

**OVERVIEW OF SEWER SERVICE
FOR THE
OTAY RANCH RESORT VILLAGE**

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CHAPTER 1

INTRODUCTION

This report provides an overview of sewer service for the Otay Ranch Resort Village (Project) and recommends sewage facilities specific to the needs of the Project. Sewer service is not currently provided to the Otay Ranch Resort Village site; however, both the City of Chula Vista and the County of San Diego provide sewer service in the vicinity of the proposed project. This report will calculate sewage flows from the project, outline fees to be paid for transportation and capacity in regional sewer facilities, and recommend onsite and offsite facilities necessary to accommodate project flows. Final design criteria and specifications for all sewage facilities shall comply with all County requirements and policies and will be subject to review and approval by the Director of Public Works and regulatory agencies.

PROJECT OVERVIEW

JPB Development and Baldwin & Sons (the Applicants) have applied for approval of the Otay Ranch Resort Village Specific Plan (Otay Ranch Resort Village) located northeast of Lower Otay Lake in South San Diego County. The proposed Specific Plan application includes amendments to the Otay Subregional Plan, Volume 2 (“Otay SRP”). The Otay SRP governs land uses and intensities of development permitted under the County General Plan for this Specific Plan Area (identified as “Village 13” in the Otay SRP). An amendment to the Otay SRP is a County General Plan Amendment (GPA).

PHYSICAL SETTING

The Otay Ranch Resort Village is located in the County of San Diego, in the Proctor Valley Parcel of the Otay SRP approximately one-quarter mile east of the City of Chula Vista. Access is provided via Telegraph Canyon Road which transitions into Otay Lakes Road and forms the southern boundary of the Project site. Figure 1-1 presents a map showing the location of the Resort Village property.

The Otay Ranch Resort Village's approximate 1,869-acre planning area consists of a broad mesa sloping to the south, broken by several steep canyons draining from north to south. Portions of the relatively flat mesa extend north into the Jamul Mountains, becoming part of steeper slopes. Site elevations range from approximately 500 feet above mean sea level (AMSL) at the southern end of the property to approximately 1,500 feet AMSL in the northeastern portions. The project area lies within the watershed of the Otay River, a westerly flowing stream that drains an area of approximately 145 square miles. The site is upstream of Savage Dam, which creates Lower Otay Lake. The Otay Ranch Resort Village site vegetation consists of native coastal sage scrub and grassland habitats disturbed by grazing. Some riparian vegetation occurs in drainage areas of the site.

The Otay Ranch Resort Village site is located at the interface of urban development and scenic open space. The Otay Valley Parcel of Otay Ranch, the Eastlake Vistas residential community, the Eastlake Woods residential community, and the U.S. Olympic Training Center compose the edge of urban development to the west. Lower Otay Lake, a recreational reservoir and water supply owned by the City of San Diego, is located to the south. Upper Otay Lake and the Birch Family Estate are located to the northwest. A temporary ultra-light gliding and parachuting airport is located at the eastern end of the Lower Otay Lake on City of San Diego property. An inactive quarry operation is located further to the east.

PROJECT DESCRIPTION

The land uses proposed by the Otay Ranch Resort Village are shown on Figure 1-2 and consist of a combination of single-family neighborhoods, a mixed use residential and commercial use neighborhood, a resort hotel with associated ancillary commercial facilities, an elementary school site, a site for public safety facilities, open space, MSCP Preserve land, and park and recreational uses.

The proposed Otay Ranch Resort Village includes development of 1,881 single-family detached homes on approximately 525 acres. Five single family neighborhoods are planned with average densities ranging from 3.2 to 4.4 du/ac.

\\PACIFIC\DWG\605807\FIGURE-1-2_RESORTVILLAGE.DWG 08-14-14 15:23:03 LAYOUT: 1-2

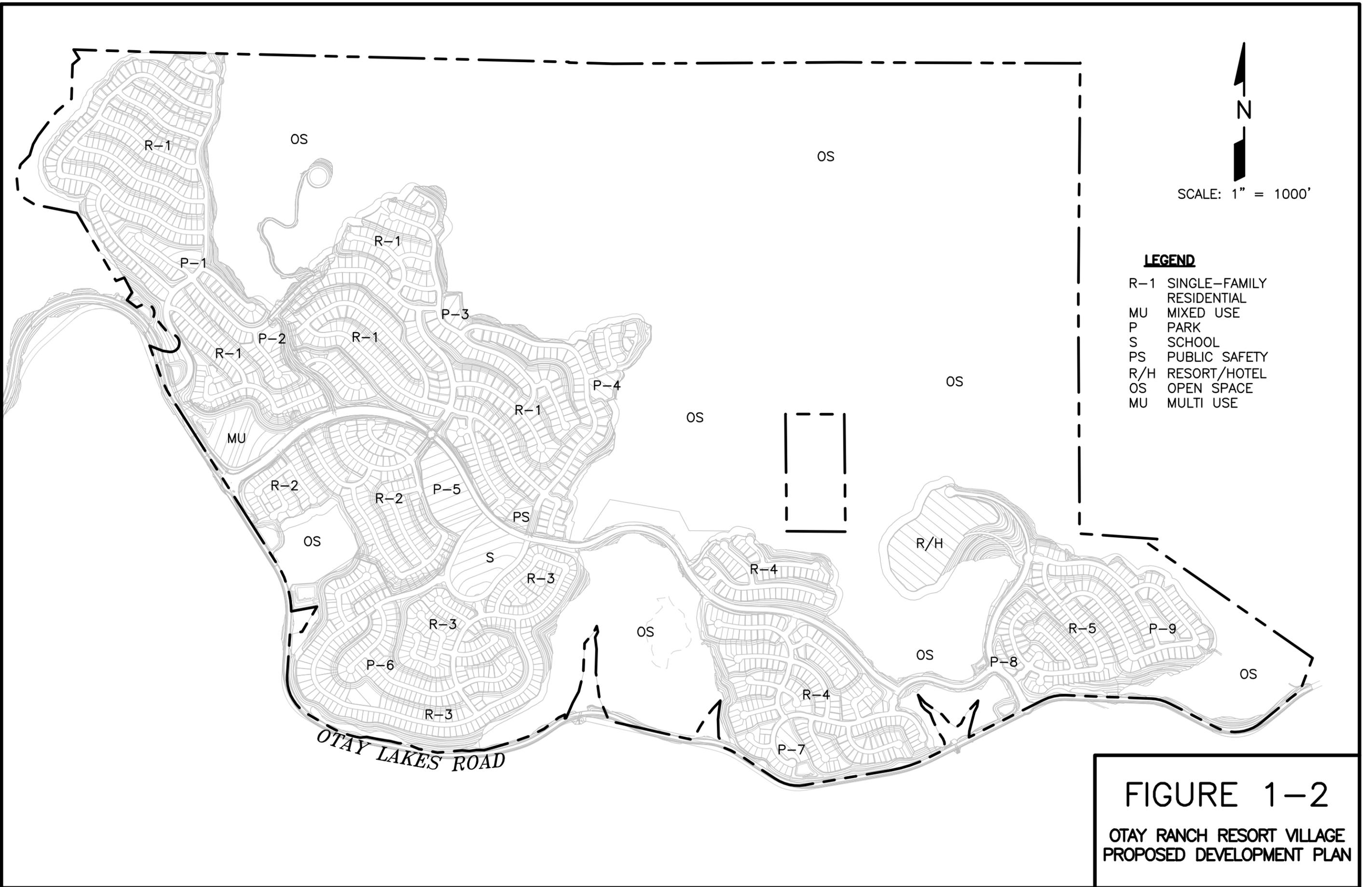


FIGURE 1-2
 OTAY RANCH RESORT VILLAGE
 PROPOSED DEVELOPMENT PLAN

A 14.1 acre mixed-use neighborhood is proposed to contain 57 residential units in either an attached or detached configuration with up to 20,000 square feet of commercial uses. Approximately 17.4 acres are identified for a resort hotel complex with a maximum of 200 guest rooms and up to 20,000 square feet of ancillary commercial uses including meeting rooms, a conference center, offices, shops and restaurants.

The proposed Otay Ranch Resort Village includes nine parks totaling 28.6 acres. The largest park is a 10.3 acre public neighborhood park, and the remaining parks range from 1.3 acres to 2.9 acres. The project also proposes a 2.1 acre public safety site, a 10.0 acre elementary school site, about 144 acres of open space, and approximately 1,089 acres of Preserve land. Open space generally consists of large manufactured slopes outside of neighborhoods and brush management areas. Preserve land is usually undisturbed lands and/or restored habitats set aside for dedication to the Otay Ranch Preserve Owner Manager in satisfaction of Otay Ranch Resource Management Plan (Otay Ranch RMP) conveyance requirements. Internal streets comprise about 39.0 acres of the project site.

SEWER SERVICE

There are two options for providing sewer service to the Project. This report is based on sewer service being provided by San Diego County Sanitation District (SDCSD in conjunction with a flow transportation agreement with the City of Chula Vista for service via the Salt Creek Interceptor. As an alternative to the Salt Creek Interceptor, Chapter 6 analyzes the facilities necessary to convey flows to the Spring Valley Interceptor.

CHAPTER 2

DESIGN CRITERIA

This chapter presents the design criteria used in master planning sewer facilities for the Otay Ranch Resort Village Project. Sewer facility sizing is based on County of San Diego criteria, unless otherwise noted. Final design criteria and specifications for all sewage facilities shall comply with all County requirements and policies and will be subject to review and approval by the Director of Public Works and regulatory agencies.

Sewage Flows

The sewage generation factors used to project average flows from the Project are summarized in Table 2-1. Sewage flow factors for the County of San Diego were taken from Uniform Sewer Ordinance 9275. A copy of this ordinance has been included in Appendix A for reference.

TABLE 2-1 SEWAGE GENERATION FACTORS	
Land Use	Average Flow Factor
Single Family Residential	240 gpd/unit ¹
Multi-Family Residential	192 gpd/unit
Resort/Hotel	144 gpd/unit
Public Safety	240 gpd/acre ²
Commercial	1,500 gpd/acre ²
Elementary School	4.8 gpd/student
Parks	500 gpd/acre ²

¹ Gallons per day/unit

² In the absence of specific criteria from the County, typical values were used for these land use categories.

Peaking Factor

To convert average daily flow to peak dry weather flow, the County of San Diego will use the population based peaking factor equation from the City of San Diego Sewer Design Guide (2013). This peaking factor equation has been included in Appendix B for reference. A sewage generation factor of 80 gallons per day (gpd) per person was utilized to convert average daily flows to an equivalent population.

Gravity Sewers

All existing and proposed gravity sewers are designed per District requirements to convey peak dry weather flow. For pipes with a diameter of 15-inches and smaller, the sewers have been designed to convey this flow when flowing half full. For pipes with a diameter of 18-inches and above, the sewers have been designed per District requirements to convey peak dry weather flow when flowing three-fourths full by depth. Manning's equation with $n = 0.013$ was used to size all gravity sewers. All new sewers were designed to maintain a minimum velocity of two feet per second at design capacity to prevent the deposition of solids.

Lift Stations

The County of San Diego does not have established detailed design standards for lift stations. On recent projects, the County has used City of San Diego Guidelines for lift stations as a reference. Lift station(s) design capacity and emergency overflow storage volumes will be reviewed and approved by the Director of Public Works at the preliminary design phase of the lift stations. Some of the pertinent criteria from the design of a recent lift station in the County are as follows:

- Dual force mains are required.
- Redundant pumping units are required.
- Cast-in-place wet well/dry well arrangement with control room in building at grade.
- Pumping units shall be sized for peak wet weather gravity flow plus pumped flow of upstream lift stations, if any.
- Redundant power source such as diesel generator is required.

- Stations to include SCADA system to remotely notify Sanitation Agency of station status and alarms.
- Overflow storage equivalent to 6 hours of peak wet weather influent gravity flow is required. Two hours is standard, but the City of San Diego requires six hours where maximum protection from spillage is required.
- Odor control system, Bioxide or equal, is required.
- Station to include adequate access and turn around space for large vehicles.

CHAPTER 3

PROJECTED SEWAGE FLOWS

Based on the sewage generation factors presented in Chapter 2 and the proposed development plan for Otay Ranch Resort Village, Table 3-1 provides the projected wastewater flows for the project. Table 3-2 summarizes the projected average and peak dry weather flows.

TABLE 3-1 OTAY RANCH RESORT VILLAGE PROJECTED SEWAGE FLOWS					
Neighborhood	Land Use Designation	Quantity	Sewage Generation Factor	Total Average Sewage Flow, GPD	EDU's
R-1	SF Residential	796 units	240 gpd/unit	191,040	796
R-2	SF Residential	211 units	240 gpd/unit	50,640	211
R-3	SF Residential	401 units	240 gpd/unit	96,240	401
R-4	SF Residential	263 units	240 gpd/unit	63,120	263
R-5	SF Residential	210 units	240 gpd/unit	50,400	210
Mixed Use	MU Residential	57 units ¹	240 gpd/unit	13,675	57
Mixed Use	MU Commercial	1.5 ac ²	1,500 gpd/ac	2,250	9.4
P-1	Park	2.9 ac	0 gpd/ac ³	0	0
P-2	Park	1.7 ac	0 gpd/ac ³	0	0
P-3	Park	2.3 ac	0 gpd/ac ³	0	0
P-4	Park	2.2 ac	0 gpd/ac ³	0	0
P-5	Park	10.3 ac	500 gpd/ac	5,150	21.5
P-6	Park	2.4 ac	0 gpd/ac ³	0	0
P-7	Park	2.9 ac	0 gpd/ac ³	0	0
P-8	Park	1.3 ac	0 gpd/ac ³	0	0
P-9	Park	2.6 ac	0 gpd/ac ³	0	0
S-1	School	800 students	4.8 gpd ea.	3,840	16.0
PS	Public Safety	2.1 ac	240 gpd/ac	500	2.1
Resort		17.4 ac			
	Resort Units	200 units	144 gpd/unit	28,800	120
	Commercial	1.5 ac ²	1,500 gpd/ac	2,250	9.4
Total				507,905	2,116

¹Projected flows for the mixed use site are based on detached homes since this site has the option of being developed as a single family neighborhood.

²Equivalent acreage based on 20,000 SF commercial and a factor of 0.3 for building area/gross site area.

³These park sites do not propose any facilities requiring sewer service.

**TABLE 3-2
OTAY RANCH RESORT VILLAGE
PROJECTED SEWAGE FLOW SUMMARY**

Agency	Average Flow, mgd	Peak Factor	Peak Flow, mgd
County of San Diego	0.51	1.93	0.98

CHAPTER 4

EXISTING SEWER FACILITIES

This chapter describes the existing sewer system that is pertinent to the development of the Otay Ranch Resort Village project. A brief discussion of the existing City of Chula Vista and County of San Diego metro treatment capacity and facilities in the vicinity of the Project is provided below.

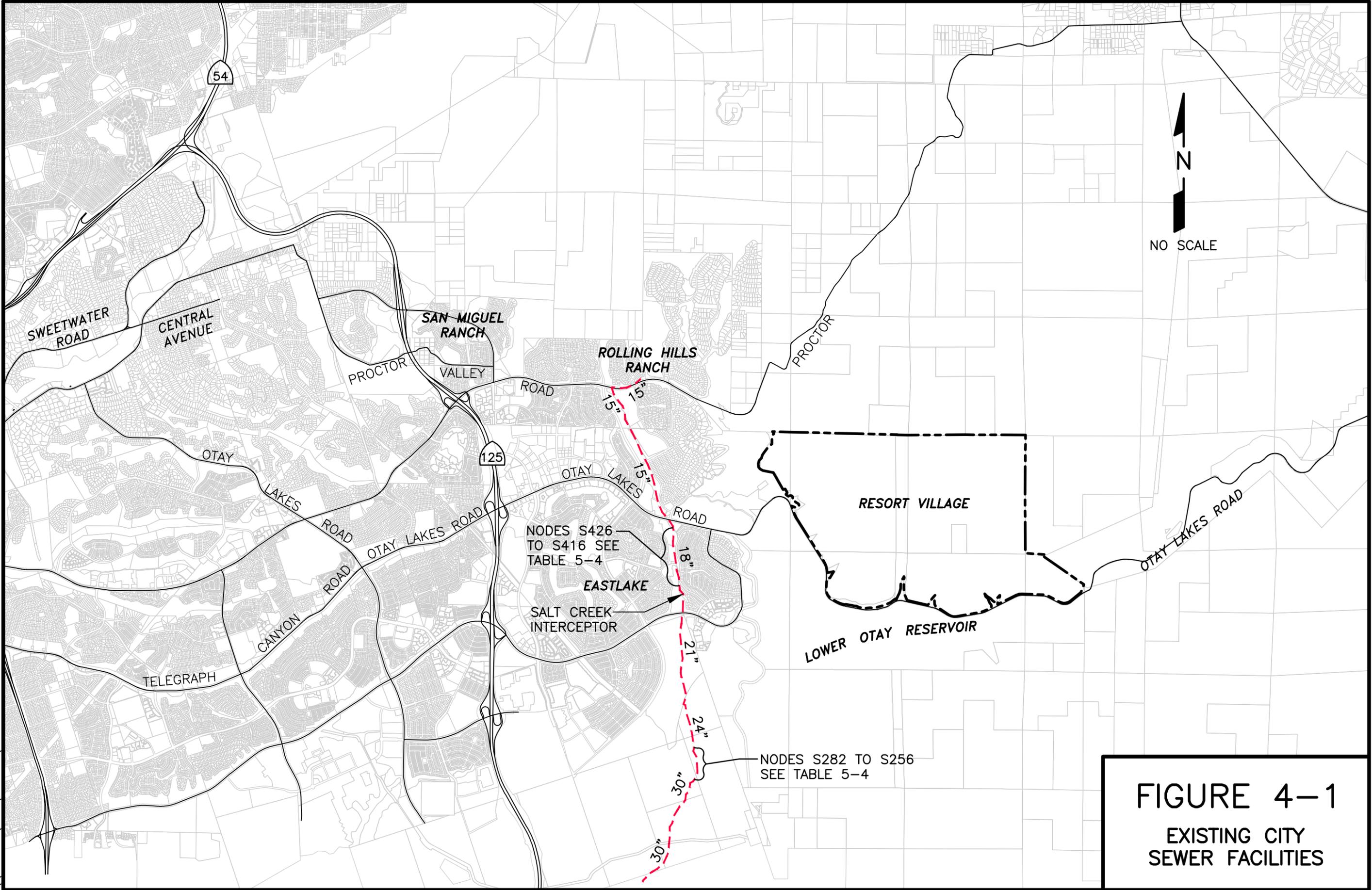
City of Chula Vista – Salt Creek Interceptor

The major Chula Vista sewer facility located in the vicinity of the Project site is the Salt Creek Interceptor. The Salt Creek Interceptor has been sized to accommodate the ultimate development in a designated service area which includes the Project site. The Salt Creek Interceptor ranges from a 15-inch line to a 48-inch line and conveys flow to the City of San Diego's Metropolitan (Metro) sewer system. The upstream end of the Salt Creek Interceptor is located along Salt Creek, approximately one mile west of the Project site. Figure 4-1 depicts the Salt Creek Interceptor's location relative to the Project.

San Diego County Sanitation District

The SDCSD has an agreement with the City of San Diego for treatment and disposal of sewage. The capacity rights of the Spring Valley Sanitation District (SVSD) and other sanitation districts have been consolidated and placed under the control of the SDCSD. The project is located in the County of San Diego and the proposed sewer system will be served by the SDCSD. Annexation into the SDCSD along with an amendment to the District's sphere of influence boundary would be required and are a discretionary action of the San Diego Local Agency Formation Commission (LAFCO). As a County project, sewer treatment capacity will be provided by SDCSD which has sufficient capacity rights in the metro sewer system which were previously available from the SVSD. The County has confirmed the availability of metro capacity to the Project in a will serve letter that has been included in Appendix C for reference.

\\PACIFIC\DWG\605807\FIGURE-4-1.DWG 09-08-14 14:06:29 LAYOUT: 4-1



N
NO SCALE

FIGURE 4-1
EXISTING CITY
SEWER FACILITIES

CHAPTER 5

PROPOSED SEWER FACILITIES SALT CREEK INTERCEPTOR

The proposed project and one alternative for providing sewer service to the Otay Ranch Resort Village project have been provided below. The proposed Project and Project alternative maintain the sewer service within the jurisdiction of the County where the project is located.

- Salt Creek Interceptor (Proposed)
- Spring Valley Interceptor (Alternative)

The remainder of this chapter presents the sewer facilities required for providing service through the Salt Creek Interceptor. Sewer service via the Salt Creek Interceptor has been selected as the proposed project. In all previous planning studies prepared for the Salt Creek Interceptor, flows from the Project site have always been included in the sizing of this interceptor. From an engineering standpoint and to reduce offsite facility requirements, service from the Salt Creek Interceptor is preferable to constructing facilities to connect to the Spring Valley Interceptor.

In providing sewer service through the Salt Creek Interceptor, the project would remain in the County and be served by the SDCSD, but a flow transportation agreement would allow flows from the Project to be conveyed to the Salt Creek Interceptor. The project would be required to annex into SDCSD and amend the Districts sphere of influence boundary. This would require discretionary approval from LAFCO.

To convey flows from the project site to the Salt Creek Interceptor, three onsite permanent sewage lift stations, force mains, and offsite improvements would be required. These facilities, discussed in detail below, would convey flows to the Salt Creek Interceptor where Otay Lakes Road crosses Salt Creek.

Onsite Sewer Facilities

A brief description of the proposed onsite sewer facilities for the Project is provided below. Facilities are to be operated and maintained by the County of San Diego.

Gravity Sewers. Figure 5-1 provides the proposed onsite sewer system layout and sizing. The sewer lines initially have been sized assuming a minimum pipe slope of 1.0 percent, unless better information was available. This assumption should be verified once street and sewer line slopes have been better defined. This should be done by updating the onsite sewer system sizing analysis at the outset of final engineering for the project. Lift station(s) design capacity and overflow storage volumes will be reviewed and approved by the Director of Public Works at the preliminary design phase of the lift stations. The following lift station(s) design parameters are planning level estimates only.

Lift Stations. Three onsite lift stations are necessary to convey flow from the project. The lift station sites and any necessary easements would be conveyed to the County of San Diego. These facilities have been identified as Lift Stations 1, 2, and 3. The recommended location of these stations is shown on Figure 5-1. Figure 5-2 provides a typical sewer lift station site layout.

Lift Station 1 would be sized with capacity for the entire Project site. The western portion of the Project would flow to Lift Station 1 by gravity and the remainder of flow would be conveyed from Lift Station 2. The required capacity of Lift Station 1 is 1,000 gpm to accommodate peak gravity flows plus flows from Lift Station 2. Dual 10-inch force mains would convey flows from Lift Station 1. To provide 6 hours of peak flow storage for flows tributary to this station, an overflow volume of approximately 285,000 gallons is required.

Lift Station 2 would collect gravity flows from the central portion of the project site as well as flows from Lift Station 3. Lift Station 2 would require a capacity of approximately 825 gpm to accommodate peak gravity flows and pumped flows. Dual 8-inch force mains would convey flow from Lift Station 2. To provide 6 hours of peak flow storage for flows tributary to this station, overflow storage of approximately 235,000 gallons would be required.

Lift Station 3 would collect gravity flows from the eastern portion of the project site and pump them westerly along Otay Lakes Road to Lift Station 2. To accommodate peak flows, Lift Station 3 would require a capacity of approximately 300 gpm. Dual 6-inch force mains would convey this flow. Overflow storage of approximately 85,000 gallons would be required to provide for 6 hours of peak influent flow for the tributary area.

The capacity of each lift station was determined by calculating the peak dry weather flow in gravity sewers served by each lift station. This peak dry weather flow was then multiplied by a 1.25 factor of safety to account for impeller wear and infiltration. The peak gravity

flow was added to pumped flow entering the lift station, if any, to determine the total required capacity of each lift station.

All lift stations would be designed to include redundant pumping units, standby power, odor control, overflow storage, and telemetry. The lift station sites would also be designed with adequate access to all equipment items and include fencing for security.

Operation and Maintenance. The onsite sewer lift stations will represent an ongoing operation and maintenance obligation for the operating agency. Table 5-1 provides a preliminary estimate for the annual operation and maintenance of a sewer lift station of the sizes proposed for this Project. This estimate is considered typical for all lift stations within this project.

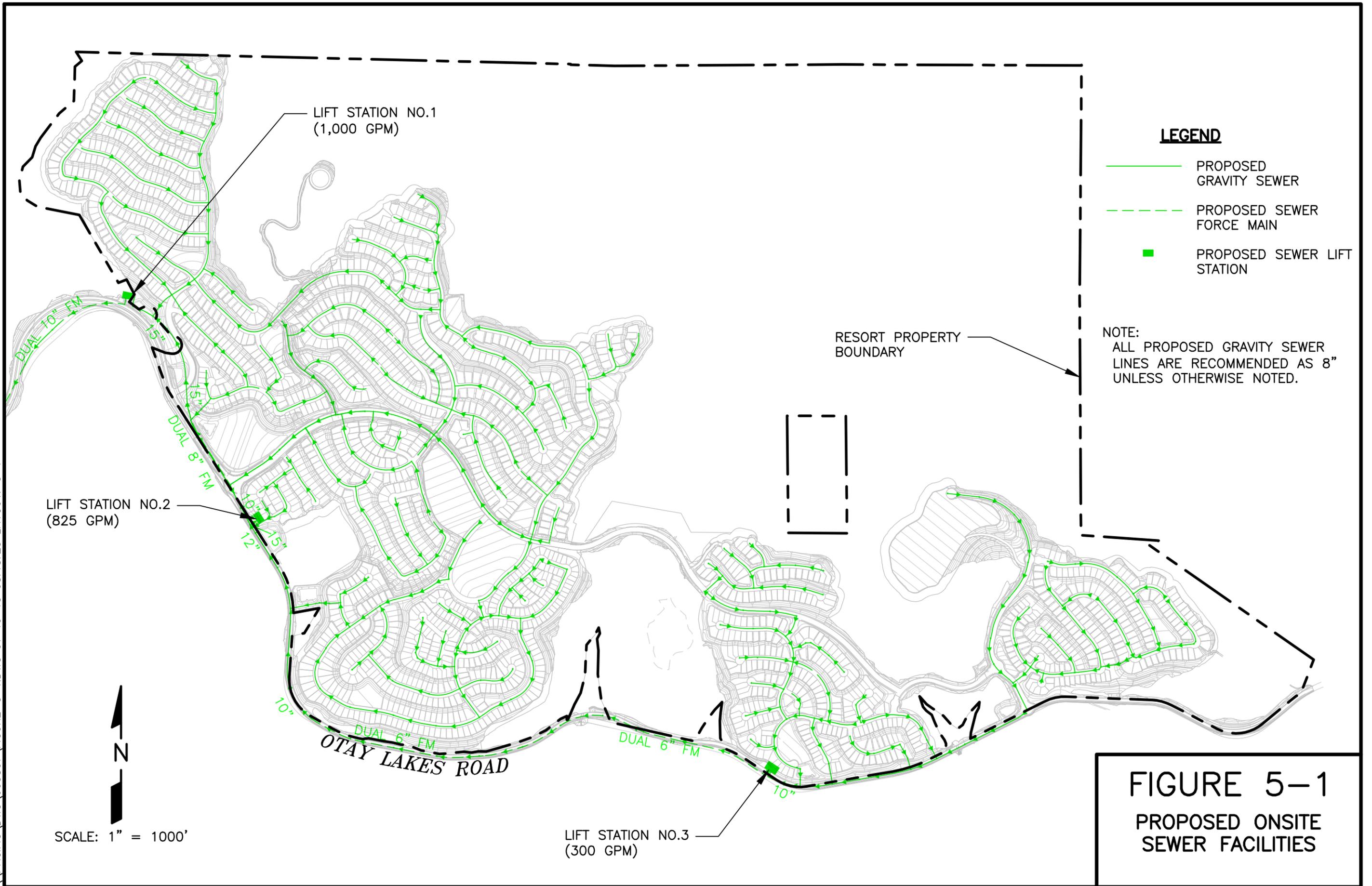
TABLE 5-1 LIFT STATION ANNUAL O&M ESTIMATE			
Description	Annual Quantity	Unit Cost	Total Cost
Energy	100,000 kwhr	\$0.32 /kwhr	\$32,000
Bioxide	7,500 gal	\$2.00 /gal	\$15,000
Generator Testing	24 hrs	\$75 /hr	\$1,800
Routine Maintenance & Inspection	500 hrs	\$75 /hr	\$37,500
Parts & Fuel	---	---	\$5,000
Emergency Response	1	8,000	\$8,000
TOTAL			\$99,300

Assuming a yearly cost of \$99,300 and an interest rate of 6.0%, the net present cost of operating each station over a 20 year period would be approximately \$1,139,000.

Offsite Sewer Facilities

From Lift Station 1, sewage flows would be conveyed to the existing Salt Creek Sewer Interceptor along Otay Lakes Road. Sewer mains would be installed within the existing Right-of-Way and be a combination of 10-inch force mains and a 15-inch gravity main. Sewer flows conveyed to the Salt Creek Interceptor would require an agreement between the County of San Diego and City of Chula Vista. Figure 5-3 depicts the location of the existing off-site sewer facilities and the proposed off-site facilities necessary to connect to the existing Salt Creek Interceptor system.

\\PACIFIC\DWG\605807\FIGURE-5-1.DWG 01-19-15 08:18:25 LAYOUT: 5-1

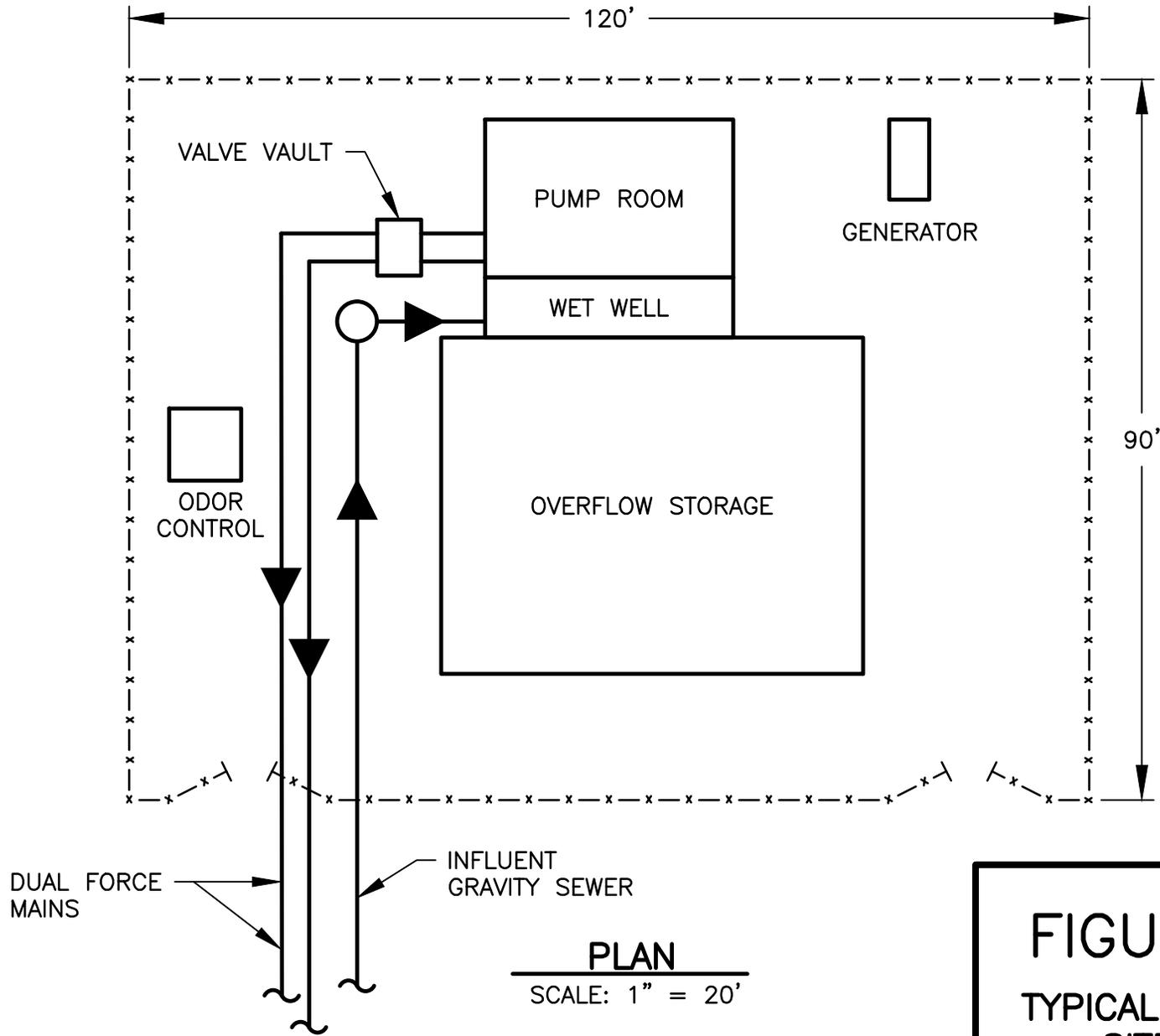


LEGEND

- PROPOSED GRAVITY SEWER
- - - PROPOSED SEWER FORCE MAIN
- PROPOSED SEWER LIFT STATION

NOTE:
ALL PROPOSED GRAVITY SEWER LINES ARE RECOMMENDED AS 8" UNLESS OTHERWISE NOTED.

FIGURE 5-1
PROPOSED ONSITE SEWER FACILITIES



PLAN

SCALE: 1" = 20'

FIGURE 5-2
TYPICAL LIFT STATION
SITE LAYOUT

\\PACIFIC\DWG\605807\FIGURE-5-3.DWG 08-20-14 11:32:06 LAYOUT: 5-3

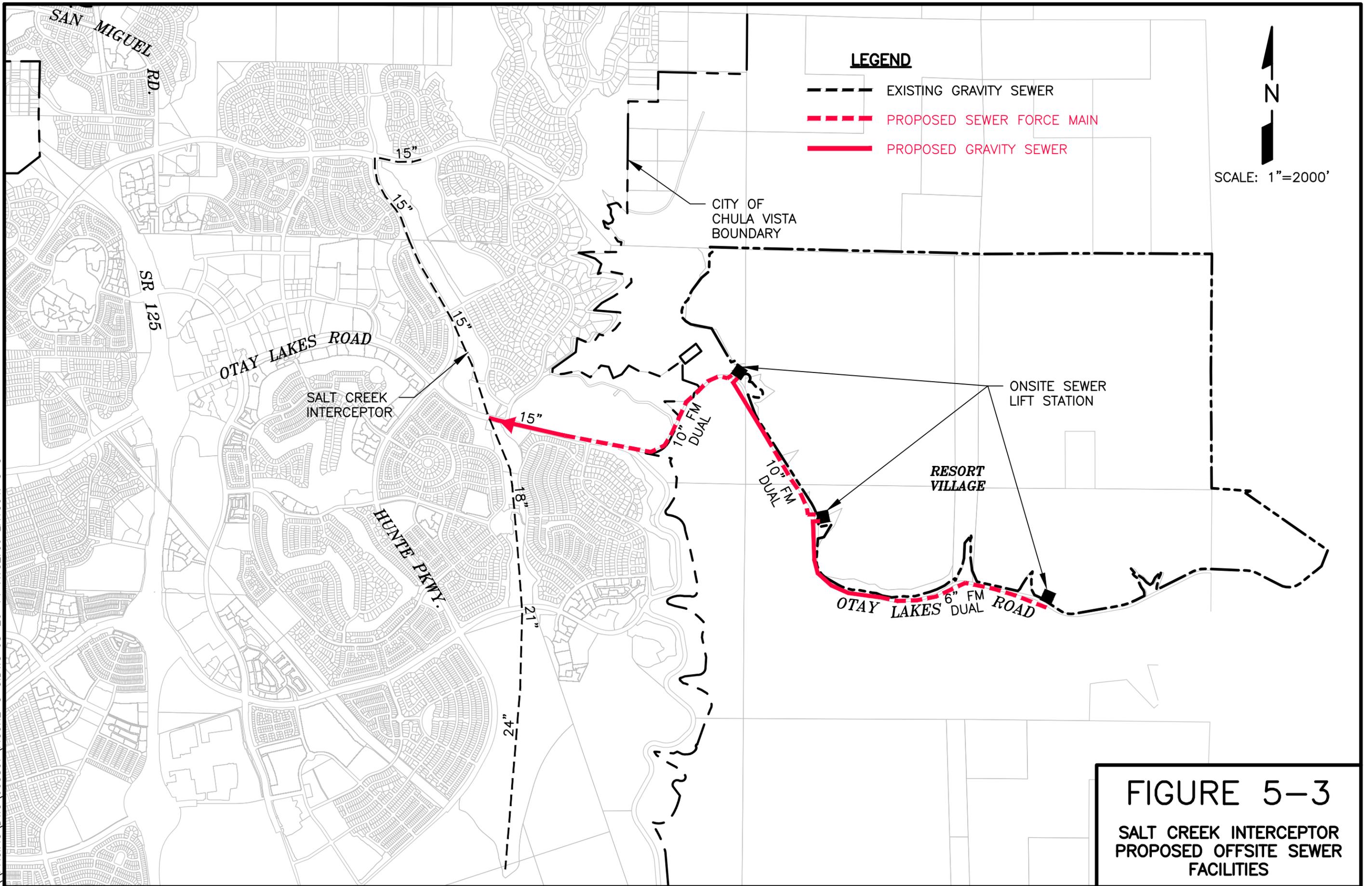


FIGURE 5-3
SALT CREEK INTERCEPTOR
PROPOSED OFFSITE SEWER
FACILITIES

Salt Creek Interceptor – Capacity

The November 1994 Salt Creek Basin Study estimated that 2,253 equivalent dwelling units (EDUs) from Village 13 (*i.e.*, Proposed Project) would convey flows to the Salt Creek Interceptor. Currently, the Project involves a total of 2,196 EDUs (based on City of Chula Vista criteria). Appendix D provides the calculations for the total number of EDUs for the project based on City of Chula Vista criteria. In addition to this decrease in projected EDUs from the Project, flows from the project site are not expected to impact the capacity of the Salt Creek Interceptor because the capacity of the downstream portions of the Salt Creek Interceptor was increased during final design, and the development projections from upstream areas have decreased. In particular, the Salt Creek Interceptor was sized with capacity for Otay Ranch Villages 13, 14, and 15, and Planning Area 16. Since preparation of the Salt Creek Basin Study, Village 15 has been purchased for conservation purposes and will no longer be developed. In addition, the City of Chula Vista has updated their sewage generation factors which has had the effect of reducing projected flows. A more detailed discussion of Salt Creek Interceptor Capacity is provided under the cumulative impacts section of this chapter.

LAFCO performed a Municipal Service Review for Southern San Diego County Sewer Service in 2004. Determination 4.2 of that report concluded, “[t]he City of Chula Vista, Otay WD, and Spring Valley SD should pursue strategies for cost avoidance when planning for extension of services to the Otay Ranch [Villages] 13 and 14.”¹ In addition, LAFCO conducted the Municipal Service Review and Sphere of Influence Update: County Sanitation District (2007) which concluded that the Project was outside the sphere of influence of SVSD², and could most efficiently be provided sewer service by Chula Vista via the Salt Creek Interceptor, subject to a cost and feasibility analysis and a sphere review.³

Conveyance of sewer flows from the Otay Ranch Resort Village Project to the Salt Creek Interceptor would require a flow transportation agreement between the County of San Diego and the City of Chula Vista. The project would be required to pay an impact fee for the use of the Salt Creek Interceptor as discussed below.

¹ San Diego LAFCO; *Southern San Diego County Sewer Service Municipal Service Review*; February 2, 2004, page 73

² San Diego LAFCO; *Municipal Service Review & Sphere of Influence Update: County Sanitation District* January 30, 2007, page 41

³ San Diego LAFCO; *Municipal Service Review & Sphere of Influence Update: County Sanitation District* January 30, 2007, page 35

Salt Creek Basin Impact Fees. The November 1994 Salt Creek Basin Study was prepared by Wilson Engineering to establish a fee to fund future improvements to the Salt Creek Interceptor System. The pertinent portions of the November 1994 Salt Creek Basin Study have been included in Appendix D for reference. This fee is required to be paid by all future developments within the Salt Creek Drainage Basin to fund improvements required to serve ultimate development within the drainage basin. City of Chula Vista Ordinance Number 2617 established the fees to be paid for future development within the Salt Creek Basin that connect into the existing system. Table 5-2 summarizes the fees to be paid by each land use type. These fees are typically collected by the City of Chula Vista at the time building permits are issued.

TABLE 5-2 SALT CREEK BASIN IMPACT FEES			
Land Use	Fee, \$	Quantity	Total Fee, \$
Single Family Residential	1,330/unit	1,881 units	2,501,730
Mixed Use Residential	1,330/unit	57 units	75,810
Resort Units	803/unit	200 units	160,600
MU & Resort Commercial (including restaurant)	12,542/acre	18.9 ac	237,044
Community Purpose/Fire Station	12,542/acre	2.1 ac	26,338
Schools	79.8/student	800 students	63,840
Park	2,514/acre	10.3 ac	25,894
TOTAL			\$3,091,256

Salt Creek Interceptor – Cumulative Impacts

The October 2010 PBS&J study evaluates the capacity of the Salt Creek Interceptor in the cumulative buildout development scenario. In this ultimate buildout scenario, the PBS&J study predicts that two sections of the interceptor will be over capacity in the cumulative condition. One section is approximately 3,200 feet of 18-inch line in Creekside Drive, just south of Otay Lakes Road. The other section is approximately 1,500 feet of 24-inch line along Salt Creek adjacent to Village 10. These pipe lengths include piping that has adequate capacity, but surcharges as a result of downstream system deficiencies.

Upon closer examination, the identified deficiencies in the PBS&J study are the result of overly conservative development assumptions. Additionally, with the recently adopted City of Chula Vista sewer generation factors, the flow projections in the basin have been reduced. Table 5-3 provides a comparison of development projections for Villages 13, 14, 15, and Planning Area 16 based on the PBS&J study and based on the current development plan for the Resort and the updated sewage generation factors. As shown, the Otay Ranch Resort Village Project is approximately 0.599 mgd less than what was projected in the PBS&J study, and the total anticipated reduction for all of these villages is 0.864 mgd. In addition to these villages, flows could be further reduced by applying the new sewer generation factor to other existing and proposed development in the basin.

TABLE 5-3 OTAY RANCH VILLAGES 13-16 DEVELOPMENT PLAN SUMMARY					
Village	October 2010 PBS&J		Current Proposed		Reduction
	EDUs	Average Flow,mgd	EDUs	Average Flow, mgd	Average Flow, mgd
13 (Resort)	4,166.8	1.104	2,196 ¹	0.505	0.599
14 ²	1,884	0.499	1,815.5 ²	0.418	0.081
15	634.6	0.168	0	0	0.168
16 ²	410.8	0.109	404.2 ²	0.093	0.016
TOTAL	7,096.2	1.880	4,415.7	1.016	0.864

¹From Appendix D.

²See Appendix E.

Based on the information provided in Table 5-3, Table 5-4 summarizes the impact that these reduced flows will have on the deficient pipe sections identified in the October 2010 PBS&J study. As shown, the Salt Creek Interceptor is anticipated to have adequate capacity to serve the Otay Ranch Resort Village property and other cumulative projects. The one section of pipeline shown to be over capacity is based on a conservative assumption where 5,786 EDUs from the future University and Village 10 site will connect to the system. This section of improvement is eliminated based on where the flows from the University and Village 10 are currently proposed to be connected. Appendix E includes an excerpt from the PBS&J Study Exhibit to show where these flows were previously assumed to be connected versus the current proposed connection location.

**TABLE 5-4
SALT CREEK INTERCEPTOR
SUMMARY OF CRITICAL SECTIONS**

U/S Node	D/S Node	Pipe Size, In.	Pipe Slope, %	Full Pipe Capacity, mgd	10/10 PBS&J Study		Current Projection		
					Avg. Flow, mgd	Peak Flow, mgd	Avg. Flow, mgd	Peak Flow, mgd	Estimated d/D
S426	S425	18	3.00	12.73	3.11	5.10	2.25	3.87	0.37
S425	S424	18	0.43	4.82	3.11	5.10	2.25	3.87	0.68
S424	S423	18	0.43	4.82	3.11	5.10	2.25	3.87	0.68
S423	S422	18	0.52	5.30	3.11	5.10	2.25	3.87	0.53
S422	S421	18	0.34	4.29	3.11	5.10	2.25	3.87	0.74
S421	S420	18	0.45	4.93	3.11	5.10	2.25	3.87	0.66
S420	S419	18	0.44	4.88	3.11	5.10	2.25	3.87	0.67
S419	S418	18	0.43	4.82	3.11	5.10	2.25	3.87	0.68
S418	S417	18	0.44	4.88	3.11	5.10	2.25	3.87	0.67
S417	S416	18	0.43	4.82	3.11	5.10	2.25	3.87	0.68
S282	S280	24	8.38	45.84	3.89	6.39	3.03	5.12	0.22
S280	S278	24	0.23	7.59	4.49	7.35	3.63	6.06	0.67
S278	S276	24	0.23	7.59	4.49	7.35	3.63	6.06	0.67
S276	S274	24	0.23	7.59	4.49	7.35	3.63	6.06	0.67
S274	S272	24	0.23	7.59	4.49	7.35	3.63	6.06	0.67
S272	S270	24	0.26	8.08	6.18	10.17	5.32	8.67	>1.0 ¹
S256	S376	24	0.37	9.63	6.18	10.17	5.32	8.67	0.74

¹Improvements to this pipe section are avoided by moving the connection of future University and Village 10 flows downstream to where they are currently being planned to connect.

Based on the above analysis, the provision of sewer service to the Project site through the Salt Creek Interceptor would be less than significant because all impacts would occur within or immediately adjacent to existing Rights-of-Way; and such impacts are temporary as the impacted areas would be restored to match pre-existing conditions following sewer installation.

CHAPTER 6

ALTERNATIVE SEWER FACILITIES SPRING VALLEY INTERCEPTOR

Figure 6-1 shows the location of existing County of San Diego facilities in relation to the project site. The major sewer facilities within the Spring Valley area proximate to the Project site are the Central Avenue Trunk Sewer and the Spring Valley Interceptor. The Central Avenue Trunk Sewer is a 15-inch gravity line, which conveys flows westerly from Proctor Valley Road to a connection with the Spring Valley Interceptor at the intersection of Central Avenue and Bonita Road. The Spring Valley Interceptor transitions from a 36-inch line to a 39-inch line at the location where it accepts flows from the Central Avenue Trunk Sewer.

While the Spring Valley Interceptor alignment would potentially result in greater impacts than the alternative Salt Creek Interceptor alignment, the Otay Ranch Resort Village Project is within the County of San Diego and as such, may receive sewer service from County facilities via the SDCSD as an alternative.

Onsite Sewer Facilities

For this alternative, the same onsite sewer improvements described in Chapter 5 and shown graphically on Figure 5-1 would be required.

Offsite Sewer Facilities

From Lift Station 1, sewage flows would be conveyed along Otay Lakes Road to an off-site lift station in Salt Creek. At this location, the off-site lift station would pump flow through dual 12-inch force mains to a 15-inch gravity sewer that would convey flow to the Spring Valley Interceptor. The 12-inch force main and a portion of the 15-inch gravity main would be constructed in Otay Lakes Road, Hunte Parkway, and Proctor Valley Road (east of Mount Miguel Road) within the existing right-of-way.

Once the 15-inch gravity sewer enters Proctor Valley Road west of Mount Miguel Road it would need to be installed outside of the Right-of-Way within an existing public trail/landscape buffer area easement. The sewer would then re-enter the street Right-of-Way at Rolling Ridge Road until the San Diego County Water Authority easement is reached. At this location, the sewer main would cross the water main and be placed parallel to a 72-inch and 66-inch water aqueduct within the San Diego County Water Authority easement for approximately 2,000 linear feet. Past this point, the 15-inch sewer main would be installed in a siphon both within the existing road and adjacent to the road. The pipe then turns onto San Miguel Road and would require installation of a portion of the sewer in a tunnel before tying into the existing gravity sewer. While there may be some available capacity in the Central Avenue Trunk Sewer System, a new sewer line connecting to the Spring Valley Interceptor would be required to serve the entire Project site. Figures 6-2 and 6-3 provide the location of offsite sewer facilities for this alternative.

The offsite lift station would be operated and maintained by the County of San Diego. As such, the lift station site and any necessary easements would be conveyed to the County of San Diego. The lift station would be designed in accordance with County of San Diego Standards to include redundant pumping units, standby power, odor control, and telemetry. The lift station site also would be designed with adequate access to all equipment items and include fencing for security. The SDCSD has sufficient capacity rights in the Metro sewer system and to serve the Project.

\\PACIFIC\DWG\605807\FIGURE-6-1.DWG 09-08-14 14:07:18 LAYOUT: 4-1

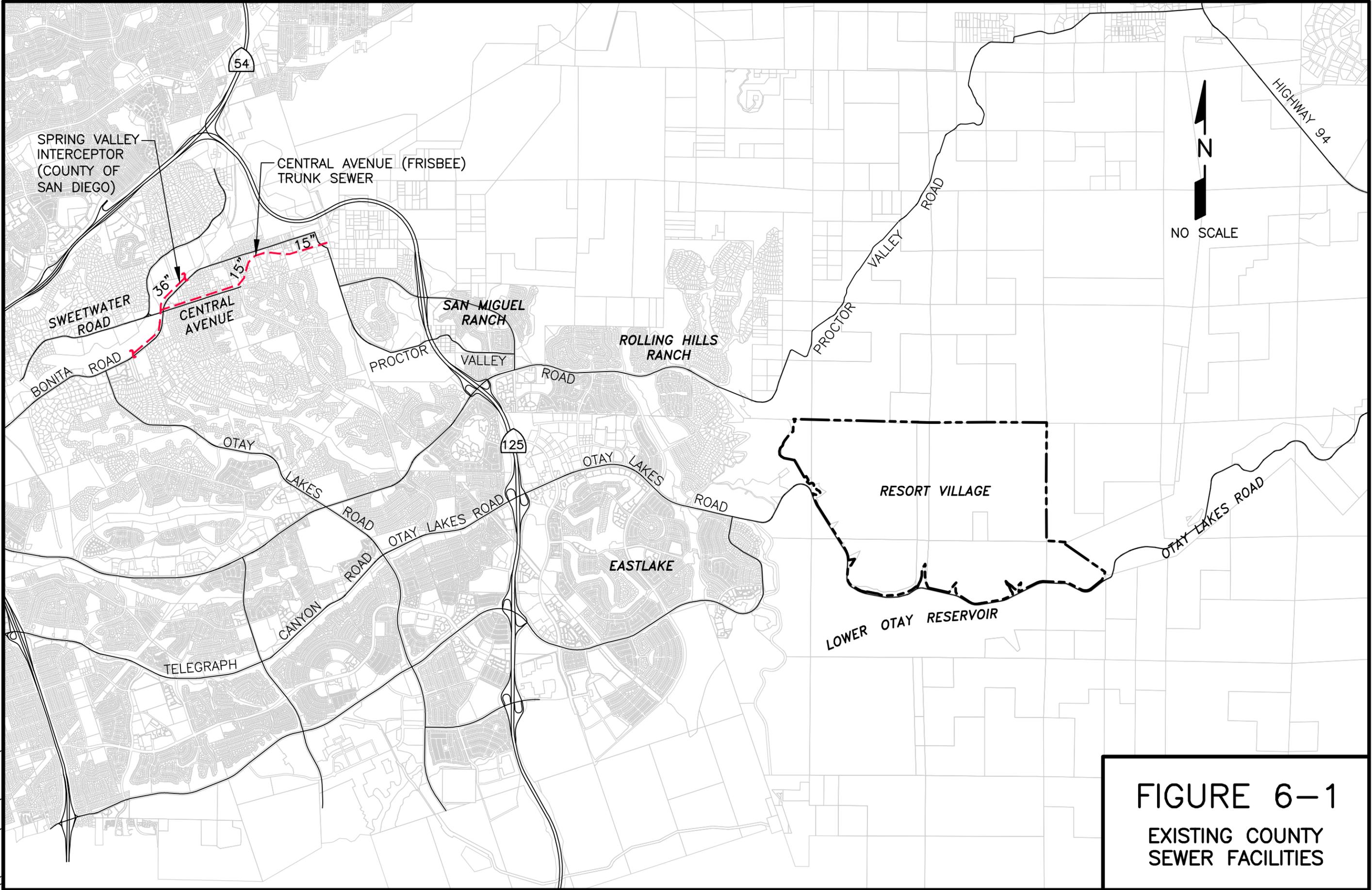


FIGURE 6-1
EXISTING COUNTY
SEWER FACILITIES

\\PACIFIC\DWG\605807\FIGURE-6-2.DWG 09-08-14 14:07:40 LAYOUT: 6-1

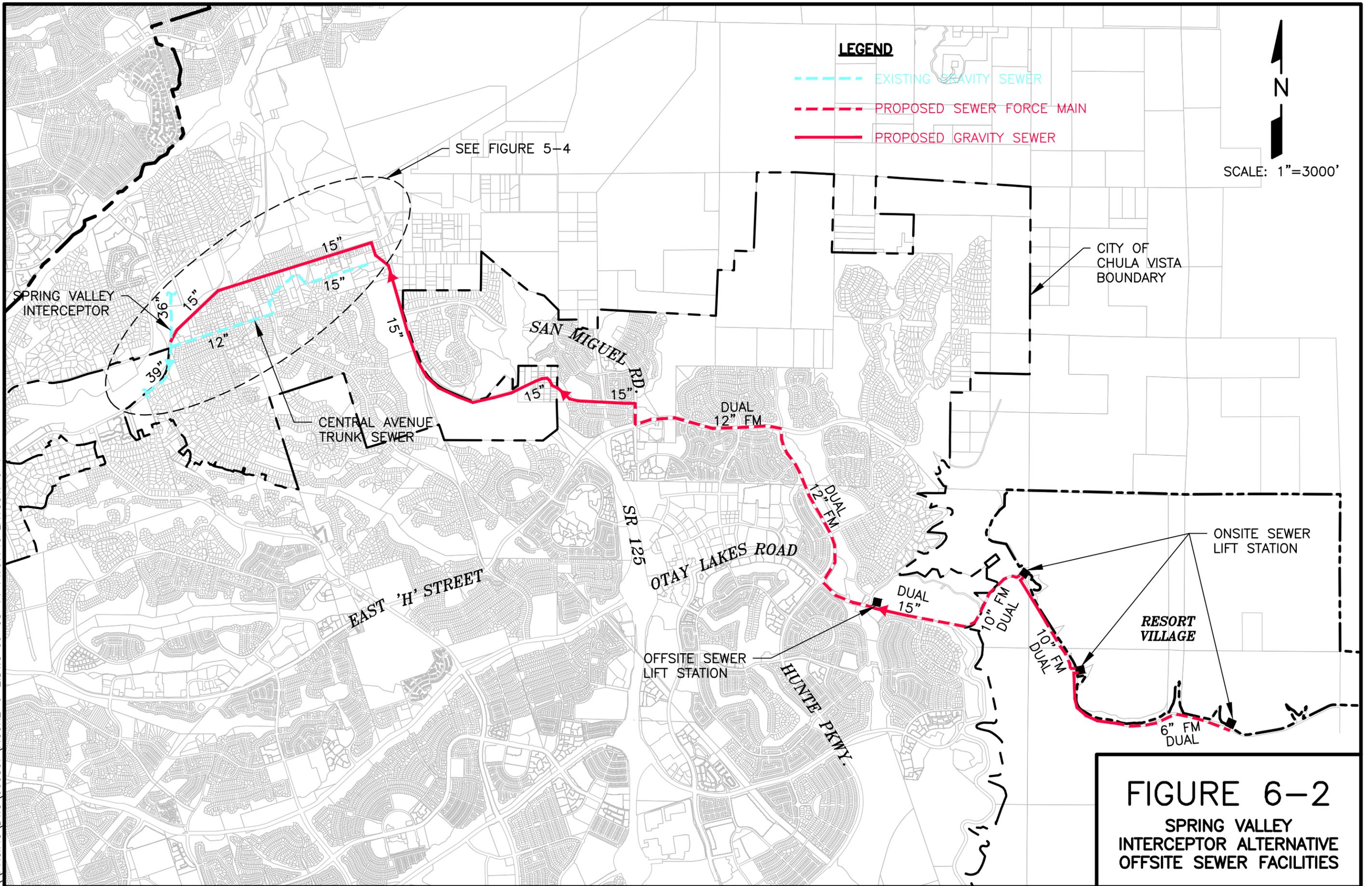
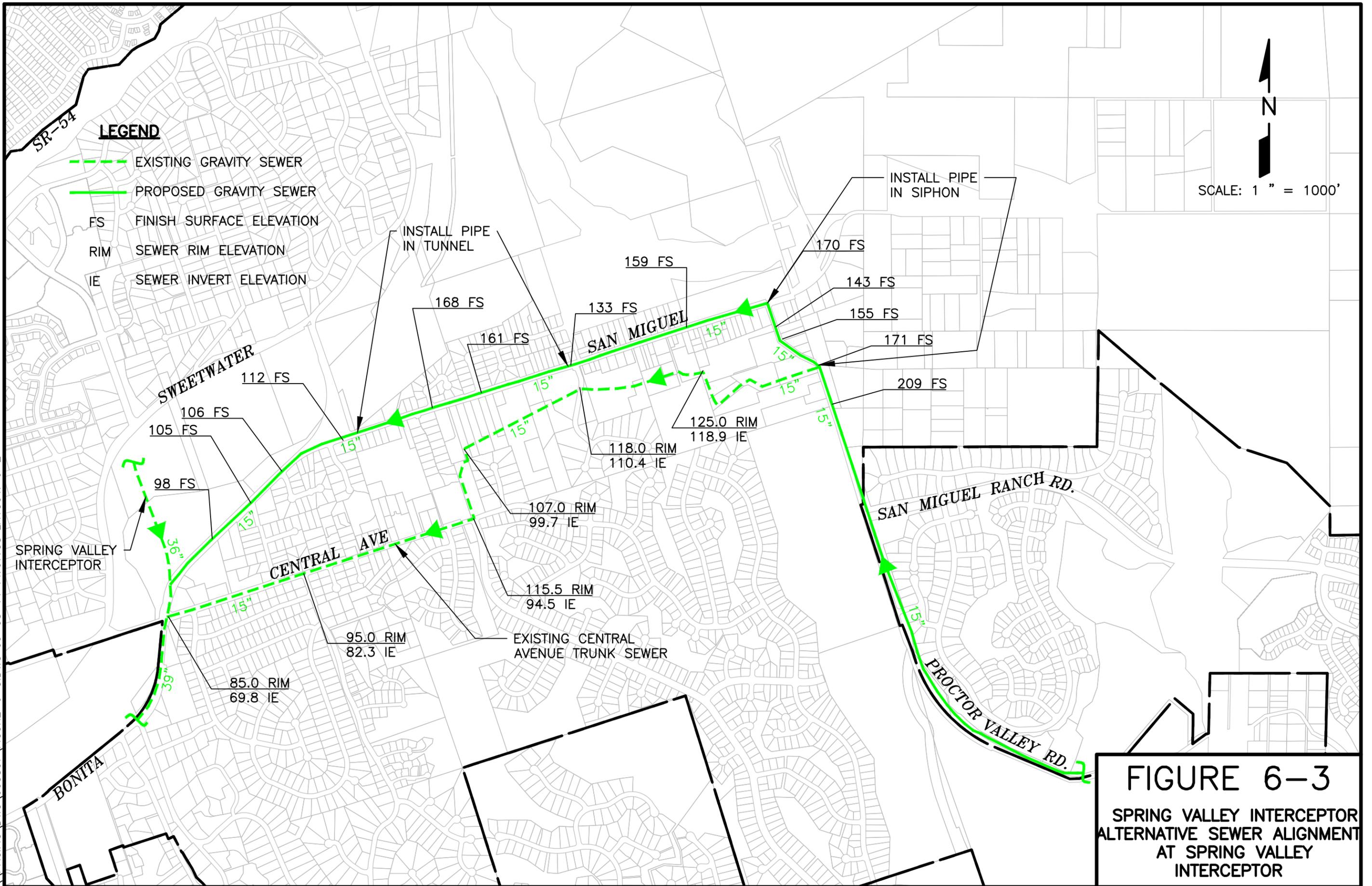


FIGURE 6-2
 SPRING VALLEY INTERCEPTOR ALTERNATIVE OFFSITE SEWER FACILITIES

\\PACIFIC\DWG\605807\FIGURE-6-3.DWG 09-08-14 14:07:58 LAYOUT: 6-2



CHAPTER 7

PROJECT PHASING

The Otay Ranch Resort Village Project will be constructed in multiple phases. Figure 7-1 graphically shows the location of the ten phases that have been identified for the Project. The phasing plan is non-sequential in order to adjust to regulatory constraints or economic and market fluctuations. The Specific Plan identifies facilities performance thresholds and infrastructure improvements for each phase as if it is developed independent of the other phases.

The phasing discussion in this chapter is based on the proposed Project which proposes sewer service from the Salt Creek Interceptor. For any phase that develops, the offsite sewer facilities will need to be constructed prior to providing sewer service to the first unit in that phase. Onsite facilities will consist of gravity sewer lines extended to the development area with the three major facilities being the sewer lift stations. The proposed phasing concept is that the copper and orange phases would require the construction of Lift Station 1 prior to development. All other phases would propose to defer the construction of Lift Station 1 until the 400th building permit by constructing a temporary section of force main that allows flows from Lift Station 2 to be conveyed to the offsite gravity sewer system. Table 7-1 summarizes the proposed lift station phasing.

All gravity sewer lines, lift stations, and force mains will be required to be tested and approved such that operation and maintenance is taken over by the regulatory owner prior to the conveyance of sewage through these facilities. In the event that facilities are not approved prior to the first occupancy, the County may, at their discretion, allow the developer to temporarily haul sewage to a disposal site with all costs being paid by the developer.

**TABLE 7-1
SEWER LIFT STATION PHASING**

Phase	Sewage facilities Improvements (Lift Stations)
Copper	Secure and Enter an Agreement to Construct Lift Station 1 prior to issuance of the First Final Map in each phase.
Orange	
Blue	Secure and Enter an Agreement to Construct Lift Station 2 prior to issuance of the First Final Map in each phase. Construct Lift Station 1 prior to issuance of 400 th building permit project wide.
Gold	
Green	
Purple	
Red	
Silver	Secure and Enter an Agreement to Construct Lift Station's 2 and 3 prior to Issuance of the First Final Map in each phase. Construct Lift Station 1 prior to issuance of 400 th building permit project wide.
Tan	
Yellow	

\\PACIFIC\DWG\605807\FIGURE-7-1.DWG 08-18-14 11:21:52 LAYOUT: FIGURE

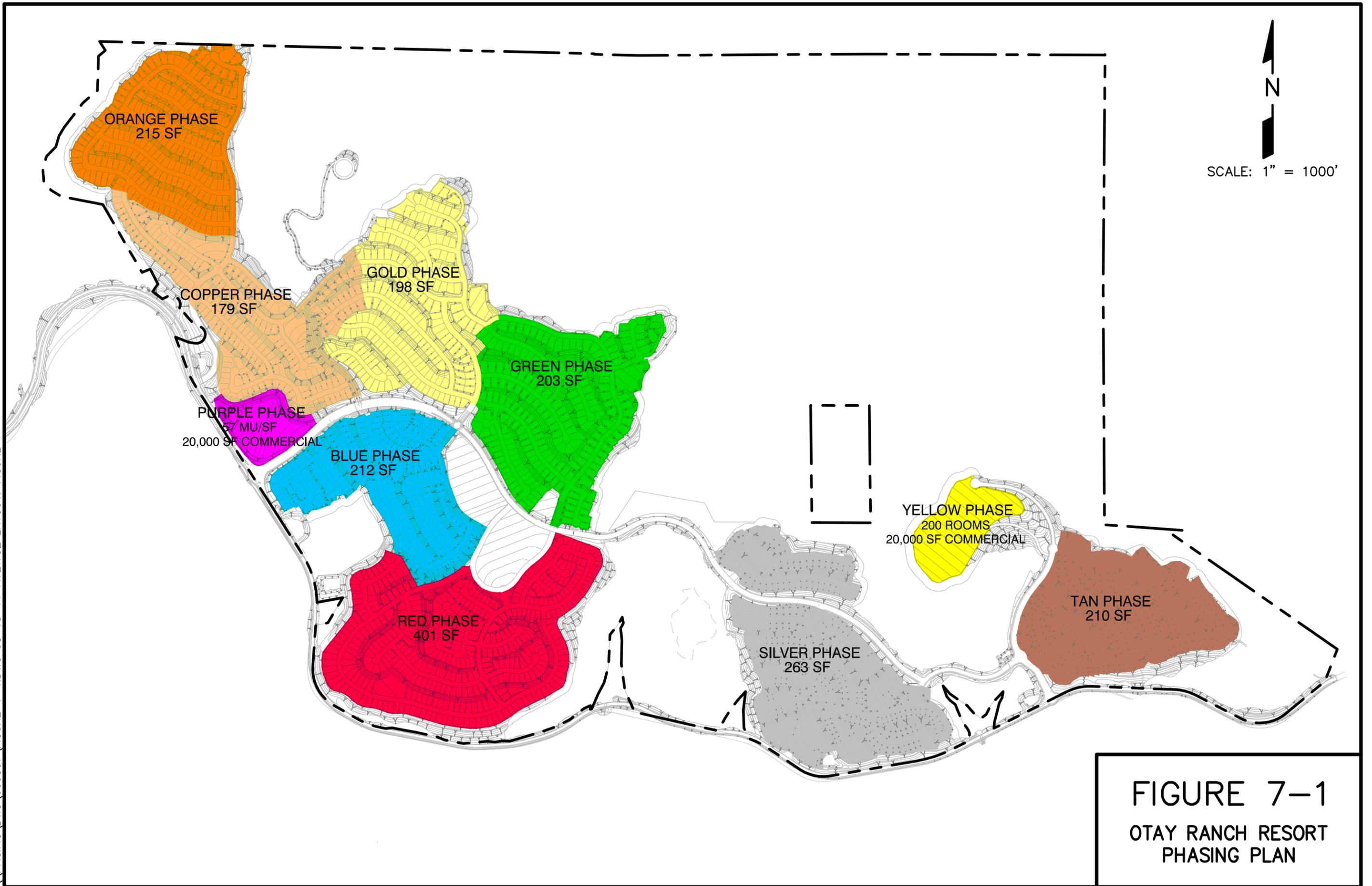


FIGURE 7-1
OTAY RANCH RESORT
PHASING PLAN