consequently, portions of the affected roadway links may require detours or flagger assistance to maintain acceptable operation of the roadways, and access to all properties.

The potential short-term effects described above would require additional review once detailed project construction plans become available. Short-term construction traffic would require implementation of a traffic control plan (TCP) as identified in *Table 2-3, Summary of Standard Project Design Features and Construction Measures*. The project TCPs would need to be developed in accordance with affected City and possibly Caltrans traffic control guidelines that specifically address construction traffic, traffic safety measures, and use of signage and flag personnel where necessary. If adequate pedestrian and vehicular access to and from public facilities and or commercial/industrial establishments are obstructed, the City shall coordinate with each facility's administrators and/or impacted businesses respectively in preparing a plan for alternative access. In addition to the TCP, the City of Vista will coordinate with each affected jurisdiction to avoid conflicts resulting from other construction projects occurring near the proposed project components within the same time period (see *Table 2-3*).

(2) Would the project exceed, either individually or cumulatively, an LOS standard established by the County Congestion Management Agency for designated roads or highways?

SANDAG's Congestion Management Plan (CMP), which was adopted in 1991 is intended to directly link land use, transportation and air quality concerns through level of service performance. Local agencies are required by statute to conform to the CMP.

The CMP requires an enhanced CEQA review for all large projects that are expected to generate more than 2,400 ADT or more than 200 weekday peak hour trips. Since the project is calculated to generate less than these amounts, this level of review is not required of the proposed project and the project is consistent with the goals of the CMP.

Similarly, SANDAG produced a 2020 Regional Transportation Plan (RTP) in April 2000 that identifies projects needed to improve transportation significantly over the next 20 years. The RTP sets four key objectives; specifically, average time to get to work (24 minutes or less), number of miles of deficient segments in the freeway system (29 miles or less), number of transit riders (minimum 400,000 trips per day), and increase in transportation revenues (65 percent increase). The RTP contains plans and policies to improve mobility in the region by recommending new facilities and the expansion of transit services, programs to manage travel demand, and changes to local land use policies. The proposed project, although temporarily disrupting traffic flow on regional roadways during construction, would not conflict with overall goals of the RTP. No further analysis is necessary in this Program EIR.

(3) Would the project 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?

No portion of the project would impact air traffic patterns. Therefore, no impact would occur.

(4) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

As described in Significance Threshold No. 1, construction activities would require lane closures, which could result in short-term traffic hazards. In addition, construction of the various components would also cause temporary disruption of access to residences and businesses along the construction route. Lane closures and closing or altering access to individual properties or businesses would be addressed in the TCP as detailed in *Table 2-3, Summary of Standard Project Design Features and Construction Measures*. The TCP requires coordination between the City and the impacted businesses or residences. If a residential driveway needs to be closed or interfered with, the construction contractor shall notify the owner or occupant of the closure at least five working days prior to the closure.

Implementation of project design features address most impacts associated with construction as a result of the proposed project. However, construction of several project components would involve encroachment within the right-of-way of SR-78. Determination of whether a project component falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way the City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored (see *Table 2-3*).

The operational phase of the proposed project would generate minimal traffic required for routine maintenance and emergency repair. Therefore, the proposed project would not result in long-term impacts to traffic.

(5) Would the project result in inadequate emergency access?

The project's effects on emergency access as well as emergency response and evacuation plans are analyzed in *Section 4.6.4*. Some temporary traffic hazards could occur during construction activities, which might interfere with emergency access and evacuation routes. Preparation of a TCP as detailed in *Table 2-3* would ensure emergency access would not be restricted. With incorporation of the prescribed TCP and adherence to applicable regulations, the project would not significantly result in inadequate emergency access.

(6) Would the project result in inadequate parking capacity?

Construction of individual project components would result in some short-term parking needs by workers at the sites. None of the project components would result in long-term parking needs by maintenance crews or others. Because relatively few vehicles are necessary and most parking needs would be short-term during construction only, impacts to existing parking capacity are not anticipated to be significant.

(7) Would the project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

The North County Transit District (NCTD) operates bus service throughout north San Diego County, including the affected municipalities and unincorporated areas of the county. NCTD's bus system has 53 fixed-service routes, several of which run through the proposed project area. The project would involve construction along roadways traveled by NTCD's buses. As such, temporary impacts to the existing bus routes may occur. Temporary impacts to bicycle routes and pedestrian walkways could also occur during construction. As described above under Significance Threshold No. 1, a TCP would be provided. Therefore, potential conflicts to alternative transportation would be avoided and impacts would be less than significant. Once constructed, the project would not impact NCTD's ability to continue to service within the project area. All bicycle and pedestrian pathways would be returned to pre-construction conditions.

4.10.5 Level of Significance Prior to Mitigation

Potential traffic and transportation impacts would be less than significant given the identified project design measures in *Table 2-3*, which includes determination of project components within the SR-78 right-of-way and subsequent acquisition of encroachment permits from respective local and state authorities.

4.10.6 Mitigation Measures

No significant impacts have been identified; no mitigation measures are required.

4.10.7 Level of Significance After Mitigation

There are no significant transportation and traffic impacts.

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4.11 Public Services and Utilities

4.11.1 Introduction and Methodology

This section considers public services and utilities necessary to serve the proposed project and includes an analysis of sewer, water, solid waste, and utilities and energy use. Additional public services are evaluated in *Section 8.0, Effects Found Not to be Significant,* of this Program EIR.

4.11.2 Existing Conditions

Wastewater Treatment

City of Vista and Buena Sanitation District

The City of Vista is responsible for the maintenance, operation, and management of both the City of Vista and Buena Sanitation District sewer collection systems, which extend beyond the City's political boundaries to the City of San Marcos, Carlsbad, Oceanside, and the County of San Diego. The total length of sewer pipeline maintained by the City is approximately 316 miles, which includes 5.3 miles of force main.

The City of Vista collection system is located primarily in the Buena Vista Drainage Area and is comprised of 35 sub-drainage areas. Three sub drainage areas are located in the Agua Hedionda Drainage Basin. The majority of sewer flows generated from the City drain to the Encina Wastewater Treatment plant via Vista-Carlsbad Interceptor with the exception of sewer flows generated in the three sub-drainage areas. These flows drain to the Encina Wastewater Treatment via the Buena Interceptor. The City wastewater sewer system includes approximately 215 miles of sanitary sewers ranging in size from 6 to 42 inches in diameter.

The Buena Sanitation District is located primarily in the Agua Hedionda Drainage Area. The Buena Sewer Collection System is comprised of approximately 101 miles of sanitary sewer pipelines and force mains ranging in size from 4 to 30 inches. Sewer flows generated from Buena Sanitation District drain to the Buena Pump Station and are conveyed to Encina Wastewater Treatment Plant via the Buena Force Main and the Buena Interceptor.

Carlsbad Municipal Water District

The Carlsbad Municipal Water District (CMWD) provides water, reclaimed water, and sewer service within the City limits. The CMWD service area covers approximately 85 percent of the City, an area of about 32 square miles. The main sewer generally flows from east to west,

following the natural topography. The main sewer interceptors then follow the coast and terminate at the Encina Water Pollution Control Facility for treatment and disposal. The four existing interceptors are the Vista/Carlsbad, North Agua Hedionda, Buena/Vallecitos, North Batiquitos, and Ponto. CMWD provides sewer collection services through approximately 145 miles of collection pipelines and 40 miles of sewer laterals. In addition, there are 14 lift stations owned and operated by the District and 2 operated jointly between the District and the City of Vista (Buena Vista and Agua Hedionda Lift Stations).

Leucadia Wastewater District

The Leucadia Wastewater District (LWD) was formed in 1959 to provide wastewater collection, treatment, disposal, and recycling services for the La Costa community in the in the City of Carlsbad. LCWD also serves northern portions of the City of Encinitas and the community of Leucadia, covering a service area of approximately 16 square miles or 60,000 residents. LCWD owns and operates over 850,000 linear feet of wastewater conveyance pipeline, 12 active pump stations and one water reclamation facility.

Vallecitos Water District

The Vallecitos Water District (VWD) is an independent special district that provides water, wastewater and water recycling services to approximately 80,650 people within 45 square miles in San Marcos; the community of Lake San Marcos; and parts of Carlsbad, Escondido, and Vista.

The District began in 1955 as the San Marcos County Water District (an independent special district) by a group of local citizens. It originally formed as a water-only operation, adding sewer services three years later and reclamation in 1983. The District was renamed Vallecitos Water District in 1989. The District operates over 230 miles of pipeline and 3 lift stations.

Oceanside Water Utilities Department

The City of Oceanside Water Utilities Department provides water and wastewater disposal within the City limits. The Wastewater Division collects, treats and disposes of all of the City's sewage at the San Luis Rey Wastewater Treatment Plant and the La Salina Wastewater Treatment Plant. In addition, the San Luis Rey plant treats sewage from the City of Vista and the Rainbow Water District. Sewage is collected in Oceanside through a system of pipelines, gravity sewers or force mains, which deliver untreated sewage to the treatment plants. The sewerage system in Oceanside includes 30 pump stations and approximately 450 miles of pipelines.

Valley Center Municipal Water District

The Valley Center Municipal Water District is a special district and has a 100-square mile service area (62,100 acres) that provides sanitation service for approximately 2,750 customers through two wastewater treatment facilities: the 500,000 gallon per day Lower Moosa Canyon Water Reclamation Facility, and the 70,000 gallon per day Woods Valley Ranch Water Reclamation Facility. The Moosa facility provides sewer treatment services for the District's Interstate 15 corridor area, from the Lawrence Welk development on the southern end, east to Rimrock and Hidden Meadows and north to Circle R Drive. The Woods Valley Ranch facility treats wastewater from the Woods Valley Ranch Development, returning the reclaimed water to the Woods Valley Ranch Golf Course for irrigation.

Rainbow Municipal Water District

The Rainbow Municipal Water District is a local governmental agency serving water and sanitation services to an unincorporated area of northern inland San Diego County. The District serves the unincorporated communities of Rainbow, Bonsall, and a portion of Fallbrook covering approximately 49,800 acres. The District straddles, in part, I-15 and the San Luis Rey River. The area has many agricultural uses, including citrus, avocados, strawberries, tomatoes, corn, commercial nurseries, and livestock. The Rainbow District is largely agricultural; however it is expected to see significant growth in its residential customer base in the future.

Stormwater

The project area is located within portions of the Carlsbad and/or San Luis Rey Hydrographic Units, which form two of the 11 major drainage basins within the San Diego Regional Basin.

Carlsbad Hydrographic Unit

The Carlsbad Hydrographic Unit consists of a roughly triangular- shaped area of approximately 210 square miles, extending from Lake Wohlford on the east to the Pacific Ocean on the west, and from Vista on the north to Cardiff-by-the- Sea on the south. Annual precipitation in the Carlsbad Hydrographic Unit varies, with the Vista area receiving approximately 13 inches per year. The Carlsbad Hydrographic Unit incorporates watersheds of Buena Vista and Agua Hedionda creeks. All surface runoff from project sites within the Carlsbad Unit flows into these two creeks, and eventually drains into the Pacific Ocean. Surface runoff in the City of Vista area, because of its downstream location, includes drainage from the urbanized areas of Escondido.

San Luis Rey Hydrographic Unit

The San Luis Rey Hydrographic Unit is a rectangular- shaped area of approximately 565 square miles, extending from the Pacific coast at Oceanside on the west to near Warner Springs on the east, and from the Riverside County line on the north to near Lake Wohlford on the south. The entire length of the San Luis Rey River is included within this hydrographic unit, with the river located near the unit center west of Lake Henshaw. Annual precipitation in the San Luis Rey Hydrographic Unit ranges from less than 12 inches at the coast to over 45 inches at Palomar Mountain. The City of Vista area receives an average of approximately 13 inches of precipitation per year.

The San Luis Rey Hydrographic Unit incorporates the watershed of the San Luis Rey River, into which all surface runoff from project sites within the San Luis Rey Hydrographic Unit flows before draining into the Pacific Ocean. Groundwater bodies present in project sites associated with the San Luis Rey unit are spatially related to the location of the San Luis Rey River drainage basin or its primary tributaries.

Water Supply

City of Vista

The Vista Irrigation District (VID) provides water service to the City of Vista, and also serves a small portion of the cities of San Marcos, Escondido, Oceanside and unincorporated areas in the County of San Diego. All water delivered by VID is filtered and includes imported water purchased from CWA and local water from VID's Lake Henshaw facilities.

Surface water is not utilized directly or stored for domestic consumption within the project area, although it is used for agricultural purposes when available, and serves to recharge ground water resources. Most ground water sources in the project area are rated marginal to inferior for domestic and agricultural uses, as a result of high nitrate, sulfate and chloride levels. Some minor local sources may produce water suitable for agricultural use and/or domestic consumption. Water quality generally increases inland, due both to greater distance from the coast and a reduction in the effects of upstream urbanization.

City of Oceanside

The City of Oceanside's water comes from three sources. One source is treated water supplied directly to the City from San Diego County Water Authority (SDCWA) pipelines. A second source is treated water from the City's Robert A. Weese Filtration Plant, and the third source is from groundwater drawn beneath the Mission Basin of the San Luis Rey River and treated at the

Mission Basin Desalting Facility. The principal service area for Oceanside's water system is the area within the City limits, an area of approximately 44 square miles.

City of Carlsbad

San Diego County is a semi-arid region with very limited surface and groundwater supplies. Less than ten percent of the County's water supply is provided locally and the remaining water supply is imported. Carlsbad is serviced by three water districts: the CMWD, VWD, and the Olivenhain Municipal Water District (OMWD). CMWD services 54,000 people and covers 85 percent of the City's land area. The other two districts service 4,171 people within the southeastern portion of City.

The three water districts purchase imported water from the SDCWA who in turn relies upon the Metropolitan Water District for its supplies. SDCWA is one of 26 member agencies in the Metropolitan Water District (MWD), which is responsible for importing and distributing water from the Colorado River Aqueduct and State Water Project to its member agencies. Water supplies to all three districts are imported entirely from outside of the San Diego region.

City of San Marcos

Several agencies administer and control the flow and quality of domestic water within the City of San Marcos. Most residents receive their water from the San Marcos County Water District (SMCWD), which contracts with the SDCWA for its water. All of the domestic water supply provided through the SMCWD is imported. Local groundwater previously used for domestic supply became highly mineralized, and its use was terminated in the early 1950s. Portions of the Business/Industrial District, the College Area, and the Twin Oaks Valley Community receive their water from the Vista Irrigation District.

County of San Diego

Four independent water agencies provide water service to the North County Metropolitan Subregional plan area: the Valley Center Municipal Water District, the Vallecitos Water District, Rincon del Diablo Water District, and the Vista Irrigation District. These districts receive some or all of their water from the SDCWA. SDCWA owns a system of aqueducts delivering imported water to San Diego County.

Vista Irrigation generally services areas nearest the City of Vista, San Marcos, and South Santa Fe. Twin Oaks is serviced by the Vallecitos Water District, and Hidden Meadows is serviced by the Valley Center Municipal Water District. Rincon del Diablo services Harmony Grove and an island within Escondido.

Solid Waste

Solid waste generated by Vista, Oceanside, Carlsbad, San Marcos and the County is collected and disposed of at the Sycamore Canyon Landfill in Santee, which is owned by the County of San Diego.

In addition to solid waste pickup, there are a variety of recycling activities currently in operation in the project area. A curbside recycling program is provided to both single-family and multi-family residences. Commercial (office and hospitality industry) recycling service is available on a limited basis. Residents in the project area separate recyclable materials and garden materials from their waste. Recyclable materials are transported to Coast Waste Management for processing.

4.11.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to public services and utilities would be significant if the proposed action would result in any of the following:

(1) Exceed wastewater treatment requirements of the applicable RWQCB;

(2) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects;

(3) Result in determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

(4) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

(5) Have insufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements needed;

(6) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;

(7) Be unable to comply with federal, state, and local statutes and regulations related to solid waste;

4.11.4 Environmental Impacts

(1) Would the project exceed wastewater treatment requirements of the applicable RWQCB?

The project itself is intended to enhance wastewater conveyance as described in *Chapter 2.0* of this Program EIR. Goals of the proposed project are to reduce the potential for sewer overflows, make facility improvements, and restore, maintain, and/or enhance existing sewer service. No new pipelines would be installed as part of the project. The proposed project is designed to accommodate capacity deficient components of the existing sewer system. Volume of wastewater generated as a result of implementation of the proposed project would not exceed wastewater treatment requirements. Furthermore, the City of Vista operates its facilities in accordance with applicable wastewater treatment requirements of the RWQCB and proposed project components too would be designed in compliance with RWQCB requirements. Therefore, there would be no impacts.

(2) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?

The proposed project entails rehabilitation, relocation, and/or remediation of existing wastewater facilities. The environmental effects of project construction are discussed throughout this Program EIR. Significant environmental effects could occur to biological resources, cultural resources, hydrology and water quality, and transportation/traffic. Mitigation measures provided *Sections 4.3, 4.4, 4.7,* and *4.10* would reduce these impacts to below a level of significance.

The proposed project would not result in the construction of new water facilities. Therefore, there would be no impact due to construction of water facilities.

(3) Would the project result in determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project itself is intended to enhance wastewater conveyance as described in *Chapter 2.0* of this document. Completion of the project would result in a beneficial impact to the capacity of the wastewater treatment system. Therefore, there would be no impact.

(4) Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No additional storm water facilities are necessary for the project. The proposed project would involve the construction and rehabilitation of underground pipelines that would not involve additional storm water conveyance facilities. Therefore, impacts would be less than significant.

(5) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No additional water supply or treatment facilities are necessary. The project would not require the need for new or expanded water supplies. Therefore, there would be no impact.

(6) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Additional demands on existing solid waste facilities would not occur. New or improved solid waste facilities would not be necessary as a result of implementing the proposed project. The project would generate a limited amount of solid waste during construction, such as including material packaging. In addition, construction of the project may involve the export of soil. However, soils would be removed from the site and clean fill exported to local sites for reuse. Overall, solid waste generated by project construction would not have a significant impact on local solid waste facilities.

(7) Would the project comply with federal, state, and local statues and regulations related to solid waste?

No regular solid waste disposal is proposed as part of the 2008 Sewer Master Plan Update project. The amount of solid waste generated by construction of the project would not be substantial or interfere with the sufficient permitted capacity of nearby landfills. Construction waste would be disposed offsite in compliance with federal, state, and local statutes and regulations related to solid waste, and no solid waste would be generated upon project completion. Impacts would be less than significant.

4.11.5 Level of Significance prior to Mitigation

No significant impacts have been identified.

4.11.6 Mitigation Measures

No significant public services and utilities impacts have been identified; no mitigation measures are required.

4.11.7 Level of Significance after Mitigation

There are no significant public services and utilities impacts.

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SECTION 5.0
CUMULATIVE IMPACTS

5.1 Introduction and Purpose

In many cases, the impact of a single project may not be significant, but when combined with other projects, the cumulative impact may be significant. Section 15355 of the CEQA Guidelines defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA Guidelines Section 15130(b) states that "the discussion [of cumulative impacts] need not provide as great of detail as is provided of the effects attributable to the project alone." Section 15130(b) further states that a cumulative impacts discussion should be guided by the standards of practicality and reasonableness.

Cumulative impacts can occur from the interactive effects of a single project. For example, the combination of noise and dust generated during construction activities can be additive and can have a greater impact than either noise or dust alone. However, substantial cumulative impacts more often result from the combined effect of past, present, and future projects that are located in proximity to the project under review. For example, the wastewater treatment demand generated by a project may not be significant when analyzed alone; however, when analyzed in combination with the wastewater demands of approved or proposed projects, the wastewater demands may exceed the resource capabilities of the service agency, resulting in a significant cumulative impact. Therefore, it is important for a cumulative impacts analysis to be viewed over time and in conjunction with other related past, present, and reasonably foreseeable future developments which may have impacts that might compound or interrelate with those of the project under review.

Section 15130(b)(1)(A) of the CEQA Guidelines allows for the preparation of a list of past, present, and reasonably anticipated future projects as a viable method of determining cumulative impacts. Alternatively, Section 15130(b)(2)(B) a summary of projections from a planning document which describes or evaluates regional conditions may be used.

For this analysis, the projection method is used. Projections are based on SANDAG year 2020 population projections and the City of Vista General Plan Land Use Element density projections. The implementation of the CIP projects of the 2008 Sewer Master Plan Update would primarily involve replacement and rehabilitation of existing facilities. This Program EIR evaluates the potential effects of these projects and recommends mitigation measures to be implemented after subsequent, project-level environmental review, where necessary, at the time of implementation of approval of each project. The 2008 Sewer Master Plan Update proposes a program of phased improvements keyed to the City's growth and includes recommended upgrades to meet the projected needs of the City.

5.2 Impacts to Environmental Factors

Aesthetics

The City of Vista is a predominantly residential community with a semi-rural atmosphere. This visual landscape consists of a mixture of urban uses, infrastructure, and hillsides. As the City continues to develop, the appearance of the City will continue to change to a more urbanized landscape. Cumulative impacts related to aesthetics for the CIP projects are not considered significant, since the proposed project components would be underground or entail modification to existing facilities. Any elements of the proposed project visible during construction would be short-term and less than significant. Therefore, the proposed project would not significantly contribute to an adverse cumulative impact.

Air Quality

Except in cases of point-source pollution and rare traffic-related air pollution hot spots, air quality must be considered on a cumulative, air basin-wide basis. Strategies for the control of both point-source and mobile pollution generation are the responsibility of the APCD. APCD rules and regulation apply uniformly throughout the City and the District and the rest of the air basin and to all potential sources of pollutant emissions. Thus, air pollution control is applied on a cumulative basis. As noted in *Section 4.2, Air Quality*, the proposed project is consistent with the growth assumption of the regional air quality plan and incorporates all feasible and available air quality control measures through regulation by the APCD. Also, the SDRAQS is based on development as planned under the applicable general plans. The proposed project is consistent with the planned development as identified in the applicable plans; therefore, the proposed project is consistent with the SDRAQS. Cumulative effects would be less than significant.

Regarding global climate change, on a cumulative basis, a forecast for GHG emissions in the San Diego Air Basin or in California is not currently available. As previously noted, it is estimated that California produces about 7% of U.S. GHG emissions, with about 41% related to transportation and about 22% related to electricity. AB 32 calls for CARB to have a statewide emissions inventory completed by January 1, 2008. The statewide inventory may be helpful in establishing a baseline forecast for comparative analysis of GHG emissions. However, even after the statewide inventory is completed, it is unlikely to be sufficiently detailed to allow evaluation of the significance of GHG contributions from individual development projects. Based on the information available at the present time and the level of project emissions when compared to overall emissions, it is not reasonable to conclude that the project would have any significant cumulative impacts on climate change.

As analyzed in *Section 4.3* of this PEIR, GHG emissions from the project in accordance with State goals. No project the size of the City of Vista Sewer Master Plan Update would directly affect global climate change. Therefore, the project would not have significant project-related or direct impacts on climate change. However, development projects may contribute to the issue on a cumulative basis. The project would result in short-term construction emissions only and would not interfere with the State's ability to achieve its GHG reduction goals and strategies set for the year 2020 or 2050. Therefore the project would not result in a significant cumulative impact.

Biological Resources

Implementation of projects within each respective jurisdiction would result in impacts to biological resources. Continued development within the City of Vista, City of San Marcos, City of Oceanside, City of Carlsbad, and County of San Diego would extend urban land uses into vacant areas characterized by natural vegetation communities and used by wildlife.

The affected jurisdictions are participating in the MHCP, which is a regional planning effort aimed at reducing long-term cumulative impacts to biological resources due to increasing development. Each city is tasked with developing a subarea plan in order to set about policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP. The City of Vista, San Marcos, Carlsbad, and Oceanside are currently preparing subarea plans for the MHCP. Although the Subarea Plans are still in process, all projects must be consistent with the MHCP guidelines for mitigation. Because the affected jurisdictions are ensuring that ongoing development does not preclude implementation of the MHCP or negatively impact future preserve areas in the Plan area, cumulative impacts are being avoided.

Cultural and Paleontological Resources

Cultural and paleontological resources are localized and generally unique to each project site. All significant cultural resources associated with the proposed project and other projects within the region will be mitigated on a project-by-project basis; therefore, cumulative impacts to the region's known and yet-to-be discovered cultural resources would not occur.

Geology and Soils

Geotechnical conditions are unique to each site and are not cumulatively related. Approved projects and those under review are subject to soils and stability analysis and cannot be constructed unless each project is determined to be geotechnically feasible. With regard to seismicity, the project and any future development will expose additional property and people to groundshaking from earthquakes hazards. However, this impact is addressed via compliance

with Uniform Building Code seismic requirements on a project-by-project basis. Implementation of the proposed 2008 Sewer Master Plan Update would not impact the plate techtonic conditions of the area. Therefore, there would not be significant cumulative geologic impacts resulting from implementation of the proposed project.

Hazards and Hazardous Waste

Hazards associated with the proposed project would be evaluated on a project-by-project basis as minimal information is available at this program level of analysis. Each cumulatively considerable project would also be subject to similar on-site mitigation measures, thereby eliminating the need for concern of region-wide hazards.

Cumulative projects in the region will result in the use and transport of incrementally more oils, greases, and petroleum products for operational purposes. Although these could be subject to accidental spillage, there is no quantifiable cumulative effect since accidents are indiscriminate events, not related or contributory to one another. Provided that individual projects adhere to current laws governing storage, transportation, and handling of hazardous materials, no significant cumulative hazard or threats to human health and safety are anticipated.

Water Quality

Runoff from project construction areas would contribute an incremental increase in flows within the Buena Vista and Agua Hedionda Creek basins and would combine with runoff attributable to adjacent developments. Total runoff in the creek basins would be short-term and would be cumulatively considerable. Project-by-project BMPs including completing scour analysis for projects within 100-year floodplains, and obtaining dewatering permits from RWQCB, would reduce sediment loads and downstream erosion to less than significant. BMPs to minimize potential site runoff of pollutants that might contribute to degradation of water quality may include the following: equipment maintenance and refueling, hazardous materials management measures, and designated work zones. Regulatory conditions are considered protective of receiving water quality and effective for preventing violation of water quality standards and evidence of compliance with requirements is required prior to obtaining a grading or building permit. All future projects would be required to comply with applicable federal, state and local regulations for stormwater and construction discharges, which would ensure that cumulative impacts to water quality remain below a level of significance.

The 2008 Sewer Master Plan Update components would not substantially increase the amount of impervious surfaces and would not result in cumulative hydrological impacts as a result of increasing cumulative runoff volumes.

Land Use

Facilities and improvements proposed in the 2008 Sewer Master Plan Update are based on growth are based on growth and population projects derived from existing and planned land uses as if they were developed to the highest zoning of the property. The source of the land use categories used to develop sewage flow generation was based on the City of Vista's Zoning and SANDAG Designated Land Use. The location, capacity, and phasing of projects in the 2008 Sewer Master Plan Update conform to existing and planned land uses. The 2008 Sewer Master Plan Update does not affect land use in the affected jurisdiction, but is designed to match the necessary infrastructure for wastewater in support of the land uses.

Adoption of the 2008 Sewer Master Plan Update, when considered together with the general plans and other planning for the affected jurisdictions, would not result in significant land use impacts, but would support the jurisdictions existing land uses, and development in conformance with applicable general plans. No significant cumulative land use impacts would occur with the proposed 2008 Sewer Master Plan Update.

Noise

As development increases in the study area, some increase in ambient noise level is inevitable, with localized effects. This increase would be due primarily to traffic noise, as roads are constructed to serve new developments, and to point sources of noise, such as those associated with residences and businesses, and a host of activities associated with urban and suburban life. Components associated with the proposed project would contribute incrementally to this general pattern during short term construction activities. Each respective jurisdiction's noise ordinance and General Plan for which project components traverse control the exposure of residents to excessive levels of noise. Combined with regulation and attenuation of other sources consistent with applicable regulations governing noise, the proposed 2008 Sewer Master Plan Update's contribution to cumulative noise impacts would be less than significant. The proposed project would not contribute to long-term cumulative noise impacts.

Transportation and Traffic

As discussed in *Section 4.10, Transportation/Traffic*, the proposed project components in the 2008 Sewer Master Plan Update would contribute to short-term impacts to traffic circulation on local roadways. Project design features and mitigation measures would reduce all project level impacts to below a level of significance. Significant cumulative traffic circulation impacts could result over the short-term if multiple projects were under construction simultaneously and in the same general location. Short-term traffic impacts caused by construction of the projects proposed

within the study area would result from street closures, increased truck traffic, and disruption of local traffic to residences and businesses. As the CIP projects would be phased over a 20-year period and could proceed simultaneously, it is anticipated that cumulative short-term impacts to project component roadways would be less than significant through coordination and implementation of traffic control plans at the time of construction with the City Engineering Department (for impacts to City roads) and with the planning entities for the Cities of Carlsbad, Oceanside and San Marcos, and San Diego County (for impacts to roads within their respective jurisdictions). Furthermore, encroachment permits are required for all construction affecting public rights-of-way. Mitigation measure TR-1 addresses impacts associated with public rights-of-way. This permitting process is the control point designed to reduce direct and cumulative impacts to below a level of significance.

Public Services and Utilities

The nature of the proposed project entails improvements to the existing sewer system. Proposed project components would result in minimal increase in water demand during construction activities and would not impact additional utilities or public services. Service providers have adopted plans to respond to future demands with system improvements. These plans are periodically updated based on both individual provider's projections and SANDAG population forecasts. Therefore, the proposed project in combination with cumulative project would not significantly contribute to cumulative impacts on utilities and service systems.

SECTION 6.0
OTHER CEQA REQUIREMENTS

6.1 Significant Effects Which Cannot Be Avoided

Section 15126.2(b) of the CEQA Guidelines requires an EIR to identify significant environmental effects that cannot be avoided if the proposed project is implemented, including those that can be mitigated but not to below a level of significance. This Program EIR focuses on potential impacts of the proposed project with respect to aesthetics; air quality; biological resources; cultural resources; geology and soils; hazards and hazardous materials; water quality and hydrology, land use and planning; noise, traffic and transportation; and utilities and service systems. This Program EIR identifies potential impacts for each of these categories, as well as mitigation measures designed to reduce such impacts. Each identified impact can be mitigated to below a level of significance with implementation of mitigation measures; therefore, there are no significant impacts which cannot be avoided.

6.2 Significant Irreversible Environmental Changes Which Would Be Caused by the Proposed Project Should It Be Implemented

CEQA Section 15126.2(c) requires an EIR to address any significant irreversible environmental changes that may occur as a result of project implementation. Approval of the project would cause irreversible environmental changes consisting of the following:

- Use of various new raw materials, such as sand, steel, and gravel, for construction and rehabilitation. Some of these resources are already being depleted worldwide. The energy consumed in developing and maintaining the site may be considered a permanent investment. The proposed project is a relatively minor consumer of these supplies when compared to a regional context. Use of these resources would represent an incremental effect on the regional consumption of these commodities. Implementation of the proposed 2008 Sewer Master Plan Update would involve an incremental increase in consumption of energy resources, derived in part from nonrenewable resources, such as fossil fuels.

- The proposed project's location within sensitive biological and cultural areas may result in irreversible change to the hydrologic, biological, and cultural environment of these sensitive areas.

6.3 Growth Inducing Impact of the Proposed Project

CEQA requires a discussion of the ways in which a proposed project could result in an inducement to growth. The CEQA Guidelines [Section 15126.2(d)] identify a project to be growth-inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. For example, new employees hired for commercial and industrial development projects and population growth resulting from residential development projects represent direct forms of growth. Other examples of projects that are growth-inducing are the expansion of urban services into a previously unserved or underserved area, the creation or extension of transportation links, or the removal of major obstacles to growth.

Typically, the growth-inducing potential of a project would be considered significant if it stimulates human population growth or a population concentration above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Growth impacts could also occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies.

6.3.1 Growth Caused by Direct and Indirect Employment

The construction and operation of the project itself would not affect the employment patterns in the area. Construction would be temporary, and the majority of workers would come from the San Diego area. Outside contractors may also be used who would commute from outside of the County and stay at existing local hotels during construction. There is an adequate supply of hotels in the project area that could be utilized by the out-of-town personnel.

Project operation and maintenance would be accomplished by current City employees and would therefore not create new jobs. Because the project would not result in an increase in employment during operation and maintenance, the project would not increase demand for new housing, or result in induced growth.

6.3.2 Growth Related to Provision of Rehabilitation, Relocation and/or Replacement of Existing Infrastructure

The proposed project entails rehabilitation, relocation and/or replacement of identified pipelines as deemed necessary in the 2008 Sewer Master Plan Update. Pipelines were evaluated in the 2008 Sewer Master Plan Update based on future buildout flows from all parcels within the City and District as if they were developed to the highest zoning of the property. The source of the land use categories used to develop sewage flow generation was based on the City of Vista's

zoning and SANDAG Designated Land Use. Important to this growth inducement analysis, no new pipelines would be installed as part of the proposed project.

The existing sewer system is considered substandard. Looming age, material, and condition related replacement or rehabilitation projects are proposed to ensure the integrity of the existing sewer system. The project would reduce the risk of spills. These non-capacity related projects would not directly or indirectly induce growth, but rather minimize risk of upset of the sewer system while accommodating the demands of the population, consistent with the City of Vista's zoning and SANDAG Designated Land Uses.

Capacity-related projects are also proposed as part of the 2008 Sewer Master Plan Update. An increase in the diameter of identified pipelines is proposed to comply with new state regulations regarding pipeline size, and to accommodate capacity deficient components of the existing sewer system. Capacity deficiencies of the existing sewer system may exist due to changes in habits of existing users, and/or can be in part due to growth. Thus, while the proposed capacity-related project components may be associated with population growth, *Section 2.2, Project Objectives*, clarifies that the intention of the proposed project is to reduce the potential for sewer overflows, and to restore, maintain, and enhance existing sewer services. The proposed project components would not cumulatively exceed official regional or local population projections and would not trigger an increase in population densification beyond that outlined in the City of Vista's zoning and SANDAG Designated Land Uses. Therefore, elements of growth associated with the proposed project would be less than significant.

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SECTION 7.0
PROJECT ALTERNATIVES

7.1 Introduction

In order to fully evaluate proposed projects, CEQA requires that alternatives be discussed. Section 15126.6 of the state CEQA Guidelines requires the discussion of "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." The alternatives discussion is intended to focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives listed in *Section 2.2, Project Objectives*. The Guidelines state that an EIR shall describe a reasonable range of alternatives that would avoid or substantially lessen any significant effects of the project but need not consider every conceivable alternative.

Pursuant to the guidelines stated above, two alternatives to the proposed project are considered and evaluated in this program EIR. These alternatives were developed in the course of project planning, environmental review, and public hearings. The discussion in this section provides:

- A description of alternatives considered.
- An analysis of whether the alternatives meet most of the objectives of the proposed project (described in *Section 2.2, Project Objectives*).
- A comparative analysis of the alternatives under consideration and the proposed project. The focus of this analysis is to determine if alternatives are capable of eliminating or reducing the significant environmental effects of the project to below a level of significance.

7.2 Alternatives Considered but Rejected as Infeasible

In accordance with the CEQA Guidelines, Section 15126.6(f)(2), an EIR may consider an alternative location for the proposed project but is only required to do so if significant project effects would be avoided or substantially lessened by moving the project to another site.

The City of Vista is the exclusive central agency for maintenance, operations, and management of both the City and District sewer collection systems. For the proposed 2008 Sewer Master Plan Update that is the subject of this Program EIR, alternative locations are not possible.

However, the 2008 Sewer Master Plan Update is comprised of individual improvement projects and there are or may be possible variation in the size, phasing, location, and implementation of many of the individual projects, especially in the plans' later phases. For these reasons, no alternative location for the project is herein considered, but a discussion of the variability of individual project alternatives, in the context of the existing and planned systems, is included; refer to *Section 7.3.2* below.

7.3 Alternatives under Consideration

The 2008 Sewer Master Plan Update is a guidance document for the adequacy, continued operation, and expansion of systems that are, for the most part, already in place. The project components are designed to correct deficiencies in the existing system and to provide the new facilities that will be needed to accommodate growth and land use changes in the City at the appropriate time. Because this is the case, it is not reasonable to propose alternatives that would construct entirely new systems, and no alternative location for the system is feasible. Therefore, the discussions in this section are restricted to the No Project alternative required by CEQA, and to the possible changes to individual projects in the Master Plan Update that could occur in response to changing conditions associated with growth. The environmentally superior alternative is also discussed as required by CEQA.

The objectives of the project are understood to be those described in the Project Description (*Chapter 2*) of this Program EIR. The objectives are to reduce the potential for sewer overflows; make facility improvements on identified infrastructure; restore, maintain, and/or enhance sewer service; and prioritize a list of projects.

7.3.1 No Project/No Development Alternative

Under the No Project alternative, the proposed 2008 Sewer Master Plan Update would not be adopted by the City of Vista. This does not mean, however, that the facilities in the 2008 Master Plan Update or other facilities based on development and need in the City would not be constructed. All projects in the 2008 Sewer Master Plan Update could be constructed or implemented on an individual project basis whether or not the 2008 Sewer Master Plan Update is adopted. Potential environmental impacts identified in this Program EIR would still be likely to occur. This alternative would, however, deprive the City of a valuable planning tool, and one that is informative for those interested in the City's future plans and facilities.

Many of the projects in the 2008 Sewer Master Plan Update are intended to remedy deficiencies that were identified with the City's sewer collection system. If the 2008 Sewer Master Plan Update is not adopted, the deficiencies and potential problems would remain and would still

require remedy through, in most cases, the improvement projects that make up the integrated programs in the 2008 Sewer Master Plan Update. Likewise, the new projects in the plans are predicated on the improvements needed to make the system adequate to serve the City's planned future growth. Under the No Project alternative, the same improvements would likely be brought forward for approval as individual projects, but in piecemeal fashion and not as an integrated program that had been evaluated as a single environmental project. In addition, the No Project alternative would deprive the City of the opportunity to streamline environmental review of future projects through the use of the Program EIR and subsequent updates. For these reasons, the No Project alternative offers no environmental advantages in either procedures, impacts, or public information over the proposed Master Plan Update.

7.3.2 Planning and Land Use Alternatives

The 2008 Sewer Master Plan Update was developed using the best available information on population growth; proposed, planned, and forecast growth and development; means of effluent disposal; requirements and recommendations for peak flows, volumes, and facility capacities; and other factors affecting future City water and sewer utilities planning. The planning period for the 2008 Sewer Master Plan Update is long-term, extending to 2027, and almost all the factors in such long-range planning are to some degree uncertain. Most land use planning, until projects are implemented as buildout of the City proceeds, is subject to change for a variety of reasons. Thus, City staff will continue to monitor factors likely to affect land use in the City and identify changes that could affect the forecasts and assumptions used to develop the improvement programs in the 2008 Sewer Master Plan Update.

Most of the projects in the 2008 Sewer Master Plan Update are upgrading and modification of existing facilities. In such cases, the location of the project is usually fixed. Nonetheless, adjustments are possible because the 2008 Sewer Master Plan Update is a guiding documents rather than rigid template.

Flexibility in the implementation of the 2008 Master Plan Update will occur at a specific project implementation level. Partly as a result of the mitigation program in this Program EIR, evaluation of the individual projects in the 2008 Sewer Master Plan Update can occur at the stage of project approval or implementation. Given the speculative and to some degree uncertain nature of future conditions, this process is the only practical way to assure that feasible alternatives to each project, if desirable or necessary, are developed. As an example, if development plans approved for a given area change the street pattern in that area, the location of pipelines projected in the 2008 Sewer Master Plan Update may change. If density or type of development in a given area changes, the capacity of sewer collection facilities may also change.

Individual project review in the planning stage is the only time an informed decision on such matters can occur.

7.4 Environmentally Superior Alternative

As analyzed in *Section 7.1*, the No Project alternative would not result in reduced environmental effects when compared to the proposed project. The proposed project would result in the same or less impacts when compared to the No Project alternative because of its comprehensive program to identify, avoid, and minimize impacts to environmental resources in the overall study area. As such, the proposed project is considered to be environmentally superior.

SECTION 8.0
EFFECTS FOUND NOT TO BE SIGNIFICANT

8.1 Introduction and Purpose

Section 15128 of the CEQA Guidelines requires that an EIR briefly describe any potential environmental effects that were determined not to be significant during the initial project scoping and, therefore, were not discussed in detail in the EIR. This EIR addresses all probable or foreseeable possible effects of the proposed project. Based on the analysis presented in *Chapter 4.0*, the following issue areas were found to result in no significant effect: aesthetics, air quality, hazards and hazardous materials, geology and soils, land use and planning, noise, and public service and utilities. The following issue areas were found to result in less than significant effects with mitigation incorporated: biological resources, cultural resources, water quality and hydrology, and traffic/circulation.

Several subjects required to be analyzed under CEQA were determined not to be potentially significant during the public scoping period. Therefore, these environmental issues have not been analyzed in the EIR and have received no further consideration.

8.2 Impacts Found Not to Be Significant

Agricultural Resources

The majority of the project components is within roadways or existing right-of-ways, and would not result in the conversion of important farmlands to non-agricultural uses. The proposed project would not conflict with any Williamson Act contracts. Agricultural impacts from a land use prospective are addressed in *Section 4.8.* Overall, there would be no impacts.

Population and Housing

The proposed 2008 Sewer Master Plan Update would extend and improve existing sewer infrastructure within the City in accordance with regional population projections and as needed by the demand that the forecasted additional population would place on these services. The proposed project would be phased so that the infrastructure would b developed concurrently with the increased housing demand and population. No elements of the proposed project would divide existing community or require the need for replacement housing elsewhere. The proposed project would not result in significant impacts to the City's projected population and housing needs.

Public Services

Implementation of the proposed project would not require new services for fire protection, police protection, schools, and parks for the following reasons: 1) Emergency access would not be significantly impacted, as discussed in *Section 4.10,* nor would the project trigger the need for new police or fire facilities; 2) the project would not generate a population resulting in increased demand on local schools; and 3) the project would not generate additional population resulting in increased demand on park facilities.

Recreation

Implementation of the 2008 Sewer Master Plan Update may cause potential short-term conflicts with existing parks or recreation uses where pipeline projects are located adjacent to such uses. Potential conflicts with these types of uses will be identified in the engineering and design stage of all phases of the project. The City is obligated to coordinate all construction, repair, and maintenance activities with all park and recreation agencies whose facilities may be affected in the planning stage. Consequently, the required coordination with the affected agencies would reduce the potential conflicts to a less than significant level. The proposed project would not increase demand for recreational uses, or prevent access to parks or recreational facilities.

SECTION 9.0
REFERENCES/ORGANIZATIONS CONSULTED

References Utilized throughout EIR

2006 List of Impaired Water bodies [303(d) List]. Accessed online.

Association of Environmental Professionals (AEP). 2007. *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*. White paper on global climate change. Final: June 29, 2007.

American Ornithologists' Union. 2003. American Ornithologists' Union Check-List of North American Birds, Seventh Edition. Accessed from http://www.aou.org/aou/birdlist.html.

Bolt, Beranek, and Newman. 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. Prepared for the U.S. Environmental Protection Agency. Report No. PB-206-717. December 31.

Bowman, R. H. 1973. Soil Survey, San Diego Area, California, Part 1. United States Department of the Agriculture. 104 pp. + appendices.

Brian F. Smith & Associates. September 2007. A Cultural Resources Evaluation for the Vista and Buena Sanitation District 2007 Sewer Master Plan Update. Prepared for the City of Vista.

Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines.

California Department of Fish and Game (CDFG). 2006a. Rarefind. Version 3.0.5. Computer database. March 3.

CDFG. 2006b. Special Animals. February. 55 pp.

CDFG. 2007a. Special Vascular Plants, Bryophytes, and Lichens List. July 2007. 78 pp.

CDFG. 2007b. State and Federally Listed Endangered and Threatened, and Rare Plants of California. July. 16 pp.

CDFG. 2007c. State and Federally Listed Endangered and Threatened Animals of California. August. 12 pp.

California Endangered Species Act. California Fish and Game Code. Sections 2050 to 2097.

California Environmental Quality Act. California Public Resources Code. Section 21000 et seq.

California Native Plant Society (CNPS). 2007. Inventory of Rare and Endangered Plants (online edition, v7-07a). California Native Plant Society. Sacramento, CA. http://www.cnps.org/inventory

California Regional Water Quality Control Board, San Diego Region. September 1994. Amended 2006. Water Quality Control Plan for the San Diego Basin (9). Accessed online. http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html

California, State of. Department of Conservation, Division of Mines and Geology. 1996. Miller, Russell V. Generalized Mineral Land Classification Map of Western San Diego County, California; Aggregate Resources Only.

Carlsbad, City of. October 2003. Final Program Environmental Impact Report for the Water and Sewer Master Plan Updates.

Carlsbad, City of. September 6, 1994. City of Carlsbad General Plan. City of Carlsbad Planning Department.

Carlsbad, City of. March 1994. Final Master Environmental Impact Report for the City of Carlsbad General Plan Update. City of Carlsbad Planning Dept.

Emmel, T.C. and J.F. Emmel. 1973. "The butterflies of Southern California." *Natural History Museum of Los Angeles County, Science Series* 26:1–148.

Endangered Species Act of 1973. 16 U.S.C. 1531 et seq.

Federal Water Pollution Control Act (Clean Water Act). 33 U.S.C. 1251 et seq.

Hall, E.R. 1981. *The Mammals of North America, Second Edition*. New York: John Wiley and Sons.

Hickman, J.C. 1993. *The Jepson manual: Higher plants of California*. Berkeley, California: University of California Press. 1400 pp.

Holland, R. F. 1986. *Preliminary descriptions of the terrestrial natural communities of California. Nongame-Heritage Program, California Department of Fish and Game*. 156 pp.

Jones, K. K. Jr., D. C. Carter, H. H. Genoways, R. S. Hoffman and D. W. Rice. 1997. Revised Checklist of North American Mammals North of Mexico. Occasional Papers of the Museum of Texas Tech University, no. 143.

Migratory Bird Treaty Act of 1918. 16 U.S.C. 703 et seq.

Munz, P.A. 1974 A Flora of Southern California. University of California Press, Berkeley.

Natural Community Conservation Planning Act of 1991. California Fish and Game Code. Sections 2800 to 2840.

NCCP/SAMP Working Group. 2004. *Draft Southern NCCP/HCP Planning Guidelines*.

NCCP/SAMP Working Group. 2003. *Draft Watershed and Sub-Basin Planning Principles*.

Oceanside, City of. General Plan Reformatted 2002. Accessed via http://www.ci.oceanside.ca.us/Datarelation.aspx?Content=139.

Reiser, C. H. 2001. Rare Plants of San Diego County. Aquafir Press, Imperial Beach, California.

San Diego Association of Governments (SANDAG). *Multi-Habitat Conservation Plan* (MHCP) Vol. I and II. Final Plan, Biological Analysis, and Conservation Analysis.

San Diego, County of. July 2006. Land Use and Planning Element. Attachment C. Community Summaries, Maps and Matrices. General Plan 2020. Accessed online. http://www.sdcounty.ca.gov/cnty/cntydepts/landuse/planning/GP2020/pubs/pc_jul06/c_ncmetro.pdf

San Diego, County of. 2006. San Diego County General Plan: Noise Element. September 27, 2006.

San Diego, County of, February 2005. San Diego County Code of Regulatory Ordinances Chapter 4, Noise Abatement and Control (as amended June 9, 2005).

San Diego, County of. 2003. San Diego County General Plan: Part II, Regional Land Use Element. Adopted January 3, 1979. Amended December 10, 2003.

San Diego, County of. January 1979. Amended December 1990. Park XXV North County Metropolitan Subregional Plan. San Diego County General Plan. Accessed online. http://www.sdcounty.ca.gov/cnty/cntydepts/landuse/planning/GP2020/pubs/plantexts/ncmetro.pdf

San Diego, County of. General Plan 2020 North County Metro Balance. Accessed online. http://www.sdcounty.ca.gov/cnty/cntydepts/landuse/planning/GP2020/comm/ncmetro.htm

San Diego County Regional Airport Authority. April 1994. Amended 2004. Airport Land Use Compatibility Plan McClellan-Palomar Airport, Carlsbad, California. Accessed via http://www.ci.oceanside.ca.us/Datarelation.aspx?Content=139.

San Marcos, City of. San Marcos General Plan Vol(s) I & II.

Scientific Resources Associated, July 25, 2006. *Air Quality Technical Report for the Vista Target Center.*

Simpson, M. and J. Rebman. 2002. *Checklist of the vascular plants of San Diego County, California.* Third edition. San Diego, California: San Diego State University and San Diego Natural History Museum. 80 pp.

Sogge, M.K., R.M. Marshall, S.J. Sferra, and T.J. Tibbitts. 1997. *A Southwestern Willow Flycatcher Natural History Summary and Survey Protocol*. National Park Service. U.S. Dept. Of Interior.

Stebbins, R.C. 2003. *A field guide to western reptiles and amphibians*. Boston, Massachusetts: Houghton Mifflin Co.

U.S. Army Corps of Engineers (USACOE). 2007. *Joint U.S. Army Corps of Engineers and U.S. Environmental Protection Agency Memoranda Regarding Rapanos and Carabel Supreme Court Decisions and Jurisdictional Determination Form Informational Guidebook.*

USACOE. 2006. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (TR-06-016).

USACOE. 1987. *U.S. Army Corps of Engineers Wetland Delineation Manual*.

United States Fish and Wildlife Service (USFWS). 2006. Endangered and Threatened Wildlife and Plants; Review of Native Species that are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Recycled Petitions; Annual Description of Progress on Listing Actions. *Federal Register* 71(176): 53756 – 53835.

USFWS. 2003. *Recovery Plan for the Quino Checkerspot Butterfly (Euphydryas editha quino).*

USFWS. 2002. *Quino Checkerspot Butterfly (Euphydryas editha quino) Survey Area Map*. Provided by the USFWS Carlsbad Fish and Wildlife Office in February.

USFWS. 2001. *Least Bell's Vireo Survey Guidelines.* January 19, 2001.

USFWS. 2000. *Southwestern Willow Flycatcher Protocol Revision 2000*. July 11, 2000.

USFWS. 1999. *Survey Protocol for the Arroyo Toad*. May 19, 1999.

USFWS. 1997a. *Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol*. Provided by the USFWS Carlsbad Fish and Wildlife Office on July 28, 1997.

USFWS. 1997b. *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs*.

USFWS. 1989. *1988 National List of Plant Species that Occur in Wetlands*.

Unitt, P. A. 2006. Birds of San Diego County. San Diego Society of Natural History.

Vista, City of. 2008. City of Vista and Buena Sanitation District Sewer Master Plan Update.

Vista, City of. 2006 – 2007. City of Vista GIS Sewer Atlas. Accessed online. January 20, 2008.

Vista, City of. April 2003. Final Program Environmental Impacts Report for the City of Vista and Buena Sanitation Districts Wastewater Master Plan Update.

Vista, City of. March 28, 1988. City of Vista General Plan.

Persons Contacted

Larry Hofreiter, County of San Diego

SECTION 10.0
LIST OF PREPARERS

The following individuals participated in the preparation of this Program EIR:

10.1 Lead Agency

Principal Planner
Elaine Blackburn

Senior Engineer
Carlos Mendoza

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Project Management
Shawn Shamlou, AICP

EIR Preparation
Dana Freiser
Armen Keochekian, CPESC
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Josh Saunders

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Lesley Terry
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10.3 Technical Report Preparation

Archaeological Assessment, Brian F. Smith and Associates
Brian F. Smith, Principal Investigator
Seth A. Rosenberg
Adriane Dorrler

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APPENDIX A

Notice of Preparation and Comment Letters

City of Vista

PLANNING DEPARTMENT
600 Eucalyptus Avenue, Vista, CA 92084

(760) 726-1340 FAX: (760) 639-6132
Web Site: www.cityofvista.com

NOTICE OF PREPARATION
ENVIRONMENTAL IMPACT REPORT
FOR CITY OF VISTA AND BUENA SANTIATION DISTRICT
2007 SEWER MASTER PLAN UPDATE
July 27, 2007

The City of Vista (City) is the lead agency in the preparation of an Environmental Impact Report (EIR) for the 2007 Sewer Master Plan Update (Master Plan Update) in accordance with Section 15168 of the California Environmental Quality Act (CEQA) Guidelines.

This notice is issued pursuant to Section 15082 of the State CEQA Guidelines. It is intended to inform those persons and organizations that may be concerned with the environmental effects of the project. Those public agencies with specific statutory responsibilities are requested to indicate their specific role in the project approval process.

Because of the time limits mandated by state law, responses should be sent at the earliest possible date, but no later than 30 days after receipt of this notice. Please send your response to:

City of Vista
Planning Department
600 Eucalyptus Avenue
Vista, CA 92084

Attn: Elaine Blackburn, Principal Planner
Phone: 760-726-1340 x 1268
Fax: 760-639-6101
E-mail: eblackburn@cityofvista.com

This notice also serves as notice of a public scoping meeting for the project. The meeting will be held on Monday, August 6th, at 7:00 pm at the City of Vista Council Chambers, 600 Eucalyptus Avenue. All interested parties are encouraged to attend.

ENVIRONMENTAL DOCUMENT

The environmental document prepared is a combined programmatic and project level Environmental Impact Report (EIR). The EIR is intended to allow the City to examine the environmental effects of the proposed 2007 Sewer Master Plan Update (Master Plan Update) and to take steps to avoid unnecessary environmental impacts.

PROJECT LOCATION

The project is located in the northern part of San Diego County within in the Cities of Vista, Oceanside, Carlsbad, San Marcos, and unincorporated portion of the County of San Diego. See accompanying *Figures 1 and 2*. Project components are located both within and outside the City of Vista and Buena Sanitation District boundaries as shown in these figures.

PROJECT DESCRIPTION

The City of Vista and Buena Sanitation District provide sewer service for the City of Vista and outlying areas within the Buena Vista Creek drainage basin, as well as portions of the San Luis Rey and Agua Hedionda Creek basins. The City of Vista is responsible for maintenance, operations, and management of both the Vista and Buena sewer collection systems. The City of Vista City Council is the decision making body for both the City of Vista Sanitation District and the Buena Sanitation District.

The City's Sanitation District has approximately 190 miles of sewer collection pipes that drain west to the Buena Vista Pump Station on Jefferson Street in the City of Oceanside, where it is pumped via the Vista-Carlsbad Interceptor to the Encina Water Pollution Control Facility (EWPCF) in the City of Carlsbad. Some of the City's infrastructure dates back to the 1920s.

The Buena Sewer Collection System has approximately 85 miles of sewer collection pipes and serves a large portion of the Agua Hedionda Creek drainage basin that includes areas within Vista and the County of San Diego. The system drains to the Buena Creek Pump Station where it is pumped via the Buena Interceptor to the EWPCF.

This EIR addresses the environmental impacts associated with the 2007 Master Plan Update, which is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001/2003. The purpose of the 2007 Master Plan Update is to update and identify a prioritized Capital Improvement Program (CIP) that addresses the capacity and condition related improvement projects necessary to ensure safe and reliable operation of the existing sewer system. The CIP recommends improvement projects over a 20-year planning period.

In order to minimize the potential for system overflows and interruptions associated with structurally unsound elements of the existing sewer system, the 2007 Master Plan Update identifies a combination of capacity replacement and non-capacity related rehabilitation and replacement projects that constitute the updated CIP program. Capacity restoration would be provided through installation of larger replacement pipes, and by reducing extraneous defect flows. Rehabilitation and replacement projects include projects related to age, material, minimum size, and condition of the existing system. Non-capacity-related CIP projects entail increased operations and maintenance to improve the system and/or replacement of pipelines.

Capacity-Related CIP Projects

A total of 20 capacity related replacement projects were identified in the 2007 Master Plan Update. These projects are divided by District and listed in order of priority based on ability to convey sewage and defect flows without overflow. Several capacity-related CIP projects are also in need of repair based on age, material, and condition. *Table 1* below prioritizes and describes each pipeline improvement, and identifies the need for each project component. All capacity related projects will be rehabilitated via pipeline replacement.

TABLE 1 – Capacity Related CIP Projects

Project Name/Descriptor	Approximate Length (ft)	Reason for Inclusion	Description
Buena Sanitation District Project Components			
Buena Outfall Force Main Phase III	7,200	Capacity Related	This project is required to divert 3.75 MGD of sewage flow from the Buena Sanitation District to Vallecitos Interceptor. Construct 24" of Force main and 18" and 15" of Gravity Sewer in Palomar Airport Road and west of El Camino Real to divert flows to Vallecitos Interceptor.
B5	4,844	Capacity and Condition Related	Upsize and realign existing 18", 15", and 8" sewer lines along Oleander Avenue, Watson Way, Lantana Way, and Brooktree Lane and between Green Oak Road and Lupine Hills Drive to 24", 21", and 18".
B2	3,019	Capacity and Condition Related	Upsize existing 15" and 8" sewer lines along Watson Way and Sycamore Avenue and between Watson Way and the intersection of Thibodo Road /Plumosa Avenue o 21", 18", and 15".
B1	4,944	Capacity Related	Upsize existing 21", 18", and 12" sewer lines along Green Oak Road and between the Buena lift station and Grand Avenue to 27", 24", and 15".
B4	4,724	Capacity and Condition Related	Upsize existing 12" sewer line along Robelini Drive and Buena Creek Road and between intersection of Sycamore Avenue/Robelini Drive and Lakeside Road to 15".
OV2	14,036	Capacity and Condition Related	Upsize existing 24", 21", 18" Buena Interceptor to 27", 24", and 21".
B3	918	Capacity and Condition Related	Upsize existing 10" sewer line along El Valle Opulento and between El Valle Opulento and El Copa Lane to 15".
Vista Sanitation District Project Components			
V1	8,130	Capacity and Condition Related	Upsize existing 12", 10", and 8" sewer lines along Sunset Drive, Vista Way, Huff Street, Grapevine Road, Date Street, and Durian Street between intersection of Via Centre/Sunset Drive and Cedar Road and Hill Drive to 15" and 12".
V10	2,830	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Cananea Street and Calera Street to 15" and 12".

TABLE 1 – Capacity Related CIP Projects

Project Name/Descriptor	Approximate Length (ft)	Reason for Inclusion	Description
V8	6,250	Capacity and Condition Related	Upsize existing 8" sewer line along Santa Fe Avenue, Postal Way, and Service Place and between Escondido Avenue and Service Place to 15" and 12".
V2	4,026	Capacity and Material Related	Upsize existing 33", 30", 24", 21", and 12" sewer lines along Hacienda Drive, Vista Village Drive and south of Lado De Loma Drive to 42", 36", 27", 21", 18" and 15".
V7	4,927	Capacity and Condition Related	Upsize existing 15", 12", 8", and 6" sewer lines Santa Fe Avenue, Mercantile Street, and Pala Vista Drive between Main Street and Rincon Street to 18", 15", and 12".
V6	1,910	Capacity and Material Related	Upsize existing 10" sewer line along Melrose Drive between Hacienda Drive and County Complex to 15".
V3	5,500	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Melrose Drive between Hacienda Drive and Olive Avenue to 15" and 12".
V4	3,347	Capacity Related	Upsize existing 18" along Santa Fe Avenue, Broadway, Citrus Avenue, Main Street and Vista Village Drive between Santa Fe Avenue and Intersection of Vista Village Drive/Escondido Avenue/Hillside Terrace/Vista Way to 24" and 21".
V11	1,853	Capacity Related	Upsize 18" and 8" sewer line along Vista Way and Vale Terrace and between Townsite Drive and intersection of Bel Air Drive/Williamston Street to 21", 18", and 15".
V9	3,979	Capacity Related	Upsize existing 18" and 15" sewer lines along Santa Fe Avenue between Orange Street and intersection of Los Angeles Drive/Townsite Drive to 24" and 18".
V5	3,037	Capacity Related	Upsize existing 12", 10", and 8" sewer lines along Citrus Avenue, Eucalyptus Avenue, and Escondido Avenue and between intersection of Broadway/Citrus Avenue and Avalon Drive to 18", 15", and 12".
OV1	2,837	Capacity and Material Related	Upsize existing 36" Vista-Carlsbad Interceptor to 42".
R1	1,431	Capacity Related	Upsizing existing undersized 12" sewer line west of Melrose Drive and between the Raceway Pump Station and Faraday to 15".
TOTAL	89,742 ft (17 miles)		

Non-Capacity-Related CIP Projects

The lead agencies must address looming age, material, and condition related replacements or rehabilitation in order to ensure the integrity of the existing sewer system. *Table 2* below presents the total length of pipelines being replaced and/or rehabilitated based on existing conditions, size, age, and materials. All ductile iron pipe (DIP) and non VCP/PVC pipes are proposed for rehabilitation or replacement as well as pipes that are over 45 years old. City/District standards also require a replacement of all 6" pipes with 8" pipes. The 2007 Master Plan Update proposes approximately 451,624 feet of condition related rehabilitation or replacement. This number includes the capacity related projects that are also considered condition related as presented in *Table 1* above. *Figure 2* provides a graphic showing all condition related project components.

TABLE 2 – Condition Related CIP Projects

Project Type	Length (ft)
Minimum Size	123,701
Condition Related	239,555
Age Related	38,426
Material Related Force Main	6,274
Material Related Gravity Main	43,668
TOTAL	**451,624 ft (85.5 miles)**

Operations and Maintenance

Since sewage carries a variety of waste products, regular maintenance is required to assure that the flow is maintained. Operation and maintenance of the sewer system typically consists of routine patrolling, emergency repair, and periodic pipeline dewatering to allow for interior inspections or repairs. Sewer flow is also maintained via cleansing and flushing activities with a variety of tools. The Wastewater Maintenance Division of the City of Vista cleans all sewer mains twice annually to reduce the potential for sewer spills. Video inspections are performed on all new sewer mains and on selected sections of the existing mains annually. The pipes are accessed through regular spaced openings, which are covered and commonly referred to as clean outs and manholes. Manholes are large enough to allow large equipment and personnel to enter the system. Operations and maintenance activities also include no-dig rehabilitations such as epoxy coatings, polyurethane coatings, slip liners, and cured-in-place resin compound liners. Maintenance for elements of the proposed 2007 Master Plan Update includes activities similar to those performed throughout the existing sewer collection system.

POTENTIALLY SIGNIFICANT EFFECTS

Potential issues and impacts to the existing environment include those listed below. No determinations have yet been made as to the significance of these potential impacts. Such determinations will be made in the EIR. These issues along with an analysis of the project alternatives including the no project and alternative pipeline location scenarios, cumulative effects, and potential for growth inducement, will be analyzed and discussed in the EIR.

Environmental Issue Area	*Potential Issues or Impacts*
Aesthetics	▪ The proposed project could impact the existing visual quality of the project site and its surroundings ▪ Duration of visibility of construction materials, equipment and debris may impact views.
Air Quality	▪ Project construction will produce short-term air emissions (fugitive dust and vehicle equipment exhaust). ▪ Violation of air quality standards during construction and operation.
Biological Resources	▪ Project construction could have an impact to sensitive biological resources such as candidate, sensitive or special status species. ▪ The project could have an impact on riparian or wetland habitat or on migratory fish or wildllife. ▪ Potential Inconsistency with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approval conservation plan.
Cultural Resources	▪ Potential project components may pass through sites with archaeological or historical value.
Geology and Soils	▪ Exposure by people or structures to risk of ground shaking, liquefaction, seismic ground failure, landslides, unstable soils, lateral spreading, expansive soil, and rupture of known earthquake fault.
Hazards and Hazardous Materials	▪ Pre-existing soil contamination and proposed replacement and rehabilitation activities could affect construction workers and the public. ▪ Potential release of fuel, hydraulic fluid, and lubricants during construction.
Hydrology and Water Quality	▪ Project construction could affect surface water flow and erosion rates causing subsequent downstream sedimentation and reduced surface water quality. ▪ Stormwater runoff from access road and temporary work areas may degrade surface water quality. ▪ Construction of permanent structures/facilities may alter drainage patterns, which may result in increased runoff, erosion, siltation and flooding offsite. ▪ Accidental release of hazardous materials during construction may affect surface water and ground water quality.
Land Use and Planning	▪ Consistency with planned land uses of an agency with jurisdiction over the project. ▪ Conflict with adjacent land uses.
Noise	▪ Construction would generate noise in excess of that allowable in the affected jurisdiction.
Transportation and Circulation	▪ Potential for construction related traffic impacts resulting in increased delay and congestion along designated roadways.
Utilities and Service Systems	▪ The proposed project could result in increased demand on water and sewage treatment, solid waste services, and energy use.

Level of Environmental Review

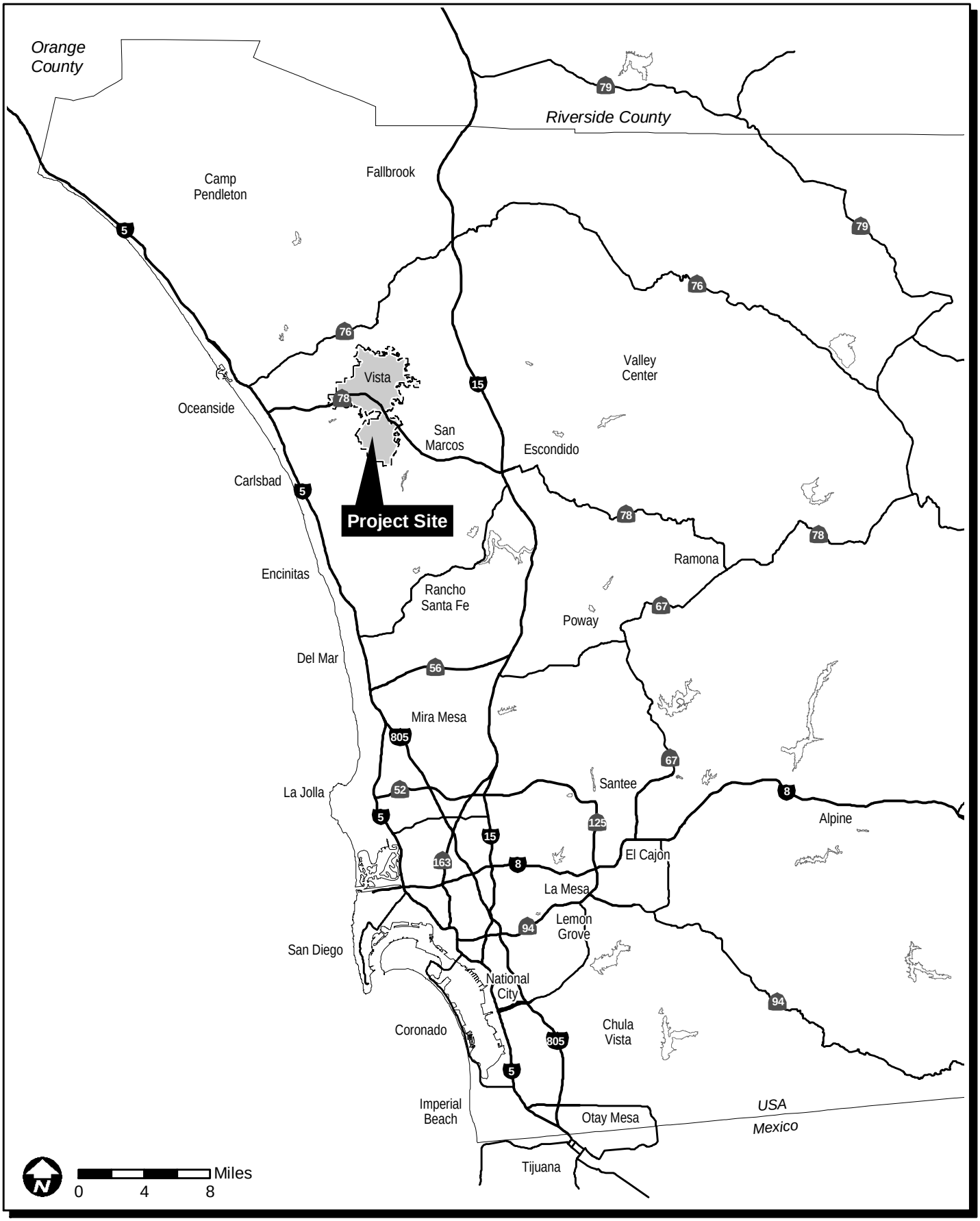
Under CEQA, a program EIR is prepared for a series of actions that can be characterized as one large project, with each action related as logical parts in the chain of contemplated actions. (CEQA Guidelines §15168(a).) Typically, such a project involves actions that are closely related geographically (Cal. Code of Regs., Title 14, § 15168(a)(1)), for agency programs (§ 15168(a)(3)), or as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways (§ 15168(a)(4)). Program EIRs generally analyze broad environmental effects of

the program with the acknowledgment that site-specific environmental review may be required for particular aspects of portions of the program when those aspects are proposed for implementation (§ 15168(a)). A project EIR, in contrast, examines the environmental impacts of a specific development project, reviewing all phases of the project, including planning, construction, and operation (CEQA Guidelines §15161.) No further environmental review under CEQA is typically required following preparation of a project EIR.

The majority of the components of the 2007 Master Plan Update will be analyzed at the program level, and it is the intention of the City to address the highest prioritized projects at the project level. Once the EIR is adopted for the 2007 Master Plan Update, analysis and mitigation would sufficiently address the environmental impacts associated with all project-level components. Subsequent (or second-tier) activities within the program would be evaluated to determine whether an additional CEQA document needs to be prepared for program level components.

Construction Schedule

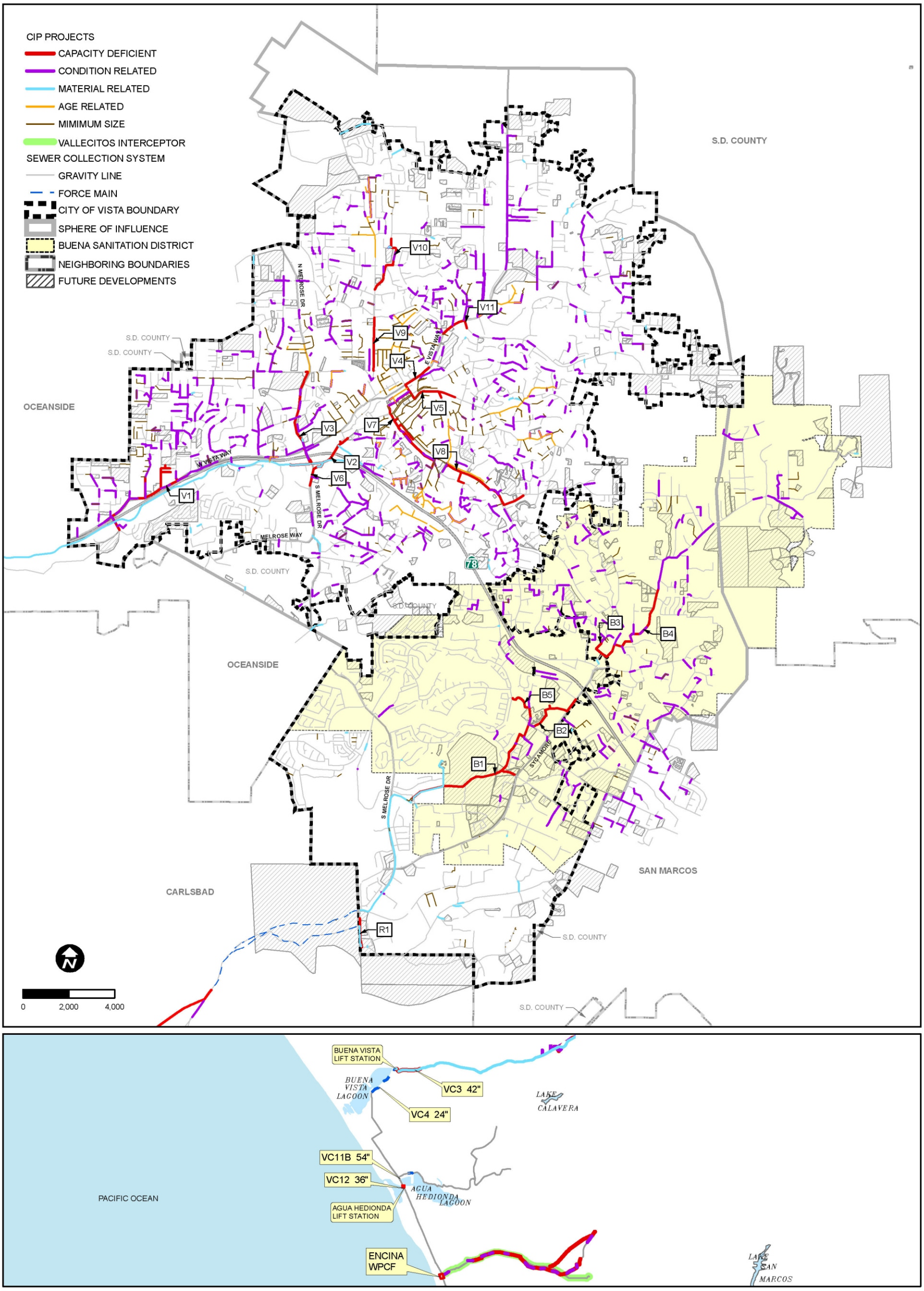
The timing for construction of individual project of the proposed program is varied.



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - NOP

Regional Map

FIGURE 1



SOURCE: CITY OF VISTA

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - NOP

Project Compoments

FIGURE 2

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
South Coast Region
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201

October 11, 2007

Mrs. Elaine Blackburn
City of Vista
600 Eucalyptus Ave
Vista, CA 92084

Comments on the Notice of Preparation of a Draft Environmental Impact Report for the City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update

Dear Mrs. Elaine Blackburn:

The Department of Fish and Game (Department) has reviewed the above-referenced Notice of Preparation (NOP) for the City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update dated September 14, 2007. The Department has identified potential effects of this project on wildlife and sensitive habitats. The comments provided herein are based on the information provided in the NOP, our knowledge of sensitive and declining vegetation communities, and our participation in regional conservation planning efforts.

The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act, Sections 15386 and 15381, respectively. The Department is responsible for the conservation, protection, and management of the state's biological resources, including rare, threatened, and endangered plant and animal species, pursuant to the California Endangered Species Act and other sections of the Fish and Game Code. The Department also administers the Natural Community Conservation Planning Program (NCCP) in which the City of Vista (City) is currently participating in through the preparation of a Multiple Habitat Conservation Program (MHCP) draft Subarea Plan (SAP).

The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the project (CEQA Guidelines Section 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines Section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code Section 2050 et seq.) and Fish and Game Code Section 1600 et seq.

The proposed project is a Capital Improvement Program that combines a programmatic and project level Environmental Impact Report. The project area is located in the northern part of San Diego County within the Cities of Vista, Oceanside, Carlsbad, San Marcos, and unincorporated portion of the County of San Diego. The City of Vista and Buena Sanitation District provide sewer service for the outlying areas within the Buena Vista Creek drainage basin

as well as portions of the San Luis Rey and Agua Hedionda Creek basins. The project addresses the needs of sewage system replacement related to capacity and condition of the current infrastructure. Approximately 17 miles would be replaced for purposes of capacity rehabilitation and an additional 85.5 miles would be replaced for purposes related to condition rehabilitation. Maintenance locations (manholes) for the updated sewage system would be similar to existing locations.

Issue areas in the DEIR that may be influenced by the SAP and its Implementing Agreement include Land Use, Landform Alteration/Visual Quality, Traffic/Circulation, Biological Resources, Drainage/Urban Runoff/Water Quality, Noise, and Cumulative Effects. In addition, the environmental document should describe why the proposed project, irrespective of other alternatives to the project, is consistent with and appropriate in the context of the SAP.

The Department offers the following general comments and recommendations to assist the County in avoiding, minimizing, and adequately mitigating project-related impacts to biological resources and to ensure that the project is consistent with all applicable environmental requirements.

1. The Department has responsibility for wetland and riparian habitats. It is the policy of the Department to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion which would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include but are not limited to conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations. Mitigation measures to compensate for impacts to mature riparian corridors must be included in the DEIR and must compensate for the loss of function and value of a wildlife corridor.

   a) The project area supports aquatic, riparian, and wetland habitats; therefore, a jurisdictional delineation of the creeks and their associated riparian habitats should be included in the DEIR. The delineation should be conducted pursuant to the U. S. Fish and Wildlife Service wetland definition adopted by the Department.[1] Please note that some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

   b) Unless the proposed project avoids (*e.g.*, spans the riparian corridor), it will require a Streambed Alteration Agreement (SAA), pursuant to Section 1600 et seq. of the Fish and

[1] Cowardin, Lewis M., et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

Game Code, prior to the commencement of any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or use material from a streambed. The Department's issuance of a SAA for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department as a responsible agency under CEQA may consider the local jurisdiction's (lead agency) Negative Declaration or Environmental Impact Report for the project. To minimize additional requirements by the Department pursuant to Section 1600 et *seq.* and/or under CEQA, the document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the SAA.[2]

2. A California Endangered Species Act (CESA) Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA, either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of a 2081 permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a 2081 permit. For these reasons, the following information is requested:

   a) Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.

   b) Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

3. To enable the Department to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish and wildlife, we recommend the following information be included in the DEIR.

   a) A complete discussion of the purpose and need for, and description of, the proposed project, including all staging areas and access routes to the construction and staging areas.

   b) A range of feasible alternatives to ensure that alternatives to the proposed project are fully considered and evaluated; the alternatives should which avoid or otherwise minimize impacts to sensitive biological resources particularly wetlands (as the proposed project would result in significant impacts to wetland/riparian habitat within Lemon Creek).

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[2] A notification package for a SAA may be obtained by writing to: Department of Fish and Game, 4949 Viewridge Avenue, San Diego, CA 92123, by calling (858) 636-3160, or by accessing the Department's web site at www.dfg.ca.gov/1600 .

Specific alternative locations should be evaluated in areas with lower resource sensitivity where appropriate.

Biological Resources within the Project's Area of Potential Effect

4. To provide a complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, sensitive, and locally unique species and sensitive habitats. The DEIR should include the following information.

   a) Per CEQA Guidelines, § 15125(c), information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis should be placed on resources that are rare or unique to the region.

   b) A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines (Attachment 1, revised May 2000) for Assessing Impacts to Rare Plants and Rare Natural Communities.

   c) A current inventory of the biological resources associated with each habitat type on site and within the area of potential effect. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 322-2493 or www.dfg.ca.gov/biogeodata/ to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

   d) An inventory of rare, threatened, and endangered, and other sensitive species on site and within the area of potential effect. Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines, Section 15380). This should include sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

Analyses of the Potential Project-Related Impacts on the Biological Resources

5. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the DEIR.

   a) A discussion of impacts associated with increased lighting, noise, human activity, changes in drainage patterns, changes in water volume, velocity, and quality, soil erosion, and /or sedimentation in streams and water courses on or near the project site, with mitigation measures proposed to alleviate such impacts should be included.

b) Discussions regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (e.g., preserve lands associated with a Natural Community Conservation Plan). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated and provided. A discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address: project-related changes on drainage patterns on and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site. The discussions should also address the proximity of the extraction activities to the water table, whether dewatering would be necessary, and the potential resulting impacts on the habitat, if any, supported by the groundwater.

c) The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

d) A cumulative effects analysis should be developed as described under CEQA Guidelines, § 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Mitigation for the Project-related Biological Impacts

6. The DEIR should include measures to fully avoid and otherwise protect Rare Natural Communities (Attachment 2) from project-related impacts. The Department considers these communities as threatened habitats having both regional and local significance.

7. The DEIR should include mitigation measures for adverse project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

8. For proposed preservation and/or restoration, the DEIR should include measures to perpetually protect the targeted habitat values from direct and indirect negative impacts. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

9. In order to avoid impacts to nesting birds, the DEIR should require that clearing of vegetation, and when biologically warranted construction, occur outside of the peak avian breeding season which generally runs from March 1through September 1 (as early as January for some raptors). If project construction is necessary during the breeding season, a qualified biologist should conduct a survey for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), shall be delineated by temporary fencing, and shall remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project.

10. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful.

11. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

We appreciate the opportunity to comment on the referenced NOP. Questions regarding this letter and further coordination on these issues should be directed to Dan Schrimsher (858) 467-6926.

Sincerely,

Michael J. Mulligan
Deputy Regional Manager

Enclosure(s) 2

- Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities
- Sensitivity of Top Priority Rare Natural Communities in Southern California

cc: U.S. Fish and Wildlife Service (David Zoutendyk)
State Clearinghouse

Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities

State of California
THE RESOURCES AGENCY
Department of Fish and Game
December 9, 1983
Revised May 8, 2000

The following recommendations are intended to help those who [redacted] environmental documents determine when a botanical survey [redacted] considered qualified to conduct such surveys, how field surveys should be conducted, and what information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all rare, threatened, and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare, threatened, and/or endangered under the following definitions:

A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or to the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

a. Natural vegetation occurs on the site, it is unknown if rare, threatened, or endangered plants or habitats occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

a. Experience conducting floristic field surveys;
b. Knowledge of plant taxonomy and plant community ecology;
c. Familiarity with the plants of the area, including rare, threatened, and endangered species;
d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
e. Experience with analyzing impacts of development on native plant species and communities.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project

area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. Floristic in nature. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. In addition, a sufficient number of visits [illegible] during the growing season are necessary to accurately determine what plants exist on the site. In order to properly characterize the site and document the completeness of the survey, a complete list of plants observed on the site should be included in every botanical survey report.

c. Conducted in a manner that is consistent with conservation ethics. Collection [illegible] of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species, should only when such actions would not jeopardize the continued existence of the population [illegible] in accordance with applicable state and federal permit requirements. A collecting permit from the Habitat Conservation Planning Branch of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas.

e. Well documented. When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5 minute topographic map with the occurrence mapped, should be completed and submitted to the Natural Diversity Database. Locations may be best documented using global positioning systems (GPS) and presented in map and digital forms as these tools become more accessible.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations and mitigated negative declarations, Timber Harvesting Plans (THPs), EIR's, and EIS's, and should contain the following information:

a. Project description, including a detailed map of the project location and study area.
b. A written description of biological setting referencing the community nomenclature used and a vegetation map.
c. Detailed description of survey methodology.
d. Dates of field surveys and total person-hours spent on field surveys.
e. Results of field survey including detailed maps and specific location data for each plant population found. Investigators are encouraged to provide GPS data and maps documenting population boundaries.
f. An assessment of potential impacts. This should include a map showing the distribution of plants in relation to proposed activities.
g. Discussion of the significance of rare, threatened, or endangered plant populations in the project area considering nearby populations and total species distribution.
h. Recommended measures to avoid impacts.
i. A list of all plants observed on the project area. Plants should be identified to the taxonomic level necessary to determine whether or not they are rare, threatened or endangered.
j. Description of reference site(s) visited and phenological development of rare, threatened, or endangered plant(s).
k. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
l. Name of field investigator(s).
m. References cited, persons contacted, herbaria visited, and the location of voucher specimens.

Sensitivity of Top Priority Rare Natural Communities in Southern California

Sensitivity rankings are determined by the Department of Fish and Game, California Natural Diversity Data Base and based on either number of known occurrences (locations) and/or amount of habitat remaining (acreage). The three rankings used for these top priority rare natural communities are as follows:

S1.# Fewer than 6 known locations and/or on fewer than 2,000 acres of habitat remaining.

S2.# Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining.

S3.# Occurs in 21-100 known locations and/or 10,000-50,000 acres [illegible]

The number to the right of the decimal point after the ranking refers to the [illegible] natural community regardless of the ranking. For example:

S1.1 = very threatened
S2.2 = threatened
S3.3 = no current threats known

Sensitivity Rankings (February 1992)

Rank	Community Name
S1.1	Mojave Riparian Forest
	Sonoran Cottonwood Willow Riparian
	Mesquite Bosque
	Elephant Tree Woodland
	Crucifixion Thorn Woodland
	Allthorn Woodland
	Arizonan Woodland
	Southern California Walnut Forest
	Mainland Cherry Forest
	Southern Bishop Pine Forest
	Torrey Pine Forest
	Desert Mountain White Fir Forest
	Southern Dune Scrub
	Southern Coastal Bluff Scrub
	Maritime Succulent Scrub
	Riversidean Alluvial Fan Sage Scrub
	Southern Maritime Chaparral
	Valley Needlegrass Grassland
	Great Basin Grassland
	Mojave Desert Grassland
	Pebble Plains
	Southern Sedge Bog
	Cismontane Alkali Marsh
S1.2	Southern Foredunes
	Mono Pumice Flat
	Southern Interior Basalt Flow Vernal Pool

S2.1

Venturan Coastal Sage Scrub
Diegan Coastal Sage Scrub
Riversidean Upland Coastal Sage Scrub
Riversidean Alluvial Fan Sage Scrub
Sagebrush Steppe
Desert Sink Scrub
Mafic Southern Mixed Chaparral
San Diego Mesa Hardpan Vernal Pool
San Diego Mesa Claypan Vernal Pool
Alkali Meadow
Southern Coastal Salt Marsh
Coastal Brackish Marsh
Transmontane Alkali Marsh
Coastal and Valley Freshwater Marsh
Southern Arroyo Willow Riparian Forest
Southern Willow Scrub
Modoc-Great Basin Cottonwood Willow Riparian
Modoc-Great Basin Riparian Scrub
Mojave Desert Wash Scrub
Engelmann Oak Woodland
Open Engelmann Oak Woodland
Closed Engelmann Oak Woodland
Island Oak Woodland
California Walnut Woodland
Island Ironwood Forest
Island Cherry Forest
Southern Interior Cypress Forest
Bigcone Spruce-Canyon Oak Forest

S2.2

Active Coastal Dunes
Active Desert Dunes
Stabilized and Partially Stabilized Desert Dunes
Stabilized and Partially Stabilized Desert Sandfield
Mojave Mixed Steppe
Transmontane Freshwater Marsh
Coulter Pine Forest
Southern California Fellfield
White Mountains Fellfield

S2.3

Bristlecone Pine Forest
Limber Pine Forest

Linda S. Adams
Secretary for
Environmental Protection

Department of Toxic Substances Control

Maureen F. Gorsen, Director
5796 Corporate Avenue
Cypress, California 90630

Arnold Schwarzenegger
Governor

October 5, 2007

Ms. Elaine Blackburn
City of Vista
Planning Department
600 Eucalyptus Avenue
Vista, California 92084

NOTICE OF PREPARATION (NOP) FOR CITY OF VISTA AND BUENA SANITATION DISTRICT 2007 SEWER MASTER PLAN UPDATE PROJECT (SCH# 2007091072)

Dear Ms. Blackburn:

The Department of Toxic Substances Control (DTSC) has received your submitted document for the above-mentioned project. As stated in your document: "In order to minimize the potential for system overflows and interruptions associated with structurally unsound elements of the existing sewer system, the 2007 Master Plan Update identifies a combination of capacity replacement and non-capacity related-rehabilitation and replacement projects that constitute the updated Capital Improvement Program (CIP). Capacity restoration would be provided through installation of larger replacement pipes, and by reducing extraneous defect flows. Rehabilitation and replacement projects include projects related to age, material, minimum size, and condition of the existing system. Non-capacity –related rehabilitation pipeline projects entail increased operations and maintenance to improve the system and/or replacement of pipelines."

Based on the review of the submitted document DTSC has the following comments:

1) The EIR should identify and determine whether current or historic uses at the project site may have resulted in any release of hazardous wastes/substances.

2) The EIR should identify any known or potentially contaminated sites within the proposed project area. For all identified sites, the EIR should evaluate whether conditions at the site may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:

   - National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).

- Site Mitigation Program Property Database (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control.

- Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.

- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.

- Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.

- Leaking Underground Storage Tanks (LUST) / Spills, Leaks, Investigations and Cleanups (SLIC): A list that is maintained by Regional Water Quality Control Boards.

- Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.

- The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

3) The EIR should identify the mechanism to initiate any required investigation and/or remediation for any site that may be contaminated, and the government agency to provide appropriate regulatory oversight. If hazardous materials or wastes were stored at the site, an environmental assessment should be conducted to determine if a release has occurred. If so, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. It may be necessary to determine if an expedited response action is required to reduce existing or potential threats to public health or the environment. If no immediate threat exists, the final remedy should be implemented in compliance with state laws, regulations and policies.

4) All environmental investigations, sampling and/or remediation for the site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found should be clearly summarized in a table.

5) Proper investigation, sampling and remedial actions overseen by the respective regulatory agencies, if necessary, should be conducted at the site prior to the new development or any construction. All closure, certification or remediation approval reports by these agencies should be included in the EIR.

6) If any property adjacent to the project site is contaminated with hazardous chemicals, and if the proposed project is within 2,000 feet from a contaminated site, then the proposed development may fall within the "Border Zone of a Contaminated Property." Appropriate precautions should be taken prior to construction if the proposed project is within a Border Zone Property.

7) If buildings or other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should be conducted for the presence of other related hazardous chemicals, lead-based paints or products, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.

8) The project construction may require soil excavation and soil filling in certain areas. Appropriate sampling is required prior to disposal of the excavated soil. If the soil is contaminated, properly dispose of it rather than placing it in another location. Land Disposal Restrictions (LDRs) may be applicable to these soils. Also, if the project proposes to import soil to backfill the areas excavated, proper sampling should be conducted to make sure that the imported soil is free of contamination.

9) Human health and the environment of sensitive receptors should be protected during the construction or demolition activities. A study of the site overseen by the appropriate government agency might have to be conducted to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.

10) If during construction/demolition of the project, soil and/or groundwater contamination is suspected, construction/demolition in the area should cease and appropriate health and safety procedures should be implemented. If it is determined that contaminated soil and/or groundwater exist, the EIR should identify how any required investigation and/or remediation will be conducted, and the appropriate government agency to provide regulatory oversight.

11) If the site was used for agricultural or related activities, onsite soils and groundwater might contain pesticides, agricultural chemical, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approved by a government agency at the site prior to construction of the project.

12) If weed abatement occurred, onsite soils may contain herbicide residue. If so, proper investigation and remedial actions, if necessary, should be conducted at the site prior to construction of the project.

13) Envirostor (formerly CalSites) is a database primarily used by the California Department of Toxic Substances Control, and is accessible through DTSC's website. DTSC can provide guidance for cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489 for the VCA.

If you have any questions regarding this letter, please contact Ms. Eileen Khachatourians, Project Manager, at (714) 484-5349.

Sincerely,

Greg Holmes
Unit Chief
Southern California Cleanup Operations Branch - Cypress Office

cc: See next page

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044

Mr. Guenther W. Moskat, Chief
Planning and Environmental Analysis Section
CEQA Tracking Center
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

CEQA # 1858

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

Notice of Preparation

September 14, 2007

To: Reviewing Agencies

Re: City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update
SCH# 2007091072

Attached for your review and comment is the Notice of Preparation (NOP) for the City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Elaine Blackburn
City of Vista
600 Eucalyptus Avenue
Vista, CA 92084

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2007091072
Project Title City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update
Lead Agency Vista, City of

Type NOP Notice of Preparation

Description The purpose of the 2007 Master Plan Update is to update and identify a replacement prioritized Capital Improvement Program (CIP) that addresses the capacity and condition related improvement projects necessary to ensure safe and reliable operation of the existing sewer system. The CIP recommends improvement projects over a 20-year planning period.

Lead Agency Contact

Name Elaine Blackburn
Agency City of Vista
Phone 760-726-1340 ext 1268 **Fax** 760-639-6101
email eblackburn@cityofvista.com
Address 600 Eucalyptus Avenue
City Vista **State** CA **Zip** 92084

Project Location

County San Diego
City Vista, Oceanside, Carlsbad, San Marcos
Region
Cross Streets
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways Hwy 78
Airports
Railways
Waterways
Schools
Land Use

Project Issues

Reviewing Agencies Resources Agency; Department of Conservation; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 5; Department of Health Services; Native American Heritage Commission; Caltrans, District 11; Integrated Waste Management Board; State Water Resources Control Board, Division of Loans and Grants; State Water Resources Control Board, Division of Water Rights; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 9

Date Received 09/14/2007 **Start of Review** 09/14/2007 **End of Review** 10/15/2007

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: SAN DIEGO

SCH# 2007071072

Resources Agency

- [■] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  David Johnson
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [ ] **Dept. of Conservation**
  Sharon Howell
- [ ] **California Energy Commission**
  Paul Richins
- [ ] **Cal Fire**
  Allen Robertson
- [ ] **Office of Historic Preservation**
  Wayne Donaldson
- [■] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **Reclamation Board**
  DeeDee Jones
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [ ] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou
- [ ] _____
  Conservancy

Fish and Game

- [ ] **Depart. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Game Region 1**
  Donald Koch
- [ ] **Fish & Game Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Game Region 2**
  Banky Curtis
- [ ] **Fish & Game Region 3**
  Robert Floerke
- [ ] **Fish & Game Region 4**
  Julie Vance
- [■] **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- [ ] **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M**
  Gabrina Gatchel
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Robert Sleppy
  Environmental Services Section
- [ ] **Dept. of Health Services**
  Veronica Malloy
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Debby Eddy
- [ ] **Office of Emergency Services**
  Dennis Castrillo
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse
- [■] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Ken Lewis
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Jean Sarino
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- [ ] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [ ] **Caltrans - Planning**
  Terri Pencovic
- [ ] **California Highway Patrol**
  Shirley Kelly
  Office of Special Projects
- [ ] **Housing & Community Development**
  Lisa Nichols
  Housing Policy Division

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Jeff Pulverman
- [ ] **Caltrans, District 4**
  Tim Sable
- [ ] **Caltrans, District 5**
  David Murray
- [ ] **Caltrans, District 6**
  Marc Birnbaum
- [ ] **Caltrans, District 7**
  Cheryl J. Powell
- [ ] **Caltrans, District 8**
  Dan Kopulsky
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [■] **Caltrans, District 11**
  Mario Orso
- [ ] **Caltrans, District 12**
  Ryan P. Chamberlain

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
  - [ ] Transportation Projects
    Ravi Ramalingam
  - [ ] Industrial Projects
    Mike Tollstrup
- [■] **California Integrated Waste Management Board**
  Sue O'Leary
- [■] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [■] **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- [■] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [■] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____

Last Updated on 09/11/07

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
www.nahc.ca.gov
ds_nahc@pacbell.net

September 24, 2007

Ms. Elaine Blackburn
City of Vista
600 Eucalyptus Avenue
Vista, CA 92084

Re: SCH#2007091072; CEQA Notice of Preparation (NOP) draft Environmental Impact Report (DEIR) for City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update; San Diego County, California

Dear Ms. Blackburn:

Thank you for the opportunity to comment on the above-referenced document. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR per CEQA guidelines § 15064.5(b)(c). In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE),' and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS). Contact information for the 'Information Center' nearest you is available from the State Office of Historic Preservation in Sacramento (916/653-7278). The record search will determine:

- If a part or the entire (APE) has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

√ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

√ Contact the Native American Heritage Commission (NAHC) for:

- A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity who may have information on cultural resources in or near the APE. Please provide us site identification as follows: USGS 7.5-minute quadrangle citation with name, township, range and section. This will assist us with the SLF.
- Also, we recommend that you contact the Native American contacts on the attached list to get their input on the effect of potential project (e.g. APE) impact. In many cases a culturally-affiliated Native American tribe or person will be the only source of information about the existence of a cultural resource.

√ Lack of surface evidence of archeological resources does not preclude their subsurface existence.

- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigations plans.

- CEQA Guidelines §15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the Initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American groups, identified by the NAHE, to ensure the appropriate and dignified treatmentof Native American human remains and any associated grave goods.
- Health and Safety Code §7050.5, Public Resources Code §5097.98 and CEQA Guidelines §15064.5(d) mandate procedures to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

√ Lead agencies should consider avoidance, as defined in CEQA Guidelines §15370 when significant cultura resources are discovered during the course of project planning or execution.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contact List

Native American Contacts
San Diego County
September 24, 2007

Pala Band of Mission Indians
Robert H. Smith, Chairperson
12196 Pala Mission Road, PMB 50 Luiseno
Pala , CA 92059 Cupeno
(760) 891-3500
(760) 742-1411 Fax

Pauma & Yuima
Christobal C. Devers, Chairperson
P.O. Box 369 Luiseno
Pauma Valley , CA 92061
paumareservation@aol.com
(760) 742-1289
(760) 742-3422 Fax

Rincon Band of Mission Indians
Angela Veltrano, Rincon Culture Committee
P.O. Box 68 Luiseno
Valley Center , CA 92082
council@rincontribe.org
(760) 749-1051
(760) 749-8901 Fax

San Luis Rey Band of Mission Indians
Russell Romo, Chairman
12064 Old Pomerado Road Luiseno
Poway , CA 92064
(858) 748-1586

San Luis Rey Band of Mission Indians
Carmen Mojado, Co-Chair
1889 Sunset Drive Luiseno
Vista , CA 92081
(760) 724-8505

San Luis Rey Band of Mission Indians
Mark Mojado, Cultural Resources
1889 Sunset Drive Luiseno
Vista , CA 92081 Cupeno
(760) 724-8505
(760) 586-4858 (cell)

Cupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
35008 Pala-Temecula Rd.PMB Box 445 Luiseno
Pala , CA 92059
cupa@palatribe.com
(760) 742-1590
(760) 742-4543 - FAX

La Jolla Band of Mission Indians
ATTN: Rob Roy,Environmental Director
22000 Highway 76 Luiseno
Pauma Valley , CA 92061
lajolla-sherry@aol.com and
(760) 742-3790
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This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American with regard to cultural resources for the proposed SCH#2007091072; CEQA Notice of Preparation (NOP) draft Environmental Impact Report (DEIR) for City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update; San Diego County, California.

Native American Contacts
San Diego County
September 24, 2007

Charles Devers, Chair
Cultural Committee; Pauma & Yuima Reservation
P.O. Box 369 Luiseno
Pauma Valley , CA 92061
(760) 742-1289
(760) 742-4543 FAX

This list is current only as of the date of this document.

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This list is only applicable for contacting local Native American with regard to cultural resources for the proposed SCH#2007091072; CEQA Notice of Preparation (NOP) draft Environmental Impact Report (DEIR) for City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update; San Diego County, California.

APPENDIX B

Cultural Resources Impact Table and Cultural Resources Evaluation Report

The following provides a list of project components resulting in potential impacts to historical and archaeological resources. This list is adopted from *Table 4.0-1, Pipeline ID in Archaeolgocial Site Vicinities,* as presented in the Cultural Resources Evaluation.

Cultural Resources Impact Table

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B01	B01070.00-B01071.00		x	SDI-5779		x
B01	B01111.A0-B01111.B0		x	SDI-5785H	x	
B01	B01076.00-B01079.00		x	SDI-5787H		x
B01	B01074.00-B01075.00	x		SDI-5787H		x
B01	B01070.00-B01071.00		x	SDI-5787H		x
B01	B01108.00-B01109.00		x	SDI-5787H		x
B01	B01118.00-B01119.00		x	SDI-5792		x
B01	B01017.00-B01018.00		x	SDI-5792		x
B01	B01111.A0-B01111.B0		x	SDI-5792		x
B01	B01016.00-B01017.00		x	SDI-5792		x
B01	B01015.00-B01016.00		x	SDI-5792		x
B01	B01076.00-B01079.00		x	SDI-5792		x
B01	B01074.00-B01075.00		x	SDI-5792		x
B01	B01118.00-B01119.00		x	SDI-5792		x
B01	B01070.00-B01071.00		x	SDI-5792		x
B01	B01117.00-B01118.00		x	SDI-5792		x
B01	B01031.E0-B01031.F0	x		SDI-5792		x
B01	B01108.00-B01109.00		x	SDI-5792		x
B01	B01037.00-B01038.00		x	SDI-5792		x
B01	B01036.00-B01037.00		x	SDI-5792		x
B01	B01035.00-B01036.00	x		SDI-5792		x
B01	B01034.00-B01035.00	x		SDI-5792		x
B01	B01032.00-B01033.00	x		SDI-5792		x
B01	B01028.00-B01030.00		x	SDI-5792		x
B01	B01013.00-B01014.00		x	SDI-5792		x
B01	B01011.00-B01013.00		x	SDI-5792		x
B01	B01009.00-B01010.00	x		SDI-5792		x
B01	B01113.B0-B01113.C0		x	SDI-5792		x
B01	B01007.00-B01010.00	x		SDI-5792		x
B01	B01006.00-B01007.00	x		SDI-5792		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B01	B01005.00-B01006.00		x	SDI-5792		x
B01	B01003.00-B01004.00		x	SDI-5792		x
B01	B01001.00-B01003.00		x	SDI-5792		x
B01	B01028.00-B01030.00		x	SDI-8091	x	
B01	B01031.E0-B01031.F0	x		SDI-8092	x	
B01	B01032.00-B01033.00		x	SDI-8092	x	
B01	B01118.00-B01119.00	x		SDI-8735		x
B01	B01117.00-B01118.00		x	SDI-8735		x
B01	B01108.00-B01109.00		x	SDI-8735		x
B01	B01113.B0-B01113.C0		x	SDI-8735		x
B01	B01118.00-B01119.00		x	SDI-9582		x
B01	B01117.00-B01118.00		x	SDI-9582		x
B01-A-30	B01115.00-B01116.00	x		SDI-5792		x
B01-A-30	B01115.00-B01116.00		x	SDI-8735		x
B01-A-33	B01120.00-B01121.00		x	SDI-5792		x
B01-A-33	B01120.00-B01121.00		x	SDI-8735		x
B01-A-33	B01120.00-B01121.00	x		SDI-9582		x
B01-A-35	B01122.00-B01123.00		x	SDI-5791H	x	
B01-A-35	B01122.00-B01123.00	x		SDI-5792		x
B01-A-35	B01122.00-B01123.00	x		SDI-9582		x
B02	B02005.00-B02006.00		x	SDI-5792		x
B07/B01-D-1	B01073.00-B01074.00	x		SDI-5787H		x
B07/B01-D-1	B01073.00-B01074.00	x		SDI-5792		x
B08	B08051.00-B08052.00		x	I-401	x	
B08	B08030.00-B08032.00		x	I-401	x	
B08	B08021.00-B08028.00	x		I-402	x	
B08	B08019.00-B08020.00		x	I-402	x	
B08	B08022.00-B08024.00	x		I-402	x	
B08	B08030.00-B08032.00	x		I-402	x	
B08	B08013.00-B08014.00		x	I-403	x	
B08	B08043.00-B08048.00		x	P-018224		x
B08	B08051.00-B08052.00	x		P-018224		x
B08	B08070.00-B08071.00		x	P-018224		x
B08	B08064.00-B08066.00		x	P-018224		x
B08	B08062.00-B08063.00		x	P-018224		x
B08	B08030.00-B08032.00	x		SDI-12,520 H	x	
B08	B08018.00-B08019.00		x	SDI-12,521	x	
B08	B08018.A0-B08018.B0	x		SDI-12,521	x	
B08	B08011.00-B08012.00		x	SDI-12,521	x	
B08	B08043.00-B08048.00	x		SDI-13,009	x	

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B08	B08051.00-B08052.00	x		SDI-13,009	x	
B09	B09088.00-B09089.00	x		I-402	x	
B12	B12003.W0-B12003.X0		x	P-025154		x
B12	B12030.00-B12031.C0		x	SDI-11,037		x
B14	B14282.00-B14300.00	x		SDI-8250 A		x
B14	B14282.00-B14300.00	x		SDI-8250 B		x
B14	B14301.00-B14302.00	x		SDI-8250 C		x
B14	B14282.00-B14300.00	x		SDI-8250 C		x
B14-A-30	B14298.00-B14299.00	x		SDI-8250 C		x
B15	B15051.00-B15052.00		x	P-024185		x
B15	B15070.00-B15071.00		x	P-024185		x
B15	B15066.00-B15067.00		x	P-024185		x
B15	B15054.00-B15055.00		x	P-024185		x
B15	B15063.00-B15064.00	x		P-024185		x
B15	B15059.00-B15062.00		x	P-024185		x
B15	B15264.00-B15265.00	x		SDI-5634		x
B15	B15270.00-B15278.00	x		SDI-5634		x
B15	B15258.00-B15259.00	x		SDI-5634		x
B15	B15253.00-B15254.00		x	SDI-5634		x
B15	B15247.00-B15251.00		x	SDI-5634		x
B15	B15260.00-B15263.00	x		SDI-5634		x
B15	BTPFM01-BTPFM02	x		SDI-5635		x
B15	BTP001.00-BTP002.00		x	SDI-5637		x
B15	BTPFM01-BTPFM02		x	SDI-5637		x
B15	B15308.00-B15307.00		x	SDI-5779		x
B15	B15306.00-B15305.00		x	SDI-5779		x
B15	B15329.00-B15330.00	x		SDI-5788H		x
B15	B15321.00-B15322.00		x	SDI-5788H		x
B15	B15318.00-B15329.00		x	SDI-5788H		x
B15	B15303.00-B15304.00		x	SDI-5788H		x
B15	B15312.00-B15313.00		x	SDI-5788H		x
B15	B15287.00-B15288.00		x	SDI-5788H		x
B15	B15328.A0-B15328.B0		x	SDI-5788H		x
B15	B15328.E0-B15328.F0		x	SDI-5788H		x
B15	BTPFM01-BTPFM02		x	SDI-5789H, A		x
B15	BTPFM01-BTPFM02		x	SDI-5791H	x	
B15	B15002.00-B15009.00	x		SDI-5792		x
B15	B15329.00-B15330.00		x	SDI-5792		x
B15	B15321.00-B15322.00		x	SDI-5792		x
B15	B15318.00-B15329.00	x		SDI-5792		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B15	B15303.00-B15304.00	x		SDI-5792		x
B15	B15324.00-B15325.00		x	SDI-5792		x
B15	B15314.00-B15315.00		x	SDI-5792		x
B15	B15312.00-B15313.00		x	SDI-5792		x
B15	B15308.00-B15307.00		x	SDI-5792		x
B15	B15306.00-B15305.00	x		SDI-5792		x
B15	B15297.00-B15298.00		x	SDI-5792		x
B15	B15287.00-B15288.00	x		SDI-5792		x
B15	B15285.00-B15286.00		x	SDI-5792		x
B15	B15241.00-B15242.00	x		SDI-5792		x
B15	B15045.00-B15050.00		x	SDI-5792		x
B15	B15328.A0-B15328.B0	x		SDI-5792		x
B15	B15328.E0-B15328.F0	x		SDI-5792		x
B15	B15010.B0-B15010.C0	x		SDI-5792		x
B15	B15001.B0-B15001.C0	x		SDI-5792		x
B15	B15070.00-B15071.00		x	SDI-5792		x
B15	B15010.00-B15011.00	x		SDI-5792		x
B15	B15004.00-B15005.00		x	SDI-5792		x
B15	B15001.00-B15002.00	x		SDI-5792		x
B15	BTPFM01-BTPFM02	x		SDI-5792		x
B15	BTPFM01-BTPFM02	x		SDI-8347	x	
B15	B15116.00-B15117.00	x		SDI-9503	x	
B15	B15127.00-B15128.00		x	SDI-9503	x	
B15	B15114.00-B15127.00	x		SDI-9503	x	
B15/V33-D-1	V33137.00-V33140.00			SDI-5779		x
B15/V33-D-1	V33142.00-V33143.00	x		SDI-5779		x
B15/V33-D-1	V33136.00-V33137.00		x	SDI-5790H		x
B15/V33-D-1	V33136.00-V33137.00	x		SDI-5792		x
B15-A-3	B15109.00-B15110.00		x	SDI-5792		x
B15-A-4	B15110.00-B15111.00		x	SDI-5792		x
B15-A-5	B15111.00-B15112.00	x		SDI-5792		x
B15-A-9	B15238.00-B15239.00		x	SDI-5792		x
OV2	OV2025.A0-OV2025.B0	x		SDI-637	x	
OV5	OV5037.00-OV5039.00		x	P-024949		x
OV5	OV5151.00-OV5152.00		x	SDI-13,182		x
OV5	OV5149.00-OV5150.00		x	SDI-13,182		x
OV5	OV5080.00-OV5081.00		x	SDI-14,730H		x
OV5	OV5149.00-OV5150.00	x		SDI-5992		x
OV5	OV5124.00-OV5125.00		x	SDI-6091	x	
OV5	OV5132.00-OV5133.00	x		SDI-6091	x	

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
OV5	OV5143.00-OV5144.00	x		SDI-8241	x	
OV5	OV5141.00-OV5142.00		x	SDI-8241	x	
V01	V01005.00-V01006.00		x	P-025143		x
V01	V01021.B0-V01021.C0		x	P-025143		x
V01	V01021.00-V01022.00		x	P-025143		x
V02	V02091.00-V02092.00		x	P-025144		x
V02	V02085.00-V02097.00	x		P-025144		x
V02	V02095.00-V02096.00		x	P-025144		x
V02	V02082.00-V02083.A0		x	P-025144		x
V02	V02082.00-V02083.A0		x	P-025145		x
V02	V02082.00-V02083.A0		x	P-025146		x
V02	V02082.00-V02083.A0		x	P-025147		x
V02	V02082.00-V02083.A0		x	P-025148		x
V02-D-2	V02080.00-V02081.00		x	P-025144		x
V03	V03166.00-V03167.00	x		P-025145		x
V03	V03164.00-V03165.00		x	P-025145		x
V03	V03154.00-V03155.00		x	P-025145		x
V03	V03166.00-V03167.00	x		P-025146		x
V03	V03164.00-V03165.00		x	P-025146		x
V03	V03166.00-V03167.00	x		P-025147		x
V03	V03164.00-V03165.00		x	P-025147		x
V03	V03185.G0-V03185.00		x	P-025148		x
V03	V03180.00-V03181.00	x		P-025149		x
V03	V03174.A0-V03174.B0		x	P-025150		x
V03	V03185.B0-V03185.D0		x	P-025150		x
V03	V03180.00-V03181.00	x		P-025150		x
V03-A-10	V03172.00-V03173.00		x	P-025149		x
V03-A-10	V03172.00-V03173.00		x	P-025150		x
V03-A-10	V03172.00-V03173.00	x		SDI-8246	x	
V03-A-13	V03175.00-V03176.00		x	P-025149		x
V03-A-13	V03175.00-V03176.00		x	P-025150		x
V03-A-13	V03175.00-V03176.00	x		SDI-16,502	x	
V03-A-13	V03175.00-V03176.00	x		SDI-639	x	
V03-A-19	V03183.00-V03184.00		x	P-025148		x
V03-A-19	V03183.00-V03184.00		x	P-025149		x
V03-A-19	V03183.00-V03184.00		x	P-025150		x
V03-A-82	V03166.B0-V03166.00		x	P-025145		x
V03-A-82	V03166.B0-V03166.00		x	P-025146		x
V03-A-82	V03166.B0-V03166.00		x	P-025147		x
V03-A-82	V03166.B0-V03166.00		x	P-025148		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V04	V04080.00-V04081.00		x	P-025151		x
V04	V04076.00-V04077.00		x	P-025151		x
V04	V04071.00-V04072.00		x	P-025151		x
V04	V04020.00-V04021.00		x	P-025152		x
V04	V04028.D0-V04028.00	x		P-025153		x
V04	V04028.D0-V04028.00		x	P-025154		x
V04-A-30	V04019.00-V04023.00	x		P-025152		x
V04-A-49	V04068.00-V04069.00		x	P-025151		x
V05	V05088.00-V05092.00		x	P-025154		x
V05-A-25	V05098.00-V05099.00		x	P-025153		x
V05-A-52	V05100.00-V05101.00		x	P-025154		x
V06-A-14	V06008.00-V06009.00		x	SDI-645	x	
V08	V08072.C0-V08072.A0	x		SDI-14,324H		x
V08	V08072.CB-V08072.CD	x		SDI-14,324H		x
V09	V09035.00-V09046.00		x	SDI-14,323H		x
V10	V10010.00-V10011.00		x	SDI-5345	x	
V10	V10020.00-V10021.00		x	SDI-5345	x	
V11	V11004.00-V11005.00		x	SDI-11,630	x	
V12	V12064.00-V12065.00		x	SDI-650	x	
V12	V12045.A0-V12045.B0	x		SDI-652	x	
V12	V12019.00-V12020.00		x	SDI-653	x	
V12-A-23	V12051.00-V12053.00		x	SDI-651		x
V13	V13040.00-V13041.00		x	SDI-651		x
V13-B-34	V13011.00-V13013.00		x	SDI-652	x	
V13-B-38	V13043.00-V13044.00		x	SDI-651		x
V14	V14103.C0-V14103.D0	x		SDI-654	x	
V14	V14103.D0-V14103.00	x		SDI-654	x	
V15-A-6	V15111.00-V15112.00		x	SDI-653	x	
V15-A-7	V15112.00-V16050.00		x	SDI-653	x	
V16	V16042.00-V16043.00	x		SDI-17,786		x
V16	V16043.00-V16044.00	x		SDI-17,786		x
V16	V16042.00-V16043.00		x	SDI-655	x	
V17-A-20	V17057.00-V17058.00		x	SDI-656	x	
V17-A-20	V17057.00-V17058.00		x	SDI-657	x	
V18-A-11	V18011.00-V18012.00		x	SDI-658	x	
V19-A-19	V19026.00-V19027.00		x	SDI-659	x	
V19-B-10	V19114.00-V19115.00		x	SDI-17,779		x
V20	V20007.00-V20013.00	x		SDI-660		x
V20	V20001.00-V20002.00	x		SDI-660		x
V20-A-2	V20014.00-V20015.00		x	SDI-660		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V21	V21188.B0-V21188.C0	x		SDI-648	x	
V21	V21188.B0-V21188.C0	x		SDI-649	x	
V21	V16050.00-V21192.00		x	SDI-653	x	
V21	V21045.00-V21058.00		x	SDI-661	x	
V21	V21056.00-V21057.00		x	SDI-661	x	
V21/V22-D-1	V22148.00-V22149.00		x	SDI-650	x	
V22	V22123.00-V22124.00		x	SDI-647	x	
V22-A-7	V22128.00-V22129.00	x		SDI-647	x	
V25-A-12	V25050.00-V25051.00		x	SDI-5785H	x	
V28	V28095.00-V28097.00	x		SDI-646	x	
V28-B-10	V28144.00-V28145.00		x	SDI-646	x	
V29	V29043.B0-V29043.C0		x	SDI-646	x	
V30	V30048.00-V30049.00	x		SDI-11,629	x	
V30	V30050.B0-V30050.C0	x		SDI-11,629	x	
V30	V30044.00-V30050.00	x		SDI-11,629	x	
V30	V30051.A0-V30051.B0	x		SDI-11,629	x	
V32	V32006.00-V32007.00		x	P-025154		x
V32	V32114.00-V32115.00		x	SDI-638 A		x
V32	V32120.00-V32121.00	x		SDI-638 B		x
V32	V32021.00-V32022.00	x		SDI-643	x	
V32	V32019.00-V32020.00	x		SDI-643	x	
V32	V32018.00-V32020.00	x		SDI-643	x	
V32	V32029.00-V32030.00		x	SDI-644	x	
V32	V32002.00-V32003.00		x	SDI-644	x	
V32-A-8	V32118.00-V32119.00	x		SDI-638 B		x
V32T	V32T060.00-V32T059.00		x	P-025143		x
V32T	V32T059.00-V32T058.00		x	P-025143		x
V32T	V32T065.00-V32T064.00		x	P-025144		x
V32T	V32T064.00-V32T063.00		x	P-025144		x
V32T	V32T067.00-V32T066.00		x	P-025145		x
V32T	V32T066.00-V32T065.00		x	P-025145		x
V32T	V32T067.00-V32T066.00	x		P-025148		x
V32T	V32T073.00-V32T072.00		x	P-025149		x
V32T	V32T069.00-V32T068.00		x	P-025149		x
V32T	V32T082.00-V32T081.00		x	P-025152		x
V32T	V32T083.00-V32T083.A0		x	P-025153		x
V32T	V32T082.00-V32T081.00		x	P-025153		x
V32T	V32T083.00-V32T083.A0		x	P-025154		x
V32T	V32T082.00-V32T081.00		x	P-025154		x
V32T	FM		x	SDI-5783H		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V32T	FM		x	SDI-5793		x
V32T	EE		x	SDI-5793		x
V32T	V32T076.00-V32T075.00		x	SDI-640	x	
V32T	V32T076.00-V32T075.00		x	SDI-641	x	
V32T-D-1	V32T084.00-V32T083.00		x	P-025154		x
V33	V33165.00-V33166.00		x	SDI-5635		x
V33	V33163.00-V33164.00	x		SDI-5635		x
V33	V33160.00-V33161.00		x	SDI-5635		x
V33	V33163.00-V33164.00		x	SDI-5636	x	
V33	V33160.00-V33161.00	x		SDI-5636	x	
V33	V33163.00-V33164.00		x	SDI-5637		x
V33	V33160.00-V33161.00		x	SDI-5637		x
V33	V33086.00-V33087.00	x		SDI-5775		x
V33	V33082.00-V33083.00		x	SDI-5775		x
V33	V33010.00-V33011.00		x	SDI-5775		x
V33	V33105.00-V33106.00		x	SDI-5775		x
V33	V33100.00-V33101.00		x	SDI-5775		x
V33	V33099.00-V33102.00	x		SDI-5775		x
V33	V33092.00-V33103.00	x		SDI-5775		x
V33	V33082.00-V33083.00		x	SDI-5776		x
V33	V33013.00-V33118.00		x	SDI-5776		x
V33	V33010.00-V33011.00		x	SDI-5776		x
V33	V33121.00-V33123.00		x	SDI-5776		x
V33	V33107.00-V33108.00		x	SDI-5776		x
V33	V33105.00-V33106.00	x		SDI-5776		x
V33	V33100.00-V33101.00		x	SDI-5776		x
V33	V33099.00-V33102.00		x	SDI-5776		x
V33	V33092.00-V33103.00		x	SDI-5776		x
V33	V33121.00-V33123.00		x	SDI-5777		x
V33	V33109.00-V33110.00		x	SDI-5777		x
V33	V33107.00-V33108.00		x	SDI-5777		x
V33	V33105.00-V33106.00		x	SDI-5777		x
V33	V33100.00-V33101.00		x	SDI-5777		x
V33	V33099.00-V33102.00		x	SDI-5777		x
V33	V33092.00-V33103.00		x	SDI-5777		x
V33	V33130.00-V33131.00		x	SDI-5778 A	x	
V33	V33057.00-V33080.00		x	SDI-5778 A	x	
V33	V33069.C0-V33069.E0		x	SDI-5778 A	x	
V33	V33069.00-V33080.A0		x	SDI-5778 A	x	
V33	V33080.C0-V33080.D0	x		SDI-5778 A	x	

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V33	V33036.00-V33037.00		x	SDI-5778 B	x	
V33	V33144.00-V33146.00		x	SDI-5779		x
V33	V33057.00-V33080.00		x	SDI-5779		x
V33	V33076.00-V33077.00		x	SDI-5779		x
V33	V33069.00-V33080.A0		x	SDI-5779		x
V33	V33149.00-V33150.00		x	SDI-5781H		x
V33	V33148.00-V33149.00	x		SDI-5781H		x
V33	V33146.00-V33148.00		x	SDI-5781H		x
V33	V33169.00-V33171.00		x	SDI-5788H		x
V33	V33165.00-V33166.00	x		SDI-5789H, A		x
V33	EE	x		SDI-5789H, A		x
V33	V33165.00-V33166.00	x		SDI-5789H, B		x
V33	EE	x		SDI-5789H, B		x
V33	EE		x	SDI-5791H	x	
V33	V33169.00-V33171.00		x	SDI-5792		x
V33	V33165.00-V33166.00	x		SDI-5792		x
V33	V33156.00-V33173.00		x	SDI-5792		x
V33	EE	x		SDI-5792		x
V33	V33072.B0-V33072.00		x	SDI-5792		x
V33	V33076.00-V33077.00		x	SDI-5792		x
V33	V33086.00-V33087.00		x	SDI-5793		x
V33	V33082.00-V33083.00	x		SDI-5793		x
V33	V33010.00-V33011.00	x		SDI-5793		x
V33	V33008.00-V33009.00		x	SDI-5793		x
V33	V33006.00-V33007.00	x		SDI-5793		x
V33	V33004.00-V33005.00	x		SDI-5793		x
V33	V33001.00-V33002.00	x		SDI-5793		x
V33	V33105.00-V33106.00		x	SDI-5793		x
V33	V33100.00-V33101.00	x		SDI-5793		x
V33	V33099.00-V33102.00	x		SDI-5793		x
V33	V33092.00-V33103.00	x		SDI-5793		x
V33	V33149.00-V33150.00		x	SDI-7271		x
V33	V33086.00-V33087.00		x	SDI-7273	x	
V33	V33097.00-V33098.00		x	SDI-7273	x	
V33	V33093.00-V33095.00	x		SDI-7273	x	
V33	V33163.00-V33164.00		x	SDI-8347	x	
V33	V33080.B0-V33080.H0		x	SDI-8735		x
V33	V33151.00-V33152.00		x	SDI-9250		x
V34	V34062.C0-V34062.D0		x	SDI-11,038	x	
V34	V34084.00-V34085.00		x	SDI-5783H		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V34	V34078.00-V34079.00		x	SDI-5783H		x
V34	V34100.00-V34101.00		x	SDI-5783H		x
V34	EE		x	SDI-5783H		x
V34	EE	x		SDI-5783H		x
V34	V34027.00-V34028.00		x	SDI-5785H	x	
V34	V34024.00-V34025.00		x	SDI-5785H	x	
V34	V34019.00-V34020.00		x	SDI-5785H	x	
V34	V34017.00-V34018.00	x		SDI-5785H	x	
V34	V34004.00-V34006.00		x	SDI-5785H	x	
V34	EE		x	SDI-5785H	x	
V34	V34012.00-V34013.00		x	SDI-5786H	x	
V34	V34038.00-V34039.00		x	SDI-5787H		x
V34	V34038.00-V34039.00		x	SDI-5792		x
V34	V34084.00-V34085.00		x	SDI-5793		x
V34	V34078.00-V34079.00	x		SDI-5793		x
V34	V34076.00-V34077.00	x		SDI-5793		x
V34	V34070.00-V34071.00		x	SDI-5793		x
V34	V34063.00-V34065.00		x	SDI-5793		x
V34	V34057.00-V34058.00	x		SDI-5793		x
V34	V34105.A0-V34105.00	x		SDI-5793		x
V34	V34105.00-V34106.00	x		SDI-5793		x
V34	V34100.00-V34101.00		x	SDI-5793		x
V34	V34055.00-V34056.00		x	SDI-5793		x
V34	V34052.00-V34053.00		x	SDI-5793		x
V34	V34033.00-V34034.00	x		SDI-5793		x
V34	V34031.00-V34032.00	x		SDI-5793		x
V34	EE	x		SDI-5793		x
V34	EE	x		SDI-5793		x
V34	FM	x		SDI-5793		x
V34	FM	x		SDI-5793		x
V34	V34017.00-V34018.00		x	SDI-6934		x
V34	V34008.00-V34009.00		x	SDI-6934		x
V34	V34007.00-V34008.00	x		SDI-6934		x
V34	V34003.00-V34015.00	x		SDI-6934		x
V34	V34001.00-V34002.00		x	SDI-6934		x
V34	FM		x	SDI-6934		x
V34	EE		x	SDI-6934		x
V34	V34057.00-V34058.00		x	SDI-6935		x
V34	V34052.00-V34053.00	x		SDI-6935		x
V34	V34033.00-V34034.00		x	SDI-6935		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V34	V34031.00-V34032.00	x		SDI-6935		x
V34	V34084.00-V34085.00	x		SDI-9044	x	
V34	V34078.00-V34079.00		x	SDI-9044	x	
V34	V34076.00-V34077.00	x		SDI-9044	x	
V34	EE		x	SDI-9044	x	
V34	FM		x	SDI-9044	x	
V35	V35149.00-V35204.00		x	SDI-10,552		x
V35	V35205.00-V35206.00	x		SDI-10,552		x
V35	V35207.00-V35208.00		x	SDI-10,552		x
V35	V35203.00-V35204.00		x	SDI-10,552		x
V35	V35204.00-V35205.00	x		SDI-10,552		x
V35	V35061.00-V35063.00		x	SDI-10,782 A	x	
V35	V35056.00-V35057.00		x	SDI-10,782 A	x	
V35	V35064.00-V35065.00		x	SDI-10,782 A	x	
V35	V35024.00-V35025.00		x	SDI-10,782 A	x	
V35	V35047.00-V35048.00		x	SDI-10,782 A	x	
V35	V35037.00-V35038.00		x	SDI-10,782 A	x	
V35	V35061.00-V35063.00		x	SDI-10,782 B	x	
V35	V35024.00-V35025.00	x		SDI-10,782 B	x	
V35	V35022.00-V35023.00		x	SDI-10,782 B	x	
V35	V35044.00-V35045.00		x	SDI-10,782 B	x	
V35	V35037.00-V35038.00		x	SDI-10,782 B	x	
V35	V35035.00-V35036.00		x	SDI-10,782 B	x	
V35	V35037.A0-V35037.B0		x	SDI-10,782 B	x	
V35	V35120.00-V35121.00	x		SDI-11,037		x
V35	V35109.00-V35125.00		x	SDI-11,037		x
V35	V35108.00-V35109.00		x	SDI-11,037		x
V35	V35101.00-V35102.00		x	SDI-11,037		x
V35	V35098.00-V35099.00		x	SDI-11,037		x
V35	V35054.00-V35055.00		x	SDI-5792		x
V35	V35087.00-V35088.00		x	SDI-8091	x	
V35	V35120.00-V35121.00		x	SDI-8734		x
V35	V35112.00-V35114.00	x		SDI-8734		x
V35	V35110.00-V35111.00		x	SDI-8734		x
V35	V35109.00-V35125.00		x	SDI-8734		x
V35	V35184.00-V35186.00		x	SDI-8734		x
V35	V35182.00-V35183.00		x	SDI-8734		x
V35	V35126.00-V35144.00		x	SDI-8734		x
V35	V35061.00-V35063.00	x		SDI-8736		x
V35	V35056.00-V35057.00		x	SDI-8736		x

Sub-Basin	DESCRIPTOR	Presence of Recorded Site within 100’	Presence of Recorded Site within 500’	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V35	V35024.00-V35025.00	x		SDI-8736		x
V35	V35047.00-V35048.00		x	SDI-8736		x
V35	V35037.00-V35038.00	x		SDI-8736		x
V35	V35033.00-V35037.00		x	SDI-8736		x
V35	V35037.A0-V35037.B0		x	SDI-8736		x
V35	V35203.00-V35204.00		x	SDI-9042		x
V35	V35202.K0-V35202.L0	x		SDI-9042		x
V35	V35202.I0-V35202.J0		x	SDI-9042		x
V35	V35205.00-V35206.00	x		SDI-9043		x
V35	V35207.00-V35208.00		x	SDI-9043		x
V35	V35204.00-V35205.00		x	SDI-9043		x
V35	V35205.00-V35206.00		x	SDI-9045		x
V35	V35213.00-V35214.00		x	SDI-9045		x
V35	V35211.00-V35212.00		x	SDI-9045		x
V35	V35207.00-V35208.00		x	SDI-9045		x
V35	V35211.00-V35212.00		x	SDI-9047 (I-4)		x
V35	V35213.00-V35214.00		x	SDI-9047 (I-4)		x
V35-A-2	V35089.00-V35091.00		x	SDI-8091	x	

A CULTURAL RESOURCES EVALUATION FOR THE VISTA AND BUENA SANITATION DISTRICT 2007 SEWER MASTER PLAN UPDATE

City of Vista and Buena Sanitation District

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Report Date:	September 27, 2007
Report Title:	A Cultural Resources Evaluation for the Vista and Buena Sanitation District 2007 Sewer Master Plan Update
Prepared for:	Dudek and Associates 605 Third Street Encinitas, California 92024
Submitted to:	City of Vista Planning Department 600 Eucalyptus Avenue Vista, California 92084
USGS Quadrangle:	*San Marcos* and *San Luis Rey*, California
Study Area:	Approximately 275 linear miles
Key Words:	Records search, program level review, mitigation measures, City of Vista, Vista Sanitation District, Buena Sanitation District.

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List of Abbreviations

APE	Area of potential effect	TU	Test Unit
CEQA	California Environmental Quality Act	USGS	United States Geological Survey
CIP	Capital Improvements Project	YBP	Years before present
STP	Shovel Test Pit		

1.0 MANAGEMENT SUMMARY

The following report describes a cultural resources evaluation for the City of Vista and Buena Sanitation District 2007 Sewer Master Plan Update. Part of the Master Plan Update is the proposal for several Capital Improvement Projects (CIP) including both capacity replacement and non-capacity related rehabilitation and replacement projects. As part of the combined programmatic and project level environmental impact report (EIR) prepared for the master plan update, the effect of the proposed CIP projects on cultural resources was addressed. The cultural resources study utilized available archaeological records information of the CIP project corridors to determine where recorded archaeological sites might be impacted by the CIP projects, and to predict where CIP projects in undisturbed settings might encounter unrecorded resources.

The analysis of records searches and project maps has resulted in the listing of 448 pipeline reaches (or segments) that are situated within 500 feet of recorded archaeological sites or within either the Vista or Buena Sanitation Districts. Potential impacts to cultural resources for pipeline reaches, rehabilitations, and improvements will require the implementation of mitigation measures as part of the conditions of approval for these projects. The mitigation measures will require surveys of the pipelines prior to initiation of construction to accurately define the presence of any archaeological materials. Should the survey result in the positive identification of cultural resources within any pipeline reach, subsequent testing programs will be required to determine the importance of the sites under guideline criteria (California Environmental Quality Act [CEQA] 15064.5) and evaluate the significance of any of the impacts to the archaeological sites. Additional mitigation measures would be necessary if important cultural resources could not be avoided by pipeline construction.

2.0 INTRODUCTION

The following report describes a cultural resources evaluation of the proposed sewer and wastewater Master Plan update for the City of Vista and Buena Sanitation District. The city provides sewer service to areas within the Buena Vista Creek drainage basin as well as portions of the San Luis Rey and Agua Hedionda Creek basins. Approximately 190 miles of sewer collection pipes drain the sanitation district westerly via the Vista-Carlsbad Interceptors to the Encina Wastewater Treatment Plant. An additional 85 miles of pipes within the Buena Sewer Collection System serves a large portion of the Agua Hedionda Creek drainage basin that includes areas within Vista and the County of San Diego. The current 2007 Master Plan Update is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001/2003.

In order to comply with CEQA, the cultural resources study for the program-level Master Plan update EIR included an archaeological records search and a data review of the project area to determine the recorded patterns of cultural resources within the sewer district boundaries. From this information, assessments could be made regarding the potential for impacts to cultural resources within the general vicinity of pipelines and facilities. This information also indicated where existing development has precluded the possibility of any cultural resources. No field surveys were conducted for this program-level EIR project.

The CIP projects included in the updated Master Plan represent potential impacts to cultural resources. This finding is based on the data collected regarding recorded resources and undeveloped landforms that may contain archaeological sites. In order to reduce the significance of potential impacts, mitigation measures have been presented in this report. The measures, if implemented, will mitigate impacts to cultural resources to a level below significant. Many of the mitigation measures are phased and correspond to requirements for initial surveys followed by resource testing and significance evaluations if archaeological sites or features are encountered within the project's area of potential effect (APE).

3.0 BACKGROUND INFORMATION

The project area lies generally within the City of Vista and the Highway 78 corridor. This region of northern San Diego County has an extensive record of prehistoric occupation and historic use. The existing setting of the project area is summarized below.

3.1 Environmental Setting

3.1.1 Geology

San Diego County lies in the Peninsular Range Geologic Province of southern California. The mountainous zone, which extends from northwest to southeast through the county, ranges to a maximum height of 6,533 feet above mean sea level (Beauchamp 1986). Foothills and valleys, which comprise the cismontane region, extend west from the mountains. This region typically receives more rainfall than the mesas and less than the mountainous region. Between the foothills and the coast lies the coastal mesa region, which is cut by several large drainages originating in the mountains and foothills. The coast is characterized by large bays and lagoons, where the major rivers empty into the sea, and mesas which terminate at the ocean in the form of bluffs (Beauchamp 1986).

The project area is located in the Coastal Plains Physiographic Province of San Diego County. The habitat in the project vicinity is characterized by rolling hills with limited bedrock exposures and intermittent drainages with lowland valleys that feed into the larger Buena Vista Creek that flows into Buena Vista Lagoon.

3.1.2 Biology

The large area of the project includes numerous biological settings and habitats. Much of the city area is either developed or has been cultivated in the past. Therefore, the biological setting is very diverse, but does include areas of coastal sage scrub, riparian habitat, and oak woodlands in addition to disturbed habitats. The diversity of habitats is matched by the quantity of animal species that are present. Continual growth of residential and commercial uses has had the effect of placing pressures on native animal species.

3.1.3 Hydrology

The sanitation district covers several square miles that fall generally within the Buena Vista Creek, Agua Hedionda Creek, and Loma Alta Creek drainage systems. All of these drainage patterns flow westward to the Pacific Ocean. Two major estuarine lagoons, Buena Vista Lagoon and Agua Hedionda Lagoon, are located in the project area at the western termination of the drainages. The lagoons were created as the sea level rose rapidly following the last glacial sequence that corresponds to a long period of lower sea levels that had allowed the surrounding creeks to cut deep canyons. The lagoons provided a variety of marine food

resources (e.g., mollusks, crustaceans, and fishes) that was used prehistorically in the subsistence routine of both the Late Prehistoric Luiseño Indians and the earlier La Jolla Complex peoples.

3.2 Cultural Setting

3.2.1 The San Dieguito Complex/Paleo-Indian

The term "San Dieguito Complex" is a cultural distinction used to describe a group of people that occupied sites in the region between 11,500 and 7,000 YBP and appear to be related to or contemporaneous with the Paleo-Indian groups in the Great Basin area and the Midwest. Initially believed to have been big game hunters, the San Dieguito are better typified as wide-ranging hunter-gatherers. The earliest evidence of the San Dieguito Complex sites are known from San Diego County, the Colorado Desert, and further north along the California coast. These people abandoned the drying inland lakes of the present California desert and arrived in San Diego County circa 9,000 years before present (YBP), as documented at the Harris Site SDI-149 (Warren 1966); Rancho Park North Site SDI-4392 (Kaldenberg 1982); and Agua Hedionda Sites SDI-210/UCLJ-M-15 and SDI-10,965/SDM-W-131 (Moriarty 1967; Gallegos and Carrico 1984; Gallegos 1991). A San Dieguito component appears to have been present in the lower strata at the Malago Cove site in Redondo Beach, Los Angeles County (Walker 1951). Although radiocarbon dates were not obtained from these levels, the lack of ground stone tools and presence of crude flaked tools suggests similarities to the San Dieguito Complex.

Diagnostic San Dieguito artifacts include finely crafted scraper planes, choppers, scrapers, crescentics, elongated bifacial knives, and intricate leaf-shaped points (Rogers 1939; Warren 1967). This tool assemblage resembles those of the Western Lithic Co-Tradition (Davis et al. 1969) and the Western Pluvial Lakes Tradition (Bedwell 1970; Moratto 1984). Typical San Dieguito sites lack ground stone tools. Tools recovered from San Dieguito Complex sites and the pattern of the site locations indicate that they were a wandering hunting and gathering society (Moriarty 1969; Rogers 1966). Faunal data from the Malago Cove site, which included mollusks, fish, birds, and terrestrial and marine mammals, suggests a diverse and broad-based strategy (Walker 1951).

The San Dieguito Complex is the least understood of the cultures that occupied the southern California region. This is due primarily to the fact that San Dieguito sites rarely contain stratigraphic information or datable material. Debate continues as to whether the San Dieguito sites are actually different activity areas of the early Encinitas Tradition peoples (Bull 1987; Gallegos 1987), or whether the San Dieguito Complex peoples had a separate origin and culture from the Encinitas Tradition (Hayden 1987; Moriarty 1987; Smith 1987). According to this second scenario, the San Dieguito Complex peoples may have been assimilated into the dominant Encinitas Tradition culture (Kaldenberg 1982; Moriarty 1967). A third possibility is that the San Dieguito Complex gave rise to the Encinitas Tradition (Koerper et al. 1991). The issue of shared or separate origins of the San Dieguito Complex and Encinitas Tradition may be

resolved with continued collection of archaeological data and collection of systematic radiocarbon dates.

3.2.2 The La Jolla Complex/Encinitas Tradition/Millingstone Horizon

Between 9,000 and 8,000 YBP, a widespread complex was established in the southern California region, primarily along the coast (Warren and True 1961). This complex is locally known as the La Jolla Complex (Rogers 1939; Moriarty 1966), which is regionally associated with the Encinitas Tradition (Warren 1968), and shared cultural components with the widespread Millingstone Horizon (Wallace 1955). The coastal expression of this complex, with a focus on coastal resources and development of deeply-stratified shell middens located primarily around bays and lagoons, appeared in the southern California coastal areas, where the older sites associated with this expression are located at Topanga Canyon, Newport Bay, Agua Hedionda Lagoon, and some of the Channel Islands. Radiocarbon dates from sites attributed to this complex span a period of over 7,000 years in this region, beginning over 9,000 YBP.

The Encinitas Tradition is best recognized for its pattern of large coastal sites characterized by shell middens, grinding tools closely associated with the marine resources of the area, cobble-based tools, and flexed human burials (Shumway et al. 1961; Smith and Moriarty 1985). While ground stone tools and scrapers are the most recognized tool types, coastal Encinitas Tradition sites also contain numerous utilized flakes, which may have been used to pry open shellfish. Artifact assemblages at coastal sites indicate a subsistence pattern focused on shellfish collection and near-shore fishing, suggesting an incipient maritime adaptation with regional similarities to more northern sites of the same period (Koerper et al. 1986). Other artifacts associated with Encinitas Tradition sites include stone bowls, doughnut stones, discoidals, stone balls, and stone, bone, and shell beads.

The coastal lagoons in northwestern San Diego County supported large Millingstone Horizon populations circa 6,000 YBP, as shown by numerous radiocarbon dates from the many sites adjacent to the lagoons. The ensuing millennia were not stable environmentally, and by 3,000 YBP, many of the coastal sites in central San Diego County had been abandoned (Gallegos 1987, 1992). The abandonment of the area is usually attributed to the sedimentation of coastal lagoons and the resulting deterioration of fish and mollusk habitat, a situation well documented at Batiquitos Lagoon (Miller 1966; Gallegos 1987). Over a two thousand year period at Batiquitos Lagoon, dominant mollusk species occurring in archaeological middens shifted from deep-water mollusks (*Argopecten* sp.) to species tolerant of tidal flat conditions (*Chione* sp.), indicating water depth and temperature changes (Miller 1966; Gallegos 1987). This situation likely occurred for other small drainages (Buena Vista, Agua Hedionda, San Marcos, and Escondido Creeks) along the central San Diego coast, where low flow rates did not produce sufficient discharge to flush the lagoons they fed (Buena Vista, Agua Hedionda, Batiquitos, and San Elijo Lagoons) (Byrd 1998). Drainages along the northern and southern San Diego coastline

were larger and able to flush the coastal hydrological features they fed, keeping them open to the ocean and allowing for continued human exploitation (Byrd 1998). Los Peñasquitos lagoon exhibits dates as late as 2,355 YBP (Smith and Moriarty 1985), and Sorrento Valley (Carrico and Taylor 1983; Carrico and Gallegos 1988; Gallegos et al. 1989; Smith and Moriarty 1983; WESTEC 1975) and San Diego Bay showed continuous occupation until the close of the Millingstone Horizon (Gallegos et al. 1988). Additionally, data from several drainages in Camp Pendleton indicate a continued occupation of shell midden sites until the close of the period, indicating that coastal sites were not entirely abandoned during this time (Byrd 1998).

By 5,000 YBP, an inland expression of the La Jolla Complex, which exhibits influences from the Campbell Tradition from the north, is evident in the archaeological record. These inland Millingstone Horizon sites have been termed "Pauma Complex" (True 1958; Warren et al. 1961; Meighan 1954). By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusk remains, have a greater tool variety (including atlatl dart points, quarry-based tools, and crescentics), and seem to express a more sedentary lifestyle with a subsistence economy based on the use of a broad variety of terrestrial resources. Although originally viewed as a separate culture from the coastal La Jolla Complex (True 1980), it appears that these inland sites may be part of a subsistence and settlement system utilized by the coastal peoples. Evidence from the 4S Project in inland San Diego County suggests that these inland sites may represent seasonal components within an annual subsistence round by La Jolla Complex populations (Raven-Jennings et al. 1996). Including both coastal and inland sites of this time period in discussions of the Encinitas Tradition, therefore, provides a more a complete appraisal of the settlement and subsistence system exhibited by this cultural complex.

3.2.3 The Late Prehistoric Period

The Late Prehistoric period begins approximately 1,300 YBP when a Shoshonean-speaking group from the Great Basin region moved into San Diego County. This period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, but effective, technological innovations, such as the bedrock mortar for use in acorn processing. Atlatl darts were replaced by smaller arrow points to be used with the bow and arrow.

The period is divided into two phases, San Luis Rey I and San Luis Rey II, and is based upon the introduction of pottery (Meighan 1954). Through radiocarbon dating, the introduction of pottery and the initiation of the San Luis Rey II phase began at approximately 1300 A.D. San Luis Rey I is characterized by the use of portable shaped or unshaped slab metates, and non-portable bedrock milling features. Manos and pestles can also be shaped or unshaped. Cremation of the dead, bone awls, and stone and shell ornaments are also prominent in the

material culture. The later San Luis Rey II assemblage is augmented by pottery cooking and storage vessels, cremation urns, and polychrome pictographs. The fluorescence of rock art likely appeared as the result of increased population sizes and increased sedentism (True et al. 1974). Projectile points are dominated by the Cottonwood Triangular series, but Desert Side-notched and Dos Cabezas Serrated styles also occur. Subsistence is thought to have focused on the utilization of acorns, a storable species that allowed for relative sedentism and increased populations.

The ethnographic period begins at approximately AD 1769 when the Mission San Luis Rey was established. Ethnohistorical and ethnographic evidence indicates that the Luiseño occupied northern San Diego County. These peoples were seasonal hunter-gatherers with cultural elements that were very distinct from the Archaic Period peoples, including cremation of the dead, the use of the bow and arrow, and use of the acorn as a main food staple (Moratto 1984). Along the coast, the Luiseño made use of the marine resources available by fishing and collecting mollusks for food. Seasonally available terrestrial resources including acorns and game were also sources of nourishment for Luiseño groups. The elaborate kinship and clan systems between the Luiseño and Cahuilla and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian and other resources from the eastern deserts and steatite from the Channel Islands. The Luiseño were Takic-speaking people more closely related linguistically and ethnographically to each other and the Cahuilla, Gabrielino and Cupeño than to the Kumeyaay, who occupied territory to the south.

The Luiseño occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsular Range Mountains at San Jacinto, including Palomar Mountain to the south and Santiago Peak to the north, on the south by Agua Hedionda Lagoon, and on the north by Aliso Creek in present day San Juan Capistrano. The Luiseño differed from their neighboring Takic speakers in having an extensive proliferation of social statuses, a system of ruling families that provided ethnic cohesion within the territory, a distinct world view that stemmed from use of the hallucinogen datura, and an elaborate religion that included ritualized sand paintings of the sacred being "Chingichngish" (Bean and Shipek 1978; Kroeber 1925).

The Luiseño occupied sedentary villages, most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching, and in areas that offered thermal and defensive protection. Villages were composed of areas that were both publicly and privately, or family, owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were utilized, particularly from January to March, when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. For the remainder of the year, the Luiseño remained at village sites, where food resources were within a day's travel (Bean and Shipek 1978; Kroeber 1925).

3.2.4 Historic Period

Spanish Period (1769-1821)

The Spanish occupation of the claimed territory of Alta California took place during the reign of King Carlos III of Spain. A representative of the King in Mexico, Jose de Gálvez, conceived of the plan to colonize Alta California and thereby secure the area for the Spanish crown (Rolle 1969). The effort involved both a military and a religious contingent, with the overall intent of establishing forts and missions to gain control of the land and of the native inhabitants through conversion. Actual colonization of the San Diego area began on July 16, 1769, when the first Spanish exploring party, commanded by Gaspar de Portolá (with Father Junípero Serra in charge of religious conversion of the native populations), arrived in San Diego to secure California for the Spanish crown (Palou 1926). The natural attraction of the harbor at San Diego and the establishment of a military presence in the area solidified the importance of San Diego to the Spanish colonization of the region and the growth of the civilian population. Missions were constructed from San Diego to as far north as San Francisco. The mission locations were based on a number of important territorial, military, and religious considerations. Grants of land to persons who made an application were made, but many tracts reverted to the government for lack of use. As an extension of territorial control by the Spanish empire, each mission was placed so as to command as much territory and as large a population as possible. While primary access to California during the Spanish Period was by sea, the route of El Camino Real served as the land route for transportation, commercial, and military activities. This route was considered to be the most direct path between the missions (Rolle 1969). As increasing numbers of Spanish and Mexican people, and later Americans during the Gold Rush, settled in the area, the Indian populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983).

Mexican Period (1821-1846)

By 1821, Mexico had gained independence from Spain, and the northern territories were subject to political repercussions. By 1834, all of the mission lands had been removed from the control of the Franciscan Order under the Acts of Secularization. Without proper maintenance, the missions quickly began to disintegrate and after 1836, missionaries ceased to make regular visits inland to minister the needs of the Indians (Engelhardt 1921). Large tracts of land continued to be granted to persons who applied for them or had gained favor with the Mexican government. Grants of land were also made to settle government debts.

Anglo-American Period (1846-Present)

California was invaded by United States troops during the Mexican-American War of 1846-1848. The acquisition of strategic Pacific ports and California land was one of the principal objectives of the war (Price 1967). At the time, the inhabitants of California were

practically defenseless, and they quickly surrendered to the United States Navy in July 1847 (Bancroft 1884).

The cattle ranchers of the "counties" of southern California prospered during the cattle boom of the early 1850s. They were able to "reap windfall profit...pay taxes and lawyer's bills...and generally live according to custom" (Pitt 1966). Cattle raising soon declined, however, contributing to the expansion of agriculture. With the passage of the "No Fence Act," San Diego's economy changed from stock raising to farming (Rolle 1969). The act allowed for the expansion of unfenced farms, which was crucial in an area where fencing material was practically unavailable. Five years after its passage, most of the arable lands in San Diego County had been patented as either ranchos or homesteads, and growing grain crops replaced raising cattle in many of the county's inland valleys (Blick 1976; Elliott 1883 [1965]). By 1870, farmers had learned to dry farm and were coping with some of the peculiarities of San Diego County's climate (*San Diego Union*, February 6, 1868; Van Dyke 1886). Between 1869 and 1871, the amount of cultivated acreage in the county rose from less than 5,000 acres to more than 20,000 (*San Diego Union*, January 2, 1872). Of course, droughts continued to hinder the development of agriculture (Crouch 1915; *San Diego Union*, November 10, 1870; Shipek 1977). Large-scale farming in San Diego County was limited by a lack of water and the small size of arable valleys; also, the small urban population and poor roads restricted commercial crop growing. Nevertheless, cattle continued to be grazed in inland San Diego County (Gordinier 1966).

During the first two decades of the twentieth century, the population of San Diego County continued to grow. The population of the inland county declined during the 1890s, but between 1900 and 1910, it rose by about 70 percent. The pioneering efforts were over, the railroads had broken the relative isolation of southern California, and life in San Diego County became similar to other communities throughout the west. After World War I, the history of San Diego County was primarily determined by the growth of San Diego Bay. In 1919, the United States Navy decided to make the bay the home base for the Pacific Fleet (Pourade 1967). During the 1920s, the aircraft industry also established itself at the bay (Heiges 1976). The establishment of these industries led to the growth of the county as a whole; however, most of the growth occurred in the north county coastal areas, including the Carlsbad region, where the population almost tripled between 1920 and 1930. During this time period, the history of inland San Diego County was subsidiary to that of the City of San Diego, which became a Navy center and industrial city (Heiges 1976). In inland San Diego County, agriculture became specialized, and recreational areas were established in the mountain and desert areas. Just before World War II, urbanization began to spread to the inland county and the northern and southern peripheries of the city, including the area of northwestern San Diego County that contains the current study area.

4.0 RESULTS

The Sewer Master Plan includes a variety of construction CIP projects that range from rehabilitation of existing facilities to the installation of new sewer pipelines to increase service. For the cultural resources study, all existing pipeline segments and proposed locations for the construction of additional segments will be reviewed.

In order to assess the potential of the CIP projects to impact cultural resources, records searches were obtained from the South Coastal Information Center at San Diego State University. The records searches principally focused on the locational information for recorded sites. The data from the information center was transferred onto the USGS CIP project maps to assess possible conflicts with proposed projects. The results of this study have been presented in Table 4.0–1.

For the assessment of impacts, the data from the records searches was organized in categories for each pipeline. These categories included:

- Presence of recorded sites within 100 feet.
- Presence of recorded sites within 500 feet.
- Disturbed and/or Developed setting.
- Undisturbed or partially disturbed setting.

Based on this categorization, the pipelines that may impact cultural resources have been identified in Table 4.0–1. Because many pipelines are long and pass through different types of settings, the particular reaches or segments of each pipeline that correspond to the various categories listed above were noted in Table 4.0–1.

4.1 Projects Likely to Impact Cultural Resources

The information gathered from various sources and presented in Table 4.0–1 indicates that 146 pipeline segments or reaches are situated within 100 feet of a recorded archaeological site. Of this group, 107 reaches are situated in undisturbed or partially disturbed areas and retain a high potential for the presence of cultural resources within these particular projects. Thirty-nine of the reaches are situated in previously disturbed or developed settings, and the potential of encountering elements of the recorded sites is very unlikely as the archaeological materials are assumed to be disturbed or destroyed by previous grading impacts. The archaeological sites that would be impacted by the 107 reaches where sites have been recorded are also listed on Table 4.0–1. Descriptions of the sites have been provided in Table 4.0–2. A potentially important site is included in this group, Sites SDI-638, which is a major prehistoric encampment or village. At least two sites have reported human burials, Sites SDI-8736 and SDI-10,782. The majority of the recorded sites are listed as surface scatters of lithic materials or milling tools; however, most of these sites have not been tested or evaluated for significance.

4.2 Projects which Will Potentially Impact Cultural Resources

The second set of pipeline reaches with potential impacts to cultural resources are those with recorded archaeological materials within 500 feet of the proposed alignment. As noted in Table 4.0–1, 302 pipeline segments or reaches are situated within 500 feet of a recorded archaeological site. In this group of 302 pipeline reaches, 74 segments pass through areas where the recorded sites are situated within disturbed or developed areas and the potential for any remaining archaeological materials is very remote. The remaining 228 reaches in this group retain the potential to encounter archaeological materials because the recorded cultural resources within 500 feet are situated in settings that are either undisturbed or partially disturbed. The archaeological sites that would be impacted by the 302 reaches where sites have been recorded within 500 feet are also listed on Table 4.0–1. Descriptions of the sites have been provided in Table 4.0–2. Some of the recorded sites are potentially significant, although many have not been previously tested.

4.3 Sites Located within the Sanitation Districts that Will Not be Impacted

The last group of sites that are noted in Table 4.0–1 are 28 sites which are not situated within 500 feet of any pipeline reaches, but are located within either the Vista or Buena Sanitation Districts. Descriptions of the sites have been provided in Table 4.0–2. This group of sites will not incur any direct or indirect impacts from the proposed project.

TABLE 4.0–1

Pipeline ID in Archaeological Site Vicinities

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B01	503		x	SDI-5779		x
B01	2134		x	SDI-5785H	x	
B01	483		x	SDI-5787H		x
B01	493	x		SDI-5787H		x
B01	503		x	SDI-5787H		x
B01	58		x	SDI-5787H		x
B01	50		x	SDI-5792		x
B01	161		x	SDI-5792		x
B01	2134		x	SDI-5792		x
B01	298		x	SDI-5792		x
B01	299		x	SDI-5792		x
B01	483		x	SDI-5792		x
B01	493		x	SDI-5792		x
B01	50		x	SDI-5792		x
B01	503		x	SDI-5792		x
B01	51		x	SDI-5792		x
B01	531	x		SDI-5792		x
B01	58		x	SDI-5792		x
B01	673		x	SDI-5792		x
B01	674		x	SDI-5792		x
B01	675	x		SDI-5792		x
B01	679	x		SDI-5792		x
B01	680	x		SDI-5792		x
B01	689		x	SDI-5792		x
B01	71		x	SDI-5792		x
B01	75		x	SDI-5792		x
B01	77	x		SDI-5792		x
B01	7828		x	SDI-5792		x
B01	79	x		SDI-5792		x
B01	80	x		SDI-5792		x
B01	81		x	SDI-5792		x
B01	85		x	SDI-5792		x
B01	86		x	SDI-5792		x
B01	689		x	SDI-8091	x	
B01	531	x		SDI-8092	x	
B01	680		x	SDI-8092	x	
B01	50	x		SDI-8735		x
B01	51		x	SDI-8735		x
B01	58		x	SDI-8735		x

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B01	7828		x	SDI-8735		x
B01	50		x	SDI-9582		x
B01	51		x	SDI-9582		x
B01-A-30	53	x		SDI-5792		x
B01-A-30	53		x	SDI-8735		x
B01-A-33	194		x	SDI-5792		x
B01-A-33	194		x	SDI-8735		x
B01-A-33	194	x		SDI-9582		x
B01-A-35	192		x	SDI-5791H	x	
B01-A-35	192	x		SDI-5792		x
B01-A-35	192	x		SDI-9582		x
B02	48		x	SDI-5792		x
B07/B01-D-1	199	x		SDI-5787H		x
B07/B01-D-1	199	x		SDI-5792		x
B08	3228		x	I-401	x	
B08	3239		x	I-401	x	
B08	2287	x		I-402	x	
B08	2289		x	I-402	x	
B08	2768	x		I-402	x	
B08	3239	x		I-402	x	
B08	2294		x	I-403	x	
B08	1068		x	P-018224		x
B08	3228	x		P-018224		x
B08	4301		x	P-018224		x
B08	4307		x	P-018224		x
B08	4309		x	P-018224		x
B08	3239	x		SDI-12,520 H	x	
B08	1146		x	SDI-12,521	x	
B08	1142	x		SDI-12,521	x	
B08	2296		x	SDI-12,521	x	
B08	1068	x		SDI-13,009	x	
B08	3228	x		SDI-13,009	x	
B09	2223	x		I-402	x	
B12	7443		x	P-025154		x
B12	2163		x	SDI-11,037		x
B14	7262	x		SDI-8250 A		x
B14	7262	x		SDI-8250 B		x
B14	2242	x		SDI-8250 C		x
B14	7262	x		SDI-8250 C		x
B14-A-30	6864	x		SDI-8250 C		x
B15	2492		x	P-024185		x
B15	5917		x	P-024185		x
B15	6324		x	P-024185		x
B15	6411		x	P-024185		x

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B15	6967	x		P-024185		x
B15	6989		x	P-024185		x
B15	1192	x		SDI-5634		x
B15	1396	x		SDI-5634		x
B15	1444	x		SDI-5634		x
B15	1449		x	SDI-5634		x
B15	1451		x	SDI-5634		x
B15	2114	x		SDI-5634		x
B15	8361	x		SDI-5635		x
B15	8348		x	SDI-5637		x
B15	8361		x	SDI-5637		x
B15	1368		x	SDI-5779		x
B15	1370		x	SDI-5779		x
B15	1336	x		SDI-5788H		x
B15	1338		x	SDI-5788H		x
B15	1339		x	SDI-5788H		x
B15	1341		x	SDI-5788H		x
B15	1361		x	SDI-5788H		x
B15	1386		x	SDI-5788H		x
B15	2988		x	SDI-5788H		x
B15	2989		x	SDI-5788H		x
B15	8361		x	SDI-5789H, A		x
B15	8361		x	SDI-5791H	x	
B15	7513	x		SDI-5792		x
B15	1336		x	SDI-5792		x
B15	1338		x	SDI-5792		x
B15	1339	x		SDI-5792		x
B15	1341	x		SDI-5792		x
B15	1352		x	SDI-5792		x
B15	1357		x	SDI-5792		x
B15	1361		x	SDI-5792		x
B15	1368		x	SDI-5792		x
B15	1370	x		SDI-5792		x
B15	1376		x	SDI-5792		x
B15	1386	x		SDI-5792		x
B15	1388		x	SDI-5792		x
B15	1459	x		SDI-5792		x
B15	177		x	SDI-5792		x
B15	2988	x		SDI-5792		x
B15	2989	x		SDI-5792		x
B15	3295	x		SDI-5792		x
B15	3640	x		SDI-5792		x
B15	5917		x	SDI-5792		x
B15	7447	x		SDI-5792		x

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
B15	7498		x	SDI-5792		x
B15	7520	x		SDI-5792		x
B15	8361	x		SDI-5792		x
B15	8361	x		SDI-8347	x	
B15	6303	x		SDI-9503	x	
B15	6836		x	SDI-9503	x	
B15	762	x		SDI-9503	x	
B15/V33-D-1	2610		x	SDI-5779		x
B15/V33-D-1	508	x		SDI-5779		x
B15/V33-D-1	2611		x	SDI-5790H		x
B15/V33-D-1	2611	x		SDI-5792		x
B15-A-3	6841		x	SDI-5792		x
B15-A-4	1128		x	SDI-5792		x
B15-A-5	588	x		SDI-5792		x
B15-A-9	1462		x	SDI-5792		x
none	none	none	none	I-469		x
none	none	none	none	SDI-10,150		x
none	none	none	none	SDI-11,651 H	x	
none	none	none	none	SDI-12,522		x
none	none	none	none	SDI-12,736		x
none	none	none	none	SDI-15,675 H	x	
none	none	none	none	SDI-5543 A	x	
none	none	none	none	SDI-5543 B		x
none	none	none	none	SDI-5780		x
none	none	none	none	SDI-5784 H		x
none	none	none	none	SDI-6089	x	
none	none	none	none	SDI-642	x	
none	none	none	none	SDI-7270		x
none	none	none	none	SDI-7272	x	
none	none	none	none	SDI-7275		x
none	none	none	none	SDI-7276		x
none	none	none	none	SDI-7278	x	
none	none	none	none	SDI-7279		x
none	none	none	none	SDI-7282		x
none	none	none	none	SDI-7283		x
none	none	none	none	SDI-7286	x	
none	none	none	none	SDI-8242	x	
none	none	none	none	SDI-8462		x
none	none	none	none	SDI-8777		x
none	none	none	none	SDI-9046		
none	none	none	none	SDI-9047 (I-5)		x
none	none	none	none	SDI-9047 (I-6)		x
none	none	none	none	SDI-9251		x
OV2	2853	x		SDI-637	x	

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
OV5	3615		x	P-024949		x
OV5	3514		x	SDI-13,182		x
OV5	3518		x	SDI-13,182		x
OV5	3562		x	SDI-14,730H		x
OV5	3518	x		SDI-5992		x
OV5	3551		x	SDI-6091	x	
OV5	3586	x		SDI-6091	x	
OV5	3520	x		SDI-8241	x	
OV5	3526		x	SDI-8241	x	
V01	2887		x	P-025143		x
V01	3373		x	P-025143		x
V01	3379		x	P-025143		x
V02	3708		x	P-025144		x
V02	3723	x		P-025144		x
V02	3725		x	P-025144		x
V02	7515		x	P-025144		x
V02	7515		x	P-025145		x
V02	7515		x	P-025146		x
V02	7515		x	P-025147		x
V02	7515		x	P-025148		x
V02-D-2	3718		x	P-025144		x
V03	3147	x		P-025145		x
V03	3488		x	P-025145		x
V03	3501		x	P-025145		x
V03	3147	x		P-025146		x
V03	3488		x	P-025146		x
V03	3147	x		P-025147		x
V03	3488		x	P-025147		x
V03	3142		x	P-025148		x
V03	3743	x		P-025149		x
V03	3134		x	P-025150		x
V03	3494		x	P-025150		x
V03	3743	x		P-025150		x
V03-A-10	3733		x	P-025149		x
V03-A-10	3733		x	P-025150		x
V03-A-10	3733	x		SDI-8246	x	
V03-A-13	3738		x	P-025149		x
V03-A-13	3738		x	P-025150		x
V03-A-13	3738	x		SDI-16,502	x	
V03-A-13	3738	x		SDI-639	x	
V03-A-19	3136		x	P-025148		x
V03-A-19	3136		x	P-025149		x
V03-A-19	3136		x	P-025150		x
V03-A-82	3149		x	P-025145		x

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V03-A-82	3149		x	P-025146		x
V03-A-82	3149		x	P-025147		x
V03-A-82	3149		x	P-025148		x
V04	3939		x	P-025151		x
V04	3996		x	P-025151		x
V04	4003		x	P-025151		x
V04	3185		x	P-025152		x
V04	7674	x		P-025153		x
V04	7674		x	P-025154		x
V04-A-30	3180	x		P-025152		x
V04-A-49	4001		x	P-025151		x
V05	1162		x	P-025154		x
V05-A-25	1443		x	P-025153		x
V05-A-52	1440		x	P-025154		x
V06-A-14	4080		x	SDI-645	x	
V08	7721	x		SDI-14,324H		x
V08	7747	x		SDI-14,324H		x
V09	3040		x	SDI-14,323H		x
V10	4098		x	SDI-5345	x	
V10	4425		x	SDI-5345	x	
V11	3788		x	SDI-11,630	x	
V12	6135		x	SDI-650	x	
V12	6137	x		SDI-652	x	
V12	3970		x	SDI-653	x	
V12-A-23	6172		x	SDI-651		x
V13	4998		x	SDI-651		x
V13-B-34	3815		x	SDI-652	x	
V13-B-38	4997		x	SDI-651		x
V14	356	x		SDI-654	x	
V14	357	x		SDI-654	x	
V15-A-6	4331		x	SDI-653	x	
V15-A-7	4330		x	SDI-653	x	
V16	859	x		SDI-17,786		x
V16	862	x		SDI-17,786		x
V16	859		x	SDI-655	x	
V17-A-20	3962		x	SDI-656	x	
V17-A-20	3962		x	SDI-657	x	
V18-A-11	4756		x	SDI-658	x	
V19-A-19	4675		x	SDI-659	x	
V19-B-10	3414		x	SDI-17,779		x
V20	5553	x		SDI-660		x
V20	5606	x		SDI-660		x
V20-A-2	5593		x	SDI-660		x
V21	3261	x		SDI-648	x	

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V21	3261	x		SDI-649	x	
V21	3255		x	SDI-653	x	
V21	5122		x	SDI-661	x	
V21	6540		x	SDI-661	x	
V21/V22-D-1	4800		x	SDI-650	x	
V22	4801		x	SDI-647	x	
V22-A-7	5850	x		SDI-647	x	
V25-A-12	6462		x	SDI-5785H	x	
V28	5992	x		SDI-646	x	
V28-B-10	6326		x	SDI-646	x	
V29	5721		x	SDI-646	x	
V30	5627	x		SDI-11,629	x	
V30	5820	x		SDI-11,629	x	
V30	5822	x		SDI-11,629	x	
V30	6854	x		SDI-11,629	x	
V32	5500		x	P-025154		x
V32	5685		x	SDI-638 A		x
V32	5516	x		SDI-638 B		x
V32	4545	x		SDI-643	x	
V32	2429	x		SDI-643	x	
V32	5985	x		SDI-643	x	
V32	5688		x	SDI-644	x	
V32	5861		x	SDI-644	x	
V32-A-8	5497	x		SDI-638 B		x
V32T	7027		x	P-025143		x
V32T	7028		x	P-025143		x
V32T	7022		x	P-025144		x
V32T	7023		x	P-025144		x
V32T	7411		x	P-025145		x
V32T	7412		x	P-025145		x
V32T	7411	x		P-025148		x
V32T	7404		x	P-025149		x
V32T	7408		x	P-025149		x
V32T	7393		x	P-025152		x
V32T	7390		x	P-025153		x
V32T	7393		x	P-025153		x
V32T	7390		x	P-025154		x
V32T	7393		x	P-025154		x
V32T	8084		x	SDI-5783H		x
V32T	8084		x	SDI-5793		x
V32T	8286		x	SDI-5793		x
V32T	7401		x	SDI-640	x	
V32T	7401		x	SDI-641	x	
V32T-D-1	7388		x	P-025154		x

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V33	2592		x	SDI-5635		x
V33	2594	x		SDI-5635		x
V33	2597		x	SDI-5635		x
V33	2594		x	SDI-5636	x	
V33	2597	x		SDI-5636	x	
V33	2594		x	SDI-5637		x
V33	2597		x	SDI-5637		x
V33	1206	x		SDI-5775		x
V33	1211		x	SDI-5775		x
V33	1711		x	SDI-5775		x
V33	2641		x	SDI-5775		x
V33	2647		x	SDI-5775		x
V33	2648	x		SDI-5775		x
V33	2655	x		SDI-5775		x
V33	1211		x	SDI-5776		x
V33	1628		x	SDI-5776		x
V33	1711		x	SDI-5776		x
V33	2625		x	SDI-5776		x
V33	2639		x	SDI-5776		x
V33	2641	x		SDI-5776		x
V33	2647		x	SDI-5776		x
V33	2648		x	SDI-5776		x
V33	2655		x	SDI-5776		x
V33	2625		x	SDI-5777		x
V33	2637		x	SDI-5777		x
V33	2639		x	SDI-5777		x
V33	2641		x	SDI-5777		x
V33	2647		x	SDI-5777		x
V33	2648		x	SDI-5777		x
V33	2655		x	SDI-5777		x
V33	2615		x	SDI-5778 A	x	
V33	460		x	SDI-5778 A	x	
V33	487		x	SDI-5778 A	x	
V33	502		x	SDI-5778 A	x	
V33	513	x		SDI-5778 A	x	
V33	108		x	SDI-5778 B	x	
V33	3000		x	SDI-5779		x
V33	460		x	SDI-5779		x
V33	479		x	SDI-5779		x
V33	502		x	SDI-5779		x
V33	2604		x	SDI-5781H		x
V33	2605	x		SDI-5781H		x
V33	2606		x	SDI-5781H		x
V33	2588		x	SDI-5788H		x

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V33	2592	x		SDI-5789H, A		x
V33	278	x		SDI-5789H, A		x
V33	2592	x		SDI-5789H, B		x
V33	278	x		SDI-5789H, B		x
V33	278		x	SDI-5791H	x	
V33	2588		x	SDI-5792		x
V33	2592	x		SDI-5792		x
V33	2600		x	SDI-5792		x
V33	278	x		SDI-5792		x
V33	472		x	SDI-5792		x
V33	479		x	SDI-5792		x
V33	1206		x	SDI-5793		x
V33	1211	x		SDI-5793		x
V33	1711	x		SDI-5793		x
V33	1713		x	SDI-5793		x
V33	1715	x		SDI-5793		x
V33	1717	x		SDI-5793		x
V33	1721	x		SDI-5793		x
V33	2641		x	SDI-5793		x
V33	2647	x		SDI-5793		x
V33	2648	x		SDI-5793		x
V33	2655	x		SDI-5793		x
V33	2604		x	SDI-7271		x
V33	1206		x	SDI-7273	x	
V33	2650		x	SDI-7273	x	
V33	2654	x		SDI-7273	x	
V33	2594		x	SDI-8347	x	
V33	195		x	SDI-8735		x
V33	3002		x	SDI-9250		x
V34	8022		x	SDI-11,038	x	
V34	1797		x	SDI-5783H		x
V34	1803		x	SDI-5783H		x
V34	2520		x	SDI-5783H		x
V34	283		x	SDI-5783H		x
V34	8019	x		SDI-5783H		x
V34	2557		x	SDI-5785H	x	
V34	2560		x	SDI-5785H	x	
V34	2566		x	SDI-5785H	x	
V34	2568	x		SDI-5785H	x	
V34	2580		x	SDI-5785H	x	
V34	8018		x	SDI-5785H	x	
V34	2573		x	SDI-5786H	x	
V34	2544		x	SDI-5787H		x
V34	2544		x	SDI-5792		x

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V34	1797		x	SDI-5793		x
V34	1803	x		SDI-5793		x
V34	1805	x		SDI-5793		x
V34	2077		x	SDI-5793		x
V34	2083		x	SDI-5793		x
V34	2088	x		SDI-5793		x
V34	21	x		SDI-5793		x
V34	2516	x		SDI-5793		x
V34	2520		x	SDI-5793		x
V34	2526		x	SDI-5793		x
V34	2529		x	SDI-5793		x
V34	2551	x		SDI-5793		x
V34	2553	x		SDI-5793		x
V34	283	x		SDI-5793		x
V34	8019	x		SDI-5793		x
V34	8021	x		SDI-5793		x
V34	823	x		SDI-5793		x
V34	2568		x	SDI-6934		x
V34	2576		x	SDI-6934		x
V34	2577	x		SDI-6934		x
V34	2581	x		SDI-6934		x
V34	2583		x	SDI-6934		x
V34	8000		x	SDI-6934		x
V34	8017		x	SDI-6934		x
V34	2088		x	SDI-6935		x
V34	2529	x		SDI-6935		x
V34	2551		x	SDI-6935		x
V34	2553	x		SDI-6935		x
V34	1797	x		SDI-9044	x	
V34	1803		x	SDI-9044	x	
V34	1805	x		SDI-9044	x	
V34	8019		x	SDI-9044	x	
V34	8021		x	SDI-9044	x	
V35	241		x	SDI-10,552		x
V35	3427	x		SDI-10,552		x
V35	574		x	SDI-10,552		x
V35	576		x	SDI-10,552		x
V35	696	x		SDI-10,552		x
V35	1581		x	SDI-10,782 A	x	
V35	1584		x	SDI-10,782 A	x	
V35	1891		x	SDI-10,782 A	x	
V35	2187		x	SDI-10,782 A	x	
V35	410		x	SDI-10,782 A	x	
V35	419		x	SDI-10,782 A	x	

Sub-Basin	Pipeline ID	Presence of Recorded Site within 100'	Presence of Recorded Site within 500'	Site Number	Disturbed/ Developed	Undisturbed or Partially Disturbed
V35	1581		x	SDI-10,782 B	x	
V35	2187	x		SDI-10,782 B	x	
V35	2189		x	SDI-10,782 B	x	
V35	411		x	SDI-10,782 B	x	
V35	419		x	SDI-10,782 B	x	
V35	420		x	SDI-10,782 B	x	
V35	8111		x	SDI-10,782 B	x	
V35	1611	x		SDI-11,037		x
V35	2130		x	SDI-11,037		x
V35	2131		x	SDI-11,037		x
V35	2140		x	SDI-11,037		x
V35	2143		x	SDI-11,037		x
V35	1586		x	SDI-5792		x
V35	1569		x	SDI-8091	x	
V35	1611		x	SDI-8734		x
V35	1780	x		SDI-8734		x
V35	1782		x	SDI-8734		x
V35	2130		x	SDI-8734		x
V35	315		x	SDI-8734		x
V35	317		x	SDI-8734		x
V35	364		x	SDI-8734		x
V35	1581	x		SDI-8736		x
V35	1584		x	SDI-8736		x
V35	2187	x		SDI-8736		x
V35	410		x	SDI-8736		x
V35	419	x		SDI-8736		x
V35	422		x	SDI-8736		x
V35	8111		x	SDI-8736		x
V35	576		x	SDI-9042		x
V35	8236	x		SDI-9042		x
V35	8238		x	SDI-9042		x
V35	3427	x		SDI-9043		x
V35	574		x	SDI-9043		x
V35	696		x	SDI-9043		x
V35	3427		x	SDI-9045		x
V35	569		x	SDI-9045		x
V35	571		x	SDI-9045		x
V35	574		x	SDI-9045		x
V35	571		x	SDI-9047 (I-4)		x
V35	569		x	SDI-9047 (I-4)		x
V35-A-2	1567		x	SDI-8091	x	

TABLE 4.0–2
Archaeological Site Description Table

Site Number	Site Features	Disturbances	Year Registered	Testing
I-401	Isolated lithic tool fragment	Disked	1991	
I-402	Isolated lithic production waste	Disked	1991	
I-403	Isolated mano fragment	Disked	1991	
I-469	Isolated mano fragment	Adjacent to gravel quarry	1992	Not collected
P-018224	Culvert	None	1999	
P-024185	Isolated lithic production waste	None	2000	
P-024949	Isolated lithic production waste	None	2003	
P-025143	1940's tract home	None	2003	
P-025144	1940's tract home	None	2003	
P-025145	1920's Craftsman home	None	2003	
P-025146	1940's tract home	None	2003	
P-025147	1940's tract home	None	2003	
P-025148	1940's frame commercial building	None	2003	
P-025149	1940's tract home	None	2003	
P-025150	1940's tract home	None	2003	
P-025151	1923 converted barn	None	2003	
P-025152	1950's tract home	None	2003	
P-025153	1950's tract home	None	2003	
P-025154	1950's tract home	None	2003	
SDI-10,150	Bedrock milling feature	Illegal camping	1985	
SDI-10,552	Lithic scatter	Fire roads through site	1985	
SDI-10,782 A	Bedrock milling features, burials, groundstone tools, lithic scatter, precision tools and shell midden	Graded	1987	Five TUs, STPs
SDI-10,782 B	Bedrock milling features, burials, groundstone tools, lithic scatter, precision tools and shell midden	Graded	1987	Five TUs, STPs
SDI-11,037	Moderate lithic scatter	None	1988	
SDI-11,038	Sparse lithic scatter	Cultivated, fire roads through site	1988	

Site Number	Site Features	Disturbances	Year Registered	Testing
SDI-11,629	Bedrock milling features	Disked	1989	
SDI-11,630	Shell scatter	Graded	1989	
SDI-11,651H	Historic homestead	Site destroyed	1989	
SDI-12,520H	Historic trash scatter and prehistoric lithic scatter with hearth feature	Disked	1991	
SDI-12,521	Bedrock milling features, lithic scatter	Cultivated, fire roads through site	1991	
SDI-12,522	Bedrock milling features	None	1991	Subsurface testing
SDI-12,736	Groundstone tools, percussion tools and lithic scatter	None	1992	
SDI-13,009	Bedrock milling features, groundstone tools, percussion tools, precision tools, projectile point, shell and faunal remains	Graded	1993	Seven TUs, seven STPs
SDI-13,182	Bedrock milling features, groundstone tools, lithic scatter	Nothing addressed	1973	
SDI-14,323H	Historic foundations associated with AT & SF railroad	None	1996	Five STPs
SDI-14,324H	Historic foundations associated with AT & SF railroad	None	1996	Five STPs
SDI-14,730H	Historic cobble house	None	1998	
SDI-15,675H	Historic mining shed	Graded	1999	
SDI-16,502	Bedrock milling feature, ceramic and shell scatter	Paved road through site	2003	
SDI-17,779	Lithic and shell scatter	Nothing addressed	2005	One TU, 12 STPs
SDI-17,786	Groundstone tools, precision tools, shell scatter	Nothing addressed	1979	
SDI-5345	Midden soil, bedrock milling feature, groundstone tools	Cultivated, houses on site	1975 / 1978	
SDI-5543 A	Isolated mano	Plowed and disked	1978	
SDI-5543 B	Lithic scatter	None	1978	
SDI-5634	Bedrock milling feature, lithic and shell scatter	Modern dump site	1977 / 1981	One TU
SDI-5635	Bedrock milling feature, shell scatter	None	1977	
SDI-5636	Bedrock milling feature, ceramic and lithic scatter	None	1977	
SDI-5637	Shell, ceramic and lithic scatter	None	1977	
SDI-5775	Midden soil, shell, ceramic and lithic scatter	None	1978	
SDI-5776	Bedrock milling feature	None	1978	

Site Number	Site Features	Disturbances	Year Registered	Testing
SDI-5777	Bedrock milling feature	None	1978	
SDI-5778 A	Lithic scatter, percussion and precision tools	Power lines, access roads through site	1978	
SDI-5778 B	Isolated hammerstone	Plowed	1978	
SDI-5779	Bedrock milling feature	None	1978	
SDI-5780	Bedrock milling features, lithic and shell scatter	None	1978	
SDI-5781H	1888 eucalyptus grove	Nothing addressed	1978	
SDI-5783H	Matthew Kelly, Jr. homestead	Nothing addressed	1978	
SDI-5784H	Rancho Aqua Hedionda y Los Monos	Nothing addressed	1978	
SDI-5785H	H. M. Squires homestead	Eucalyptus grove on site	1978	
SDI-5786H	May Emma Kelly homestead and prehistoric lithic scatter with previously recorded burial	Cultivated, house on site	1978 / 1979	
SDI-5787H	Olive grove	Nothing addressed	1978	
SDI-5788H	Brearley family homestead	Nothing addressed	1978	
SDI-5789H, A	Julio Osuna homestead	Nothing addressed	1978	
SDI-5789H, B	Isolated historic iron harness buckle	Nothing addressed	1978	
SDI-5790H	Charles Kelly homestead	Nothing addressed	1978	
SDI-5791H	Williams' homestead	Graded, structure collapsed and vandalized	1977 / 1978 / 1981	
SDI-5792	Traditional Native American trail from Mission San Luis Rey through the San Marcos plains en route to the Cuyamaca Mountains	Nothing addressed	1978	
SDI-5793	Rancho de los Quiotes to Mission San Luis Rey trail	Nothing addressed	1978	
SDI-5992	Guajome Ranch House complex	None	1978 / 1987	
SDI-6089	Groundstone tools, percussion tools and lithic scatter	Plowed	1978	
SDI-6091	Bedrock milling features	Portion graded	1978 / 2000 / 2001	One TU, eight STPs
SDI-637	Groundstone tools	Disked	1958	
SDI-638 A, B	Rock art, bedrock milling features, lithic flake scatter, groundstone tools, ceramic	Rock art vandalized	1977 / 1978	
SDI-639	Bedrock milling features, groundstone tools, lithic tools, ceramic and shell scatter	Cultivated, houses on site	1958	

Site Number	Site Features	Disturbances	Year Registered	Testing
SDI-640	Groundstone tools, lithic scatter	Plowed and disked	1958	
SDI-641	Groundstone tools, percussion tools	Plowed, house on site	1958	
SDI-642	Bedrock milling feature with mano	Cultivated	1958	
SDI-643	Groundstone tools, percussion tools	Cultivated	1958	
SDI-644	Groundstone tools, percussion tools, precision tool, polishing pebble, shell scatter	Plowed and disked	1958	
SDI-645	Bedrock milling feature, groundstone tools, shell scatter	Plowed and disked	1959	Not collected
SDI-646	Bedrock milling features, groundstone tools, shell scatter	Plowed, disked, house on site	1958	
SDI-647	Groundstone tools, adobe house	Cultivated, houses on site	1958	
SDI-648	Sparse shell and lithic scatter	Cultivated, residential development	1958 / 1991	One STP
SDI-649	Bedrock milling features, subsurface hearth feature, groundstone tools, percussion tools, projectile points, ceramic, polishing pebbles	Cultivated, residential development	1958 / 1961	Five TUs, ten STPs
SDI-650	Bedrock milling feature, ceramic and shell scatter	Water tank erected on site	1958	
SDI-651	Groundstone tool	Cultivated	1958	
SDI-652	Groundstone tools, shell scatter	Cultivated	1958	
SDI-653	Groundstone tools, percussion tools	Cultivated, residential development	1958	
SDI-654	Rock art	House on site	1958 / 1977	
SDI-655	Bedrock milling features, groundstone tools, lithic tools, ceramic and shell scatter	Cultivated	1958 / 2005	Three TUs, nine STPs
SDI-656	Groundstone tools, percussion tools	Cultivated	1958	
SDI-657	Groundstone tools, percussion tools	Cultivated	1958	
SDI-658	Groundstone tool, shell scatter	House on site	1958	
SDI-659	Groundstone tools	Cultivated, residential development	1958	
SDI-660	Bedrock milling features, groundstone tools	None	1958	
SDI-661	Groundstone tool, projectile point	Cultivated, houses on site	1958	
SDI-6934	Lithic scatter	None	1978	
SDI-6935	Lithic scatter	None	1978	

Site Number	Site Features	Disturbances	Year Registered	Testing
SDI-7270	Shell midden and bedrock milling features	None	1979	
SDI-7271	Bedrock milling feature	None	1979	
SDI-7272	Lithic and shell scatter	Graded	1979	
SDI-7273	Shell scatter	Graded	1979	
SDI-7275	Isolated core	None	1979	
SDI-7276	Bedrock milling features	None	1979	
SDI-7278	Lithic scatter	Graded	1979	
SDI-7279	Shell scatter	None	1979	
SDI-7282	Lithic scatter	None	1979	
SDI-7283	Lithic and ceramic scatter	Nothing addressed	1979	
SDI-7286	Lithic scatter	Graded	1979	
SDI-8091	Lithic and shell scatter	Plowed, graded, reservoir constructed	1980	
SDI-8092	Lithic and shell scatter	Plowed, graded, reservoir constructed	1980	
SDI-8241	Rock art, bedrock milling features, lithic flake scatter, groundstone tools, ceramic	Plowed and disked	1973	
SDI-8242	Bedrock milling feature, ceramic and lithic scatter	Plowed, graded, reservoir constructed	1973	
SDI-8246	Midden soil, shell and lithic scatter	Disked	1980	
SDI-8250 A	Bedrock milling feature	None	1980	
SDI-8250 B	Bedrock milling features	None	1980	
SDI-8250 C	Bedrock milling features	None	1980	
SDI-8347	Bedrock milling feature, ceramic and shell scatter	Site cleared, graded	1980	
SDI-8462	Lithic scatter	Fire roads through site	1980	
SDI-8734	Sparse shell and lithic scatter	Fire roads through site	1981	
SDI-8735	Sparse shell and lithic scatter	Fire roads through site	1981	
SDI-8736	Midden soil, burial, bedrock milling features, lithic tools, shell and lithic scatter	Fire roads through site	1981 / 1987	TUs to 80 cm
SDI-8777	Sparse lithic scatter	Fire roads through site	1981	
SDI-9042	Lithic scatter, percussion and precision tools	Paved road through site	1981	

Site Number	Site Features	Disturbances	Year Registered	Testing
SDI-9043	Potential midden, lithic scatter, percussion and precision tools	Fire roads through site	1981	
SDI-9044	Potential midden and lithic scatter	Cultivated	1981	
SDI-9045	Potential midden, lithic scatter, percussion and precision tools	Fire roads through site	1981	
SDI-9046	Missing Site Form			
SDI-9047 (I-4)	Isolated lithic production waste	None	1981	
SDI-9047 (I-5)	Lithic, precision and groundstone tools	None	1981	
SDI-9047 (I-6)	Precision tools, lithic production waste	None	1981	
SDI-9250	Sparse lithic scatter	None	1982	
SDI-9251	Groundstone tools, precision tool and lithic scatter	None	1982	
SDI-9503	Groundstone tools, lithic scatter	Developed golf course	1981	
SDI-9582	Shell midden, lithic and ceramic scatter	Power lines, access roads through site	1974 / 1977	

5.0 IMPACT ANALYSIS AND MITIGATION RECOMMENDATIONS

The analysis of the data regarding recorded cultural resources and areas that may contain unrecorded resources has identified 448 pipeline reaches that could potentially impact historic or prehistoric sites. These impacts would result from clearing, trenching, and grading activities associated with the construction of pipelines or other related facilities and any rehabilitations of existing pipes, which may result in disturbing native soil. Impacts may be direct or indirect, depending on the proximity of the construction to any particular resource. Impacts to resources that are determined to be important under criteria provided in CEQA (Section 15064.5) would represent significantly adverse impacts. Because of the nature of program-level EIR studies, the exact type of impacts represented by the 448 reaches noted in Table 4.0–1 is uncertain. Therefore, for the purposes of this study, all impacts are assumed to be potentially significant and will require the implementation of measures to mitigate the impacts.

To mitigate potentially significant impacts to cultural resources, the following mitigation program should be adopted. In general terms, the mitigation program will require surveys of the reaches or pipelines that may encounter cultural resources. Survey data is needed to establish the presence or absence of archaeological materials for each pipeline.

Proposed Mitigation Measures for CIP Projects:

Prior to the initiation of construction for any of the projects, the following measures must be completed to the satisfaction of the City of Vista:

1. An archaeological survey of the particular pipeline corridor must be completed by a qualified archaeologist. This survey shall include a review of records information or an updated records search to locate all previously recorded archaeological sites within the project area. Any historic or prehistoric sites identified during the survey shall be recorded at the South Coastal Information Center, or, if already recorded, updated forms shall be submitted.

2. If the pipeline or related construction activities will potentially impact an archaeological site, a testing program will be required to fully record the resources, and to evaluate the site. The testing program shall include mapping of all site features and artifacts, and subsurface excavations (shovel test pits or test units) to search for subsurface deposits of cultural materials and assess the content of the deposits. Related laboratory work will be conducted to treat the materials that are recovered from any archaeological investigations.

3. A technical report shall be prepared that will present all of the information gathered from the survey and any site investigations. The report shall identify any significant cultural

resources and evaluate the potential impacts to those resources. If any site evaluated as significant will be impacted by a proposed project, additional mitigation measures will be required to reduce the level of impacts. These mitigation measures would include one of the following:

- A data recovery program to recover sufficient cultural materials to exhaust the research potential of the site such that construction will no longer represent a source of adverse impacts.
  Or
- The construction corridor can be relocated away from the significant cultural site and impacts could be avoided.

4. Implementation of mitigation measures must be part of the conditions of approval of any pipeline or facilities improvement project that is identified as potentially impacting significant cultural resources. Data recovery will be employed whenever a grading or trenching project will directly impact an archaeological site. This process will include the excavation of a sufficiently large percentage of a subsurface deposit that the research potential of the deposit will be exhausted. Typically, a 5% to 15% sample within the trench corridor will be required to complete the data recovery process. Laboratory analysis and research would also be conducted to catalog and analyze all materials and to interpret the data.

5. Indirect impacts may be identified for pipeline projects where the actual grading and trenching are situated adjacent to a significant resource. In cases where construction activities are considered potential indirect impacts because of the possible intrusion into sites by construction equipment, impacts may be mitigated by placing a temporary fence around the site to curtail any intrusions into the site area. Indirect impacts must be addressed during the initial archaeological survey and testing phase of work, with measures adopted as conditions of approval.

6. CIP projects that will pass through or near recorded archaeological sites or which will be constructed through areas where resources may be encountered will require archaeological monitoring. Monitoring of construction grading and trenching will facilitate the identification of any unrecorded resources uncovered by the excavation process. In the event that such resources are discovered, work at that location will be suspended while the archaeological deposit is evaluated. If this evaluation process confirms the deposit is significant, mitigation measures will be required to complete a

data recovery program. Any mitigation measures must be approved by the City before implementation.

The program-level study of cultural resources and proposed CIP projects has identified recorded archaeological sites within certain projects that will either be impacted or possibly impacted. These impacts may be significant if resources are determined to be important. Because of the minimal information available, it is assumed that all impacts are mitigable to levels below significant by the implementation of measures listed above.

6.0 REFERENCES

Bancroft, Hubert Howe
1884 *History of California*, Vols. I and II. The History Company, San Francisco.

Beauchamp, R. Mitchel
1986 *A Flora of San Diego County, California*. Sweetwater River Press, National City, California.

Bean, Lowell John and Florence C. Shipek
1978 Luiseño. *Handbook of North American Indians* Vol. 8. California. Edited by R. F. Heizer. Smithsonian Institution, Washington, D.C.

Bedwell, S. F.
1970 Prehistory and Environment of the Pluvial Fort Rock Area of South-central Oregon. Ph.D. dissertation. Department of Anthropology, University of Oregon, Eugene.

Blick, J. D.
1976 Agriculture in San Diego County. In *San Diego – An Introduction to the Area*. Edited by Philip Pryde. Kendall/Hunt Publishing Company, Dubuque, Iowa.

Bull, Charles S.
1987 A New Proposal: Some Suggestions for San Diego Prehistory. In *San Dieguito-La Jolla: Chronology and Controversy*. Edited by Dennis Gallegos. *San Diego County Archaeological Society Research Paper* (No. 1).

Byrd, B.F.
1998 Harvesting the Littoral Landscape During the Late Holocene: New Perspectives from Northern San Diego County. In *Journal of California and Great Basin Anthropology* 20(2):195-218.

Carrico, Richard L. and Clifford V. F. Taylor
1983 *Excavation of a Portion of Ystagua: A Coastal Valley Ipai Settlement.* Environmental Impact Report on file at the City of San Diego, Environmental Quality Division.

Carrico, R. L. and D.R. Gallegos
1988 *Data Recovery Program for a Portion of Pump Station 64 Force Main Improvement*. Manuscript on file, South Coastal Information Center, San Diego State University, San Diego, California.

Crouch, Herbert
1915 Reminiscences, 1868-1915. Unpublished manuscript, California Room, San Diego Public Library; and SDHS Library, Serra Museum.

Davis, E. L., C. W. Brott, and D. L. Weide
1969 The Western Lithic Co-Tradition. *San Diego Museum Papers* (No. 6). San Diego Museum of Man, San Diego.

Elliott, Wallace W.
1883 *History of San Bernardino and San Diego Counties* (1965 Edition). Riverside Museum Press, Riverside, California.

Engelhardt, Zephryn
1921 *San Diego Mission*. James M. Barry Company, San Francisco.

Gallegos, Dennis
1987 A Review and Synthesis of Environmental and Cultural Material for the Batiquitos Lagoon Region. In *San Dieguito-La Jolla: Chronology and Controversy*. Editor. (San Diego County Archaeological Society Research Paper [No. 1]).

1991 Antiquity and Adaptation at Agua Hedionda, Carlsbad, California. In *Hunter-Gatherers of Early Holocene Coastal California,* edited by John M. Erlandson and Roger H. Colton, pp. 19-41. Perspectives in California Archaeology, No. 1. Institute of Archaeology, University of California, Los Angeles.

1992 Patterns and Implications of Coastal Settlement in San Diego County: 9,000 to 1,300 Years Ago. In *Essays on the Prehistory of Maritime California*. Edited by Terry Jones. Center for Archaeological Research, Davis, California.

Gallegos, Dennis and Richard Carrico
1984 *Windsong Shores Data Recovery Program for Site W-131, Carlsbad, California*. Report on file at the South Coastal Information Center, San Diego State University.

Gallegos, Dennis, R. Phillips and Carolyn Kyle
1988 *Five Thousand Years of Maritime Subsistence at Ballast Point Prehistoric Site SDI-48 (W-164), San Diego, California*. Prepared for the Department of the Navy by Westec Services, Inc., San Diego.

Gallegos, Dennis, Andrew Pigniolo and Roxana Phillips
1989 *A Cultural And Paleontological Inventory Update for the University of California at San Diego and Scripps Institution of Oceanography*. Manuscript on file with the South Coastal Information Center, San Diego State University.

Gordinier, Jerry G.
1966 Problems of Settlement in the San Diego Foothills. Unpublished Master's thesis, San Diego State College, San Diego.

Hayden, Julian D.
1987 Notes on the Apparent Course of San Dieguito Development. In *San Dieguito-La Jolla: Chronology and Controversy*. Edited by Susan M. Hector. San Diego County Archaeological Society Research Paper (No. 1).

Heiges, Harvey
1976 The Economic Base of San Diego County. In *San Diego – An Introduction to the Region*. Edited by Philip Pryde. Kendall/Hunt Publishing Company, Dubuque, Iowa.

Kaldenberg, Russell
1982 Rancho Park North: A San Dieguito-La Jolla Shellfish Processing Site in Coastal Southern California. *Occasional Paper* (No. 6). Imperial Valley College Museum Society, El Centro, California.

Koerper, Henry C., Paul E. Langenwalter and Adella Schroth
1986 *The Agua Hedionda Project Archaeological Investigations at CA-SDI-5353 and CA-SDI-9649*. Report on file at the South Coastal Information Center, San Diego State University.

1991 Early Holocene Adaptations and the Transition Phase Problem: Evidence from the Allan O. Kelly Site, Agua Hedionda Lagoon. In *Hunter-Gatherers of Early Holocene Coastal California*. Edited by Jon M. Erlandson and Roger H. Colten. Perspectives in California Archaeology, Volume 1, Institute of Archaeology, University of California, Los Angeles.

Kroeber, A. L.
1925 *Handbook of the Indians of California*. Dover Editions, Dover Publications, Inc., New York.

Meighan, C. W.
1954 A Late Complex in Southern California Prehistory. In *Southwestern Journal of Anthropology* Vol. 10, No. 2.

Miller, Jaquelin Neva
1966 The Present and the Past Molluscan Faunas and Environments of Four Southern California Coastal Lagoons. Unpublished Master's thesis, University of California, San Diego.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, New York.

Moriarty, James R., III

1966 Culture Phase Divisions Suggested by Topological Change Coordinated with Stratigraphically Controlled Radiocarbon Dating in San Diego. *Anthropological Journal of Canada* (Vol. 4, No. 4).

1967 Transitional Pre-Desert Phase in San Diego County. *Science* Vol. 155.

1969 San Dieguito Complex: Suggested Environmental and Cultural Relationships. *Anthropological Journal of Canada* (Vol. 7, No. 3).

1987 A Separate Origins Theory for Two Early Man Cultures in California. In *San Dieguito-La Jolla: Chronology and Controversy*. Edited by Susan M. Hector. San Diego County Archaeological Society Research Paper (No. 1).

Palou, Fray Francisco

1926 *Historical Memoirs of New California*. Edited by Herbert Eugene Bolton (4 Volumes). University of California Press, Berkeley.

Pitt, Leonard

1966 *The Decline of the Californias*. University of California Press, Los Angeles.

Pourade, Richard F.

1967 *The Rising Tide: Southern California in the Twenties and Thirties*. Union-Tribune Publishing Company, San Diego.

Price, Glenn W.

1967 *Origins of the War with Mexico*. University of Texas Press, Austin.

Raven-Jennings, Shelly, Brian F. Smith and Johnna L. Buysse

1996 *The Results of a Cultural Resource Study at the 4S Ranch, Rancho Bernardo, County of San Diego*. Report on file at Brian F. Smith and Associates, San Diego, California.

Rogers, Malcolm J.

1939 Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. *San Diego Museum Papers* (No. 3). San Diego Museum of Man.

1966 *Ancient Hunters of the Far West*. Edited with contributions by H. M. Worthington, E. L. Davis, and Clark W. Brott. Union Tribune Publishing Company, San Diego.

Rolle, Andrew F.

1969 *California: A History* (Second Edition). Thomas Y. Crowell Company, New York.

Shipek, Florence
1977 A Strategy for Change: The Luiseño of Southern California. Unpublished Doctoral dissertation on file at the University of Hawaii.

Shumway, George, Carl L. Hubbs, and James R. Moriarty
1961 Scripps Estate Site, San Diego, California: A La Jollan Site Dated 5,460-7,370 Years Before the Present. *Annals of the New York Academy of Sciences* (Vol. 93, No. 3).

Smith, Brian F.
1987 *The Excavations at Site CA-SDI-9956/W-3376*. Environmental Impact Report on file at the County of San Diego, Department of Planning and Land Use.

Smith, Brian F. & James R. Moriarty III
1983 *An Archaeological Evaluation of a Drainage Channel Project at the South Sorrento Business Park*. Environmental Impact Report on file at the City of San Diego.

1985 *The Archaeological Excavations at Site W-20*. Environmental Impact Report on file at the City of San Diego, Environmental Quality Division.

True, D. L.
1958 An Early Complex in San Diego County, California. In *American Antiquity* (Vol. 23, No. 3).

1980 The Pauma Complex in Northern San Diego County: 1978. In *Journal of New World Archaeology* 3(4). Institute of Archaeology, University of California, Los Angeles.

True, D.L., C.W. Meighan, and Harvey Crew
1974 Archaeological Investigations at Molpa, San Diego County, California. *University of California Publications in Anthropology* (11), Berkeley.

Van Dyke, Theodore
1886 *Southern California*. Fords, Howard and Hulbert.

Walker, E.F.
1951 Five Prehistoric Sites in Los Angeles County, California. *Publications of the Frederick Webb Hodge Anniversary Publication Fund* 6:1-116

Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* (Vol. 11, No. 3). Albuquerque.

Warren, Claude N.
1966 The San Dieguito Type Site: Malcolm J. Roger's 1938 Excavation on the San Dieguito River. San Diego Museum Papers (6).

1967 The San Dieguito Complex: A Review and Hypothesis. *American Antiquity*, Vol. 2, No. 2. Salt Lake City, Utah.

1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. In *Archaic Prehistory in the Western United States*. Edited by C. Irwin-Williams. *Eastern New Mexico Contributions in Anthropology* (Vol. 1, No. 3).

Warren, C. N. and D. L. True
1961 The San Dieguito Complex and Its Place in California Prehistory. *Archaeological Survey Annual Report 1960–1961*. University of California, Los Angeles.

Warren, C. N., D. L. True and Ardith A. Eudy
1961 Early Gathering Complexes of Western San Diego County: Results and Interpretations of an Archaeological Survey. *Archaeological Survey Annual Report* 1960–1961:246–338. University of California, Los Angeles

WESTEC Services, Inc.
1975 *Rimbach Property Archaeological Report*. Manuscript on file, South Coastal Information Center, San Diego State University, San Diego, California.

Newspapers

San Diego Union, February 6, 1868
San Diego Union, November 10, 1870
San Diego Union, January 2, 1872

APPENDIX C

Complete Inventory of Sewer Master Plan Update Project Components

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
OV5081.00-OV5083.00	13_11	348	12			Yes		
OV5083.00-OV5084.A0	13_11	33	12			Yes		
OV5079.00-OV5080.00	13_11	337	12			Yes		
OV5062.00-OV5063.00	13_12	469	8			Yes		
OV5078.00-OV5079.00	13_12	344	12			Yes		
V17001.00-V17002.00	13_14	183	6					Yes
V17002.00-V17004.00	13_14	373	8		Yes			
V17005.00-V17006.00	13_14	347	8		Yes			
V17010.00-V17011.00	13_14	241	10		Yes			
V17004.00-V17010.00	13_14	271	10		Yes			
V17011.00-V17012.00	13_14	310	10		Yes			
V11002.00-V11004.00	14_12	300	6		Yes			Yes
V11001.00-V11002.00	14_12	220	6					Yes
V11006.00-V11007.00	14_12	316	6					Yes
V11007.00-V11011.00	14_12	255	6					Yes
V14035.00-V14036.00	14_12	168	6					Yes
V14037.00-V14038.00	14_12	230	6					Yes
V14029.00-V14030.A0	14_12	275	6					Yes
V14030.A0-V14030.00	14_12	55	6					Yes
V11009.00-V11010.00	14_12	106	8		Yes		Yes	
V11005.00-V11010.00	14_12	331	8		Yes		Yes	
V11010.00-V11011.00	14_12	37	8		Yes		Yes	
V11004.00-V11005.00	14_12	328	8		Yes		Yes	
V11003.00-V11004.00	14_12	328	8				Yes	
V11008.00-V11009.00	14_12	244	8				Yes	
V14002.00-V14003.00	14_12	70	8		Yes			
V14001.00-V14002.00	14_12	110	8		Yes			
V17014.FG-V17014.F0	14_14	114	8			Yes		
V15015.P0-V15015.00	14_14	442	8		Yes			
V17028.00-V17030.00	14_14	166	8		Yes			
V17015.00-V17016.00	14_14	270	10		Yes			
V17014.00-V17015.00	14_14	380	10		Yes			
V17016.00-V17018.00	14_14	127	10		Yes			
V17018.00-V17019.00	14_14	475	10		Yes			
V17012.00-V17013.00	14_14	300	10		Yes			
V17013.00-V17014.I0	14_14	30	10		Yes			
V17014.I0-V17014.00	14_14	267	10		Yes			
V11086.00-V11087.00	15_11	135	6					Yes
V11088.A0-V11088.00	15_11	350	8				Yes	
V11085.00-V11087.00	15_11	49	8				Yes	
V11087.00-V11088.A0	15_11	301	8				Yes	
V10020.A0-V10020.00	15_11	253	8		Yes			
V11028.00-V11029.00	15_11	244	8		Yes			
V10040.00-V10041.00	15_11	350	8		Yes			
V10039.00-V10041.00	15_11	250	8		Yes			
V11081.00-V11082.00	15_11	173	8		Yes			
V11079.00-V11081.00	15_11	162	8		Yes			
V11078.00-V11079.00	15_11	157	8		Yes			
V11042.00-V11043.00	15_11	219	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V11043.00-V11044.00	15_11	302	8		Yes			
V11052.00-V11054.00	15_12	167	6				Yes	Yes
V11051.00-V11052.00	15_12	43	6				Yes	Yes
V11050.00-V11051.00	15_12	225	6					Yes
V11049.00-V11050.00	15_12	146	6					Yes
V11053.A0-V11054.00	15_12	235	6					Yes
V11012.00-V11013.00	15_12	175	6					Yes
V14046.00-V14047.00	15_12	200	6					Yes
V14047.00-V14048.00	15_12	195	6					Yes
V14045.00-V14046.00	15_12	170	6					Yes
V14042.00-V14043.00	15_12	159	6					Yes
V14049.00-V14050.00	15_12	150	6					Yes
V11014.00-V11015.00	15_12	291	8		Yes		Yes	
V11013.00-V11014.00	15_12	401	8		Yes		Yes	
V11011.00-V11013.00	15_12	406	8		Yes		Yes	
V11055.00-V11089.00	15_12	229	8				Yes	
V11088.00-V11089.00	15_12	349	8				Yes	
V11015.00-V11048.00	15_12	181	8				Yes	
V11048.00-V11051.00	15_12	258	8				Yes	
V11054.00-V11055.00	15_12	167	8				Yes	
V11060.00-V11062.00	15_12	238	8		Yes			
V11064.00-V11065.00	15_12	315	8		Yes			
V11037.00-V11038.00	15_12	269	8		Yes			
V11046.00-V11047.00	15_12	242	8		Yes			
V11073.00-V11074.00	15_12	350	8		Yes			
V14026.00-V14027.00	15_13	71	6					Yes
V14025.00-V14027.00	15_13	258	6					Yes
V15041.00-V15042.00	15_13	225	6					Yes
V15046.00-V15047.00	15_13	161	6					Yes
V15044.00-V15045.00	15_13	350	6					Yes
V14054.00-V14059.00	15_13	168	8			Yes		
V15073.00-V15074.00	15_13	340	8		Yes			
V15075.00-V15076.00	15_13	338	8		Yes			
V15074.00-V15075.00	15_13	320	8		Yes			
V14077.00-V14078.00	15_13	321	8		Yes			
V17038.E0-V17038.F0	15_14	300	6					Yes
V17053.00-V17054.00	15_14	328	8		Yes			
V17051.00-V17052.00	15_14	328	8		Yes			
V17052.00-V17053.00	15_14	328	8		Yes			
V17048.00-V17049.00	15_14	163	8		Yes			
V17032.00-V17034.00	15_14	248	8		Yes			
V17035.00-V17036.00	15_14	300	8		Yes			
V17047.00-V17048.00	15_14	88	8		Yes			
V17046.00-V17047.00	15_14	316	8		Yes			
V17038.00-V17039.00	15_14	363	8		Yes			
V15015.00-V15017.00	15_14	260	8		Yes			
V15017.00-V15020.00	15_14	210	8		Yes			
V15020.00-V15021.00	15_14	90	8		Yes			
V15021.00-V15028.00	15_14	23	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V17045.00-V17046.00	15_14	350	8		Yes			
V17040.00-V17041.00	15_14	77	8		Yes			
V17039.00-V17040.00	15_14	350	8		Yes			
V17049.00-V17054.00	15_14	332	10		Yes			
V17054.00-V17055.00	15_14	333	10		Yes			
V17055.00-V17056.00	15_14	300	10		Yes			
V17036.00-V17037.00	15_14	336	10		Yes			
V17037.00-V17049.00	15_14	332	10		Yes			
V17019.00-V17036.00	15_14	475	10		Yes			
V15024.00-V15028.00	15_14	188	8		Yes			
V17038.D0-V17038.E0	15_15	83	6					Yes
V17038.C0-V17038.D0	15_15	5	6					Yes
V18012.00-V18013.00	15_15	33	8			Yes		
V18013.00-V18014.00	15_15	87	8			Yes		
V18011.00-V18012.00	15_15	148	8			Yes		
V18007.00-V18008.00	15_15	111	8			Yes		
V18008.00-V18009.00	15_15	72	8			Yes		
V19021.00-V19025.00	15_15	306	8		Yes			
V18021.00-V18022.00	15_15	330	8		Yes			
V18020.00-V18021.00	15_15	332	8		Yes			
V19026.00-V19027.00	15_15	305	8		Yes			
V19027.00-V19028.00	15_15	179	8		Yes			
V19028.00-V19029.00	15_15	261	8		Yes			
V19029.00-V19030.00	15_15	261	8		Yes			
V19079.00-V19080.00	15_16	289	6					Yes
OV4011.00-OV4014.00	16_10	350	8			Yes		
V06042.00-V06045.00	16_10	217	8		Yes			
V06043.00-V06045.00	16_10	350	8		Yes			
V06044.00-V06045.00	16_10	231	8		Yes			
V10006.00-V10007.00	16_10	249	8		Yes			
V10053.00-V10054.00	16_11	177	8		Yes			
V10029.00-V10031.00	16_11	34	8		Yes			
V10026.00-V10027.00	16_11	93	8		Yes			
V11106.00-V11107.00	16_11	320	8		Yes			
V10025.00-V10026.00	16_11	139	8		Yes			
V10027.00-V10029.00	16_11	134	8		Yes			
V10035.00-V10036.00	16_11	163	8		Yes			
V11100.00-V11101.00	16_11	94	8		Yes			
V11099.00-V11100.00	16_11	87	8		Yes			
V11098.00-V11099.00	16_11	152	8		Yes			
V10036.00-V10037.00	16_11	30	8		Yes			
V10037.00-V10038.00	16_11	121	8		Yes			
V10007.00-V10008.00	16_11	268	8		Yes			
V14082.00-V14083.00	16_12	276	6					Yes
V14081.00-V14083.00	16_12	230	6					Yes
V11091.00-V11092.00	16_12	310	8				Yes	
V11089.00-V11090.00	16_12	348	8				Yes	
V11090.00-V11091.00	16_12	229	8				Yes	
V14089.AC-V14089.A0	16_12	69	8		Yes	Yes		

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V14089.A0-V14089.B0	16_12	74	8			Yes		
V11119.00-V11120.00	16_12	230	8		Yes			
V14121.00-V14122.A0	16_12	261	8		Yes			
V11116.00-V11119.00	16_12	121	8		Yes			
V14100.00-V14108.00	16_12	156	8		Yes			
V14090.00-V14091.00	16_12	342	8	V10	Yes			
V14109.00-V14116.00	16_12	231	8	V10				
V14089.00-V14090.00	16_12	124	8	V10				
V14091.00-V14109.00	16_12	226	8	V10				
V14116.00-V14117.00	16_12	73	8	V10				
V14118.00-V14119.00	16_12	298	10	V10				
V14117.00-V14118.00	16_12	430	10	V10				
V14089.C0-V14089.00	16_12	72	10	V10				
V14088.00-V14089.B0	16_12	377	10	V10				
V14089.B0-V14089.C0	16_12	191	10	V10				
V14066.00-V14067.00	16_13	133	6					Yes
V14065.00-V14066.00	16_13	154	6					Yes
V14069.00-V14070.00	16_13	184	6					Yes
V14068.00-V14070.00	16_13	272	6					Yes
V14067.00-V14068.00	16_13	133	6					Yes
V15052.00-V15053.00	16_13	123	6					Yes
V15051.00-V15053.00	16_13	110	6					Yes
V14070.00-V14071.00	16_13	323	8		Yes			
V15090.00-V15091.00	16_13	190	8		Yes			
V12001.00-V12003.00	16_13	195	8		Yes			
V15102.00-V15103.00	16_13	270	8		Yes			
V15098.00-V15102.00	16_13	246	8		Yes			
V15101.00-V15102.00	16_13	250	8		Yes			
V15103.00-V15104.00	16_13	272	8		Yes			
V15054.00-V15055.00	16_13	27	8		Yes			
V15086.00-V15087.00	16_13	180	8		Yes			
V15085.00-V15087.00	16_13	481	8		Yes			
V17067.00-V17068.00	16_14	350	8		Yes			
V18029.00-V18030.00	16_14	202	10		Yes			
V17056.00-V17057.00	16_14	215	10		Yes			
V17057.00-V17058.00	16_14	392	10		Yes			
V17058.00-V17068.00	16_14	276	10		Yes			
V17068.00-V17069.00	16_14	276	10		Yes			
V17069.00-V17070.00	16_14	300	10		Yes			
V17070.00-V17071.00	16_14	317	10		Yes			
V15080.00-V15081.00	16_14	330	12		Yes			
V15105.00-V15106.00	16_14	293	12		Yes			
V15081.00-V15105.00	16_14	331	12		Yes			
V17061.A0-V17061.00	16_14	5	8		Yes			
V17064.00-V17065.00	16_14	83	8		Yes			
V17060.00-V17062.00	16_14	281	8		Yes			
V18027.00-V18028.00	16_14	360	10		Yes			
V18028.00-V18029.00	16_14	310	10		Yes			
V18024.00-V18025.00	16_15	332	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V19095.00-V19096.00	16_15	135	8		Yes			
V19037.00-V19038.00	16_15	342	8		Yes			
V19035.00-V19036.00	16_15	389	8		Yes			
V19041.00-V19098.00	16_15	376	8		Yes			
V18025.00-V18026.00	16_15	321	10		Yes			
V19084.00-V19085.00	16_15	342	8		Yes			
V18026.00-V18027.00	16_15	300	10		Yes			
V19061.00-V19062.00	16_16	331	6		Yes			Yes
V19060.00-V19061.00	16_16	195	6					Yes
V19058.00-V19059.00	16_16	5	6					Yes
V19059.00-V19060.00	16_16	129	6					Yes
V19056.00-V19057.00	16_16	166	6					Yes
V19057.00-V19059.00	16_16	194	6					Yes
V19047.00-V19048.00	16_16	48	8			Yes		
V19063.00-V19078.00	16_16	340	8		Yes			
V19054.00-V19055.00	16_16	390	8		Yes			
V19055.00-V19062.00	16_16	58	8		Yes			
OV4003.00-OV4025.00	17_10	34	8			Yes		
V06047.A0-V06047.00	17_10	185	8		Yes			
V06049.00-V06056.00	17_10	213	8		Yes			
V06045.00-V06046.00	17_10	284	8		Yes			
V06046.00-V06047.A0	17_10	194	8		Yes			
V06050.00-V06051.00	17_10	134	8		Yes			
V06051.00-V06054.00	17_10	132	8		Yes			
V07007.00-V07009.00	17_10	364	8		Yes			
OV4027.00-OV4028.00	17_10	204	10					
V09015.00-V09016.00	17_11	239	6		Yes			Yes
V09014.00-V09015.00	17_11	124	6		Yes			Yes
V10114.00-V10115.00	17_11	225	6		Yes			Yes
V10081.00-V10082.00	17_11	190	6					Yes
V10076.00-V10077.00	17_11	210	6					Yes
V09001.00-V09002.00	17_11	160	6					Yes
V07016.00-V07018.00	17_11	75	6					Yes
V07017.00-V07018.00	17_11	348	6					Yes
V10116.00-V10118.00	17_11	260	8		Yes			
V10096.00-V10097.00	17_11	135	8		Yes			
V09003.A0-V09003.00	17_11	130	8		Yes			
V10091.00-V10092.00	17_11	169	8		Yes			
V10092.00-V10097.B0	17_11	196	8		Yes			
V10115.00-V10116.00	17_11	203	8		Yes			
V10113.00-V10115.00	17_11	62	8		Yes			
V10113.A0-V10113.00	17_11	86	8		Yes			
V10111.00-V10113.A0	17_11	200	8		Yes			
V10088.00-V10089.00	17_11	238	8		Yes			
V10112.00-V10113.00	17_11	330	8		Yes			
V10117.00-V10118.00	17_11	325	8		Yes			
V10129.00-V10130.00	17_12	314	6		Yes		Yes	Yes
V13066.00-V13067.00	17_12	20	6				Yes	Yes
V13067.00-V13068.00	17_12	58	6				Yes	Yes

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V13060.00-V13061.00	17_12	332	6				Yes	Yes
V13059.00-V13060.00	17_12	144	6				Yes	Yes
V13061.00-V13063.00	17_12	223	6				Yes	Yes
V13063.00-V13064.00	17_12	126	6				Yes	Yes
V10128.00-V10129.00	17_12	122	6				Yes	Yes
V13064.00-V13065.00	17_12	217	6				Yes	Yes
V13042.00-V13043.00	17_12	285	6					Yes
V13062.00-V13063.00	17_12	138	8				Yes	
V13037.00-V13038.00	17_12	300	8				Yes	
V13057.00-V13058.00	17_12	194	8				Yes	
V13058.00-V13065.00	17_12	350	8				Yes	
V13065.00-V13082.00	17_12	350	8				Yes	
V13036.00-V13037.00	17_12	158	8				Yes	
V13084.00-V13085.00	17_12	125	8		Yes			
V13082.00-V13085.00	17_12	179	8		Yes			
V13022.00-V13023.00	17_12	271	8		Yes			
V13017.00-V13018.00	17_12	177	8		Yes			
V13016.00-V13017.00	17_12	255	8		Yes			
V13018.00-V13021.00	17_12	131	8		Yes			
V13020.00-V13021.00	17_12	159	8		Yes			
V14119.00-V14120.00	17_12	280	10	V10				
V14120.00-V10141.A0	17_12	186	10	V10				
V13039.A0-V13039.B0	17_13	69	6				Yes	Yes
V13039.B0-V13039.00	17_13	36	6				Yes	Yes
V12014.00-V12015.00	17_13	148	6		Yes			Yes
V13011.00-V13013.00	17_13	205	6		Yes			Yes
V12006.00-V12007.00	17_13	146	6					Yes
V12024.00-V12025.00	17_13	207	6					Yes
V12032.00-V12034.00	17_13	256	6					Yes
V12031.00-V12032.00	17_13	124	6					Yes
V12012.00-V12013.00	17_13	178	6					Yes
V12030.00-V12031.00	17_13	145	6					Yes
V12011.00-V12012.00	17_13	310	6					Yes
V12010.00-V12011.00	17_13	35	6					Yes
V12009.00-V12011.00	17_13	140	6					Yes
V16035.00-V16039.00	17_13	324	8		Yes		Yes	
V12025.00-V12026.00	17_13	278	8		Yes			
V15121.00-V16048.00	17_13	397	8		Yes			
V12045.B0-V12045.00	17_13	348	8		Yes			
V12035.00-V12037.00	17_13	366	8		Yes			
V12044.00-V12045.B0	17_13	348	8		Yes			
V13003.00-V13004.00	17_13	118	8		Yes			
V15120.00-V15121.00	17_13	300	8		Yes			
V15119.00-V15120.00	17_13	304	8		Yes			
V15107.00-V15108.00	17_13	235	8		Yes			
V12050.00-V12051.00	17_13	54	8		Yes			
V12008.00-V12013.00	17_13	265	8		Yes			
V12002.00-V12003.00	17_13	72	8		Yes			
V12004.00-V12005.00	17_13	296	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V12005.00-V12007.00	17_13	135	8		Yes			
V12049.00-V12050.00	17_13	182	8		Yes			
V13031.00-V13032.00	17_13	67	8		Yes			
V13032.00-V13033.00	17_13	251	8		Yes			
V12017.00-V12018.00	17_13	160	8		Yes			
V12016.00-V12017.00	17_13	180	8		Yes			
V13025.00-V13026.00	17_13	109	8		Yes			
V15112.00-V16050.00	17_13	461	12		Yes			
V15111.00-V15112.00	17_13	400	12		Yes			
V16048.00-V16049.00	17_13	27	15		Yes			
V16049.00-V16050.00	17_13	66	15		Yes			
V12019.00-V12020.00	17_13	173	8		Yes			
V12021.00-V12022.00	17_13	420	8		Yes			
V12015.00-V12018.00	17_13	181	8		Yes			
V13029.00-V13030.00	17_13	224	8		Yes			
V12020.00-V12021.00	17_13	182	8		Yes			
V13012.00-V13013.00	17_13	39	8		Yes			
V13013.00-V13014.00	17_13	281	8		Yes			
V13006.00-V13007.00	17_13	186	8		Yes			
V13005.00-V13006.00	17_13	179	8		Yes			
V13010.00-V13014.00	17_13	145	8		Yes			
V13009.00-V13010.00	17_13	162	8		Yes			
V13014.00-V13015.00	17_13	181	8		Yes			
V13002.00-V13005.00	17_13	195	8		Yes			
V13004.00-V13005.00	17_13	108	8		Yes			
V12013.00-V12015.00	17_13	235	8		Yes			
V13002.A0-V13002.00	17_13	85	8		Yes			
V21192.00-V21193.00	17_13	233	18	V11				
V16029.00-V16031.00	17_14	150	6					Yes
V19114.00-V19115.00	17_14	300	6					Yes
V19115.00-V19116.00	17_14	300	6					Yes
V16001.00-V16002.00	17_14	64	6					Yes
V16004.00-V16005.00	17_14	101	6					Yes
V16028.00-V16029.00	17_14	133	6					Yes
V16003.00-V16004.00	17_14	56	6					Yes
V16002.00-V16003.00	17_14	70	6					Yes
V16006.00-V16007.00	17_14	268	8		Yes		Yes	
V16015.00-V16016.00	17_14	310	8				Yes	
V16019.00-V16020.00	17_14	202	8				Yes	
V16014.00-V16015.00	17_14	61	8				Yes	
V16020.00-V16021.00	17_14	310	8				Yes	
V16021.00-V16022.00	17_14	303	8				Yes	
V16008.00-V16009.00	17_14	289	8				Yes	
V16007.00-V16015.00	17_14	280	8				Yes	
V16012.00-V16014.00	17_14	162	8				Yes	
V16011.00-V16012.00	17_14	252	8				Yes	
V16009.00-V16011.00	17_14	128	8				Yes	
V16010.00-V16011.00	17_14	84	8				Yes	
V16016.00-V16019.00	17_14	202	8				Yes	

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V16022.00-V16023.00	17_14	191	8				Yes	
V16023.00-V16035.00	17_14	55	8				Yes	
V16030.00-V16031.00	17_14	189	8		Yes			
V19116.00-V18030.00	17_14	171	8		Yes			
V19113.00-V19116.00	17_14	328	8		Yes			
V16033.00-V16034.00	17_14	250	8		Yes			
V16032.00-V16033.00	17_14	233	8		Yes			
V15116.00-V15117.00	17_14	399	8		Yes			
V15117.00-V15118.00	17_14	360	8		Yes			
V15118.00-V15119.00	17_14	330	8		Yes			
V15110.00-V15111.00	17_14	359	12		Yes			
V15109.00-V15110.00	17_14	327	12		Yes			
V16005.00-V16006.00	17_14	378	8		Yes			
V19108.00-V19109.00	17_15	350	6		Yes			Yes
V20072.B0-V20072.00	17_15	120	8			Yes		
V20072.A0-V20072.B0	17_15	68	8			Yes		
V20077.00-V20078.00	17_15	314	8		Yes			
V20071.00-V20072.A0	17_15	293	8		Yes			
V19104.00-V19105.00	17_15	122	8		Yes			
V20074.00-V20075.00	17_15	251	8		Yes			
V19069.00-V19070.00	17_16	334	8		Yes			
V19077.00-V19078.00	17_16	293	8		Yes			
V19074.00-V19075.00	17_16	190	8		Yes			
V19073.00-V19075.00	17_16	331	8		Yes			
V19065.00-V19068.00	17_16	161	8		Yes			
V19064.00-V19065.00	17_16	154	8		Yes			
V20027.00-V20028.00	17_16	141	8		Yes			
V19066.00-V19067.00	17_16	360	8		Yes			
V03032.D0-V03032.00	18_09	102	6					Yes
V06018.00-V06019.00	18_09	235	8		Yes			
V03023.C0-V03023.D0	18_09	181	8		Yes			
V07043.00-V07044.00	18_10	300	6				Yes	Yes
V07044.00-V07045.00	18_10	210	6				Yes	Yes
V06093.00-V06094.00	18_10	120	6		Yes			Yes
V06073.00-V06074.00	18_10	180	6		Yes			Yes
V06092.00-V06093.00	18_10	120	6					Yes
V06081.00-V06083.00	18_10	231	6					Yes
V06076.00-V06077.00	18_10	125	6					Yes
V06080.00-V06081.00	18_10	322	6					Yes
V06085.00-V06086.00	18_10	72	6					Yes
V06087.00-V06088.00	18_10	185	6					Yes
V06082.00-V06083.00	18_10	121	6					Yes
V06077.00-V06080.00	18_10	26	6					Yes
V07033.00-V07034.00	18_10	350	6					Yes
V07034.00-V07036.00	18_10	300	6					Yes
V07042.00-V07043.00	18_10	117	8				Yes	
V07045.00-V07046.00	18_10	295	8				Yes	
V06034.00-V06037.00	18_10	227	8		Yes			
V06071.00-V06072.00	18_10	270	8		Yes			

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V07029.00-V07030.00	18_10	135	8		Yes			
V07013.00-V07014.00	18_10	175	8		Yes			
V06067.00-V06068.00	18_10	266	8		Yes			
V06068.00-V06069.00	18_10	183	8		Yes			
V06069.00-V06070.00	18_10	248	8		Yes			
V06033.00-V06034.00	18_10	316	8		Yes			
V06032.00-V06033.00	18_10	195	8		Yes			
V06091.00-V06094.00	18_10	198	8		Yes			
V06028.00-V06029.00	18_10	216	8		Yes			
V06075.00-V06089.00	18_10	175	8		Yes			
V06072.00-V06074.00	18_10	50	8		Yes			
V06070.00-V06071.00	18_10	251	8		Yes			
V06088.00-V06089.00	18_10	190	8		Yes			
V06090.00-V06091.00	18_10	253	8		Yes			
V07012.00-V07013.00	18_10	168	8		Yes			
V09018.A0-V09018.00	18_11	416	6					Yes
V09022.00-V09023.00	18_11	363	6					Yes
V09005.00-V09006.00	18_11	73	6					Yes
V09028.00-V09029.00	18_11	475	6					Yes
V09023.00-V09025.00	18_11	216	6					Yes
V09006.00-V09007.00	18_11	300	6					Yes
V09037.00-V09038.00	18_11	104	6					Yes
V09036.00-V09037.00	18_11	70	6					Yes
V09039.00-V09040.00	18_11	206	6					Yes
V09043.00-V09045.00	18_11	235	6					Yes
V09031.00-V09032.00	18_11	280	6					Yes
V09030.00-V09031.00	18_11	195	6					Yes
V07037.00-V07038.00	18_11	320	6					Yes
V07035.00-V07036.00	18_11	230	6					Yes
V07038.00-V07039.00	18_11	233	6					Yes
V07039.00-V07040.00	18_11	200	6					Yes
V07040.00-V07041.00	18_11	96	6					Yes
V07041.00-V07046.00	18_11	321	6					Yes
V07048.00-V07049.00	18_11	300	6					Yes
V09041.00-V09042.00	18_11	225	6					Yes
V09044.00-V09045.00	18_11	225	6					Yes
V07024.00-V07025.00	18_11	265	6					Yes
V07025.00-V07026.00	18_11	161	6					Yes
V07052.00-V07053.00	18_11	124	8				Yes	
V07049.00-V07052.00	18_11	137	8				Yes	
V07053.00-V07054.00	18_11	301	8				Yes	
V07036.00-V07046.00	18_11	250	8				Yes	
V07046.00-V07047.00	18_11	115	8				Yes	
V09004.00-V09007.00	18_11	28	8		Yes			
V09019.00-V09020.00	18_11	225	8		Yes			
V09020.00-V09021.00	18_11	43	8		Yes			
V09021.00-V09023.00	18_11	153	8		Yes			
V09024.00-V09025.00	18_11	275	8		Yes			
V09009.00-V09010.00	18_11	350	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V07050.00-V07051.00	18_11	107	8		Yes			
V09010.00-V09011.00	18_11	266	8		Yes			
V09003.00-V09004.00	18_11	337	8		Yes			
V09007.00-V09008.00	18_11	322	8		Yes			
V09008.00-V09010.00	18_11	254	8		Yes			
V07022.00-V07026.J0	18_11	186	8		Yes			
V07019.00-V07021.00	18_11	300	8		Yes			
V13050.00-V13051.00	18_12	308	6		Yes		Yes	Yes
V13107.00-V13108.00	18_12	215	6				Yes	Yes
V13105.00-V13106.00	18_12	111	6				Yes	Yes
V13108.00-V13109.00	18_12	328	6				Yes	Yes
V13106.00-V13108.00	18_12	100	6				Yes	Yes
V12096.00-V12097.00	18_12	204	6				Yes	Yes
V13117.00-V13118.00	18_12	214	6				Yes	Yes
V13135.00-V13138.00	18_12	210	6				Yes	Yes
V13137.00-V13138.00	18_12	460	6				Yes	Yes
V12091.00-V12097.00	18_12	213	6				Yes	Yes
V13053.00-V13054.00	18_12	160	6				Yes	Yes
V13054.00-V13055.00	18_12	250	6				Yes	Yes
V13102.00-V13103.00	18_12	245	6				Yes	Yes
V13101.00-V13102.00	18_12	243	6				Yes	Yes
V13109.00-V13110.A0	18_12	500	6				Yes	Yes
V13113.00-V13115.00	18_12	277	6				Yes	Yes
V13121.00-V13123.00	18_12	190	6				Yes	Yes
V13122.00-V13123.00	18_12	390	6				Yes	Yes
V13123.00-V13135.00	18_12	170	6				Yes	Yes
V13134.00-V13135.00	18_12	460	6				Yes	Yes
V13120.00-V13121.00	18_12	222	6				Yes	Yes
V13134.H0-V13134.00	18_12	180	6				Yes	Yes
V13119.00-V13120.00	18_12	240	6				Yes	Yes
V12092.00-V12093.00	18_12	331	6				Yes	Yes
V12093.00-V12095.00	18_12	42	6				Yes	Yes
V12095.00-V12096.00	18_12	114	6				Yes	Yes
V12094.00-V12095.00	18_12	83	6				Yes	Yes
V12087.00-V12088.00	18_12	5	6				Yes	Yes
V12088.00-V12089.00	18_12	300	6				Yes	Yes
V12089.00-V12090.00	18_12	175	6				Yes	Yes
V12090.00-V12091.00	18_12	182	6				Yes	Yes
V12070.00-V12071.00	18_12	359	6		Yes			Yes
V10137.00-V10138.00	18_12	94	6					Yes
V09038.00-V09039.00	18_12	376	6					Yes
V13111.00-V13112.00	18_12	92	6					Yes
V13046.00-V13047.00	18_12	162	6					Yes
V13047.00-V13049.00	18_12	79	6					Yes
V13112.00-V13115.00	18_12	200	6					Yes
V13057.A0-V13057.00	18_12	375	6					Yes
V12077.00-V12078.00	18_12	270	6					Yes
V13044.00-V13045.00	18_12	236	6					Yes
V13043.00-V13044.00	18_12	302	6					Yes

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V12069.00-V12070.00	18_12	172	6					Yes
V12069.B0-V12069.00	18_12	82	6					Yes
V12069.A0-V12069.B0	18_12	80	6					Yes
V13049.00-V13051.00	18_12	252	8		Yes		Yes	
V13051.00-V13052.00	18_12	164	8				Yes	
V13052.00-V13055.00	18_12	297	8				Yes	
V13048.00-V13049.00	18_12	252	8				Yes	
V13116.00-V13118.00	18_12	186	8				Yes	
V13115.00-V13116.00	18_12	121	8				Yes	
V13114.00-V13115.00	18_12	204	8				Yes	
V13038.00-V13056.00	18_12	155	8				Yes	
V13055.00-V13056.00	18_12	126	8				Yes	
V13056.00-V13057.00	18_12	194	8				Yes	
V13118.00-V13121.00	18_12	223	8				Yes	
V09051.00-V09052.00	18_12	460	8		Yes			
V12079.00-V12080.00	18_12	254	8		Yes			
V12071.00-V12072.A0	18_12	262	8		Yes			
V12072.A0-V12072.00	18_12	262	8		Yes			
V13045.00-V13052.00	18_12	192	8		Yes			
V10141.E0-V10141.00	18_12	408	15	V9				
V09056.00-V09057.00	18_12	450	18	V9				
V10141.00-V10142.A0	18_12	434	18	V9				
V10142.A0-V10142.00	18_12	434	18	V9				
V10142.00-V10143.A0	18_12	451	18	V9				
V10143.A0-V10143.00	18_12	451	18	V9				
V10143.00-V09056.00	18_12	450	18	V9				
V22114.00-V22116.00	18_13	61	6					Yes
V12065.00-V12066.00	18_13	350	6					Yes
V12053.00-V12054.00	18_13	47	6					Yes
V12073.00-V12074.00	18_13	179	6					Yes
V12054.00-V12055.00	18_13	140	6					Yes
V12074.00-V12081.00	18_13	43	6					Yes
V12062.00-V12063.00	18_13	180	6					Yes
V12063.00-V12064.00	18_13	160	6					Yes
V12064.00-V12065.00	18_13	150	6					Yes
V12061.00-V12062.00	18_13	204	6					Yes
V12052.00-V12053.00	18_13	133	6					Yes
V22146.00-V22147.00	18_13	223	6					Yes
V22154.00-V22155.00	18_13	235	8		Yes		Yes	
V12068.00-V12112.D0	18_13	142	10				Yes	
V21188.F0-V21188.G0	18_13	56	8			Yes		
V12080.00-V12081.00	18_13	254	8		Yes			
V12037.00-V12038.00	18_13	374	8		Yes			
V12072.00-V12073.00	18_13	29	8		Yes			
V12051.00-V12053.00	18_13	251	8		Yes			
V12056.00-V12057.00	18_13	229	8		Yes			
V12059.00-V12060.00	18_13	259	10		Yes			
V21189.00-V21190.00	18_13	230	12		Yes			
V22151.00-V22152.00	18_13	214	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V22150.00-V22151.00	18_13	169	8		Yes			
V12055.00-V12057.00	18_13	431	8		Yes			
V12067.00-V12068.00	18_13	399	10		Yes			
V21191.00-V21192.00	18_13	370	8	V11				
V21193.00-V21194.00	18_13	230	18	V11				
V21195.00-V21196.00	18_13	298	18	V11				
V21194.00-V21195.00	18_13	364	18	V11				
V21196.00-V22147.00	18_13	358	18	V11				
V22003.00-V22004.00	18_14	285	8		Yes			
V22009.00-V22010.00	18_14	313	8		Yes			
V22100.00-V22101.00	18_14	226	8		Yes			
V22010.00-V22012.00	18_14	192	8		Yes			
V22008.00-V22009.00	18_14	373	8		Yes			
V21156.00-V21157.00	18_14	80	8		Yes			
V21155.00-V21156.00	18_14	159	8		Yes			
V21153.00-V21154.00	18_14	56	8		Yes			
V21118.00-V21119.00	18_14	402	8		Yes			
V21158.00-V21159.00	18_14	26	8		Yes			
V21167.00-V21168.00	18_14	252	8		Yes			
V21157.00-V21158.00	18_14	88	8		Yes			
V21151.00-V21152.00	18_14	169	8		Yes			
V21152.00-V21153.00	18_14	57	8		Yes			
V21168.00-V21171.00	18_14	241	8		Yes			
V21154.00-V21159.00	18_14	51	8		Yes			
V21169.00-V21170.00	18_14	41	8		Yes			
V21180.00-V21181.00	18_14	324	12		Yes			
V21179.00-V21180.00	18_14	221	12		Yes			
V21065.00-V21066.00	18_15	81	8			Yes		
V21100.00-V21101.00	18_15	196	8		Yes			
V21099.00-V21100.00	18_15	180	8		Yes			
V21093.00-V21094.00	18_15	144	8		Yes			
V21094.00-V21095.00	18_15	222	8		Yes			
V20003.00-V20004.00	18_16	248	6		Yes			Yes
V21044.C0-V21044.D0	18_16	58	8			Yes		
V20008.A0-V20008.00	18_16	138	8			Yes		
V20015.00-V20016.00	18_16	109	8		Yes			
V20013.00-V20014.00	18_16	195	8		Yes			
V20040.00-V20041.00	18_16	242	8		Yes			
V20014.00-V20015.00	18_16	205	8		Yes			
V20017.00-V20018.00	18_16	50	8		Yes			
V20018.00-V20019.00	18_16	270	8		Yes			
V20005.00-V20007.00	18_16	325	8		Yes			
V20004.00-V20005.00	18_16	142	8		Yes			
V02021.00-V02022.00	19_08	352	6		Yes			Yes
V02005.00-V02006.00	19_08	356	6					Yes
V02004.00-V02005.00	19_08	83	6					Yes
V02012.M0-V02012.N0	19_08	186	6					Yes
V02012.O0-V02012.P0	19_08	207	6					Yes
V02012.P0-V02012.00	19_08	26	6					Yes

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V02012.N0-V02012.O0	19_08	300	6					Yes
V02025.B0-V02025.C0	19_08	106	6					Yes
V02025.A0-V02025.B0	19_08	130	6					Yes
V02024.00-V02025.A0	19_08	324	6					Yes
V02023.00-V02024.00	19_08	88	6					Yes
V02012.A0-V02012.B0	19_08	345	8		Yes			
V02012.C0-V02012.E0	19_08	165	8		Yes			
V03097.00-V03098.00	19_08	340	8		Yes			
V02001.00-V02002.00	19_08	139	8		Yes			
V02025.C0-V02025.00	19_08	336	8		Yes			
V02020.00-V02025.C0	19_08	336	8		Yes			
V02011.00-V02014.00	19_08	259	8		Yes			
V03084.00-V03086.00	19_08	365	8		Yes			
V03083.00-V03084.00	19_08	306	8		Yes			
V02002.00-V02003.00	19_08	335	8		Yes			
V02013.00-V02011.00	19_08	94	8		Yes			
V02003.00-V02006.00	19_08	339	8		Yes			
V02014.00-V02020.00	19_08	253	8		Yes			
V02020.C0-V02020.D0	19_08	120	8		Yes			
V02020.D0-V02020.00	19_08	279	8		Yes			
V02019.00-V02020.00	19_08	49	8		Yes			
V03039.00-V03041.00	19_09	235	6					Yes
V03040.00-V03041.00	19_09	168	6					Yes
V03038.00-V03039.00	19_09	94	6					Yes
V03015.00-V03017.00	19_09	324	6					Yes
V06010.00-V06011.00	19_09	165	6					Yes
V06014.00-V06015.00	19_09	306	6					Yes
V06011.00-V06014.00	19_09	353	6					Yes
V03095.C0-V03095.D0	19_09	66	8			Yes		
V03095.B0-V03095.C0	19_09	124	8			Yes		
V03087.00-V03088.00	19_09	36	8		Yes			
V03057.00-V03058.00	19_09	89	8		Yes			
V03055.00-V03060.00	19_09	179	8		Yes			
V03059.00-V03060.00	19_09	151	8		Yes			
V03074.00-V03076.00	19_09	287	8		Yes			
V03049.00-V03054.00	19_09	352	8		Yes			
V03054.00-V03055.00	19_09	272	8		Yes			
V03041.00-V03048.00	19_09	321	8		Yes			
V03088.00-V03096.00	19_09	336	8		Yes			
V03090.00-V03095.00	19_09	310	8		Yes			
V03098.00-V03099.00	19_09	230	8		Yes			
V03095.00-V03096.00	19_09	310	8		Yes			
V03085.00-V03086.00	19_09	306	8		Yes			
V03086.00-V03088.00	19_09	248	8		Yes			
V03016.00-V03017.00	19_09	170	8		Yes			
V03017.00-V03019.00	19_09	320	8		Yes			
V04034.00-V04035.00	19_09	257	8		Yes			
V04045.00-V04046.00	19_09	339	8		Yes			
V03089.00-V03090.00	19_09	244	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V03094.00-V03095.D0	19_09	207	8		Yes			
V03095.D0-V03095.00	19_09	207	8		Yes			
V06017.00-V06024.00	19_10	280	6		Yes			Yes
V06015.00-V06016.00	19_10	97	6					Yes
V06016.00-V06017.00	19_10	290	6					Yes
V06040.00-V06041.00	19_10	321	8		Yes			
V06039.A0-V06039.AA	19_10	309	8		Yes			
V06094.00-V06095.00	19_10	198	8		Yes			
V06095.00-V06096.00	19_10	251	8		Yes			
V06008.00-V06009.00	19_10	374	8		Yes			
V06005.00-V06008.00	19_10	374	8		Yes			
V06009.00-V06017.00	19_10	374	8		Yes			
V06096.00-V06097.00	19_10	208	10		Yes			
V06097.00-V06098.00	19_10	313	10		Yes			
V05059.00-V05060.00	19_10	301	8	V3				
V08035.00-V08036.00	19_11	161	6		Yes		Yes	Yes
V08034.00-V08035.00	19_11	37	6				Yes	Yes
V07061.A0-V07061.00	19_11	54	6					Yes
V07062.00-V07063.00	19_11	102	6					Yes
V07061.00-V07062.00	19_11	288	6					Yes
V08048.00-V08049.00	19_11	250	6					Yes
V08043.00-V08044.00	19_11	370	6					Yes
V08045.00-V08049.00	19_11	260	6					Yes
V08044.00-V08045.00	19_11	370	6					Yes
V08038.00-V08039.00	19_11	110	6					Yes
V08047.00-V08048.00	19_11	200	6					Yes
V08046.00-V08047.00	19_11	175	6					Yes
V08039.00-V08040.00	19_11	209	6					Yes
V08041.00-V08042.00	19_11	225	6					Yes
V08040.00-V08042.00	19_11	221	6					Yes
V08042.00-V08043.00	19_11	91	6					Yes
V08082.00-V08083.00	19_11	177	6					Yes
V07057.00-V07058.00	19_11	291	8		Yes		Yes	
V07056.00-V07059.00	19_11	300	8		Yes		Yes	
V07055.00-V07056.00	19_11	121	8		Yes		Yes	
V07054.00-V07064.00	19_11	289	8				Yes	
V07058.00-V07059.00	19_11	361	8				Yes	
V07055.A0-V07055.00	19_11	80	8			Yes		
V05026.A0-V05026.00	19_11	152	8		Yes			
V05026.00-V05027.00	19_11	163	8		Yes			
V05004.O0-V05004.00	19_11	33	8		Yes			
V05003.00-V05004.O0	19_11	313	8		Yes			
V05057.00-V05058.00	19_11	300	8	V3	Yes			
V06102.00-V05050.00	19_11	266	8	V3				
V05058.00-V05059.A0	19_11	267	8	V3				
V05052.00-V05057.00	19_11	300	8	V3				
V05059.A0-V05059.00	19_11	267	8	V3				
V05050.00-V05051.00	19_11	228	8	V3				
V05051.00-V05052.00	19_11	300	8	V3				

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V06102.A0-V06102.00	19_11	246	10	V3				
V08037.00-V08134.00	19_12	354	6				Yes	Yes
V08134.00-V08135.00	19_12	354	6				Yes	Yes
V08036.00-V08037.00	19_12	43	6				Yes	Yes
V13125.00-V13126.00	19_12	247	6				Yes	Yes
V08006.00-V08007.00	19_12	140	6				Yes	Yes
V08005.00-V08006.00	19_12	143	6				Yes	Yes
V08004.00-V08007.00	19_12	215	6				Yes	Yes
V08002.00-V08004.00	19_12	235	6				Yes	Yes
V12106.00-V12108.00	19_12	306	6				Yes	Yes
V13136.00-V13137.00	19_12	280	6				Yes	Yes
V13124.00-V13125.00	19_12	163	6				Yes	Yes
V08016.00-V08017.00	19_12	267	6				Yes	Yes
V08007.00-V08015.00	19_12	360	6				Yes	Yes
V08010.00-V08011.00	19_12	153	6				Yes	Yes
V08001.00-V08002.00	19_12	180	6				Yes	Yes
V12097.00-V12098.00	19_12	240	6				Yes	Yes
V12105.00-V12106.00	19_12	165	6				Yes	Yes
V08003.00-V08004.A0	19_12	270	6				Yes	Yes
V08004.A0-V08004.00	19_12	270	6				Yes	Yes
V13126.00-V13134.H0	19_12	105	6				Yes	Yes
V22140.00-V22144.00	19_12	54	6					Yes
V24065.00-V24066.00	19_12	146	6					Yes
V22135.00-V22136.00	19_12	124	6					Yes
V22133.00-V22134.00	19_12	96	6					Yes
V22133.A0-V22133.00	19_12	176	6					Yes
V22139.00-V22140.00	19_12	181	6					Yes
V22135.B0-V22135.00	19_12	178	6					Yes
V12101.A0-V12101.B0	19_12	118	6					Yes
V22134.00-V22136.00	19_12	54	6					Yes
V22136.00-V22144.00	19_12	425	6					Yes
V22142.00-V22143.00	19_12	152	6					Yes
V22143.00-V22144.00	19_12	500	6					Yes
V24063.00-V24064.A0	19_12	536	6					Yes
V24044.00-V24045.00	19_12	195	6					Yes
V24046.E0-V24046.00	19_12	484	6					Yes
V24045.00-V24046.00	19_12	283	6					Yes
V24042.00-V24043.00	19_12	225	6					Yes
V24043.00-V24044.A0	19_12	222	6					Yes
V24044.A0-V24044.00	19_12	222	6					Yes
V24046.D0-V24046.E0	19_12	332	6					Yes
V24038.A0-V24038.00	19_12	526	6					Yes
V24038.00-V24039.A0	19_12	623	6					Yes
V24037.00-V24038.A0	19_12	526	6					Yes
V24064.A0-V24064.00	19_12	536	6					Yes
V24064.00-V24066.00	19_12	257	6					Yes
V24032.00-V24033.00	19_12	179	6					Yes
V12114.00-V12115.00	19_12	174	8		Yes		Yes	
V08033.00-V08037.00	19_12	89	10		Yes		Yes	

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V08032.00-V08033.00	19_12	325	10		Yes		Yes	
V12115.00-V12119.00	19_12	427	8				Yes	
V12113.00-V12115.00	19_12	210	8				Yes	
V12112.00-V12113.00	19_12	531	8				Yes	
V08017.F0-V08017.G0	19_12	406	8				Yes	
V08023.B0-V08023.00	19_12	24	15				Yes	
V08023.A0-V08023.B0	19_12	21	15				Yes	
V09052.00-V09053.00	19_12	455	8		Yes			
V22132.00-V22133.00	19_12	139	8		Yes			
V12118.00-V12119.00	19_12	185	18		Yes			
V12117.00-V12118.00	19_12	297	18		Yes			
V12119.00-V12120.00	19_12	335	18		Yes			
V12116.00-V12117.00	19_12	296	18		Yes			
V09054.00-V09061.00	19_12	231	18		Yes			
V09059.00-V09061.00	19_12	127	18		Yes			
V09058.00-V09059.B0	19_12	451	18	V9				
V09057.00-V09058.00	19_12	450	18	V9				
V22099.00-V22145.00	19_12	413	10	V5				
V22098.00-V22099.00	19_12	286	10	V5				
V22097.00-V22098.00	19_12	292	10	V5				
V22145.00-V24090.00	19_12	413	10	V5				
V22158.00-V22159.00	19_12	430	18	V4				
V22157.00-V22158.00	19_12	426	18	V4				
V22159.00-V22161.00	19_12	162	18	V4				
V22161.00-V22162.00	19_12	169	18	V4				
V22162.00-V24090.00	19_12	13	18	V4				
V24093.00-V24094.00	19_12	311	18	V4				
V24092.00-V24093.00	19_12	196	18	V4				
V24091.00-V24092.00	19_12	328	18	V4				
V24090.00-V24091.00	19_12	300	18	V4				
V22135.A0-V22135.B0	19_13	103	6					Yes
V22122.00-V22123.00	19_13	237	6					Yes
V22118.00-V22119.00	19_13	194	6					Yes
V22141.00-V22142.00	19_13	300	6					Yes
V24040.00-V24041.00	19_13	219	6					Yes
V22091.00-V22092.00	19_13	235	6					Yes
V22073.00-V22074.00	19_13	404	6					Yes
V22138.00-V22139.00	19_13	109	6					Yes
V22121.00-V22122.00	19_13	122	6					Yes
V22090.00-V22091.00	19_13	100	6					Yes
V22137.00-V22138.00	19_13	590	6					Yes
V22120.00-V22121.00	19_13	103	6					Yes
V24041.00-V24042.00	19_13	106	6					Yes
V22115.00-V22116.00	19_13	200	6					Yes
V22115.A0-V22115.00	19_13	49	6					Yes
V22127.00-V22128.00	19_13	165	8		Yes			
V22131.00-V22132.00	19_13	403	8		Yes			
V22130.00-V22131.00	19_13	40	8		Yes			
V22129.00-V22130.00	19_13	177	8		Yes			

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V22128.00-V22129.00	19_13	197	8		Yes			
V22035.00-V22036.00	19_13	323	8		Yes			
V22126.00-V22127.00	19_13	154	8		Yes			
V22040.00-V22041.00	19_13	103	8		Yes			
V22094.00-V22095.00	19_13	19	8	V5				
V22093.00-V22094.00	19_13	249	8	V5				
V22096.00-V22097.00	19_13	399	10	V5				
V22095.00-V22096.00	19_13	220	10	V5				
V22076.00-V22077.00	19_13	300	12	V5				
V22077.00-V22078.00	19_13	261	12	V5				
V22078.00-V22095.00	19_13	185	12	V5				
V22156.00-V22157.C0	19_13	196	18	V4				
V22157.C0-V22157.00	19_13	236	18	V4				
V23093.I0-V23093.J0	19_14	165	6					Yes
V23093.J0-V23093.00	19_14	300	6					Yes
V23088.00-V23089.00	19_14	186	6					Yes
V23087.00-V23088.00	19_14	291	6					Yes
V23078.00-V23079.00	19_14	308	6					Yes
V23086.00-V23093.00	19_14	160	8				Yes	
V23027.00-V23028.00	19_14	270	8				Yes	
V23028.00-V23039.00	19_14	254	8				Yes	
V23039.00-V23040.00	19_14	167	8				Yes	
V23040.00-V23067.00	19_14	309	8				Yes	
V23067.00-V23068.00	19_14	74	8				Yes	
V23068.00-V23086.00	19_14	155	8				Yes	
V23100.00-V23101.00	19_14	87	8				Yes	
V23093.00-V23094.00	19_14	147	8				Yes	
V23094.00-V23100.00	19_14	150	8				Yes	
V23101.00-V23102.00	19_14	256	8				Yes	
V23093.G0-V23093.H0	19_14	40	8			Yes		
V23093.H0-V23093.J0	19_14	53	8			Yes		
V23093.F0-V23093.G0	19_14	158	8			Yes		
V23093.A0-V23093.B0	19_14	65	8			Yes		
V23093.B0-V23093.D0	19_14	123	8			Yes		
V22015.00-V22016.00	19_14	96	8		Yes			
V22006.00-V22007.00	19_14	129	8		Yes			
V23066.00-V23067.00	19_14	247	8		Yes			
V23004.00-V23005.00	19_14	190	8		Yes			
V22007.00-V22008.00	19_14	203	8		Yes			
V23091.00-V23092.00	19_14	230	8		Yes			
V22017.00-V22018.00	19_14	115	8		Yes			
V22016.00-V22017.00	19_14	293	8		Yes			
V23226.00-V23229.00	19_14	327	8		Yes			
V22029.00-V22031.00	19_14	195	8		Yes			
V22030.00-V22031.00	19_14	200	8		Yes			
V22019.00-V22020.00	19_14	185	8		Yes			
V22020.00-V22021.00	19_14	170	8		Yes			
V22021.00-V22022.00	19_14	350	8		Yes			
V23069.00-V23070.00	19_14	63	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V23070.00-V23071.00	19_14	99	8		Yes			
V23074.00-V23075.00	19_14	175	8		Yes			
V23026.00-V23027.00	19_15	118	6		Yes		Yes	Yes
V23025.00-V23027.00	19_15	281	8				Yes	
V23021.00-V23025.00	19_15	124	8				Yes	
V23055.00-V23056.00	19_15	264	8		Yes			
V23005.00-V23007.00	19_15	315	8		Yes			
V23006.00-V23007.00	19_15	75	8		Yes			
V23022.00-V23023.00	19_15	62	8		Yes			
V23020.00-V23021.00	19_15	248	8		Yes			
V23018.00-V23019.00	19_15	105	8		Yes			
V21071.00-V21072.00	19_15	130	8		Yes			
V21072.00-V21073.00	19_15	125	8		Yes			
V21073.00-V21074.00	19_15	89	8		Yes			
V21074.00-V21075.00	19_15	152	8		Yes			
V21037.A0-V21037.B0	19_16	277	8		Yes			
V02035.00-V02037.00	20_08	220	6		Yes			Yes
V02033.00-V02037.00	20_08	206	6		Yes			Yes
V02066.A0-V02066.B0	20_08	278	6					Yes
V02027.00-V02028.00	20_08	52	6					Yes
V02034.00-V02035.00	20_08	24	6					Yes
V02037.00-V02039.00	20_08	209	6					Yes
V02059.00-V02062.00	20_08	304	6					Yes
V02061.00-V02062.00	20_08	140	6					Yes
V02060.00-V02061.00	20_08	240	6					Yes
V02038.00-V02039.00	20_08	50	6					Yes
V02041.00-V02042.00	20_08	213	6					Yes
V02042.00-V02043.00	20_08	320	6					Yes
V02029.00-V02030.00	20_08	257	6					Yes
V02046.00-V02048.00	20_08	227	6					Yes
V02030.00-V02031.00	20_08	245	6					Yes
V02044.00-V02045.00	20_08	320	6					Yes
V02054.00-V02055.00	20_08	20	8		Yes			
V02055.00-V02057.00	20_08	154	8		Yes			
V03101.00-V03102.00	20_08	326	8		Yes			
V03102.00-V03103.00	20_08	326	8		Yes			
V03149.00-V03150.00	20_08	175	8		Yes			
V03129.00-V03130.00	20_08	347	8		Yes			
V03130.00-V03131.00	20_08	209	8		Yes			
V03131.00-V03149.00	20_08	61	8		Yes			
V03153.C0-V03153.00	20_08	217	8		Yes			
V03128.00-V03129.00	20_08	266	8		Yes			
V03118.00-V03129.00	20_08	215	8		Yes			
V03117.00-V03118.00	20_08	349	8		Yes			
V03148.00-V03149.00	20_08	75	8		Yes			
V02056.00-V02057.00	20_08	69	8		Yes			
V02057.00-V02063.00	20_08	219	8		Yes			
V03162.00-V03163.00	20_08	362	8		Yes			
V02063.00-V02065.00	20_08	127	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V02064.00-V02065.00	20_08	246	8		Yes			
V02053.00-V02054.00	20_08	192	8		Yes			
V03062.00-V03063.00	20_09	250	8		Yes			
V03063.00-V03064.00	20_09	265	8		Yes			
V04060.00-V04061.00	20_09	321	8		Yes			
V03078.00-V03079.00	20_09	253	8		Yes			
V03065.00-V03072.00	20_09	225	8		Yes			
V03077.00-V03080.00	20_09	350	8		Yes			
V03069.00-V03070.00	20_09	264	8		Yes			
V03109.00-V03110.00	20_09	180	8		Yes			
V03110.00-V03111.00	20_09	83	8		Yes			
V04044.00-V04060.00	20_09	350	8		Yes			
V03068.00-V03069.00	20_09	176	8		Yes			
V03076.00-V03077.00	20_09	280	8		Yes			
V03100.00-V03104.00	20_09	802	8		Yes			
V03104.00-V03108.00	20_09	340	8		Yes			
V04065.00-V04066.00	20_09	240	8		Yes			
V04073.00-V04074.00	20_09	159	8		Yes			
V04072.00-V04076.00	20_09	218	8		Yes			
V04042.00-V04043.00	20_09	244	8		Yes			
V04043.00-V04044.00	20_09	205	8		Yes			
V04040.00-V04041.00	20_09	276	8		Yes			
V03125.00-V03126.00	20_09	147	8		Yes			
V03114.00-V03115.00	20_09	149	8		Yes			
V03126.00-V03127.00	20_09	277	8		Yes			
V03113.00-V03114.00	20_09	184	8		Yes			
V03137.00-V03138.00	20_09	22	8		Yes			
V03138.00-V03139.00	20_09	101	8		Yes			
V03146.00-V03147.00	20_09	264	8		Yes			
V03147.00-V03148.00	20_09	255	8		Yes			
V03124.00-V03125.00	20_09	48	8		Yes			
V04028.00-V04030.C0	20_10	20	6			Yes		Yes
V05073.00-V05074.B0	20_10	185	6					Yes
V05074.A0-V05074.00	20_10	100	6					Yes
V04028.D0-V04028.00	20_10	293	6					Yes
V04003.00-V04004.00	20_10	250	6					Yes
V05035.00-V05036.00	20_10	158	8		Yes			
V05074.00-V05075.00	20_10	300	8		Yes			
V04005.00-V04006.00	20_10	263	8		Yes			
V04046.00-V04047.00	20_10	307	8		Yes			
V04006.00-V04007.00	20_10	272	8		Yes			
V04007.00-V04011.00	20_10	260	8		Yes			
V04068.00-V04069.00	20_10	145	8		Yes			
V04069.00-V04071.00	20_10	225	8		Yes			
V04019.00-V04023.00	20_10	350	8		Yes			
V04067.00-V04068.00	20_10	190	8		Yes			
V04066.00-V04068.00	20_10	156	8		Yes			
V04004.00-V04005.00	20_10	69	8		Yes			
V04021.00-V04022.00	20_10	296	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V05023.00-V05024.00	20_10	235	8		Yes			
V05066.00-V05067.00	20_10	354	8		Yes			
V04017.00-V04018.00	20_10	290	8		Yes			
V05025.00-V05036.00	20_10	319	12		Yes			
V04002.00-V04004.00	20_10	231	8		Yes			
V04018.00-V04019.00	20_10	355	8		Yes			
V04008.00-V04009.00	20_10	252	8		Yes			
V04009.00-V04010.00	20_10	302	8		Yes			
V04022.00-V04023.00	20_10	66	8		Yes			
V05060.00-V05068.00	20_10	203	8	V3				
V05068.00-V05069.00	20_10	78	8	V3				
V05078.00-V05079.00	20_10	28	8	V3				
V05077.00-V05078.00	20_10	330	8	V3				
V05079.00-V05080.00	20_10	392	8	V3				
V05076.00-V05077.00	20_10	194	8	V3				
V05069.00-V05075.00	20_10	334	8	V3				
V05075.00-V05076.00	20_10	200	8	V3				
V08060.00-V08061.00	20_11	47	6				Yes	Yes
V08061.00-V08138.00	20_11	144	6				Yes	Yes
V08096.00-V08103.00	20_11	330	6		Yes			Yes
V08106.00-V08107.00	20_11	191	6		Yes			Yes
V05031.A0-V05031.B0	20_11	139	6					Yes
V08089.00-V08090.00	20_11	333	6					Yes
V08108.00-V08109.00	20_11	245	6					Yes
V08105.00-V08109.00	20_11	323	6					Yes
V08088.00-V08089.00	20_11	341	6					Yes
V08086.00-V08087.00	20_11	300	6					Yes
V08081.00-V08084.00	20_11	415	6					Yes
V08107.00-V08108.00	20_11	95	6					Yes
V08109.00-V08110.00	20_11	138	6					Yes
V08110.00-V08111.00	20_11	129	6					Yes
V08087.00-V08088.00	20_11	209	6					Yes
V08085.00-V08089.00	20_11	377	6					Yes
V08083.00-V08084.00	20_11	224	6					Yes
V29049.00-V32T094.00	20_11	303	8			Yes		
V05037.00-V05041.A0	20_11	121	12			Yes		
V05034.00-V05035.00	20_11	320	8		Yes			
V05033.00-V05034.00	20_11	335	8		Yes			
V05039.00-V05040.00	20_11	312	8		Yes			
V05027.00-V05028.00	20_11	88	8		Yes			
V05030.00-V05031.B0	20_11	246	8		Yes			
V05028.00-V05030.00	20_11	96	8		Yes			
V05032.00-V05033.00	20_11	94	8		Yes			
V05031.B0-V05031.00	20_11	129	8		Yes			
V05031.00-V05032.00	20_11	185	8		Yes			
V29031.00-V29032.00	20_11	310	8		Yes			
V05012.00-V05013.00	20_11	338	12		Yes			
V05080.00-V05102.00	20_11	363	8	V3	Yes			
V29133.00-V32T410.00	20_11	259	8		Yes			

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V05038.00-V05039.00	20_11	100	8		Yes			
V05042.00-V05043.00	20_11	10	8		Yes			
V05043.00-V05044.00	20_11	303	8		Yes			
V05101.00-V05102.00	20_11	85	8	V3				
V32T397.00-V32T395.00	20_11	95	21	V2				
V32T097.A0-V32T395.00	20_11	30	21	V2				
V32T096.00-V32T097.A0	20_11	341	24	V2				
V32T395.00-V32T095.A0	20_11	70	33	V2				
V32T095.A0-V32T094.00	20_11	28	33	V2				
V24013.00-V24016.00	20_12	133	6				Yes	Yes
V24067.00-V24068.00	20_12	191	6				Yes	Yes
V24010.00-V24012.00	20_12	63	6				Yes	Yes
V24012.00-V24013.00	20_12	120	6				Yes	Yes
V24005.00-V24013.00	20_12	414	6				Yes	Yes
V24024.00-V24025.00	20_12	179	6		Yes			Yes
V28156.00-V28157.00	20_12	114	6		Yes			Yes
V24070.00-V24072.00	20_12	7	6	V7				Yes
V24068.00-V24096.A0	20_12	10	6					Yes
V08133.A0-V08133.00	20_12	13	6					Yes
V24011.00-V24012.00	20_12	49	6					Yes
V24087.00-V24088.00	20_12	179	6					Yes
V24073.00-V24075.00	20_12	175	6					Yes
V24033.00-V24034.00	20_12	232	6					Yes
V24048.00-V24049.00	20_12	150	6					Yes
V24085.00-V24086.00	20_12	221	6					Yes
V24086.00-V24088.00	20_12	254	6					Yes
V24076.00-V24077.00	20_12	211	6					Yes
V24035.00-V24036.00	20_12	527	6					Yes
V24074.00-V24075.00	20_12	50	6					Yes
V24079.00-V24080.00	20_12	120	6					Yes
V24080.00-V24081.00	20_12	35	6					Yes
V24078.00-V24081.00	20_12	210	6					Yes
V24077.00-V24078.00	20_12	70	6					Yes
V24075.00-V24078.00	20_12	265	6					Yes
V24034.00-V24035.00	20_12	473	6					Yes
V24018.00-V24031.00	20_12	109	6					Yes
V24017.00-V24018.00	20_12	41	6					Yes
V28155.00-V28156.00	20_12	80	6					Yes
V24081.00-V24082.00	20_12	316	6					Yes
V24046.00-V24047.00	20_12	200	6					Yes
V24039.A0-V24039.00	20_12	623	6					Yes
V24039.00-V24050.00	20_12	184	6					Yes
V24036.00-V24051.00	20_12	313	6					Yes
V24031.00-V24036.00	20_12	329	6					Yes
V24088.00-V24089.00	20_12	125	6					Yes
V24084.00-V24085.00	20_12	224	6					Yes
V24083.00-V24084.00	20_12	226	6					Yes
V24082.00-V24083.00	20_12	212	6					Yes
V24069.00-V24070.00	20_12	97	6					Yes

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V24066.00-V24069.00	20_12	385	6					Yes
V24050.00-V24051.00	20_12	75	6					Yes
V24049.00-V24050.00	20_12	252	6					Yes
V24047.00-V24049.00	20_12	249	6					Yes
V29022.00-V29023.00	20_12	210	6					Yes
V24023.00-V24024.00	20_12	174	6					Yes
V24021.A0-V24021.00	20_12	255	6					Yes
V24021.00-V24025.00	20_12	379	6					Yes
V24025.00-V24026.00	20_12	379	6					Yes
V24027.00-V24029.00	20_12	258	6					Yes
V24028.00-V24029.00	20_12	81	6					Yes
V24029.00-V24030.00	20_12	41	6					Yes
V24030.00-V24031.00	20_12	188	6					Yes
V24026.00-V24027.00	20_12	117	6					Yes
V24016.00-V24017.00	20_12	346	6					Yes
V24015.00-V24016.00	20_12	717	6					Yes
V29017.00-V29018.00	20_12	180	8		Yes		Yes	
V28146.00-V28148.00	20_12	212	8				Yes	
V29018.00-V29019.00	20_12	180	8				Yes	
V29024.00-V29031.00	20_12	250	8		Yes			
V29011.00-V29020.00	20_12	344	8		Yes			
V28150.00-V28152.00	20_12	235	8		Yes			
V29023.00-V29024.00	20_12	292	8		Yes			
V29015.00-V29016.00	20_12	100	8		Yes			
V29016.00-V29019.00	20_12	275	8		Yes			
V29014.00-V29015.00	20_12	113	8		Yes			
V28142.00-V28166.00	20_12	330	8	V7	Yes			
V24056.00-V24057.00	20_12	18	12	V7	Yes			
V28162.00-V28163.00	20_12	51	8		Yes			
V28152.00-V28161.00	20_12	62	8		Yes			
V28157.00-V28158.00	20_12	169	8		Yes			
V28166.00-V28167.00	20_12	166	8	V7				
V28141.00-V28142.00	20_12	438	8	V7				
V28167.00-V24056.00	20_12	31	8	V7				
V24062.00-V24070.00	20_12	16	12	V7				
V24057.00-V24058.00	20_12	102	12	V7				
V24059.00-V24060.00	20_12	149	12	V7				
V24058.00-V24059.00	20_12	149	12	V7				
V24061.00-V24062.00	20_12	121	12	V7				
V24060.00-V24061.00	20_12	347	12	V7				
V24095.00-V24096.A0	20_12	219	18	V4				
V24094.00-V24095.00	20_12	143	18	V4				
V24096.A0-V24100.00	20_12	219	18	V4				
V22070.00-V22071.00	20_13	179	6		Yes			Yes
V25027.00-V25028.00	20_13	70	6		Yes			Yes
V24002.D0-V24002.00	20_13	114	6					Yes
V24002.C0-V24002.D0	20_13	98	6					Yes
V22089.00-V22091.00	20_13	225	6					Yes
V22071.00-V22072.00	20_13	277	6					Yes

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V22068.00-V22072.00	20_13	172	6					Yes
V25032.00-V25033.00	20_13	353	6					Yes
V25028.00-V25029.00	20_13	330	6					Yes
V24002.00-V24003.00	20_13	184	6					Yes
V22072.00-V22074.00	20_13	304	6					Yes
V22086.00-V22087.00	20_13	338	6					Yes
V22088.00-V22089.00	20_13	305	6					Yes
V22087.00-V22088.00	20_13	145	6					Yes
V22067.00-V22068.00	20_13	106	6					Yes
V22062.00-V22068.00	20_13	344	6					Yes
V22061.00-V22062.00	20_13	270	6					Yes
V22060.00-V22061.00	20_13	35	6					Yes
V22059.00-V22060.00	20_13	73	6					Yes
V25021.00-V25022.00	20_13	211	6					Yes
V22066.00-V22067.00	20_13	74	6					Yes
V22063.00-V22065.00	20_13	125	6					Yes
V22064.00-V22065.00	20_13	45	6					Yes
V22065.00-V22067.00	20_13	176	6					Yes
V22057.00-V22058.00	20_13	252	6					Yes
V22058.00-V22059.00	20_13	125	6					Yes
V22069.00-V22070.00	20_13	345	6					Yes
V22084.00-V22087.00	20_13	125	6					Yes
V23210.00-V23211.00	20_13	379	6					Yes
V24019.00-V24020.00	20_13	125	6					Yes
V24020.00-V24021.A0	20_13	255	6					Yes
V24022.00-V24023.00	20_13	260	6					Yes
V24003.00-V24004.00	20_13	100	6					Yes
V24001.00-V24004.00	20_13	230	6					Yes
V24004.00-V24005.00	20_13	230	6					Yes
V22085.A0-V22085.00	20_13	114	6					Yes
V22085.00-V22086.00	20_13	332	6					Yes
V24002.B0-V24002.C0	20_13	17	6					Yes
V24002.A0-V24002.C0	20_13	102	6					Yes
V25050.00-V25051.00	20_13	246	8		Yes		Yes	
V25055.00-V25056.00	20_13	359	8				Yes	
V25054.00-V25055.00	20_13	359	8				Yes	
V25052.00-V25054.00	20_13	278	8				Yes	
V25049.00-V25051.00	20_13	306	8				Yes	
V25051.00-V25052.00	20_13	321	8				Yes	
V25042.A0-V25042.00	20_13	331	8		Yes			
V22083.00-V22084.00	20_13	237	8		Yes			
V25053.00-V25054.00	20_13	379	8		Yes			
V24008.00-V24009.00	20_13	233	8		Yes			
V25041.00-V25042.00	20_13	314	8		Yes			
V22042.00-V22043.00	20_13	70	8		Yes			
V22046.00-V22047.00	20_13	175	8		Yes			
V23095.00-V23096.00	20_14	200	6				Yes	Yes
V23097.00-V23099.00	20_14	203	6				Yes	Yes
V23096.00-V23097.00	20_14	82	6				Yes	Yes

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V23118.00-V23119.00	20_14	196	6					Yes
V25029.00-V25030.00	20_14	79	6					Yes
V23178.00-V23179.00	20_14	300	6					Yes
V23204.00-V23205.00	20_14	210	6					Yes
V23207.00-V23208.00	20_14	215	6					Yes
V25020.00-V25022.00	20_14	65	6					Yes
V23129.A0-V23129.00	20_14	261	6					Yes
V23174.00-V23176.00	20_14	92	6					Yes
V23203.00-V23205.00	20_14	150	6					Yes
V23098.00-V23099.00	20_14	165	6					Yes
V23112.A0-V23112.00	20_14	157	6					Yes
V23164.00-V23165.00	20_14	325	8		Yes		Yes	
V23171.00-V23172.00	20_14	247	8		Yes		Yes	
V23163.00-V23165.00	20_14	215	8				Yes	
V23172.00-V23173.00	20_14	121	8				Yes	
V23173.00-V23179.00	20_14	179	8				Yes	
V23170.00-V23172.00	20_14	338	8				Yes	
V23104.00-V23105.00	20_14	164	8				Yes	
V23103.00-V23105.00	20_14	261	8				Yes	
V23105.00-V23132.00	20_14	270	8				Yes	
V23132.00-V23211.00	20_14	177	8				Yes	
V23191.00-V23192.00	20_14	19	8				Yes	
V23188.00-V23191.00	20_14	148	8				Yes	
V23179.00-V23188.00	20_14	104	8				Yes	
V23169.00-V23170.00	20_14	80	8				Yes	
V23165.00-V23169.00	20_14	129	8				Yes	
V23102.00-V23103.00	20_14	260	8				Yes	
V23112.00-V23113.00	20_14	203	8		Yes			
V23113.00-V23114.00	20_14	247	8		Yes			
V23125.00-V23126.00	20_14	120	8		Yes			
V23090.00-V23091.00	20_14	310	8		Yes			
V23124.00-V23126.00	20_14	222	8		Yes			
V23123.00-V23124.00	20_14	195	8		Yes			
V23126.00-V23127.00	20_14	370	8		Yes			
V23157.00-V23158.00	20_15	208	6					Yes
V23151.00-V23152.00	20_15	160	6					Yes
V23159.00-V23162.00	20_15	300	6					Yes
V23158.00-V23159.00	20_15	95	6					Yes
V23155.00-V23156.00	20_15	270	6					Yes
V23162.00-V23163.00	20_15	289	8		Yes		Yes	
V23154.00-V23156.00	20_15	111	8				Yes	
V23156.00-V23162.00	20_15	219	8				Yes	
V23153.00-V23154.00	20_15	253	8				Yes	
V23160.00-V23161.00	20_15	200	8		Yes			
V23135.00-V23136.00	20_15	221	8		Yes			
V23134.00-V23135.00	20_15	307	8		Yes			
V23161.00-V23162.00	20_15	196	8		Yes			
V23046.00-V23047.00	20_15	227	8		Yes			
V23049.00-V23050.00	20_15	292	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V23141.00-V23142.00	20_15	282	8		Yes			
B11016.00-B11017.00	20_17	176	8		Yes			
B11017.00-B11018.00	20_17	122	8		Yes			
B11015.00-B11018.00	20_18	122	8		Yes			
B11020.00-B11021.00	20_18	290	8		Yes			
B11019.00-B11020.00	20_18	220	8		Yes			
B11018.00-B11019.00	20_18	147	8		Yes			
B11004.00-B11005.00	20_18	259	8		Yes			
B11005.00-B11006.00	20_18	191	8		Yes			
B12003.TB-B12003.TC	20_20	168	8					
V01032.00-V01033.00	21_07	193	6		Yes			Yes
V01033.00-V01034.00	21_07	259	6		Yes			Yes
V01012.00-V01014.00	21_07	215	6					Yes
V01027.00-V01028.00	21_07	52	6					Yes
V01015.00-V01016.K0	21_07	376	8		Yes			
V01040.00-V01041.00	21_07	240	8		Yes			
V01035.00-V01036.00	21_07	197	8		Yes			
V01014.00-V01015.00	21_07	372	8		Yes			
V01039.00-V01040.00	21_07	223	8		Yes			
V01034.00-V01035.00	21_07	186	8		Yes			
V02087.C0-V02087.D0	21_08	272	6					Yes
V02066.B0-V02066.E0	21_08	298	6					Yes
V02066.D0-V02066.E0	21_08	91	6					Yes
V02087.B0-V02087.C0	21_08	152	6					Yes
V02087.A0-V02087.B0	21_08	83	6					Yes
V02066.C0-V02066.D0	21_08	274	6					Yes
V02076.A0-V02076.00	21_08	25	6					Yes
V02076.00-V02077.00	21_08	101	6					Yes
V02089.00-V02090.00	21_08	351	6					Yes
V02088.00-V02089.00	21_08	116	6					Yes
V02078.00-V02079.00	21_08	191	6					Yes
V02071.00-V02072.00	21_08	162	6					Yes
V02074.00-V02075.00	21_08	297	6					Yes
V02066.E0-V02066.00	21_08	110	6					Yes
V32T068.00-V32T067.00	21_08	397	36			Yes		
V02077.00-V02079.00	21_08	260	8		Yes			
V02070.00-V02072.00	21_08	86	8		Yes			
V02075.00-V02077.00	21_08	214	8		Yes			
V02072.00-V02073.00	21_08	183	8		Yes			
V02073.00-V02075.00	21_08	92	8		Yes			
V02069.00-V02070.00	21_08	70	8		Yes			
V02080.00-V02081.00	21_08	336	8	V1	Yes			
V03189.00-V03190.00	21_08	146	8	V1	Yes			
V03190.00-V03191.00	21_08	290	8	V1	Yes			
V03185.00-V03186.00	21_08	299	8		Yes			
V02068.00-V02069.00	21_08	174	8		Yes			
V03186.00-V03187.00	21_08	126	8	V1				
V03187.00-V03188.00	21_08	299	8	V1				
V03188.00-V03189.00	21_08	167	8	V1				

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V02079.00-V02080.00	21_08	281	8	V1				
V03191.00-V02082.00	21_08	246	8	V1				
V03170.00-V03171.00	21_09	31	6		Yes			Yes
V03171.00-V03172.00	21_09	145	6		Yes			Yes
V03169.00-V03170.00	21_09	240	6		Yes			Yes
V03169.A0-V03169.00	21_09	8	6					Yes
V32052.00-V32T075.00	21_09	40	8			Yes		
V32042.00-V32043.00	21_09	26	8			Yes		
V32T079.00-V32T078.00	21_09	403	36			Yes		
V32T078.00-V32T077.00	21_09	161	36			Yes		
V32T077.00-V32T076.00	21_09	150	36			Yes		
V32T076.00-V32T075.00	21_09	153	36			Yes		
V32T075.00-V32T074.00	21_09	323	36			Yes		
V32T074.00-V32T073.00	21_09	341	36			Yes		
V32T072.00-V32T071.00	21_09	112	36			Yes		
V32T071.00-V32T070.00	21_09	464	36			Yes		
V32T070.00-V32T069.00	21_09	464	36			Yes		
V32T069.00-V32T068.00	21_09	398	36			Yes		
V32T073.00-V32T072.00	21_09	443	36			Yes		
V04063.00-V04064.00	21_09	151	8		Yes			
V04062.00-V04063.00	21_09	328	8		Yes			
V04061.00-V04062.00	21_09	221	8		Yes			
V03182.00-V03183.00	21_09	243	8		Yes			
V03183.00-V03184.00	21_09	362	8	V1	Yes			
V03184.00-V03187.00	21_09	106	8	V1	Yes			
V04081.00-V32T078.00	21_09	240	8		Yes			
V03174.00-V03175.00	21_09	257	8		Yes			
V03179.00-V03180.00	21_09	338	8		Yes			
V03168.00-V03172.00	21_09	314	8		Yes			
V03172.00-V03173.00	21_09	332	8		Yes			
V03173.00-V03175.00	21_09	94	8		Yes			
V03175.00-V03176.00	21_09	267	8		Yes			
V03176.00-V03182.00	21_09	250	8		Yes			
V04030.C0-V04030.00	21_10	312	6		Yes			Yes
V04030.A0-V04030.B0	21_10	162	6					Yes
V04030.B0-V04030.C0	21_10	145	6					Yes
V04030.00-V04031.00	21_10	77	8		Yes		Yes	
V04029.00-V04030.00	21_10	221	8		Yes		Yes	
V04031.00-V32T082.00	21_10	197	8		Yes		Yes	
V32T086.00-V32T085.00	21_10	374	30	V2		Yes		
V32T085.00-V32T084.00	21_10	42	30	V2		Yes		
V32036.00-V32037.00	21_10	64	10			Yes		
V32T084.00-V32T083.00	21_10	457	36			Yes		
V32T083.00-V32T083.A0	21_10	477	36			Yes		
V32T080.00-V32T079.00	21_10	461	36			Yes		
V32T083.A0-V32T082.00	21_10	120	36			Yes		
V32T082.00-V32T081.00	21_10	383	36			Yes		
V32T081.00-V32T080.00	21_10	461	36			Yes		
V32043.00-V32044.00	21_10	106	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V32046.00-V32047.00	21_10	322	8		Yes			
V05099.00-V05100.00	21_10	374	8		Yes			
V05100.00-V05101.00	21_10	386	8		Yes			
V05098.00-V05099.00	21_10	258	8		Yes			
V04023.00-V04024.00	21_10	293	8		Yes			
V04025.00-V04026.00	21_10	122	8		Yes			
V04026.00-V04031.00	21_10	92	8		Yes			
V30053.00-V30054.00	21_10	314	10					
V29115.00-V29116.00	21_11	273	6					Yes
V29114.00-V29115.00	21_11	146	6					Yes
V29113.00-V29114.00	21_11	163	6					Yes
V29120.A0-V29120.00	21_11	73	6					Yes
V29047.C0-V29047.00	21_11	226	8		Yes	Yes		
V30060.00-V30061.00	21_11	24	10	V6		Yes		
V30061.00-V32T092.A0	21_11	17	10	V6		Yes		
V30059.00-V30060.00	21_11	162	10	V6		Yes		
V30058.00-V30059.00	21_11	147	10	V6		Yes		
V32T093.00-V32T092.00	21_11	251	30	V2		Yes		
V32T092.00-V32T092.B0	21_11	89	30	V2		Yes		
V32T092.B0-V32T092.A0	21_11	20	30	V2		Yes		
V32T088.00-V32T087.A0	21_11	12	30	V2		Yes		
V32T087.A0-V32T087.00	21_11	233	30	V2		Yes		
V32T092.A0-V32T091.00	21_11	440	30	V2		Yes		
V32T090.00-V32T089.00	21_11	70	30	V2		Yes		
V32T089.00-V32T088.00	21_11	76	30	V2		Yes		
V32T087.00-V32T086.00	21_11	372	30	V2		Yes		
V29129.00-V32T093.00	21_11	357	8			Yes		
V29127.00-V29128.00	21_11	274	8			Yes		
V29128.00-V29129.00	21_11	265	8			Yes		
V29046.00-V29047.C0	21_11	141	8			Yes		
V29047.00-V29048.00	21_11	462	8			Yes		
V29048.00-V29049.00	21_11	202	8			Yes		
V29105.00-V29112.00	21_11	147	8		Yes			
V05103.00-V05104.00	21_11	123	8	V3	Yes			
V05104.00-V05105.00	21_11	343	8	V3	Yes			
V05044.00-V05103.00	21_11	300	8		Yes			
V30057.CD-V30057.C0	21_11	259	8		Yes			
V29119.00-V29120.00	21_11	222	8		Yes			
V29118.00-V29119.00	21_11	50	8		Yes			
V05046.00-V05047.00	21_11	224	12		Yes			
V05041.00-V05046.00	21_11	235	12		Yes			
V30056.A0-V30056.00	21_11	291	10	V6				
V30056.00-V30057.C0	21_11	454	10	V6				
V30057.C0-V30057.00	21_11	353	10	V6				
V30057.00-V30058.00	21_11	462	10	V6				
V05102.00-V05103.00	21_11	113	8	V3				
V05106.00-V32T090.00	21_11	9	10	V3				
V05105.00-V05106.00	21_11	230	10	V3				
V05047.00-V05048.00	21_11	104	12	V2				

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V05048.00-V05091.A0	21_11	153	12	V2				
V05091.A0-V32T091.00	21_11	12	12	V2				
V32T094.00-V32T093.00	21_11	774	30	V2				
V32T091.00-V32T090.00	21_11	440	30	V2				
V28087.00-V28088.00	21_12	252	6		Yes			Yes
V28102.00-V28103.00	21_12	187	6		Yes			Yes
V29042.A0-V29042.00	21_12	55	6					Yes
V28118.00-V28119.00	21_12	40	6					Yes
V28117.00-V28118.00	21_12	138	6					Yes
V28144.00-V28145.00	21_12	305	6					Yes
V28116.00-V28117.00	21_12	78	6					Yes
V28106.00-V28107.00	21_12	137	6					Yes
V28096.00-V28097.00	21_12	100	6					Yes
V28099.00-V28100.00	21_12	38	8		Yes		Yes	
V28098.00-V28100.00	21_12	123	8		Yes		Yes	
V28104.00-V28108.00	21_12	241	8		Yes		Yes	
V28101.00-V28104.00	21_12	333	8		Yes		Yes	
V28145.00-V28146.00	21_12	246	8		Yes		Yes	
V28088.A0-V28088.00	21_12	234	8		Yes		Yes	
V28103.00-V28104.00	21_12	233	8		Yes		Yes	
V28108.00-V28119.00	21_12	110	8		Yes		Yes	
V28105.00-V28108.00	21_12	250	8		Yes		Yes	
V28100.00-V28101.00	21_12	234	8				Yes	
V28143.00-V28145.00	21_12	205	8				Yes	
V29043.F0-V29043.00	21_12	204	8			Yes		
V29039.00-V29040.00	21_12	403	8		Yes			
V29040.00-V29041.00	21_12	309	8		Yes			
V29041.00-V29046.00	21_12	310	8		Yes			
V28113.00-V28114.00	21_12	238	8		Yes			
V28112.00-V28113.00	21_12	109	8		Yes			
V29012.00-V29013.00	21_12	212	8		Yes			
V29013.00-V29014.00	21_12	140	8		Yes			
V29045.C0-V29045.00	21_12	45	8		Yes			
V29065.00-V29067.00	21_12	309	8		Yes			
V29044.00-V29045.C0	21_12	421	8		Yes			
V28111.00-V28112.00	21_12	399	8		Yes			
V29066.00-V29067.00	21_12	260	8		Yes			
V28122.00-V28123.F0	21_12	99	8		Yes			
V28140.00-V28141.00	21_12	483	8	V7				
V24054.H0-V24054.I0	21_13	92	6		Yes		Yes	Yes
V24054.K0-V24054.L0	21_13	126	6		Yes		Yes	Yes
V24054.G0-V24054.K0	21_13	130	6		Yes		Yes	Yes
V24054.I0-V24054.J0	21_13	44	6				Yes	Yes
V24014.00-V24015.00	21_13	250	6				Yes	Yes
V28091.00-V28092.00	21_13	333	6				Yes	Yes
V28135.00-V28137.00	21_13	200	6		Yes			Yes
V28126.00-V28127.00	21_13	273	6		Yes			Yes
V28133.00-V28134.00	21_13	138	6		Yes			Yes
V28138.00-V28139.00	21_13	7	6					Yes

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V28137.00-V28138.00	21_13	31	6					Yes
V28125.00-V28126.00	21_13	8	6					Yes
V24054.B0-V24054.G0	21_13	160	6					Yes
V28136.00-V28137.00	21_13	230	6					Yes
V24054.D0-V24054.E0	21_13	152	6					Yes
V28128.00-V28129.00	21_13	210	6					Yes
V28090.00-V28092.00	21_13	305	6					Yes
V26188.00-V26189.00	21_13	212	6					Yes
V28134.00-V28135.00	21_13	373	6					Yes
V28092.00-V28127.00	21_13	505	6					Yes
V28132.00-V28133.00	21_13	431	6					Yes
V28129.00-V28132.00	21_13	431	6					Yes
V24054.A0-V24054.B0	21_13	268	6					Yes
V24054.J0-V24054.K0	21_13	22	8		Yes		Yes	
V28085.00-V28089.00	21_13	82	8				Yes	
V28076.00-V28085.00	21_13	454	8				Yes	
V25072.00-V25077.00	21_13	376	8				Yes	
V25056.00-V25057.00	21_13	375	8				Yes	
V25066.00-V25067.A0	21_13	335	8				Yes	
V25067.A0-V25067.00	21_13	335	8				Yes	
V25068.00-V25071.00	21_13	347	8				Yes	
V28088.00-V28089.00	21_13	234	8				Yes	
V25071.00-V25072.00	21_13	347	8				Yes	
V25077.00-V25078.00	21_13	375	8				Yes	
V25057.00-V25078.00	21_13	306	8				Yes	
V25067.00-V25068.00	21_13	350	8				Yes	
V28089.00-V28090.00	21_13	190	8				Yes	
V24054.L0-V24054.M0	21_13	226	8		Yes			
V24054.M0-V24054.N0	21_13	239	8		Yes			
V24054.N0-V24054.O0	21_13	130	8		Yes			
V26239.00-V26240.00	21_13	263	8		Yes			
V25036.00-V25037.00	21_13	98	8		Yes			
V25074.00-V25076.00	21_13	350	8		Yes			
V25075.00-V25076.00	21_13	86	8		Yes			
V25073.00-V25074.00	21_13	119	8		Yes			
V25078.00-V24052.A0	21_13	29	8		Yes			
V24054.C0-V24054.E0	21_13	90	15		Yes			
V26229.00-V26231.A0	21_13	155	8		Yes			
V26241.A0-V26241.00	21_13	74	8	V8				
V26241.00-V26242.00	21_13	50	8	V8				
V26191.00-V26236.00	21_13	363	8	V8				
V26236.00-V26237.00	21_13	339	8	V8				
V26190.00-V26191.00	21_13	365	8	V8				
V26189.00-V26190.00	21_13	387	8	V8				
V26187.00-V26189.00	21_13	387	8	V8				
V26237.00-V26241.00	21_13	375	8	V8				
V26240.00-V26241.00	21_13	87	8	V8				
V26242.00-V24052.A0	21_13	7	8	V8				
V28139.00-V28140.00	21_13	470	8	V7				

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V28127.00-V28139.00	21_13	344	8	V7				
V23148.00-V23149.00	21_14	227	6					Yes
V26036.00-V26037.00	21_14	364	6					Yes
V23177.00-V23178.00	21_14	208	6					Yes
V23175.00-V23176.00	21_14	110	6					Yes
V23176.00-V23177.00	21_14	97	6					Yes
V25063.00-V25064.00	21_14	25	6					Yes
V25062.00-V25063.00	21_14	150	6					Yes
V26061.00-V26062.00	21_14	145	6					Yes
V26062.00-V26064.00	21_14	287	6					Yes
V25064.00-V25065.00	21_14	170	6					Yes
V25014.00-V25015.00	21_14	206	8		Yes			
V25010.00-V25011.00	21_14	230	8		Yes			
V25009.00-V25010.00	21_14	91	8		Yes			
V25008.00-V25009.00	21_14	152	8		Yes			
V25011.00-V25014.00	21_14	296	8		Yes			
V26056.00-V26057.00	21_14	89	8		Yes			
V23183.00-V23184.00	21_14	295	8		Yes			
V23184.00-V23185.00	21_14	120	8		Yes			
V23180.00-V23181.00	21_14	160	8		Yes			
V23185.00-V23186.00	21_14	239	8		Yes			
V25007.00-V25008.00	21_14	195	8		Yes			
V26058.00-V26059.00	21_14	235	8		Yes			
V26055.00-V26056.00	21_14	322	8		Yes			
V26045.00-V26046.00	21_14	125	8		Yes			
V26044.00-V26048.00	21_14	208	8		Yes			
V25061.00-V25063.00	21_14	111	8		Yes			
V26185.00-V26186.00	21_14	178	8	V8	Yes			
V26020.00-V26021.00	21_14	183	8		Yes			
V26186.00-V26187.00	21_14	379	8	V8				
V26183.00-V26185.00	21_14	291	8	V8				
V27010.00-V27011.00	21_15	160	8		Yes			
V27009.00-V27010.00	21_15	310	8		Yes			
V26008.00-V26009.00	21_15	177	8		Yes			
V26003.00-V26009.00	21_15	187	8	V8				
V26009.00-V26010.00	21_15	318	8	V8				
V26002.00-V26003.00	21_15	170	8	V8				
V26001.00-V26002.00	21_15	333	8	V8				
V27011.00-V26001.00	21_15	204	8	V8				
V26010.00-V26017.B0	21_15	233	8	V8				
V26017.B0-V26017.00	21_15	233	8	V8				
V26017.00-V26018.00	21_15	176	8	V8				
B11067.00-B11068.00	21_16	330	8		Yes			
B11027.00-B11026.00	21_18	350	6					Yes
B12032.00-B12033.00	21_18	3	8		Yes			
B12035.00-B12036.00	21_18	51	8		Yes			
B12038.00-B12039.00	21_18	139	8		Yes			
B12037.00-B12038.00	21_18	212	8		Yes			
B12036.00-B12037.00	21_18	152	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B12039.00-B12040.00	21_18	81	8		Yes			
B12033.00-B12035.00	21_18	108	8		Yes			
B12040.00-B12042.00	21_18	225	8		Yes			
B12023.00-B12024.00	21_19	373	6					Yes
B12022.00-B12023.00	21_19	317	6					Yes
B12027.00-B12028.00	21_19	128	6					Yes
B12026.00-B12027.00	21_19	215	6					Yes
B12003.TD-B12003.TE	21_20	145	8			Yes		
B12003.R0-B12003.S0	21_20	271	8					
B12003.TC-B12003.TD	21_20	287	8					
V01018.00-V01019.00	22_07	216	6		Yes			Yes
V32T061.00-V32T060.00	22_07	301	36			Yes		
V32T060.00-V32T059.00	22_07	550	36			Yes		
V01023.00-V01024.00	22_07	306	8		Yes			
V01041.00-V01042.00	22_07	336	8		Yes			
V01050.00-V01051.00	22_07	72	8	V1	Yes			
V01024.00-V01050.00	22_07	326	8	V1	Yes			
V02099.00-V02100.00	22_07	214	10	V1	Yes			
V01051.00-V01052.00	22_07	313	12	V1	Yes			
V01016.00-V01017.00	22_07	328	8		Yes			
V01049.00-V01050.00	22_07	265	8		Yes			
V01021.00-V01022.00	22_07	282	8		Yes			
V02100.00-V01051.00	22_07	211	10	V1				
V01052.00-V01056.00	22_07	364	10	V1				
V32T067.00-V32T066.00	22_08	499	36			Yes		
V32T066.00-V32T065.00	22_08	483	36			Yes		
V32T065.00-V32T064.00	22_08	407	36			Yes		
V32T062.00-V32T061.00	22_08	553	36			Yes		
V32T064.00-V32T063.00	22_08	474	36			Yes		
V32T063.00-V32T062.00	22_08	605	36			Yes		
V02081.00-V02084.00	22_08	324	8	V1	Yes			
V02098.00-V02099.00	22_08	345	10	V1	Yes			
V02085.00-V02097.00	22_08	351	10	V1	Yes			
V02097.00-V02098.00	22_08	340	10	V1	Yes			
V02096.00-V02097.00	22_08	334	8		Yes			
V01055.00-V01056.00	22_08	110	8		Yes			
V01054.00-V01055.00	22_08	206	8		Yes			
V01053.00-V01054.00	22_08	190	8		Yes			
V02083.A0-V02083.00	22_08	15	8	V1				
V02083.00-V02084.00	22_08	244	8	V1				
V02082.00-V02083.A0	22_08	289	8	V1				
V02084.00-V02085.A0	22_08	54	10	V1				
V02085.A0-V02085.00	22_08	334	10	V1				
V01056.00-V32T228.00	22_08	190	10	V1				
OV2025.C0-OV2025.D0	22_09	157	8			Yes		
V32127.A0-V32127.B0	22_09	152	8			Yes		
V32127.B0-V32127.C0	22_09	71	8			Yes		
V32117.00-V32118.00	22_09	55	8		Yes			
V32118.00-V32119.00	22_09	294	8		Yes			

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V32011.00-V32012.00	22_10	160	6					Yes
OV2010.00-OV2011.00	22_10	275	6					Yes
V32027.00-V32029.00	22_10	270	8		Yes			
V29095.00-V29096.00	22_11	176	8		Yes			
V29104.00-V29105.00	22_11	227	8		Yes			
V29103.00-V29104.00	22_11	390	8		Yes			
V29102.00-V29103.00	22_11	79	8		Yes			
V29101.00-V29102.00	22_11	111	8		Yes			
V29098.00-V29099.00	22_11	236	8		Yes			
V29099.00-V29100.00	22_11	117	8		Yes			
V29100.00-V29101.00	22_11	191	8		Yes			
V29097.00-V29098.00	22_11	205	8		Yes			
V29090.00-V29091.00	22_11	245	8		Yes			
V29093.00-V29094.00	22_11	156	8		Yes			
V29079.00-V29080.00	22_11	304	8		Yes			
V29094.00-V29095.00	22_11	162	8		Yes			
V30045.00-V30048.00	22_11	169	8		Yes			
V30046.00-V30047.00	22_11	277	8		Yes			
V30036.00-V30037.00	22_11	156	8		Yes			
V30037.00-V30038.00	22_11	47	8		Yes			
V30038.00-V30039.00	22_11	308	8		Yes			
V30035.00-V30036.00	22_11	132	8		Yes			
V29096.00-V29102.00	22_11	127	8		Yes			
V29085.00-V29086.00	22_11	288	8		Yes			
V29080.00-V29081.00	22_11	194	8		Yes			
V29082.00-V29083.00	22_11	364	8		Yes			
V29083.00-V29084.00	22_11	241	8		Yes			
V30044.00-V30050.00	22_11	363	10		Yes			
V30044.B0-V30044.00	22_11	214	10		Yes			
V29088.00-V29089.00	22_12	163	6					Yes
V29089.00-V29092.00	22_12	157	6					Yes
V31023.00-V31024.00	22_12	188	6					Yes
V29072.00-V29073.00	22_12	272	6					Yes
V28068.00-V28069.00	22_12	108	8		Yes		Yes	
V28070.00-V28071.00	22_12	41	8		Yes		Yes	
V28075.00-V28076.00	22_12	454	8				Yes	
V28061.00-V28062.00	22_12	359	8				Yes	
V28074.00-V28075.00	22_12	121	8				Yes	
V28073.00-V28074.00	22_12	118	8				Yes	
V28069.00-V28070.00	22_12	119	8				Yes	
V28058.00-V28059.00	22_12	234	8				Yes	
V28057.00-V28058.00	22_12	110	8				Yes	
V28056.00-V28058.00	22_12	366	8				Yes	
V28062.00-V28063.00	22_12	284	8				Yes	
V28059.00-V28062.00	22_12	224	8				Yes	
V28055.00-V28056.00	22_12	377	8				Yes	
V28071.00-V28072.00	22_12	224	8				Yes	
V28060.00-V28061.00	22_12	358	8				Yes	
V29091.00-V29092.00	22_12	304	8		Yes			

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V29092.00-V29093.00	22_12	254	8		Yes			
V29087.00-V29092.00	22_12	298	8		Yes			
V29051.A0-V29051.00	22_12	147	8		Yes			
V31022.00-V31024.00	22_12	166	8		Yes			
V31022.A0-V31022.B0	22_12	316	8		Yes			
V31039.00-V31040.00	22_12	100	8		Yes			
V31038.00-V31040.00	22_12	240	8		Yes			
V29086.00-V29087.C0	22_12	214	8		Yes			
V29087.C0-V29087.00	22_12	214	8		Yes			
V28018.00-V28019.00	22_13	162	6					Yes
V28047.00-V28048.00	22_13	199	8		Yes		Yes	
V28022.00-V28023.00	22_13	298	8		Yes		Yes	
V28023.00-V28037.00	22_13	287	8		Yes		Yes	
V28040.00-V28041.00	22_13	168	8		Yes		Yes	
V28037.00-V28038.00	22_13	345	8		Yes		Yes	
V28026.00-V28027.00	22_13	163	8				Yes	
V28025.00-V28026.00	22_13	216	8				Yes	
V28053.00-V28054.00	22_13	196	8				Yes	
V28048.00-V28049.00	22_13	223	8				Yes	
V28044.00-V28048.00	22_13	165	8				Yes	
V28043.00-V28044.00	22_13	186	8				Yes	
V28072.00-V28076.00	22_13	196	8				Yes	
V28049.00-V28050.00	22_13	223	8				Yes	
V28042.00-V28043.00	22_13	192	8				Yes	
V28024.00-V28025.00	22_13	260	8				Yes	
V28045.00-V28046.00	22_13	113	8				Yes	
V28046.00-V28047.00	22_13	134	8				Yes	
V28051.00-V28053.00	22_13	119	8				Yes	
V28052.00-V28053.00	22_13	116	8				Yes	
V28054.00-V28072.00	22_13	225	8				Yes	
V28039.00-V28041.00	22_13	115	8				Yes	
V28038.00-V28039.00	22_13	249	8				Yes	
V28036.00-V28037.00	22_13	199	8				Yes	
V28050.00-V28054.00	22_13	175	8				Yes	
V28041.00-V28042.00	22_13	200	8				Yes	
V28080.00-V28081.00	22_13	24	8		Yes			
V26215.00-V26216.00	22_13	58	8		Yes			
V26208.00-V26209.00	22_13	177	8		Yes			
V26207.00-V26208.00	22_13	130	8		Yes			
V26226.00-V26227.00	22_13	74	8		Yes			
V26228.00-V26229.00	22_13	127	8		Yes			
V26210.00-V26213.00	22_13	117	8		Yes			
V26225.00-V26226.00	22_13	102	8		Yes			
V26224.00-V26225.00	22_13	120	8		Yes			
V26222.00-V26223.00	22_13	30	8		Yes			
V26214.00-V26215.00	22_13	135	8		Yes			
V26211.00-V26212.00	22_13	120	8		Yes			
V26212.00-V26213.00	22_13	164	8		Yes			
V26209.00-V26210.00	22_13	58	8		Yes			

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V26213.00-V26214.00	22_13	126	8		Yes			
V28009.00-V28010.00	22_13	180	8		Yes			
V28083.00-V28084.00	22_13	236	8		Yes			
V28081.00-V28082.00	22_13	115	8		Yes			
V28079.00-V28081.00	22_13	291	8		Yes			
V31019.00-V31021.00	22_13	75	8		Yes			
V31020.00-V31021.00	22_13	375	8		Yes			
V26219.00-V26220.00	22_13	331	8		Yes			
V26217.00-V26227.00	22_13	45	8		Yes			
V26216.00-V26217.00	22_13	239	8		Yes			
V26223.00-V26225.00	22_13	125	8		Yes			
V26172.00-V26173.00	22_14	205	6					Yes
V26169.B0-V26169.00	22_14	210	8		Yes			
V26159.00-V26160.00	22_14	223	8		Yes			
V26108.00-V26160.00	22_14	62	8		Yes			
V26153.00-V26156.00	22_14	94	8		Yes			
V26157.00-V26158.00	22_14	40	8		Yes			
V26170.00-V26171.00	22_14	112	8		Yes			
V26170.B0-V26170.00	22_14	162	8		Yes			
V26184.A0-V26184.00	22_14	292	8		Yes			
V26162.00-V26163.00	22_14	290	8		Yes			
V26161.00-V26162.00	22_14	299	8		Yes			
V26169.00-V26170.00	22_14	105	8		Yes			
V26181.00-V26182.00	22_14	206	8		Yes			
V26171.00-V26172.00	22_14	179	8		Yes			
V26176.00-V26177.00	22_14	31	8	V8				
V26071.00-V26072.00	22_14	232	8	V8				
V26070.00-V26071.00	22_14	232	8	V8				
V26073.00-V26087.00	22_14	244	8	V8				
V26072.00-V26073.00	22_14	240	8	V8				
V26175.00-V26176.00	22_14	321	8	V8				
V26087.00-V26175.00	22_14	379	8	V8				
V26177.00-V26182.00	22_14	321	8	V8				
V26182.00-V26183.00	22_14	291	8	V8				
V26029.00-V26030.00	22_14	58	8	V8				
V26026.00-V26029.00	22_14	362	8	V8				
V26018.00-V26026.00	22_14	270	8	V8				
V26030.00-V26070.00	22_14	242	8	V8				
B13031.00-B13032.00	22_15	191	6		Yes			Yes
B13003.00-B13005.00	22_15	370	6					Yes
B13002.00-B13003.00	22_15	315	6					Yes
B13001.00-B13002.00	22_15	170	6					Yes
B13036.00-B13037.00	22_15	215	8		Yes			
V26007.00-V26008.00	22_15	302	8		Yes			
V26004.00-V26007.00	22_15	267	8		Yes			
B13030.00-B13032.00	22_15	43	8		Yes			
B13025.00-B13026.00	22_15	273	8		Yes			
B13013.00-B13026.00	22_15	323	8		Yes			
B13034.A0-B13034.B0	22_15	277	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B13034.B0-B13034.C0	22_15	120	8		Yes			
B13034.C0-B13034.D0	22_15	51	8		Yes			
B11081.00-B11082.00	22_16	259	6					Yes
B11080.00-B11081.00	22_16	195	6					Yes
B11079.00-B11080.00	22_16	235	6					Yes
B11068.00-B11084.00	22_16	324	8		Yes			
B11091.00-B11092.00	22_17	400	6					Yes
B11090.00-B11091.00	22_17	294	6					Yes
B11093.00-B11094.00	22_17	340	6					Yes
B11114.00-B11115.00	22_17	309	6					Yes
B11115.00-B11116.00	22_17	53	6					Yes
B10001.00-B10002.00	22_17	107	8		Yes			
B10002.00-B10003.00	22_17	265	8		Yes			
B11108.00-B11109.00	22_17	362	8		Yes			
B11107.00-B11108.00	22_17	165	8		Yes			
B11062.00-B11113.00	22_17	350	8		Yes			
B11061.00-B11062.00	22_17	232	8		Yes			
B11102.00-B11104.00	22_17	150	8		Yes			
B11101.00-B11102.00	22_17	260	8		Yes			
B11044.00-B11045.00	22_18	198	6					Yes
B11045.00-B11046.00	22_18	250	6					Yes
B12087.00-B12088.00	22_18	396	8		Yes			
B12063.00-B12064.00	22_18	295	8		Yes			
B12062.00-B12063.00	22_18	337	8		Yes			
B12030.00-B12031.C0	22_18	384	8		Yes			
B12042.00-B12043.00	22_18	256	8		Yes			
B12058.00-B12062.00	22_18	264	8		Yes			
B12057.00-B12058.00	22_18	297	8		Yes			
B12056.00-B12057.00	22_19	275	8		Yes			
B12055.00-B12056.00	22_19	304	8		Yes			
B12053.00-B12055.00	22_19	81	8		Yes			
B12054.00-B12055.00	22_19	40	8		Yes			
B12052.00-B12056.00	22_19	300	8		Yes			
V32T011.00-V32T010.00	23_01	103	36			Yes		
V32T021.00-V32T019.00	23_02	378	36			Yes		
V32T021.A0-V32T021.00	23_02	21	36			Yes		
V32T022.00-V32T021.00	23_02	155	42			Yes		
V32T022.A0-V32T022.00	23_02	144	42			Yes		
V32T023.00-V32T022.A0	23_02	329	42			Yes		
V32T024.00-V32T023.00	23_02	552	42			Yes		
V32T025.00-V32T024.00	23_02	203	42			Yes		
V32T026.00-V32T025.00	23_02	529	42			Yes		
V32T030.00-V32T029.00	23_03	460	36			Yes		
V32T027.00-V32T026.00	23_03	408	42			Yes		
V32T027.A0-V32T027.00	23_03	347	42			Yes		
V32T028.00-V32T027.A0	23_03	76	42			Yes		
V32T029.00-V32T028.00	23_03	207	42			Yes		
V32T031.00-V32T030.00	23_03	422	36			Yes		
V32T032.00-V32T031.00	23_03	471	36			Yes		

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Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V32T033.00-V32T032.00	23_03	478	36			Yes		
V32T034.00-V32T033.00	23_04	458	36			Yes		
V32T035.00-V32T034.00	23_04	430	36			Yes		
V32T205.00-V32T045.00	23_05	83	27			Yes		
V32T041.00-V32T040.00	23_05	373	36			Yes		
V32T042.00-V32T041.00	23_05	550	36			Yes		
V32T045.00-V32T044.00	23_05	102	36			Yes		
V32T043.00-V32T042.00	23_05	558	36			Yes		
V32T044.00-V32T043.00	23_05	50	36			Yes		
V32T046.00-V32T045.00	23_05	224	36			Yes		
V32T047.00-V32T046.00	23_05	468	36			Yes		
V32T050.00-V32T049.00	23_06	350	36			Yes		
V32T054.00-V32T053.00	23_06	323	36			Yes		
V32T053.00-V32T052.00	23_06	483	36			Yes		
V32T052.00-V32T051.00	23_06	362	36			Yes		
V32T051.00-V32T050.00	23_06	466	36			Yes		
V32T049.00-V32T048.00	23_06	200	36			Yes		
V32T048.00-V32T047.00	23_06	468	36			Yes		
V32T059.00-V32T058.00	23_07	431	36			Yes		
V32T058.00-V32T057.00	23_07	443	36			Yes		
V32T057.00-V32T056.00	23_07	443	36			Yes		
V32T056.00-V32T055.00	23_07	443	36			Yes		
V32T055.00-V32T054.00	23_07	290	36			Yes		
V01001.00-V01002.00	23_07	349	8		Yes			
V30011.00-V30012.00	23_10	298	8		Yes			
V30027.A0-V30027.00	23_11	401	6		Yes			Yes
V31136.00-V31137.00	23_11	329	10			Yes		
V31137.00-V31138.00	23_11	316	10			Yes		
V31138.00-V31139.00	23_11	103	10			Yes		
V31139.00-V30023.00	23_11	91	10			Yes		
V30027.00-V30030.00	23_11	123	8		Yes			
V30025.00-V30026.00	23_11	114	8		Yes			
V31067.00-V31068.00	23_11	281	8		Yes			
V31066.00-V31067.00	23_11	155	8		Yes			
V31065.00-V31067.00	23_11	19	8		Yes			
V31117.00-V31118.00	23_11	320	8		Yes			
V30029.00-V30030.00	23_11	190	8		Yes			
V31115.00-V31116.00	23_11	64	8		Yes			
V31088.00-V31089.00	23_11	116	8		Yes			
V31129.00-V31130.00	23_11	149	8		Yes			
V30030.00-V30032.00	23_11	269	8		Yes			
V30024.00-V30025.00	23_11	196	8		Yes			
V30026.00-V30027.00	23_11	357	8		Yes			
V31036.A0-V31036.B0	23_12	134	6					Yes
V31055.00-V31056.00	23_12	335	6					Yes
V31061.00-V31062.00	23_12	130	6					Yes
V29073.00-V29074.00	23_12	156	6					Yes
V31025.A0-V31025.00	23_12	100	6					Yes
V31036.B0-V31036.00	23_12	192	8		Yes			

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V31024.00-V31025.00	23_12	294	8		Yes			
V31080.00-V31085.00	23_12	299	8		Yes			
V31079.00-V31080.00	23_12	293	8		Yes			
V29078.00-V29079.00	23_12	313	8		Yes			
V31030.00-V31036.00	23_12	103	8		Yes			
V29075.00-V29077.00	23_12	273	8		Yes			
V29074.00-V29075.00	23_12	55	8		Yes			
V29071.00-V29074.00	23_12	248	8		Yes			
V29070.00-V29071.00	23_12	345	8		Yes			
V29077.00-V29078.00	23_12	102	8		Yes			
V31033.00-V31034.00	23_12	290	8		Yes			
V31068.00-V31070.00	23_12	107	8		Yes			
V31070.00-V31071.00	23_12	182	8		Yes			
V31071.00-V31072.00	23_12	77	8		Yes			
V31072.00-V31073.00	23_12	157	8		Yes			
V31073.00-V31074.00	23_12	100	8		Yes			
V31069.00-V31070.00	23_12	275	8		Yes			
V31082.00-V31085.00	23_12	88	8		Yes			
V31086.00-V31087.00	23_12	330	8		Yes			
V31049.00-V31051.00	23_12	287	8		Yes			
V31098.00-V31099.00	23_12	265	8		Yes			
V31017.00-V31018.00	23_13	193	8		Yes			
V31022.C0-V31022.00	23_13	85	8		Yes			
V31018.00-V31022.C0	23_13	131	8		Yes			
V31016.00-V31017.00	23_13	276	8		Yes			
V26090.00-V26091.00	23_14	85	6					Yes
V26089.00-V26090.00	23_14	130	6					Yes
V26109.C0-V26109.00	23_14	192	8			Yes		
V26109.A0-V26109.B0	23_14	33	8			Yes		
V26147.00-V26148.00	23_14	112	8		Yes			
V26133.00-V26134.00	23_14	251	8		Yes			
V26118.00-V26119.00	23_14	46	8		Yes			
V26148.00-V26149.00	23_14	282	8		Yes			
V26120.00-V26121.00	23_14	280	8		Yes			
V26119.00-V26121.00	23_14	160	8		Yes			
V26137.00-V26138.00	23_14	280	8		Yes			
V26136.00-V26138.00	23_14	70	8		Yes			
V26145.00-V26146.00	23_14	192	8		Yes			
V26134.00-V26146.00	23_14	192	8		Yes			
V26129.00-V26130.00	23_14	82	8		Yes			
V26138.00-V26143.00	23_14	399	8		Yes			
V28001.00-V28002.00	23_14	223	8		Yes			
V26135.00-V26136.00	23_14	148	8		Yes			
V26088.00-V26089.00	23_15	10	6					Yes
B13037.00-B13038.00	23_15	336	8		Yes			
B13040.00-B13041.00	23_15	148	8		Yes			
B13039.00-B13040.00	23_15	280	8		Yes			
B13090.00-B13091.00	23_15	337	8		Yes			
B13104.00-B13105.A0	23_15	295	8		Yes			

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Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B13038.00-B13043.00	23_15	172	8		Yes			
B13042.00-B13043.00	23_15	268	8		Yes			
B13054.00-B13055.00	23_16	246	6					Yes
B13053.00-B13054.00	23_16	289	6					Yes
B13132.C0-B13132.00	23_16	34	6					Yes
B13131.00-B13132.C0	23_16	102	6					Yes
B13130.00-B13131.00	23_16	144	6					Yes
B13129.00-B13130.00	23_16	150	6					Yes
B10009.00-B10015.00	23_16	249	10		Yes			
B10015.00-B10016.00	23_16	462	10		Yes			
B13056.E0-B13056.00	23_16	65	8		Yes			
B11116.00-B11117.00	23_17	250	6					Yes
B11119.00-B11120.00	23_17	288	8		Yes			
B11117.00-B11118.00	23_17	317	8		Yes			
B11113.00-B11117.00	23_17	372	8		Yes			
B11130.00-B11131.00	23_17	521	8		Yes			
B11133.00-B11134.00	23_17	186	10		Yes			
B11120.00-B11133.00	23_17	96	10		Yes			
B11134.00-B10008.00	23_17	176	10		Yes			
B10008.00-B10009.00	23_17	206	10		Yes			
V32T013.00-V32T012.00	24_01	388	36			Yes		
V32T014.00-V32T013.00	24_01	305	36			Yes		
V32T015.00-V32T014.00	24_01	318	36			Yes		
V32T016.00-V32T015.00	24_01	364	36			Yes		
V32T017.00-V32T016.00	24_01	340	36			Yes		
V32T012.00-V32T011.00	24_01	385	36					
V32T018.00-V32T017.00	24_02	481	36			Yes		
V32T019.00-V32T018.00	24_02	256	36			Yes		
V32T036.00-V32T035.00	24_04	553	36			Yes		
V32T038.00-V32T037.00	24_04	222	36			Yes		
V32T037.00-V32T036.00	24_04	433	36			Yes		
V32T039.00-V32T038.00	24_04	508	36			Yes		
V32T040.00-V32T039.00	24_05	614	36			Yes		
OV2032.D0-OV2032.E0	24_10	119	8			Yes		
V31001.00-V31002.00	24_10	150	8		Yes			
V31007.00-V31008.A0	24_11	330	8		Yes			
V31008.00-V31009.00	24_11	323	8		Yes			
V31103.00-V31104.00	24_11	255	8		Yes			
B14010.00-B14011.00	24_13	185	8		Yes			
B14013.00-B14014.00	24_13	193	8		Yes			
B14012.00-B14013.00	24_13	237	8		Yes			
B14008.00-B14013.00	24_13	214	8		Yes			
B14011.00-B14012.00	24_13	200	8		Yes			
B14090.00-B14091.00	24_14	122	6		Yes			Yes
B14091.00-B14092.00	24_14	199	6					Yes
B14051.00-B14052.00	24_14	220	8		Yes			
B14050.00-B14051.00	24_14	200	8		Yes			
B14049.00-B14050.00	24_14	254	8		Yes			
B14048.00-B14049.00	24_14	211	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B14047.00-B14048.00	24_14	225	8		Yes			
B14063.00-B14065.00	24_14	375	8		Yes			
B14094.00-B14095.00	24_14	369	8		Yes			
V26114.00-V26115.00	24_14	181	8		Yes			
V26115.00-V26116.00	24_14	295	8		Yes			
B14094.F0-B14094.00	24_14	163	8		Yes			
B13198.00-B13208.00	24_15	429	8		Yes			
B13173.00-B13174.00	24_15	320	8		Yes			
B13169.00-B13170.00	24_15	375	8		Yes			
B13162.00-B13163.00	24_15	163	8		Yes			
B13161.00-B13162.00	24_15	78	8		Yes			
B13179.A0-B13179.B0	24_15	82	8		Yes			
B13179.B0-B13179.C0	24_15	156	8		Yes			
B13179.C0-B13179.D0	24_15	205	8		Yes			
B13105.00-B13106.00	24_15	378	8		Yes			
B13208.00-B13211.00	24_15	415	8		Yes			
B13168.00-B13170.00	24_15	240	8		Yes			
B13112.00-B13113.00	24_15	140	8		Yes			
B13180.00-B13197.00	24_15	260	8		Yes			
B13174.00-B13208.00	24_15	431	8		Yes			
B13165.00-B13166.00	24_15	451	8		Yes			
B13163.00-B13164.00	24_15	228	8		Yes			
B13132.00-B13133.00	24_16	405	6					Yes
B10016.00-B10025.00	24_16	420	10		Yes			
B10025.00-B10026.00	24_16	364	12		Yes			
B13143.00-B13144.00	24_16	112	8		Yes			
B13135.00-B13136.00	24_16	220	8		Yes			
B10027.00-B10070.00	24_16	189	12	B4				
B10026.00-B10027.00	24_16	256	12	B4				
B10072.00-B10073.00	24_16	293	12	B4				
B10071.00-B10072.00	24_16	259	12	B4				
B10070.00-B10071.00	24_16	182	12	B4				
B10040.00-B10054.00	24_17	251	8		Yes			
B10038.00-B10039.00	24_17	289	8		Yes			
B10034.00-B10035.00	24_17	164	8		Yes			
B10017.00-B10019.00	24_17	224	8		Yes			
B11128.00-B11129.00	24_17	282	8		Yes			
OV1027.00-OV1028.00	25_11	286	8			Yes		
OV1025.00-OV1026.00	25_11	227	12			Yes		
B14025.00-B14026.00	25_14	61	8			Yes		
B14105.00-B14106.00	25_14	201	8		Yes			
B14106.00-B14107.00	25_14	128	8		Yes			
B13186.00-B13188.00	25_14	280	8		Yes			
B14031.00-B14032.00	25_14	104	8		Yes			
B14111.G0-B14111.H0	25_14	84	10		Yes			
B14111.I0-B14111.M0	25_14	125	10		Yes			
B14111.A0-B14111.B0	25_14	133	10		Yes			
B13189.00-B13190.00	25_15	171	6					Yes
B13206.00-B13207.00	25_15	344	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B13226.00-B13227.00	25_15	27	8		Yes			
B13225.00-B13226.00	25_15	130	8		Yes			
B13224.00-B13227.00	25_15	208	8		Yes			
B13223.00-B13224.00	25_15	130	8		Yes			
B13222.00-B13229.00	25_15	194	10	B3	Yes			
B13219.00-B13222.00	25_15	273	8		Yes			
B13216.00-B13217.00	25_15	299	8		Yes			
B13212.00-B13213.00	25_15	180	8		Yes			
B13187.00-B13188.00	25_15	217	8		Yes			
B13148.00-B13149.00	25_15	258	8		Yes			
B13207.00-B13208.00	25_15	142	8		Yes			
B10094.00-B08022.00	25_15	264	12	B4				
B13230.00-B13231.00	25_15	335	10	B3				
B13229.00-B13230.00	25_15	72	10	B3				
B13231.00-B08022.00	25_15	317	10	B3				
B13221.00-B13222.00	25_16	36	6		Yes			Yes
B09049.00-B09051.00	25_16	103	6					Yes
B09048.00-B09049.00	25_16	83	6					Yes
B13220.00-B13221.00	25_16	115	6					Yes
B13155.A0-B13155.00	25_16	213	6					Yes
B10080.00-B10081.00	25_16	409	8		Yes			
B10091.00-B10092.00	25_16	221	8		Yes			
B10090.00-B10091.00	25_16	325	8		Yes			
B10088.00-B10089.00	25_16	71	8		Yes			
B10087.00-B10088.00	25_16	191	8		Yes			
B10083.00-B10084.00	25_16	236	12	B4	Yes			
B10082.00-B10083.00	25_16	133	12	B4	Yes			
B10075.00-B10076.00	25_16	413	12	B4	Yes			
B13140.00-B13141.00	25_16	340	8		Yes			
B13141.00-B13142.00	25_16	107	8		Yes			
B13153.00-B13154.00	25_16	307	8		Yes			
B10085.00-B10089.00	25_16	268	12	B4				
B10084.00-B10085.00	25_16	290	12	B4				
B10089.00-B10092.00	25_16	342	12	B4				
B10081.00-B10082.00	25_16	53	12	B4				
B10093.00-B10094.00	25_16	349	12	B4				
B10092.00-B10093.00	25_16	310	12	B4				
B10076.00-B10081.00	25_16	273	12	B4				
B10074.00-B10075.00	25_16	321	12	B4				
B10073.00-B10074.00	25_16	293	12	B4				
B09013.00-B09015.00	25_17	243	8		Yes			
B15152.A0-B15152.00	26_12	52	6					Yes
B08055.00-B08056.00	26_14	350	8		Yes			
B14298.00-B14299.00	26_14	406	8		Yes			
B08060.00-B08061.00	26_14	350	8		Yes			
B14111.K0-B14111.L0	26_14	291	10		Yes			
B08025.A0-B08025.00	26_15	85	15			Yes		
B08041.00-B08042.00	26_15	280	8		Yes			
B08046.00-B08047.00	26_15	150	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B08045.00-B08047.00	26_15	119	8		Yes			
B08042.00-B08043.00	26_15	200	8		Yes			
B08044.00-B08045.00	26_15	90	8		Yes			
B08057.00-B08058.00	26_15	220	8		Yes			
B08056.00-B08058.00	26_15	280	8		Yes			
B08061.00-B08062.00	26_15	350	8		Yes			
B09042.00-B09044.00	26_16	262	6		Yes			Yes
B09084.00-B09085.00	26_16	145	6					Yes
B09084.A0-B09084.00	26_16	50	6					Yes
B09086.00-B09087.00	26_16	155	6					Yes
B09044.00-B09045.00	26_16	276	8		Yes			
B09081.A0-B09081.00	26_16	224	8		Yes			
B08040.00-B08041.00	26_16	184	8		Yes			
B04062.00-B04063.00	26_16	195	8		Yes			
B09061.00-B09062.00	26_16	167	8		Yes			
B09060.00-B09061.00	26_16	300	8		Yes			
B09059.00-B09060.00	26_16	182	8		Yes			
B08036.00-B08038.00	26_16	196	8		Yes			
B09041.00-B09042.00	26_17	113	6		Yes			Yes
B04003.00-B04004.00	26_17	214	8		Yes			
B04002.00-B04003.00	26_17	207	8		Yes			
B04001.00-B04002.00	26_17	65	8		Yes			
B04005.00-B04006.00	26_17	169	8		Yes			
B04006.00-B04008.00	26_17	286	8		Yes			
B09008.00-B09009.00	26_17	130	8		Yes			
B09009.00-B09010.00	26_17	370	8		Yes			
B09023.00-B09025.00	26_17	216	8		Yes			
B09022.00-B09023.00	26_17	40	8		Yes			
B04007.00-B04008.00	26_17	270	8		Yes			
B09017.00-B09018.00	26_17	290	8		Yes			
V33026.00-V33027.00	27_11	232	6					Yes
V33074.A0-V33074.B0	27_11	208	6					Yes
V33079.A0-V33079.B0	27_11	196	6					Yes
V33049.00-V33051.A0	27_11	90	8			Yes		
B15240.00-B15241.00	27_12	104	10		Yes			
B15239.00-B15240.00	27_12	241	10		Yes			
B15238.00-B15239.00	27_12	296	10		Yes			
B15217.00-B15238.00	27_12	145	10		Yes			
B07022.00-B07023.00	27_14	175	8		Yes			
B07023.00-B07024.00	27_14	105	8		Yes			
B07062.00-B07063.00	27_14	305	8		Yes			
B07063.00-B07064.00	27_14	247	8		Yes			
B07064.00-B07065.00	27_14	80	8		Yes			
B07068.00-B07069.00	27_14	26	18		Yes			
B07067.00-B07069.00	27_14	23	18		Yes			
B14302.00-B07059.00	27_14	292	8	B5	Yes			
B08108.00-B07059.00	27_14	233	15	B2	Yes			
B14299.00-B14300.00	27_14	396	8		Yes			
B14300.00-B14301.00	27_14	397	8	B5				

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B14301.00-B14302.00	27_14	353	8	B5				
B07065.00-B07066.00	27_14	220	18	B5				
B07066.00-B07069.00	27_14	344	18	B5				
B07059.00-B07065.00	27_14	570	18	B5				
B08100.00-B08108.00	27_14	300	15	B2				
B08099.00-B08100.00	27_14	176	15	B2				
B08098.00-B08099.00	27_14	249	15	B2				
B08077.00-B08085.00	27_15	137	6					Yes
B08073.00-B08074.00	27_15	280	6					Yes
B08075.00-B08076.00	27_15	207	6					Yes
B08076.00-B08077.00	27_15	337	6					Yes
B08074.00-B08076.00	27_15	218	6					Yes
B08083.00-B08084.00	27_15	83	8			Yes		
B04099.00-B04100.00	27_15	361	8		Yes			
B08086.00-B08087.00	27_15	350	8		Yes			
B08085.00-B08086.00	27_15	283	8		Yes			
B08104.00-B08105.00	27_15	150	8		Yes			
B08088.00-B08089.00	27_15	51	8		Yes			
B08095.A0-B08095.00	27_15	122	8	B2				
B08093.00-B08094.00	27_15	120	15	B2				
B08094.00-B08095.00	27_15	120	15	B2				
B08095.00-B08096.00	27_15	225	15	B2				
B08096.00-B08097.00	27_15	258	15	B2				
B08092.00-B08093.00	27_15	369	15	B2				
B08091.00-B08092.00	27_15	100	15	B2				
B08072.00-B08091.00	27_15	403	15	B2				
B08071.00-B08072.00	27_15	231	15	B2				
B08097.00-B08098.00	27_15	113	15	B2				
B04078.00-B04079.00	27_16	360	6		Yes			Yes
B04077.00-B04078.00	27_16	100	6		Yes			Yes
B04076.00-B04078.00	27_16	225	6		Yes			Yes
B04082.00-B04083.00	27_16	195	6					Yes
B04061.00-B04065.00	27_16	300	6					Yes
B04080.00-B04081.00	27_16	132	6					Yes
B04041.00-B04042.00	27_16	233	8		Yes			
B04038.00-B04039.00	27_16	400	8		Yes			
B04046.00-B04058.00	27_16	148	8		Yes			
B04040.00-B04041.00	27_16	160	8		Yes			
B04090.00-B04091.00	27_16	421	8		Yes			
B04059.00-B04060.00	27_16	155	8		Yes			
B04037.00-B04038.00	27_16	373	8		Yes			
B04047.00-B04048.00	27_16	280	8		Yes			
B04055.00-B04056.00	27_16	242	10		Yes			
B04036.00-B04037.00	27_17	417	8		Yes			
B04033.00-B04036.00	27_17	150	8		Yes			
B04030.00-B04032.00	27_17	406	8		Yes			
B04035.00-B04036.00	27_17	235	8		Yes			
B04034.00-B04035.00	27_17	194	8		Yes			
V33089.00-V33090.00	28_10	48	6					Yes

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V33090.00-V33091.00	28_10	196	6					Yes
V33104.00-V33105.00	28_11	104	6					Yes
V33112.00-V33113.00	28_11	202	6					Yes
V33145.00-V33146.00	28_11	7	15		Yes			
B15328.C0-B15328.D0	28_12	30	8			Yes		
V33141.00-V33142.00	28_12	284	12			Yes		
BTP001.00-BTP002.00	28_13	558	16			Yes		
BTP002.00-BTP003.00	28_13	760	16			Yes		
BTP003.00-BTP004.00	28_13	32	16			Yes		
B01063.00-B01065.00	28_13	247	18	B1				
B01097.00-B01099.00	28_13	383	21	B1				
B01096.00-B01097.00	28_13	440	21	B1				
B01093.00-B01096.00	28_13	54	21	B1				
B01068.00-B01093.00	28_13	502	21	B1				
B01065.00-B01068.00	28_13	278	21	B1				
B07061.00-B07062.00	28_14	440	8		Yes			
B07053.00-B07054.00	28_14	256	8		Yes			
B07060.00-B07061.00	28_14	105	8		Yes			
B07073.00-B07074.00	28_14	296	18	B5				
B07070.00-B07071.00	28_14	226	18	B5				
B07069.00-B07070.00	28_14	255	18	B5				
B07071.00-B07072.00	28_14	213	18	B5				
B07072.00-B07073.00	28_14	378	18	B5				
B07074.00-B01061.00	28_14	252	18	B5				
B01060.00-B01061.00	28_14	112	12	B1				
B01058.00-B01060.00	28_14	479	12	B1				
B01061.00-B01062.00	28_14	404	18	B1				
B01062.00-B01063.00	28_14	499	18	B1				
B02047.00-B02048.00	28_15	255	8		Yes			
B02037.00-B02038.00	28_15	30	8		Yes			
B02089.00-B02088.00	28_15	86	8		Yes			
B04102.00-B04103.00	28_15	40	8		Yes			
B04103.00-B04104.00	28_15	230	8		Yes			
B04104.00-B04105.00	28_15	201	8		Yes			
B04101.00-B04103.00	28_15	336	8		Yes			
B02066.00-B02067.00	28_15	195	8		Yes			
B02067.00-B02068.00	28_15	23	8		Yes			
B02065.00-B02066.00	28_15	191	8		Yes			
B02048.00-B02049.00	28_15	94	8		Yes			
B02064.00-B02065.00	28_15	72	8		Yes			
B02063.00-B02064.00	28_15	163	8		Yes			
B02038.00-B02039.00	28_15	200	8		Yes			
B04096.00-B04097.00	28_16	310	6		Yes			Yes
B04054.J0-B04054.K0	28_16	40	6		Yes			Yes
B03107.00-B03108.00	28_16	150	6					Yes
B03109.00-B03110.00	28_16	198	6					Yes
B03111.00-B03112.00	28_16	212	6					Yes
B03179.00-B03180.00	28_16	280	6					Yes
B03177.00-B03178.00	28_16	60	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B04100.00-B04101.00	28_16	222	8		Yes			
B03167.00-B03168.00	28_16	334	8		Yes			
B03169.00-B03170.00	28_16	168	8		Yes			
B03114.00-B03172.00	28_16	271	8		Yes			
B04054.H0-B04054.IC	28_16	231	8		Yes			
B04053.00-B04054.00	28_16	225	8		Yes			
B04054.K0-B04054.L0	28_16	365	8		Yes			
B04054.L0-B04054.00	28_16	302	8		Yes			
B03168.00-B03169.00	28_16	186	8		Yes			
B04054.IB-B04054.IC	28_16	373	8		Yes			
B03166.C0-B03166.D0	28_17	37	8		Yes			
B03166.K0-B03166.L0	28_17	211	8		Yes			
B03140.00-B03166.C0	28_17	143	8		Yes			
B01128.B0-B01128.00	29_12	314	6					Yes
B01128.A0-B01128.B0	29_12	26	6					Yes
B01123.00-B01124.00	29_12	153	8			Yes		
EE	29_12	515	14			Yes		
EE	29_12	312	14			Yes		
EE	29_12	258	14			Yes		
BTP004.00-BTP005.00	29_12	1,473	16			Yes		
FM	29_12	311	16			Yes		
FM	29_12	231	16			Yes		
FM	29_12	289	16			Yes		
FM	29_12	236	16			Yes		
B01101.00-B01127.00	29_12	446	21	B1				
B01100.00-B01101.00	29_12	521	21	B1				
B01127.00-B01128.00	29_12	55	21	B1				
B01099.00-B01100.00	29_13	524	21	B1				
B01057.D0-B01057.E0	29_14	168	8		Yes			
B01057.E0-B01057.F0	29_14	93	8		Yes			
B03013.00-B03014.00	29_15	413	6					Yes
B02013.00-B02014.00	29_15	293	8		Yes			
B02012.00-B02013.00	29_15	360	8		Yes			
B02011.00-B02012.00	29_15	333	8		Yes			
B02045.00-B02046.00	29_15	246	8		Yes			
B02046.00-B02048.00	29_15	165	8		Yes			
B02007.00-B02008.00	29_15	330	8		Yes			
B03011.00-B03012.00	29_15	188	8		Yes			
B03026.00-B03027.00	29_15	283	8		Yes			
B03022.00-B03023.00	29_15	343	8		Yes			
B03130.00-B03131.00	29_16	333	8		Yes			
B03129.00-B03130.00	29_16	312	8		Yes			
B03128.00-B03129.00	29_16	277	8		Yes			
B03075.00-B03076.00	29_16	215	8		Yes			
B03072.00-B03075.00	29_16	171	8		Yes			
B03071.00-B03072.00	29_16	193	8		Yes			
B03047.00-B03048.00	29_16	229	8		Yes			
B03066.00-B03067.00	29_16	128	8		Yes			
B03051.00-B03053.00	29_16	271	8		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
B03021.00-B03022.00	29_16	74	8		Yes			
B03067.00-B03068.00	29_16	349	8		Yes			
B03063.00-B03066.00	29_16	312	8		Yes			
B03062.00-B03063.00	29_16	340	8		Yes			
B03049.00-B03062.00	29_16	267	8		Yes			
B03048.00-B03049.00	29_16	428	8		Yes			
B03018.00-B03019.00	29_16	330	8		Yes			
B03028.00-B03067.00	29_16	350	8		Yes			
B03020.00-B03021.00	29_16	240	8		Yes			
B03152.00-B03153.00	29_17	155	8		Yes			
B03153.00-B03155.00	29_17	366	8		Yes			
V34015.B0-V34015.C0	30_12	5	4					Yes
V34015.A0-V34015.C0	30_12	5	4					Yes
V34015.C0-V34015.D0	30_12	134	6					Yes
EE	30_12	1,401	14			Yes		
EE	30_12	1,755	14			Yes		
FM	30_12	1,422	16			Yes		
B01038.A0-B01038.00	30_13	27	6					Yes
V35086.00-V35087.00	30_13	65	6					Yes
V35085.00-V35086.00	30_13	92	6					Yes
V35084.00-V35085.00	30_13	173	6					Yes
B01009.00-B01010.00	30_14	150	6					Yes
B01008.00-B01009.00	30_14	149	6					Yes
B01040.00-B01041.00	30_14	45	8			Yes		
V35004.00-V35005.00	30_15	2	6					Yes
B03004.00-B03010.00	30_15	62	8		Yes			
B03017.00-B03018.00	30_16	275	8		Yes			
EE	31_11	341	14			Yes		
B0A	31_11	5	14			Yes		
B0A	31_11	2	14			Yes		
EE	31_12	196	14			Yes		
EE	31_12	1,973	14			Yes		
V34071.00-V34073.00	31_12	146	8		Yes			
V35135.00-V35136.00	31_13	58	6					Yes
V35134.00-V35135.00	31_13	253	6					Yes
V35133.00-V35134.00	31_13	267	6					Yes
V35132.00-V35135.00	31_13	282	6					Yes
V35131.00-V35132.00	31_13	314	6					Yes
V35130.00-V35131.00	31_13	297	6					Yes
V35094.00-V35095.00	31_13	175	6					Yes
V35093.00-V35094.00	31_13	260	6					Yes
V35095.00-V35096.00	31_13	73	6					Yes
V35106.00-V35107.00	31_13	130	8			Yes		
V35105.00-V35106.00	31_13	140	8			Yes		
V35104.00-V35105.00	31_13	83	8			Yes		
V35069.00-V35100.00	31_13	273	10			Yes		
V35059.00-V35060.00	31_14	276	8			Yes		
V35060.00-V35061.00	31_14	185	8			Yes		
FM	32_11	35	4					Yes

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
FM	32_11	1	4					Yes
FM	32_11	947	8			Yes		
FM	32_11	8	8			Yes		
V34107.00-V34108.00	32_11	316	12	R1				
V34106.00-V34107.00	32_11	425	12	R1				
V34105.00-V34106.00	32_11	346	12	R1				
V35224.00-V35225.00	32_12	68	8			Yes		
V34108.00-V34109.00	32_12	341	12	R1				
V34109.00-V34110.00	32_12	2	12	R1				
V35188.00-V35189.00	32_13	322	6					Yes
V35185.00-V35186.00	32_13	18	6					Yes
V35124.00-V35125.00	32_13	111	8			Yes		
V35123.00-V35124.00	32_13	40	8			Yes		
V35122.00-V35123.00	32_13	156	8			Yes		
V35169.00-V35170.00	32_14	15	6					Yes
V35164.00-V35165.00	32_14	27	6					Yes
V35163.00-V35165.00	32_14	28	6					Yes
V35159.00-V35160.00	32_14	25	6					Yes
V35157.00-V35158.00	32_14	55	6					Yes
V35156.00-V35158.00	32_14	76	6					Yes
V36T053.00-V36T052.00	34_09	436	18		Yes			
V36T054.00-V36T053.00	34_09	431	18		Yes			
V36T017.00-V36T016.00	35_04	491	21	OV2	Yes			
V36T011.00-V36T010.00	35_04	300	24		Yes			
V36T010.00-V36T009.00	35_04	268	24		Yes			
V36T016.00-V36T015.00	35_04	163	21	OV2				
V36T015.00-V36T014.00	35_04	247	21	OV2				
V36T014.00-V36T013.00	35_04	246	21	OV2				
V36T013.00-V36T012.00	35_04	261	21	OV2				
V36T012.00-V36T011.00	35_04	261	24	OV2				
V36T023.00-V36T022.A0	35_05	370	18	OV2	Yes			
V36T019.00-V36T018.00	35_05	398	21	OV2	Yes			
V36T022.A0-V36T022.00	35_05	128	18	OV2				
V36T024.00-V36T023.00	35_05	588	21	OV2				
V36T022.00-V36T021.00	35_05	450	21	OV2				
V36T021.00-V36T020.00	35_05	480	21	OV2				
V36T020.00-V36T019.00	35_05	304	21	OV2				
V36T018.00-V36T017.00	35_05	400	21	OV2				
V36T030.00-V36T029.00	35_06	629	18	OV2	Yes			
V36T029.00-V36T028.00	35_06	527	18	OV2	Yes			
V36T028.00-V36T027.00	35_06	718	18	OV2				
V36T027.00-V36T026.00	35_06	139	18	OV2				
V36T026.00-V36T025.00	35_06	255	18	OV2				
V36T025.00-V36T024.00	35_06	587	18	OV2				
V36T034.00-V36T033.A0	35_07	150	18	OV2	Yes			
V36T031.00-V36T030.00	35_07	292	18	OV2				
V36T032.00-V36T031.00	35_07	319	18	OV2				
V36T044.00-V36T043.A0	35_08	288	18		Yes			
V36T001.00-V36T001.B0	36_03	263	30		Yes			

APPENDIX C
Proposed Project Components

Pipe Description	Atlas Page	Length (ft)	Diameter (Inch)	Capacity Related	Condition Related	Material Related	Age Related	Minimum Size related
V36T002.00-V36T001.00	36_03	549	30		Yes			
V36T033.A0-V36T033.00	36_07	247	18	OV2	Yes			
V36T037.A0-V36T037.00	36_07	262	18		Yes			
V36T037.00-V36T036.00	36_07	372	18		Yes			
V36T033.00-V36T032.00	36_07	194	18	OV2				
V36T042.00-V36T041.00	36_08	440	18		Yes			
V36T041.00-V36T040.00	36_08	408	18		Yes			

APPENDIX D

Comments on the Draft Program EIR and Responses to Comments

Appendix D
Response to Comments

The City of Vista (City) released for public review a Draft Program EIR for the proposed the 2008 Sewer Master Plan Update (proposed project) on March 6, 2008. The public review period for the Draft EIR began March 6 and ended on April 21, 2008. During this timeframe, the document was made available for review to various state, regional, and local agencies, as well as by interested organizations. Written comments were received from three public agencies.

This Response to Comments section addresses comments on the Draft Program EIR raised during the public review period, and identifies revisions intended to correct, clarify, and amplify the Draft Program EIR. The responses and revisions in this document substantiate and confirm the analyses contained in the Draft Program EIR. No new substantial environmental impact and no increase in the severity of an earlier identified impact have surfaced in responding to the comments. Together, the previously released Draft Program EIR and this document constitute the Final Program EIR. The City must make findings that the Final Program EIR complies with CEQA in order to certify the Final Program EIR.

Written Comments and Responses

This section contains all written comments received during the public comment period as well as responses to these comments. *Table 1* provides an index to commenters and comment letters.

TABLE 1
Commenters and Comment Letters

Document Number	Organization/Commenter
Comment Letter A	State of California Governor's Office of Planning and Research, State Clearinghouse and Planning Unit
Comment Letter B	State Water Resources Control Board
Comment Letter C	California Department of Fish and Game

Appendix D
Response to Comments

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Comment Letter A

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

April 22, 2008

Elaine Blackburn
City of Vista
600 Eucalyptus Avenue
Vista, CA 92084

Subject: City of Vista/Buena/Sanitation District Sewer Master Plan Update
SCH#: 2007091072

Dear Elaine Blackburn:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on April 21, 2008, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

A-1

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH#	2007091072
Project Title	City of Vista/Buena/Sanitation District Sewer Master Plan Update
Lead Agency	Vista, City of
Type	EIR Draft EIR
Description	The project consists of an update to the City/District Sewer Master Plan.

Lead Agency Contact

Name	Elaine Blackburn		
Agency	City of Vista		
Phone	(760) 726-1340 ext. 1268	**Fax**	(760) 639-6101
email	eblackburn@cityofvista.com		
Address	600 Eucalyptus Avenue		
City	Vista	**State** CA **Zip** 92084	

Project Location

County	San Diego		
City	Vista		
Region			
Cross Streets			
Parcel No.	Various		
Township	**Range**	**Section**	**Base**

Proximity to:

Highways	Hwy. 78
Airports	
Railways	
Waterways	
Schools	
Land Use	Various - Project would be located throughout the City.

Project Issues	Archaeologic-Historic; Biological Resources; Water Quality
Reviewing Agencies	Resources Agency; Regional Water Quality Control Board, Region 9; Department of Parks and Recreation; Native American Heritage Commission; Integrated Waste Management Board; Office of Historic Preservation; Department of Fish and Game, Region 5; Department of Water Resources; California Highway Patrol; Caltrans, District 11; Department of Toxic Substances Control; State Water Resources Control Board, Clean Water Program

Date Received 03/06/2008 **Start of Review** 03/06/2008 **End of Review** 04/21/2008

Note: Blanks in data fields result from insufficient information provided by lead agency.

Response to Comment Letter A
State Clearinghouse and Planning Unit
Letter dated April 22, 2008

A-1 The City acknowledges the State Clearinghouse's input and comment. The comment will be included as part of the record and made available to the decision makers prior to a final decision on the proposed project.

This letter is a formal disclosure of which State agencies received a copy of the Draft Program EIR for review and acknowledges that the City has complied with the State Clearinghouse review requirements for draft environmental documents pursuant to CEQA.

Appendix D
Response to Comments

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Comment Letter B

State Water Resources Control Board

Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

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STATE CLEARING HOUSE

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Ms. Elaine Blackburn
City of Vista
600 Eucalyptus Avenue
Vista, CA 92084

Dear Ms. Blackburn:

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE CITY OF VISTA (CITY) 2007 SEWER MASTER PLAN UPDATE (PROJECT); STATE CLEARINGHOUSE NO. 2007091072

Thank you for the opportunity to review the above mentioned document. State Water Resources Control Board (State Water Board) staff has reviewed the EIR. As a funding and State agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Board is providing the following comments on the environmental document prepared for the Project.

We understand that the City is not currently pursuing State Revolving Fund (SRF) funding assistance for this Project. The City may want to consider the SRF Program to provide funding for future construction. The SRF Program offers low interest funds for building or improving wastewater treatment plants, sewers, water reclamation facilities, and storm water drainage. The State Water Board, Division of Financial Assistance, is currently responsible for administering SRF funds. If the City pursues funding assistance from the State Water Board, please send us a project specific California Environmental Quality Act (CEQA) document. Please refer to the State Water Board's SRF website at http://www.waterboards.ca.gov/funding/srf.html for additional information.

The 2007 Draft EIR identifies a combination of recommended projects for inclusion in the City's Capital Improvement Plan in order to minimize the potential for overflow and interruptions associated with the unsound structural elements of the existing wastewater collection system that serves the Buena Vista and Agua Hedionda Drainage Basins.

The following are my comments on the City's EIR:

1) Section 4.7, Page 4.7-8, Beneficial Uses - The EIR lists the potentially affected creeks, rivers, and lagoons and the beneficial uses listed in the *Water Quality Control Plan for the San Diego Basin (Basin Plan)*; however, the document does not provide an analysis of how the Project, after it is finally implemented, will affect the beneficial uses identified in the Basin Plan. Please describe how this Project will affect the beneficial uses of water within the Project area. — **B-1**

2) Section 4.7, Page 4.7-8, Groundwater - The EIR is rather limited in the Project analysis of groundwater impacts. The only statement made is: "Areas of high groundwater may result in evacuation plans". It would be useful to know how this Project, after it is implemented, will affect the groundwater quality within the Project area. — **B-2**

MAR 2 8 2008

Ms. Elaine Blackburn - 2 -

3) Section 4.7, Page 4.7-8, Water Quality and Drainage - Please provide additional information on:
   a) The current inflow and infiltration (I/I) and the final projected I/I after the project is finally implemented, and — B-3a
   b) how the current wastewater collection system is affecting surface water quality and what the projected water quality impacts are, after the Project is fully implemented. — B-3b

4) Section 4.11.4, Environmental Impacts (1) - The statement is made: "Volume of wastewater generated as a result of the implementation of the proposed project would not exceed wastewater treatment requirements." Please provide the engineering evaluation or other technical analysis that provides the scientific basis for this statement. The engineering/technical evaluation would:
   a) discuss current system treatment capacity and the maximum flow through the system, once all of the Project elements are complete, under a high flow event such as a one in ten-year rainfall event, — B-4a
   b) consider future growth, such as infill development, and the resultant capacity demand, — B-4b
   c) discuss the current I/I and the final projected I/I after the project is implemented, — B-4c
   d) describe any National Pollutant Discharge Elimination System (NPDES) permit violations within the last ten years, if any, why the permited limits were exceeded, how the future increased/decreased system flow rates would eliminate NPDES exceedances, and water quality parameters that have the increased potential to be exceeded after the project is implemented, and — B-4d
   e) discuss the Total Maximum Daily Load (TMDL) issues and impacts for the Project area, after the Project is implemented. If TMDLs do not presently exist, discuss the current status of the process as it related to the Project area. — B-4e

5) Section 4.11.4, Environmental Impacts (3) – The statement is made that: "Completion of the project would result in a beneficial impact to the capacity of the wastewater system." Please provide the engineering evaluation or other technical analysis that provides the scientific basis for this statement. — B-5

The State Water Board has no further comments on the City's EIR at this time. State Water Board staff will review the site-specific environmental documents for this Project they are prepared in the future and comment on them as appropriate. Thank you once again for the opportunity to review the City's EIR. If you have any questions or concerns, please feel free to contact me at (916) 341-5415 or by email at LJarvis@waterboards.ca.gov.

Sincerely,

Lowell M. Jarvis

Lowell M. Jarvis
Environmental Scientist

cc: State Clearinghouse
(Re: SCH# 2007091072)
P.O. Box 3044
Sacramento, CA 95812-3044

California Environmental Protection Agency

Recycled Paper

Response to Comment Letter B
State Water Resources Control Board
Letter dated March 28, 2008

B-1 The overall purpose of the proposed project, as identified in *Section 1.1* of the Draft Program EIR, is to eliminate sanitary sewer overflows (SSOs). As such, the project aims to reduce potential impacts to beneficial uses. Impacts to beneficial uses are addressed in various sections of the Draft Program EIR. Surface water quality is addressed in the impact analysis on Pages 4.7-11 through 4.7-13, with mitigation identified in *Section 4.7.6* of the Draft Program EIR. Recreation is addressed in *Section 8.2*. Biological impacts to wetlands and habitat are addressed in *Section 4.3*.

B-2 Groundwater quality impacts are addressed on Page 4.7-14 of the Draft Program EIR. As stated therein, the construction and operation of the proposed project would not use groundwater and would not directly affect groundwater levels. Dewatering may be required to prepare sites for pipeline installation; however, the potential impact to groundwater would be temporary and would not substantially deplete groundwater supplies. Also, the amount of groundwater that would be directed to stormwater drainage systems would not exceed capacity for those systems. Therefore, impacts to groundwater supplies would be less than significant.

B-3a The recommended improvements are proposed to correct defects in the municipally separate sanitary sewer system. Therefore, inflow and infiltration (I&I, or defect flow) would decrease as a result of implementing the recommended improvements in the proposed project.

The Master Plan Update included an I&I analysis. As part of the proposed project, an expanded metering project is recommended as an early project. Once expanded metering is completed during the wet season, the metering and modeling results would be used to quantify I&I reduction potential. The Master Plan Update analysis sizes future facilities assuming no I&I reduction to reduce any risk that future collection facilities would be undersized. This approach reduces any risk of sanitary sewer overflows due to inadequate capacity.

B-3b Surface water quality is affected by SSOs that can reach watercourses. The identified projects in the Master Plan Update would replace undersized and damaged lines, improve maintenance access, and where possible, relocate pipelines outside of watercourses. These improvements are expected to decrease the risk of SSOs, thereby decreasing the risk of adverse water quality impacts.

B-4a The proposed project does would not result in an increase in flow. Encina Wastewater Authority (EWA) Joint Power Authority (JPA) is the only active National Pollutant Discharge Elimination System (NPDES) permitted facility treating wastewater for Vista and Buena.

EWA JPA treats waste for Vista and Buena, and treatment capacity ownership at Encina is 10.67 mgd for Vista, 3.0 mgd for Buena, and 40.5 mgd for all joint powers combined. Existing (2007) flows are 6.26 mgd for Vista, and 1.75 mgd for Buena. Ultimate (2027) flows are projected to be 8.81 mgd for Vista, and 3.82 mgd for Buena. Vista has the ability to lease or sell capacity ownership to Buena. Therefore, together there is projected to be a 1.04 mgd surplus in the ultimate condition allocated to Buena and Vista. I&I reduction is expected to increase that surplus.

A December 28, 2008 EWA memorandum on the subject of "Equalization Storage Update – 2005" analyzed peak wastewater flow. This study determined that the current 7.5 million gallon storage facility will provide the desired 10-year return period protection through the year 2023 or 2025 if I&I does not increase. This study considered the Vista 2002/2003 Master Plan as well as measured flows through December 28, 2005.

B-4b Growth inducement effects resulting from the project are presented in *Section 6.3* of the Draft Program EIR. The City's General Plan has not changed since the 2002/2003 Master Plan Update. The 2008 Master Plan Update incorporated minor changes anticipated in a future City General Plan Update, anticipated to be complete in 2009. Future growth is expected only from minor infill development and redevelopment.

B-4c The 2008 Master Plan Update modeled I&I based on 2005 flows (consistent with the above Equalization Storage Update) and proposes an aggressive I&I program with early metering project to establish I&I distribution and expected I&I reduction. Until the flow study is complete, no I&I reduction is assumed. It is expected that correcting pipeline defects, manhole defects, and lateral defects prioritized by closed circuit television inspections, smoke testing, and the capacity analysis would substantially reduce I&I from the system.

B-4d EWA had a total of seven NPDES violations within the last 10 years: two in 1998, one in 2000, one in 2002, and three in 2003. The following is a summary of the NPDES violations from the last 10 years for exceeding EWA's permit limits for Total Suspended Solids (TSS), as provided by Debbie Biggs, Director of Environmental Compliance at Encina JPA, in May 2008. The 2008 Sewer Master Plan Update would not affect TSS exceedance potential at EWA.

Date	Result	Limit	Cause
6/7–6/8/98	66.0 mg/L	50 mg/L	Error while conducting scum pumping operations
7/27/00	51.5 mg/L	50 mg/L	Sludge bulking in the secondary clarifiers due to the overabundance of 021N filamentous bacteria
1/1/02	72.4 mg/L	50 mg/L	Process upset, cause unknown
6/23/03	93.0 mg/L 20,490 lb/day	50 mg/L 16,000 lb/day	Process upset, cause unknown-two separate violations
12/14/03	57.4 mg/L	50 mg/L	Process upset, cause unknown

B-4e TMDLs have not been developed for the three watersheds drained by Vista and Buena – Loma Alta, Buena Vista, and Agua Hedionda. Vista has been coordinating with the RWQCB Region 9 and is participating financially in the development of TMDLs for these watersheds in an effort led by the Region 9 staff. Results are expected in 2 to 3 years.

B-5 The Master Plan Update includes projects that are recommended to increase pipeline diameters where existing or ultimate peak wet weather flows exceed the flow capacity of existing lines. Expanding flow capacity is a beneficial impact on flow capacity that would reduce the risk of an SSO due to flow capacity limitations.

Appendix D
Response to Comments

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Comment Letter C

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
South Coast Region
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201

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April 11, 2008

Elaine Blackburn, Principal Planner
Planning Department
City of Vista
600 Eucalyptus Ave.
Vista, CA 92084

City of Vista 2007 Sewer Master Plan Update Program Environmental Impact Report, City of Vista, California (SCH # 2007091072)

Dear Ms. Blackburn:

The California Department of Fish and Game (Department) has reviewed the above-referenced draft Program Environmental Impact Report (PEIR) for the City of Vista 2007 Sewer Master Plan Update, dated March, 2008. The comments provided herein are based on information provided in the draft PEIR, our knowledge of sensitive and declining vegetation communities in the County of San Diego, and our participation in regional conservation planning efforts.

The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (CEQA; Sections 15386 and 15381, respectively) and is responsible for ensuring appropriate conservation of the State's biological resources, including rare, threatened, and endangered plant and animal species, pursuant to the California Endangered Species Act (CESA) and other sections of the Fish and Game Code. The Department is responsible for implementation of the Lake and Streambed Alteration Agreement Program (Fish and Game Code Section 1600). The Department also administers the Natural Community Conservation Planning (NCCP) Program. The City of Vista is one of seven north San Diego County cities within the Multiple Habitat Conservation Program (MHCP) planning area, although the City of Vista (City) does not yet have an approved MHCP Subarea Plan. The adjacent City of Carlsbad, which would be impacted by certain proposed projects in the PEIR, does have a completed MHCP Subarea Plan (Habitat Management Plan).

The City of Vista 2007 Sewer Master Plan Update details a total of 2,261 proposed project components that require either capacity-related or non-capacity (i.e. condition) -related upgrades within the City of Vista or the Buena Sanitation District (District) wastewater (sewer) collection systems. The City of Vista (City) also acts as the Board of Directors for the Sanitation District. The City sewer collection system includes approximately 215 miles of pipelines ranging from 6 to 42 inches in diameter. The District is comprised of approximately 101 miles of sewers and force mains ranging in size from 4 to 30 inches in diameter. The City's sewer system is located primarily in the Buena Vista Drainage Area, while the District's system is located primarily in the Agua Hedionda Drainage Area. Wastewater/sewage from both the City and District systems flow to the west to the Encina Wastewater Treatment Plant. The PEIR is a programmatic document and does not detail specific project biological impacts or mitigations, but identifies the specific pipeline routes to be addressed and potential vegetation communities that could be affected. Many projects are located in existing streets, and would not impact any sensitive biological resources. However, other proposed projects could impact sensitive

habitats and species, including various wetlands, coastal sage scrub, the California gnatcatcher (Federal-threatened) and the least Bell's Vireo (Federal and State-endangered). A number of impact avoidance or minimization standards are listed in the PEIR for biological resources, as well as habitat mitigation ratios to be applied for unavoidable impacts. Detailed biological assessments and additional CEQA review will be required in the future for specific projects that may impact sensitive biological resources.

The Department offers the following comments and recommendations to assist the City and District in avoiding and/or minimizing project impacts to sensitive biological resources from the implementation of the Master Plan.

1. The Department strongly encourages the City and District to prioritize removing active sewer pipelines from creek/drainage bottoms that support riparian or other wetland habitats, and placing them in adjacent streets where possible. This is consistent with Biological Mitigation 2 (BIO-2) on page 4.3-52 of the PEIR. Existing inadequate pipelines in these areas could simply be left in place and sealed if necessary to eliminate the potential impacts to sensitive wetlands from pipeline removal. This would also save the City the costs of biological mitigation for impacts to wetland habitats. The City of Oceanside recently updated its wastewater master plan, and proposed relocating several major pipelines from riparian areas to adjacent streets. The Department supports this approach as it also eliminates impacts to biological resources from on-going maintenance activities as well as initial impacts of pipeline replacement. — C-1

2. Pipelines that need replacing that currently cross sensitive upland habitats such as coastal sage scrub or oak woodland, or could impact sensitive plant or wildlife species, should also be a focus of realignment into existing streets, already disturbed areas, or less sensitive habitats. Again, existing lines in these areas that are deemed inadequate could be abandoned to prevent biological impacts from pipe removal. — C-2

3. Section 2.6, Discretionary Actions (page 2-44). Paragraph 5 indicates that the Department will use the PEIR and supporting documentation "to issue a Section 1601, or 1603 Streambed Alteration Agreement under the State Endangered Species Act." For impacts to Department jurisdictional wetlands the Department would issue a Streambed Alteration Agreement under Section 1602 of the Fish and Game Code. This agreement is not a part of the California Endangered Species Act (CESA) [Section 2080]. A CESA incidental take permit would be required for projects in the Master Plan if those projects impact State-listed endangered or threatened species. — C-3

4. Table 4.3-1. Sensitive Plant Species Potentially Found Within Study Area (page 4.3-30). This table indicates that the potential for Thread-leaved brodiaea (*Brodiaea filifolia*) to occur in the project planning area is low. However, this State-endangered and Federal-threatened species is found in native and non-native grasslands habitats in all of the cities surrounding the City of Vista. The potential of this species occurring should be considered at least moderate, and directed surveys for this species should be conducted for this plant for all projects where grasslands and/or open shrub lands could be impacted by a future project. Typically this annual plant is identifiable only while it is flowering, usually in May. The Department will require the City to conduct appropriate surveys for future Master Plan projects within potential brodiaea habitat before concurring with a project. — C-4

5. Section 4.3.6. Mitigation Measures (pages 4.3-53 to 54). Biological Mitigation Measure 4 (BIO-4) in the PEIR indicates that a take authorization will be required by any future Master Plan projects impacting Federal-listed threatened or endangered species. The PEIR should also indicate that these projects would also require an incidental take permit from the Department for impacts to State-listed species under the California Endangered Species Act. The PEIR also indicates that impacts to the California gnatcatcher and/or other listed species would be mitigated at a ratio of 1:1 for habitat replacement. This ratio should be at least 2:1, and it may be greater depending upon the specific level of impact. That ratio will be determined independently by the Department and/or the U.S. Fish and Wildlife Service (USFWS) during the development of project-specific take permits. C-5

6. Section 4.3.6. Mitigation Measures (page 4.3-56). Biological Mitigation Measure 6 (BIO-6) indicates that impacts to coastal sage scrub habitat and/or the California gnatcatcher would require a project to be processed under Section 4(d) of the Endangered Species Act until a MHCP Subarea Plan is completed for the project area. Since the City of Vista has no remaining allocated 4(d) interim take credits for coastal sage scrub under the Natural Community Conservation Program (NCCP), the PEIR indicates that it would need to make use of the County of San Diego's credits for sage scrub impacts. The PEIR should indicate that this sharing of sage scrub take allocation under ESA Section 4(d) was suspended by the USFWS on November 2, 2007. All of the cities participating in the MHCP process, with the exception of the City of Oceanside, no longer have the option to use County credits. Therefore, individual project impacts to the California gnatcatcher would require an individual incidental take permit from the USFWS, until such time as an MHCP Subarea Plan is completed by the City. C-6

7. Section 4.3.6. Mitigation Measures (page 4.3-57). Biological Mitigation Measure 7 (BIO-7) indicates that freshwater marsh impacts will be mitigated at a ratio of 1:1. Mitigation for impacts to freshwater marsh habitat may be 2:1 depending upon the quality of the habitat being impacted. This mitigation measure also lists the components of a Conceptual Wetlands Mitigation and Monitoring Plan. This list should also include a cost analysis for the long-term management of the mitigation site. C-7

8. It is unclear in the PEIR exactly what impacts to biological resources are considered permanent versus temporary. Do pipelines crossing lands supporting native or naturalized vegetation require maintenance roads on top of all or a portion of the pipelines, such that revegetation of the pipeline route is not feasible? Or is most or all of a pipeline route restored and revegetated? The inclusion of a discussion on temporary versus permanent impacts, and roughly what percentage of total impacts would be in each category, would better enable the Department to more accurately judge the potential significance of the impacts from the implementation of the Master Plan. C-8

9. While the Department is concerned about potential impacts to wetlands throughout the Master Plan's service area, we are particularly concerned about Buena Vista Creek. This major creek system in north San Diego County has been significantly impacted by development encroachment over the years, and is also suffering from a significant infestation of non-native plants. Creating additional impact to this riparian system by excavating and replacing the wastewater pipeline in the Buena Vista Creek drainage way is of serious concern. The Department owns one property (Sherman Property) along this creek in the City of Carlsbad, and the Buena Vista C-9

Lagoon Ecological Reserve at the terminus of the creek. We strongly recommend that moving all or portions of the pipeline that need replacement in the creek to adjacent roads or disturbed areas be seriously explored. Also, mitigation for impacts to this creek should be looked at in a drainage-wide context. Creating small areas of wetland creation or enhancement will not succeed if there is significant degradation and non-native plant infestation upstream. We suggest the City partner with the local Resource Conservation District to work on enhancing the entire stream system within the Master Plan area. It is our understanding that the Resource Conservation District has already begun a non-native plant removal program in the creek. C-9

We appreciate the opportunity to comment on the draft PEIR for this project and to assist the City and District in further minimizing and mitigating project impacts to biological resources. If you have questions or comments regarding this letter, please contact David Lawhead at (858) 627-3997.

Sincerely,

Edmund J. Pert
Regional Manager
South Coast Region

cc: ✓State Clearinghouse
Janet Stuckrath, USFWS, Carlsbad Field Office

EP:dl

Response to Comment Letter C
Department of Fish and Game
Letter dated April 11, 2008

C-1 The Master Plan Update includes clear intent to relocate sewer facilities out of easements wherever possible, particularly where environmentally sensitive habitat is involved. Capacity projects include realignments out of sensitive areas. The Master Plan Update includes general and specific recommendations to realign sewers out of easements where possible, as identified in BIO-2 mitigation measure on Page 4.3-52 of the Draft Program EIR.

C-2 As with response to comment C-1, the opportunity to relocate sewer facilities out of easements or sensitive habitats will be evaluated for each project during project pre-design and subsequent environmental analysis, as applicable.

C-3 Comment regarding incorrect descriptions of Section 1602 and incidental take permits is noted and have been corrected as requested in the Final Program EIR. Revisions made do not raise important new issues about significant effects on the environment.

C-4 The City agrees with this comment regarding thread-leaved brodiaea. *Table 4.3-1* has been modified in the Final Program EIR to list thread-leaved brodiaea *(Brodiaea filifolia)* as having a moderate potential to occur within grasslands and/or open shrub lands within the study area. Revisions made do not raise important new issues about significant effects on the environment. Based on this revision, project components identified as requiring sensitive plant surveys would be surveyed for thread-leaved brodiaea, where suitable conditions exist. No new project components have been identified as necessitating this mitigation in the Final Program EIR.

C-5 Additional language was added to mitigation measure BIO-4 to indicate that impacts to state-listed species would require permitting under the California Endangered Species Act, in addition to take authorization for impacts to federally listed species. Revisions made do not raise important new issues about significant effects on the environment. Regarding the mitigation ratio for California gnatcatchers, the language in the Draft EIR was intended to refer to mitigation for gnatcatcher pairs and not the habitat supporting the pairs. Additional language was added to indicate that habitat mitigation shall occur at a minimum 2:1 ratio and that gnatcatcher pairs shall be mitigated at a minimum 1:1 ratio. Revisions made do not raise important new issues about significant effects on the environment.

C-6 Mitigation measure BIO-6 has been modified to refer to the current suspension of interim take within the City of Vista, including allocations from the County of San Diego, based on the November 2, 2007, U.S. Fish and Wildlife Service letter. The mitigation measure thus requires that until interim take is reinstated or a subregional Habitat Conservation

Plan/Natural Community Conservation Plan is adopted, any loss of coastal sage scrub would require evaluation under Section 7 or Section 10 of the federal Endangered Species Act and potentially preparation of a Biological Opinion or Habitat Conservation Plan. Revisions made do not raise important new issues about significant effects on the environment.

C-7 Additional language was added to mitigation measure BIO-7 to increase the mitigation ratio for freshwater marsh to 2:1 based on evaluation of habitat quality and to include the preparation of a cost estimate within conceptual wetlands mitigation and monitoring plans. Revisions made do not raise important new issues about significant effects on the environment.

C-8 Additional language was added to the Final Program EIR under *Section 4.3.4* (3rd, 4th, and 5th paragraphs) to explain how direct, indirect, permanent, and temporary impacts shall be evaluated. However, at the Master Plan programmatic level, precise evaluation of permanent versus temporary impacts cannot be made due to the lack of detailed construction and access plans for the pipeline segments. At this stage even a rough percentage of permanent versus temporary impacts cannot be generated because a permanent access plan has not been developed for each of the pipeline segments. However, the future avoidance and minimization of impacts related to construction and access roads is addressed in more detail in revised mitigation measure BIO-2. Revisions made do not raise important new issues about significant effects on the environment.

C-9 Comment regarding potential wetlands impacts to Buena Vista Creek is noted. Mitigation measure BIO-7 has been modified in response to this comment to include language requiring coordination with a regional conservation entity when implementing mitigation for unavoidable impacts occurring with the Buena Vista Creek drainage system. Revisions made do not raise important new issues about significant effects on the environment. The City contacted the Greater San Diego Resource Conservation District (GSDRCD) and confirmed that the Buena Vista Creek drainage system is within the GSDRCD. However, there are currently no invasive species removal projects or other coordinated drainage restoration/recovery projects occurring within the Buena Vista Creek drainage within the City of Vista (Marty Leavitt, pers. comm. April 21, 2008). It is noted that an invasive palms removal project is currently underway in the City of Carlsbad's portion of Buena Vista Creek. Nevertheless, implementation of BIO-7 requires ongoing coordination with the GSDRCD or other regional conservation entity so that when a drainage-wide recovery program is implemented, the City will partner with such an entity and mitigation efforts will be maximized for effectiveness.