## POGGI CANYON BASIN



GRAVITY SEWER
DEVELOPMENT
IMPACT FEE UPDATE

April 2009



# POGGI CANYON BASIN GRAVITY SEWER DEVELOPMENT IMPACT FEE UPDATE

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**APRIL 2009** 

## CHAPTER 1 EXECUTIVE SUMMARY

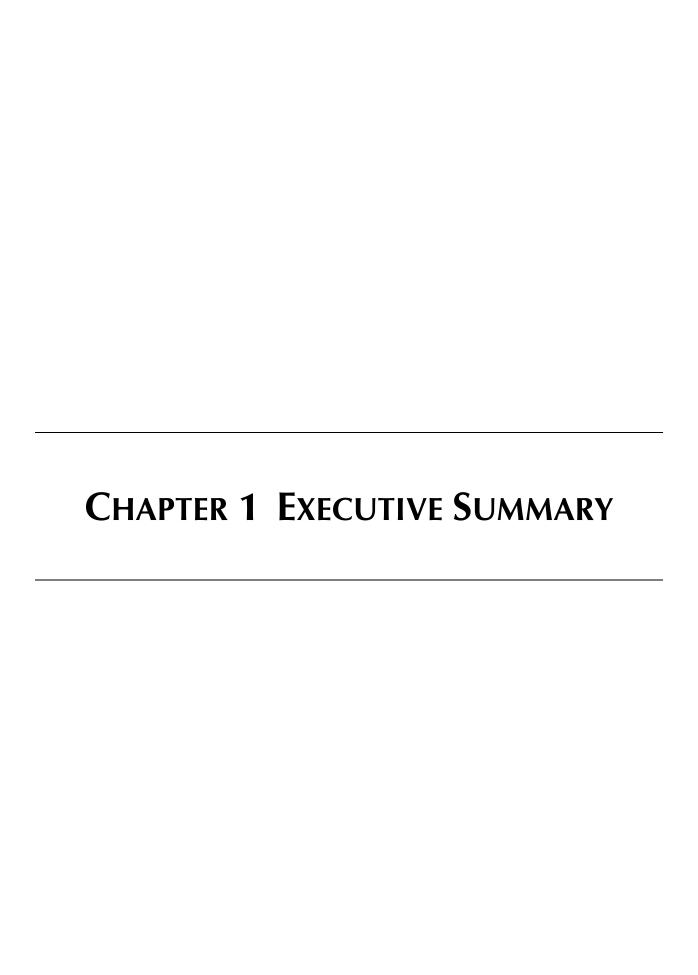
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#### 1.1 BACKGROUND

The Poggi Canyon Sewer Basin is located in eastern Chula Vista and extends from west of I-805 to the western portions of the EastLake Development. The Basin includes a significant portion of the Otay Ranch general planning area situated north of the Wolf Canyon and Salt Creek Basins and south of the Telegraph Canyon Basin. Approximately 70% of the basin is built out. Figure 1 shows the general location of the basin.

In 1997, Wilson Engineering prepared the *Poggi Canyon Basin Gravity Sewer Basin Plan* for the City of Chula Vista (attached as Appendix F). The 1997 Basin Plan detailed the trunk sewer improvements needed to increase the capacity of the trunk line and to facilitate buildout of the Poggi Canyon Basin. Based on the findings of the Basin Plan, Council adopted Ordinance No. 2716 (Appendix A) establishing the Poggi Canyon Sewer Basin Development Impact Fee (DIF) to finance the construction of trunk sewer improvements from Main Street, northeasterly to Olympic Parkway and easterly to SR 125 (Poggi Canyon Sewer Interceptor). All improvements that were included in the original study have been constructed.

#### 1.2 PURPOSE

The purpose of this report is to update the Development Impact Fee (DIF) established in 1997 pursuant to the provisions of California Government Code §§66000 et seq.

The Update of the DIF is recommended for the following reasons:

- To reflect the final construction cost of the Poggi Canyon Sewer Interceptor;
- To add the upstream reach of trunk sewer main between SR 125 and EastLake Parkway to the DIF program (Poggi Canyon Interceptor Extension (Reach 2);
- To update the Poggi Canyon Basin Equivalent Dwelling Units (EDUs) based on updated development projections and proposed diversions;
- To identify additional Poggi Canyon Interceptor improvements that may be needed to accommodate additional EDUs to the basin; and
- To adjust the fee based on the evaluation of the actual cost of facilities, future improvement costs, available revenues and number of remaining dwelling units.

#### 1.3 RECOMMENDED DIF RATE

The DIF rate is calculated based on the remaining cost of construction of the recommended improvements less the available funds and allocated to the remaining number of Equivalent Dwelling Units (EDUs) within the Poggi Canyon Sewer Basin benefiting from the facilities (Area of Benefit). Spreading the costs on an EDU basis allows for assigning the share of costs in an equitable manner to all land uses within the Area of Benefit.

Based on final construction costs for the Poggi Canyon Sewer Interceptor, including the reach from SR 125 to EastLake Parkway (not included in the 1997 Basin Plan) and future needs for build-out of the basin, the revenues remaining to be collected from future building permits equal \$1,325,388. Based on updated cost information, additional improvements and fees previously collected (excluding potential refunds for overpayment of fees) and an increase in participating

EDUs, the DIF rate is recommended to be lowered to \$265 per EDU. The estimated revised rate is shown in Table 1-1.

TABLE 1-1
DIF CALCULATION

Remaining Costs	
Construction pending	\$916,300
Potential Refunds due	1,329,771
Reimburse Trunk Sewer for Interest	470,556
Reimburse Trunk Sewer Capital Reserve Fund <sup>1</sup>	1,094,707
Future Admin. expenditures	120,000
Subtotal	\$3,931,334
Less estimated fund balance	(2,361,786)
Less future payments/contributions <sup>2</sup>	(244,160)
TOTAL	\$1,325,388
Estimated EDUs remaining	5,010
DIF rate per EDU	\$265

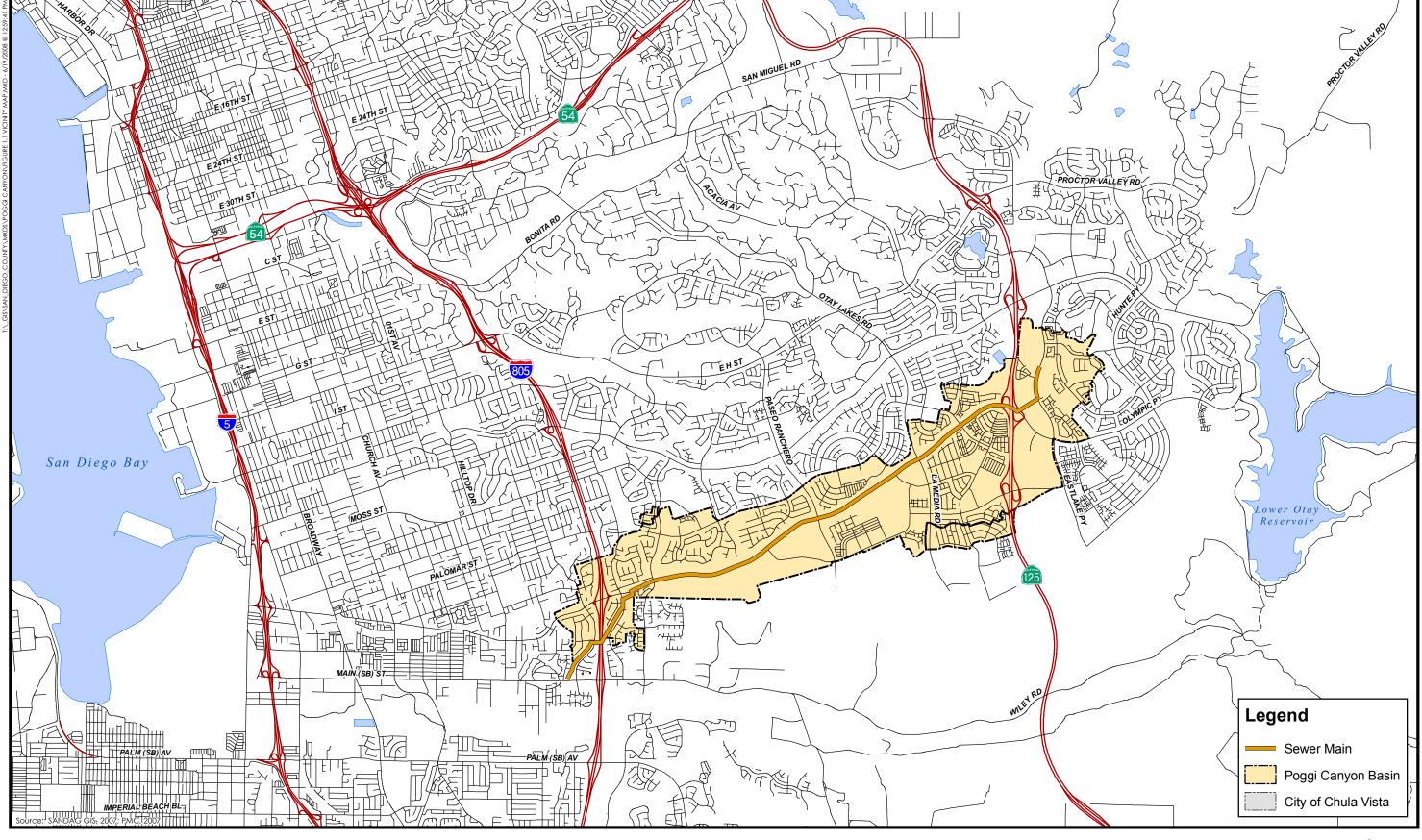
<sup>1</sup> For Poggi Canyon Interceptor Extension - Reach 2 costs.

The fee is proposed to be decreased based on the following changes:

- Construction cost savings due to the sewer being constructed concurrently with the roadway improvements;
- Interest earnings on the fund balance; and
- Increase in the number of participating EDUs based on updated development strategies.

The reduction in fees is partially offset by the need for additional improvements to serve the additional EDUs projected to be included in the basin based on updated development proposals.

<sup>2</sup> Future payments/contributions related to Sunbow, parks and/or school projects.





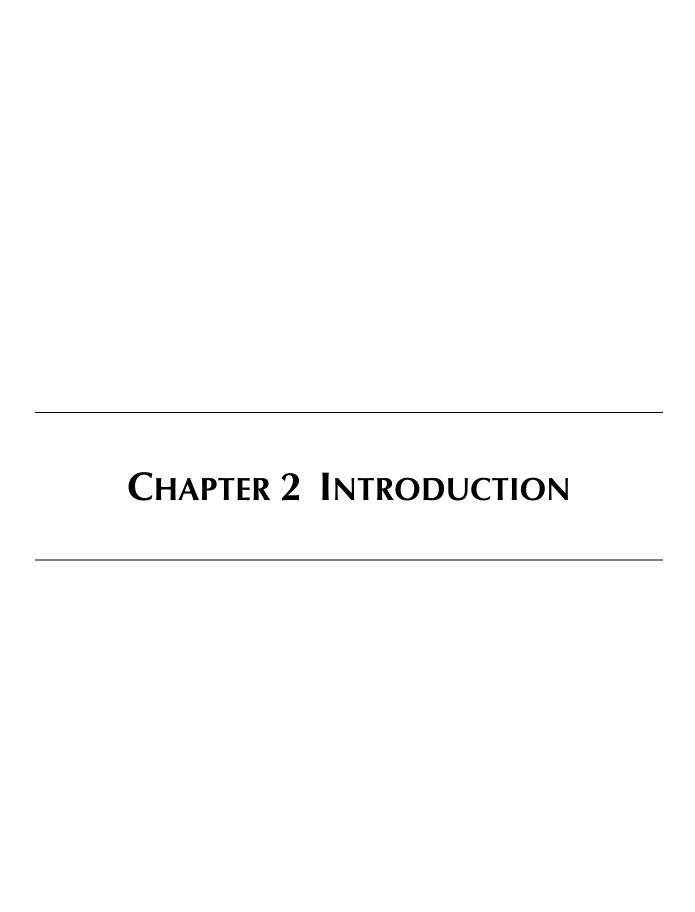
#### 1.4 MITIGATION FEE ACT

As a result of widespread imposition of public facilities fees, the State Legislature passed the Mitigation Fee Act, starting with Assembly Bill 1600 in 1988. The Act, contained in California Government Code Sections 66000 et seq., establishes ground rules for the imposition and ongoing administration of impact fee programs. The Act became law in January 1989 and requires local governments to document the following when adopting an impact fee:

- 1) Identify the purpose of the fee;
- 2) Identify the use of fee revenues;
- 3) Determine a reasonable relationship between the fee's use and the type of development paying the fee;
- 4) Determine a reasonable relationship between the need for the fee and the type of development paying the fee; and
- 5) Determine a reasonable relationship between the amount of the fee and the cost of the facility attributable to development paying the fee.

In general, the fee cannot be more than the cost of the public facility needed to accommodate the development paying the fee, and fee revenues can only be used for their intended purposes. The Act also has specific accounting and reporting requirements annually and every five years for the use of fee revenues.

During the 2006 legislative session, the legislature passed and the Governor signed a measure that further defines the restrictions that a fee shall not include the costs attributable to "existing deficiencies."



#### 2.1 Introduction

Wastewater generated within the Poggi Canyon basin is conveyed to the City of San Diego's Metropolitan Wastewater Department (Metro) sewerage system via the Poggi Canyon Interceptor, which generally follows Olympic Parkway to Brandywine Avenue and then extends southwesterly through open space easements and local roads connecting to the Salt Creek Interceptor in Main Street just west of Melrose Avenue. Flow from the Poggi Canyon and Salt Creek Sewer Basins continue westward in the Salt Creek Interceptor to a new metered connection to the South Metro Interceptor west of Interstate 5.

Design criteria, including minimum pipe diameters and slopes, for the Poggi Canyon Interceptor was provided in the Poggi Canyon Basin Gravity Sewer Basin Plan (Wilson Engineering, 1997) (Basin Plan). The planning basis for that study included land use information from Tentative Maps for Otay Ranch Villages 1 and 5, the Otay Ranch SPA 1 Plan, the site utilization plan for Sunbow II and the General Development Plans for Otay Ranch and EastLake. The Basin Plan estimated the total number of projected equivalent dwelling units (EDUs) within the Basin at buildout and identified the sewer improvements required to serve future development. The Basin Plan utilized two different design criteria to size the facilities. Sizing of new or replacement sewer was based on 280 gallons per day (gpd) per EDU while analysis of the hydraulic capacity of existing sewer facilities was based on a generation rate of 265 gpd per EDU as specified in the City's current Subdivision Manual. The analysis in this study is based on a sewage generation rate of 265 gpd per single-family home.

This study updates the number of equivalent dwelling units (EDUs) within the Poggi Canyon Sewer Basin based on information provided in the City's Major Project Development Status report dated July 2, 2007, City's Permit Plus database, Chula Vista Geographic Information System (GIS), Tentative Maps, Technical Sewer Studies and Final Maps.

The 1997 Basin Plan provided a basis for the establishment of a Poggi Canyon Gravity Sewer DIF to fund construction of the Poggi Canyon Interceptor. The Interceptor was completed in three general phases:

- Construction of a new sewer in easements behind Oleander and Melrose Avenues and in Otay Valley Road and Palm Avenue from the Sunbow II Development westward to a connection to the Date-Faivre Trunk Sewer near Otay River Valley. The sewer was subsequently connected to the Salt Creek Sewer in Main Street, just west of Melrose Drive;
- 2) Construction of a new sewer in Olympic Parkway from Brandywine Avenue easterly to SR 125; and
- 3) Improvement of the existing sewer beneath I-805 (Reach 205) just east of Talus Street.

A fourth phase from SR 125 to EastLake Parkway (not included in the 1997 Basin Plan) completed by EastLake Company is recommended to be added to the DIF program. The construction was pre-funded by the Trunk Sewer Capital Reserve Fund pursuant to an agreement between Eastlake Company and the City. In addition, a portion of the sewer in Olympic Parkway, west of Brandywine was upsized to 21-inch diameter pipe in conjunction with a road-widening project that relocated a segment of the sewer. This latter improvement was not funded by Poggi Canyon Basin Sewer Impact Fees.

This report identifies reaches of sewer within Sunbow II and downstream of the Sunbow II project that may require upsizing to accommodate the flows based on updated land use information.

The 1997 Basin Plan calculated a Development Impact Fee (DIF) based on the total estimated cost of construction of the recommended improvements spread over the total number of future EDUs within the Poggi Canyon Sewer Basin (with the City funding reaches 201 through 204 and reaches 206 through 207 for existing EDUs). In 1997, by Ordinance No. 2716, the fee was established at \$400 per EDU based on the recommendations of the 1997 Basin Plan. Table 2-1 presents the DIF calculation for the existing fee of \$400 per EDU.

TABLE 2-1
1997 PROGRAM COST AND FEE

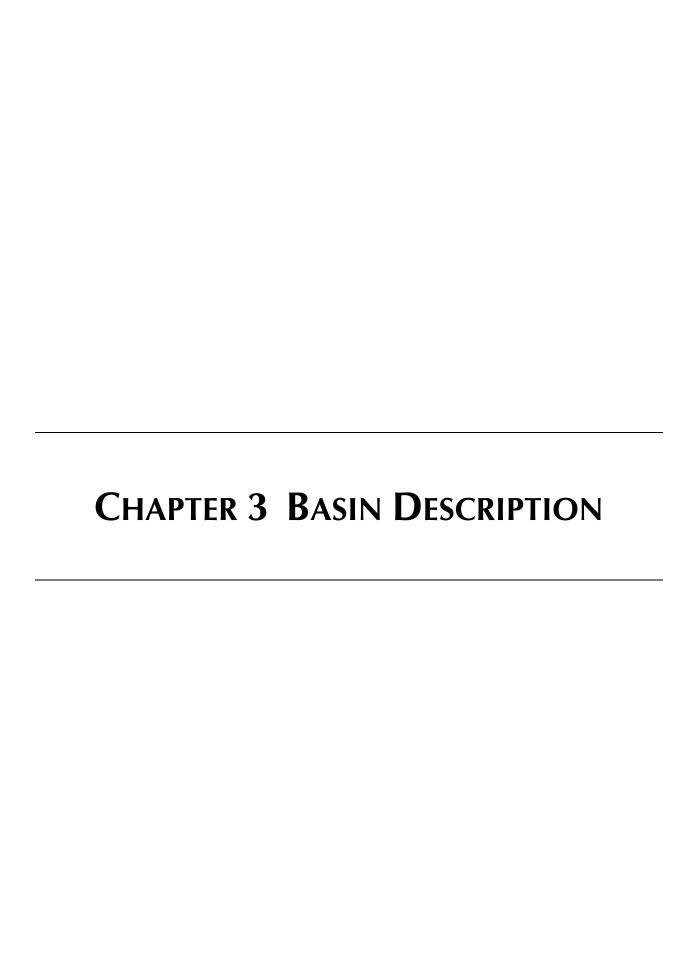
D : 5011	40.505
Basin EDUs	13,505
Less existing EDUs in western area of basin <sup>1,2</sup>	(1,795)
Less existing EDUs within Eastlake Greens <sup>1,2</sup>	<u>(794)</u>
Participating EDUs	10,917
Total Project Cost	\$6,132,984
City Contribution	
Reach 201	\$378,000
Reach 202	-
Reach 203 <sup>3</sup>	600,000
Reach 204	-
Reach 206	196,000
Reach 207	56,000
Subtotal	\$1,230,000
Other (soft costs, contingency, administration)	526,440
Total City Contribution	\$1,756,440
Total DIF Cost	\$4,376,544
Participating EDUs	10,917
Cost per EDU in 1997	\$401

#### Notes

<sup>1 1997</sup> Existing EDUs near I-805 = 1,794.5 and 1997 Existing EDUs in Eastlake = 793.8 (based on 1 EDU = 280 gpd).

<sup>2</sup> City funded existing EDUs share of improvements to Poggi Canyon sewer.

<sup>3</sup> The City's contribution for reaches 202, 203 and 204 was limited to \$600,000.



#### 3.1 BASIN AREA

The Poggi Canyon Sewer Basin extends southwesterly from the EastLake Greens subdivision to the just north of the Otay River Valley, west of Interstate 805. The basin lies between the Telegraph Canyon Sewer Basin to the north and the Wolf Canyon and Salt Creek Sewer Basins to the south. The westernmost portion of the basin, generally to the west of Brandywine Avenue, includes residential development that existed prior to establishment of the fee program. To the east of Brandywine Avenue, the basin encompasses existing and planned development within the Sunbow II Sectional Planning Area, the Otay Ranch General Development Plan, and the EastLake GDP. Figure 2 shows the sewer basin and development boundaries.

Several major project developments, south of Olympic Parkway, are naturally tributary to one of three sewer basins, Poggi Canyon, Wolf Canyon and Salt Creek. Although both the Poggi Canyon and Salt Creek trunk sewers have been constructed, Rock Mountain Road Sewer, which is required to serve the projects within the Wolf Canyon Basin, has not been constructed. Consequently, some of the projects that are tributary to that basin (i.e. Village 7 and the Eastern Urban Center – EUC) have designed portions of their projects to sewer to either Poggi Canyon Basin or Salt Creek Basin on a temporary or permanent basis. Figure 2 identifies these areas.

As a development condition to permanently divert flows into the Poggi Canyon Sewer Basin, the developer should be required to pay the Poggi Development Impact Fee for any diverted EDUs. One concern to be addressed when diverting flows is the capacity of the sewer accepting additional flows. This is addressed in Chapter 4.

#### 3.2 SEWERAGE FACILITIES

Major facilities that serve the Poggi Canyon Basin include the Poggi Canyon Interceptor identified in the 1997 Basin Plan and the reach of sewer from SR 125 to EastLake Parkway (Poggi Canyon Interceptor Extension - Reach 2) as shown in Figure 2.

The 1997 Basin Plan included all of the reaches of the Poggi Canyon Interceptor (from the connection to the Date-Faivre Trunk Sewer eastward to SR-125.) Funding for construction of these reaches was included in the current Poggi Canyon Gravity sewer DIF. The Poggi Canyon Interceptor Extension - Reach 2, east of SR 125, was not addressed in the 1997 Basin Plan other than to indicate that there were design constraints for providing gravity sewer and eliminating the pump station. EastLake Company (EastLake) has completed the construction of the Poggi Canyon Interceptor Extension – Reach 2 under an agreement with the City. The agreement allowed pre-funding of that project with funds from the Trunk Sewer Capital Reserve Fund. The City has completed the audit for the project and reimbursed EastLake for the costs incurred.

#### POGGI CANYON INTERCEPTOR

The Poggi Canyon Interceptor is an 18-inch to 21-inch diameter trunk sewer (except for under I-805 which is a 27-inch diameter reach) that conveys all wastewater generated within the Poggi Canyon Basin. Construction of the Interceptor from a connection to the Date-Faivre Trunk Sewer to SR-125 was completed in 2002. The entire length of the Interceptor, except the reach under I-805 (Reach 205), was constructed by private developers and financed through the existing Poggi Canyon Gravity Sewer DIF either through cash reimbursement or credit of future DIF payments. The construction of approximately 660 feet of 27-inch reach of the Interceptor under I-805 (Reach 205) was completed in 2005 by City contract and funded from DIF funds.

With completion of the Salt Creek Sewer in 2005, the city connected the Poggi Canyon Sewer interceptor to the Salt Creek Sewer in Main Street.

EastLake Company completed construction of the Poggi Canyon Interceptor Extension – Reach 2 in 2005. In March of 2008, the City reimbursed EastLake Company for construction of this improvement pursuant to an agreement between EastLake Company and the City.

#### POGGI CANYON INTERCEPTOR EXTENSION

Portions of EastLake Greens, including the high school, are within the Poggi Canyon Sewer Basin but initially used a pump station to pump its sewer flows to Telegraph Canyon Basin. Pumped flows were necessary to accommodate the EastLake Greens development ahead of the construction of the Pogai Canyon Interceptor in Olympic Parkway. Based on approved development plans for EastLake Parkway and the EastLake Land Swap subdivision, and selection of a preferred alignment after thorough study, the Poggi Canyon Interceptor was extended from SR 125 to serve the eastern portions of the basin. The final design included deep reaches of sewer in the Land Swap Subdivision and a portion of EastLake Parkway that range from 20 to 60 feet deep. These reaches were constructed as dual, concrete-encased sewers with access provided by cast-in-place reinforced concrete vaults. Slide gates were provided in the vaults to control flow between the dual sewers to facilitate maintenance of the deep reaches. This deep sewer enabled the City to provide gravity sewer to portions of EastLake, consistent with Council Policy No. 570-03, a policy that discourages approval of permanent sewer pump stations in lieu of viable gravity alternatives. After substantial negotiation, the final segment, located within the County Water Authority easement was completed in 2008. The City has since decommissioned the pump station and the previously diverted flows are now flowing by gravity to Poggi Canyon Basin. These flows were considered in the 1997 Basin Plan.

The Poggi Canyon Interceptor Extension consists of two reaches, Reaches 1 and 2. Reach 1 extends the sewer from the Land Swap commercial parcels, northerly in EastLake Parkway to the pump station. Reach 1, excluding the decommissioning of the pump station, will be funded utilizing CFD 06-I bond proceeds as previously approved by Council. Reach 1 is not recommended to be a DIF eligible improvement. Reach 2 is serving the southern portion of the Land Swap subdivision and begins at the Poggi Canyon Interceptor just east of SR-125, extending northeastward through the EastLake Land Swap Commercial parcels to EastLake Parkway. Pursuant to a Reimbursement Agreement approved by Council in April 2004 (attached as Appendix B), the City reimbursed EastLake Company for its eligible costs for constructing Reach 2 from Trunk Sewer Capital Reserve Funds. As Reach 2 is serving the same function as the Poggi Canyon Interceptor identified in the 1997 Basin Plan, it is now recommended that Reach 2 be included in the 2009 Update as an eligible DIF facility and be funded with Poggi Canyon Sewer Basin DIF funds instead of Trunk Sewer Capital Reserve Funds. This recommendation is based on:

- Poggi Canyon Interceptor Extension Reach 2 is a trunk sewer and is an extension of the sewer that was included in the 1997 Basin Plan (Reach 221). Construction of Reach 2 has been completed.
- EastLake Land Swap parcels were required to participate in the DIF program. Reach 2 serves these parcels.
- Upon build out of the basin, there will be sufficient funds to reimburse the Trunk Sewer Capital Reserve Fund \$1,094,707. After setting aside \$1.3 million for potential overpayments, reimbursing the Trunk Sewer Capital Reserve Fund \$470,556 for interest

earned, and setting aside \$120,000 for future administrative costs for the program (see Table 5-4), there is an estimated \$441,000 (of the \$1,094,707) currently available to reimburse the Trunk Sewer Capital Reserve Fund. The requirement to construct the future improvements should be placed as a condition to development whereby the developer receives credit for construction of Poggi trunk sewer improvements in-lieu of paying the impact fee.

• Inclusion of Reach 2 and its costs in the DIF program will not increase the fee.

#### CONNECTION FROM REACH 2 TO SR 125

In addition to Reach 2 as identified in the EastLake/City agreement, a short reach of sewer connecting the sewer in Olympic Pkwy at SR 125 to Reach 2 was constructed by EastLake Company and financed via CFD 061. By now identifying this segment of sewer as a DIF project, the CFD shall be reimbursed the cost of construction for that segment.

#### EASTLAKE PARKWAY PUMP STATION

The EastLake Parkway Pump Station is located adjacent to EastLake Parkway just north of the San Diego County Water Authority easement. The station was constructed in 1990 to temporarily pump flows generated in the EastLake Greens subdivision, which is located in the eastern portion of the Poggi Canyon Basin, to the Telegraph Canyon Trunk Sewer. Upon completion of the remaining reach of the Poggi Canyon Trunk Sewer (i.e. the portion under the San Diego County Water Authority Aqueduct), the City decommissioned the pump station, directing flows to the Poggi Canyon Interceptor via the Poggi Canyon Extension. The cost to decommission the EastLake Parkway pump station will be borne by the City, with funds from Sewer Service Revenues consistent with Council Policy 570-03.

Figure 2 shows the location of the improvements.

#### **FUTURE FACILITY IMPROVEMENTS**

Based on updated land use information and potential diversion of flows, both interim and permanent, several constructed segments of Poggi Canyon Interceptor may need to be replaced with larger diameter pipe or parallel reaches constructed. See discussion in Chapters 4 and 5.

#### 3.3 EDU PROJECTIONS

For financial analysis, the land uses for each property are converted to Equivalent Dwelling Units (EDUs), where one EDU represents the estimated sewage generation rate of a single-family residence. EDUs for various land uses are established by comparing the sewage generation rate for a given land use to that of a single-family residence. Table 3-1 summarizes the sewage generation rates and EDU equivalency factors for various land uses. The EDU conversion factors are based on a single family dwelling unit sewage generation rate of 265 gallons per day, as established in the City's Subdivision Manual.

TABLE 3-1
EDU CONVERSION FACTORS
BASED ON THE 265 GPD/EDU

Land Use	Sewage Flow Rate	EDU Factor
Residential - SFD	265 gpd/DU	1.00/DU
Residential – MFD	199 gpd/DU	0.75/DU
Commercial/Industrial	2,500 gpd/acre	9.43/acre
Multi-Story Commercial	0.072gpd/sf	0.272/1,000 sf
High School	20 gpd/student	0.08/student
Junior High School	20 gpd/student	0.08/student
Elementary	15 gpd/student	0.06/student
Park	500 gpd/acre	1.89/acre
CPF	2,500 gpd/acre	9.43/acre

gpd: gallon per dayDU: dwelling unit

CPF: community-purpose facility SFD: single-family dwelling MFD: multi-family dwelling

Multi-Story Commercial: Based on EUC Technical Sewer Study for high-rise non-residential land uses assuming a floor area ratio of 0.8 (2,500 gpd per acre  $\div$  (0.8 x 43,560 sf/acre) = 0.072 gpd/sf).

The above EDU conversion factors for non-residential land uses are slightly different than shown in the 1997 Basin Plan because that study was based on 280 gpd per EDU, not 265 gpd per EDU.

#### LAND USE PROJECTIONS

Land use and population projections for ultimate buildout of the basin were estimated from City permits and GIS data, SPA plans, Tentative Maps, and available improvement plans. Existing (permitted) parcel information was obtained from City records and development projections provided by Basin developers where necessary. Table 3-2 shows development projections on an EDU basis.

The industrial parcels for Sunbow II, the community purpose facility parcel in Otay Ranch Village 5, portions of Otay Ranch Villages 6 and 12 (Freeway Commercial), Otay Ranch Villages 2 and 7, the Eastern Urban Center (EUC) and EastLake Land Swap project have remaining EDUs to develop within the basin. Table 3-2 provides a summary, by project, of the remaining EDUs. For additional project detail refer to Appendix G for maps and land use information.

TABLE 3-2 EDU BALANCE FOR FEE

Development Area	Existing or Approved	Permitted/ Constructed	Additional	Existing, approved plus additional	Total Remaining to be Permitted
Existing Development <sup>1</sup>	875	875	-	875	-
Existing Development <sup>2</sup>	963	963	-	963	-
Sunbow II <sup>3</sup>	1,944	1,428	-	1,944	516
Miscellaneous <sup>4</sup>	366	45	-	366	321
Village 1 West	520	520	-	520	-
Village 2	2,780	242	-	2,780	2,538
OR Village 1	1,164	1,164	-	1,164	-
OR Village 5 <sup>5</sup>	580	538	-	580	-
MM Village 1/5	323	323	-	323	-
OR/MM Village 6	2,321	2,166	-	2,321	155
Village 7 <sup>6</sup>	833	354	-	833	479
Village 12 (FC)	1,137	648	-	1,137	489
EL Landswap	2,208	2,125	-	2,208	83
EUC <sup>7</sup>	189	-	240	429	429
Total	16,203	11,391	240	16,443	5,010

#### Notes:

The Total Remaining EDUs reflects permits that have not been issued as of July 1, 2007.

#### 3.4 DIVERTED FLOW EDUS

As mentioned previously, the Eastern Urban Center development proposes to permanently divert sewage flows from Salt Creek/Wolf Canyon Basins to the Poggi Canyon Basin based on the most current grading proposal. As a condition of development for this project, the developer should be required to pay into the Poggi Sewer DIF and the DIF program would be

<sup>1</sup> Basin west of I-805

<sup>2</sup> This area was called "Sunbow I" in the Village 7 Conceptual Sewer Study and the Overview of Sewer Service for Village 2, 3 & 4, but is actually the area east of I-805 and west of Sunbow II.

<sup>3</sup> Remaining EDUs is for the industrial site.

<sup>4</sup> Includes Medical parcels north of Sunbow II (109 EDUs) and OWD parcel in Village 5 (257 EDUs).

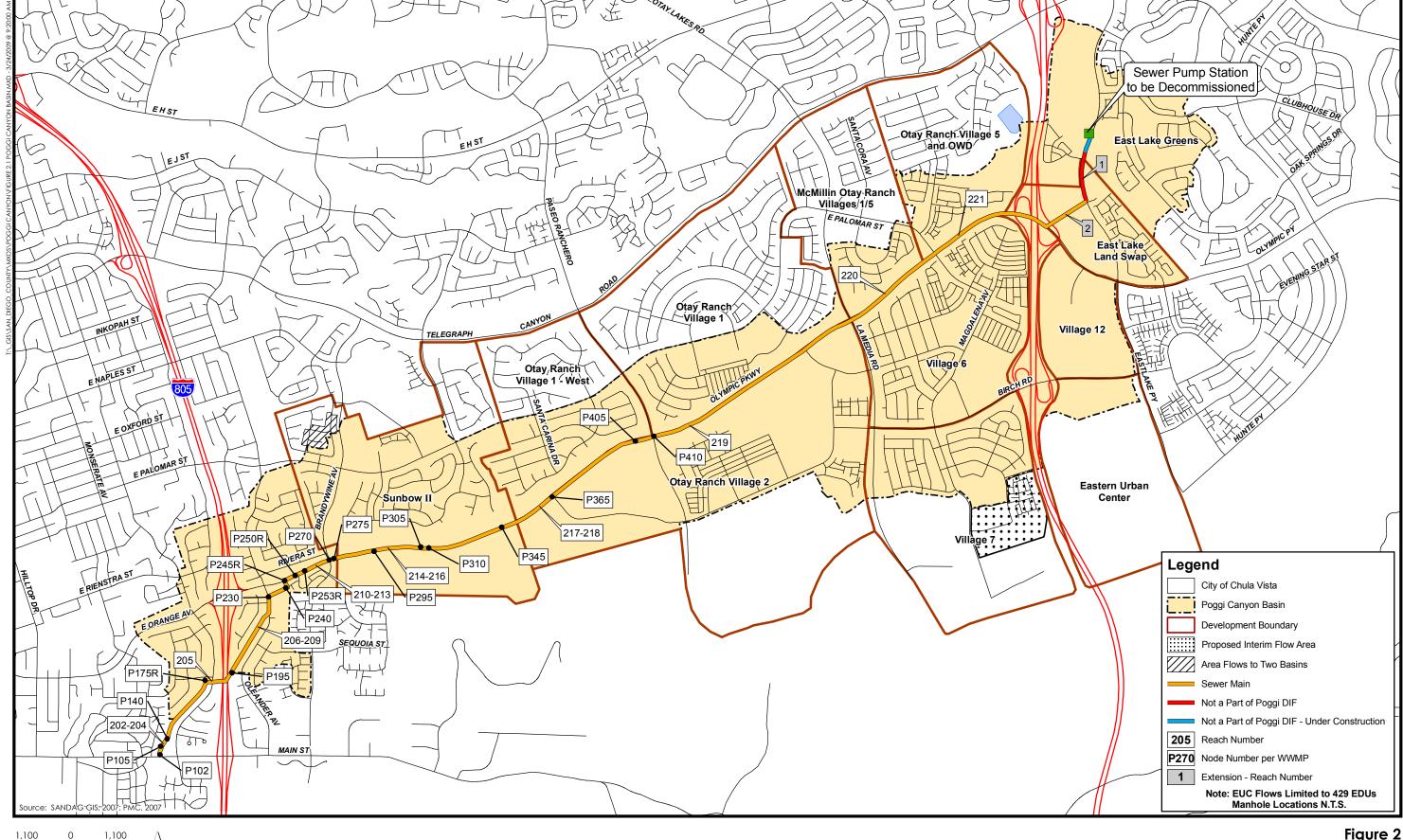
<sup>5</sup> OR Village 5 CPF site (42 EDUs) is assumed to be in CFD 99-1 and to use credit in lieu of paying fee at time of building permit.

<sup>6</sup> Village 7 interim EDUs are not shown as paying DIF.

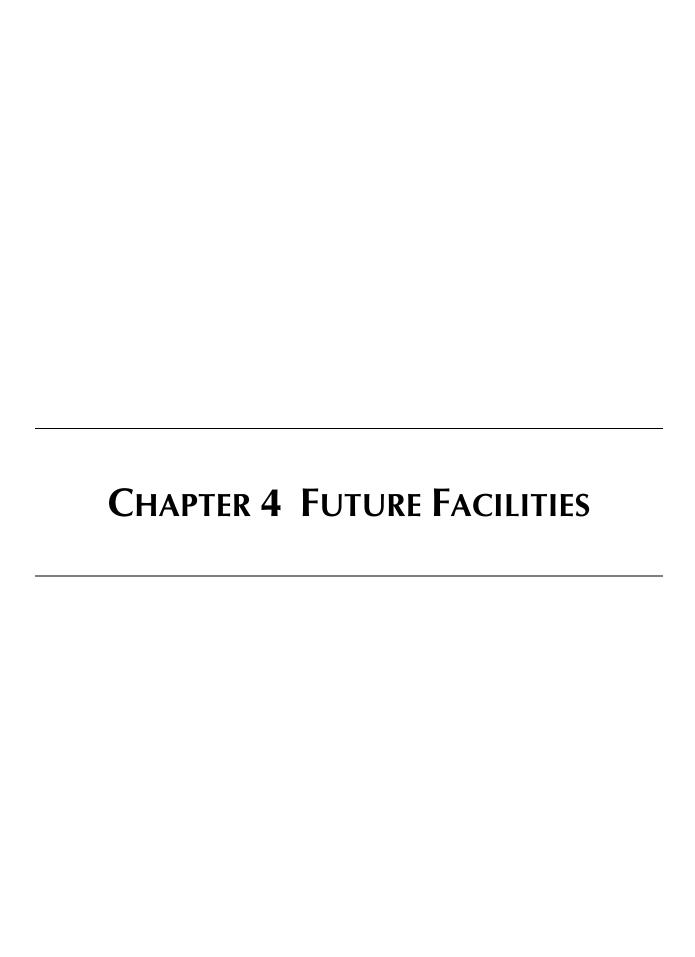
EUC is based on the preferred alternative of 529 EDUs at 215 gpd/EDU converted to 265 gpd/EDU basis or 429 EDUs.

updated to reflect the costs related to the additional improvements needed to serve the basin at build-out based on these additional flows. Table 3-2 identifies the proposed tributary EDUs, including the diverted EDUs. Based on the development plans for the Eastern Urban Center, there will be 240 "diverted" EDUs, or a total of 429 EDUs from EUC1. The developer of Otay Ranch Village 7 proposes to divert 464 EDUs to Poggi Basin on a temporary basis, until such time as the extension of the Rock Mountain Trunk Sewer (Wolf Canyon basin) is constructed connecting to the Salt Creek Interceptor.

<sup>&</sup>lt;sup>1</sup> The PBS&J Study for EUC, dated January 2008, shows a maximum of 580 EDUs to Poggi Sewer Basin; the preferred alternative limits this to 529 EDUs based on 215 gpd per EDU. The EDU figures for EUC in Table 3-2 are adjusted to the DIF basis of 265 gpd per EDU. For actual diverted areas refer to PBS&J Study for EUC.







#### 4.1 DESIGN CRITERIA

The design criteria used for the sizing of the proposed improvements for the Poggi Canyon Sewer Basin are in accordance with the City's Subdivision Manual. New sewers shall be designed so that the estimated flow depth does not exceed 75% of the pipe diameter (for pipes sizes of 12-inch in diameter or greater). While this is the criteria for new construction, the trigger for construction of replacement or parallel sewer pipe is when the depth of flow exceeds 85%. This latter criterion has been used in recent City sewer basin studies as well as to identify projects for the Capital Improvement Program. The design criteria used for determining the size of new facilities is shown in Table 4.1.

TABLE 4-1
GRAVITY SEWER DESIGN CRITERIA

Manning's n	.012
Pipe Diameters greater than 12"	d/D = .75 new construction
Peaking Factor	CVD-SW01

Sewage generation factors are critical for the appropriate sizing of ultimate sewer facilities. Table 4-2 summarizes the sewage generation factors used in this report for different land uses within the Poggi Canyon basin.

TABLE 4-2
SEWAGE GENERATION FACTORS

Land Use	Average Daily Flow
Single-Family and Condominium Detached	265 gpd/dwelling unit
Single-Family Attached	199 gpd/dwelling unit
Multi-Family	199 gpd/dwelling unit
Commercial/Industrial	2,500 gpd/acre
Medical	2,500 gpd/acre
Multi-Story Commercial	0.072 gpd/sf
Elementary School	15 gpd/student
Junior High School	20 gpd/student
High School	20 gpd/student
Community Purpose Facility	2,500 gpd/acre
Parks	500 gpd/acre

Multi-Story Commercial based on Eastern Urban Center flows outlined in the report titled "Eastern Urban Center Technical Sewer Study, January 2008, Update 3." It reflects a generation rate of 2,500 gpd/acre converted to 0.072 gpd/sf.

Elementary school capacity estimated at 800 students.

Junior High school capacity estimated at 1,400 students.

High school capacity estimated at 2,400 students, except for Otay Ranch High School with a current enrollment of 3,000 students.

#### 4.2 FACILITIES FOR FUTURE DEVELOPMENT

In 1997, the City had its consultant, Wilson Engineering, prepare the *Poggi Canyon Basin Gravity Sewer Basin Plan* that identified the trunk sewer improvements that would be needed to accommodate build-out of the Poggi sewer basin. That study provided the basis for the initial impact fee program. The City has since prepared a more comprehensive plan, the *Wastewater Master Plan* (May 2005). The plan provides a detailed model of the sewage flows in Poggi basin demonstrating adequate capacity of the Poggi basin sewer system based on calibrated flow data (and assuming the improvements identified in the 1997 Basin Plan are constructed)<sup>2</sup>. Recent technical sewer studies indicate that Reach P270 is the first critical reach to analyze for capacity constraints and that upgrading this reach from an 18-inch diameter pipe to a 21-inch diameter pipe may be needed. The City presently monitors this reach of pipe through its ongoing Infrastructure Flow Monitoring Program which involves the installation of portable flow meters at various critical locations citywide ensuring that the City has current and adequate information on the impacts of existing and new development on the City's wastewater collection system.

There is a need to re-evaluate the adequacy of other reaches of the Poggi trunk sewer based on current development proposals reflected in the following approved documents:

- Overview of Sewer Service for Otay Ranch Village 2, 3 and a portion of 4 (Dexter Wilson Engineering, February 2006);
- Village 2 Substantial Conformance Tentative Map (Hunsaker and Associates, dated February 12, 2007) reflecting updated land use information;
- Eastern Urban Center Technical Sewer Study (PBS&J, January 2008, Update #3);
- Village 7 Conceptual Sewer Study (PBS&J, April 14, 2004).

Table 4.3 identifies the development project and estimated EDUs based on Table 4.2 and on final map and/or approved tentative map information and the above-listed documents. The EDUs were then used to estimate whether the Poggi trunk sewer system could accommodate the ultimate, build-out flows.

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<sup>&</sup>lt;sup>2</sup> Refer to Chula Vista Wastewater Master Plan (May 2005), page 4-34.

TABLE 4-3
EDUS FOR CAPACITY ANALYSIS

Development Area	Total Committed	Permitted/ Constructed <sup>7</sup>	Additional	Total	Remaining to be Permitted/ Constructed
Existing Development 1,3	875	875		875	-
Existing Development 2,3	963	963		963	-
Sunbow II <sup>4</sup>	1,944	1,428		1,944	516
Medical Center area <sup>4</sup>	109	45		109	64
OR Village 1 West <sup>4</sup>	520	520		520	-
OR Village 2 <sup>4,5</sup>	2,780	242		2,780	2,538
OR Village 1 <sup>4</sup>	1,164	1,164		1,164	-
OR Village 5 <sup>4</sup>	580	538		580	42
OWD parcel <sup>6</sup>	257	-		257	257
MM OR Villages 1/5 <sup>4</sup>	323	323		323	-
OR/MM Village 6 <sup>4</sup>	2,321	2,166		2,321	155
OR Village 7 <sup>4</sup>	833	354		833	479
OR Village 7 Interim		210	464	464	254
OR Village 12 (FC) <sup>4</sup>	1,137	648		1,137	489
EL Greens and landswap <sup>4</sup>	2,208	2,125		2,208	83
EUC <sup>4,6</sup>	189	-	281	470	470
Subtotal	16,203	11,601	745	16,948	5,347
	Less Interim El	DUs		(464)	(254)
	Total			16,484	5,093

<sup>1</sup> Basin west of I-805. Based on 1997 Basin Plan (pg A21 and B22) at 265 gpd per EDU.

The following reaches of Poggi Canyon Trunk Sewer Interceptor were considered in varying detail (node locations are shown on Figures 2 and 3):

- Reaches from Main Street to south of Olympic Parkway (between nodes P102 and P240);
- Reaches in Olympic Parkway beginning at Brandywine Classics and west of Brandywine Avenue (between nodes P240 and P270); and

<sup>2</sup> Basin east of I-805. This area was called "Sunbow I" in the Village 7 Conceptual Sewer Study and the Overview of Sewer Service for Village 2, 3 & 4, but is actually the area east of I-805 and west of Sunbow II. EDUs based on units identified in 1997 Basin Plan (pg A21 and B22) at 265 gpd per EDU.

<sup>3</sup> Refer to 1997 Basin Plan for City contribution of 1,765 EDUs for Existing Development and for 794 EDUs for Eastlake Greens.

<sup>4</sup> Figures based on Appendix and 1 EDU = 265 gpd.

<sup>5</sup> OR Village 2 units based on TM Substantial Conformance.

<sup>6</sup> EUC based on maximum of 580 EDUs shown in Table 5 of EUC Technical Sewer Study PBS&J, 1/2008, converted to 265 gpd/EDU basis or 470 EDUs.

<sup>7</sup> Based on Major Project Development Status dated July 2, 2007.

Reaches in Olympic Parkway east of Brandywine Avenue (upstream of node P270).

Using Manning's equation to determine depth of flows, the flow in two reaches of pipe may exceed 85% of the pipe diameter (or d/D of .85) at build-out of the basin. The following reaches should be monitored to determine the need for replacement and/or for construction of parallel sewer lines. Refer to Figure 3 for improvement location.

- Reaches in Olympic Parkway at Brandywine between nodes P253R3 and P2704; and
- Reaches in Olympic Parkway within Sunbow east of Brandywine Avenue between nodes P270 and P305<sup>5</sup>.

Table 4-4 shows the project flows and corresponding capacity measured as the percentage of d/D for the reach of sewer between Nodes P253R and P270. The design capacity of the pipe at 0.5% slope and 85% full pipe flow, is 12,175 EDUs. To accommodate the flows reflected in Table 4-4, the reach will need to be improved before permits are issued for an additional 2,457 EDUs.

TABLE 4-4
CAPACITY ANALYSIS NODES P253R TO P270

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P253R-P270	18" Diameter	15,110	6.65	10.3	Exceeds 100%
Permanent	P253R-P270	18" Diameter	14,646	6.44	10.0	Exceeds 100%
Committed	P253R-P270	18" Diameter	14,365	6.32	9.8	Exceeds 100%
Permitted/Built	P253R-P270	18" Diameter	9,763	4.29	6.6	69%

See Table 4-3 and Appendix I for EDU summary at specific nodes.

Permanent based on Maximum EDUs less 464 interim Village 7 EDUs.

Committed based on Maximum EDUs less 464 interim Village 7 EDUs and less 281 EUC EDUs yet to be approved.

Remaining capacity at d/D of .85 is approximately 2,457 EDUs (12,175 EDUs less 9,718 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity based on n = 0.012, peak factor of 1.66 and slope of 0.5%. Slopes range between 0.5% and 1.8%.

Table 4-5 shows the project flows and corresponding capacity measured as the percentage of d/D for the reach of sewer between Nodes P270 and P305. The design capacity of the pipe at 0.5% slope and 85% full pipe flow is 12,175 EDUs and at 0.6% slope and 85% full pipe flow is 13,339. To accommodate the flows reflected in Table 4-5, the reach will need to be improved before permits are issued for 3,588 EDUs.

<sup>&</sup>lt;sup>3</sup> Manhole 3, Station 35+95.63 per drawing 00110-04.

<sup>&</sup>lt;sup>4</sup> Manhole 33A, Station 223+71.50 per drawing 97-344.

<sup>&</sup>lt;sup>5</sup> Manhole 6, Station 65+75.00 per drawing 99-385.

TABLE 4-5
CAPACITY ANALYSIS NODES P270 TO P305

	Nodes			Project Flows	d/D per	rcent at	
	Nodes	Pipe Size	EDUs	(mgd)	(cfs)	Slope 0.5%	Slope 0.6%
Maximum	P270- P305	18" Diameter	13,869	6.10	9.4	Exceeds 100%	94%
Permanent	P270- P305	18" Diameter	13,406	5.90	9.1	Exceeds 100%	88%
Committed	P270- P305	18" Diameter	13,125	5. <i>77</i>	8.9	Exceeds 100%	83%
Permitted/Built	P270- P305	18" Diameter	8,587	3.78	5.8	63%	59%

See Table 4-3 and Appendix I for EDU summary at specific nodes.

Permanent based on Maximum EDUs less 464 interim Village 7 EDUs.

Committed based on Maximum EDUs less 464 interim Village 7 EDUs and less 391 EUC EDUs yet to be approved.

Remaining capacity at d/D of .85 is approximately 3,588 EDUs (12,175 EDUs less 8,587 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n=0.012, peak factor = 1.66 and slope = 0.5%. Slopes range between 0.5% and 2.98%.

Several other reaches, where flow is between 75% and 85% of full pipe flow, should be monitored as well. The status of each reach is summarized in Table 4-6. Node numbers are keyed to Figures 2 and 3. Calculations are included in Appendix I.

TABLE 4-6
CAPACITY SUMMARY OF POGGI CANYON INTERCEPTOR

Nodes	Pipe Size	d/D	Recommendation
P102-P140	21" Diameter	75%-85%	Monitor
P140-P175R	21" Diameter	75% or less	NA
P175R-P195	27" Diameter	75% or less	NA
P195-P230	21" Diameter	75% or less	NA
P230-P240	21" Diameter	75%-85%	Monitor
P240-P253R	21" Diameter	75%-85%	Monitor
P253R-P270	18" Diameter	Exceeds 85%	Upgrade, monitor for timing of improvements
P270-P305	18" Diameter	Exceeds 85%	Upgrade, monitor for timing of improvements
P305-P310	18" Diameter	75% or less	NA
P310-P345	18" Diameter	75% or less	NA
P345-P365	18" Diameter	75%-85%	Monitor
P365-P405	18" Diameter	75% or less	NA
P405-P410	18" Diameter	75%-85%	NA – Permanent EDU flow is less than 75%.
Upstream of P410	18" Diameter	75% or less	NA

Only the 18" diameter trunk sewer was analyzed upstream of P410.

Improvements that are recommended for inclusion in this update to the DIF program are based on the City's criteria to upgrade reaches of sewer with depths of flow exceeding 85%. The improvements are discussed below.

#### IMPROVEMENT 1 – BETWEEN NODES P253R AND P270

The existing sewer in Olympic Parkway downstream of Brandywine Avenue is an 18" diameter pipe as shown on drawings 97-344 and 00110. A new 21-inch diameter pipe for this reach at % full would accommodate approximately 16,254 EDUs. Comparing to the Maximum Project EDUs of 15,110 shown in Table 4-4, the 21-inch diameter pipe would accommodate the maximum, permanent and committed flows projected within the basin. The cost to increase the size of the sewer pipe in this reach is proposed to be added to the DIF program. The cost estimate assumes replacement of the sewer between nodes P253R and P270.

It is recommended that additional sewer modeling and monitoring be undertaken to determine if refinements to the study data would demonstrate adequate capacity for the existing 18-inch pipe. The most critical reach of pipe is between nodes P265 and P270.

#### IMPROVEMENT 2 – BETWEEN NODES 270 AND 305

The existing sewer in Olympic Parkway upstream of Brandywine Avenue is an 18" diameter pipe as shown on drawings 99-386 through 99-373. A new 21-inch diameter pipe for a portion of this reach at 34 full would accommodate 16,254 EDUs. Comparing to the Maximum Project EDUs of 13,869 shown in Tables 4-5, the 21-inch diameter pipe would accommodate the maximum, permanent and committed flows projected within the basin. The cost estimate assumes replacement of the sewer between nodes P270 and P305.

It is recommended that additional sewer modeling and monitoring be undertaken to determine if refinements to the study data would demonstrate adequate capacity for the existing 18-inch pipe. The most critical reaches of pipe are between nodes P270 and P275 (0.5% slope) and between nodes P295 and P305 (0.6% slope).

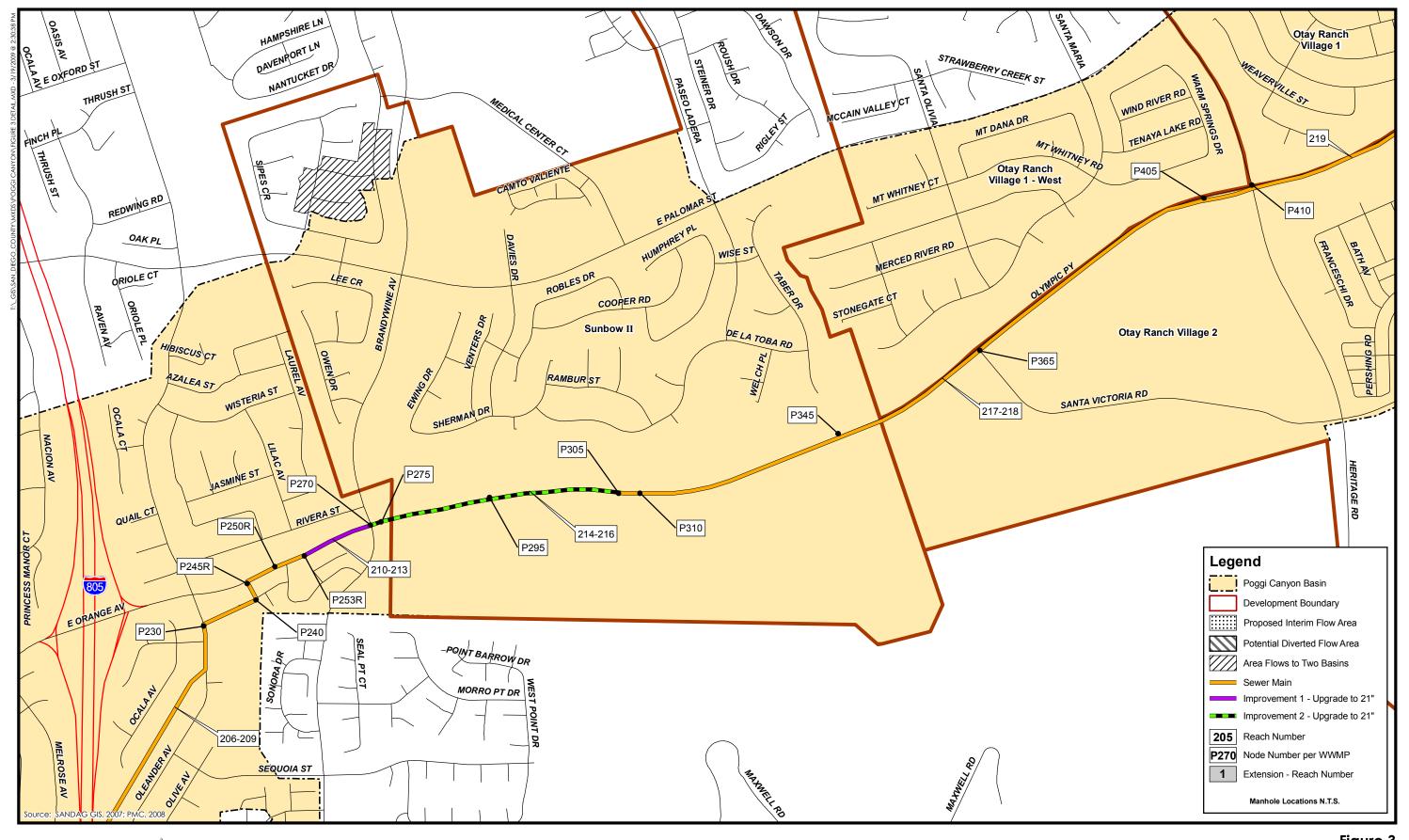


Figure 3
Poggi Canyon Basin Detail
PMC



#### 5.1 PROGRAM COSTS

#### 5.1.1 CURRENT DIF PROGRAM

The 1997 Basin Plan established the projects that are eligible for DIF funding. These projects include construction of approximately 29,200 feet of sewer main (Reaches 201 through 221) that constitute the Poggi Canyon Interceptor. The 2009 Update to the DIF program adds Poggi Canyon Interceptor Extension - Reach 2 (the reach of sewer across the EastLake land swap commercial parcels) to the program and identifies additional improvements needed to serve forecast development in Poggi basin. The entire Interceptor as identified in the 1997 Basin Plan and extension, except Reach 205 and a portion of Extension - Reach 1, has been constructed by developers. (Figure 2 identifies the reaches.) Chapter 4 discusses additional improvements that may be needed to serve build-out of the basin if the City allows the Eastern Urban Center and Village 7 to divert project flows to Poggi. Table 5-1 identifies the estimated cost for the additional improvements and Table 5-2 provides construction costs for all projects.

#### 5.1.2 PROJECT COSTS AND OUTSTANDING CREDITS

All known necessary improvements identified as regional sewer facilities in the 1997 Basin Plan within the Poggi Canyon Basin have been completed, including Reach 205. Non-regional sewer improvements recently constructed within the Poggi Canyon Sewer Basin include a remaining portion of the Poggi Canyon Interceptor Extension - Reach 1, within the San Diego County Water Authority Right of Way, and the decommissioning of the EastLake Parkway Pump Station. The construction of the remaining portion of the Poggi Canyon Interceptor Extension - Reach 1 is eligible to be financed utilizing CFD 06-I bond proceeds (not DIF eligible) and the decommissioning of the EastLake Parkway Pump Station will be funded utilizing Sewer Service Revenue Funds in accordance with City of Chula Vista Policy No. 570-03.

Based on the provisions of Sections 15 and 16, of Ordinance No. 2716, a developer who agrees, or is required as a condition of approval of a development permit, to construct a segment of the facilities would be entitled to receive a reimbursement or credit at the City's option.

# Poggi Canyon Interceptor Reach 201-207

Reaches 201 through 204 and 206 through 207 were constructed by Ayres Land Company in 2001 and the developer was fully reimbursed for these costs. The final construction cost amounted to \$1,046,032.

# Poggi Canyon Interceptor Reach 208-213

Ayres Land Company constructed reaches 208 to 213, which are eligible for DIF credits. Based on the information provided by the developer, it was determined that the credit for Ayres Land Company for constructing Reaches 208 to 213 amounted to \$136,205. All of this credit has been applied to Sunbow II building permits. (Note that the City upsized a portion of this reach of sewer in connection with CIP STM 344, Drawing 00-110, but apparently was not funded from Poggi Sewer DIF funds.)

# Poggi Canyon Interceptor Reach 205

The City constructed reach 205 in 2005 and the final construction cost for the project amounted to \$1,041,283. In addition, \$393,635 was expended for staff time for a total project cost of \$1,434,918. The Poggi Canyon Sewer Basin DIF funded Reach 205.

# Poggi Canyon Interceptor Reach 214-217

Reaches 214 to 217 were constructed by the Otay Ranch Company and costs reimbursed from CFD 99-1 funds. Based on the construction cost audit, the cost for these reaches is \$638,748.

# Poggi Canyon Interceptor Reach 218-219

Reaches 218 to 219 were constructed by the McMillin Companies and costs reimbursed from CFD 97-3 funds. Based on the construction cost audit, the cost for these reaches is \$412,938.

# Poggi Canyon Interceptor Reach 219-221

Reaches 219 to 221 were constructed by the Otay Ranch Company and costs reimbursed from CFD 99-1 funds. Based on the construction cost audit, the cost for these reaches is \$283,190.

# Poggi Canyon Interceptor Extension

The Extension – Reach 2 (across the EastLake Land Swap commercial parcels) was constructed by EastLake Company. Based on the construction cost audit, the cost for this reach is \$1,094,707. Reimbursement to EastLake Company from the Trunk Sewer Capital Reserve Fund was made in March 2008 pursuant to an agreement between EastLake Company and the City. It is recommended that the DIF reimburse the Trunk Sewer Capital Reserve Fund for pre-funding of the improvements.

In addition, a short segment of sewer in Olympic Parkway from SR 125 to the Interceptor Extension – Reach 2 was constructed by EastLake Company and financed via CFD 061. Based on the bid for this segment, the cost of this reach is \$24,000. Reimbursement of these costs has been paid from the CFD to EastLake Company. With the inclusion of this reach as a DIF eligible improvement, the City shall reimburse the CFD from the DIF funds for this cost.

# **Capacity Enhancement Improvements**

Based on currently approved land uses, the 18-inch diameter sewer pipe in Olympic Parkway east and west of Brandywine Avenue, will exceed the pipe capacity of 85% full pipe flow. The costs to upsize the reaches to 21-inch diameter sewer pipes are included in the update to the DIF program.

Table 5-1 summarizes the future cost of improvements and Table 5.2 summarizes the overall costs of the program.

TABLE 5-1
FUTURE CONSTRUCTION COSTS

Node	Improvement	Location	Length	Costs
P253R-P270	Upsize 18" to 21"	Olympic Pkwy west of Brandywine Ave	680	\$434,500
P270-P305	Upsize 18" to 21"	Olympic Pkwy east of Brandwine Ave	754	\$481,800
		Total		\$916,300

Unit cost of \$639 based on unit cost of \$365 per linear foot for 18" to 24" diameter pipe plus 15% for design and inspection, 25% contingency and 35% premium for job size.

TABLE 5-2
PROGRAM COSTS

Poggi Canyon Interceptor	Developer	Cost
Constructed Project Costs		
Reaches 201-204, 206-207 <sup>1</sup>	Ayres/City	\$1,046,032
Reach 205	City/DIF	1,434,918
Reaches 208-213 <sup>2</sup>	Ayres	136,205
Reach 214 to 217	Otay Ranch Co.	638,748
Reach 218 to 219	McMillin	412,938
Reach 219 to 221	Otay Ranch Co.	283,190
Poggi Extension in Olympic Pkwy <sup>3</sup>	Eastlake	24,000
Poggi Extension <sup>4</sup>	Eastlake	1,094,707
Subtotal		\$5,070,738
<b>Future Construction Costs</b>		
P253R-P270 Olympic Parkway west of Brandywine A	ve.	\$434,500
P270 - P305 Olympic Parkway east of Brandywine Av	/e.	\$481,800
Subtotal		\$916,300
Miscellaneous Cost		
Updates/staff administration <sup>5</sup>		\$306,200
Project Total		\$6,293,238
Less City contribution (Reaches 201-204, 206-207) <sup>6</sup>		\$(1,046,032)
DIF Total		\$5,247,206

<sup>1</sup> Ayres payments dated 12/16/98, 1/25/00, 12/18/00, and 3/8/01 = \$1,042,520. The \$1,046,032 is based on \$1,756,440 transfer in from Trunk Sewer Capital Reserve Fund less \$710,408 transferred back.

- 5 Administration costs include future costs of \$120,000.
- Represents cost of reaches 201-204 and 206-207. In 1997, it was estimated to be \$1,756,440.

<sup>2</sup> Final audit completed for \$111,632. Audit is pending for CO 99 for \$12,756. Includes 9.5% estimated soft costs on total of \$124,388.

<sup>3</sup> This segment is from SR 125 to Station 246+35 as shown on Dwg 02024-04. The costs are based on the change order information and were initially funded by CFD 061. Reimbursement to CFD 061 is due.

<sup>4</sup> Eastlake reimbursed from Trunk Sewer Capital Reserve Fund in March 2008. Portion (in Olympic Parkway from SR 125 to the land swap) funded in CFD 06I in the amount of \$24,000. Portion in Eastlake Parkway is not DIF eligible and is eligible to be funded via CFD 06I.

### 5.1.3 OTHER DIF OBLIGATIONS

As identified in the 1997 Basin Plan, the City was to contribute to the cost of construction for Reaches 201 through 204 and Reaches 206 through 207 because these reaches, located west of Oleander Avenue, would serve existing development as well as future development within the basin and required upsizing at the time the DIF was established. Trunk Sewer Capital Reserve Funds, from revenue generated from development connection charges, were used to pay for these reaches. By Resolution No. 18823, Council appropriated and transferred \$1,756,440 to the Poggi Canyon Sewer Fund to finance this portion of the Poggi Canyon trunk sewer. The final construction cost for Reaches 201 through 204 and Reaches 206 through 207, paid to Ayers Land Company, amounted to \$1,042,520.76 (not including \$3,511 assumed reimbursed to City for its related costs). The balance of \$710,408 was transferred back to the Trunk Sewer Capital Reserve Fund. However, interest earnings from the \$1,756,440 still remain in the DIF fund. Based on information provided by the City's Finance Department, through June 30, 2008, \$470,556 shall be transferred from the DIF program to the Trunk Sewer Capital Reserve Fund. This transfer is reflected in the updated fee rate. The documentation for payments to Ayres is included in Appendix E.

In several Otay Ranch neighborhoods, both Otay Ranch Company and McMillin Company constructed the improvements as well as the builder/developer paying the fee. As such, refunds estimated in the amount of \$1,329,771 should be made to account for this overpayment of fees. Table 5-4 reflects the amounts. Appendix D contains a summary of the building permit data regarding payments. Costs associated with preparation and administration of the DIF, are included in the Poggi Basin DIF.

#### 5.1.4 AVAILABLE REVENUES

Through June 30, 2008 the City has collected \$2,988,700 in DIF fees for the construction of the required facilities. In addition, the fund has earned an additional \$937,171 in interest both on the fees collected and the transfers made to the Fund from the Trunk Sewer Capital Reserve Fund. Table 5-3 shows the amount collected since the inception of the Poggi Canyon Sewer Basin DIF.

TABLE 5-3
REVENUES AND ESTIMATED FUND BALANCE

Year	Beginning Fund Balance	Actual Revenues	Interest Earnings	Revenue Subtotal	Actual Expenditures	Transfers In/(Out)	FYE Fund Balance
1998	-	-	-	-	-	-	-
1999	\$-	\$3,200	\$128,370	\$131,570	\$583,901	\$1,756,440	\$1,304,109
2000	1,304,109	18,800	<i>7</i> 5,141	93,941	115,895		1,282,155
2001	1,282,155	503,953	84,511	588,464	389,573	1,155	1,482,201
2002	1,482,201	515,142	136,667	651,809	98,286	(18,697)	2,017,027
2003	2,017,027	298,886	102,926	401,812	139,640	14,570	2,293,769
2004	2,293,769	709,879	29,553	739,432	135,955	37,747	2,934,993
2005	2,934,993	266,430	86,011	352,441	159,377	(201,638)	2,926,419
2006	2,926,419	436,715	76,486	513,201	941,103	201,638	2,700,155
2007	2,700,154	235,695	64,589	300,284	41,334	(710,408)	2,284,696
2008	2,284,696	<u>0</u>	117,143	117,143	39,828	<u>0</u>	2,361,786
TOTAL		\$2,988,700	\$937,171	\$3,925,871	\$2,644,892	\$1,080,807	

Revenues of \$48,986 (approximately 122 EDUs at \$400/EDU) are not included in the 2008 data because the permit data is only to July 1, 2007.

# REMAINING PROGRAM COSTS

Table 5-4 presents the remaining costs to the program. Approximately \$1.6 million is required to complete the funding of the program.

TABLE 5-4
REMAINING PROGRAM COSTS

		Notes
Potential Refunds due <sup>1</sup>	\$443,967	ORC Village 1
	197,200	ORC Village 5
	204,000	ORC Village 1 West
	19,738	CFD 99-1
	15 <i>7,</i> 408	McMillin Villages 1/5
	283,858	To CFD 97-3
	24,000	To CFD 06I
Subtotal	\$1,329,771	
Poggi Extension - Reach 2	\$1,094,707	Trunk Sewer Capital Reserve Fund
Future interest payment to Trunk Sewer Fund <sup>2</sup>	470,556	Trunk Sewer Capital Reserve Fund
Future construction costs	916,300	
Future costs (administration)	\$120,000	
Total	\$3,931,334	
Revenues available	\$2,361,786	
Revenues needed	\$1,569,548	

<sup>1</sup> See Appendix C for summary of refunds.

The above table includes costs of improvements not previously identified as being needed to serve the forecast build-out of the basin. See Chapter 4 for a discussion of the capacity enhancements.

### 5.2 REVISED DIF RATE

Based on Table 5-4, approximately \$1,329,771 needs to be reimbursed to specific developments and CFDs as well as \$1,565,263 to the Trunk Sewer Capital Reserve Fund.

The fee per EDU may be calculated by dividing the total remaining program costs by the estimated number of future EDUs in the Basin. Table 5-5 presents this calculation. The revised Development Impact Fee is \$265 per EDU.

<sup>2</sup> Estimated through June 30, 2008. Actual amount will depend on date of repayment.

<sup>3</sup> Funds available to reimburse Trunk Sewer Capital Reserve Fund for Poggi Extension - Reach 2: \$2,361,786 -- \$1,329,771 - \$470,556-\$120,000 = \$441,459 of the \$1,094,707.

TABLE 5-5
DIF CALCULATION

Remaining Costs	
Construction pending	\$916,300
Potential Refunds due	1,329,771
Reimburse Trunk Sewer for Interest	470,556
Reimburse Trunk Sewer Capital Reserve Fund <sup>1</sup>	1,094,707
Future Admin. expenditures	120,000
Subtotal	\$3,931,334
Less estimated fund balance	(2,361,786)
Less future payments/contributions <sup>2</sup>	(244,160)
TOTAL	\$1,325,388
Estimated EDUs remaining	5,010
DIF rate per EDU	\$265

<sup>1</sup> For Poggi Canyon Interceptor Extension - Reach 2 costs.

The fee is recommended to be reduced to \$265 per EDU. This is mainly due to the following reasons:

- Construction cost savings due to the sewer being constructed concurrently with the roadway improvements;
- Interest earnings on the fund balance; and
- Increase in the number of participating EDUs based on updated development strategies.

These reductions are partially offset by the addition of improvements to the program to accommodate the additional EDUs due to intensification of land uses and potential diversion of flows.

Table 5-6 provides a summary of the proposed and current Development Impact Fee calculated on a per EDU basis for the various land uses within the Poggi Canyon Basin based on Table 5-5.

<sup>2</sup> Future payments/contributions related to Sunbow, Medical Center, and/or school projects.

TABLE 5-6
DEVELOPMENT IMPACT FEE PER LAND USE CATEGORY

Land Use	Proposed EDU Factor	Proposed Fee	Current Fee
Single-Family Residential	1 EDU/DU	\$265/DU	\$400/DU
Multi-Family Residential	0.75 EDU/DU	\$199/DU	\$300/DU
Commercial/Industrial/Medical	9.43 EDU/acre	\$2,500/acre	\$3,572/acre
Community Purpose Facility	9.43 EDU/acre	\$2,500/acre	\$3,572/acre
Multi-Story Commercial	0.272EDU/ksf	\$72.08/ksf	na
Hotel	0.33 EDU/room	\$88/room	na
Parks/Recreation	1.89 EDU/acre	\$500/acre	\$716/acre
High School	181.13 EDU/site	\$48,000/site	\$68,544/site
Junior High School	105.66 EDU/site	\$28,000/site	\$39,984/site
Elementary School	45.28 EDU/site	\$12,000/site	\$17,152/site

- 1 Single-Family Residential includes detached condominium projects.
- 2 High-rise office based on 0.072gpd/sf.as identified in the EUC Technical Sewer Study, (January 2008, Update #3).
- 3 Refer to Table 4.2 for sewage generation rates.

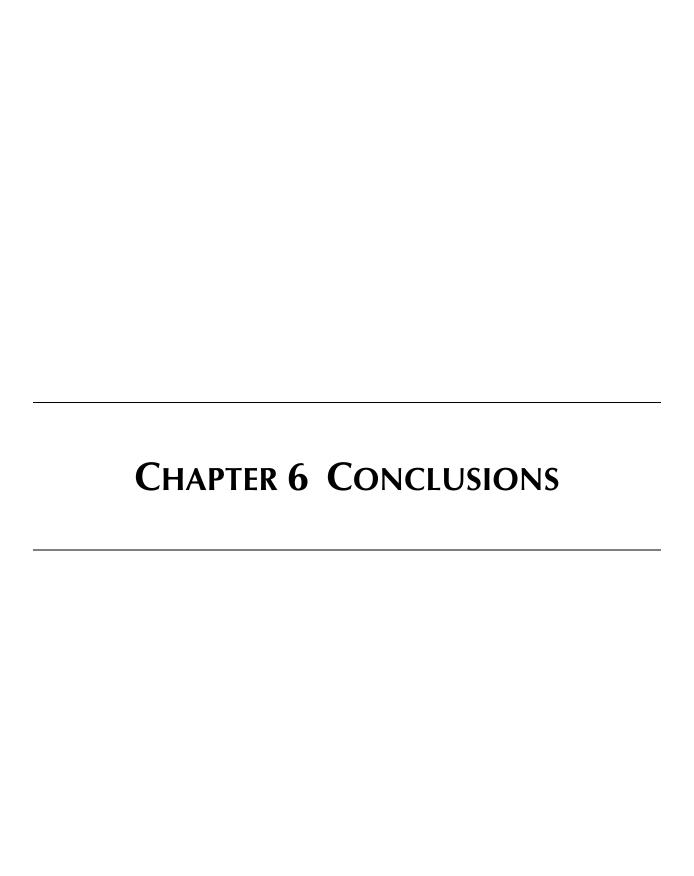
The EDU rates for high schools is based on 2,400 students per high school multiplied by 20 gpd per student, for junior high/middle schools it is based on 1,400 students per school multiplied by 20 gpd per student and for elementary schools it is based on 800 students multiplied by 15 gpd per student.

For comparison purposes, Table 5-7 outlines the 1997 Costs and the Updated 2009 Costs.

Table 5-7
Comparison of Costs 1997 to 2009

	1997	2009
Basin EDUs	13,505	16,443
Less existing EDUs in western area of basin	(1,795)	(1,828)
Less existing EDUs within Eastlake Greens	<u>(794)</u>	<u>(794)</u>
Participating EDUs	10,917	13,821
Total Project Cost	\$6,132,984	\$6,293,238
City Contribution	(\$1,756,440)	(\$1,046,032)
Total DIF Cost	\$4,376,544	\$5,247,206
Fees needed to complete program <sup>1</sup>	\$4,376,544	\$1,325,388
Remaining EDUs	10,917	5010
Cost per EDU	\$401	\$265

<sup>&</sup>lt;sup>1</sup> Does not reflect an estimated \$244,160 as identified in Appendix J for 2009 program.



# 6.1 RECOMMENDATIONS

To provide adequate funding for construction of facilities through the Poggi Canyon Gravity Sewer DIF, the following measures are recommended:

- 1) Update the costs based on construction cost information, building permit data, and credit summaries as identified in this report.
- 2) Add Poggi Canyon Sewer Interceptor Extension Reach 2 (through the EastLake land swap commercial parcels, east of SR 125) to the list of eligible improvements including the reach in Olympic Pkwy from SR 125 to Reach 2.
- 3) Add the costs of Improvements 1 and 2 to the program. The City should monitor the critical sewer reaches to determine when the improvements will be needed.
- 4) Monitor other critical reaches of sewer, those where depth of flows are estimated to be between 75% and 85% of the pipe diameter, as identified in Table 4-6.
- 5) Based on updated information, reduce the fee to \$265/EDU reflecting a) the updated cost information, b) additional improvements, c) available revenue after reimbursements are made, and d) updated EDU projections. Note that there is a change per EDU for the non-residential rates.
- 6) Transfer interest related to the \$1.7 million Trunk Sewer Capital Reserve Fund back to the Fund. The amount of interest will depend on the date the transfer is made. Based on City finance records the interest accrued through June 30, 2008 is \$470,556.
- 7) When the City determines sufficient funds are available, transfer funds from the Poggi Canyon DIF to reimburse the Trunk Sewer Capital Reserve Fund for construction of improvements associated with Poggi Canyon Sewer Interceptor Extension Reach 2 in the amount of \$1,094,707.
- 8) When the City determines sufficient funds are available, appropriate \$1,329,771 in Poggi Canyon Trunk Sewer DIF funds to refund the appropriate developments/CFDs of Otay Ranch Village 1 West, Otay Ranch Villages 1 and 5, McMillin's Otay Ranch Villages 1 and 5, and CFD 06I for overpayment of fees as outlined in Chapter 5 and the Appendix. The provisions for such refund shall be determined by the City Attorney.

# 6.2 ENVIRONMENTAL REVIEW

The future facilities identified in this report are intended to provide increased sewer capacity to mitigate the impacts of future development. No facilities will actually be constructed until all necessary environmental reviews have been conducted. Further studies, including environmental review, may show superior alternative projects that also satisfy the increased capacity need.

# 6.3 ANNUAL ADJUSTMENT FACTOR

It is recommended that the fee be adopted with provisions for an annual adjustment factor. The recommended index is the Engineering News Record – Construction Cost Index for the Los Angeles area. To be consistent with other City fee increases, it is recommended that the July to July index be used, to be effective in October of each year beginning in the year 2009.

In addition, the City should comply with the annual and five-year reporting requirements of Government Code §§66000 et seq.

# **6.4** STUDY LIMITATIONS

Note that this study has been prepared specifically for the purpose of updating the Poggi Canyon Basin Sewer Development Impact Fee. Timing and ultimate needs for additional facilities should be determined independently by the City in conjunction with its Infrastructure Flow Monitoring Program.



APPENDIX A
ORDINANCE 2716

#### ORDINANCE NO. 2716

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA ESTABLISHING THE POGGI CANYON SEWER BASIN DEVELOPMENT IMPACT FEE TO PAY FOR SEWER IMPROVEMENTS WITHIN THE POGGI CANYON SEWER BASIN AS A CONDITION OF ISSUANCE OF BUILDING PERMITS

WHEREAS, the City's General Plan Land Use and Public Facilities Elements require that adequate public facilities be available to accommodate increased population created by new development, and

WHEREAS, the City Council has determined that new development within certain areas within the City of Chula Vista as identified in this ordinance, will create adverse impacts on certain existing public facilities which must be mitigated by the financing and construction of those facilities identified in this ordinance, and

WHEREAS, developers of land within the City are required to mitigate the burden created by their development by the construction or improvement of those facilities needed to provide service to their respective developments or by the payment of a fee to finance their portion of the total cost of such facilities; and

WHEREAS, development within the City contributes to the cumulative burden on various sewer facilities in direct relationship to the amount of population generated by the development or the gross acreage of the commercial or industrial land in the development; and

WHEREAS, the Poggi Canyon Sewer Basin ("Basin") is that area of land within the City of Chula Vista and the County of San Diego from which wastewater will flow by gravity from Poggi Canyon into the Otay River Valley. This area is shown on the map marked Exhibit "A", on file in the City Clerk's Office and known as Document No. CO97-189, and included as an attachment to the Poggi Canyon Gravity Sewer Basin Plan, dated July 31, 1997, on file in the Office of the City Engineer; and

WHEREAS, Wilson Engineering has prepared the Poggi Canyon Basin Gravity Sewer Plan ("Plan") dated November 19, 1997; and

WHEREAS, said Plan includes an estimate of ultimate sewer flows anticipated from the Poggi Canyon Basin, recommends sewer facilities needed to transport these flows, and establishes a fee payable by persons obtaining building permits for developments within these basins benefiting from the construction of these facilities; and

WHEREAS, on October 29, 1997 a public meeting was held with the owners and developers of properties located within the Basin to discuss the Plan and city staff recommendations for establishing the Poggi Canyon Sewer Basin Development Impact Fee ("Impact Fee"); and

WHEREAS, the Environmental Review Coordinator conducted an Initial Study, IS-98-06, of potential environmental impact associated with the proposed "Project" and has concluded that there would be no significant environmental impacts, and recommends adoption of the Negative Declaration issued on IS-98-06; and

WHEREAS, on November 25, 1997 a Public Hearing was held before the City Council to provide an opportunity for interested persons to be heard on the approval of the Plan and establishment of the Impact Fee; and

WHEREAS, the City Council determined, based upon the evidence presented at the Public Hearing, including, but not limited to, the Plan and other information received by the City Council in the course of its business, that imposition of the Impact Fee on all developments within the Poggi Canyon Basin in the City of Chula Vista for which building permits have not yet been issued is necessary in order to protect the public safety and welfare and to ensure effective implementation of the City's General Plan; and

WHEREAS, the City Council has determined that the amount of the Impact Fee levied by this ordinance does not exceed the estimated cost of providing the public facilities identified by the Plan.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CHULA VISTA DOES ORDAIN AS FOLLOWS:

#### SECTION 1. Environmental Review

That the adoption of the Impact Fee ordinance will have no significant environmental impacts, and the City Council of the City of Chula Vista hereby adopts the Negative Declaration issued on IS-98-06.

SECTION 2. Approval of Plan.

The City Council has independently reviewed the proposed Plan and has adopted the same, by Resolution No. 18824, in the form on file in the Office of the City Engineer.

SECTION 3. "Facilities".

The facilities to be financed by the Impact Fee are fully described in Table 4-5 of the Plan at page 42, Attached as Exhibit 1, and incorporated herein by this reference, ("Facilities"), all of which Facilities may be modified by the City Council from time to time by resolution. The locations at which the Facilities will be constructed are shown on Exhibit "A", Poggi Canyon Basin Sewer Study Map, on file in the City Clerk's Office and known as Document No. CO97-189, which is included in the Plan. The City Council may modify or amend the list of projects herein considered to be part of the Facilities by written resolution in order to maintain compliance with the City's Capital Improvement Program or to reflect changes in land development and estimated and actual wastewater flow.

SECTION 4. Territory to Which Fee Is Applicable.

The area of the City of Chula Vista to which the Impact Fee herein established shall be applicable is set forth on Exhibit "A" of the Plan, on file in the City Clerk's Office and known as Document No. CO97-189 and is generally described herein as the "Territory."

SECTION 5. Purpose.

The purpose of this ordinance is to establish the Impact Fee in order to provide the necessary financing to construct the Facilities within the areas shown in Exhibit "A" of the Plan, in accordance with the City's General Plan.

SECTION 6. Establishment of Fee.

The Impact Fee, to be expressed on a per Equivalent Dwelling Unit ("EDU") basis, and payable prior to the issuance of building permits for development projects within the Territory, is hereby established to pay for the Facilities.

SECTION 7. Due on Issuance of Building Permit.

The Impact Fee shall be paid in cash upon the issuance of a building permit. Early payment is not permitted. No building permit shall be issued for development projects within the Territory unless the developer has paid the Impact Fee imposed by this Ordinance.

SECTION 8. Determination of Equivalent Dwelling Units.

Each single family detached dwelling or single family attached dwelling shall be considered one EDU for purposes of this Impact Fee. Each unit within a multi-family dwelling shall be considered 0.75 EDU. Every other commercial, industrial, non-profit, public or quasi-public, or other usage shall be charged at a rate calculated in accordance with the method for estimating EDUs set forth in Exhibit "B", Sewer Benefit Area Fees Based on Land Use Categories.

SECTION 9. Time to Determine Amount Due; Advance Payment Prohibited.

The Impact Fee for each development shall be calculated at the time of building permit issuance and shall be the amount as indicated at that time and not when the tentative map or final map was granted or applied for, or when the building permit plan check was conducted, or when application was made for the building permit.

SECTION 10. Purpose and Use of Fee.

The purpose of the Impact Fee is to pay for the planning, design, construction and/or financing (including the cost of interest and other financing costs as appropriate) of the Facilities, or reimbursement to the City or, at the discretion of the City if approved in advance in writing, to other third parties for advancing costs actually incurred for planning, designing, constructing, or financing the Facilities. Any use of the Impact Fee shall receive the advance consent of the City Council and be used in a manner consistent with the purpose of the Impact Fee.

### SECTION 11. Amount of Fee; Amendment to the Master Fee Schedule

The Impact Fee shall be calculated at the rate of \$400 per EDU. Chapter XVI, Other Fees, of the Master Fee Schedule is hereby amended to add Section D, which shall read as follows:

# "D. Poggi Canyon Sewer Basin Development Impact Fee.

This section is intended to memorialize the key provisions of Ordinance No. 2716, but said Ordinance governs over the provisions of the Master Fee Schedule. For example, in the event of a conflict in interpretation between the Master Fee Schedule and the Ordinance, or in the event that there are additional rules applicable to the imposition of the Impact Fee, the language of the Ordinance governs.

# a. Territory to which Fee Applicable.

The area of the City of Chula Vista to which the Impact Fee herein established shall be applicable is set forth in Exhibit "A" of the Poggi Canyon Basin Gravity Sewer Plan dated July 31, 1997, and is generally described as the Poggi Canyon Basin.

## b. Rate per EDU.

The Impact Fee shall be calculated at the rate of \$400 per EDU, which rate shall be adjusted from time to time by the City Council.

#### c. EDU Calculation.

Each single family detached dwelling or single family attached dwelling shall be considered one EDU for purposes of this Impact Fee. Each unit within a multifamily dwelling shall be considered 0.75 EDU. Every other commercial, industrial, non-profit, public or quasi-public, or other usage shall be charged at a rate calculated in accordance with the method for estimating EDUs set forth in Exhibit "B" to Ordinance No. 2716, "Sewer Benefit Area Fees Based on Land Use Categories".

#### d. When Payable.

The Impact Fee shall be paid in cash not later than immediately prior to the issuance of a building permit."

The City Council shall review the amount of the Impact Fee annually or from time to time. The City Council may, at such reviews, adjust the amount of this Impact Fee as necessary to assure construction and operation of the Facilities. The reasons for which adjustments may be made include, but are not limited to, the following: changes in the costs of the Facilities as may be reflected by such index as the Council deems appropriate, such as the Engineering-News Record Construction Cost Index (ENR-CCI); changes in the type, size, location or cost of the Facilities to be financed by the Impact Fee; changes in land use in the City's General Plan; other sound engineering, financing and planning

information. Adjustments to the above Impact Fee may be made by resolution amending the Master Fee Schedule.

SECTION 12. Authority for Accounting and Expenditures.

The proceeds collected from the imposition of the Impact Fee shall be deposited into a public facility financing fund ("Poggi Canyon Sewer Basin Benefit Area Fee Fund", or alternatively herein "Fund") which is hereby created and shall be expended only for the purposes set forth in this ordinance.

The Director of Finance is authorized to establish various accounts within the Fund for the Facilities identified in this ordinance and to periodically make expenditures from the Fund for the purposes set forth herein in accordance with the facilities phasing plan or capital improvement plan adopted by the City Council.

SECTION 13. Findings.

The City Council hereby finds the following:

- A. The establishment of the Impact Fee is necessary to protect the public safety and welfare and to ensure the effective implementation of the City's General Plan.
- B. The Impact Fee is necessary to ensure that funds will be available for the construction of the Facilities concurrent with the need for these Facilities and to ensure certainty in the capital facilities budgeting for growth impacted public facilities.
- C. The amount of the fee levied by this ordinance does not exceed the estimated cost of providing the Facilities for which the fee is collected.
- D. New development projects within the Territory will generate a significant amount of wastewater that current sewer facilities can not service, therefore construction of the Facilities will be needed to service new development projects.

SECTION 14. Impact Fee Additional to other Fees and Charges.

The Impact Fee established by this section is in addition to the requirements imposed by other City laws, policies or regulations relating to the construction or the financing of the construction of public improvements within subdivisions or developments.

SECTION 15. Mandatory Construction of a Portion of the Facilities; Duty to Tender Reimbursement Offer.

Whenever a developer is required as a condition of approval of a development permit to construct or cause the construction of the Facilities or a portion thereof, the City may require the developer to install the Facilities according to design specifications approved by the City and in the size or capacity necessary to accommodate estimated ultimate flow as indicated in the Plan and subsequent amendments. If such a requirement is imposed, the City shall offer, at the City's option, to reimburse the developer from the Fund either in cash or over time as Fees are collected, or give a credit against the Impact Fee levied by this Ordinance or some combination thereof, in the amount of the costs incurred by the developer that exceeds

their contribution to such Facilities as required by this Ordinance, for the design and construction of the Facility not to exceed the estimated cost of that particular Facility as included in the calculation and updating of the Impact Fee. The City may update the Impact Fee calculation as City deems appropriate prior to making such offer. This duty to offer to give credit or reimbursement shall be independent of the developer's obligation to pay the Impact Fee.

SECTION 16. Voluntary Construction of a Portion of the Facilities; Duty of City to Tender Reimbursement Offer.

If a developer is willing and agrees in writing to design and construct a portion of the Facilities in conjunction with the prosecution of a development project within the Territory, the City may, as part of a written agreement, reimburse the developer from the Fund either in cash or over time as Fees are collected, or give a credit against the Impact Fee levied by this Ordinance or some combination thereof, in the amount of the costs incurred by the developer that exceeds their contribution to such Facilities as required by this Ordinance, for the design and construction of the Facility not to exceed the estimated cost of that particular Facility as included in the calculation and updating of the Impact Fee and in an amount agreed to in advance of their expenditure in writing by the City. The City may update the Impact Fee calculation as City deems appropriate prior to making such offer. This duty to extend credits or offer reimbursement shall be independent of the developer's obligation to pay the Impact Fee.

#### SECTION 17. Procedure for Entitlement to Reimbursement Offer.

The City's duty to extend a reimbursement offer to a developer pursuant to Section 15 or 16 above shall be conditioned on the developer complying with the terms and conditions of this section:

- a. Written authorization shall be requested by the developer from the City and issued by the City Council by written resolution before developer may incur any costs eligible for reimbursement relating to the construction of the Facilities, excluding any work attributable to a specific subdivision project.
- b. The request for authorization shall contain the following information, and such other information as may from time to time be requested by the City:
  - (1) Detailed descriptions of the work to be conducted by the developer with the preliminary cost estimate.
- c. If the Council grants authorization, it shall be by written agreement with the Developer, and on the following conditions among such other conditions as the Council may from time to time impose:
  - (1) Developer shall prepare all plans and specifications and submit same to the City for approval;
  - (2) Developer shall secure and dedicate any right-of-way required for the improvement work;

- (3) Developer shall secure all required permits and environmental clearances necessary for construction of the improvements;
- (4) Developer shall provide performance bonds in a form and amount, and with a surety satisfactory to the City;
- (5) Developer shall pay all City fees and costs.
- (6) The City shall be held harmless and indemnified, and upon demand by the City, defended by the developer for any of the costs and liabilities associated with the improvements.
- (7) The developer shall advance all necessary funds for the improvements, including design and construction. The City will not be responsible for any of the costs of constructing the facilities.
- (8) The developer shall secure at least three (3) qualified bids for work to be done. The construction contract shall be granted to the lowest qualified bidder. Any claims for additional payment for extra work or charges during construction shall be justified and shall be documented to the satisfaction of the Director of Public Works.
- (9) The developer shall provide a detailed cost estimate which itemizes those costs of the construction attributable to the improvements. The estimate is preliminary and subject to final determination by the Director of Public Works upon completion of the Public Facility Project.
- (10) The agreement may provide that upon determination of satisfactory incremental completion of the public facility project, as approved and certified by the Director of Public Works, the City may pay the developer progress payments in an amount not to exceed 75 percent of the estimated cost of the construction completed to the time of the progress payment but shall provide in such case for the retention of 25% of such costs until issuance by the City of a Notice of Completion.
- (11) The agreement may provide that any funds owed to the developer as reimbursements may be applied to the developer's obligations to pay the Impact Fee for building permits to be applied for in the future.
- (12) When all work has been completed to the satisfaction of the City, the developer shall submit verification of payments made for the construction of the project to the City. The Director of Public Works shall make the final determination on expenditures which are eligible for reimbursement.
- (13) After final determination of expenditures eligible for reimbursement has been made by the Public Works Director, the parties may agree to offset the developer's duty to pay Impact Fees required by this ordinance against the City's duty to reimburse the developer.

If, after offset if any, funds are due the developer under this section, the City may at its option, reimburse the developer from the Fund either in cash or over time as Fees are collected, or give a credit against the Impact Fee levied by this Ordinance or some combination thereof, in the amount of the costs incurred by the developer that exceeds their required contribution to such Facilities as required by this Ordinance, for the design and construction of the Facility not to exceed the estimated cost of that particular Facility as included in the calculation and updating of the Impact Fee and in an amount agreed to in advance of their expenditure in writing by the City.

#### SECTION 18. Procedure for Fee Modification.

Any developer who, because of the nature or type of uses proposed for a development project, contends that application of the Impact Fee imposed by this ordinance is unconstitutional or unrelated to mitigation of the burdens of the development, may apply to the City Council for a waiver or modification of the Impact Fee or the manner in which it is calculated. The application shall be made in writing and filed with the City Clerk not later than ten (10) days after notice is given of the public hearing on the development permit application for the project, or if no development permit is required, at the time of the filing of the building permit application. The application shall state in detail the factual basis for the claim of waiver or modification, and shall provide an engineering and accounting report showing the overall impact on the DIF and the ability of the City to complete construction of the Facilities by making the modification requested by the applicant. The City Council shall make reasonable efforts to consider the application within sixty (60) days after its filing. The decision of the City Council shall be final. The procedure provided by this section is additional to any other procedure authorized by law for protection or challenging the Impact Fee imposed by this ordinance.

SECTION 19. Fee Applicable to Public Agencies.

Development projects by public agencies, including schools, shall not be exempt from the provisions of the Impact Fee.

SECTION 20. Assessment District.

If any assessment or special taxing district is established to design, construct and pay for any or all of the Facilities ("Work Alternatively Financed"), the owner or developer of a project may apply to the City Council for reimbursement from the Fund or a credit in an amount equal to that portion of the cost included in the calculation of the Impact Fee attributable to the Work Alternatively Financed. In this regard, the amount of the reimbursement shall be based on the costs included in the Basin Plan, as amended from time to time, and therefore, will not include any portion of the financing costs associated with the formation of the assessment or other special taxing district.

SECTION 21. Expiration of this Ordinance.

This ordinance shall be of no further force and effect when the City Council determines that the amount of Impact Fees which have been collected reaches an amount equal to the cost of the Facilities.

SECTION 22. Time Limit for Judicial Action.

Any judicial action or proceeding to attack, review, set aside, void or annul this ordinance shall be brought within the time period as established by Government Code Section 66022 after the effective date of this ordinance.

SECTION 23. Other Not Previously Defined Terms.

For the purposes of this ordinance, the following words or phrases shall be construed as defined in this Section, unless from the context it appears that a different meaning is intended.

- (a) "Building Permit" means a permit required by and issued pursuant to the Uniform Building Code as adopted by reference by this City.
- (b) "Developer" means the owner or developer of a development.
- (c) "Development Permit" means any discretionary permit, entitlement or approval for a development project issued under any zoning or subdivision ordinance of the City.
- (d) "Development Project" or "Development" means any activity described in Section 66000 of the State Government Code.
- (e) "Single Family Attached Dwelling" means a single family dwelling attached to another single family dwelling, with each dwelling on its own lot.

SECTION 24. Effective Date.

This ordinance shall become effective sixty (60) days after its second reading and adoption.

Presented by

John P. Lippitt

Public Works Director

Approved as to form by

Jøhri M. Kaheny

'Ç∕ity Attorney

EXHIBIT 1

		EXHIBIT	1		
TABLE 4-5  Poggi Canyon Basin Sewer Interceptor Improvements  Estimate of Construction Cost					
Reach No.	Length, ft.	Size, Inches	Unit Cost, S/ft.	Total Cost, dollars	
201	2,700	21	. 140	378,000	
202	600	21	Lump Sum	1	
203	1,600	21	Lump Sum	600,000	
204	200	21	Lump Sum	1	
205	800	21	800	640,000	
206	1,400	21	140	196,000	
207	400	. 21	140	56,000	
208	600	21	Existing	0	
209	280	21	Existing	0	
210	190	21	Existing	0	
211	220	18	Existing	0	
212	600	18	130	78,000	
213	500	18	130	65,000	
214	2,200	18	115	253,000	
215	1,900	18	115	218,500	
216	800	18	115	92,000	
217	2,000	18	115	230,000	
218	2,100	18	115	241,500	
219	6,000	18	115	690,000	
220	2,700	15	100	270,000	
221	2,700	15	100	270,000	
Subtotal		an a taken a seken tekan men an a taken a seken tekan men	REPORT Y	4,278,000	
15% Engineering,	641,700				
25% Contingency				1,069,500	
TOTAL	5,989,200				
2% City Administ	119,784				
Poggi Canyon Basin Plan Revision 6 Revisions @ \$4,000 each				24,000	
GRAND TOTAL				6,132,984	

 $<sup>^{1}</sup>$  Reaches 202 through 204 are capped at \$600,000.

EXHIBIT B

Sewer Benefit Area Fees Based on Land Use Categories

Land Use	Sewage Flow Rate	EDU Factor
Residential - SFD	280 gpd/DU	1.00EDU/Unit
Residential - Multi-Family	210 gpd/DU	0.75EDU/Unit
Commercial	2,500 gpd/acre	8.93 EDU/Acre
High School *	20 gpd/student	.0714 EDU/student
Junior High School *	20 gpd/student	.0714 EDU/student
Elementary School *	15 gpd/student	.0536 EDU/student
Park	500 gpd/acre	1.79/acre
CPF	2,500 gpd/acre	8.93/acre

# **CPF** - Community Purpose Facilities

<sup>\*</sup>If the number of students is not available, use 1000gpd/acre or 3.6 EDU/ acre

PASSED, APPROVED, and ADOPTED by the City Council of the City of Chula Vista, California, this 9th day of December, 1997, by the following vote:

AYES:

Councilmembers:

Moot, Padilla, Rindone, Salas, and Horton

NAYS:

Councilmembers:

None

ABSENT:

Councilmembers:

None

ABSTAIN:

Councilmembers:

None

Shirley Horting
Shirley Hofton, Mayor

ATTEST:

Beverly A. Authelet, City Clerk

STATE OF CALIFORNIA )
COUNTY OF SAN DIEGO ) ss.
CITY OF CHULA VISTA )

I, Beverly A. Authelet, City Clerk of the City of Chula Vista, California, do hereby certify that the foregoing Ordinance No. 2716 had its first reading at a regular meeting held on the 25th day of November, 1997 and its second reading and adoption at a regular meeting of said City Council held on the 9th day of December, 1997.

Executed this 9th day of December, 1997.

Beverly A./Authelet, City Clerk

# APPENDIX B EASTLAKE/CITY SEWER AGREEMENT

# Poggi Canyon Trunk Sewer Extension Reimbursement Agreement

This Poggi Canyon Trunk Sewer Extension Reimbursement Agreement ("Agreement") is made as of \_\_\_\_\_\_\_, 20 o/\_\_\_, by and between The EastLake Company, LLC ("EastLake") and the City of Chula Vista, a California municipal corporation ("City") to facilitate the design and construction of required improvements to the Poggi Canyon Trunk Sewer.

#### RECITALS

Whereas, EastLake has petitioned the city to consider authorizing The EastLake Company to design and construct the improvements required by the Poggi Canyon Trunk Sewer (herein after referred to as "Poggi Canyon Trunk Sewer Extension") and be reimbursed for the project; and

Whereas, the construction of said improvements involves the installation of approximately 3,100 lineal feet of PVC sewer lines within the Poggi Trunk Sewer system as shown in City of Chula Vista drawings entitled "Improvement Plans for EastLake Parkway" numbered 02046-01 through 02046-27 and "Improvement Plans for Olympic Parkway" numbered 02024-01 through 02024-41 ("improvements"); and

Whereas, as part of the approval for the Eastlake Land Swap and thorough consideration of several alternatives, Eastlake Company was required to construct the deep gravity sewer from the existing pump station adjacent to Eastlake Parkway and provide a connection to the existing sewer in Olympic Parkway at a cost of approximately \$2.4 million; and

Whereas, the Poggi Canyon Trunk sewer Extension was constructed along Eastlake Parkway, and across the Eastlake commercial land swap parcel; and

Whereas, the reach of sewer within Eastlake Parkway "Eastlake Parkway portion", estimated at \$1.2 million, is an eligible facility to be funded by Community Facilities District 06I (Eastlake – Woods, Vista and Land Swap), (CFD 06I), while the other reach of sewer from Eastlake Parkway across the land swap parcel to Olympic Parkway, "Poggi Trunk portion" also estimated at \$1.2 Million is proposed to come from the Trunk Sewer Capital Reserve Fund; and

Whereas, it is the intention of the City with this Agreement to lay out the terms under which EastLake shall be reimbursed for the costs incurred in the design and construction of the required Improvements for Poggi Canyon Trunk Sewer utilizing funds from the Trunk Sewer Capital Reserve Funds.

NOW, THEREFORE, IT IS MUTUALLY AGREED between the respective parties as follows:

Section 1. Recitals. That the above recitals are all true and correct.

Section 2. <u>Construction of Improvements</u>. EastLake covenants and agrees that all Improvements will be constructed by EastLake in a good and workmanlike manner by well-trained adequately supervised workers and in strict compliance with all government and quasi-governmental

Page 1 of 4

rules, regulations, laws, building codes and all requirements of EastLake's insurers and lenders, and free of any design flaws and defects.

- Section 3. <u>Inspection and Acceptance of the Improvements</u>. The construction activities relating to the Improvements will be inspected and subject to acceptance by City.
- Section 4. <u>Code Compliance</u>. EastLake hereby agrees to comply with all provisions of Chula Vista Ordinance No. 2716.
- Section 5. Payments to EastLake. Payments shall be made to EastLake, for the poggi trunk portion, upon submittal of the appropriate project documentation and completion of the audit by the City. Eastlake shall not be reimbursed prior to the end of the fiscal year on June 30, 2004 Within 60 days of EastLake's request after June 30, 2004, City will make good faith effort to reimburse EastLake upon submittal of all pertinent documents/information necessary to facilitate such request for payment and demonstrate compliance with the terms of this agreement. Furthermore, Eastlake shall not receive reimbursement from the Trunk Sewer Fund if Eastlake has or will receive compensation for the applicable costs of the improvement from any other source.
- Section 6. <u>Indemnification by EastLake</u>. EastLake shall defend, indemnify and hold harmless City, its officers, directors, employees and agents, from and against any and all claims, losses, liabilities, damages, including court costs and reasonable attorneys fees, by reason of, or resulting from, or arising out of the design, engineering and construction of the Improvements. Nothing in this Section 6 shall limit in any manner City's rights against any of the architects, engineers, contractors or other consultants employed by EastLake or EastLake's predecessors in interest which has performed work in connection with construction or financing of the Improvements.
- Section 7. <u>Conflict with Other Agreements</u>. Nothing contained herein shall be constructed as releasing EastLake from any condition of development or requirement imposed by any other agreement with City. In the event of a conflicting provision, such other agreement shall prevail unless such conflicting provision is specifically waived or modified in writing by City.
- Section 8. General Standard of Reasonableness. Any provision of this Agreement which requires the consent, approval, discretion or acceptance of any party hereto or any of their respective employees, officers or agents shall be deemed to require that such consent, approval or acceptance not be unreasonably withheld or delayed, unless such provision expressly incorporates a different standard.
- Section 9. <u>Entire Agreement; Amendment.</u> This Agreement contains the entire agreement between the parties relating to the transaction contemplated hereby and all prior or contemporaneous agreements, understandings, representations and statements, oral or written, are merged herein. No amendment, modification, waiver or discharge of this Agreement will be valid unless the same is in writing and signed by the parties to this Agreement.
- Section 10. <u>Notices</u>. All notices, demands or requests provided for or permitted to be given pursuant to this Agreement must be in writing. All notices, demands or requests to be sent to any party shall be deemed to have been properly given or served if personally served or deposited in the United States mail, addressed to such party, postage prepaid, registered or certified, with return receipt requested, at the addresses identified herein as the places of business for each of the designated parties.

City:
City of Chula Vista
276 Fourth Avenue
Chula Vista, CA 91910
Attn: City Engineer

Property Owner:
The EastLake Company
900 lane Avenue, Suite 100
Chula Vista, CA 91914
Attn: Guy Asaro, Vice President

A party may change its address by giving notice in writing to the other party. Thereafter, notices, demands and requests shall be addressed and transmitted to the new address.

- Section 11. <u>Successors and Assigns</u>. All terms of this Agreement will be binding upon and inure to the benefit of the parties and their respective administrators or executors, successors and assigns.
- Section 12. <u>Governing Law.</u> This Agreement shall be governed by and construed in accordance with the laws of the State of California. Any action arising under or relating to this Agreement shall be brought only in the Federal or State courts located in San Diego County, State of California, and if applicable, the City of Chula Vista, or as close thereto as possible. Venue for this Agreement, and performance hereunder, shall be the City of Chula Vista.
- Section 13. <u>Capacities of Parties</u>. Each signatory and party hereto hereby warrants and represents to the other party that it has legal authority and capacity and direction from its principal to enter into this Agreement, and that all resolutions or other actions have been taken so as to enable it to enter into this Agreement.
- Section 14. <u>Counterparts</u>. This Agreement may be executed in any number of counterparts, each of which will be deemed to be an original, but all of which together will constitute one instrument.

[NEXT PAGE IS SIGNATURE PAGE]

# SIGNATURE PAGE TO POGGI CANYON TURNK SEWER EXTENSION REIMBURSEMENT AGREEMENT

Stephen C. Padilla
Mayor, City of Chula Vista

Attest:

THE EASTLAKE COMPANY, LLC

Guy Asaro, Vice President

William T. Ostrom, President

Den Doth Klingwar Unce President

Susan Bigelow, City Clerk

Approved as to form:

## COUNCIL AGENDA STATEMENT

Meeting Date 4/27/04

**ITEM TITLE:** 

Resolution approving a Reimbursement Agreement with the

Eastlake Company for construction of a portion of the Poggi Canyon

Trunk Sewer Extension and appropriating funds therefor

Resolution

approving

Second a

Amendment

the

Acquisition/Financing Agreement for Community Facilities District 06-I

SUBMITTED BY:

Director of General Services/City Engineer

**REVIEWED BY:** 

City Manager (1)

(4/5ths Vote: Yes X No

As part of the Eastlake Land Swap project development, the Eastlake Company constructed the Poggi Canyon Trunk Sewer Extension, a \$2.4 million deep gravity sewer extending from the Eastlake Parkway Pump Station to the Poggi Canyon Trunk Sewer at Olympic Parkway. The proposed resolutions will enable the City to reimburse the Eastlake Company for the cost of the sewer from CFD proceeds and City funds; and make certain other changes to the CFD 06-I Acquisition/Financing Agreement, some of which relate to the Poggi Canyon Trunk Sewer Extension.

**RECOMMENDATION:** That Council adopt the resolutions.

**BOARDS/COMMISSION:** Not applicable.

#### DISCUSSION:

At the request of the City, the Eastlake Company analyzed several alternatives to determine the best method for providing a gravity sewer line for the southerly portion of the Eastlake Greens project (currently being pumped up to the Telegraph Canyon Sewer Trunk). Based on limitations imposed by existing improvements and topography, the best alternative required construction of the Poggi Canyon Trunk Sewer Extension, a deep gravity sewer line ranging in depth from 20' to 60'. The sewer line follows Eastlake Parkway south (Reach 1), and then crosses the commercial land swap parcel (Reach 2) where it connects to the Poggi Canyon Trunk Sewer at Olympic Parkway (see Attachment 1). After thorough consideration of the alternatives, Eastlake Company proceeded with and completed construction of the Poggi Canyon Trunk Sewer Extension.

# Reimbursement Agreement

Reach 2, costing approximately \$1.2 million, shall be considered first. This reach extends from Eastlake Parkway, approximately 1600 feet westerly to the existing sewer located in Olympic Parkway. The City was interested in having this trunk line constructed because it is a required regional facility and its construction would allow the Eastlake Parkway Pump Station to be decommissioned. The decommissioning is necessary for the following reasons:

- 1. Lack of safety features: The Eastlake Parkway Pump Station was originally constructed as a temporary pump station in conjunction with the Eastlake Greens development, without provisions for various safety features that are now typically incorporated into permanent pump stations (e.g., an external storage basin providing at least 6 hours storage for spill control, dual force mains for re-routing flows, and other necessary redundant features). The station would have needed a prohibitively expensive retrofitting to convert it to a permanent pump station.
- 2. <u>Siting criteria:</u> The Eastlake Parkway Pump Station is unsuitably located adjacent to an Elementary school and other residential facilities.
- 3. Long term cost of maintenance: The City has been obligated to maintain the pump station at a cost to the Sewer Service Revenue Fund of approximately \$25,000/year. With the wastewater now being conveyed by means of gravity down to the Poggi Canyon sewer trunk line, there is no further need to pump wastewater up to the Telegraph Canyon sewer trunk line.

For constructing Reach 2 of the *Poggi Canyon Trunk Sewer Extension*, staff recommends that the Eastlake Company be reimbursed for their costs subject to conditions set forth in a Reimbursement Agreement (Exhibit A). Moreover, since the construction of this major trunk line is consistent with the purpose for establishing the Trunk Sewer Capital Reserve Fund, staff recommends that those funds be used to reimburse the Eastlake Company. Revenue collected in this fund is used to build new trunk sewer systems and to enlarge the capacity of the wastewater collection and treatment system (see Attachment 2). It is appropriate to fund the proposed reimbursement from the Trunk Sewer Capital Reserve Fund since the City had a vested interest in constructing this segment of the *Poggi Canyon Trunk Sewer Extension*.

The Reimbursement Agreement will enable the City to reimburse the Eastlake Company for costs not to exceed \$1,200,000 subject to certain conditions. This amount does not include an additional estimated \$10,000 in future City staff costs to ensure compliance with the reimbursement agreement, and \$20,000 in City staff time already incurred for design activities related to this project. The reimbursement will be made no sooner than July 1, 2004 to ensure that sufficient Trunk Sewer Capital Reserve funds are available.

# Second Amendment to the Acquisition/Financing Agreement

The Eastlake Company has requested that the City consider amending the Acquisition/Financing Agreement for CFD 06-I to incorporate procedural changes regarding the payment process, to identify *Poggi Canyon Trunk Sewer Extension* Reach 1 Improvements as distinct and separate from Eastlake Parkway roadway Improvements, to make each traffic signal Improvement a distinct and separate one, and to update cost estimates to reflect current information (Attachments 3 and 4). The procedural changes are consistent with other recent Acquisition/Financing Agreements approved by Council.

The construction costs for Reach 1, which are eligible for CFD 06-I financing, are substantially higher than estimated in the original Acquisition/Financing Agreement. The revised estimate is approximately \$1.2 million. Bond counsel therefore recommends that Council approve a Second Amendment to the Acquisition/Financing Agreement to reflect the higher costs.

Approval of the second resolution approves the form of the Second Amendment to the Acquisition/Financing Agreement. Some of the changes relate to the *Poggi Canyon Sewer Trunk Extension* and some do not. The amendment will accomplish the following:

- 1. Allow the Developer to request the Base Increment payment for any authorized improvement without setting the final Purchase Price. The Base Increment will equal 75% of the eligible audited costs to construct the improvement. Prior to requesting the Base Increment, the improvement and all its components must still be substantially completed.
- 2. Defer determination of the final Purchase Price of the Improvement to the time at which the final payment is approved.
- 3. Increase the cost estimate for the *Poggi Canyon Trunk Sewer Extension* Reach 1 and identify it as a separate Improvement from the Eastlake Parkway roadway Improvement, and allow for a separate reimbursement.
- 4. Identify each traffic signal as a separate and distinct Improvement as illustrated in the revised Exhibit A of the amended Acquisition/Financing Agreement. Additional traffic signals have been included in the updated list.
- 5. Update the Cost Estimates for those Improvements identified in Exhibit A.

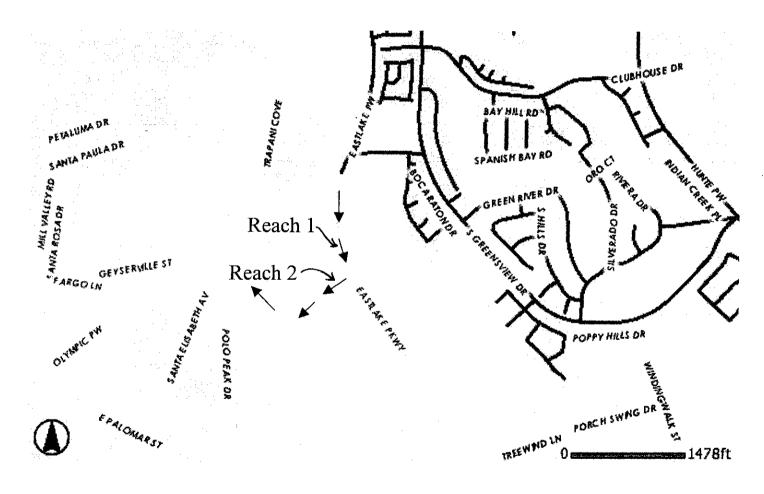
FISCAL IMPACT: There is no impact to the General Fund. Council approval of the resolution approving the Reimbursement Agreement with the Eastlake Company appropriates \$1,230,000 from the Trunk Sewer Capital Reserve Fund to a new CIP for Reach 2 of the *Poggi Canyon Trunk Sewer Extension*. The revised costs of approximately \$1,200,000 for Reach 1 will be funded from CFD 06-I bond proceeds. All costs related to creating the second amendment to the Acquisition/Financing Agreement for CFD 06-I will be borne by the developer.

## Attachments:

- 1. Plat of sewer reaches 1 and 2
- 2. Chula Vista Municipal Code 3.14.010C
- 3. Summary of Changes to the Second Amendment to the Acquisition/Financing Agreement
- 4. CFD 06-I Acquisition/Financing Agreement and 1st Amendment

#### **Exhibits:**

- A. Reimbursement Agreement
- B. Proposed 2<sup>nd</sup> Amendment



#### Chapter 3.12

## GAS TAX STREET IMPROVEMENT FUND\*

#### Sections:

3.12.010 Created.

3.12.020 Moneys payable into fund.

3.12.030 Expenditures.

\* For statutory provisions concerning the appointment of moneys to cities having a special gas tax street improvement fund, see Streets and Highways Code § 2113; for provisions regarding highway user's funds generally, see Streets and Highways Code § 2100, et seq.

#### 3.12.010 Created.

To comply with the provisions of Article 5 of Chapter 1 of Division I of the Streets and Highways Code, with particular reference to the amendments made thereto by Chapter 642, statutes of 1935, there is hereby created in the treasury of the city a special fund to be known as the "special gas tax street improvement fund." (Prior code § 2.34).

## 3.12.020 Moneys payable into fund.

All moneys received by the city from the state under the provisions of the Streets and Highways Code for the acquisition of real property or interests therein for, or the construction, maintenance or improvement of, streets or highways other than state highways shall be paid into such fund. (Prior code § 2.35).

#### 3.12.030 Expenditures.

All moneys in such fund shall be expended exclusively for the purposes authorized by, and subject to, all the provisions of Article 5, Chapter 1, Division I of the Streets and Highways Code. (Prior code § 2.36).

#### Chapter 3.14

# TRUNK SEWER CAPITAL RESERVE FUND

#### Sections:

3.14.010

Establishment of trunk sewer capital

reserve fund – Uses.

# 3.14.010 Establishment of trunk sewer capital reserve fund – Uses.

A. There is established a fund designated as the "trunk sewer capital reserve fund."

- B. All revenue derived from the sewer capacity charges (formerly "sewerage facility participation charges") pursuant to CVMC 13.14.090 shall be deposited into such trunk sewer capital reserve fund.
- C. The trunk sewer capital reserve fund shall be used solely for the following purposes, unless the city council shall by four-fifths vote appropriate such funds for another purpose; provided, such other purpose shall be for the planning, design, or construction of sewage collection or treatment or water reclamation purposes or incidental thereto:
- 1. Paying all or any part of the cost and expense to enlarge sewer facilities of the city so as to enhance efficiency of utilization and/or adequacy of capacity in order to effectively serve the needs of the city;
- 2. Paying all or any part of the cost and expense to plan and/or evaluate any future proposals for area-wide sewage treatment and/or water reclamation systems or facilities. (Ord. 2466 § 2, 1991).

# SUMMARY OF CHANGES TO ACQUISITION AGREEMENT

Staff has begun implementing the Acquisition Agreement and recommends, together with the Developer and bond counsel, the following changes to the Acquisition Agreement:

# 1. Purchase Price

Staff recommends a change in the timing of the determination of the Purchase Price of an Improvement consistent with the latest Acquisition Agreement approved by Council for another developer. The current Acquisition Agreement provides that reimbursement for eligible costs of an Improvement may be made in two increments, the Base Increment (75% of the Purchase Price) and the Retained Increment (25% of the Purchase Price). The Purchase Price, the amount the developer may be ultimately reimbursed, is set at the time the Base Increment payment is made for an Improvement. This is problematic because at the time the developer is eligible to receive the Base Increment (the Improvement is deemed substantially complete by the City) not all minor costs may be known and audited. Under the current Acquisition Agreement, the developer would have two options for addressing this: (1) delay the request for the Base Increment by several months until all final costs are known and losing several months interest on that reimbursement or (2) do not include all eligible costs in the CFD.

In lieu of these options, Eastlake Company has requested that the Purchase Price be set instead at the time the Retained Increment reimbursement is made when every final invoice has been paid, punch list items addressed, and "as-builts" processed among other items. This change would enable Eastlake Company to request reimbursement in two increments as follows: (1) the Base Increment which would be limited to 75% of the eligible, audited costs of the Improvement not to exceed 75% of the estimated cost outlined in the AF Agreement, and (2) the Retained Increment which would include the 25% of the eligible, audited cost retained with the Base Increment payment, together with any additional eligible, audited costs submitted for reimbursement. The Base and Retained Increments combined would represent the Purchase Price. Substantial completion of the Improvement would still be required prior to making the Base Increment reimbursement as well as final completion and acceptance by the City of the Improvement prior to making the Retained Increment payment.

According to Eastlake Company, this payment schedule will better support its cash flow management for constructing the CFD roadway improvements such as Olympic Parkway, Eastlake Parkway, and Otay Lakes Road in accordance with the aggressive timeline for completing these key transportation facilities benefiting the community. This is consistent with the latest Acquisition Agreement approved for other developments.

## 2. Sewer Improvement and Cost – Eastlake Parkway

The cost estimate for Eastlake Parkway under the current Acquisition Agreement does not include the entire cost of the deep sewer line constructed by Eastlake Company because the sewer alignment was not determined at the time the Acquisition Agreement was executed. Due to the significant cost of this facility (estimated at \$1.2 million for the reach proposed for acquisition), Best Best and Krieger, bond counsel for the CFD, recommends amending the AF Agreement to reflect the additional costs of this improvement. The sewer line that will be included for acquisition in CFD 06I follows the Eastlake Parkway alignment for approximately 1500 feet (Reach 1 on Attachment 1).

In addition, staff recommends the sewer component of the Eastlake Parkway Improvement be identified as a separate Improvement. The current Acquisition Agreement provides that for a Base Increment reimbursement for a roadway Improvement to be made, all of the roadway components such as (i) grading, including site preparation and mobilization, (ii) wet and dry utilities within the right-of-way, (iii) storm drain facilities, (iv) paving, (v) curb, gutter, sidewalk, medians, (vi) traffic signals, (vii) lighting, and (viii) all other appurtenant improvements must be substantially complete. By making the sewer a separate Improvement, reimbursement for this major sewer line will not be delayed until substantial completion of the roadway Improvement. Or if there are any issues related to the sewer outside of the Eastlake Parkway right-of-way, the Eastlake Parkway reimbursement will not be delayed.

### 3. Traffic Signals

As defined in the Acquisition Agreement for CFD 06I, the Traffic Signal Improvement includes all traffic signals. For a Base Increment reimbursement for traffic signals to be made, every traffic signal would need to be substantially completed. Eastlake Company has requested that each traffic signal be listed as a separate Improvement to enable reimbursement as each traffic signal is completed. The Acquisition Agreement also adds additional traffic signals to the eligible list of improvements.

## 4. Costs

Eastlake Company has requested that the cost estimates in Exhibit A of the amended Acquisition Agreement be revised due to more recent and accurate cost analysis and to identify the estimated costs for each Improvement as amended by the Second Amendment.

# ACQUISITION/FINANCING AGREEMENT

WHEREAS, the Developer is the master developer of certain property known as the Woods, Vistas and Land Swap (the "Development Project") within that master planned community located within the City known as EastLake and Developer has obtained certain land use entitlements from the City which permit the development of the Development Project; and

WHEREAS, the development of the Development Project pursuant to such land use entitlements is subject to certain conditions, including but not limited to, the requirement that the Developer construct certain public improvements to serve the Development Project including the improvements identified as Improvements Nos. 2 through 8 in Exhibit A attached hereto and incorporated herein by this reference (the "Development Project Improvements"); and

WHEREAS, such land use entitlements also describe the threshold of building permits that may be issued for the Development Project as the result of traffic impacts on roadways within the City; and

WHEREAS, the City's Growth Management Oversight Committee, in its annual threshold compliance report, noted that development in the eastern portion of the City which includes the Development Project was starting to strain the capacity of existing roadways resulting in added congestion and traffic delays; and

WHEREAS, the City has determined that it is necessary to expedite the construction of certain traffic enhancement projects, including the Telegraph Canyon Roadway Improvements defined below (individually, a "Traffic Enhancement Improvement" and collectively, the "Traffic Enhancement Improvements"), located in the eastern part of the City in order to maintain the City's threshold standard and quality of life until the completion of more of the overall transportation network in the eastern part of the City; and

WHEREAS, in order for the Developer and the master developers of other properties located in the City east of the I-805 freeway to continue to receive building permits beyond the current thresholds identified in the existing land use entitlements for the Development Project and other developments in the eastern portion of the City, such developers must contribute to the financing of the construction of the Traffic Enhancement Improvements; and

WHEREAS, in order to provide for the financing of one of the Traffic Enhancement Improvements, the Developer, together with certain other master developers (the "Other Master

# **APPENDIX C**

CREDIT SUMMARY FOR OTAY RANCH VILLAGE 1 AND 5, OTAY RANCH VILLAGE 1 WEST, SUNBOW II, AND OTAY RANCH VILLAGE 1/5 (McMillin)

	<u>Tributary</u>	Units/Acre	<u>age</u>				
					Tributary		
ORC Village 1	Acreage	SFD	MFD	<b>EDU factor</b>	EDUs	EDUs Paid <sup>1</sup>	Source for EDUs
Neighborhood							
PRJ00-010 R16		115		1	115.0	115.0	Major Project Development Status/Assessor Map
PRJ00-011 R17 <sup>2</sup>		98		1	98.0	91.0	Major Project Development Status/Assessor Map
PRJ00-012 R18		73		1	73.0	73.0	Major Project Development Status/Assessor Map
PRJ00-013 R48		95		1	95.0	95.0	Assessor Map
PRJ01-016 R15			422	0.75	316.5	316.5	Major Project Development Status
PRJ01-062 R47			271	0.75	203.3	217.0	Major Project Development Status
PRJ97-042 R19			204	0.75	153.0	154.0	Major Project Development Status
PRJ97-037 R14		139		1	-	-	Major Project Development Status
PRJ97-036 R13		88		1	-	-	Major Project Development Status
Subtotal		608	897		1,053.8	1,061.5	
Non-residential							
APN 642-560-16	0.127			8.93	1.1		Assessor Map
APN 642-560-17	0.297			8.93	2.7		Assessor Map
APN 642-560-21	1.05			8.93	9.4		Assessor Map
APN 642-560-22	0.91			8.93	8.1		Assessor Map
APN 642-560-**	1.57			0	-		Assessor Map/M14314/Parking
APN 642-560-01	4.67			8.93	41.7		Assessor Map
APN 642-560-15	4.6			8.93	41.1		Assessor Map
Subtotal					104.1	47.4	
Miscellaneous <sup>2</sup>							
Park	0			1.79			No facilities
TOTAL					1,157.8	1,108.9	

<sup>&</sup>lt;sup>1</sup> Based on building permit data through 6/2007. All residential and non-residential permits issued.

<sup>&</sup>lt;sup>2</sup> Generation rate based on 1997 Basin Plan.

<sup>&</sup>lt;sup>3</sup> Assumed no sewer facilities at park site.

<sup>&</sup>lt;sup>4</sup> Non-residential payments not identified by project.

	Vill	lage 1 C	Obligation to date:	Notes:
		1,053.8	EDUs	Residential only
	_	104.1	EDUs	Non-residenital
		1,157.8	EDUs	
Х	\$	400		
	\$	463,120	Obligation	Excludes park
	\$	463,120	Credit via CFD 99-1 for OR Village	e 1 (ORC)
	\$	443,567	Cash Payments through 6/2007	Residential and Commercial payments.
	\$	906,687	Total paid	
	\$	443,567	Refund cash payments.	

 $<sup>^{1}</sup>$  CFD 99-1 credit for Poggi Sewer Basin DIF = \$921,938.  $^{2}$  R-17 - One permit used credit, not cash payment.

	<u> </u>	Units/Acre	<del>ugc</del>				
Tributary							
ORC Village 5	Acreage	SFD	MFD	<b>EDU factor</b>	<b>EDUs</b>	EDUs Paid <sup>1</sup>	Source for EDUs
Neighborhood							
PRJ01-021 R30A			14	0.75	105.8	106.5	M14602
PRJ01-005 R31 (portion)		14		1	14.0		Assessor Maps
PRJ00-015 R29		83		1	83.0	83.0	Assessor Maps
PRJ97-058 R35		0		1	-	1.0	Major Project Development Status
PRJ04-016 R30B3				3 0.75	54.8	54.8	Major Project Development Status
PRJ04-015 R30B2			8	0.75	63.0	63.0	Major Project Development Status
PRJ01-008 R28 (portion)		33		1	33.0		Assessor Maps
PRJ01-024 R39		121		1	121.0	121.0	Assessor Maps
PRJ02-015 R30B			8	0.75	63.0	63.0	Major Project Development Status
Subtotal					537.5	492.3	
Non-residential <sup>2</sup>							
CPF site - Not Constructed	4.52			8.93	40.4		Assessor Map
Misc					0.8	0.8	·
Subtotal					41.2	0.8	
Miscellaneous <sup>2</sup>							
Park				1.79			To Telegraph basin/No facilities
TOTAL					578.7	493.0	

 $<sup>^{1}</sup>$  Based on building permit data through 6/2007. All residential and non-residential permits issued.  $^{2}$  Generation rate based on 1997 Basin Plan.

<sup>&</sup>lt;sup>3</sup> Assumed no sewer facilities in R30 park site.

537.5 EDUs		Notes:
		Residential only
41.2 EDUs		Non-residenital
578.7 EDUs		
x <u>\$ 400</u>		
\$ 231,480 Obligat	ion	Excludes park
\$ 458,818 Credit v	via CFD 99-1 for OR Village	5 (ORC)
\$ 197,200 Cash Pa	ayments through 6/2007	Residential and Commercial payments.
\$ 656,018 Total pa	aid	
\$ 197,200 Refund	cash payments.	
	oggi Sewer Basin DIF = \$92	

	<u>Tributar</u>	y Units/Acre	<u>age</u>				
					Tributary		
Village 1 West	Acreage	SFD	MFD	<b>EDU factor</b>	<b>EDUs</b>	EDUs Paid <sup>1</sup>	Source for EDUs
Neighborhood							
PRJ00-009 R53		36		0	-	3.0	Assessor Maps
PRJ01-034 R59		106		1	106.0	104.0	Assessor Maps
PRJ01-029 R54		37		1	37.0	38.0	Assessor Maps
PRJ02-086 R60		49		1	49.0	49.0	Assessor Maps
PRJ01-031 R56		74		1	74.0	74.0	Assessor Maps
PRJ01-032 R57		94		1	94.0	94.0	Assessor Maps
PRJ01-030 R55		87		1	87.0	87.0	Assessor Maps
PRJ01-033 R58		62		1	62.0	61.0	Assessor Maps
Subtotal		545		0	509.0	510.0	
Miscellaneous							
Park <sup>2</sup>	5.6			1.79	10.0	-	Assessor Map 641-07 Sheet 2
TOTAL					519.0	510.0	

<sup>&</sup>lt;sup>1</sup> Based on building permit data through 6/2007. All residential and miscellaneous permits issued.

<sup>&</sup>lt;sup>2</sup> Generation rate based on 1997 Basin Plan.

 $<sup>^{3}</sup>$  R53 is located north of East Palomar Street and is not tributary to Poggi Basin.

Vill	age 1 V	Vest Obligation to date:	Notes:
V	_	<del>-</del>	
	509.0	EDUS	Residential only
	10.0	EDUs	Park
	519.0	EDUs	
\$	400		
\$	207,600	Obligation	Includes park
\$	227,338	Credit via CFD 99-1 for OR Village	1 (ORC)
\$	204,000	Cash Payments through 6/2007	Residential and Commercial payments.
\$	431,338	Total paid	
\$	204,000	Refund cash payments.	
	\$ \$ \$ \$	509.0 10.0 519.0 \$ 400 \$ 207,600 \$ 227,338 \$ 204,000 \$ 431,338	\$ 207,600 Obligation \$ 227,338 Credit via CFD 99-1 for OR Village \$ 204,000 Cash Payments through 6/2007 \$ 431,338 Total paid

<sup>&</sup>lt;sup>1</sup> CFD 99-1 credit for Poggi Sewer Basin DIF = \$921,938.

\$ 921,938	Credit - beginning balance
\$ (463,120)	Less credit used for OR Village 1 (ORC)
\$ (231,480)	Less credit used for OR Village 5 (ORC)
\$ 227,338	Credit - beginning balance
\$ (207,600)	Less credit used for OR Village 5 (ORC)
\$ 19,738	New credit balance
	(Due to CFD 99-1)

	<u>Tributar</u>	/ Units/Acre	age				
					Tributary		
OR MM Village 1/5	Acreage	SFD	MFD	EDU factor	<b>EDUs</b>	EDUs Paid <sup>1</sup>	Source for EDUs
Neighborhood							
PRJ00-005 R42		74		1	74.0	74.0	Assessor Maps
PRJ97-064 R41		90		1	90.0	90.0	Assessor Maps
PRJ97-065 R43			240	0.75		31.5	Major Project Development Status
PRJ97-063 R40			198	0.75	148.5	198.0	Assessor Maps
Subtotal					312.5	393.5	
Miscellaneous <sup>2</sup>							
Park	5.68			1.79	10.2	-	Assessor Map, Dwg 98-717 thru 98-718
TOTAL					322.7	393.5	
101712					022.7	370.3	

 $<sup>^{\</sup>rm 1}$  Based on building permit data through 6/2007. All residential permits issued.

<sup>&</sup>lt;sup>2</sup> Generation rate based on 1997 Basin Plan.

OR MM	Village 1	/ 5 Obligation	to date:	Notes:

312.5	EDUs	Residential only
10.2	EDUs	Non-residenital
322.7	EDUs	

x \$ 400

\$ 129,080 Obligation

\$ 129,080 Credit available via CFD 97-3 for OR Village 1/5 (MM)

\$ 157,408 Cash Payments through 6/2007

\$ 286,488 Total paid

\$ 157,408 Refund cash payments.

- \$ 412,938 Credit beginning balance
- \$ (129,080) Less Credit used for CFD 97-3 properties
- \$ 283,858 Balance of credit due to CFD 97-3. McMillin received payment for \$412,938.

<sup>&</sup>lt;sup>1</sup> CFD 97-3 credit for Poggi Sewer Basin DIF = \$412,938.

	Tributar	y Units/Acre	eage				
					Tributary		
Sunbow Summary	Acreage	SFD	MFD	EDU factor	EDUs	EDUs Paid <sup>0</sup>	Source for EDUs
Plannining Area				_			
13		112		1	112.0	-	Assessor Maps
15 12		93 44		1	93.0 44.0	54.0 25.0	Major Project Development Status/Assessor Maps CV Dwgs 97-297 thru 313
14		110		1	110.0	66.0	Major Project Development Status/Assessor Maps
16/16A		144		1	144.0	144.0	Major Project Development Status/Assessor Maps
19		112		1	112.0	112.0	Major Project Development Status/Assessor Maps
17		102		i	102.0	102.0	Assessor Maps
7			156	0.75	117.0		Major Project Development Status <sup>1</sup>
10			336		252.0	252.0	Major Project Development Status <sup>1</sup>
10A			117		87.8	117.0	Assessor Maps
Subtotal		717	609		1,173.8	872.0	
Commercial lots							
Parcel 1	5.48		19,574.56	8.93	48.9	48.9	Assessor Maps
Parcel 2	1.70		6,072.40	8.93	15.2	15.2	Assessor Maps
Parcel 3	1.81		6,465.32	8.93	16.2	16.2	Assessor Maps
Parcel 4	0.74		2,643.28	8.93	6.6	6.6	Assessor Maps
Parcel 5	0.76		2,714.72	8.93	6.8	6.8	Assessor Maps
Parcel 6	0.64		2,286.08	8.93	5.7	5.7	Assessor Maps
Parcel 7	1.27		4,536.44	8.93	11.3	11.3	Assessor Maps
Tivoli Pool Bldg PA 10A	0.2			8.93	1.8	1.8	R00008386 B01-2152
Apt Rec Building					1.0	1.0	Trust acct. B99-5016
Subtotal	12.60				113.5	113.5	
Industrial lots (not constructed)	54.60			8.93	487.6		Acreage based on City WWMP; Not Constructed. (Rate to Change with this update.)
Miscellaneous							
Park <sup>2</sup>	10.03			1.79	18.0		Assessor Maps
Elementary School <sup>3</sup>	10.61			32.1	32.1		Assessor Maps
Fire Station <sup>4</sup>	1.53			8.93	13.7		Assessor Maps
Subtotal	22.17				63.7		No record of payment.
TOTAL					1,838.6		

<sup>&</sup>lt;sup>0</sup> Based on building permit data through 6/2007. All residential and commercial permits issued.

<sup>&</sup>lt;sup>1</sup> Units per Appendix.

<sup>&</sup>lt;sup>2</sup> Generation rate based on 1997 Basin Plan.

<sup>&</sup>lt;sup>3</sup> Generation rate based on 1997 Basin Plan (9,000 gpd).

<sup>&</sup>lt;sup>4</sup> Generation rate based on 2500 gpd/acre; site was not identified in 1997 Basin Plan.

<sup>&</sup>lt;sup>5</sup> In Planning Area 12, 56 EDUs may flow to 2 different basins. Capacity based on maximum of 100 EDUs.

<sup>&</sup>lt;sup>6</sup> EDUs paid includes cash/check payments of \$287,006, credit of \$107,200, and from unknown source of \$49,600.

	Su	nbow O	bligation to date:	Notes:
		1,173.8	EDUs	Residential only
		113.5	EDUs	Commercial, rec and pool buildings
		1,287.3	EDUs	
Χ	\$	400		
	\$	514,907	Obligation	Excludes fire station, parks and school and industrial
	\$	136,205	Credit - potentially available.	Only \$107,200 available in trust accounting.
	\$	287,006	Cash Payments through 6/2007	Residential and Commercial payments.
	\$	423,211	Total paid	
	•	-,	- 1	
	\$	91,696	Amount Due	PA 7 = \$46,800 - No Record of Payment.
		,		

# **APPENDIX D**

PERMIT DATA FOR POGGI CANYON SEWER BASIN (JULY 2007)

					Paid EDUs			
Developer No.	Project No.	Development	Built/issued	Туре	Cash/Credit	Subtotal	Total	Total Paid EDUs
<u>Residential</u>								
DEV00-001	PRJ00-009	Otay Ranch Village	1 West		3.00	\$1,200.00	\$204,000.00	510.00
DEV00-001	PRJ01-029	,			38.00	\$15,200.00	, , , , , , , , , , , , , , , , , , , ,	
DEV00-001	PRJ01-030				87.00	\$34,800.00		
DEV00-001	PRJ01-031				74.00	\$29,600.00		
DEV00-001	PRJ01-032				94.00	\$37,600.00		
DEV00-001	PRJ01-033				61.00	\$24,400.00		
DEV00-001	PRJ01-034				104.00	\$41,600.00		
DEV00-001	PRJ02-086				49.00	\$19,600.00		
DEV00-002	PRJ00-010	Otay Ranch Village	1		115.00	\$46,000.00	\$425,000.88	1,062.50
DEV00-002	PRJ00-011				92.00	\$36,800.00		
DEV00-002	PRJ00-012				73.00	\$29,200.00		
DEV00-002	PRJ00-013				95.00	\$38,000.00		
DEV00-002	PRJ01-016			MF	316.50	\$126,600.00		
DEV00-002	PRJ01-062			MF	217.00	\$86,800.88		
DEV00-002	PRJ97-042			MF	154.00	\$61,600.00		
DEV02-001	PRJ02-002	Otay Ranch Village	R 2a		92.00	\$36,800.00	\$425,700.00	1,064.2
DEV02-001	PRJ02-003	6 (ORC)	R 2b		106.00	\$42,400.00		
DEV02-001	PRJ02-006		R 5a		51.00	\$20,400.00		
DEV02-001	PRJ02-008		R 7a	MF	67.50	\$27,000.00		
DEV02-001	PRJ02-009		R 7b	MF	150.75	\$60,300.00		
DEV02-001	PRJ02-010		R 8	MF	219.75	\$87,900.00		
DEV02-001	PRJ02-011		R 9a		139.00	\$55,600.00		
DEV02-001	PRJ02-012		R 9b	MF	20.25	\$8,100.00		
DEV02-001	PRJ03-028		R 5b		55.00	\$22,000.00		
DEV02-001	PRJ03-029		R 9c	MF	126.00	\$50,400.00		
DEV02-001	PRJ03-030		R 9d	MF	37.00	\$14,800.00		
DEV03-001	PRJ02-001	Otay Ranch Village			101.00	\$40,400.00	\$256,400.00	641.00
DEV03-001	PRJ02-004	6 (MM)	R 3		163.00	\$65,200.00		
DEV03-001	PRJ02-005		R 4		92.00	\$36,800.00		
DEV03-001	PRJ02-007		R 6		126.00	\$50,400.00		
DEV03-001	PRJ02-013		R 10	MF	159.00	\$63,600.00		
DEV04-001	PRJ04-027	Otay Ranch Village			54.00	\$21,600.00	\$137,400.00	343.5
DEV04-001	PRJ04-028	7 (ORC/MM)	R 2a		27.00	\$10,800.00		
DEV04-001	PRJ04-031		R 5		34.00	\$13,600.00		
DEV04-001	PRJ05-027		R 2b		3.00	\$1,200.00		
DEV04-001	PRJ05-028		R 2c		71.00	\$28,400.00		
DEV04-001	PRJ05-029		R 2d		85.00	\$34,000.00		
DEV04-001	PRJ05-043		R 1b		29.00	\$11,600.00		
DEV04-001	PRJ05-046		R 6b - Interim	MF	7.50	\$3,000.00		
DEV04-001	PRJ05-043		R1b		14.00	\$5,600.00		
~	PRJ97-000		R2b?		19.00	\$7,600.00		

Developer No.	Project No.	Development	Built/issued	Туре	Paid EDUs Cash/Credit	Subtotal	Total	Total Paid EDUs
DEV94-002	PRJ97-005	Rancho del Rey SPA	<del>\</del> 1		0.00	\$0.00	\$0.00	0.00
DEV94-004	PRJ98-019	Rancho del Rey SPA	A 2		0.00	\$0.00	\$0.00	0.00
DEV94-005	PRJ98-020	Rancho Del Rey SPA	A 3		0.00	\$0.00	\$0.00	0.00
DEV95-001 DEV95-001 DEV95-001 DEV95-001 DEV95-001 DEV95-001	PRJ01-052 PRJ04-009 PRJ04-010 PRJ04-011 PRJ04-012 PRJ04-013 PRJ95-020	EastLake Greens/LandSwap	R 9F RV apts R 9A Firenze R 9B Andorra R 9C Veranza R 9D Cortina R 9E Capria R 6 Ridgewood I	MF MF MF	112.50 76.00 135.00 13.50 94.50 100.50 12.00	\$45,000.00 \$30,400.00 \$54,000.00 \$5,400.00 \$37,800.00 \$40,200.00 \$4,800.00	\$318,400.00	796.00
DEV95-001	PRJ99-007		R 26 Antigua	MF	252.00	\$100,800.00		
DEV97-000 DEV97-000	PRJ97-010 PRJ97-016	Rolling Hills Ranch			0.00 0.00	\$0.00 \$0.00	\$0.00	0.00
DEV97-001 DEV97-001 DEV97-001 DEV97-001 DEV97-001 DEV97-001	PRJ00-015 PRJ01-021 PRJ01-024 PRJ02-015 PRJ04-015 PRJ04-016 PRJ97-058	Otay Ranch Village	5 (ORC)	MF MF MF	83.00 106.50 121.00 63.00 63.00 54.75 1.00	\$33,200.00 \$42,600.00 \$48,400.00 \$25,200.00 \$25,200.00 \$21,900.00 \$400.00	\$196,900.00	492.25
DEV97-002 DEV97-002 DEV97-002 DEV97-002 DEV97-002 DEV97-002 DEV97-002 DEV97-002	PRJ00-005 PRJ01-063 PRJ01-064 PRJ97-045 PRJ97-067 PRJ97-063 PRJ97-064 PRJ97-065	Otay Ranch Village	1/5 (MM)	MF MF	74.00 0.00 0.00 0.00 0.00 198.00 90.00 31.52	\$29,600.00 \$0.00 \$0.00 \$0.00 \$0.00 \$79,200.00 \$36,000.00 \$12,609.16	\$157,409.16	393.52
DEV98-002 DEV98-002 DEV98-002 DEV98-002 DEV98-002 DEV98-002 DEV98-002 DEV98-002 DEV98-002 DEV98-002	PRJ00-007 PRJ00-008 PRJ01-009 PRJ01-017 PRJ01-058 PRJ98-007 PRJ98-008 PRJ98-009 PRJ98-010 PRJ98-017 PRJ98-018	Sunbow 2	PA16 PA17 PA10 PA10A PA19 PA12 PA13 PA14 PA15 PA16A	MF MF	61.00 102.00 252.00 118.79 112.00 37.00 112.00 66.00 54.00 83.00	\$24,400.00 \$40,800.00 \$100,800.00 \$47,514.40 \$44,800.00 \$14,800.00 \$26,400.00 \$21,600.00 \$33,200.00	\$399,114.40	997.79
DEV99-001 DEV99-001 DEV99-001	PRJ00-001 PRJ00-002 PRJ00-004	EastLake Trails			0.00 0.00 0.00	\$0.00 \$0.00 \$0.00	\$0.00	0.00

Davidan an Na	Duning the	Dl	D. 314 /3	T	Paid EDUs Cash/Credit	Culatatail	Takal	Takal Dailal EDU
<b>Developer No.</b> mary	Project No.	Development	Built/issued	Туре	Casn/Cream	Subtotal	Total	Total Paid ED
<u>riary</u> Commercial/Mis	scellaneous							
Sunbow Non-res						\$44,692.80		
OR Village 5 No						\$300.00		
0	n-Residential (see	e PR I01-062)				18,967.32		
EL Greens Non-r		0 1 1100 1 002				\$25,796.92		
EL Terraces Non-						150,452.64		
Otay Town Cen	ter					\$260,005.88		
Mater Dei Churc	ch					\$110,660.56		
MM OR Village 7	7 Clubhouse R6 8	& R7				\$107.16		
MM OR Village 7						\$4,036.36		
1509 Oleander						\$400.00		
MM OR Village 7	7 R1A -					\$400.00		
OR Village 6 Uni	t 1 - ORC MU	1874 View Park #8 1905 E Palomar St	33, 1884 View Park, #1	#91, 1425 R	Rhone Valley #73	\$9,600.00		
Subtotal						\$625,419.64		
Residential Subt	<u>otal</u>					\$2,520,324.44		
TOTAL Permit Pa	yments (Cash/cl	neck/credits)				\$3,145,744.08		
								٦
SUNBOW Payme	ents:							
Sunbow Trust An	nount Usec					\$107,200.00		
Sunbow Cash/C	Check Payments					287,007.2		
	ment - Assumed	as credit.				\$49,600.00	Checking:	:
Sunbow RD pay	1110111 / 133011104				Total	\$443,807.20	\$443,807.20	

Revenues per Permit Data	\$3,145,744
Less Trust Account used (Sunbow)	(\$156,800)
Calculated Cash Received	\$2,988,944
Finance Records - Table 5-3	\$2,988,700

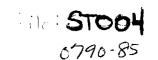
# APPENDIX E SUNBOW II (AYRES) PAYMENTS

# Appendix E

Sunbow Summary	Description		
Reaches 201-207, excl. 205			
Payment 1	Construction	\$ 558,718.00	
Payment 2	Construction	113,915.60	
Payment 3	Construction	224,211.30	200 411 50
Payment 3	Soft Costs	85,200.29	309,411.59
Payment 4	ROW	 60,475.27	
Subtotal		1,042,520.46	Reimbursed Ayres
Reaches 208-213			
Credit	Construction	\$ 111,632.00	
Credit	Construction CO 99	\$ 12,756.00	Not audited
Credit	Soft Costs at 9.5%	 11,817.00	Estimated
Subtotal		\$ 136,205	
TOTAL		\$ 1,178,725	

# **APPENDIX F**

POGGI CANYON SEWER BASIN PLAN, NOVEMBER 1997



### CITY OF CHULA VISTA

### POGGI CANYON BASIN GRAVITY SEWER BASIN PLAN

November 19, 1997

Prepared for:

City of Chula Vista

Engineering Division 276 Fourth Avenue

Chula Vista, CA 91910

Prepared by:

Wilson Engineering

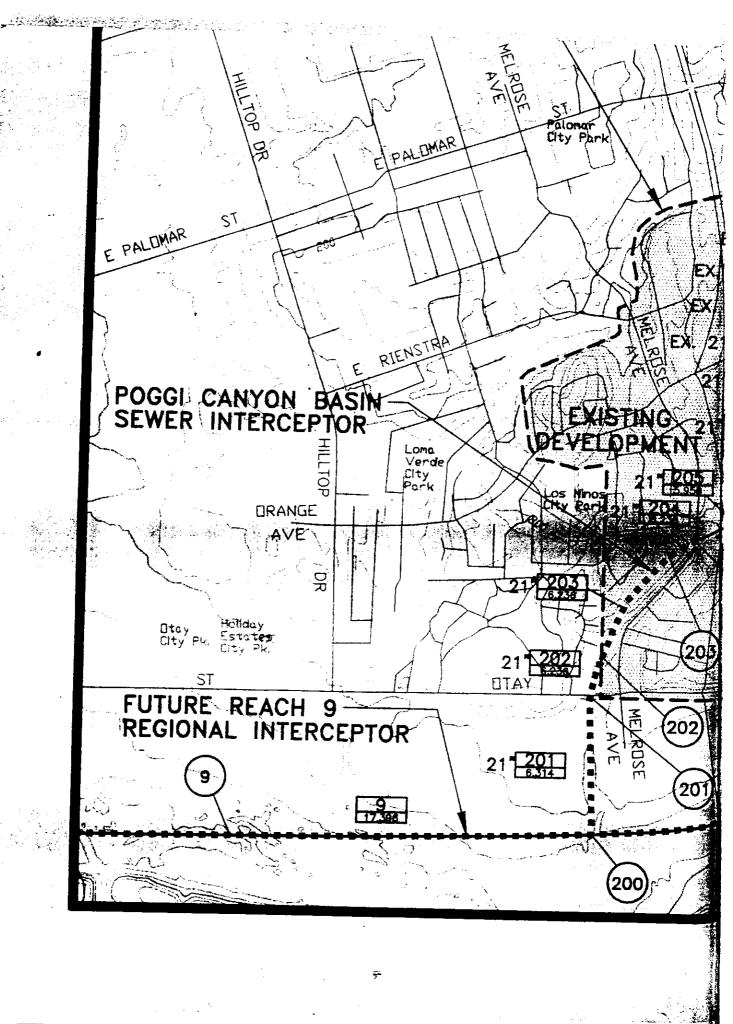
703 Palomar Airport Road

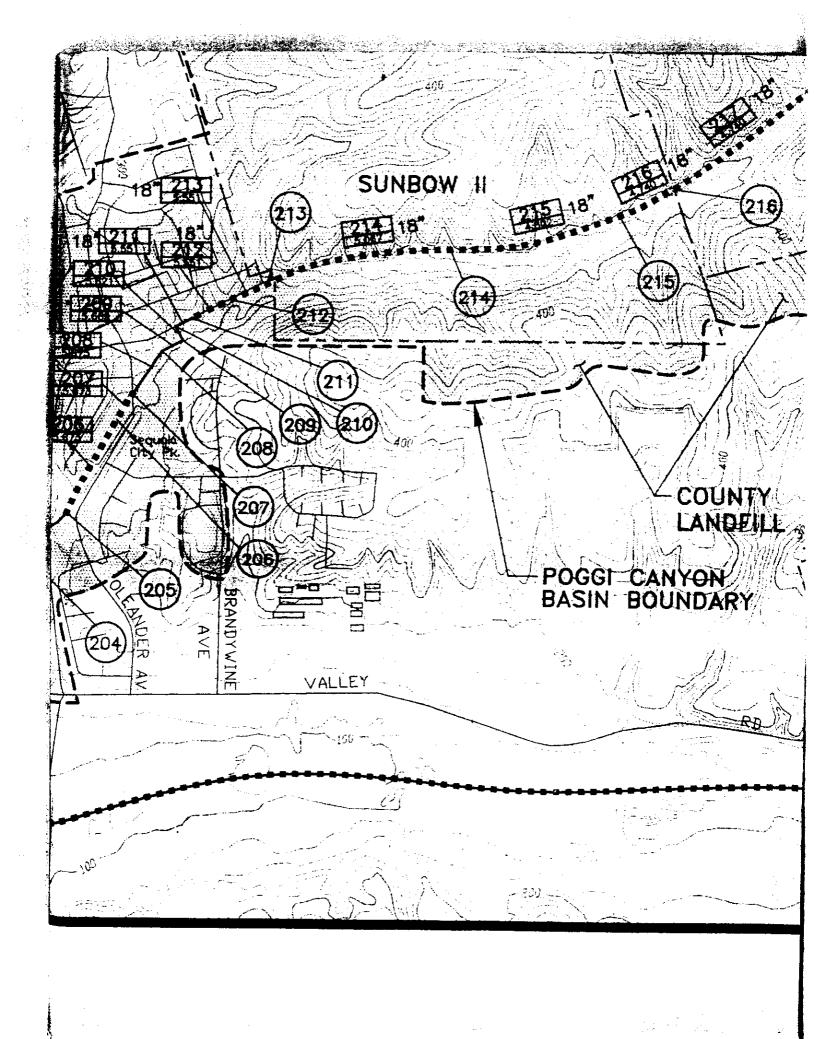
Suite 300

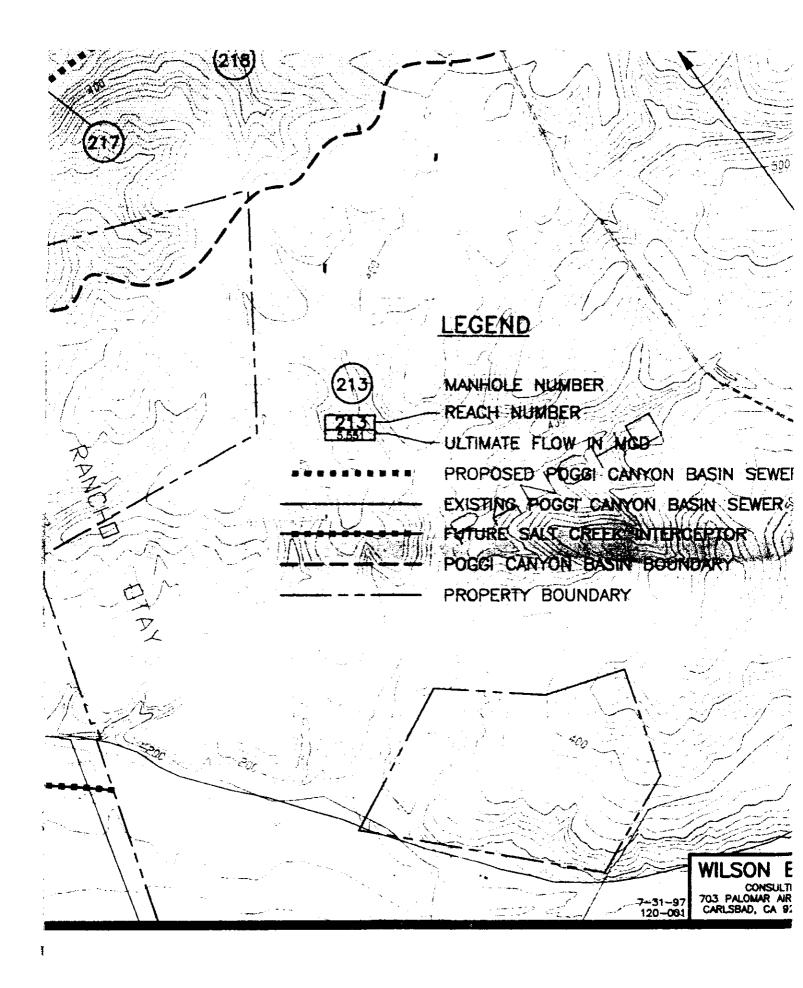
Carlsbad, CA 92009

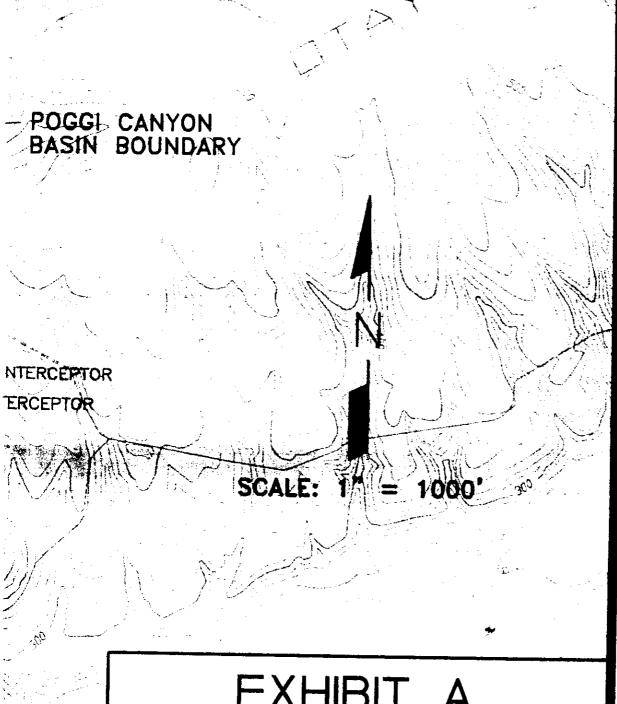
Job Number:

120-001





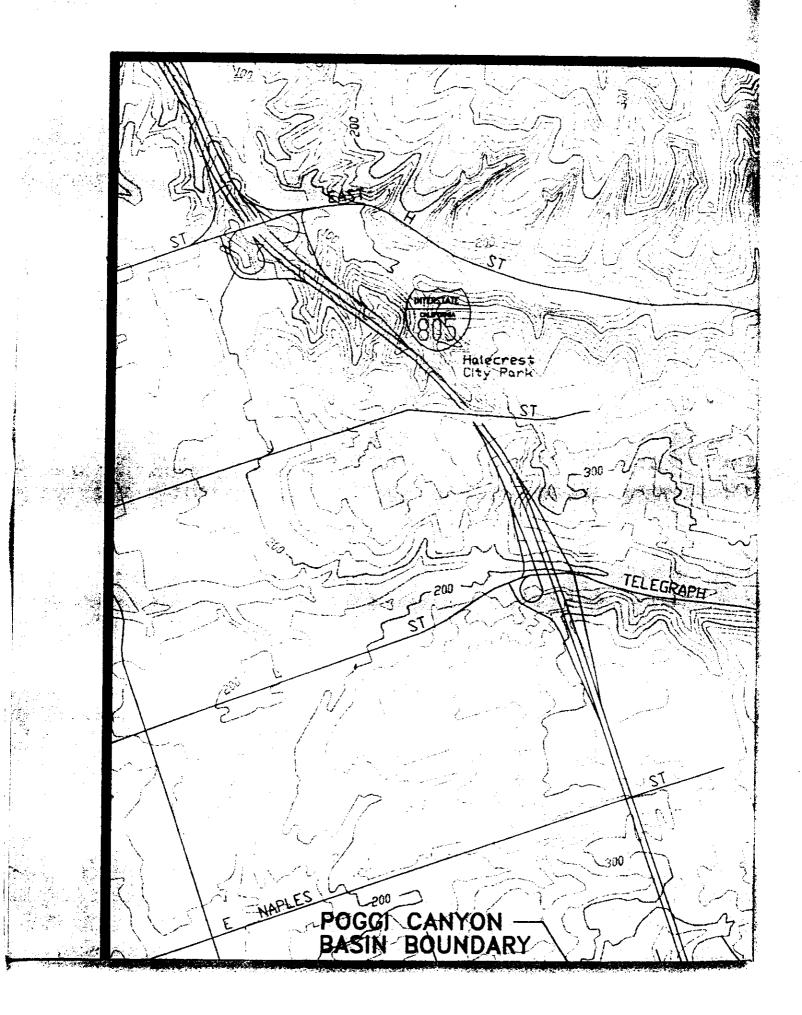


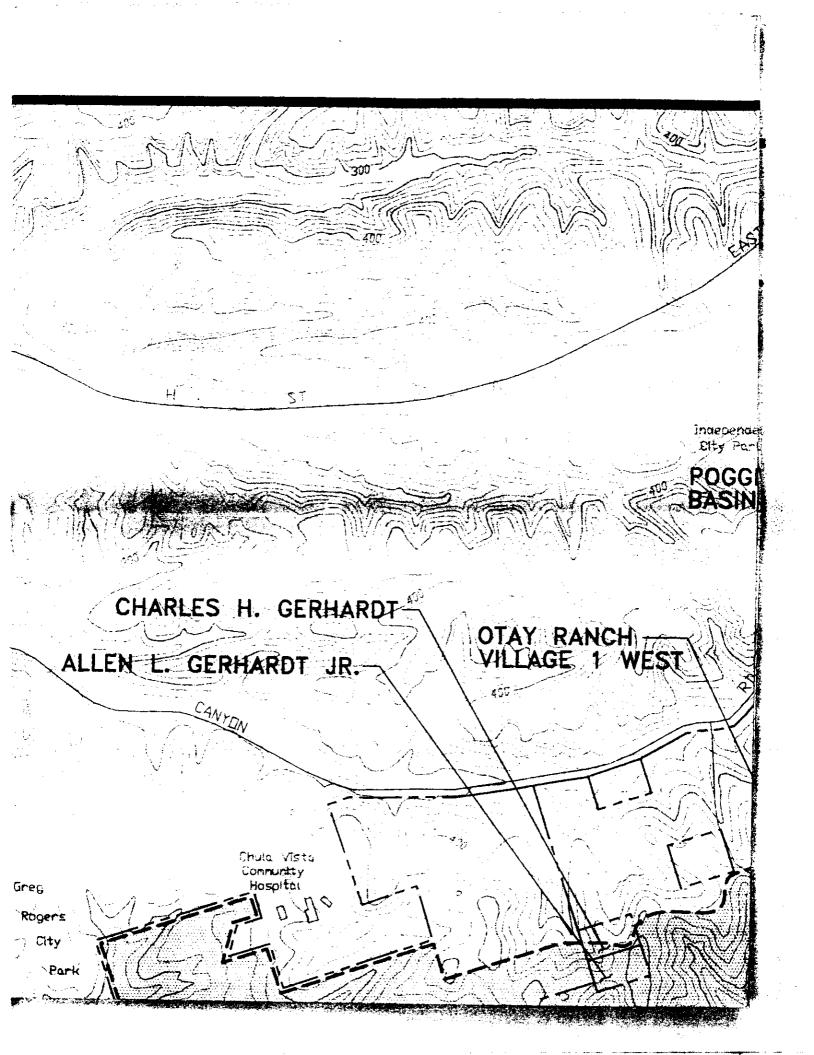


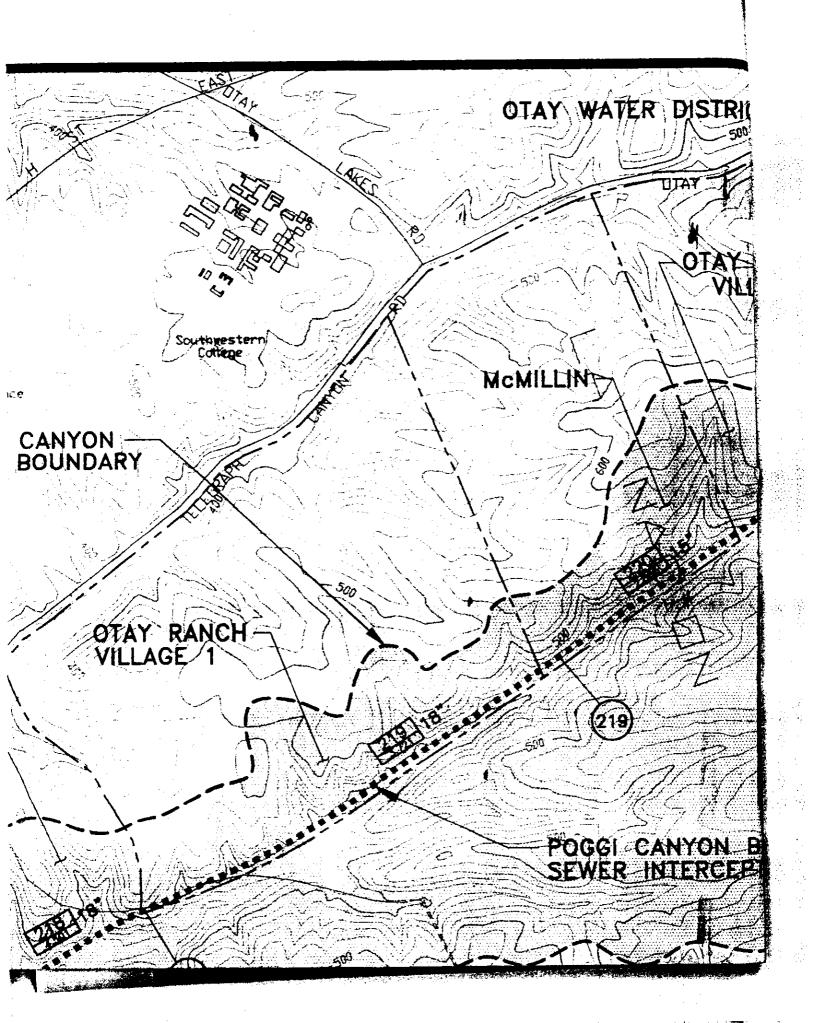
# EXHIBIT A

POGGI CANYON BASIN SEWER STUDY

MANHOLE NUMBER AND REACH DIAGRAM







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#### CHAPTER 1

#### **EXECUTIVE SUMMARY**

This chapter provides a general summary of the contents of this study. The detailed discussions within each chapter and the appendices provide the basis for the final development impact fee recommendation presented in Chapter 5.

Several large developments anticipated or underway within the Poggi Canyon Sewer Basin will generate a significant amount of wastewater. The current sewers are not large or extensive enough to serve these new developments. The purpose of this report is to recommend the facilities needed to serve these new developments and to determine the amount of fees payable by these developments which are needed to finance the expanded facilities.

### Chapter 2 - Background

The tasks to be addressed in the report are summarized. The report will determine ultimate development levels and create a computer model to determine the sewer sizes needed for the buildout of the Poggi Canyon Basin. The construction costs for the proposed sewer improvements will be discussed.

The study area is defined geographically and the different property ownerships are identified. From this information, a summary of estimated Equivalent Dwelling Units (EDUS) for the buildout of the basin is given. The sewage generation factors and the design criteria used in the report are presented.

### Chapter 3 - Data

The wastewater loadings determine, to a large degree, the necessary facilities for the collection, treatment, and disposal of wastewater. Existing sewage flows within the Poggi

The alignment of a future Poggi Canyon Basin sewer system is discussed. The existing gravity sewer facilities are described and a summary of alternatives is given. The three alternatives given are the replacement in place of the existing sewer; the construction of a parallel alignment of ultimate sized gravity sewer within existing streets; and the construction of the ultimate sized gravity sewer within a storm drain easement.

### Chapter 4 - Analysis

A summary of the results from the computer models run is shown. The preparation of the model is discussed and guidelines for the model are given.

The results of the computer model are given and analyzed. The 36-inch Reach 9 Regional Interceptor gravity sewer was found to be adequate for ultimate Poggi Canyon Basin flows. The 18-inch sewer reach under Interstate 805 was found to be under-capacity for ultimate Poggi Canyon Basin flows. Recommended improvements to the line are discussed and a cost summary for the costs is given. Then a possible phasing of improvements in Poggi Canyon Basin is given.

### Chapter 5 - Financing

The development impact fee distributes the cost of the required system upgrades in an equitable manner. The City of Chula Vista will fund the upgrade of a portion of the existing system. Using the summary of EDUs in Chapter 3, the total cost of recommended improvements less what will be funded by the City of Chula Vista is divided among all future EDUS. For the Poggi Canyon Basin, the resulting development impact fee is \$400 per EDU. The development impact fees are also shown according to land use.

#### **CHAPTER 2**

#### **BACKGROUND**

#### Introduction

On September 9, 1996, the City of Chula Vista executed a purchase order contract with Wilson Engineering to prepare the Poggi Canyon Sewer Basin Study. This report is to provide an evaluation of ultimate sewage flows within the Poggi Canyon Basin and the gravity sewer facilities needed to convey these flows. The intention of this report is to assimilate the engineering design data as well as incorporate future planning information along with the estimated construction and administrative costs associated with the proposed infrastructure requirements. With this data, the City of Chula Vista will be able to establish a Development Impact Fee to fund the required improvements within the Poggi Canyon Basin.

A summary of the tasks which will be accomplished within this report are as follows:

- 1. Determine buildout development levels within the Poggi Canyon Basin, based on planning information and tentative maps.
- 2. Create a computer model of the Poggi Canyon Basin Sewer Interceptor in order to determine the size of the gravity sewer required to accommodate ultimate buildout conditions.
- 3. Recommend the size and location of sewer improvements.
- 4. Provide a map showing the location of the sewer improvements as well as all the contributing properties within the Poggi Canyon Basin.

- 5. Estimate engineering, administrative and construction costs for the recommended improvements within the Poggi Canyon Basin.
- 6. Establish a sewer Development Impact Fee based on the costs of the Poggi Canyon Basin improvements and the number of future dwelling units within the basin that will require these facilities.

The Poggi Canyon Basin Sewer improvements, which are studied in this report, extend from the upper limits of the Poggi Canyon Sewer Drainage Basin west to the future location of a Regional Trunk Sewer identified as Reach 9 of the Salt Creek Basin Interceptor System. The Reach 9 portion of the Salt Creek Basin Interceptor System was developed as part of the Salt Creek Basin Gravity Sewer Analysis prepared in November 1994 for the City of Chula Vista. This report will provide the recommended size of the Reach 9 Interceptor in order that ultimate capacity from the Poggi Canyon Basin will be accommodated. However, the costs associated with Reach 9 area not part of the DIF being established for the Poggi Canyon Basin. The City has indicated that Reach 9 will be a City-funded facility because it provides regional service to the City of Chula Vista. Therefore, the Poggi Canyon Basin Sewer System recommendations will terminate at the approximate future location of the Reach 9 Regional Sewer Interceptor.

### The Purpose and Need for a Sewer Basin Plan

The City of Chula Vista has recognized that development within the Poggi Canyon Basin east of Interstate 805 is beginning to gain momentum. Because of the imminent development within the Poggi Canyon Basin, the City would like to establish the ultimate buildout infrastructure requirements as well identify costs for those future facilities. This will provide the basis for the City to establish a sewer benefit area fee through which the required ultimate sewer improvements can be financed.

The purpose of the sewer basin plan is to collect, in one comprehensive document, the most current land planning information within the Poggi Canyon Sewer Drainage Basin and determine the sizes of facilities required for ultimate development. A calculation of the ultimate expected equivalent dwelling units within the basin will allow a sewer basin fee to

be established based upon the remaining number of equivalent dwelling units to be developed in the Poggi Canyon Basin. The remaining number of equivalent dwelling units is based upon a research of the properties within the basin and the development potential as of April 1997. Future development potential is determined by existing approved tentative maps, submitted and approved SPA plans, and City of Chula Vista General Plan Land Uses where no other information is available.

Because of the inherent changes in future development plans, it is important to recognize the need for periodic updates to the information presented in this report. Updates should be performed at regular intervals of five years duration as a minimum. In the case where substantial development is occurring at one time, and significant portions of the ultimate sewer infrastructure are being constructed, updates should be performed to ensure that the facilities being constructed will satisfy the ultimate basin requirements.

### **Description of Study Area**

The Poggi Canyon Basin Sewer Study Area extends from west of Interstate 805 to the EastLake Development in the eastern sector of the City of Chula Vista. A portion of the study area is already developed. This is the portion that straddles Interstate 805 and extends from south of Palomar Street to Otay Valley Road. The future extension of the Poggi Canyon Sewer is expected to follow East Orange Avenue, east of Interstate 805. The eastern boundary of the Poggi Canyon Study Area extends just beyond the future intersection of East Orange Avenue and State Route 125.

The Poggi Canyon Sewer Basin is located adjacent to and south of the Telegraph Canyon Basin and is bounded on the south by the Wolf Canyon Basin and the Salt Creek Basin. Except for the existing development on either side of Interstate 805 and some development within the EastLake project east of the future State Route 125, the majority of the Poggi Canyon Basin is currently undeveloped. Exhibit "A", attached to this report, identifies the boundary of the Poggi Canyon Basin on 800 scale topography, along with the location of manholes, reach identification numbers, and flows used for the computer model.

### Properties within the Study Area

Several different property ownerships have been identified within the Poggi Canyon Basin Study Area. The following is a list of these ownerships:

- 1. Existing development on either side of Interstate 805.
- 2. Sunbow II
- 3. Charles H. Gerhardt
- 4. Allen L. Gerhardt, Jr.
- 5. Otay Ranch
- 6. Otay Ranch Village 1
- 7. Otay Ranch Village 5
- 8. McMillin
- 9. EastLake Development
- 10. County Landfill
- 11. Otay Water District

The larger of the properties within the Poggi Canyon Sewer Basin include Sunbow II, Otay Ranch, Otay Ranch Villages 1 and 5, and EastLake. Two of the ownerships within the Poggi Canyon Basin (County Landfill and Otay Water District properties) have been identified as contributing no future sewer flows into the Poggi Canyon Basin Sewer Interceptor. If future activities within these two ownerships result in the generation of sewer flows, the plan will require revision.

#### Number of EDUs in the Study Area

Table 2-1 on the following pages provides a summary of the detailed land planning and sewage generation information for all undeveloped properties within the Poggi Canyon Basin Study Area. This table excludes information about existing development within the Poggi Canyon Basin on either side of Interstate 805. Data on existing development and existing sewage flows will be provided in greater detail in Chapter 3 of this report.

The data included in Table 2-1 was compiled using the most current available land planning

information for the various ownerships. Data for the Sunbow II project was obtained from the Sunbow II Tentative Map and Proposed Site Utilization Plan. Information for the Otay Ranch was obtained from the Otay Ranch General Development Plan document. Information for the McMillin property was obtained from the Otay Ranch SPA 1 submittal document. For Otay Ranch Villages 1 and 5, the Tentative Map (C.V.T. 96-04) was used.

The data for development within the EastLake project was obtained from two different sources. First, the development within the EastLake Greens was obtained from a spreadsheet compiled by EastLake Development. The information for the land swap area of EastLake was obtained from the City of Chula Vista and land uses were based on the City's General Plan. The land use data for the remaining small properties scattered throughout the basin is also based on the City of Chula Vista General Plan.

Appendix A includes additional information relative to the source of the land use data for many of the properties within the Poggi Canyon Basin. Appendix A is consistent with Table 2-1 in that sewage generation is based on 280 gpd/EDU. Appendix B duplicates the information presented in Appendix A except that Appendix B calculates sewage generation based on 265 gpd/EDU.

# Sunbow II

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	741 du	280 gpd/unit	207,480	741.0	144.1
Multi-Family	580 du	210 gpd/unit	121,800	435.0	84.6
Park/Community Center	12.2 ac	2,500 gpd/acre	30,500	108.9	21.2
Commercial	10.0 ac	2,500 gpd/acre	25,000	89.3	17.4
Elementary School	1	9,000 gpd	9,000	32.1	6.2
Business Park	51.9 ac	2,500 gpd/acre	129,750	463.4	90.1
TOTAL			523,530	1,869.7	363.6

### Charles H. Gerhardt APN 641-060-02

1.5 Acres within Poggi Basin						
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	
Low Medium Residential	7.5 du*	280 gpd/unit	2,100	7.5	1.5	

<sup>\*</sup> Assumes 5.0 du/acre.

# Allen L. Gerhardt, Jr. APN 641-060-03

5.9 Acres with Poggl Basin							
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm		
Low Medium Residential	29.5 du *	280 gpd/unit	8,260	29.5	5.7		

<sup>\*</sup> Assumes 5.0 du/acre.

# Otay Ranch General Development Plan

Village 2 (Based on General Development Plan)						
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	
Single Family	1,044 du	280 gpd/unit	292,320	1,044.0	203.0	
Park	20 acre	500 gpd/acre	10,000	35.7	6.9	
Elementary School	1	9,000 gpd	9,000	32.1	6.3	
Mixed Use	10 acre	2,500 gpd/acre	25,000	89.3	17.4	
Subtotal			336,320	1,201.1	233,6	

Village 6 (Based on General Development Plan)						
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	
Single Family	990 du	280 gpd/unit	277,200	990.0	192.5	
Multi-Family	1,242 du	210 gpd/unit	260,820	931,5	181.1	
Park	10 acre	500 gpd/acre	5,000	17.9	3.5	
Elementary School	1	9,000 gpd	9,000	32.1	6,3	
Mixed Use	13.4 асте	2,500 gpd/acre	35,500	126.8	24.6	
Subtotal			587,520	2,098.3	408.0	

# Otay Ranch General Development Plan (Continued)

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	204 du	280 gpd/unit	57,120	204.0	39.7
High School	0.5	48,000 gpd	24,000	85.7	16,6
Subtotal			81,120	289.7	56.3

Village 11 (Based on General Development Plan)							
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm		
Multi-Family	498 du	210 gpd/unit	104,580	373.5	72.6		
Park	10 acre	500 gpd/acre	5,000	17.9	3.5		
Subtotal			109,580	391.4	76.1		

### Otay Ranch General Development Plan (Continued)

Planning Area 12 (Ba	ased on General Deve	lopment Plan)			
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Mixed Use	94 acre	2,500 gpd/acre	235,000	839.3	163.2

Village One West (B	ased on General Deve	lopment Plan)			
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	210 du	280 gpd/unit	58,800	210.0	40.8

	•				
Land Use	Quantity	Sewage	Average Sewer	Equivalent	Average Sewer
		Generation Factor	Flow,	Dwelling Units,	Flow, gpm
			gpd	EDU:	· • •

# Otay Ranch Village 1 (Based on Approved Tentative Map)

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
R-13	76 du	280 gpd/unit	21,280	76.0	14.8
R-14 (part)	85 du	210 gpd/unit	17,850	63.7	12.4
R-15	215 du	210 gpd/unit	45,150	161.3	31.4
R-16	280 du	210 gpd/unit	58,800	210.0	40.8
R-17	200 du	210 gpd/unit	42,000	150.0	29.2
R-18	230 du	210 gpd/unit	48,300	172.5	33.5
R-19	204 du	210 gpd/unit	42,840	153.0	29.7
C-1	6.5 acre	2,500 gpd/acre	16,250	58.0	11.3
C-2	5.0 acre	2,500 gpd/acre	12,500	44.6	8.7
CPF-1	10.0 acre	2,500 gpd/acre	25,000	89.3	17.4
CPF-2	3.2 acre	2,500 gpd/acre	8,000	28.6	5.5
CPF-3	1.4 acre	2,500 gpd/acre	3,500	12.5	2.4
Otay Ranch Village 1 TOTAL			341,470	1,219.5	237,1

# Otay Ranch Village 5 (Based on Approved Tentative Map)

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
R-28 (part)	50 du	280 gpd/unit	14,000	50.0	9.7
R-29	83 du	210 gpd/unit	17,430	62.3	12.1
R-30	119 du	280 gpd/unit	33,320	119.0	23.1
R-31 (part)	14 du	280 gpd/unit	3,920	14.0	2.7
R-39	182 du	210 gpd/unit	38,220	136.5	26.6
P-6	2.6 acre	2,500 gpd/acre	6,500	23.2	4.5
P-11	0.6 acre	2,500 gpd/acre	1,500	5.4	1.0
CPF-5	3.6 acre	2,500 gpd/acre	9,000	32.1	6.3
Otay Ranch Village 5 TOTAL		•	123,890	442.5	86,0

# McMillin (Based on Otay Ranch SPA 1)

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
R-13 (30%)	33 du	280 gpd/unit	9,240	33.0	6,4
R-40	204 du	210 gpd/unit	42,840	153.0	29.8
R-41	127 du	210 gpd/unit	26,670	95.3	18.5
R-42	241 du	210 gpd/unit	50,610	180.7	35.1
R-43	175 du	210 gpd/unit	36,750	131.3	25.5
R-44	261 du	210 gpd/unit	54,810	195.7	38.1
R-45	165 du	210 gpd/unit	34,650	123.7	24.1
P-7	5.2 асге	500 gpd/acre	2,600	9.3	1.8
P-8	1.7 acre	500 gpd/acre	850	3.0	0.6
C-3	1.6 acre	2,500 gpd/acre	4,000	14.3	2.8
C-4	2.0 асге	2,500 gpd/acre	5,000	17.9	3.5
CPF-6	3.2 acre	2,500 gpd/acre	8,000	28.6	5.5
CPF-7	2.3 acre	2,500 gpd/acre	5,750	20.5	4.0
McMillin TOTAL			281,770	1,006,3	195.7

# EastLake Development

EastLake Greens					
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	556 du	280 gpd/unit	155,680	556.0	108.1
Multi-Family	338 du	210 gpd/unit	70,980	253.5	49.3
Public/Quasi-Public	15.8 acre	2,500 gpd/unit	39,500	141.1	27.4
High School	1	48,000 gpd	48,000	171.4	33,3
Elementary School <sup>1</sup>	1	12,000 gpd	12,000	42.9	8.3
Subtotal			326,160	1,164.9	226.4
EastLake Land Swap A	rea				<u> </u>
Future Commercial	55 acre	2,500 gpd/acre	137,500	491.1	95.5
Future Multi-Family	600 du <sup>2</sup>	210 gpd/unit	126,000	450.0	87.5
Subtotal			263,500	941.1	183.0
EASTLAKE DEVELO	PMENT TOTAL		589,660	2,106.0	409.4

Based on proposed student body population of 800 (City of Chula Vista) Assumes 40 acres at 15 du/acre. 2

# County Landfill Area within Poggi Basin

General Plan Designation is Public/Quasi Public -	0 EDUs
Otay Water District Property	
General Plan Designation is Public/Quasi Public -	

### Design Criteria

The design criteria used for analysis of the proposed improvements for the Poggi Canyon Sewer Basin are in accordance with those used by the City of Chula Vista for previous sewer planning studies. Table 2-2 provides a summary of the gravity sewer design criteria used within this study.

	Table 2-2	
Gravity Se	wer Design Criteria	
Manning's "n"	0.013	
Minimum Pipe Size	8 inches	
For 8-inch, 10-inch, 12-inch	d/D = 0.50	
For 15-inch and greater	d/D = 0.75	
Peaking Factor <sup>1</sup> CVDS 18 in City of Chula V  Subdivision Manual		

For the computer model, the peaking factor curve in CVDS 18 is approximated by the following equation:  $Q_{peak} = 3.5 \times Q_{avg}$  (0.906), for Q in gpm.

The value of Manning's "n" used for the analysis of the Poggi Canyon Basin Sewer System is 0.013. This value is commonly used for design of new sewer systems. It is not specific to any pipe material as it is not known what pipe material may be used in any reaches of the Poggi Canyon Basin Sewer System. Values of "n" in reference materials vary from 0.011 to 0.015 for lined cast iron pipe and vitrified clay pipe. For plastic pipe, values typically range between 0.011 and 0.015.

The peaking factor used within the computer model is based on an equation that was input into the computer model. This equation approximates the peaking factor curve in the City of Chula Vista Subdivision Manual. Several points along the curve were checked to verify that the peaking factor used in the computer model is equal to or greater than that shown in

the peaking factor curve within the subdivision manual. These calculations are provided in Appendix F.

### Sewage Generation Factors

The sewage generation factors to be used for this type of planning study are critical for the appropriate sizing of ultimate sewer facilities. Table 2-3 provides a summary of the sewage generation factors used within this report for different land uses within the Poggi Canyon Basin Study Area.

Two sets of factors are presented in Table 2-3 and these factors vary only in the average daily flow generation for residential land use. The higher generation factors, including 280 gpd per unit for single family and 210 gpd per unit for multi-family residential, are consistent with the City of Chula Vista Subdivision Manual for new development. All computer analyses relating to sizing of parallel, replacement or new sewer mains will be based on the higher set of sewage generation factors. The lower set of factors for the residential land uses will be used when analyzing flows through existing gravity sewer facilities within the Poggi Canyon Basin.

Table 2-3

Sewage Generation Factors

Sowage Concration Pactors				
Land Use	Average Daily Flow	Average Daily Flow <sup>2</sup>		
Residential				
Single-Family	280 gpd/unit	265 gpd/unit		
Multi-Family	210 gpd/unit	200 gpd/unit		
Commercial/Multi Use	2,500 gpd/acre	2,500 gpd/acre		
Schools				
Elementary <sup>3</sup>	15 gpd/student	15 gpd/student		
Junior High School <sup>4</sup>	20 gpd/student	20 gpd/student		
High School <sup>5</sup>	20 gpd/student	20 gpd/student		
Community Purpose Facilities	2,500 gpd/acre	2,500 gpd/acre		
Parks	500 gpd/acre	500 gpd/acre		

For use in analyzing all flows in parallel, replacement, or new gravity sewers.

For use in analyzing future flows in existing gravity sewer facilities.

<sup>3</sup> Elementary School Capacity is 600 Students.

Junior High School Capacity is 1,400 Students.

<sup>5</sup> High School Capacity is 2,400 Students.

### **CHAPTER 3**

#### DATA

### Existing Sewage Flows within the Poggi Canyon Basin

As described in Chapter 2, there is a portion of the Poggi Canyon Basin which includes existing development. This area is on either side of Interstate 805 along Oleander Avenue and Melrose Avenue. It extends south to Otay Valley Road.

In order to assist in establishing the existing flows within the Poggi Canyon Basin, flow monitoring was done by the City of Chula Vista on the existing 8-inch gravity sewer east of Interstate 805 in Oleander Avenue. The results of the flow metering are included in Appendix C. This flow metering data was correlated with the existing number of dwelling units within the basin upstream of the flow metered location. The result was a calculated sewage flow per EDU quantity which was used for comparison of the calculated flow generated from the existing development within the Poggi Canyon Basin which is currently sewering down Oleander Avenue and Melrose Avenue.

Existing EDUs within this area were determined by counting lots from the sewer base maps obtained from the City of Chula Vista as well as performing field investigations of commercial and multi-family areas to better establish the actual number of dwelling units or other types of land uses within the basin. Table 3-1 presents a summary of the existing land uses and dwelling units within the developed portion of the Poggi Canyon Basin. (Note that the developed portions of the Poggi Canyon Basin exclude any portion of EastLake which has been developed. All existing EastLake development within the Poggi Canyon Basin is currently being pumped to the Telegraph Canyon Basin Sewer System.)

**TABLE 3-1** 

# Summary of Land Uses within Existing Developed Portion of Poggi Canyon Basin

#### Area East of Interstate 805

Land Use	Quantity	Equivalent Dwelling Units, EDUs
Single Family	658 du	658.0
Multi-Family	286 du	214.5
Commercial	. 0	0
Elementary School	2	64.3
Subtotal		936.8

#### Area West of Interstate 805

Land Use	Quantity	Equivalent Dwelling Units, EDUs
Single Family	496 du	496.0
Multi-Family	343 du	257.3
Commercial	8.1 ac	72.3
Elementary School	1	32.1
Subtotal		857.7
TOTAL		1,794.5

Appendix D includes a calculation which correlates the flow per EDU for the existing development within the Poggi Canyon Basin to the metered data. The calculation shows that the existing flow per EDU is approximately 274 gpd per EDU. For the Poggi Canyon Basin Sewer System analyses, the existing units in the basin will be multiplied by 280 gpd/EDU for analysis of new piping, or 265 gpd/EDU for analysis of existing pipe. The determination of the number of EDUs within the basin will be made using the appropriate sewage generation factors column from Table 2-3.

#### Projected Sewage Flows by Property

The land planning information provided by the City of Chula Vista as well as information provided directly from developers such as EastLake is the basis for the development of ultimate sewage flows generated within the Poggi Canyon Basin. Table 3-2 presents the ultimate sewage flow estimated for each of the properties within the Poggi Canyon Basin. This table also includes the equivalent dwelling units for the ultimate flow from each of the properties.

TABLE 3-2  Summary of Ultimate Sewage Flows and EDUs for All Properties within Poggi Canyon Basin (Based on 280/210 gpd/Unit)						
	gpd	gpm				
Existing Development	502,460	348.9	1,794.5			
Sunbow II	523,530	363.6	1,869.7			
Charles H. Gerhardt	2,100	1.5	7.5			
Allen L. Gerhardt, Jr.	8,260	5.7	29.5			
Otay Ranch General Development Plan	1,408,340	978.0	5,029.8			
Otay Ranch Village 1	341,470	237.1	1,219.5			
Otay Ranch Village 5	123,890	86.0	442.5			
McMillin	281,770	195.7	1,006.3			
EastLake Development	589,660	409.4	2,106.0			
County Landfill	0	0	0			
Otay Water District	0	0	0			
TOTAL	3,781,480	2,625.9	13,505.3			

The properties listed in Table 3-2 encompass all the expected future development within the Poggi Canyon Basin. The existing development within the Poggi Canyon Basin straddling Interstate 805 is judged to be built out. There may be a few empty lots scattered throughout

that portion of existing development but nothing significant in terms of additional flow generation to the Poggi Canyon Sewer. Existing flows within the basin are summarized in Table 3-1.

## **Existing Flows Currently Being Diverted to Other Basins**

As mentioned earlier in this report, EastLake has some existing development within the boundary of the Poggi Canyon Basin. Because there is no existing gravity sewer outlet for this area of EastLake, a sewage lift station has been constructed along Eastlake Parkway to pump all sewage flows generated within the Poggi Canyon Basin north to the Telegraph Canyon Basin. Table 3-3 shows the breakdown between total buildout units and the amount of development already built.

Table 3-3 also identifies the current level of development within the EastLake project, which is being pumped to the Telegraph Canyon Basin. Presently this amounts to 222,260 gpd (163.2 gpm), which is pumped to the Telegraph Canyon Basin. When the Poggi Canyon Basin Sewer Interceptor is constructed east to the EastLake boundary, the Eastlake Parkway Pump Station will be abandoned in favor of gravity sewering the portion of the EastLake Development within the Poggi Canyon Basin.

		TABLE 3-3	-	
	Current Develop	ment Levels in Ea	stLake Project	
Land Use	Свгген	tly Built	Ultimate	Buildout
	gpd	EDU:	gpd	EDUs
Single Family	145,880	521	155,680	556
Multi-Family	16,380	58.5	196,980	703.5
Church (Future)	0	0	39,500	141.1
High School	48,000	171.4	48,000	171.4
Elementary School	12,000	42.9	12,000	42.9
Commercial			137,500	491.1
TOTAL	222,260	793.8	589,660	2,106,0

Eastlake Parkway Pump Station Abandonment. The Poggi Canyon Basin Study is based on the assumption that the Eastlake development will ultimately connect to the Poggi Canyon Basin Sewer System. The basis for the Poggi Canyon Basin Sewer improvement fee calculated in this study includes the units within the Eastlake development which are within the Poggi Canyon Basin. In order for this study's assumption to remain valid, the Eastlake Parkway Pump Station must be abandoned and flows must be re-routed to the future Poggi Canyon Basin sewer.

The Eastlake Parkway Pump Station is situated within the Poggi Canyon Basin on the west side of Eastlake Parkway. It currently provides sewer service to a portion of the Eastlake development which gravity flows toward Poggi Basin. Since no facilities exist within Poggi Canyon Basin that far east, the pump station diverts the sewage flow to the Telegraph Canyon Basin.

When the Poggi Canyon Basin Sewer System is constructed in East Orange Avenue to the eastern edge of Otay Ranch Village 5, there will be an opportunity to abandon the Eastlake Parkway Pump Station in favor of gravity sewering the pump station's service area to the Poggi Canyon Basin sewer. In order for this to be accomplished, a gravity sewer extension will have to be constructed from the pump station south and west under the future State Route 125 right-of-way. In addition to the SR 125 obstacle, there are also two easements which will have to be crossed: SDG&E, and San Diego County Water Authority (SDCWA).

Since the planning and design of the State Route 125 project is currently in progress, it would be timely for the City of Chula Vista to prepare an alignment study for the proposed sewer extension. Otay Ranch Village 5 is also beginning final design. Therefore the tie-in point can be coordinated based on the constraints imposed by the design of SR 125.

#### Alignment of Future Poggi Canyon Basin Sewer

This section of the report will describe the existing gravity sewer facilities within the Poggi Canyon Basin and discuss alternative alignments for the ultimate Poggi Canyon Basin Sewer Interceptor.

Existing Gravity Sewer Facilities. Currently, the Poggi Canyon Basin Sewer extends from the Date-Faivre line at the intersection of Palm Avenue and Rancho Drive north and east to Orange Avenue east of Interstate 805. The existing pipeline ends a few hundred feet short of the intersection of Brandywine Avenue and Orange Avenue. The pipeline through this reach is primarily 8-inch with a few sections of 12-inch, 18-inch and 21-inch pipe. The portion of gravity sewer south of Otay Valley Road in Melrose Avenue and Rancho Drive up to the Date-Faivre line is 12-inch diameter. From Otay Valley Road north in Melrose Avenue, the pipeline is 8-inch diameter. Underneath the Interstate 805 freeway, there is an existing 18-inch diameter pipeline. In Oleander Avenue on the east side of Interstate 805, the pipeline is again 8-inch diameter up to approximately Satinwood Way. At this point, it increases to 21-inch diameter through a condominium complex until it reaches Orange Avenue where there is an existing section of 18-inch pipe.

Discussion of Alternative Alignments. The proposed alignment for the Poggi Canyon Basin Sewer Interceptor east of the existing 18-inch sewer line in Orange Avenue is proposed to be within the alignment of East Orange Avenue. East Orange Avenue is slated to extend through Sunbow II, east through Otay Ranch, then through the Otay Ranch Villages 1 and 5 area and finally past EastLake. Preliminary road alignment studies show this roadway following near the bottom of Poggi Canyon. For this reason, it is the ideal spot for the Poggi Canyon Basin Sewer Interceptor. In addition, since none of East Orange Avenue has been constructed beyond the end of the existing 18-inch sewer in East Orange Avenue, the proposed Poggi Canyon Basin Sewer Interceptor can be constructed along with East Orange Avenue road improvements.

Alternative alignments for the Poggi Canyon Basin Sewer Interceptor come into consideration through the existing developed Poggi Canyon Basin area, straddling the Interstate 805 freeway. Through this area three basic alignments were reviewed. These are described below:

- 1. Replacement. Replace the existing 8-inch gravity sewer in Oleander Avenue and in Melrose Avenue with the ultimate sized gravity sewer required for ultimate basin flows.
- 2. Parallel Alignment. Parallel the existing 8-inch gravity sewer in Oleander

Avenue and Melrose Avenue with the ultimate sized gravity sewer for the Poggi Canyon Basin.

3. Storm Drain Easement. Construct the ultimate size gravity sewer for the Poggi Canyon Basin within an existing storm drain easement, parallel to existing Oleander Avenue and Melrose Avenue.

Replacement Alternative. This alternative would involve excavation and removal of the existing 8-inch gravity sewer line in Oleander Avenue and Melrose Avenue and replacement of that line with a larger diameter gravity sewer. It would involve asphalt cutting, removal, and pavement restoration, traffic control within an existing street, as well as providing temporary sewer service to existing homes on either side of the street while the construction was in progress. In addition, the existing sewer laterals would have to be tied to the new gravity sewer.

Working in an existing street with traffic control increases the cost of construction. In addition, removing and replacing the pipeline requires handling sewage flow from the existing house laterals on a temporary basis. While it can be accomplished, the process is time consuming as well as disruptive to the neighborhood in terms of noise, construction traffic, and dirt and debris.

Parallel Alignment. This alternative proposes to install the ultimate sized gravity sewer parallel to the existing 8-inch sewer in Oleander Avenue and Melrose Avenue. Under this alternative, the existing 8-inch sewer in Melrose Avenue and Oleander Avenue would stay in place to act as a local collector sewer. All the existing homes would maintain their sewer lateral connections to the existing 8-inch sewer line. The new larger diameter Poggi Canyon Basin Sewer Interceptor would be connected to the existing 8-inch at critical points in order to relieve the 8-inch of ultimate basin flows.

The construction of this parallel line would take place in the existing streets with asphalt cutting, removal and replacement as well as the similar disruption to the neighborhood from noise, construction traffic, dirt and debris as discussed under the replacement alternative. Construction would be simplified in not having to temporarily bypass existing sewer laterals

or reconnect them to the new pipeline. However, construction would be hampered by having to avoid existing sewer lateral crossings as well as avoiding other existing utilities within the existing streets.

Generally, there appears to be sufficient room for a parallel gravity sewer within the existing streets. There may be special construction required along segments due to clearances between the gravity sewer line and other wet or dry utilities. These would have to be better defined during a design level review of this alignment. This alternative may be more desirable than the replacement alternative. However, there may also be existing conditions within the existing roadways which may preclude the ability to parallel the existing 8-inch sewer in both Oleander Avenue and Melrose Avenue. A review of these potential obstacles is beyond the scope of this report.

Storm Drain Easement Alternative. A third alternative is to place the ultimate sized gravity sewer for the Poggi Canyon Basin within an existing storm drain easement which runs behind the homes fronting the west side of Oleander Avenue and Melrose Avenue. This storm drain easement contains a concrete lined storm water channel for storm water flows collected within the Poggi Canyon Basin. The easement includes a dirt roadway access bench in which it is possible to construct the ultimate sized gravity sewer for the basin.

There are additional considerations which will have to be addressed with this alignment alternative. These include providing an enlarged access road for sewer maintenance vehicles and providing acceptable access points at either end of the alignment to permit City crews to easily maintain the sewer line. Special construction may also be necessary due to shallow depth of cover and existing storm drain crossings. In addition, construction access and working space may be limited particularly during the rainy season. These types of issues could increase the cost of this alternative.

The existing 8-inch gravity sewer in Oleander Avenue and Melrose would be left in place to serve as a local collector sewer for the ultimate Poggi Canyon Basin Sewer Interceptor. Connections would be made at the upper end of Oleander Avenue and at Melrose Avenue near the intersection of Talus Street. This would provide relief to the existing 8-inch gravity sewers and allow them to continue to be used as a local sewer main.

As part of the Sunbow II development project, preliminary improvement plans have been prepared for this Alternative 3 alignment. These improvement plans demonstrate that it is feasible to construct the ultimate gravity sewer within the storm drain easement along the backside of the homes fronting the west side of Oleander Avenue and Melrose Avenue. The proposed alignment of the ultimate Poggi Canyon Basin Gravity Sewer Interceptor would extend south of Otay Valley Road within the storm drain easement to the proposed Reach 9 Regional Interceptor.

Constructing the ultimate gravity sewer for the Poggi Canyon Basin within the storm drain easement might reduce construction costs due to much reduced traffic control requirements and reduced asphalt removal and restoration. It would likely be less disruptive to the neighborhood. However, to meet the City's design criteria may entail additional costs, and the special construction constraints may increase the project costs.

Proposed Alignment Alternative. As indicated earlier in this section of the report, the Sunbow II project has been processing plans for the construction of the gravity sewer within the storm drain easement. The City has expressed some reservation that the storm drain easement alignment between Otay Valley Road and Melrose Avenue (between Manhole 201 and Manhole 204 on Exhibit A) is the most cost effective alignment. In order to protect its interests while allowing the project developer flexibility to exercise judgement as to which alternatives may be most cost effective, the City has agreed to accept the storm drain easement alignment, subject to the design being reviewed and approved by the Engineering Department, with a \$600,000 cap on the construction cost of this segment of the Poggi Canyon Basin Sewer. The project developer will not be reimbursed by either the DIF or the City for construction costs in excess of \$600,000.

#### CHAPTER 4

#### **ANALYSIS**

#### Computer Analysis of Poggi Canyon Basin Sewer Interceptor

A computer model was created for the Poggi Canyon Basin Sewer Interceptor System. This model extends from the upper portion of the basin at the boundary of Otay Ranch Village 5 and EastLake Development, west and south to the interceptor's ultimate connection to the Reach 9 Regional Interceptor. The computer model diagram, including manhole numbers and reach numbers, is presented in Exhibit "A" attached to this report.

In the preparation of the computer model, an attempt was made to keep it simple and minimize the number of gravity sewer reaches. The reaches were divided at points where there was a slope change and where a significant amount of sewage flow from any of the contributing properties is expected to be input. The gravity sewer slopes included in the model were obtained from a review of the Sunbow Tentative Map and tentative map for the Otay Ranch Village 1 and 5 project. These two sources were used to determine slopes in future East Orange Avenue. The slopes within the existing developed area of the Poggi Canyon Basin were obtained from a review of the preliminary design drawings for the Sunbow II project offsite sewer system.

In general, minimum anticipated gravity sewer line slopes were used in the computer model analysis. Verification of flow capacities for each reach of the Poggi Canyon Basin Sewer Interceptor should be made during the design phase of any portions of this interceptor. It may be possible that the final design of the interceptor based on actual slopes that can be achieved (which may be greater than the slopes assumed in this study) may incorporate a decrease in the line size of some of the reaches.

Flows estimated from the future development projects within the Poggi Canyon Basin were input to the computer model at locations that best approximated their actual connection points based on the best available data for each of the projects. Existing flows were input

into the computer model by counting the actual EDUs which would be discharged into the Poggi Canyon Basin Sewer Interceptor at the computer modeled manholes. Table 4-1 provides a summary of the average quantity of sewage flow entering each reach of the proposed Poggi Canyon Basin Sewer Interceptor. The sewage flows identified in this table were input at the upstream point of each sewer reach for the purposes of modeling the system.

TABLE 4-1
Summary of Sewage Flows for the Poggi Canyon Basin Sewer Interceptor

Reach		Average Flow, gpd										
	Existing Development	Sunbow II	C. Gerhardt	A. Gerhardt	Otay Ranch General Development Plan	Otay Ranch Village 1	Otay Ranch Village 5	McMillin	EastLake	Cumulative Flow		
221					520,836		38,220		589,660	1,148,716		
220					172,256		85,670	170,220		1,576,862		
219					417,024			111,550	·	2,105,436		
218					152,168	341,470				2,599,074		
217			2,100	8,260	142,056				\	2,751,490		
216										2,751,490		
215		40,320								2,791,810		
214		170,352								2,962,162		
213	1,120	312,858								3,276,140		
212										· · · · · · · · · · · · · · · · · · ·		
211									<del></del>	3,276,140		
210	45,920					<del></del>				3,276,140		
209	31,724					· · · · · · · · · · · · · · · · · · ·				3,322,060		
208	2,520					· · · · · · · · · · · · · · · · · · ·				3,353,784		
207										3,356,304		
	I <u>.</u>	<del></del> ,							ł	3,356,304		

TABLE 4-1 (Continued)

## Summary of Sewage Flows for the Poggi Canyon Basin Sewer Interceptor

	Average Flow, gpd									
Reach	Existing Development	Sunbow II'	C, Gerhardt	A. Gerhardt	Otay Ranch General Development Plan	Otay Ranch Village 1	Otey Ranch Village 5	McMillin	EastLake	Cumulative Flow
206							* and an			3,356,304
205	181,020									3,537,324
204	188,356									3,725,680
203										3,725,680
202										3,725,680
201	51,800									3,777,480
Subtotal	502,460	523,530	2,100	8,260	1,408,340	341,470	123,890	281,770	589,660	
9	7,791,947*									11,569,427
TOTAL	8,294,407	523,530	2,100	8,260	1,408,340	341,470	123,890	281,770	589,660	

<sup>\*</sup> Flow in Reach 9 of the Salt Creek Basin Gravity Sewer Analysis.

TABLE 4-1.A

Summary of EDUs for the Poggi Canyon Basin Sewer Interceptor

Reach	Average Flow, gpd										
	Existing Development	Sunbow II	C. Gerhardt	A. Gerhardt	Otay Ranch General Development Plan	Otay Ranch Village 1	Otay Ranch Village 5	McMillin	EnstLake	Cumulative EDUs	
221					1,860.0		136.5		2,106.0	4,102.5	
220					629.5		306.0	608.0	·	5,646.0	
219					1,489.4			398.3	-	7,533.7	
218					543.6	1,219.5				9,296.8	
217			7.5	29.5	507.3				<u> </u>	9,841.1	
216										9,841.1	
215		144.1							<u> </u>	9,985.2	
214		608.4				······				10,593.6	
213	4	1,117.2			·			<u> </u>		11,714.8	
212										11,714.8	
211											
210	164									11,714.8	
209	113.3				· · · · · · · · · · · · · · · · · · ·					11,878.8	
208	9									11,992.1	
207					·····	·····				12,001.1	
209 208	113.3										

### TABLE 4-1.A (Continued)

## Summary of EDUs for the Poggi Canyon Basin Sewer Interceptor

Reach	Average Flow, gpd									
Netu	Existing Development	Sunbow II	C. Gerhardt	A. Gerhardt	Otay Ranch General Development Plan	Otay Ranch Village 1	Otay Ranch Village 5	McMillin	EastLake	Cumulative EDUs
206										12,001.1
205	646.5									12,647.6
204	672.7						·			13,320.3
203	_									13,320.3
202										13,320.3
201	185									13,505.3
TOTAL	1,794.5	1,869,7	7,5	29,5	5,029.8	1,219.5	442.5	1,006.3	2,106	

<sup>\*</sup> Flow in Reach 9 of the Salt Creek Basin Gravity Sewer Analysis.

#### Summary of Analysis

Appendix E includes a copy of the computer model printouts for the Poggi Canyon Basin System Analysis. Exhibit "A", attached to the back of this report, provides a manhole number and reach diagram corresponding to the computer model.

New Pipe Sizing Analysis. Two scenarios were modeled with the computer system. The first scenario was to model the entire system based on a single family dwelling unit sewage generation rate of 280 gallons per day per unit and a multi-family generation rate of 210 gallons per day per unit. This scenario is the basis for the recommended line sizes for the Poggi Canyon Basin Sewer Interceptor. Table 4-2 provides a summary of the recommended gravity sewer line sizes for the Poggi Canyon Basin Sewer Interceptor on a reach by reach basis. Included in this table is a minimum slope estimated for each reach.

This analysis included recalculating the size of the Reach 9 Regional Interceptor. This interceptor was originally sized in the Salt Creek Basin Gravity Sewer Analysis. The original sizing of the Reach 9 Regional Interceptor concluded that a 36-inch gravity sewer at a minimum slope of 0.23 percent is adequate for ultimate Salt Creek Basin flows. The Poggi Canyon Basin analysis shows that adding ultimate Poggi Canyon Basin flows to the Reach 9 Regional Interceptor will not require an increase in the size of the pipe. Under ultimate peak flows from both the Salt Creek Basin and the Poggi Canyon Basin, the 36-inch interceptor will flow out a depth of 0.75 D/d, or 27.0 inches of depth. No increase in pipe size is needed for the Poggi Canyon Basin flows unless the minimum pipe slope of 0.23 percent is not achievable.

A double-check of the Reach 9 Interceptor sizing is provided below to assure that the appropriate peaking factor is being used.

Ultimate average flow = 11,569,427 gpd

Divide by 280 gpd/EDU = 41,319 EDUs

Multiply by 3.5 persons/EDU = 144,617 people

#### From CVDS 18, Peaking Factor is 1.62

Then peak flow = 18,742,472 gpd

= 29.0 cfs

 $= [k/0.013] (36/12)^{(k/3)} (0.0023)^{(1/2)}$ 

k = 0.420

From Brater and King, Table 7-14 for k = 0.420, D/d = 0.75

TABLE 4-2
Poggi Canyon Basin Sewer Interceptor Analysis Summary

				7
Reach	Minimum Slope,	Average Flow, gpd	Peak Flow, gpd	Required Pipe Size
221	0.70	1,148,716	2,145,341	15
220	0.70	1,576,862	2,864,894	15
219	0.50	2,105,436	3,720,715	18
218	0.80	2,599,074	4,501,354	18
217	0.70	2,751,490	4,739,659	18
216	1.00	2,751,490	4,739,659	18
215	0.90	2,791,810	4,802,443	18
214	1.00	2,962,162	5,066,842	18
213	1.83	3,276,140	5,550,552	18
212	0.85	3,276,140	5,550,552	18
211	0.87	3,276,140	5,550,552	18
210	0.93	3,322,060	5,620,910	21
209	0.40	3,353,784	5,669,453	21
208	0.40	3,356,304	5,673,312	21
207	0.61	3,356,304	5,673,312	21
206	0.50	3,356,304	5,673,312	21
205	0.50	3,537,324	5,949,518	21
204	0.73	3,725,680	6,235,517	21
203	0.73	3,725,680	6,235,517	21
202	0.65	3,725,680	6,235,517	21
201	0.66	3,777,480	6,313,939	21
9	0.23	11,569,427	17,395,906	36

Existing Pipe Adequacy Analysis. A second scenario was analyzed with the computer model in order to check whether existing pipelines within the existing Poggi Canyon Basin system would be capable of handling ultimate flow based on the single family residential sewage generation factor of 265 gallons per day per unit and a multi-family generation factor of 200 gallons per day per unit. The results of this scenario are printed out in Appendix E and show no change in the results for the required line sizes.

Under both sewage flow generation scenarios, the existing 18-inch and 21-inch gravity sewer piping in Orange Avenue leading down to Oleander Avenue has sufficient capacity for ultimate basin flows. However, under both sewage flow generation scenarios, the existing 18-inch gravity sewer under the Interstate 805 freeway is shown to have insufficient capacity for ultimate basin flows. Therefore, this report recommends a replacement sewer under Interstate 805 to handle ultimate basin flows.

Existing 18-inch Under Interstate 805. The existing 18-inch sewer reach under the Interstate 805 freeway is shown as being under capacity even when using the lower 265/200 gpd/unit sewage generation factors. Even full-pipe capacity is not sufficient for peak ultimate flows. Appendix G provides calculations identifying the available capacity, in EDUs, within the 18-inch sewer. Table 4-3 provides a summary of the results for various flow depth criteria.

The total number of EDUs which are projected to flow through the 18-inch sewer are 12,834.3 EDUs. This number is based on 265 gpd/EDU.

An alternative to replacing or paralleling the existing 18-inch sewer line under the freeway with a new 21-inch sewer is to allow it to surcharge during peak flows. Appendix H includes a calculation to estimate the amount of surcharge in the manhole and gravity sewer system on the upstream end (east end) of the 18-inch sewer reach under ultimate flow conditions.

The results indicate that the backup in the proposed storm drain alignment sewer on the east side of the freeway would be approximately 80 feet. The backup in the existing 8-inch sewer would not be as dramatic. However, grease buildup and solids buildup could still occur resulting in increased maintenance on this reach of sewer line if it was not replaced.

**TABLE 4-3** 

## Available Capacity in Existing 18-inch Gravity Sewer Under I-805 Freeway (based on 265 gpd/EDU)

D/d	Total EDUs Capacity	Existing EDUs	Remaining EDUs Capacity
0.75	9,708	942	8,766
0.85	11,104	942	10,162
0.93	11,663	942	10,721
1.0	10,779	942	9,837

While the report recommends replacement in order to assure that the D.I.F. includes the necessary monies, it may be that as the basin approaches buildout, peak flows will be less than currently estimated. In that event, replacement would not be necessary. Monitoring of flow in this reach will assist in the final determination of whether or not the sewer should be replaced. It is not recommended that the sewer be allowed to surcharge regularly and significantly. Under such a scenario, replacement should be undertaken.

#### **Estimated Costs of Recommended Improvements**

Table 4-4 provides the unit construction costs which were used to prepare the estimate of construction cost for the Poggi Canyon Basin improvements. Table 4-5 presents an estimate of construction costs for the recommended improvements for the Poggi Canyon Basin Sewer Interceptor. The estimated costs for all reaches requiring improvement is \$6,132,984. Note that four reaches of existing pipeline located in Orange Avenue, east of Oleander Avenue have sufficient capacity for ultimate design flows. However, Reach 205 which extends under Interstate 805 freeway has been shown to have insufficient capacity for ultimate design flows. This report recommends a replacement 21-inch gravity sewer for this reach.

Revised costs for the Reach 9 Regional Interceptor have not been calculated. The analysis within this report has determined that no increase in size of the Reach 9 Regional Interceptor is needed in order to accommodate ultimate Poggi Canyon Basin flows. Therefore, the costs for the Reach 9 Regional Interceptor as estimated in the Salt Creek Basin Gravity Sewer Analysis are still valid.

The estimate of construction costs includes a 15 percent allowance for engineering, inspection services, and surveying, a 25 percent contingency, and a 2 percent allowance for City of Chula Vista administrative costs. The unit costs used in Table 4-5 are estimated for ductile iron pipe and are based on a review of recent construction costs for similar type projects. These costs are based on an ENR-CCI Index for Los Angeles of 6598 (April 1997).

	TABLE 4-4	
Unit	Construction Costs <sup>1</sup>	
Pipe Size, Inches	Cost per Line	ar Foot, Dollars
	New Construction in Graded Road	In Existing Development
8	55	65
10	75	85
12	90	100
15	100	115
18	115	130
21	125	140
24	135	160
30	150	180
36	210	240
42	280	320
36" Jacked Steel Casing and Pipe	800	800

Includes only costs associated with construction of the pipeline.

TABLE 4-5

Poggi Canyon Basin Sewer Interceptor Improvements
Estimate of Construction Cost

Reach No.	Length, ft.	Size, inches	Unit Cost, \$/ft.	Total Cost, dollars		
201	2,700	21	140	378,000		
202	600	21	Lump Sum	1		
203	1,600	21	Lump Sum	600,000		
204	200	21	Lump Sum	1		
205	800	21	800	640,000		
206	1,400	21	140	196,000		
207	400	. 21	140	56,000		
208	600	21	Existing	0		
209	280	21	Existing	0		
210	190	21	Existing	0		
211	220	18	Existing	0		
212	600	18	130	78,000		
213	500	18	130	65,000		
214	2,200	18	115	253,000		
215	1,900	18	115	218,500		
216	800	18	115	92,000		
217	2,000	18	115	230,000		
218	2,100	18	115	241,500		
219	6,000	18	115	690,000		
220	2,700	15	100	270,000		
221	2,700	15	100	270,000		
Subtotal				4,278,000		
15% Engineering,	Inspection, Surveyin	ıg		641,700		
25% Contingency	•	··		1,069,500		
TOTAL				5,989,200		
2% City Administr	ation			119,784		
Poggi Canyon Basi	Poggi Canyon Basin Plan Revision 6 Revisions @ \$4,000 each					
GRAND TOTAL				6,132,984		

<sup>&</sup>lt;sup>1</sup> Reaches 202 through 204 are capped at \$600,000.

#### Phasing of Recommended Improvements

The improvements to the Poggi Canyon Basin Sewer are expected to be completed over several years as development within the basin progresses. The majority of the recommended sewer line will be installed in future East Orange Avenue. This is expected to occur concurrent with the construction of the road.

Many sections of the existing gravity sewer west of Interstate 805 must be upsized for ultimate flows. There is some potential for these improvements to be constructed in phases. The following discussion provides the results of the phasing analysis performed for this study.

Appendix I contains computer runs for the existing gravity sewer system west of Interstate 805. An exhibit in Appendix I shows the computer model diagram.

The Sunbow II project is currently proposing to build the new Poggi Canyon Basin Sewer within the storm drain easement parallel to and west of Oleander Avenue and Melrose Avenue. A sewer reach over capacity in either of these streets would trigger the parallel ultimate gravity sewer to be built in the storm drain alignment.

The computer runs in Appendix I provide the backup for the information presented here. The data is based on replacement of a reach when the existing reach flows full. In actual practice, the City should establish a lower threshold requirement to provide for a margin of safety. The existing system should not be subjected to surcharging prior to being replaced.

Table 4-6 includes a summary of the number of additional EDUs which can be added to the existing system before certain reaches flow at full pipe. The analysis is done based on 265 gpd/EDU.

TABLE 4-6

Phasing of Improvements in the Poggi Canyon

Basin West of Interstate 805

Total Number of Additional EDUs Prior to Requiring an Improvement <sup>1</sup>	Incremental Number of EDUs for Each Improvement	Critical Reach Which Flows Full See Exhibit A)	Required Improvement
130	130	202	Construct Reaches 202, 203, and 204 to relieve sewer in Melrose Avenue.
209	79	201	Construct Reach 201, tie into existing 12-inch in Rancho Drive if Reach 9 Regional Interceptor is not built.
480	271		Build improvements to existing 12-inch in Rancho Drive between Reach 201 and Rios Avenue.
1,108	628	206	Construct Reaches 206 and 207 to relieve sewer in Oleander Avenue.

<sup>&</sup>lt;sup>1</sup> Based on 265 gpd/EDU.

#### **CHAPTER 5**

#### **FINANCING**

#### Financing Through Sewer Benefit Area Fee

The Development Impact Fee is calculated based on the total estimated cost of construction of the recommended improvements spread over the total number of future EDUs within the Poggi Canyon Sewer Basin requiring the facilities. Spreading the costs on an equivalent dwelling unit basis allows for assigning the share of costs in an equitable manner to all the land uses within the Poggi Canyon Basin Study Area.

In Chapter 3, Table 3-2 provided a summary of ultimate EDUs for all the properties within the Poggi Canyon Basin Study Area. This summary of EDUs included existing development in the western portion of the Poggi Canyon Basin as well as some existing development within the EastLake project. In order to establish the number of future EDUs within the Poggi Canyon Basin which will be used for determining the Development Impact Fee, we need to subtract the existing EDUs within the basin. The following shows this calculation:

Total EDUs within the Poggi Canyon Basin	13,505.3
Minus Existing EDUs in the Western Portion of the Poggi Canyon Basin	-1,794.5
Minus Existing EDUs within the EastLake Development	-793.8
Total Future EDUs within the Poggi Canyon Basin	10,917.0

#### City Participation

While the majority of the ultimate sewage flow being generated within the Poggi Canyon Basin is the result of future development, there are 2,588.3 existing EDUs within the basin which are not obligated to participate in the Poggi Canyon Basin Development Impact fee. Portions of the existing sewer system serving these EDUs will need to be upgraded to handle ultimate flows of the new developments. The cost of improvements have been apportioned

between existing and new development based on their need for the new facilities. The City of Chula Vista will fund the upgrade of a portion of the existing system (see Table 5-1) with reserves that were earmarked for the expansion of existing sewer systems. This will lower the fee burden on new residents and provide existing residents with a system that has an extended service life.

TABLE 5-1				
Total City Cont	ribution			
Reach	Cost (from Table 4-5)			
201	378,000			
202	O1			
203	600,000			
204	01			
206	196,000			
207	56,000			
Subtotal	1,230,000			
15% Engineering & Inspection	184,500			
25% Contingency	307,500			
Subtotal	1,722,000			
2% City Administration	34,440			
Total of Maximum City Contribution	1,756,440			

<sup>1</sup> Reaches 202 through 204 are capped at \$600,000.

#### Development Impact Fee Calculation

The development impact fee is based on the cost of required system improvements and the total future EDUs in the basin. The calculation for the Poggi Canyon Basin takes into account the City of Chula Vista participation in the cost for the required system upgrades.

A total of 10,917.0 EDUs comprise the future development within the Poggi Canyon Basin. The following formula is used to determine the recommended improvement costs per EDU:

## Total Cost of Recommended Improvements Total Future EDUs

Development Impact Fee =

Total Cost of Recommended Improvements
Needed for Future Development

= \$6,132,984 - \$1,756,440 = \$4,376,544

Development Impact Fee

$$= \frac{\$4,376,544}{10.917.0 \text{ EDUs}} = \$400.9 \text{ per EDU}$$

Use \$400 per EDU.

This Development Impact Fee will be subject to an annual adjustment based on the Engineering News Record (ENR) Construction Cost Index for Los Angeles. The ENR-CCI for Los Angeles stood at 6598 in April 1997. The annual adjustment will also take into consideration actual construction costs, and changes in the type and density of development.

Table 5-2 provides a summary of the Development Impact Fee calculated on a per EDU basis for the various land uses within the Poggi Canyon Basin. In this manner, the costs will be apportioned to the new developments proportional to their need for the sewer facilities.

TABLE 5-2					
Sewer Benefit Area Fees Based on Land Use Categories					
Land Use	EDU Factor	Fee			
Single Family Residential	1.00 EDU/unit	\$400.00/unit			
Multi-Family Residential	0.75 EDU/unit	\$300.00/unit			
Commercial/Multi-Use	8.93 EDU/acre	\$3,572.00/acre			
Elementary School	32.14 EDU/site	\$12,856.00/site			
Junior High School	100.00 EDU/site	\$40,000.00/site			
High School	171.43 EDU/site	\$68,572.00/site			
Community Purpose Facilities	8.93 EDU/acre	\$3,572.00/acre			
Parks	1.79 EDU/acre	\$ 716.00/acre			

#### **BIBLIOGRAPHY**

Overview of Sewer Service for Specific Planning Area 1 of the Otay Ranch Project, Prepared by Wilson Engineering, June 4, 1996

Gravity Sanitary Sewer Design and Construction, ASCE Manuals and Reports on Engineering Practice No. 60, WPCF Manual of Practice No. FE-5, Prepared by a Joint Task Force of the American Society of Civil Engineers and the Water Pollution Control Federation

#### APPENDIX A

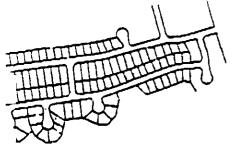
Land Use Planning Data

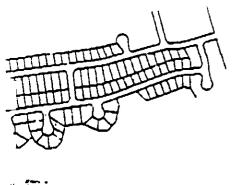
for the Major Development

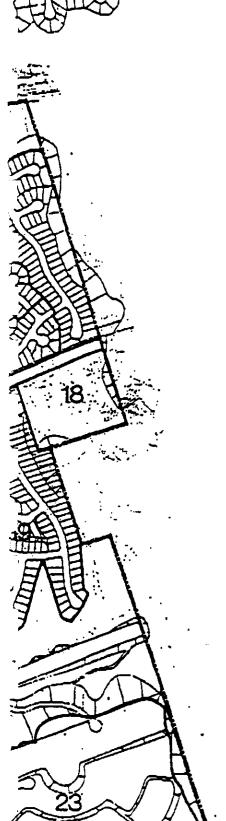
Projects Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit







# ZATION PLAI

## STATISTICAL SUMMARY

	PLANNING AREA	LAND USE DISTRICTS	GROSS ACRES	TOTAL
	İ •	PM	5.7	78
	[ 7	PM .	10.6	180
	10	RC	17.0	208
	104	RC .	10.8	214
	[ 11	RC	18.3	160
	12	R6	50.9	215
	13	RS	50.2	112
	14	AS	24.8	110
	<sup>1</sup> 15	<b>PP</b>	19.0	23
	16	R\$	34.8	145
	17	RS	24.9	102
	19	RS	28.6	112
	20	RS	13.0	57
	21	RS	16.0	81
	22	RS.	-24.0	101
	SLISTOTAL,		329.7	1946
	6	VC	11.0	
	23	P	44.0	
	18	rs-elda School	11.0	
	9	OS/COMM. REG.	10.0	
_		OPEN SPACE & ROADS	1943	
G	RAND TOTAL		602.0	1946

CHOOME CHACH STE

- RESIDENTIAL SINGLE FAMILY

- RESCRITUL PLANNED DEVELOPMENT

- RESDENTIAL MLLTH-FAMILY

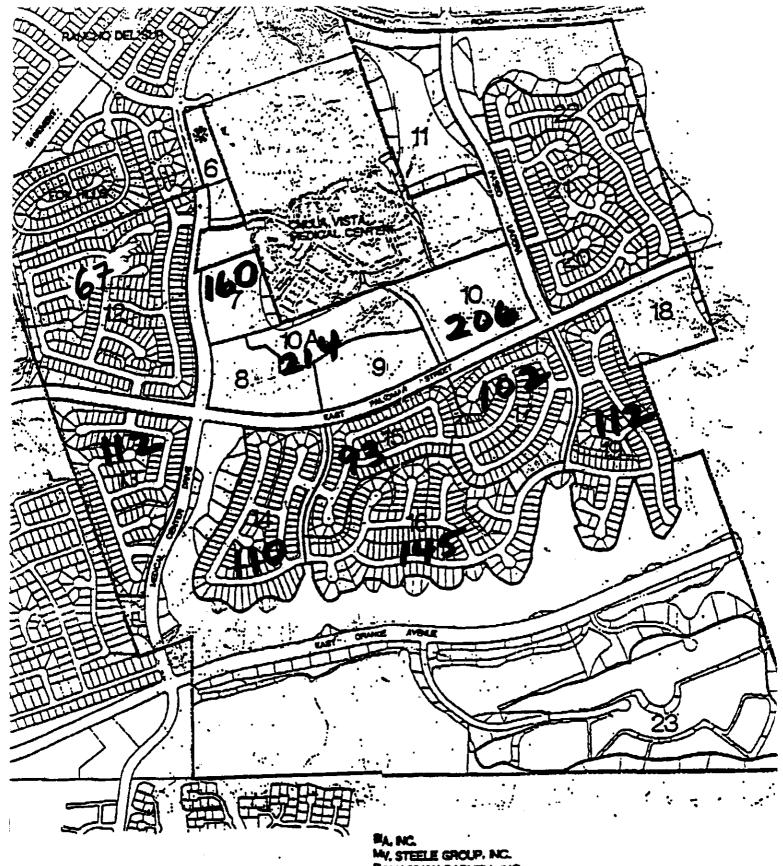
- RESIDENTIAL CONDOMNUM

VILLAGE CENTER

- NOUSTRUL PARK

. Sunbow II

5



MA, NC.
MV, STEELE GROUP, NC.
B-SMACIYAN-DARNELL, NC.
TIPRA PLANNING & DESIGN
GLESPE DELORENZO ASSOCIATES

Sunbow I

Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 280/210 gpd/unit SUNBOW II TABLE A-1

Land Use	Quantity	Sewage Generation Factor	Average Sewei Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	741 du	280 gpd/unit	207,480	741.0	144.1
Multi-Family	580 du	210 gpd/unit	121,800	435.0	84.6
Park/Community Center	12.2 ac	2,500 gpd/acre	30,500	108.9	21.2
Commercial	10.0 ac	2,500 gpd/acre	25,000	89.3	17.4
Elementary School		9,000 gpd	9,000	32.1	6.2
Business Park	51.9 ac	2,500 gpd/acre	129,750	463.4	90.1
TOTAL			523,530	1,869.7	363.6
Flow Split					
To MH 215: Elementary School and 112 SFDU	tary School and	1112 SFDU			28.0 gpm
To MH 214: Business Park and 145 SFDU	ss Park and 145	SFDU			118.3 gpm
To MH 213: Remaining	ing				217 3 anm

#### APPENDIX A

Land Use Planning Data

for the Major Development

Projects Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit

Project: Charles H. Gerhardt and Allen L. Gerhardt, Jr.

TABLE A-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 280/210 gpd/unit
CHARLES H. GERHARDT

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow,	Input at Manhole Number
Low Medium Residential	7.5 du*	280 gpd/unit	2,100	7.5	<b>gpm</b> 1.5	217

<sup>\*</sup> Assumes 5.0 du/acre.

#### ALLEN L. GERHARDT, JR.

5.9 Acres with Poggi	Basin			, , , , , , , , , , , , , , , , , , ,		
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow,	Input at Manhole Number
Low Medium Residential	29.5 du *	280 gpd/unit	8,260	29.5	<b>gpm</b> 5.7	217

<sup>\*</sup> Assumes 5.0 du/acre.

#### APPENDIX A

Land Use Planning Data

for the Major Development

Projects Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit

Project: Otay Ranch General Development Plan

## WILSON ENGINEERING

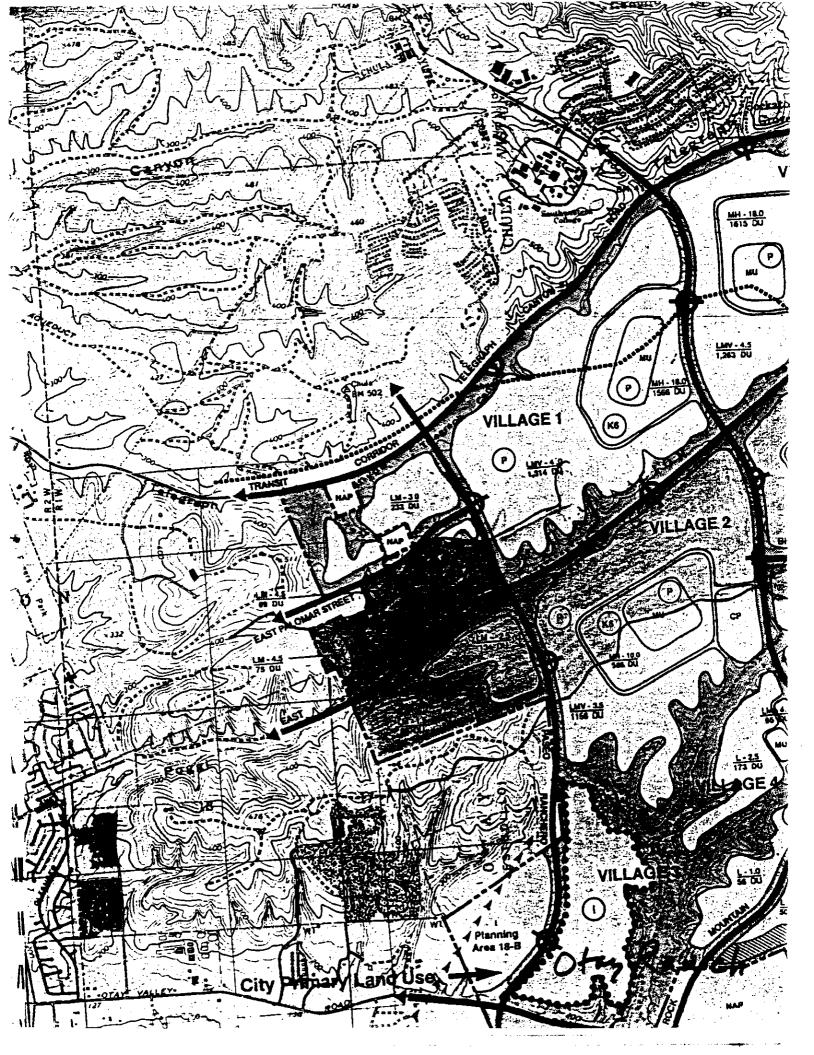
For: Ota	g Raych Gene	ral Developmen	* Plan
Bosse on:		; 210 gpd/M	
Village 2			:
	Units	GPO per Unit	GPD
Pinto Famile	1044 de	280	2 47 1
Single Family Park	1044 du 20 ac	500 :	10,0
School (K-6)	1	9,000	900
Mixed Use	10 ac	2,500	25,00
			22/ 22
	30% to MH # 21	70.1 gm	336,32
	30% to MH # 217 40 4. 4 MH # 218 30 % to MH # 219	934 gan	(233/69)
	30 % A MH # 219	70.1 gan	
Village L			
Village b			
Single Family Multi Family	990	280	277,2
	1,242	2/0	260,8
<u>Park</u>	10 ac	500	5,00
School (K-6)	13.4 ac	9,000	9,000
Mixed Use	12, 7 86	2,500	35,500
<u>, i</u> ; i			587,52
40%	LMH # 219	163.2 gm	(408.0 90.
30%.	1 MH = 220	122-4 gan	90.090
30%	h MH # 221	122.4500	
<u> </u>			

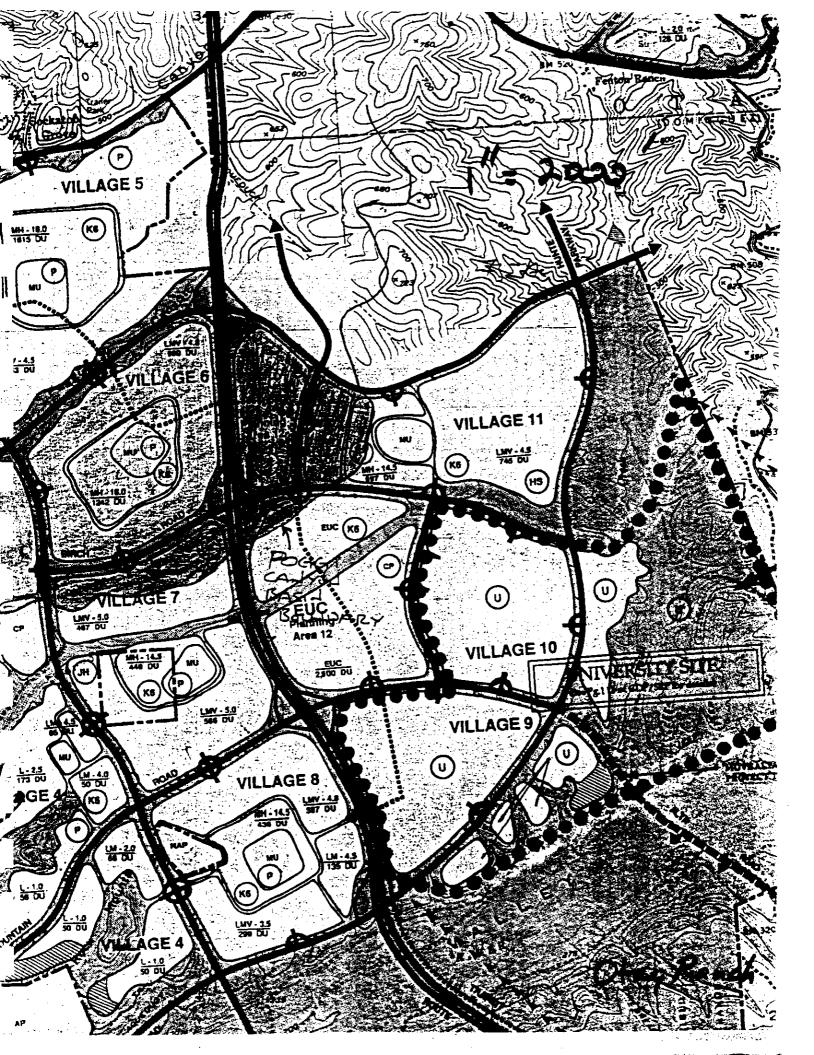
## WILSON ENGINEERING

For Otay 1	Rauch beneval	Development	Plan
	280/210 god		
111/27	11 14	GPD/ant	(60
Village 7	Units	<u>urv</u> act	GPD
Single Family	204	280	57,120
Single Family School (HS)	50%	48,000	24,000
			81,120
	all h MH 1	<sup>#</sup> 219	( 56,390
Village 11			
	498	2/0	104 58
Multi Family Park	10 ac	500	104,580 5,000
	1 1 1 1 1 1 T		109,580
26	u + MH # 22		( 76./gp
Planning Brea 12	! .		
	94 00		725
Mixed Use	77 46	2,300	235,000
al	1 to MH # 22/		(/63,2g
Village 1 West			
Single Family	210	280	58,800
- /			(40.8
	1% t MH # 218	12.2 ann	1
70	% to MH # 217	28.6 400	
			i 
	SUBJECT		DATE SHEET N

## WILSON ENGINEERING

	Based on	: 280/	1210 900	1/an+			
	:					:	· · · · · · · · · · · · · · · · · · ·
Sum	mary					<u>:</u>	:
	<u> </u>		1//4				<u>:</u>
			Village			<u></u>	<u></u>
MHH	2	6_	7		12	1 west	Total
-	3 pd 3pm	<u> </u>				<del>,i</del>	
217	100,896		:			41,160	1420
	70,1					28.6	98-7
							-
218	/34 528					17,640	152 1
<del> </del>	93.4					12,2	105.6
219	100, 896	235,008	81,120				4170.
:	70.1	163.2	56.3				289,6
220_	<u> </u>	170,256		<u> </u>		<del></del>	176, 2
		122-4		:			122.
221		176,256	· · · · · · · · · · · · · · · · · · ·	109,580	235,000	:	520,8
201		122.4	<del></del>	76-1	163.2		361.7
:						•	
<u> </u>		<del></del>		<u> </u>		F	: :
: :	<u> </u>				Tonac	god'	1, 408, 34
					- 5	pm	978.0





### WILSON ENGINEERING

MIXED USE	( Z6.8 Ac)
POTAL W	TORO USE: COMMERCIAL & COF
	= 18,7 + 8,1 = 26.5 Ac
ARGEA 11	POGOLI = 0, ZI7 \$ ( ZOD) 2 ( ARC 6) - 10 AC
	-POGICI = 0, ZI7 # (ZOD)2 (AC) -10 AC = 10 Ac PAIZL
	# 12.01.77
Harrist A	2EA = 0.403 \$ ( - Zwo / ) 2 ( Ax ) -10 AC
	= 27 Ac (CWSE TO ZG,8)
	-17 PORGI - CYJ - 26.8 (10) = 10 AC
VILLAGE 7	
	RE HIGH SCHOOL IS LOCATED
NO VALE IN	to THE PACK CALVAL
Selfor IS	ASSUME SO & OF THE HALL 12 THE POGGI CONTROL BOSIN 15 CONTSIDE THE BOSIN.
ASSUME 55	THE SEMAGE PULL GOES
	CALTUN BASIN
	5 ( 467 DU)
- AREA	12 POUCH = 0.657 # (Zeb) 2 (439-04) - 25Ac
	4;s.
TOTAL	AREA = 1.411# ( 2000 ) 2 ( AC 4) - 50 Ac
	30 Ac
Witts = 6	167 (35) = 204 DU 11 POCCI GON.
	AL. Card
JOB NO 8Y	SUBJECT SUBJECT SATE SHEET NO.

### WILSON ENGINEERING

PLANNIG AREA 12
ASSUME ALL OF THE AREA W/1 THE POCK!
AREA = (0.899+0.124) ( 2000) 2 ( 42 43560 4)
= ON AC OF COMMERCIAN IN PULL CYN
VILLAGE IV
MA-14.5 (CA7 DU)
AREA! IN POECI = 0.1085 # ( Zow) ? ( AC' ) ( U3560 B)
= 10 Ac
A STATE OF THE PARTY OF THE PAR
TOTAL ATTER = 0, 4960 # ( 200) ( AC 43560 A) -10 AC  = 360 AC
WITS = 10 (697) = 194 RM 11 PSGG1
ASSME THE 10 BE PARK 15 COMPLETLY
W/1- Pock 1- C/- (3251)
Otan Ranch
JOB NO BY SUBJECT DATE SHEET NO

TABLE A-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 280/210 gpd/unit per EDU
Otay Ranch General Development Plan

Land Use	Quantity	Quantity Sewage Average Sewer Equivalent Generation Factor Flow, Dwelling Units, gpd EDUs					
Single Family	1,044 du	280 gpd/unit	292,320	1,044.0	203.0		
Park	20 acre	500 gpd/acre	10,000	35.7	6.9		
Elementary School	1	9,000 gpd	9,000	32.1	6.3		
Mixed Use	10 acre	2,500 gpd/acre	25,000	89.3	17.4		
Subtotal			336,320	1,201.1	233,6		
Flow Split Data							
30% to MH No. 217					70.1 gpm		
40% to MH No. 218				·	93.4 gpm		
30% to MH No. 219					70.1 gpm		

### Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 280/210 gpd/unit per EDU

### Otay Ranch General Development Plan

Land Use	Quantity	Sewage Generation Factor	Averagé Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	990 du	280 gpd/unit	277,200	990.0	192,5
Multi-Family	1,242 du	210 gpd/unit	260,820	931.5	181.1
Park	10 acre	500 gpd/acre	5,000	17.9	3.5
Elementary School	1	9,000 gpd	9,000	32.1	6.3
Mixed Use	13.4 acre	2,500 gpd/acre	35,500	126.8	24.6
Subtotal	0.00		587,520	2,098,3	408,0
Flow Split Data					
40% to MH No. 219					163.2 gpm
30% to MH No. 220					122.4 gpm
30% to MH No. 221	•				122.4 gpm

## Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 280/210 gpd/unit per EDU

### Otay Ranch General Development Plan

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	204 du	280 gpd/unit	57,120	204.0	39.7
High School	0.5	48,000 gpd	24,000	85.7	16.6
Subtotal			81,120	289.7	56.3
Flow Split Data					

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Multi-Family	498 du	210 gpd/unit	104,580	373.5	72.6
Park	10 acre	500 gpd/acre	5,000	17.9	3.5
Subtotal			109,580	391.4	76.1
Flow Split Data					l.

## Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 280/210 gpd/unit per EDU Otay Ranch General Development Plan

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Mixed Use	94 acre	2,500 gpd/acre	235,000	839.3	163.2
Flow Split Data					

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	210 du	280 gpd/unit	58,800	210.0	40.8
Flow Split Data					
30% to MH No. 218					12.2 gpm
70% to MH No. 217					28.6 gpm

### Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 280/210 gpd/unit per EDU

### Otay Ranch General Development Plan

gpd EDUs			Generation Factor	Flow, gpd	Dwelling Units, EDUs	Average Sewer
----------	--	--	-------------------	--------------	-------------------------	---------------

### SUMMARY

MH No.	Total, gpd	Total. gpm
217	142,056	98.7
218	152,168	105.6
219	417,024	289.6
220	176,256	122.4
221	520,836	361.7
	1,408,340	978.0

Land Use Planning Data

for the Major Development

Projects Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit

Project: Otay Ranch Village 1

(Based on Approved Tentative Map)

TABLE A-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 280/210 gpd/unit
Otay Ranch Village 1

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
R-13	76 du	280 gpd/unit	21,280	76.0	14.8	218
R-14 (part)	85 du	210 gpd/unit	17,850	63.7	12.4	218
R-15	215 du	210 gpd/unit	45,150	161.3	31.4	218
R-16	280 du	210 gpd/unit	58,800	210.0	40.8	218
R-17	200 du	210 gpd/unit	42,000	150.0	29.2	218
R-18	230 du	210 gpd/unit	48,300	172.5	33.5	218
R-19	204 du	210 gpd/unit	42,840	153.0	29.7	218
C-1	6.5 acre	2,500 gpd/acre	16,250	58.0	11.3	218
C-2	5.0 асте	2,500 gpd/acre	12,500	44.6	8.7	218
CPF-1	10.0 acre	2,500 gpd/acre	25,000	89.3	17.4	218
CPF-2	3.2 acre	2,500 gpd/acre	8,000	28.6	5.5	218
CPF-3	1.4 acre	2,500 gpd/acre	3,500	12.5	2.4	218
Otay Ranch Village 1 TOTAL			341,470	1,219.5	237.1	

Land Use Planning Data

for the Major Development

Projects Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit

Project: Otay Ranch Village 5

(Based on Approved Tentative Map)

TABLE A-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 280/210 gpd/unit
Otay Ranch Village 5

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
R-28 (part)	50 du	280 gpd/unit	14,000	50.0	9.7	220
R-29	83 du	210 gpd/unit	17,430	62.3	12.1	220
R-30	119 du	280 gpd/unit	33,320	119.0	23.1	220
R-31 (part)	14 du	280 gpd/unit	3,920	14.0	2.7	220
R-39	182 du	210 gpd/unit	38,220	136,5	26.6	221
P-6	2.6 acre	2,500 gpd/acre	6,500	23.2	4.5	220
P-11	0.6 асте	2,500 gpd/acre	1,500	5.4	1.0	220
CPF-5	3.6 acre	2,500 gpd/acre	9,000	32.1	6.3	220
Otay Ranch Village TOTAL	5		123,890	442.5	86,0	

Land Use Planning Data

for the Major Development

Projects Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit

Project: McMillin

(Based on Otay Ranch SPA 1 Document)

SPA 1 Sewage Generation Data

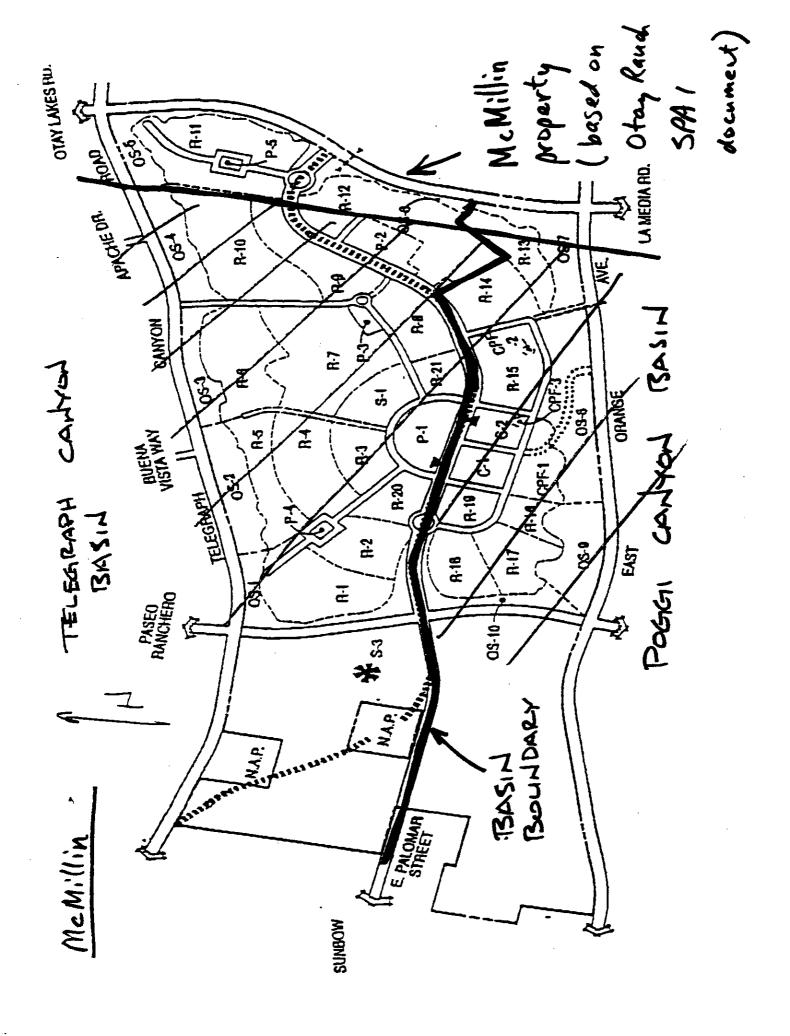
### Flows to Poggi Canyon Basin

Neighborhood Area R-39 R-29 R-28 R-30 P-6 P-11 CPF-5	Units 175 90 82 145	10.6 0.6 3.7	Sewage Duty Factor 210 280 280 280 500 500 2500	EDUs 131.3 90.0 82.0 145.0 18.9 1.1 33.0	25200 22960	To Node 315 315 315 315 315 315
R-40 R-41 R-42 R-43 R-44 R-45 P-7 P-8 C-3 C-4 CPF-6 CPF-7	204 127 241 175 261 165	5.2 1.7 1.6 2 3.2 2.3	210 210 210 210 210 210 500 500 2500 250	153.0 95.3 180.8 131.3 195.8 123.8 9.3 3.0 14.3 17.9 28.6 20.5	42840 26670 50610 36750 54810 34650 2600 850 4000 5000 8000 5750	313 313 313 313 313 313 313 313 313
R-13 R-14 R-15 R-16 R-17 R-18 R-19 CPF-1 CPF-2 CPF-3 C-1	109 129 215 280 200 230 204	8.5 4.7 1.4 6.3 4.8	280 280 210 210 210 210 2500 2500 2500 2500 25	109.0 129.0 161.3 210.0 150.0 172.5 153.0 75.9 42.0 12.5 56.3 42.9	30520 36120 45150 58800 42000 48300 42840 21250 11750 3500 15750 12000	311 311 311 311 311 311 311 311 311 311
Total	3032	56.6		2788.8	780870	

### Summary of flow to each node

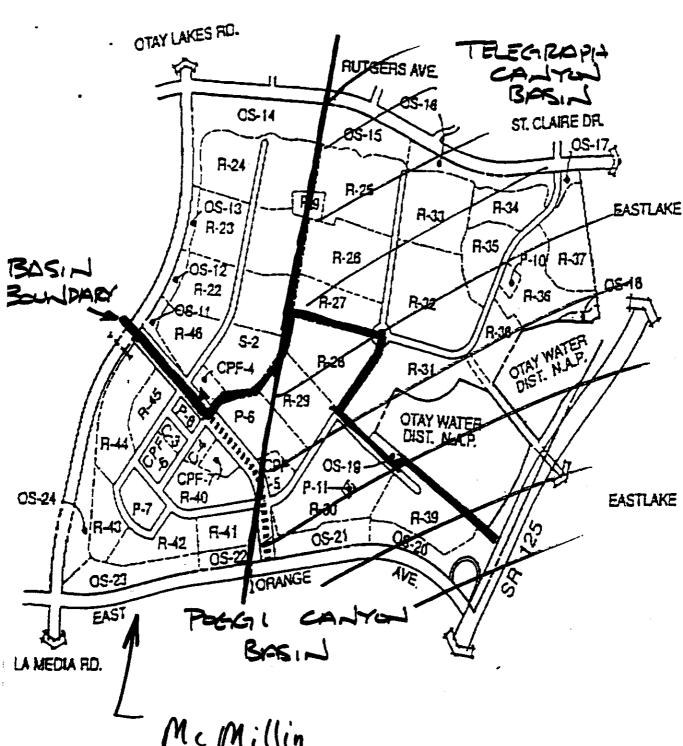
Node	EDUs	Flow (GPD)	Flow (GPM)
315	501.3	140360.0	97.5
313	973.3	272530.0	189.3
311	1314.2	367980.0	255.5
Total	2788.8	780870.0	542.3

Otay Ranch 5PA 1



## McMillin





McMillin

Property (based on Otay Ranch SPAI document)

TABLE A-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 280/210 gpd/unit
McMillin

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
R-13 (30%)	33 du	280 gpd/unit	9,240	33.0	6.4	219
R-40	204 du	210 gpd/unit	42,840	153.0	29.8	220
R-41	127 du	210 gpd/unit	26,670	95.3	18.5	220
R-42	241 du	210 gpd/unit	50,610	180.7	35.1	220
R-43	175 du	210 gpd/unit	36,750	131.3	25.5	220
R-44	261 du	210 gpd/unit	54,810	195.7	38.1	219
R-45	165 du	210 gpd/unit	34,650	123.7	24.1	219
P-7	5.2 асге	500 gpd/acre	2,600	9.3	1.8	220
P-8	1.7 acre	500 gpd/acre	850	3.0	0.6	219
C-3	1.6 acre	2,500 gpd/acre	4,000	14.3	2.8	219
C-4	2.0 acre	2,500 gpd/acre	5,000	17.9	3.5	220
CPF-6	3.2 acre	2,500 gpd/acre	8,000	28.6	5.5	219
CPF-7	2.3 acre	2,500 gpd/acre	5,750	20.5	4.0	220
McMillin TOTAL			281,770	1,006,3	195.7	***

Land Use Planning Data

for the Major Development

Projects Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit

Project: EastLake Development



### Poggi Canyon Sewer Study ( EASILAKE GREENS ONLY)

12/17/98

Land Use	Description	Lots with Permit	Developed Acres	Lots w/o permits Acres w/g Perm	ilts To	tal Lots
Church	Unit 30/36				22 n/s	1
High School	Eastlake High		45,56	1	tVi	1
Elementary School	Olympic View		(	)	n/a	<b>3</b> .
Water Tanks	30 Mil. Gel		14	l	n/a	1
Single Family Detached	Unit 8	99	8			96
Single Family Detached		5	1			51
Single Family Detached	Unft 4	7	7			114
Single Family Detected		6	4			84
Single Family Attached		7	8			78
Single Family Detached		3	7			76
Single Family Detached		10	9			109
Single Family Detached		5	1			51
Single Family Detached		1	4			105
Multi Family	Unit 26			<b>260</b>		260
Single Family Detached	Unit 14	5	8	,		86
Total		63	5 68.5	6 260	22	1090

Notes:

W1.

Missing landswap data

**Developed Summary** 

Land Use	Deta	Total
Church	Sum of Lots with Permit	Ō
	Sum of Developed Acres	0
Elementery School	Sum of Lots with Permit	0
·	Sum of Developed Acres	9
High School	Sum of Lots with Permit	0
	Sum of Developed Acres	45,56
Multi Family	Sum of Lots with Permit	0
	Sum of Developed Acres	0
Single Family Detached	Sum of Lots with Permit	557
	Sum of Developed Acres	0
Water Tanks	Surn of Lots with Permit	0
	Sum of Developed Acres	14
Single Family Attached	Sum of Lots with Permit	78
	Sum of Developed Acres	0
Total Sum of Lots with P	ermit	635
Total Sum of Developed	Acres	68.56

B.NLSWIDERYMATA:D

**Undeveloped Summary** 

Land Use	Data	Total
Church	Sum of Acres w/o Permits	22
	Sum of Lots w/o permits	0
Elementary School	Sum of Acres w/o Permits	Ö
	Sum of Lots w/o permits	0
High School	Sum of Agres w/o Permits	0
	Sum of Lots w/o permits	0
Multi Family	Sum of Acres w/o Permits	0
	Sum of Lots w/o permits	260
Single Family Det	Sum of Acres w/o Permits	0
	Sum of Lots w/o permits	0
Waler Tanks	Sum of Acres w/o Permits	Ó
	Sum of Lots w/o permits	0
Single Family Atta	Sum of Acres w/o Permits	0
	Sum of Lois wio permits	}0
Total Sum of Acre	s w/o Permits	22
Total Sum of Lots	w/a permits	260

TABLE A-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 280/210 gpd/unit
EastLake Development

EastLake Greens						· · · · · · · · · · · · · · · · · · ·
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Single Family	556 du	280 gpd/unit	155,680	556.0	108.1	221
Multi-Family	338 du	210 gpd/unit	70,980	253.5	49.3	221
Public/Quasi-Public	15.8 асте	2,500 gpd/acre	39,500	141.1	27.4	221
High School	1	48,000 gpd	48,000	171.4	33.3	221
Elementary School <sup>1</sup>	1	12,000 gpd	12,000	42.9	8.3	221
Subtotal			326,160	1,164,9	226,4	,
EastLake Land Swap	Area					
Future Commercial	55 acre	2,500 gpd/acre	137,500	491.1	95.5	221
Future Multi-Family	600 du <sup>2</sup>	210 gpd/unit	126,000	450.0	87.5	221
Subtotal			263,500	941.1	183,0	*
EASTLAKE DEVELO	PMENT TOTA	L	589,660	2,106	409.4	

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 280/210 gpd/unit

Project: Existing Development

### TABLE A-1

### Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 280/210 gpd/unit

### Summary of Land Uses within Existing Developed Portion of Poggi Canyon Basin

### Area East of Interstate 805

Land Use	Quantity	Sewage Generation Flow	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Single Family	658 du	280 gpd/unit	184,240	658.0	127.9	
Multi-Family	286 du	210 gpd/unit	60,060	214,5	41.7	
Commercial	0	2,500 gpd/acre	0	0	0	
Elementary School	2	9,000 gpd	18,000	64.3	12.5	
Subtotal			262,300	936.8	182.1	

### Area West of Interstate 805

Land Use	Quantity	Sewage Generation Flow	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Single Family	496 du	280 gpd/unit	138,880	496.0	96.4	
Multi-Family	343 du	210 gpd/unit	72,030	257.3	50.0	
Commercial	8.1 ac	2,500 gpd/acre	20,250	72.3	14.1	
Elementary School	1	9,000 gpd	9,000	32.1	6.3	
Subtotal			240,160	857.7	166,8	
TOTAL			502,460	1,794.5	348,9	

TABLE A-1

Existing Units Within Poggi Basin Assigned to Computer Model Manhole Numbers for

Ultimate Model Based on 280/210 gpd/unit

Node	Single Family Units	Multi Family Units	Acres of Commercial	School	EDUs Based on 280 gpd/EDU
201	98	116			185
202					
203					
204	398	227	8.1	1	672.7
205	490	123		2	646.5
206					
207					
208		12			9
209		151			113.3
210	164				164
211					
212					
213	4				4
TOTAL	1154	629	8.1	3	1794.5

School = 32.1 EDUs

 $MF \times 0.75 = EDUs$ 

Acres x 8.93 = EDUs

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: Sunbow II

TABLE B-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 265/200 gpd/unit per EDU
SUNBOW II

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	741 du	265 gpd/unit	196,365	741.0	136.4
Multi-Family	580 du	200 gpd/unit	116,000	437.7	80.6
Park/Community Center	12.2 ac	2,500 gpd/acre	30,500	115.1	21.2
Commercial	10.0 ac	2,500 gpd/acre	25,000	94.3	17.4
Elementary School	1	9,000 gpd	9,000	34.0	6.2
Business Park	51.9 ac	2,500 gpd/acre	129,750	489.6	90.1
TOTAL			506,615	1,911.7	351.9
Flow Split					
To MH 215: Elemen	tary School ar	nd 112 SFDU			26.9 gpm
To MH 214: Busines	ss Park and 14	5 SFDU	,		116.8 gpm
To MH 213: Remain	ing				208.2 gpm

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: Charles H. Gerhardt and Allen L. Gerhardt, Jr.

# TABLE B-1 Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 265/200 gpd/unit per EDU CHARLES H. GERHARDT

1.5 Acres within Pog	gi Basin					
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Low Medium Residential	7.5 du*	265 gpd/unit	1,987.5	7.5	1.4	217

<sup>\*</sup> Assumes 5.0 du/acre.

### ALLEN L. GERHARDT, Jr.

5.9 Acres with Po	oggi Basin					
Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Low Medium Residential	29.5 du *	265 gpd/unit	7,817.5	29.5	5,4	217

<sup>\*</sup> Assumes 5.0 du/acre.

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: Otay Ranch General Development Plan

TABLE B-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 265/200 gpd/unit per EDU
Otay Ranch General Development Plan

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	1,044 du	265 gpd/unit	276,660	1,044.0	192.1
Park	20 acre	500 gpd/acre	10,000	37.7	6.9
Elementary School	1	9,000 gpd	9,000	34.0	6.3
Mixed Use	10 асге	2,500 gpd/acre	25,000	94.3	17.4
Subtotal			320,660	1,201.0	222,7
Flow Split Data					-
30% to MH No. 217					
40% to MH No. 218					66.8 gpm 89.1 gpm
30% to MH No. 219					66.8 gpm

## Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 265/200 gpd/unit per EDU Otay Ranch General Development Plan

#### Village 6 (Based on General Development Plan) Land Use Quantity Sewage Average Sewer Equivalent Average Sewer Generation Factor Flow, Dwelling Units, Flow, gpm gpd **EDUs** Single Family 990 du 265 gpd/unit 262,350 990.0 182.2 Multi-Family 1,242 du 200 gpd/unit 248,400 937.4 172.5 Park 10 acre 500 gpd/acre 5,000 18.9 3.5 **Elementary School** 1 9,000 gpd 9.000 34.0 6.3 Mixed Use 13.4 acre 2,500 gpd/acre 35,500 134.0 24.6 Subtotal 560,250 2,114.3 389.1 Flow Split Data 40% to MH No. 219 155.7 gpm 30% to MH No. 220 116.7 gpm 30% to MH No. 221 116.7 gpm

# Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 265/200 gpd/unit per EDU Otay Ranch General Development Plan

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	204 du	265 gpd/unit	54,060	204.0	37.5
High School	0.5	48,000 gpd	24,000	90,6	16.6
Subtotal			78,060	294.6	54.1
Flow Split Data					

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Multi-Family	498 du	200 gpd/unit	99,600	375.8	69.2
Park	10 acre	500 gpd/acre	5,000	18,9	3.5
Subtotal			104,600	394.7	72.7
Flow Split Data					

## Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 265/200 gpd/unit per EDU Otay Ranch General Development Plan

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Mixed Use	94 acre	2,500 gpd/acre	235,000	886.8	163.2
Flow Split Data					

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
Single Family	210 du	265 gpd/unit	55,650	210.0	38.6
Flow Split Data					
30% to MH No. 218					11.6 gpm
70% to MH No. 217					27.0 gpm

### Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 265/200 gpd/unit per EDU

### Otay Ranch General Development Plan

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm
----------	----------	-----------------------------	-------------------------------	---------------------------------	----------------------------

### **SUMMARY**

MH No.	Total, gpd	Total.
217	135,153	<u>gpm</u>
218	144,959	93.8
219	398,358	100.7
		276.6
220	168,075	116.7
221	507,675	352.6
	1 354 220	
220	168,075 507,675 	

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: Otay Ranch Village 1

TABLE B-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 265/200 gpd/unit per EDU
Otay Ranch Village 1

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
R-13	76 du	265 gpd/unit	20,140	76.0	14.0	218
R-14 (part)	85 du	200 gpd/unit	17,000	64.2	11.8	218
R-15	215 du	200 gpd/unit	43,000	162.3	29.9	218
R-16	280 du	200 gpd/unit	56,000	211.3	38.9	218
R-17	200 du	200 gpd/unit	40,000	150.9	27.8	218
R-18	230 du	200 gpd/unit	46,000	173.6	31.9	218
R-19	204 du	200 gpd/unit	40,800	154.0	28.3	218
C-1	6.5 acre	2,500 gpd/acre	16,250	61.3	11.3	218
C-2	5.0 acre	2,500 gpd/acre	12,500	47.2	8.7	218
CPF-1	10.0 acre	2,500 gpd/acre	25,000	94.3	17.4	218
CPF-2	3.2 acre	2,500 gpd/acre	8,000	30.2	5.5	218
CPF-3	1.4 acre	2,500 gpd/acre	3,500	13.2	2.4	218
Otay Ranch Village 1 TOTAL			328,190	1,238,5	227,9	***

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: Otay Ranch Village 5

TABLE B-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 265/200 gpd/unit
Otay Ranch Village 5

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
R-28 (part)	50 du	265 gpd/unit	13,250	50.0	9.2	220
R-29	83 du	200 gpd/unit	16,600	62.6	11.5	220
R-30	119 du	265 gpd/unit	31,535	119.0	21.9	220
R-31 (part)	14 du	265 gpd/unit	3,710	14.0	2.6	220
R-39	182 du	200 gpd/unit	36,400	137.4	25.3	221
P-6	2.6 acre	2,500 gpd/acre	6,500	24.5	4.5	220
P-11	0.6 acre	2,500 gpd/acre	1,500	5.7	1.0	220
CPF-5	3.6 acre	2,500 gpd/acre	9,000	34.0	6.3	220
Otay Ranch Village TOTAL	5		118,495	447,2	82,3	5-5-

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: McMillin

TABLE B-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 265/200 gpd/unit per EDU
McMillin

Land Use	Quantity	Sewage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
R-13 (30%)	33 du	265 gpd/unit	8,745	33.0	6.1	219
R-40	204 du	200 gpd/unit	40,800	154.0	28.3	220
R-41	127 du	200 gpd/unit	25,400	95.8	17.6	220
R-42	241 du	200 gpd/unit	48,200	181.9	33.5	220
R-43	175 du	200 gpd/unit	35,000	132.1	24.3	220
R-44	261 du	200 gpd/unit	52,200	197.0	36.3	219
R-45	165 du	200 gpd/unit	33,000	124.5	22.9	219
P-7	5.2 acre	500 gpd/acre	2,600	9.8	1.8	220
P-8	1.7 acre	500 gpd/acre	850	3.2	0.6	219
C-3	1.6 acre	2,500 gpd/acre	4,000	15.1	2.8	219
C-4	2.0 acre	2,500 gpd/acre	5,000	18.9	3.5	220
CPF-6	3.2 acre	2,500 gpd/acre	8,000	30.2	5.5	219
CPF-7	2.3 acre	2,500 gpd/acre	5,750	21.7	4.0	220
McMillin TOTAL			269,545	1,017.2	187.2	

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: EastLake Development

TABLE B-1
Sewage Generation for Properties Within the Poggi Canyon Basin Study Area
Based on 265/200 gpd/unit per EDU
EastLake Development

EastLake Greens						
Land Use	Quantity	Séwage Generation Factor	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Single Family	556 du	265 gpd/unit	147,340	556.0	102.3	221
Multi-Family	338 du	200 gpd/unit	67,600	255.1	46.9	221
Public/Quasi-Public	15.8 acre	2,500 gpd/acre	39,500	149.1	27.4	221
High School	1	48,000 gpd	48,000	181.1	33.3	221
Elementary School	1	12,000 gpd	12,000	45,3	8.3	221
Subtotal			314,440	1,186,6	218,2	
EastLake Land Swap	Area					10000000000000000000000000000000000000
Future Commercial	55 acre	2,500 gpd/acre	137,500	491.1	95.5	221
Future Multi-Family	600 du <sup>2</sup>	200 gpd/unit	120,000	452.8	83.3	221
Subtotal			257,500	943.9	178.8	
EASTLAKE DEVELO	OPMENT TOTA	L	571,940	2,130.5	397.0	

<sup>&</sup>lt;sup>1</sup> Based on proposed student body population of 800 (City of Chula Vista).

<sup>&</sup>lt;sup>2</sup> Assumes 40 acres at 15 du/acre.

## County Landfill Area within Poggi Basin

General Plan Designation is Public/Quasi Public -

0 EDUs

## **Otay Water District Property**

General Plan Designation is Public/Quasi Public

0 EDUs

Land Use Planning Data

for the Existing Development

Within the

Poggi Canyon Basin

Based on 265/200 gpd/unit

Project: Existing Development

#### TABLE B-1

# Sewage Generation for Properties Within the Poggi Canyon Basin Study Area Based on 265/200 gpd/unit per EDU Summary of Land Uses within Existing Developed Portion of Poggi Canyon Basin

#### Area East of Interstate 805

Land Use	Quantity	Sewage Generation Flow	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Single Family	658 du	265 gpd/unit	174,370	658.0	121.1	
Multi-Family	286 du	200 gpd/unit	57,200	215.8	39.7	
Commercial	0	2,500 gpd/acre	0	0	0	
Elementary School	2	9,000 gpd	18,000	67.9	12.5	
Subtotal			249,570	941.7	173.3	

## Area West of Interstate 805

Land Use	Quantity	Sewage Generation Flow	Average Sewer Flow, gpd	Equivalent Dwelling Units, EDUs	Average Sewer Flow, gpm	Input at Manhole Number
Single Family	496 du	265 gpd/unit	131,440	496.0	91.3	
Multi-Family	343 du	200 gpd/unit	68,600	258.9	50.0	
Commercial	8.1 ac	2,500 gpd/acre	20,250	76.4	14.1	
Elementary School	1	9,000 gpd	9,000	34.0	6,3	
Subtotal			229,290	865.3	159,3	
TOTAL			478,860	1,807,0	332,6	

TABLE B-1
Existing Units Within Poggi Basin Assigned to Computer Model Manhole Numbers for Ultimate Model Based on 265/200 gpd/unit

Node	Single Family Units	Multi Family Units	Acres of Commercial	School	EDUs Based on 265 gpd/EDU
201	98	116			185.5
202					
203					
204	398	227	8.1	1	679.7
205	490	123		2	650.7
206					
207					
208		12		_	9.1
209		151			114
210	164				164
211					
212					
213	4				4
TOTAL	1154	629	8.1	3	1,807.0

School = 34.0 EDUs MF x 200/265 = EDUs Acres x 9.43 = EDUs

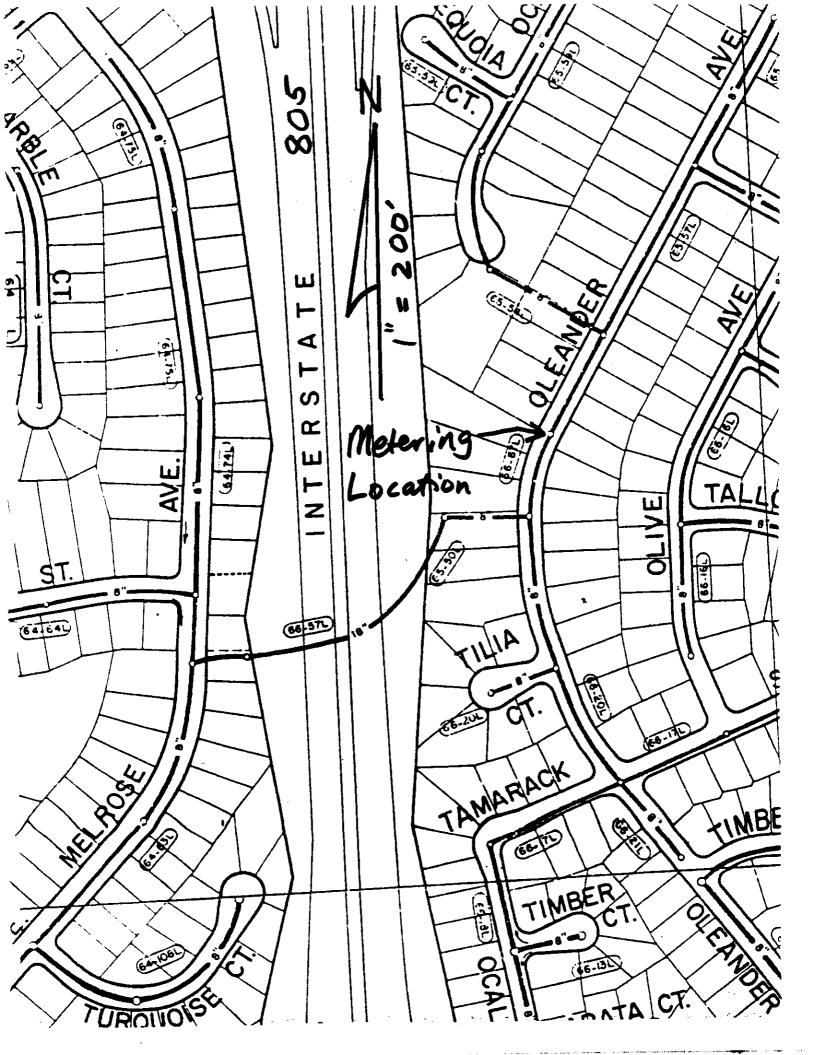
#### APPENDIX C

## Results of Flow Monitoring

Performed by City of Chula Vista

in Existing 8-inch Sewer in Oleander Avenue

East of Interstate 805



```
Site #1 OEANDER SO/ORANG Thu 31 Oct 1996
DAILY SUMMARY
  Part A Level
                                                      0.22 ft
0.13 ft a 23:00
1.86 ft a 04:35
  Average Level:
  Minimum Level:
  Maximum Level:
Hourly Average Level
00:00-01:00:
01:00-02:00:
02:00-03:00:
03:00-04:00:
04:00-05:00:
05:00-06:00:
07:00-08:00:
07:00-08:00:
08:00-09:00:
                                                                                   12:00-13:00:

13:00-14:00:

14:00-15:00:

15:00-16:00:

16:00-17:00:

17:00-18:00:

18:00-19:00:

19:00-20:00:

20:00-21:00:

21:00-22:00:

22:00-23:00:

23:00-00:00:
                                                                                                                                 0.24 ft
0.23 ft
0.22 ft
0.22 ft
0.22 ft
0.19 ft
0.18 ft
0.18 ft
0.18 ft
                                               0.51 ft
0.24 ft
0.23 ft
0.23 ft
0.23 ft
0.22 ft
0.22 ft
0.23 ft
 08:00-09:00:
09:00-10:00:
10:00-11:00:
11:00-12:00:
                                0.00
                                                           0.40
                                                                                       0.80
                                                                                                                  1.20
                                                                                                                                             1.60
                                                                                                                                                                        2.00
16:00-17:00 ======
17:00-18:00 ======
18:00-19:00 =====
19:00-20:00 =====
21:00-21:00 =====
22:00-23:00 =====
23:00-00:00 =====
                               0.00
                                                          0.40
                                                                                     0.80
                                                                                                                                                                       2.00
                                                                                                                 1.20
                                                                                                                                           1.60
                                                                                           (ft)
```

-1-

```
DAILY SUMMARY Site #1 OEANDER SO/ORANG Fri 01 Nov 1996
 Part A Level
                      0.22 ft
0.15 ft a 19:50
0.29 ft a 02:10
 Average Level:
 Minimum Level:
 Maximum Level:
Hourly Average Level
00:00-01:00: 0.20
01:00-02:00: 0.20
02:00-03:00: 0.25
04:00-05:00: 0.25
05:00-06:00: 0.26
06:00-07:00: 0.22
07:00-08:00: 0.22
08:00-09:00: 0.23
09:00-10:00: 0.23
                    evel
0.20 ft
0.26 ft
0.25 ft
0.25 ft
0.25 ft
0.24 ft
0.23 ft
0.23 ft
0.23 ft
                                                        0.23 ft
0.24 ft
0.23 ft
0.22 ft
0.22 ft
0.20 ft
0.17 ft
0.18 ft
0.18 ft
                                    12:00-13:00:
13:00-14:00:
14:00-15:00:
15:00-16:00:
                                  15:00-16:00:

16:00-17:00:

17:00-18:00:

18:00-19:00:

19:00-20:00:

20:00-21:00:

21:00-22:00:

22:00-23:00:

23:00-00:00:
 11:00-12:00:
                                                        0.18 ft
                                             0.30
                                    0.20
                                                             0.40
                                                                         0.50
                       0.10
              0.00
               +---+---+---+---+----
 00:00-01:00 ==============
 23:00-00:00 ===========
              0.00 0.10 0.20 0.30 0.40
                                                                         0.50
                                       (ft)
```

```
DAILY SUMMARY Site #1 DEANDER SO/ORANG Sat 02 Nov 1996
 Part A Level
 Average Level:
Minimum Level:
                     0.23 ft
0.15 ft a 19:50
0.31 ft a 04:35
 Maximum Level:
Hourly Average Level
00:00-01:00: 0.18
01:00-02:00: 0.20
02:00-03:00: 0.25
03:00-04:00: 0.25
05:00-06:00: 0.25
06:00-07:00: 0.26
07:00-08:00: 0.25
08:00-09:00: 0.25
09:00-10:00: 0.24
10:00-12:00: 0.24
                    evel

0.18 ft

0.23 ft

0.25 ft

0.29 ft

0.29 ft

0.25 ft

0.25 ft

0.25 ft
                                                       0.24 ft
0.24 ft
0.24 ft
0.22 ft
0.22 ft
0.22 ft
0.18 ft
0.18 ft
0.18 ft
                                    12:00-13:00:
13:00-14:00:
14:00-15:00:
                                    15:00-16:00:
                                   15:00-16:00:

16:00-17:00:

17:00-18:00:

18:00-19:00:

19:00-20:00:

20:00-21:00:

21:00-22:00:

22:00-23:00:

23:00-00:00:
 11:00-12:00:
                    0.24 ft
                                                        0.18 ft
             0.00
                       0.10
                                   0.20
                                              0.30
                                                            0.40
                                                                        0.50
              +---+---+---+
 00:00-01:00 ==========
12:00-13:00 ======================
 18:00-19:00 =================
 19:00-20:00 ============
23:00-00:00 ============
             0.00
                    0.10 0.20
                                                0.30 0.40 0.50
                                       (ft)
```

```
DAILY SUMMARY Site #1 OEANDER SO/ORANG Sun 03 Nov 1996
Part A Level
                    0.23 ft
0.14 ft a 21:05
0.31 ft a 05:20
 Average Level:
 Minimum Level:
 Maximum Level:
Hourly Average Level
00:00-01:00: 0.1'
01:00-02:00: 0.1'
02:00-03:00: 0.2'
03:00-04:00: 0.2'
04:00-05:00: 0.2'
05:00-06:00: 0.2'
06:00-07:00: 0.2'
                                                0.25 ft
0.25 ft
0.26 ft
0.25 ft
0.24 ft
0.22 ft
0.19 ft
0.18 ft
                               12:00-13:00:
13:00-14:00:
14:00-15:00:
                  0.19 ft
                  0.18 ft
0.22 ft
0.26 ft
0.28 ft
0.29 ft
                               15:00-16:00:
                               15:00-16:00:

16:00-17:00:

17:00-18:00:

18:00-19:00:

19:00-20:00:

20:00-21:00:

21:00-22:00:

22:00-23:00:

23:00-00:00:
                  0.29 ft
0.28 ft
0.26 ft
0.25 ft
0.24 ft
0.24 ft
 07:00-08:00:
                                                0.18 ft
0.18 ft
0.18 ft
08:00-09:00:
09:00-10:00:
10:00-11:00:
 11:00-12:00:
                                       0.30
             0.00 0.10 0.20
                                                              0.50
                                                    0.40
            0.00
00:00-01:00 ==========
04:00-05:00 =======================
15:00-16:00 =====================
 16:00-17:00 ==================
23:00-00:00 =============
            0.00 0.10 0.20
                                        0.30
                                                    0.40
                                                              0.50
                                  (ft)
```

```
DAILY SUMMARY Site #1 OEANDER SO/ORANG Mon 04 Nov 1996
 Part A Level
                   0.23 ft
0.13 ft a 22:50
0.32 ft a 01:55
 Average Level:
 Minimum Level:
Maximum Level:
Hourly Average Level 00:00-01:00: 0.2 01:00-02:00: 0.2 02:00-03:00: 0.2 03:00-04:00: 0.2 05:00-06:00: 0.2
                              12:00-13:00:

13:00-14:00:

14:00-15:00:

15:00-16:00:

16:00-17:00:

17:00-18:00:

19:00-20:00:

20:00-21:00:

21:00-22:00:

22:00-23:00:

23:00-00:00:
                 evel
0.20 ft
0.27 ft
0.28 ft
0.25 ft
0.24 ft
0.24 ft
0.23 ft
0.23 ft
0.23 ft
                                               0.24 ft
0.25 ft
0.25 ft
0.25 ft
0.24 ft
0.22 ft
 05:00-06:00:
 06:00-07:00:
                                               0.19 ft
0.18 ft
0.18 ft
0.17 ft
 07:00-08:00:
08:00-09:00:
09:00-10:00:
10:00-11:00:
11:00-12:00:
                                               0.18 ft
            0.00 0.10 0.20 0.
           0.00
                                         0.30
                                                   0.40
                                                             0.50
00:00-01:00 ============
09:00-10:00 ==============
16:00-17:00 ================
23:00-00:00 ============
            +----
           0.00
                 0.10 0.20
                                       0.30
                                               0.40
                                                           0.50
                                 (ft)
```

```
DAILY SUMMARY Site #1 OEANDER SO/GRANG Tue 05 Nov 1996
 Part A Level
                      0.22 ft
0.13 ft a 22:00
0.31 ft a 02:30
 Average Level:
Minimum Level:
 Maximum Level:
 Hourly Average Level
00:00-01:00: 0.2
01:00-02:00: 0.2
02:00-03:00: 0.2
                                    12:00-13:00:

13:00-14:00:

14:00-15:00:

15:00-16:00:

17:00-18:00:

18:00-19:00:

19:00-20:00:

20:00-21:00:

22:00-23:00:

23:00-00:00:
                    evel
0.21 ft
0.27 ft
0.27 ft
0.23 ft
0.23 ft
0.23 ft
0.23 ft
0.23 ft
0.22 ft
0.22 ft
                                                        0.23 ft
                                                        0.23 ft
0.24 ft
0.25 ft
0.22 ft
0.20 ft
0.19 ft
0.18 ft
 03:00-04:00:
 04:00-05:00:
05:00-06:00:
06:00-07:00:
 07:00-08:00:
08:00-09:00:
09:00-10:00:
10:00-11:00:
                                                        0.18 ft
                                    23:00-00:00:
 11:00-12:00:
                                                        0.18 ft
               0.00 0.10 0.20 0.30
                                                             0.40
                                                                        0.50
              0.00
 00:00-01:00 ================
 02:00-03:00 ========================
 03:00-04:00 ======================
 0.10 0.20
                                                                        0.50
              0.00
                                                 0.30 0.40
                                        (ft)
                                                           1
```

```
DAILY SUMMARY Site #1 OEANDER SO/ORANG Wed 06 Nov 1996
Part A Level
 Average Level:
                   0.22 ft
0.14 ft a 23:05
0.30 ft a 02:05
 Minimum Level:
Maximum Level:
Hourly Average Level 00:00-01:00: 0.2 01:00-02:00: 0.2
                 evel
0.20 ft
0.27 ft
0.28 ft
0.24 ft
0.24 ft
0.23 ft
0.22 ft
0.22 ft
0.22 ft
0.22 ft
0.21 ft
0.23 ft
                              12:00-13:00:
13:00-14:00:
14:00-15:00:
15:00-16:00:
16:00-17:00:
17:00-18:00:
                                              0.23 ft
0.24 ft
0.25 ft
0.25 ft
0.24 ft
02:00-03:00:
03:00-04:00:
04:00-05:00:
05:00-06:00:
                              17:00-18:00:

18:00-19:00:

19:00-20:00:

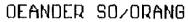
20:00-21:00:

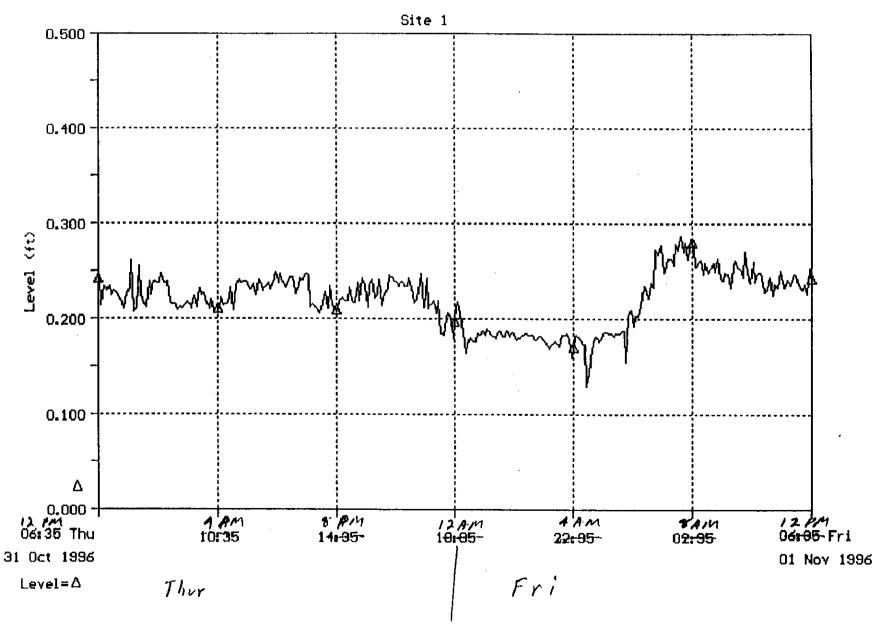
21:00-22:00:

22:00-23:00:

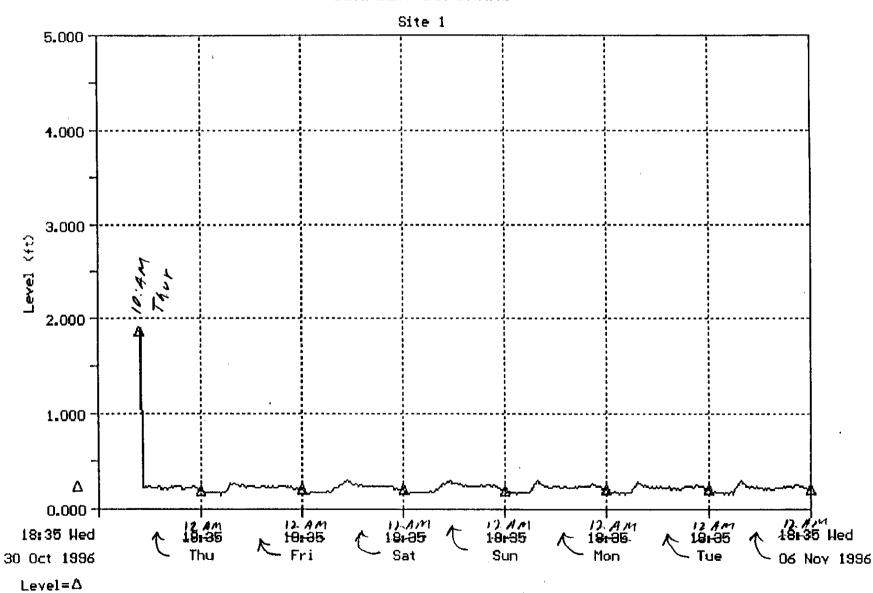
23:00-00:00:
                                              0.22 ft
0.20 ft
0.19 ft
0.18 ft
0.18 ft
0.18 ft
06:00-07:00:
07:00-08:00:
08:00-09:00:
09:00-10:00:
10:00-11:00:
11:00-12:00:
            0.00 0.10 0.20 0.30 0.40 0.
           0.00
                                                            0.50
00:00-01:00 ================
20:00-21:06 ===============
0.00
                 0.10 0.20
                                        0.30 0.40
                                                         0.50
                                (ft)
```

```
DAILY SUMMARY Site #1 OFANDER SO/DRANG Thu 07 Nov 1996
 Part A Level
 Average Level:
Minimum Level:
Maximum Level:
                                   0.24 ft
0.15 ft a 00:20
0.31 ft a 01:45
Hourly Average Level
00:00-01:00: 0.20
01:00-02:00: 0.20
02:00-03:00: 0.20
03:00-04:00: 0.20
05:00-06:00: 0.20
06:00-07:00: 0.20
08:00-09:00: 0.20
09:00-10:00: 0.20
11:00-12:00:
                                                         12:00-13:00:
13:00-14:00:
14:00-15:00:
15:00-16:00:
16:00-17:00:
17:00-18:00:
18:00-19:00:
19:00-20:00:
20:00-21:00:
21:00-22:00:
22:00-23:00:
23:00-00:00:
                                0.20 ft
0.27 ft
0.27 ft
0.25 ft
0.24 ft
0.23 ft
0.23 ft
 11:00-12:00:
                                                          23:00-00:00:
                                                         0.20
                      0.00
                                      0.10
                                                                              0.30
                                                                                                 0.40
                                                                                                                   0.50
 00:00-01:00 =================
 01:00-02:00 ===================
 12:00-13:00
13:00-14:00
14:00-15:00
15:00-16:00
16:00-17:00
17:00-18:00
18:00-19:00
20:00-21:00
21:00-22:00
 21:00-22:00
22:00-23:00
 23:00-00:00
                                                                                         0.40 0.50
                                                                              0.30
                      0.00
                                    0.10
                                                        0.20
                                                               (ft)
```

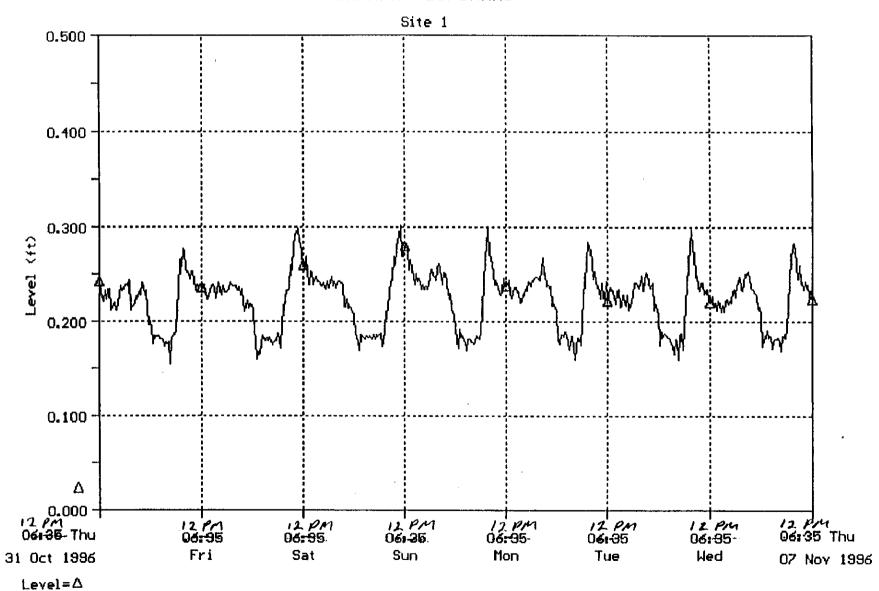




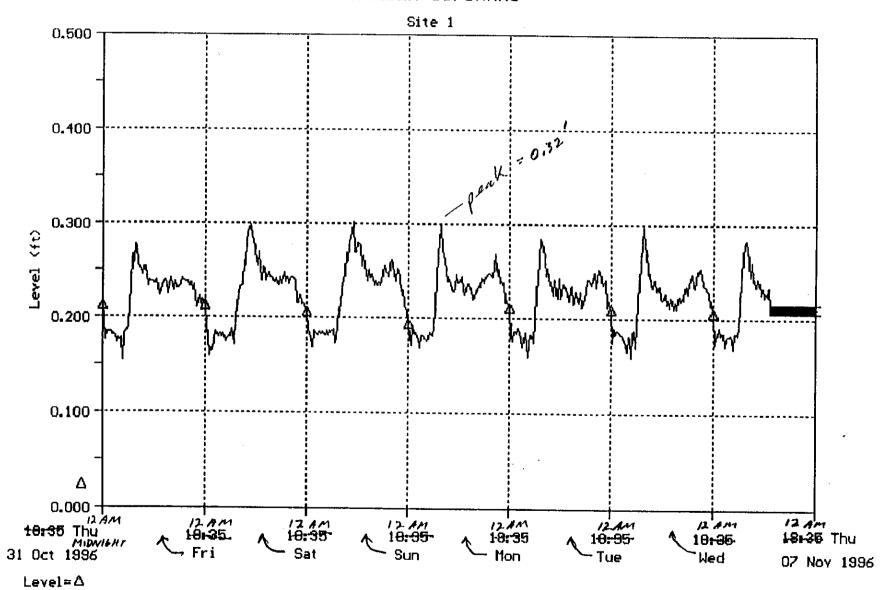
## OEANDER SO/ORANG



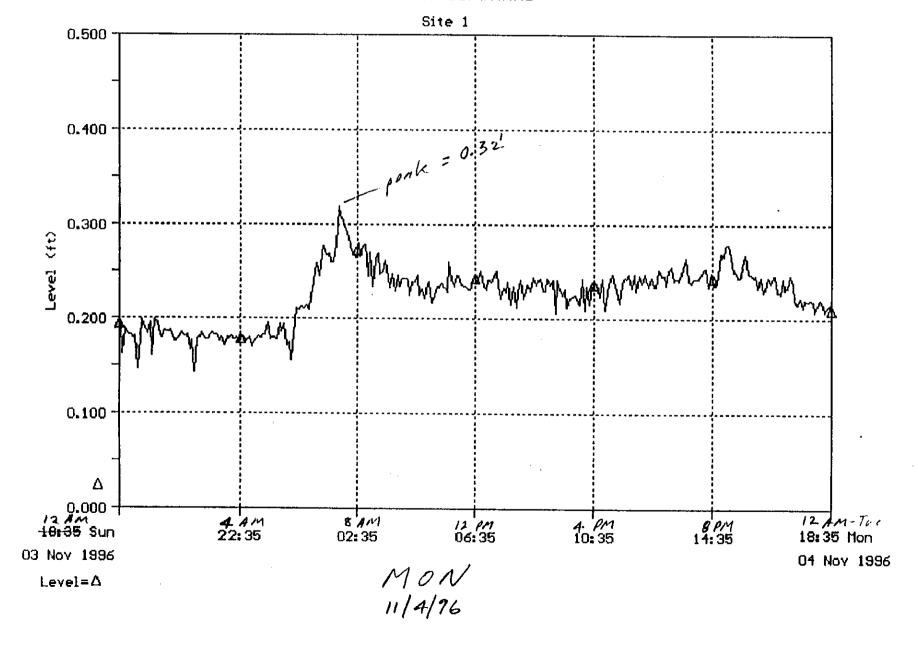
## OEANDER SO/ORANG

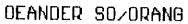


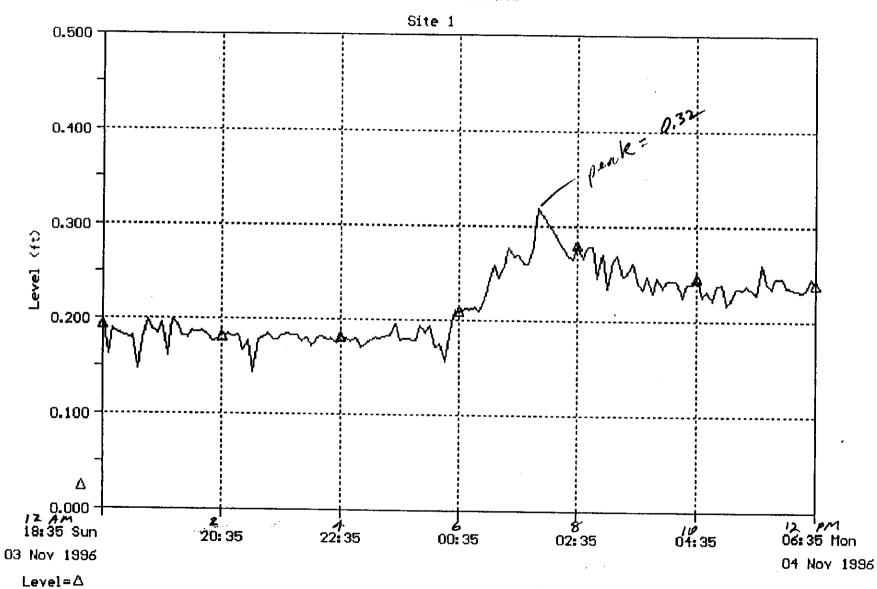
## OEANDER SO/ORANG



## OEANDER SO/DRANG







#### APPENDIX D

#### Calculation for Flow per

## EDU within Existing Developed

Area of Poggi Canyon Basin (Western Portion)

**Based on Flow Metering Information** 

# WILSON ENGINEERING

	120-001
Correlate Metered Flow	4-14-97
Correlate Metered Flow with Existing EDUs	
From meter data, use six	full days of deta:
Friday Nov. 1 Thru Wednesday Nov. 6	
Three Wednesday Nov. 6	
Averege dayth	Date
0.22	N.V./
	Nov.2
0.23	N.v.3
0. 23	Nov4
D. 22	N:15
0.22	NN. b
Average depth = 0.225	feet
Actived size = 8"	
Slope = 0.016 S/A	
$celculate D_a = \frac{0.225}{8/12}$	2276
a war of a	= 0,3375
···— · · · · · · · · · · · · · · · · ·	
<del></del>	
from Bater + King Table 7-14	( , 4 , , 6 , 1
	(act across)
K' = 0.1089 + .75 (0.1)	153 = 0 (089)
	1.50 0.10077
K' = 0.1/37	•
	· <del>-</del>
120-001 AD Paggi Cay as Some Basin	4-14-97 1 f 3
	volume.

## WILSON ENGINEERING

Andrew Communication of the second communication of the se	The second of th
	120 - 001
	4-14-97
Correlate Metered Flows with	
Correlate Metered Flows with Existing EDUs	
$Q = \frac{0.1137}{0.013} \left(\frac{8}{12}\right)^{8/3} \sqrt{0.016}$	
0.013 (12 10.016	:
Q = 0,375 cfs	
= 168.4 gpm	
= 242,502 gpd	<del></del>
<u> </u>	
21.1.1	· · · · · · · · · · · · · · · · · · ·
Divide by 885 existing EDUS:	
= 274,0 gpd/EDU	
e e e e e e e e e e e e e e e e e e e	
en de la companya de	
en la companya de la	· <u></u>
· <del></del>	
energy of the control	
-	
Au Poggi Basin	11 -11 - 47 2 1

7-64

HANDBOOK OF HYDRAULICS

Table 7-13. Values of K for Circular Channels in the Formula  $Q=\frac{K}{n}\,D^{\frac{n}{2}}a^{\frac{1}{2}}$ 

D = depth of water d = diameter of channel

$\frac{D}{d}$ .00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.7 1.0 .8 .8 .9 .6	3 2.87 3 2.20 1.76 70 1.44 15 1.19	2 1.170 4 .965 4 .787	1.148 .947	1.126 .928	6.55 3.54 2.56 2.00 1.62 1.336 1.105 .910 .736 .571	1.084 .891	5.47 3.28 2.42 1.92 1.56 1.286 1.064 .874 .703 .535	5.08 3.17 2.36 1.87 1.53 1.262 1.043 .856 .687	4.76 3.06 2.30 1.84 1.50 1.238 1.023 .838 .670 .496

Table 7-14. Values of K' for Circular Channels in the Formula  $Q = \frac{K'}{n} d^{3/4}s^{3/2}$ 

		D = d	lepth of	water	<u>d</u> •	- diam	eter of	CULTUR	<u> </u>	
$\frac{D}{d}$	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0 .1 .2 .3 .4 .5 .6 .7 .8 .9	.00967 .0406 .0907 .1561 .232 .311 .388 .453 .494	.0118	.00031 .0142 .0492 .1027 .1705 .247 .327 .402 .463 .497	.0167	.00138 .0195 .0585 .1153 .1854 .263 .343 .416 .473	.00222 .0225 .0634 .1218 .1929 .271 .350 .422 .477 .498	.00328 .0257 .0686 .1284 .2005 .279 .358 .429 .481	.00455 .0291 .0738 .1352 .2082 .287 .366 .435 .485 .494	.00604 .0327 .0793 .1420 .2160 .295 .373 .441 .488 .489	.00775 .0368 .0849 .1490 .2238 .303 .380 .447 .491 .483

ST

Table

D T

Tak

## APPENDIX E

Poggi Canyon Basin Sewer System

Computer Model Printouts

## Table to Relate Manhole Numbers in Appendix E and on Exhibit A to Manhole Numbers in Appendix I

	Appendix E	Appendix I
Manhole Number	Description	Existing Manhole Number
211	End of existing 18" in Orange Ave.	307
210	Last MH in Orange Ave. westerly	305
209	Center of condo development	303
208	West end of condo development	301
207	Oleander, 100 ft. south of Satinwood	251
		250
206	Storm drain easement, 400 ft. southwest of Oleander	
		248
		246
		244
205	MH east side of I-805 undercrossing	442
204	MH west side of I-805 undercrossing	240
203	Storm drain easement, 200 ft. southwest of Melrose	
		238
		236
		234
202	Storm drain easement, 1,600 ft. downstream of MH 203	
<u>.                                    </u>		232
201	Intersection of storm drain easement and Otay Valley Road	
		230
<u></u>		228
· · · · · · · · · · · · · · · · · · ·		226
		224
		222
200	Intersection of future Poggi Canyon Sewer and future Salt Creek Interceptor	

	221
	220
	1

Note that Manhole Numbers 200 through 203 and 206 are located within the proposed storm drain easement alignment. Therefore, they do not correspond with the manhole numbers in Appendix I which are located in Oleander Street and Melrose Avenue.

Manhole Numbers 212 through 221 in Appendix E are located on future reaches of the Poggi Canyon Basin Sewer in future East Orange Avenue.

#### APPENDIX E

Poggi Canyon Basin Sewer System

Computer Model

Flows Based on 280/210 gpd/Unit

#### SUMMARY OF SEWAGE FLOWS FOR THE POGGI CANYON INTERCEPTOR BY MANHOLE (BASED ON 280/210 gpd/unit) **Project Name** McMillin. **EastLake** Total, Otay Otav Otay Otay Otay Otay Existing, Allen Otay Otay Manhole Sun bow Charles H. Development, Ranch Ranch Ranch Ranch Ranch Ranch Ranch Ranch gpm avg. gpm II, gpm Gerhardt, Number gpm avg. Village 2, Village Village Village Planning Village Village VWage gpm avg. avg. Gerhardt. OV E gpm avg. One West, gpm avg. 6, gpm 7, gpm 11, gpm Area 12. 1, gpm S, gpm gpm avg. RYZ. gpin avg. gpm avg. AVE. ave. AVE. AVE. 0.00 200 35.97 201 35.97 0.00 202 0.00 203 130.80 130.80 204 125.71 125.71 205 0.00 206 0.00 207 1.75 1.75 208 22.03 22.03 209 31.89 210 31.89 0.00 211 0.00 212 218.08 0.78 217.3 213 118.30 118.3 214 28.00 28.0 215 0.00 216 28.6 105.90 5.7 70.1 1.5 217 12.2 237.1 342.70 93.4 218 70.1 163.2 56.3 77.5 367.10 219 122.4 59.4 118.2 300.00 220 26.6 409.4 797.70 122.4 76.1 163.2 22 L

76.1

56.3

163.2

40.8

237.1

B6.0

195.7

409.4

2,625.9

408.0

233,6

5.7

348,93

Total

363.6

1.5

F425 1

\$5.53 4 -1:313 350\*\$TF:

75330 CAHMON SEWER BABON FLANK POZZOBAHOSZWOŚC GROKIWS

42		# <u>3</u>			[	Deizh Gris	eris
1545	Flata	22	- :- ]	Ciat	570	1114	Velot
3	.882388	ୁଅନ	.213	35	, जेंद : ' )	17891.3	5,1
736	.396602	04. 461	.310	- : 	175	5143.5	6,1
201	.70:320	282	, <u>a</u> .3	□. 4-	.75	5302,4	5.0
261	,397799	220	.313	<u> 11</u>	.75	5540,6	<u>.</u>
ZØ.	.887.388	284	.813	2-	, TE	5543.8	<u>;</u> , 4
្និក្ខិន	.325338	ORE LES	.313	15	- T- G	3848.3	1,E
795 285	.005000	295	,3.0		, T.Š.	4555.3	5,3
22s	.00:100	267	,211	21		:@e5.2	5,2
237	,304302	188	.015	# : A =		41211	ž,7
228	.331330	196	.943	÷.	.75	413175	4.7
29°	.207736	7 × 3	,813		75 71	£18 <b>3</b> .9	7.2
717	. 396792	212	3:7	15	.75	4012.3	8.5
7::	. 202520	215	217	13	.75	376 <b>3.</b> 5	2.5
212	,319300	217	.313	18	.75	5915.8	9,1
213	.013888	214	.815	15	,73	4299,2	5.7
214	. 339900	21E	.813	19	.75	4375,8	å.4
1.5 1.5	.313030	213	9+7 •810	.5	,75	4297.2	6.7
21:	.007000	217	.013	<u>ig</u>	,75 ,75	3597.3	5.6
217	. 236888	212	# 1 ₹ 18 ± 2	13	.75	J845,J	6.8
115	.235220	242 242	A-7	19	.73	3942,2	4,8
213	.387888	 22 <u>5</u>	.813	15	.75	2010.2	5.3
220	, 20, 1000 , 20, 1000	221	.343	15	.75	2213,3	3.2
			END OF				

80 83 - AL 818 1ATE

P0380 D40401 85455 84800 F1445 F038884-2634018 8F0/UNC

DISTRICE DIGMETER FLEW ELEVATION ASSA

FEET DWCMES SPM FEET ACRES

POSSI CANYON SEMER BASIN FLAN: POSSISA-280/210 SPD/UNI

Hermole	72131	Jostributea	Paint
	Area	Flow	Source
233	. 50 . 50	. 33	5411,19
251	185.30	35,97	. 22
134	572,70	150.30	.08
285	646.50	125.71	.20
238	9,30	\$.7E	,27
235	113.30	22.03	20 20
113	164.73	31,89	, 20
2.7	4.88	.78	217.30
214	.37	. 3 <i>2</i>	118.30
<u>-</u>	.58	. 20	15.00
A:-	, 39	. 88	105,98
209	.20	.22	342.70
219	, 35 , 20	កក , ដទ	347.19
229	. 33	. 22	5 <b>0</b> 0.00
	, 30	. 37	797,7g

BEWER WARLHESE SAASTARY LIAC HERLICOATOONS FIGGES CANYON GEWER GASON FLANK AGGSSLA-IEG/218 290/UNS

¥8 25	MH Bown	31658	Giam Sacar tity	47es	Flow Indet	Paist Bourse	Avenage Flow	Raak Plow	Vela Soltv	Gesth Ratie	Gader Cadacidy Replace Relief	Identificación
75+ -+-	218	, 32788	15 3711.81	, 38	, 33	797,73	797,70	1189,81	4.5	.56		GRANGE AVE AT FUT BR 125
110	217	33736 .80769	15 2212,21	.36	. aa . ac	J <b>33.3</b> 3	1877.78	1999,31	4,4	.67		#/END STAY RANCH VILLAGE S
7,7	218	. 30533	18 3 <b>8</b> 39.99	. 66	.22	347.10	1464.83	2882.83	4,5	.áé		E/END STAY RAMER VILLAGE :
113	217	. 30802	16 3645.31	.33	.29	3 <b>41.78</b>	1837.32	3125.94	5,8	.64		W END CTAY RANCH VILLAGE 1
 	21a	.93739	19 3394.77	, 38	.29	185,98	1913,40	0191,40	2, ĝ	.78		HOWER YETE MI
315	7/2	.21200	18 4277.28	.39	.00	, n , de	1913.48	7291.43	5,4	, <u>5</u>		IN SONBON II
<u> </u>	715	.30938	18 4073.58	.35	.38	29.00	1941,48	5335 <b>.8</b> 3	5.3	.64		IN SUNBOW II
214	515	. 31895	18 4099.23	.33	, 55 65,	113,30	2059.78	0519.84	à.5	, <u>54</u>		IN SUMBOW II
•. <del>•</del>	212	.3:338	18 5815,95	4.00	.78	2:7.30	2077.73	0384.88	3.4	.55		FUTE BEWER IN GRANGE AVE
212	211	.28552	18 3°60.a7	.53	,35	.00	2077.73	3834,88	3,5	.75		FUTH SEWER IN CRANSE AVE
211	313	.90270	i8 <b>4010.8</b> 3	. 33	.38	, 36 , 36	2277.75	Ja54.55	4.7	75 474		EXISTING 18"
218	209	.20933	21 8 <b>25</b> 3,9 <b>4</b>	164,00	31.89	.20	23 <b>8</b> 9.67	3903.41	ė.5	.54		EXISTING 21"
239	208	. 38488	21 4101.58	113,3 <b>8</b>	22.83	.39	2331.70	D757.12	4,7	.72		EXISTING 21"
298	207	. 39438	21 4121,58	€,39	1.75	.00	2333.45	3939,80	4.7	.72		EXISTIMS 211
197	125	.33513	01 5894,97	. 35 35	, 32	.JØ	2333.43	393 <b>9.33</b>	5,8	.52		IN STAM OR EBMT W/C CLEAND
⊒ēć	192	10000	21 4585.31	37 20	, 40 , 40	,56 36,	2333.45	3939.38	5.1 2.1	, ŽÕ		IN STRW OR SENT W/C OLEAND
205	224	, 20506	13 1839.99	a46,9⊈	125.71	.30	2459.15	4171,61	2.2	>1.6	21 15	EXISTING 19" UNDER 1-305
194	103	.20738	21 5540.82	472 <b>.</b> 78	130.90	.20	2569,95	4730.22	5.1	.57		IN STRM DR EBNT W/O MELROS
293	197 292	.30738	7: 55 <b>48.8</b> 2	. 26	.29	.36	25 <b>5</b> 9.75	4538,22	6,1	.62		IN STRM OR ESMT W/0 MELROS
222	201	.30450	21 5725.48	.39	, 50 30,	. 20 . 20	2559.05	4000.22	5.8	.65		IN STRM OR ESAT W/C MELASS
101	223	. 30ee 3	51 8288.47	185.00	35.97	. 38	2625.72	4034.68	5.9	.65		FU REACH THRU STRM DR ESMT
222	9	,38110	3613 <b>9</b> 71,78	3£.	, <del>5</del> 5	<b>:</b> 411,19	8037.021	2283.49	5.1	.78		FUT REBIBNAL REACH 9 SEWER

### APPENDIX E

Poggi Canyon Basin Sewer System

Computer Model

Flows Based on 265/200 gpd/Unit

#### SUMMARY OF SEWAGE FLOWS FOR THE POGGI CANYON INTERCEPTOR BY MANHOLE (BASED ON 265/200 gpd/unit) Project Name Allen Manhole Existing, Sunbow Charles H. Otay Otay Otay Clay Otay Otay Otay Otay McMillin. Easi Lake Total, Number gpm avg. II, gpm Gerhardt, Ranch Ranch Ranch Ranch Ranch Ranch Ranch Ranch gpat ave. Development, gpm AVE. gpm avg. Gerhardt Village 2, Village VШаде Village Planning Village VЩаде Village ZPM ave. avg, gpen ave. gpm avg. 6, gpm 7, gpm 11, gpm Area 12, One West, 1, gpax S, gpm AVE. ave. RVE. gpm avg. gpm avg. RYE. avg, 200 0.00 201 34.14 34.14 202 0.00 203 0.00 204 125.08 125.08 205 119.75 119.75 206 0.00 207 0.00 208 1.67 1.67 209 20.98 20.98 210 30.18 30.18 211 0.00 212 0.00 213 0.74 208.2 208.94 214 116.8 116.80 215 26.9 26.90 216 0.00 217 1.4 5.4 66.8 27.0 100.60 218 89.1 11.6 227.9 328.60 219 66.8 155,7 54.1 74.2 350.80 220 116.7 57.0 113.0 286.70 221 116,7 72.7 163.2 25.3 397.0 774.90 Total 332.54 351.9 1,4 5.4 222.7 389.1 54.1 72.7 163.2 38.6 227.9 82.3 187.2 397.0 2,526.0

POSSO DAYMON SEWER BASIN PLAN: POSSISS-055/280 SED/UNI

40		*44			]	esiça Orit	eria
	Sizze	Üb	מ זם ה	Sisa	3/2	Flow	Velço
3	.001700	798 188	.0:5	3 <del>é</del>	.75	13891.8	5.1
353	.904400	201	.013	21	,7 <del>5</del>	5765.5	a,i
지다. 지다. 소단.	.30:528	202	.013	21	.75	5223.4	6.2
201	.207388	200	.015	21	.75	5548.6	5.4
	.887328	204	.813	71	.75	5548.8	5.4
100 100	.205263	105	.gi3	18	.75	7949.8	4.8
44° 44° 24°	,000000 ,000000 ,000000	188	.213	21	,75	4585,4	5.3
180 180	.000000	287	.915	71	.75	5865.3	5.8
	.384883	2007 2008	,810 .810	5.0	.75	4:01.5	4.7
107 12 135		250 257 257	.017	4_ 5+	.70 .70	4131,5	4.7
125	,334996		.815	44 21	.75	155.9	7.2
289 211	.207100	213		15	.75 .75	4913.2	6.J
747 448	.236792	211	.013		./J .75	7000.5 5700.7	a.c
<u> 14 -                                  </u>	. 399539	212	.213	18			
211	.013300	213	.013	18	.75	5915,2	9.i
3.7	.210000	214	.310	18	.75	4277,2	<b>6.</b> 7
245	.037988	5 4 E	.813	18	.75	4978.6	á.4
215	.313020	210	.013	18	7 E	4290.2	ė.7
716	.287260	217	.213	18	,75 ,75	3597.0	ភិ.៩
217	. 209000	218	.813	18	.75	3845.3	ė.2
113	.295222	219	.213	18	.75	1242.2	4.8
229	.007000	228	.015	:5	.75	2213.8	5.8
713	.397888	221	.213	15	.73	2212.0	5.8
			44++- END OF		++-+++++++		+++++++

85439 -N-17533 1A075

98881 CAMMON SEWER BASIN FLAN: FSSEIGB-165/200 SPC/UNI

ASSA WOOTS AVELS FLOW STAMPS CONFISSION

PRET INCHES SAM FEET AGRES

98388 AMAL-809 UDAD BUMMAMA

POSSO DAMMON SEXER BASSM PLANT POSSIBB-265/200 3F5/UNI

ăanăzia	Total	Caparibuses	Paiat
	Araa	Flow	Scence
130	, 0a , 65		141111
2 <b>9</b> 1	185,58	J4,13	. 55
284	377.78	115.86	.56
055 200	653,78	519.7J	. 35
136		5,37	.39
7 <b>5</b> 0	114.00	<b>23.</b> 98	.88
213	154,30	3 <b>3</b> .18	.35
115	4,20	.74	208.20
214	, <b>ਹੈ</b> ਦੇ	. 36	116.80
7 + 5 21 0	,20	30	26.70
2	,28	. 38	180.60
219	.39	.20	378.83
217	, 32	. 34	000.80
122	. សូស ភេឌ	. 22	286.78
121	.26	. 37	774.98

WILSON ENGINEERING	5-21-97
	120-001
Check Peaking Factor	
At: Otan Ranch Village 1; MH 219 to	. 218
Aug Flow = 1,464.8 gam } Ph Flow = 2583.83 gam	My Ought made
<u></u>	
Ph Factor is 1.76	
The state of the s	<u> </u>
Charle against CVDS 18	
Aug- Flow = 1,464.8 Jun	
= 2,109,312 90	<u> </u>
= 7,533,3 EDU.	
	1
= 26,367 people	
	#20
From CVDS18 chart for 26, peak factor is about	1.73
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GERBA AMALMESE GARCTARM NIAO AFFNICATICAR FISSO ISAMON SERBA BASIN PLANK FISSISHESS ISA GEOVUNC

7.25	J	·	_A 40%5	ನ ಧಾಗಾತ್ಮ.	a fi⊒≘dai d	090,04 <b>-</b>	~								
ME Sta			31206	Jisa	Qade- tity	ār <b>ē</b> i	Flow Isput	Point Source	Average Flow	Peak Flow			Under ( Replace		Identification .
221	21	3	. 38723	15 J	2012.31	. 20	.39	774,48	774.78	1451,19	4.3	.53			GRANGE AVE AT FUT ER 125
505	11	ş	.30720	15 :	2212.81	. 55	ិភិក្ • មិមិ	256.7 <b>3</b>	1361.50	1930.14	4.9	.47			W/END STAY RANCH VILLAGE 5
219	5.1 2.1	ŝ	.26536	<u>:</u> g	3019.99	.38	. 92	350,30	1412.42	2499,94	4.6	.å4			E/EMB STAY RANCH VOLUMBE :
218	21	.7	.32836	18	3845.31	.96	.29	328.60	1741.38	3 <b>321.</b> 56	5.8	.63			W/EMD STAY RANCH VILLAGE 1
217	7.; 11	.ś	.00738	13	<b>35</b> 98,37	. 3 <u>6</u>	,33 ,00	133.53	1841,50	0179.33	5.5	. 58			IN OTAY RANCH
1.5	<u>[</u> 1	Ē	.91999	18	4299.23	. 36 . 36	. 37	.33	1841.69	3179 <b>.</b> 33	3.4	.ŝĐ			IN SUMBOW II
115	#1 #1:	1	.00900	18	4075.58	, 33 , 85	. 38	2a,9 <b>0</b>	1885,50	J221.37	5.1	.63			IN SUNSOW DI
īi4	<u>- :</u>	-	, 21888 , 21888	72	4259.30	, <u>ag</u>	ಕಣೆ . ರಶ	115.90	1985.38	34 <b>9</b> 3,79	<b>5.</b> 5	.53			IN SUMBOW II
213			.01350	13	5315.68	1,38	.74	738.20	2194,24	3726.24	8.3	.55			FUTE SEWER IN CRANCE AVE
2:3		· ·	. 30650	18	3963. <b>8</b> 7	33 .00	គ <u>គ</u> គ្រប់		2194.14	3726.24	á.2	,77			FUTA SEWER IN GRANGE AVE
	1	13	,38578	16	4010.80	, 30 , 60	, <u>đ</u> g	.38	2194,24	0728.24	6.2	.71			EXISTING 15°
715 715	] ]	30	.38978	21	5253,94	164.20	77 / 7 30,23	. 28	2224.41	3772.64	6.5	.53			EXISTING 211
139	- 21	Ø.E	.30400	21	4181.58	114.30	18.79	.35	2045.39	3884.96	4.7	7:			EXISTING 214
198	,	27 27	. 38498	21	1494 23 5181,08	9,13	1.67	. 7 <u>2</u>	7 <u>7</u> 47.88	3897.43	4.7	.71			EXISTING 21°
233	- 2	9 <sub>3</sub>	.30ci3	- : - :	5963,57	. 32	. Vi		1247,88	JE <b>07.4</b> 3	5.5	,ái			IN STRM OR ESMIT W/S GLEAND
<u> </u>	: -	35	, 35 5 8 3	11	4595,61	, 35 , 25	. 20	.38	1147.98	1397.40	Ŧ,:	,55			IN STAN DA ESMI WVB CLEAAD
25	1 1	51 V	, 30000 , 30100	: 15	0035,95	588.78	117,7		: <u>1</u> 0558.77	7970.77	5.7	)i.3	54 #4	::	EXESTING 197 WHOER 1-995
20	á <u>1</u>	20	.30758	21	3540.31	a75.70	118,8	.79	1471.83	4181.34	ა.0	.61			IN STRM OR ESHT W/G MELROS
17	3 3	37	.00758	21	5540.37	. J.	.3	e ,e	1 2491.9 <sub>0</sub>	5 4191.36	7.8	i .šl			IN STRM OR ESHT 4/8 MELSUS
7.5 2.2	- 3	31	.3865	21	5228.49	.38	. 3.	g .39	3 2491.3	8 4191.36	5.3	46. ا			IN STAM DA SENT W/S MELACS
- 10 - 10	1 2	90	.28555	1 11	5263.47	185.50	34.1		8 2525.9	9 4233.22	5.5	. <u>.</u>			FU REACH THRU STRM OF BEAT
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### APPENDIX F

Calculation to Verify that the

Peaking Factor Equation for the

Computer Model Correlates

with the City of Chula Vista

Peaking Curve in CVDS 18

	5-21-97
	120-001
Check Peaking Factor	
At: Molrose and Otry Valley Rd; MH	202 to 201
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and the second s	
Ph Factor is 1,67	
Ph Factor is 1,67	1
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Check Against CVOS 18	
Aug. Flow = 2589.95 gpm	
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the state of the s	
= 13,320 EDU e	
= 46,620 people 0 3.	5 peol / EDU_
From CVDS 18 that for 46,6	old payele
perh factor is about 1.67	<u> </u>
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and the second of the second o	-
SUBJECT SUBJECT	DATE SHEET

### APPENDIX G

Calulations to Determine Available

Capacity in EDUs in Existing

18-inch Gravity Sewer Main

Under the I-805 Freeway

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For Ja = U.13		
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(265 grd/EDU)	120-001
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Use Brater + King Table 7-14 K' = 0,463	
Q = 0.463 (1.5) 1/3 10:005	
0.013	
Q = 7-425 cfs	
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estimate peaking Ferry = 1.68	
Hen average flow = 2,856,310,49	pd
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divide by 265 gpd (EDU = 10,779	EDUS
times 3-5 people / EDU = 37, 727 peop	(e
from CVOS 18, pentaly factor is approx.	1-68 01
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	Sammary	. Data Table	
		265 god/EDU	
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0.85	11,104	942	10,162
0.93	11,643	942	10,721
	10,779	942	9,837
1. 0	/0, 779	174	1, 6 3 /
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Table 7-13. Values of K for Circular Channels in the Formula  $Q = \frac{K}{\pi} \, D^{94} e^{12}$ 

9 1	d - diameter of charge
The denth of White	

D d	.00	.01	.02	.08	.04	.05	.06	.07	.06	.09
4	4,49	15.02 4.25	10.56 4.04	8.57 2.86	7.38 3.60	6.55 3.54	5.95 3.41	5.47 2.28	5.06 3.17	4.76 3.06
3	2.96 2.25	2.87 2.20	2.79 2.14	2.71 2.09	1.62 1.05	2.56	2.49 1.96 1.50	2.42 1.92 1.56	2.36 1.87 1.53	2.30 1.84 1.50
.4 .5	1.80	1.76	1.72	1.00	1.66	1.62	1.311	1.286		1.311
.5 .7	1.215		1.170		1.126 .928	1.105 .910		1.064 .874	1.048 .856	1.023 .838
3	.821 .854	.804 .637	.787 .621	.770 .604	.753 .588	.736 .571	.720 .553	.703 .585	.687 .516	.670 .496
1.0	.463				,					

Table 7-14. Values of K' for Circular Channels in the Formula  $Q = \frac{K'}{\pi} d^34 e^{14}$ 

D = depth of water d = diameter of channe

D d	.00	.01	.02	.03	.04	.05	.06	.07	.08	.00
01934	.00967 .0406 .0907 .1561	.0118 .0448	.00081 .0142 .0492 .1027 .1705		.00128 .0195 .0585 .1153 .1864	.0225 .0634 .1218	.00828 .0857 .0896 .1284 .2005	.0291 .0738 .1352	.00604 .0327 .0793 .1420 .2160	.00775 .0366 .0849 .1490 .2238
.s .7 .8	.232 .311 .388 .453 .464	.230 .319 .396 .468 .496	.347 .327 .402 .463 .497	.255 .335 .400 .468 .498	.263 .343 .416 .473 .496	422	.279 .358 .429 .481 .486	.287 .366 .485 .485 .494		.303 .380 .447 .491 .483
1.0	463									

#### STEADY UNIFORM FLOW I

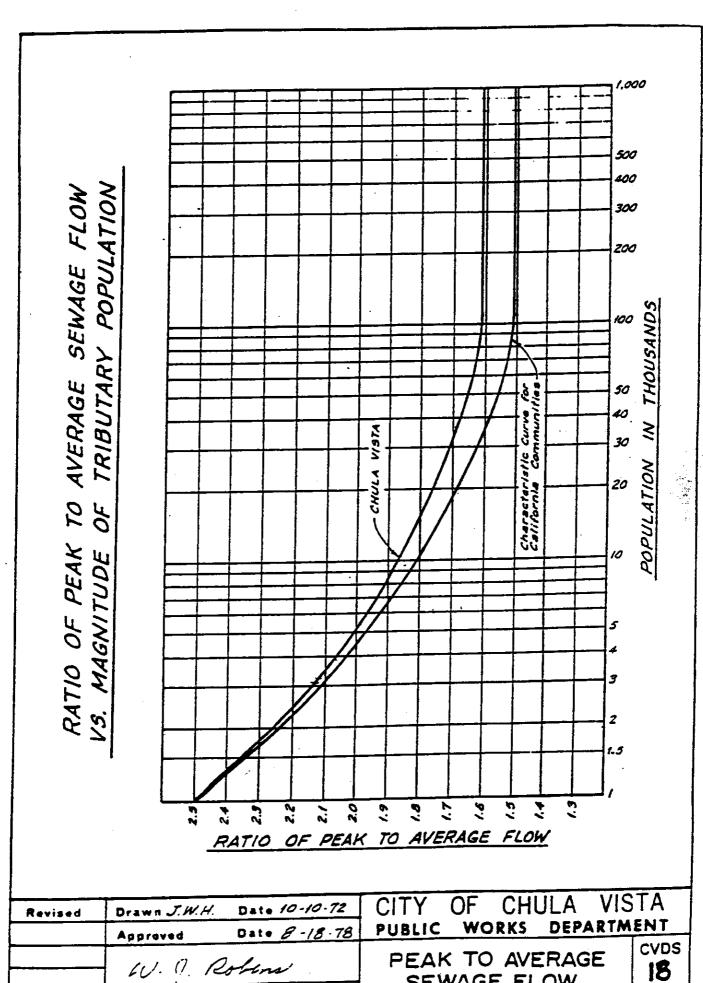
Table 7-15. Values of K for Para  $Q = \frac{K}{\pi}.$ 

D T	.00	.01	.02	.03	.04
٩		78.50	87.77	25.16	18.85
.1	7.43	6.73			5.72
	2.55		3.19		2.89
.2				1.984	
.3	2.226				
.4	1.560	1.511	1.465	1.421	1.87
.5	1.165	1.134	1.105		
	.906		.367	.548	.81
.5 .7	.730		.701	.687	.57
	.601				.5£
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1.0	.431	1	1		Ī

Table 7-16. Values of K' for Par  $Q = \frac{K'}{2}$ 

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D T	.00	.01	.02	B	.04
.0 .1 .2 .3 .4 .5 .5 .7 .8 .9	.0486 .0898 .1355 .183 .232 .282	.0187 .0524 .0942 .1402	.0215 .0563 .0967	.00219 .0245 .0603 .1022 .1497 .196 .247 .297 .247 .396	.027 .064 .107



Public

SEWAGE FLOW

#### APPENDIX H

Calculations to Determine the

Amount of Surcharge in the Existing

18-inch Gravity Sewer Under I-805

Freeway Under Ultimate Peak

Flows Based on 265/200 gpd/Unit

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	120-001
Poggi Caryan Bosin	5-20-97
18" Sever Under I-805	
MH MH	
21 21 21 21 21 21 21 21 21 21 21 21 21 2	
20.5 % 47.5 e 0.61% 5= 0.56 %	3
( 158.40 ) 158.40	
ie. 158.01 (58.11 158.11	
<del></del>	+ + + + + + + + + + + + + + + + + + + +
In the upstream 21 pipe, the surchange	will be
In the upstream 21" pipe, the surchange above the pipe cown as follows:	
Water surface at apstream end from prev.	p.) 160.32'
	2
160.32'- 158.11'- 21/2 = 0.46 fre	
T 11 ( 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
In the first 47.5 feet @ 0.61 %	01
elev. gain is (47.5) (0.0061) = 0.2	7
0.46 - 0.29 = 0.17 Seet	
Length of next reach which will be	
0 17'	e submarged
0.0056 = 30.4 101	
Total subnersed length of 21" ppe	is 77.9 Lest
Therefore, the backup vill not o	each to MH #2
on the proposed 21" sever line (574 185	
27 p. p. j. c. c. c. c. c. c. c. c. c. c. c. c. c.	
0-001 AO Paggi Cengen Besin	5-2-97 4 of s

	TELI III G		, : :
			120-001
Poggi Canyon	Basin		5-20-97
18º Sawer	Under I-8	305	
The sub	mercania of	No enistre	8" gravits
	L'A Canna	t: 6 % 18"	him clande
(L.+:	min Sluge	ic 0.0385	8" gravity fun Oleander
3/1-201.	// J. J. J. J. J. J. J. J. J. J. J. J. J.		
C. 6-0	/2 - 1/2 -	= 0.81	C
Jabra	rzed length =	0.0785	+ feet
		3.03.3	
1			2 81 6 + 4
Length	a of backup	15 DESECTION	1.40 6
com	pers & di	custo pur	0.81 feet about
	1	! ; ; ! ! !	
the	705	= 38.4 feet	
	0.0389		
		" the 18" sews	
		he freeway	
بي " 8	ever manhole	in Oleande	- Street 1's
over	150 feet.	Therefre, the	backup will
not	extend into	the street	and will not
a feed	existing sa	war laxerals.	
		i	
		SIM	Sec. 25 6

### APPENDIX I

Poggi Canyon Basin Sewer

Phasing Analysis

Computer Runs for Existing System

West of Interstate 805

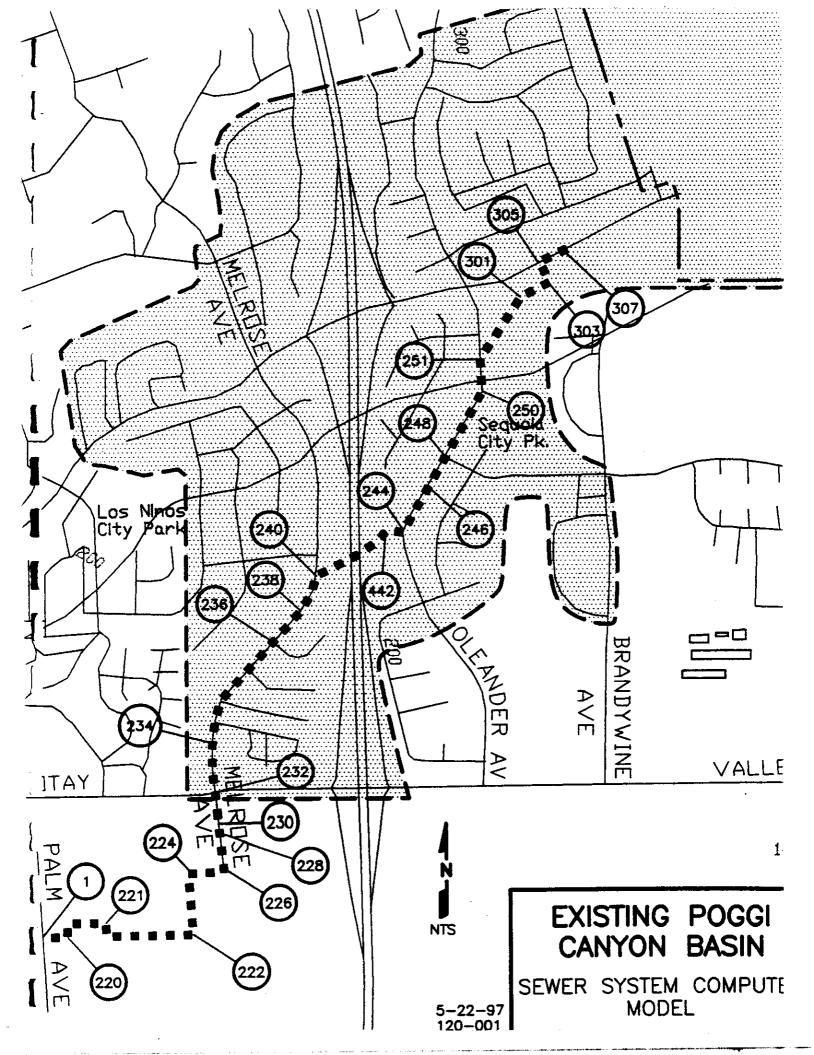
### Table to Relate Manhole Numbers in Appendix E and on Exhibit A to Manhole Numbers in Appendix I

	Appendix Expense	
	Appendix 6.1	Appendix I
Manhole		Erleting Manicole
Number	Description	Number
211	End of existing 18° in Orange Ave.	307
210	Last MH in Orange Ave. westerly	30 <i>5</i>
209	Center of condo development	303
208	West end of condo development	301
207	Oleander, 100 ft. south of Satinwood	251
		250
206	Storm drain easement, 400 ft. southwest of Oleander	
		248
		246
		244
205	MH east side of I-805 undercrossing	442
204	MH west side of I-805 undercrossing	240
203	Storm drain easement, 200 ft. southwest of Melrose	
·		238
		236
		234
202	Storm drain easement, 1,600 ft. downstream of MH 203	
		232
201	Intersection of storm drain easement and Otay Valley Road	
		230
		228
		226
		224
		222
200	Intersection of future Poggi Canyon Sewer and future Salt Creek Interceptor	

	221
	220
	1

Note that Manhole Numbers 200 through 203 and 206 are located within the proposed storm drain easement alignment. Therefore, they do not correspond with the manhole numbers in Appendix I which are located in Oleander Street and Melrose Avenue.

Manhole Numbers 212 through 221 in Appendix E are located on future reaches of the Poggi Canyon Basin Sewer in future East Orange Avenue.



POSSI BASIN SEMER - EXISTING ANALYSIS FILE:POSSITEX

31) 11/1						Design Crite	eria
Down	Slope	۵p	ನ ರ೯ 🕻	Dias	d/D	Flew	Veloc
		·					·
1	.812308	229	.813	12	.75	1417.2	5.7
228	.203202	<b>2</b> 21	.813	12	.75	824.9	2.9
221	. 284888	222	. <b>8</b> :3	12	.75	922.2	3.3
222	.224588	224	.813	12	.75	2282.4	8.8
224	.834988	<b>22</b> 6.	.913	12	.75	922.2	3.3
226	.833888	228	.913	12	.75	2548.9	7.3
229	.284528	239	.813	12	.75	978.2	3.4
238	.816150	232	.713	និ	.58	344.6	4.4
232	.815088	234	.813	9	.50	332.1	4.2
234	.017409	23á	.813	8	.50	357.7	4.5
236	.817488	238	.013	8	.58	357.7	4.5
238	.015600	240	.813	8	.50	338.7	4.3
249	.885968	442	.813	81	.75	3848.2	4.8
442	.938599	244	.913	8	.58	532.1	6.8
244	214099	246	.813	8	.50	343.8	4.4
246	.216266	248	.013	8	.59	343.2	4.4
248	.814888	25@	.013	3	.50	343.8	4.4
258	.223892	251	.813	21	.75	3997.6	4.6
251	. 384298	361	.813	21	.75	4181.5	4.7
391	.384986	383	.013	21	.75	4191.5	4.7
383	. 397388	3 <b>8</b> 5	.813	21	.75	6253.9	7.2
385	. 226729	397	.813	18	.75	4918.9	6.3
						+++++++++	++++++

Existing System

Existing Flows only

Design Criteria:

8" 9/d = 0.50

12" 1/d = 0.75

SEWER ANALYSIS INITS

POGGI BASIM SEWER - EXISTING ANALYSIS FILE:POGGITEX

DISTANCE DIAMETER FLOW ELEVATION AREA

FEET INCHES GPM FEET ACRES

POGGI BASIN SEWER - EXISTING ANALYSIS FILE: POGGITEX

Manhole	Total	Contributed	Point
	Area	Flow	Source
220	Jo.88	6.62	. 22
221	79.60	12.88	. 32
222	147.23	27.42	.37
274	13.98	2.39	. 38
225	88.30	15.82	.22
228	49.86	11.84	22
238	53.99	9.75	. 53
232	1.22	.18	. 30
234	87.02	16.31	.29
236	76. <b>38</b>	13. <del>98</del>	. 22
238	18.88	1.84	. 23
248	664.79	125.98	.22
244	53.00	9.28	.30
246	83.00	15.27	.39
248	157.20	28.89	.22
25@	357.28	<b>65.72</b>	, 2.2 . 55
381	9.88	1.66	.86
383	113.38	<b>29.</b> 85	. 20
385	168.89	30.91	.28
387	1.88	.18	.55

5/16/97 2**0:**18:17

SEMER AMAL/SIB BAMITARY LOAD APPLICATIONS POSSI BASIM BEMER - EXISTING AMALYSIS FILE:POSSITEX

MH Ua	dH Down	Slape	Diam Capa- city	Aree		Point Source	Average Flow	Peak Flow	Vel- ocity	Depth Ratio	Under Capa Replace Re		Identification
3 <b>8</b> 7	305	.90873	18 <b>4819.8</b> 3	1.28	.18	. 38	.18	.76	.4	.8:			CONNECTION TO SUNBOW II
3 <b>9</b> 5	323	.22933	21 6253.94	168.33	38.91	.29	31.13	78.79	2.2	.88			ORANGE AVE
383	301	,99499	21 4101.50	113.30	28.85	. 33	51.94	125.41	1.3	.11			CENTER OF CONDO DEVELOPMENT
J <b>a</b> i	251	,28490	21 4191.58	7.30	1.66	.88	53.69	129.93	1.9	.12			WEST END DRANGE AVE CONDOS
251	259	. 00380	21 3997.64	.33	. 38	. 36	53.68	129.83	1.7	.12			
258	248	.81602	8 343.83	357.28	65.72	.59	119.32	266.43	4.1	.43			OLEAN. 400°S OF SATINWOOD
248	246	. 31489	8 343.03	157.30	28.89	, #T	148.21	324.26	4.3	.49			OLEANDER AVE INT SEQUOIA
246	244	.91699	8 343.93	83.28	15.27	.88	163.48	354.39	4.4	.52	10	8	OLEANDER 488' S OF SEQUOTA
244	442	.33859	8 532.11	50.00	9.25	.88	172.68	372.41	6.3	.41			OLEANDER 328' N OF TILIA
442	249	. 20522	18 3839.99	.99	.22	.99	172.68	372.41	2.8	.23			UNDER 1-8 <b>8</b> 5
249	238	. 31568	8 338.71	684.72	125.98	. 26	298.67	611.77	4.9	.75	10	3	MELROSE 138' S OF TALUS ST
238	23å	.91740	8 357.72	13.30	1.84	<b>5</b> 5.	300.51	615.19	5.1	.72	10	â	MELROSE 360' N OF TURQUOIS
236	234	.81749	8 357.72	76.90	13.98	.22	314.47	541.87	5.2	.73	ie	8	MELROSE AVE INT TURQUOISE
234	232	.81590	8 332.13	87 <b>.22</b>	i6.8i	. 85	330.59	670.56	4.8	.84	12	18	MELROSE 200' S OF TOURMALI
232	238	.31615	9 344.63	1.00	.18	.28	33 <b>0.</b> 68	670.90	5.8	.79	17	8	MAIN ST INT HELROSE AVE
739	229	. 20450	12 978.19	53.89	7.75	. 99 842,	340.44	68.80	3.3	.57			MELROSE AVE 230' S OF MAIN
225	226	.03399	12 2648.91	68.88	11.04	.23	351.48	709.01	6.8	.34			MELROSE AVE 348' S OF MAIN
226	224	. 28420	12 922.23	86.89	15.82	.83	367.30	737.87	3.1	.63			MELROSE AVE INT RANCHO CT
224	222	.82458	12 2282.41	13.88	2.39	.22	369.69	742.22	8.1	.37			ALLEY 158'S OF RANCHO CT
722	221	. 88498	12 922.23	149.88	27.42	. 38	397.11	791.92	3.2	.66			RANCHO DR S OF RANCHO CT
221	225	. 88329	12 824.87	78.88	12.88	. 88	489.99	815.15	2.9	.75			RANCHO DR INT REGENCY WAY
228	i	.91239	12 1617.20	36.00	6.62	.08	416.61	827.88	4.9	.49			RIOS AVE S OF ALLEY D

POSS: BASIN SEMER - EXISTING ANALYSIS FILE: PGSS: 7EX

84		ĦĦ				Design Crit	eria
Down	Slope	Üp	n or C	Diam		Flow	Velcc
	•						•
:	.212332	ำกาด	8+7		+ 66	1707 E	e +
•		228	.#13	12	1.20	1797.5	5,1
229	.003200	221	.013	12	1.32	916.9	2.á
221	. 884288	222	.813	12	: 93	1025.1	2.7
222	.824599	224	.013	12	1.23	2536.9	7.2
224	. 224222	226	.013	12	1.93	1825.1	2.9
226	.833889	228	.813	12	1.80	2944.3	8.4
228	. 884 588	238	.813	12	1.33	1987.3	3.1
230	.016150	232	.313	8	.93	741.1	4.9
232	.015898	234	.913	8	.93	714.2	4.7
234	.017400	236	.213	8	.93	769.2	5.1
236	.017400	238	.913	8	.93	769.2	5.1
238	. 915699	248	.013	8	.93	728.4	4.8
243	.885888	442	.013	18	1.20	3379.8	4.3
442	. 238522	244	.813	9	.93	1144.2	7.5
244	.316992	246	.013	8	.93	737.6	4.9
246	.814999	248	.013	8	.93	737.6	4.9
248	.916882	25 <del>8</del>	.813	8	.93	737.6	4.9
259	.003800	251	.013	21	i. <del>28</del>	4443.4	4.1
251	.204286	301	.213	21	1.83	4558.7	4.2
301	.084820	393	.213	21	1.00	4558.9	4.2
<b>38</b> 3	.007328	385	.213	21	1.69	6951.3	6.4
395	.009700	307	.013	18	1.88	4457.2	5.é
++++++	+++++++++	+++++++	++++ END OF	AREA	*+++++++++	+++++++++	+++++++

Existing System

Existing Flows only

Design Criteria:

8"+10" D/d = 0.93

12" D6 = 1.0"

POSBI BASIN SEMER - EXISTING ANALYSIS FILE: POBBITEX

Manhole	Total	Contributed	Paint
	Area	Flow	Source
228	3a.88	6.62	. 33
221	70.00	12.88	. 22
222	149.88	27.42	.23
224	13.22	2.39	.00
226	85.00	15.92	.09
228	68. <b>98</b>	11.04	. 22
232	53.00	9.75	.68
232	1.23	.18	. 36
234	87.20	16.81	. 62
236	76.00	13.98	.00
238	13.00	1.84	. 22
249	484.79	125.98	.88
244	50.00	9.28	. 23
246	83.09	15.27	.00
248	157.88	28.87	. 22
258	357.20	65.72	.28
581	9.33	1.65	.02
323	113.30	20.85	.00
325	168.99	38.91	. 38
327	1.20	.18	.73

SEMER ANALYSIS SANITARY LOAD APPLICATIONS
POSGI SASIN SEMER - EXISTING ANALYSIS FILE:POSGITEX

MH Up	MH Down	Slope	Dias	Capa- city	Area	Flow Input	Paint Saurce	Average Flow	Peak Flow	Vel- ocity	Depth Ratio	Under Capac Replace Rel	ity ief Identification
387	385	.98879	13	4457,19	1.20	.13	.98	.13	.76	.4	.31		CONNECTION TO SUNBOW II
3 <b>2</b> 5	3 <b>8</b> 3	. 29939	21	6951.32	168.00	30.91	.29	31.13	78.79	2.2	₽0.		GRANGE AVE
383	391	. 20400	21	4558.86	113.38	28.85	, 38	51.94	125.41	1.8	.11		CENTER OF CONDO DEVELOPMENT
3 <b>2</b> 1	251	.39420	21 -	4538.86	9.32	1.65	.98	53.60	129.83	1.9	.12		WEST END DRANGE AVE CONDOS
251	250	.88388	21 -	4443.42	.00	.98	.29	53.60	129.83	1.9	.12		
25 <b>6</b>	248	.01600	5	757.64	357.20	65.72	.33	119.32	266.43	4.1	43		OLEAN. 400 S OF SATINWOOD
248	246	.01600	8	737.64	157.20	28.89	.00	148,21	324.26	4.3	.49		OLEANDER AVE INT SEGUDIA
24å	244	.01520	8	737.64	83.8 <b>8</b>	15.27	.89	163,48	354.39	4.4	.52		OLEANDER 400' S OF SEGUOIA
244	442	.83858	8 :	1144.23	58.88	9.20	. 36	172.68	372.41	6.3	.41		OLEANDER 320' N OF TILIA
442	248	. 20528	18 3	3378.98	. 20	. 32	.88	172.68	372.41	2.8	.23		UNDER 1-805
248	238	.01560	8	729.36	684.79	125.98	.23	298.67	611.77	4.9	.75		MELROSE 130' S OF TALUS ST
238	236	.31748	3	769.23	19.90	1.84	.20	300.51	615.19	5.1	.72		NELROSE 360' N OF TURQUOIS
236	234	.81748	8	769.23	76.90	13.98	. 22	314.49	641.87	5.2	.73		MELROSE AVE INT TURQUOISE
234	232	.91598	8	714.22	87 <b>.22</b>	16.91	.09	339.59	670.56	4.8	.34		HELROSE 200' S OF TOURMALI
232	230	. <b>8</b> 1615	3	741.29	1.89	.18	.88	330.68	670.90	5.9	.79		MAIN ST INT MELROSE AVE
238	228	.00459	12 i	<b>3</b> 87.25	53.88	9.75	.88	340.44	68.88	3.3	.59		MELROSE AVE 230'S OF MAIN
228	776	. 833388	12 2	944.39	40.00	11.84	.88	351.48	789.91	6.8	.34		NELROSE AVE 348' S OF MAIN
226	224	69499	12 i	825.87	86.2 <b>0</b>	15.82	.89	367.39	737.87	3.1	.63		MELROSE AVE INT RANCHO CT
224	222	.82458	12 2	2536.92	13.88	2.39	.89	369.69	742.22	6.1	.37		ALLEY 150' S OF RANCHO CT
222	221	.38462	12 1	225.27	147.88	27.42	.93	397.11	791.92	3.2	.óć		RANCHO DR S OF RANCHO CT
221	229	.08329	12	916.85	78.20	12.88	.00	489.79	815.15	2.9	.75		RANCHO DR INT REGENCY WAY
220	i	.21238	12 1	797.53	36.88	6.62	.88	416.61		4.9	.49		RIOS AVE S OF ALLEY D

POSSI BASIN SEWER - EXISTING ANALYSIS FILE: POSSITEX

器		뙲			[	Design Crit	eria	Existi	g System
Down	Slape	Ср	n ar C	Dias	d/D	Flow	Veloc		•
								Add	130 EDUS
<u> </u>	212388	229	.213	12	1.00	1797.5	5.1	made	
222	.993296	221	.213	12	1.00	914.9	2.6	Q	MH 307
221	. 884 808	222	.213	12	1.88	1225.1	2.9	ع	10(11 3 4 1
222	.824588	224	813	12	1.39	2536.9	7.2		
224	. 294926	226	.013	12	1.33	1825.1	2.9		
226	.833888	228	.213	12	1.33	2944.3	8.4	5. 61.	m is OK
228	.884588	238	.813	17	1.99	1087.3	3.1	J437	10 U.S
238	.016150	232	.813	8	.93	741.1	4.9		
232	.815888	234	<b>.213</b>	8	.93	714.2	4.7		
234	.017480	236	.213	8	.93	769.2	5.1		
236	.217489	238	.213	9	.93	749.2	5.1		
238	.815688	248	.013	8	.93	728.4	4.8		
248	. 285828	442	.813	18	1.88	3379.2	4.3		
447	.238528	244	.813	3	.93	1144.2	7.5		
244	.21.5202	246	<b>.8</b> 13	ē	.93	737.5	4.9		
246	.016000	248	<b>.8</b> 13	8	.93	737.6	4.9		
248	.215222	250	.213	8	.93	737.6	4.9		
259	.083888	251	.813	21	1.02	4443.4	4.1		
251	. 284826	3 <b>9</b> 1	.013	21	1.89	4558.9	4.2		
301	.294292	3#3	.913	21	1.22	4558.9	4.2		•
383	.007388	385	.213	21	1.88	6951.3	6.4		
395	. 208728	397	.213	18	1.29	4457.2	5.6		
+++++++	+++++++++	++++++++	tttt END OF	ARFA ++++	+++++++++	+++++++	++++++		

POSSI BASIN SENER - EXISTING ANALYSIS FILE: POSSITEX

Manhola	Total	Contributed	Point
	Area	Flow	Source
223	36.89	6.82	. 32
271	78.99	12.68	.20
222	149.20	27.42	.89
224	13.00	2.39	. 33
226	84.00	19.82	.33
228	62.28	11.94	. 36
239	53.00	9.75	.33
232	1.88	.18	.99
234	87.28	16.91	. 26
236	76.89	13.98	. 22
238	19.88	1.84	.28
242	684.78	125.98	. 68
244	50.00	9.20	.88
246	83 <b>.68</b>	15.27	.88
248	157.23	28.89	.22
258	357.20	65.72	.20
381	9.33	1.56	.00
383	113.30	20.85	.20
385	168.88	30.91	. 88
397	130.00	23.92	. 22

SEMER ANALYSIS SANITARY LOAD APPLICATIONS
POSSI SASIN SEMER - EXISTING ANALYSIS FILE:POSSITEX

AH Up	MH Down	Slope	Diag	Capa- city	Area	Flow Input	Point Source	Average Flow	Peak Flow	Vel- ocity	Depth Ratio	Under Ca Replace		Identification
307	305	.86878	18	4457.19	138.00	23.92	.00	23.92	67.12	1.9	.88			CONNECTION TO SUNBON II
305	303	.88938	21	<i>6951.</i> 32	168.00	38.91	.99	54.83	131.71	2.5	.19			GRANGE AVE
3 <b>9</b> 3	3 <b>8</b> 1	. 20488	21	4558.86	113.30	20.85	.98	75.48	174.37	2.8	.13			CENTER OF CONDO DEVELOPMENT
381	251	.98489	21	4558.86	9.22	1.65	.28	77.34	179.86	2.2	-13			WEST END CRANGE AVE CONDOS
251	258	.88388	21	4443.42	.88	. 39	. 38	77.34	179.86	2.8	.14			
250	248	.01600	8	737.64	357.20	65.72	. 20	143.86	314.93	4.3	.47			OLEAN. 488' S OF SATINHOOD
248	246	.91688	8	737.64	157.00	28.89	.28	171.95	37 <b>8.</b> 97	4.5	.53			OLEANDER AVE INT SEGUDIA
246	244	.81680	8	737 <b>.64</b>	83.88	15.27	.26	187.22	400.70	4.5	.54			OLEANDER 488' S OF SEGUOTA
244	447	.83850	នី	1144.23	50.08	9.29	. 28	196.42	418.50	5.3	.43			OLEANDER 328' N OF TILIA
442	248	.00508	18	3378.98	.00	.38	. 92	.196.42	418.58	2.9	.24			UNDER I-805
248	238	.81558	8	728.36	684.70	125.98	. 22	322.42	655.66	4.9	.79			MELROSE 138' S OF TALUS ST
238	236	.81748	8	769.23	10.00	1.84	.23	324.24	657.25	5.2	.76			MELROSE 360' N OF TURQUOIS
236	234	.01740	. 8	769.23	76. <b>99</b>	13.98	. 23	338.23	684.75	5.2	.78			MELROSE AVE INT TURQUOISE
234	232	.01500	8	714.22	87.89	16.01	. 20	354.24	714.95	4.7	<b>.9</b> 2			MELROSE 200' S OF TOURNALI
232	239	.81615	ä	741.89	1.00	.18	.00	354.42	714.39	5.8	.85			MAIN ST INT MELROSE AVE
238	228	.88458	12 :	1087.25	53.00	9.75	.20	364.17	732.17	3.3	độ.			MELROSE AVE 230' S OF MAIN
228	228	.83380	12 :	2944.30	68.88	11.94	. 38	375.21	752.25	6.8	.34			MELROSE AVE 340' S OF MAIN
228	224	.00400	12 :	1925.97	86.68	15.92	. 20	391.04	788.94	3.2	.66			MELROSE AVE INT RANCHO CT
224	222	.82458	12	2536.92	13.88	2.39	.00	393.43	785.27	6.3	.39			ALLEY 158' S OF RANCHO CT
222	221	. 89488	12	1925.97	149.88	27.42	.20	420.84	834.68	3.2	.49		• ,	RANCHO DR S OF RANCHO CT
221	220	.88328	12	916.85	78.88	12.88	. 28	433.72	857.86	2.9	.78			RANCHO DR INT REGENCY WAY
229	1	.01230	12	1797.53	36.89	6.62	.99	440.35		5.1	.50			RIOS AVE S OF ALLEY D

POGGI BASIN SEWER - EXISTING ANALYSIS FILE: POGGITEX

HH		MH			[	esign Crit	eria	Exist	hing System
Ос⊭п	Slope	Up	n or C	Diam	d/D	Flow	Veloc		<i>)</i>
i	212790	770	017	477	, aa	1797.5	e .	Add	131 EDUS
100	.612399 207500	22 <b>9</b>	.013 .013	12 12	1.86		5.1	N O. O.	
228	. 223722	221 200			1.88	916.9	2.5		
221	. 224220	222	.013	12	1.36	1925.1	2.9	<u>o</u>	MH 307
222	.824588	224	.913	12	1.99	2536.9	7.2	-	
224	. 324922	22á	.013	12	1.99	1925.1	2.9		
226	. 933899	228	.813	12	1.33	2944.3	8.4	^ .	
228	.284588	232	.213	12	1.80	1287.3	3.1	Keach	234 - 232
238	.016150	232	.013	8	.93	741.1	4.9	1 (200	,
232	.815888	234	. <b>0</b> 13	8	.93	714.2	4.7	مريو	canacita
234	.917499	236	.013	8	.93	769.2	5.1	00-7	234 - 232 capacity
236	.817400	238	.813	3	.93	769.2	5.1		/
238	.215629	248	. <b>8</b> 13	8	.93	728.4	4.9		
249	.235922	442	.813	18	1.88	3379.8	4.3		
442	.038500	244	.813	8	.93	1144.2	7.5		
244	.016200	246	.813	8	.93	737.6	4.9		
246	816888	248	.213	8	.93	737.6	4.9		
248	.214888	258	.813	3	.93	737.6	4.9		
250	.993899	251	<b>.</b> 813	21	1.30	4443.4	4.1		
251	.204826	3 <b>0</b> 1	.213	21	1.88	4558.9	4.2		•
301	.294968	303	.013	21	1.00	4558.9	4.2		
383	. 807388	385	.813	21	1.88	6951.3	6.4		
385	.888788	307	.013	18	1.88	4457.2	5.6		
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POSSI BASIN SEMER - EXISTING ANALYSIS FILE:POSSI7EX

Manhole	Total	Contributed	Point
	Area	Flow	Source
220	36.8 <b>8</b>	6.62	. 22
221	70.80	12.88	. 22
722	149.88	27.42	. 22
224	13.70	2.39	.88
226	36 <b>.28</b>	15.82	. 28
228	68.88	11.94	. 33
238	53.00	9.75	.29
232	1.22	.18	. 28
234	37.88	16.01	.26
236	76 <b>.36</b>	13.98	. 23
238	13.00	1.94	. 33
248	684.7 <b>8</b>	125.98	29
244	58.88	9.28	. 25
246	83.22	15.27	. 22
243	157.88	28.89	.66
258	357.20	65.72	. 22
381	9.88	1.66	. 23
383	113.30	29.85	. 25
385	148.86	33.91	. 23
387	131.00	24.10	. 22

SEMER ANALYSIS SANITARY LOAD APPLICATIONS
POSSI SASIN SEMER - EXISTING ANALYSIS FILE:POSSITEX

#H Up	NH Down	Slope	ğiaa	Capa- city	Area		Point Source	Average Flow	Peak Flow	Vel- ocity	Depth Ratio	Under Capacity Replace Relief	·Identification
337	335	.88678	13	4457.17	131.20	24.18	.00	24.19	62.55	1.7	.88		CONNECTION TO SUNBOW II
305	393	.09730	21	6951.32	168.88	38.91	.29	55.02	132.11	2.5	.18		GRANGE AVE
292	391	. 29482	21	4558.86	113.30	2 <b>9.</b> 85	. 32	75.86	176.76	2.2	.13		CENTER OF COMDO DEVELOPMNT
301	251	.20480	21 -	4558.86	7.23	1.66	.28	77.52	180.25	2.8	.13		WEST END DRANGE AVE CONDOS
251	250	.89388	21	4443.42	.88	. 26	.28	77.52	188.25	2.8	.14		
25 <b>5</b>	248	.91600	8	737.64	357.29	65.72	.00	143.24	314.39	4.3	.47		OLEAN. 400'S OF SATINHOOD
248	246	.81600	8	737.64	157.89	28.89	.89	172.13	371.33	4,5	.53		OLEANDER AVE INT SEGUCIA
246	244	.01628	8	737.64	83.88	15.27	.90	187.40	401.06	4.5	.54		OLEANDER 420' S OF SEQUOTA
244	442	.23859	8 :	1144.23	58.88	9.28	.29	176.60	418.85	<b>6.</b> 3	.43		OLEANDER 320' N OF TILIA
442	248	.00500	18 3	3378.98	.80	. 22	.28	176.60	418.85	2.9	.24		UNDER I-805
248	238	.01560	8	728.34	684.78	125.98	. 88	322.59	656. <b>98</b>	4.9	.79		MELROSE 130' S OF TALUS ST
238	236	.81748	8	769.23	19.00	1.84	.80	324.43	659.39	5.2	.76		MELROSE 360' N OF TURQUOIS
236	234	.81748	8	769.23	76.80	13.98	. 38	338,41	685, <b>8</b> 9	5.2	.78		MELROSE AVE INT TURQUOISE
234	232	.81500	ä	714.22	87 <b>.26</b>	16.01	.02	354,42	714.39	4.6	)1.0	<b>19</b> 8	MELROSE 200' S OF TOURMALI
232	239	.81615	8	741.89	1.86	.18	.98	354.60	714.72	5.8	.Ĝá		MAIN ST INT MELROSE AVE
238	228	.88458	12 1	1087.25	53.98	9.75	.00	364.36	732.51	3.3	.68		MELROSE AVE 230' S OF MAIN
228	226	. 93389	12 2	2944.38	66.93	ii. <b>8</b> 4	.88	375.40	752.59	6.8	.34		MELROSE AVE 349' S OF MAIN
2 <b>2</b> 6	224	. 89460	i2 1	1825.87	86.38	15.82	. 25	391.22	781.27	3.2	.66		NELROSE AVE INT RANCHO CT
224	222	.82458	12 2	2536.92	13.88	2.39	.66	393.61	785.6 <b>8</b>	4.3	.39		ALLEY 158' S OF RANCHO CT
222	221	.38488	12 1	1925.97	149.00	27.42	.22	421.83	835.82	3.2	.ć9		RANCHO DR S OF RANCHO CT
221	228	.00328	12	915.85	78.88	12.88	.39	433.91	858.13	2.9	.78		RANCHO DR INT RESENCY WAY
228	i	.01230	12 1	1797.53	36.88	6.62	.22	449.53	869.99	5.1	. 58		RIOS AVE S OF ALLEY D

POGGI BASIN SENER - EXISTING ANALYSIS FILE: POGGITEX

un:		5411					
裫		器				Design Crit	
Осыл	Slape	ijp	n or C	Biaa	- 3/9	Flow	Veloc
1	.812300	220	.813	12	1.00	1797.5	5.1
220	.903200	221	<b>.0</b> 13	12	1.20	916.9	2.6
221	.024888	222	.013	12	1.89	1825.1	2.7
222	.824589	224	.913	12	1.00	2534.9	7.2
224	. 334263	226	.813	12	1.39	1425.1	2.9
22 <del>6</del>	. 833888	228	.813	12	1.00	2944.3	8.4
228	. 284598	236	.313	12	1.00	1387.3	3.1
238	.016150	232	.013	ā	.93	741.1	4.9
232	.215888	234	.9:3	8	.93	714.2	4.7
234	.817408	236	.013	8	.93	769.2	5.1
23á	.817488	238	.213	9	.93	- 749.2	5.1
238	.215688	248	.013	ĉ	.93	728.4	4.8
248	.865868	442	.013	18	1.39	3379.0	4.3
442	.038500	244	.213	8	.93	1144.2	7.5
244	.815888	2 <b>4</b> 6	.913	3	.93	737.6	4.9
246	636616.	248	.213	8	.93	737.6	4.9
248	.016200	258	.013	8	.93	737.6	4.9
250	.983898	251	.213	21	1.00	4443.4	4.1
251	.884288	3 <b>4</b> 1	.213	21	1.88	4558.9	4.2
381	. 254222	383	.813	21	1.33	4558.9	4.2
383	.997300	395	.813	21	1.00	6951.3	6.4
385	.203700	387	.813	18	1.83	4457.2	5.6
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Existing System

Add 209 EDUs

e MH 307

Only Reach 234-232
is over capacity

POGGI BASIN SEMER - EXISTING ANALYSIS FILE: POGGITEX

Manhole	Total	Contributed	Point
	Area	Flow	Source
729	36.00	<b>á.</b> 62	.33
221	73.20	12.88	.39
222	149.38	27.42	.23
224	13.00	2.39	. 33
225	86.66	15.82	. 23
228	68.88	11.04	. 33
238	53.20	9.75	.99
232	1.89	.18	. 20
234	87.88	16.91	. 33
236	76. <b>00</b>	13.78	. 22
238	19.28	1.84	.88
248	884.79	125.98	. 32
244	58.22	9.28	.00
248	83 <b>.88</b>	15.27	.22
248	157.00	28.89	.38
250	357.20	<b>65.72</b>	.68
301	9.88	1.56	.26
303	113.32	28.85	. 28
385	148.88	38.91	.88
397	299.89	38.46	.88
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SEMER ANALYSIS SANITARY LOAD APPLICATIONS
POSSI BASIN SEMER - EXISTING ANALYSIS FILE:POSSITEX

MH Up	MH Down	Slape	Diaa	Capa- city	- Area		Paint Source	Average Flow	Peak Flow	Vel- ocity	Depth Ratio	Under C Replace		Identification
387	385	.80978	18	4457.19	287.88	38.46	. 29	38.46	95.51	2.3	-11	•		CONNECTION TO SUNBOW II
3 <b>8</b> 5	<b>38</b> 3	. 20938	21	6951.32	158.88	30.91	.29	69.37	162.99	2.7	.11			ORANGE AVE
3 <b>9</b> 3	381	. 89478	21	4558.86	113.30	29.85	.28	98.22	206.98	2.2	.15			CENTER OF CONDO DEVELOPMENT
381	251	. 20409	21	4558.86	7.28	1.66	.20	91.87	210.24	2.2	15			HEST END CRANGE AVE CONDOS
251	250	. 20332	21	4443.42	. 33	.83	.82	91.87	218.24	2.1	.15			
258	248	.91699	8	737.64	357.20	65.72	.22	157.60	342.80	4.4	55 0↓.			OLEAN. 400'S OF SATINGGED
248	246	.81438	8	737.64	157.00	28.89	.88	196.48	399.27	4.5	.54			OLEANDER AVE INT SEQUOIA
246	244	.81680	9	737.64	83.28	15.27	. 20	281.7á	428.79	4.6	.57		-	OLEANDER 480' S OF SEQUOTA
244	442	.03850	3	1144.23	50.00	9.29	.20	218,96	446.46	6.5	.46			OLEANDER 328' N OF TILIA
447	248	.86500	18 3	3378.98	. 20	. 88	.29	210.96	446.46	3.8	.25			UNDER I-895
240	238	.31560	3	728.36	684.7 <b>8</b>	125.98	. 38	336.94	682.37	4.9	.82			HELROSE 138' S OF TALUS ST
238	236	.01740	8	769.23	10.23	1.84	. 33	338.78	685.76	5.2	.78			MELROSE 340' N OF TURQUOIS
238	234	.01740	8	769.23	76 <b>.88</b>	13.98	. 88	352.76	711.36	5.2	.32			NELROSE AVE INT TURQUOISE
234	232	.01500	8	714.22	87.00	16.01	.28	368.77	740.55	4.7	)1.2	18	8	MELROSE 200' S OF TOURHALI
232	239	.01615	ä	741.89	1.88	.18	.88.	368.96	748.88	4.9	.92			MAIN ST INT MELROSE AVE
238	228	.88458	12 1	1087.25	53.88	9.75	.99	378.71	758.60	3.3	.62			HELROSE AVE 238' S OF MAIN
228	226	.93399	12 2	2944.38	68.88	11.84	.88	389.75	778.61	7.1	.36			MELROSE AVE 348' S OF MAIN
225	224	. 28499	12 1	<b>025.0</b> 7	86.29	15.82	. 89	405.57	887.19	3.2	86.			MELROSE AVE INT RANCHO CT
224	222	.82456	12 2	1536.92	13.08	-2.39	.33	497.96	811.51	6.3	.39			ALLEY 158' S OF RANCHO CT
222	221	.09422	17 1	<b>325.3</b> 7	149.00	27.42	. 89	435.38	869.76	3.2	.70			RANCHO DR S OF RANCHO CT
271	229	.00320	12	916.85	78.89	12.88		448.26	883.88	2.9	.81			RANCHO DR INT REGENCY WAY
228	1	.91238	12 1	797.53	36.98	6.62	80	454.88	895.63	5.1	. 55			RIOS AVE S OF ALLEY D

## POSSI BASIN SEWER - EXISTING ANALYSIS FILE: POSSITEX

開設		祝品				Design Crit	eria
Down	Slope	Uр	а от О	Dias	d/D	Flow	Veloc
1	.212322	228	.313	12	1.00	1797.5	5.1
223	.003298	221	.213	12	1.29	916.9	7.6
221	. 884888	222	. <b>81</b> 3	12	1.32	1925.1	2.9
222	.024500	224	.313	12	1.88	2534.9	7.2
224	.864669	226	.813	12	1.98.	1925.1	2.9
226	.233200	228	.213	12	1.33	2944.3	3.4
229	.204520	23€	.913	12	1.88	1087.3	3.1
230	.016150	232	.913	8	.93	741.1	4.7
232	.815892	234	.2:3	8	· <b>.</b> 93	714.2	4.7
234	.017400	236	.313	8	.93	769.2	5.1
236	317428	238	.Bi3	8	.93	769.2	5.1
238	.015600	248	.013	3	.93	728.4	4 S
248	. 885088	442	.913	18	1.88	3379.9	4.3
442	.838588	244	.013	8	.93	1144.2	7.5
244	.315308	246	.213	8	.93	737.6	4.9
246	.01.000	248	.813	8	.93	737.6	4.9
248	.016808	258	.113	8	<b>.9</b> 3	737.6	4.9
258	. 393838	251	.213	21	1.38	4443.4	4.1
251	.864808	381	.913	21	1.88	4558.7	4.2
301	.284828	3 <b>8</b> 3	.813	21	1.29	4558.9	4.2
383	.889308	325	.913	21	1.99	6951.3	5.4
305	.098799	397	.Bi3	18	1.00	4457.2	5.6
++++++			++++ END OF	AREA 4	++++++++++	+++++++++	++++++

Existing System

Add 210 EDUS

@ MH 307

Read 232-230 is
over capacity

POGGI BASIN SEMER - EXISTING ANALYSIS FILE:POGGITEX

Manhole	Total	Contributed	Point
	Ārea	Flow	Source
229	36. <b>88</b>	ė.ė.Ž	. 38
221	79.00	12.88	.22
222	149.88	27.42	.88
224	13.80	2.39	. 33
225	86.88	15.82	.39
228	69.80	11.04	.39
238	53.88	9.75	.38
232	1.39	.18	.29
234	87.88	15.01	. 28
23 <b>6</b>	7a.88	13.78	.20
238	18.88	1.34	.28
240	684.79	125.98	. 39
244	58.39	7.23	.63
246	83.00	15.27	.20
248	157.00	28.89	. 22
250	357.28	<b>65.72</b>	. 38
3 <b>8</b> 1	7.88	1.55	. 22
3 <b>9</b> 3	113.30	29.85	.22
385	168. <b>98</b>	30.91	.32
397	210.00	38.64	. 33

5/16/97 | 21:1**3:49** 

SEMER ANALYSIS SANITARY LOAD APPLICATIONS
POSSI BASIN SEMER - EXISTING ANALYSIS FILE:POSSITEX

MH Up	SH Down	Slope	Disa	Capa- city	Area		Point Source	Average Rola	Peak Flow	Val- ocity	Depth Ratio	Under Capacit Replace Relie	y f Identification
307	305	. 2 <b>9</b> 872	13	4457.19	218.28	38.64	. 20	33.64	95.92	2.3	.11		CONNECTION TO SUNBOW II
385	393	.99939	71 21	6 <b>9</b> 51.32	168.80	<b>30.</b> 91	.22	49.55	163.38	2.7	.11		ORANGE AVE
<b>38</b> 3	3 <b>9</b> 1	.98423	21	4558.86	113.30	28.85	.00	98.48	207.18	2.2	.15		CENTER OF CONDO DEVELOPMENT
381	251	.69496	21	4558.86	9.38	1.60	.22	92.86	210.82	2.2	.15		WEST END DRANGE AVE CONDOS
251	250	. 20386	21	4443.42	.26	.00	.38	92.06	219.62	2.1	.15		
258	248	.31633	3	737.64	357.29	<b>65.</b> 72	.30	157.78	343.17	4.4	.58		OLEAN. 480° S OF SATINWOOD
248	246	.31600	8	737.64	157.80	28.89	. 87	186.67	399.43	4.5	.54		OLEANDER AVE INT SEGUCIA
246	244	.01600	8	737.64	63.88	15.27	.95	201.94	429.14	4.6	.57		OLEANDER 400' S OF SEGUDIA
244	142	.83858	8	1144.23	58.89	9.20	.98	211.14	446.82	6.5	.46		OLEANDER 320' N OF TILIA
442	248	. 20599	18	3378.98	.99	.88	.28	211.14	446.82	3.8	.25		UNDER I-805
248	238	.31568	3	728.36	484.70	125.98	.88	337.12	682.73	4.9	.82		MELROSE 138' S OF TALUS ST
238	236	.81748	8	769.23	10.00	1.84	.88	338.96	686.18	5.2	.79		MELROSE 360' N OF TUROUDIS
238	234	.81740	8	769.23	76.00	13.98	.88	352.95	711.78	5.2	.92		MELROSE AVE INT TURQUOISE
234	232	.21500	8	714.22	87.28	16.Ð1	.03	368.96	740.88	4.7	)1. <b>8</b>	10 8	MELROSE 200' S OF TOURNAL!
232	238	5161 <b>0.</b>	8	741.89	1.00	.is	.20	369.14	741.21	4.7	)1. <b>6</b>	18 8	MAIN ST INT MELROSE AVE
238	229	. 20450	12	1087.25	53.99	9.75	. 26	37 <b>8.8</b> 9	758.93	3.3	.62		MELROSE AVE 230' S OF MAIN
228	226	.93300	12	2944.38	60.00	11.94	.10	389.93	778.94	7.1	.36		MELROSE AVE 348' S OF MAIN
226	224	.00480	12	1025.07	86.88	15.82	. 29	405.76	<b>807.5</b> 3	3.2	.68		MELROSE AVE INT RANCHO CT
224	222	.82458	12	2536.92	13.98	2.39	.25	488.15	811.84	6.3	.39		ALLEY 150'S OF RANCHO CT
222	221	.29499	12	1825.97	149.00	27.42	. 35	435.56	861.89	3.2	.78		RANCHO DR S OF RANCHO CT
221	220	.00328	12	916.85	78.80	12.88	. 83	448.44	884.13	2.9	.81		RANCHO DR INT REGENCY WAY
228	1	.01230	12	1 <b>797.5</b> 3	36.20	6.62	.09	455.87	895.95	5.1	.58		RIOS AVE S OF ALLEY D

POSSI BASIN SEWER - EXISTING ANALYSIS FILE: POSSITEX

胡		開			}	Design Crit	eria
Down	Slace	۵þ	n or D	Diam	d/D	Flow	Veloc
1	.012300	228	<b>.8</b> 13	12	.93	1986.8	5.6
229	.003200	221	.813	12	.93	972.6	2.8
221	. 284223	222	.813	12	.73	1887.4	3.2
222	.824588	224	.813	12	.93	2491.2	7.9
224	.884883	226	.813	12	.93	1087.4	3.2
228	, 833888 . 833888	228	.813	12	.73 .93	3123.3	7.1
228	.034593	238	.813	12	.93	1153.4	3.4
239	.914158	232	.813	8	.93	741.1	4.9
232	.815868	234	.813	8	.93	714.2	4.7
	.017400	23 <del>4</del> 236	.813	8	.93	749.2	3.1
234				e 9	.93	767.2 769.2	5.1
236	.317486	238	.313				
238	.015500	248	.013	â	.93	728.4	4.8
248	.885888	442	.813	18	1.33	3379.8	4.3
442	.838588	244	.013	8	.93	1144.2	7.5
244	.016363	245	.813	3	.93	737.6	4.9
246	.31.688	248	.813	ä	.93	737.6	4.7
248	.016800	258	.213	8	.73	737.6	4.9
258	.093889	251	.213	21	1.20	4443.4	4.1
251	. 364888	381	.213	21	1.88	4558.7	4.2
391	. 294223	383	<b>.81</b> 3	21	1.88	4558.9	4.2
3#3	.207322	385	.213	21	1.88	4951.3	5.4
395	.288722	387	.813	18	1.38	4457.2	5.6
++++++	+++++++++	++++++	++++ END OF	AREA +	+++++++++++	++++++++	++++++

Existing System

And 480 EDUs

@ MH 307

POGGI BASIN SEWER - EXISTING ANALYSIS FILE:POGGITEX

Manhole	Total	Contributed	Point
	Area	Flow	Source
275	36.00	6.62	, 23 , 80
771	78.88	12.88	. 20
222	149.88	27.42	.22
224	13.00	2.39	.22
226	Sć.88	15.82	<b>8</b> 5.
228	69.99	11.04	. 88
230	53.22	9.75	.83
232	1.20	.18	. 22
234	87.96	16.31	. 22
236	76.00	13.78	. 33
238	10.00	1.94	.22
248	684.78	125.98	. 88
244	58.26	9.2 <b>8</b>	. 22
246	83.28	15.27	. 66
248	157.00	28.89	.22
250	357.28	65.72	.20
70÷	9.96	1.66	.23
3 <b>8</b> 3	113.38	2 <b>9.</b> 85	. 88
385	168.00	38.71	.86
397	489.00	88.32	.86

SEMER AMALYSIS SANITARY LOAD APPLICATIONS
POSSI BASIN SEMER - EXISTING AMALYSIS FILE:POSSITEX

ño WH	MH Down	Slage	Dies	Capa- city	Area		Point Source	Average Flow	Peak Flow	Vel- ocity		Under C Replace		Identification
387	325	.23873	18	4457.19	488.00	<b>68.</b> 32	. 36	88.32	202.86	2.9	.15			CONNECTION TO SUNBOW II
385	383	. 38933	21	6951.32	168.22	3 <b>8.</b> 91	.23	119.23	266.24	3.1	.13			GRANGE AVE
383	3 <b>8</b> 1	. 90428	21	4550.86	113.38	20.85	.29	148.88	3 <b>88.0</b> 9	2.4	.18			CENTER OF CONDO DEVELOPMENT
301	251	.88428	21	4558.86	9.99	1.66	.20	141.74	311.39	2.4	.18			WEST END GRANGE AVE CONDOS
251	258	.00388	21	4443.42	. 32	.28	.88	141.74	311.39	2,4	.18			
250	248	.31680	8	737.64	357.20	65.72	.88	297.46	439.75	4.7	.59			OLEAN. 400°S OF SATINHOOD
248	246	.01600	8	737.64	157.00	28.89	. 20	234.33	494.89	4.8	.63			OLEANDER AVE INT SEGUCIA
246	244	.01600	8	737.54	63.00	15.27	.09	251.62	523.77	1.8	.66			OLEANDER 400' S OF SEGUCIA
244	442	. 03850	8 .	1144.23	50.00	9.28	.23	268.82	541.89	6.8	.50			OLEANDER 320' N OF TILIA
442	248	. 22523	18 ;	3378.98	. 20	.39	.33	268.82	541.89	3.1	.27			UNDER I-885
240	238	. 31568	3	728.36	684.78	125.98	. 22	386.88	773.28	4.9	1.0	19	8	MELROSE 138' S OF TALUS ST
238	236	.81748	8	769.23	19.99	1.84	.00	388.64	776.61	5.0	)1.0	19	8	MELROSE 360' N OF TURBUOIS
236	234	.01748	8	769.23	76.00	13.98	.88	402.63	88.188	5.1	31.8	13	3	MELROSE AVE INT TURQUOISE
234	232	.01500	8	714.22	87.88	16.91	. 38	418.64	838.72	5.3	)i <b>.8</b>	19	8	HELROSE 200' S OF TOURMALI
232	233	.31615	8	741.09	1.98	.18	.23	419.82	831.05	5.3	)i.8	10	8	MAIN ST INT MELROSE AVE
238	228	.36458	12 i	153.36	53.88	9.75	. 29	428.57	848.56	3.4	53.			MELROSE AVE 230' S OF MAIN
228	226	.83388	12 3	123.33	6 <b>8.88</b>	11.04	. 30	437.61	868.34	7.1	.37			MELROSE AVE 340' S OF MAIN
226	224	. 89489	12 1	.087.40	86.88	15.82	. 22	455.44	896.61	3.2	.73			MELROSE AVE INT RANCHO CT
224	222	.82458	12 2	2691.13	13.99	2.39	.25	457.83	998.88	6.6	.41			ALLEY 150' S OF RANCHO CT
222	221	. 29499	12 1	087.40	149.00	27.42	.00	485.24	949.62	3.3	.76			RANCHO DR S OF RANCHO CT
221	229	.88329	12	972.60	79.89	12.88	.22	498.12	972.43	2.9	.92			RANCHO DR INT REGENCY WAY
228	1	.81239	12 1	986.83	36.89	6.62	.80	504.75	984.13	5.2	.53			RIOS AVE S OF ALLEY D

POSSI BASIN SEWER - EXISTING ANALYSIS FILE: POSSITEX

層語		WH.				Design Crit	eria
Down	Slope	Üp	n or C	Diam	d/D	Flow	Veloc
í	.012300	228	.013	12	.93	1996.8	5.5
222	.203200	221	.013	12	.93	972.6	2.8
221	.224222	222	.213	12	.93	1987.4	3.2
222	.224522	224	. <b>8</b> 13	12	.93	2691.2	7.9
224	.027300	226	.813	12	.93	1087.4	3.2
224 228	.033566	228	.013	12	.93	3123.3	9.1
228 228	.884588	236	.813	12	.93	1153.4	3.4
23 <b>2</b>	.816158	232	.813	8	.73	741.1	4,9
232	.015366 865366	234	.013 .013	3	.93	714.2	4.7
232 234	.013000 .017400	236	.013 .013	8	.73	769.2	5.1
	.017400	238 238	.813 .813	3	.93	767.2	5.1
236			.B13	8	.73 .93	728.4	4.8
238	.015600	248		_	1.89	3379. <b>8</b>	4.3
248	. 365999	442	.013	18		1144.2	7.5
442	. 238568	244	.813	8	.93		
244	.015660	246	.013	3	.93	737.6	4.9
246	.015 <del>00</del> 0	248	.813	9	.93	737.6	4.9
248	.015000	258	.013	9	.73	737.å	4.9
258	.003800	251	.013	21	1.00	4443.4	4.1
251	. 994899	381	<b>.2</b> 13	21	1.89	4558.9	4.2
301	.294888	383	.813	21	1.98	4558.9	4.2
383	.889329	325	.913	21	1.88	6951.3	á.4
325	.008788	387	.013	18	1.09	4457.2	5.6
++++++	+++++++++	++++++++	40 OK3 ++++	AREA	*+++++++++++++	++++++++++	+++++++

Existing System

Add 481 EDUS @ MH 307

Reach 221-220 goes over capacity

POGGI BASIN SENER - EXISTING ANALYSIS FILE: POGGITEX

Manhole	Total	Contributed	Point
	Area	Flew	Source
223	36 <b>.00</b>	6.62	. 29
221	78.98	12.88	.20
222	149.00	27.42	.88
224	13.30	2.39	. 25
226	86.38	15.82	.22
228	63.39	11.84	. 39
238	53.88	9.75	. 20
232	1.33	18	. 28
234	87.88	16.01	. 28
236	75. <b>38</b>	13.98	. 22
238	19.82	1.84	.03
248	684.79	125.98	, aa
244	58.88	9.28	.33
246	83.88	15.27	. 29
248	157.28	23.87	.00
258	357.29	65.72	. 22
301	9.88	1.56	. 28
323	113.38	29.85	. 33
385	148.80	38.91	. 22
3 <b>8</b> 7	481.89	88.50	. 28

5/16/97 21:30:25

GEWER ANALYSIS SANITARY LOAD APPLICATIONS POSBI BASIN SEWER - EXISTING ANALYSIS FILE:POSBI7EX

HH Ue	ан Осма	Slage	Diam	Capa- city	Area		Paint Source	Average Flow	Peak Flow	Vel- acity	Deptn Ratio	Under Capacity Replace Relief	Identification
307	395	.90678	18	4457.19	481.86	88.50	.20	88.58	283.24	2.9	.15		CONNECTION TO SUNBOW II
385	3 <b>8</b> 3	.00930	21	6951.32	168.30	38.91	.98	117.42	266.67	3.i	.13		URANGE AVE
3 <b>8</b> 3	301	.28488	21	4558.86	113.38	29.85	.69	148.25	389.46	2.4	.15		CENTER OF CONDO DEVELOPMNT
301	251	. 22429	21	4558.86	7.23	1.46	.00	141.92	311.76	2.4	.18		WEST END ORANGE AVE CONDOS
<b>25</b> 1	258	.#8358	21	4443.42	.95	.88	.29	141.92	311.76	2.4	.18		
258	248.	.31629	8	737.64	357.20	65.72	.27	297.64	449.11	4.7	.59		OLEAN. 400'S OF SATINWOOD
248	246	.21588	8	737.64	157.20	28.89	.23	236.53	495.24	4.8	.63		OLEANDER AVE INT SEGUDIA
246	244	.Bićdd	8	737.64	83.20	15.27	.39	251.88	524.12	4.3	åå.		OLEANDER 488' S OF SEQUOIA
244	442	.83858	8	1144.23	58.20	9.28	.98	261. <b>88</b>	541.44	4.8	.30		OLEANDER 320 N OF TILIA
442	248	.00500	18	3378.98	.23	.88	.29	261 <b>.99</b>	541.44	3.1	.27		UNDER 1-885
248	238	.81568	8	729.36	684.78	125.98	. 22	386.99	773.61	4.9	>1.8	19 8	MELROSE 138' S OF TALUS ST
238	236	.01748	8	769.23	19.25	1.84	.98	388.83	776.94	5.8	)1. <b>8</b>	19 8	NELROSE 368' N OF TURQUOIS
236	234	.81748	8	769.23	76.20	13.98	. 22	482.81	<b>88</b> 2.22	5.1	)i.#	1 <b>ë</b> 3	MELROSE AVE INT TURQUOISE
234	232	.9:528	8	714.22	87.20	16.01	.30	418.82	831.95	5.3	)i.8	19 8	MELROSE 200' S OF TOURMALI
232	230	.01515	8	741.89	1.88	.19	.40	417.88	831.38	5.3	)1.8	18 8	MAIN ST INT MELROSE AVE
239	228	.00450	12	1153.36	53.60	9.75	.26	428.76	848.89	3.4	6à.		MELROSE AVE 238' S OF MAIN
228	226	,03388	12	3123.33	69. <b>8</b> 8	11.84	. 26	439.30	868.67	7.1	.37		MELROSE AVE 340' S OF MAIN
226	224	. 36466	12	1087.40	86.80	15.82	. 22	455.62	896.94	3.2	.73		HELROSE AVE INT RANCHO CT
224	222	.02450	12	2691.18	13.00	2.39	. 22	458.81	781.28	6.6	.41		ALLEY 158'S OF RANCHO CT
222	221	.22428	12	1087.48	_149.08	27.42	.03	485.43	949.94	3.3	.76		RANCHO DR S OF RANCHO CT
221	228	.80320	12	972.6 <b>8</b>	78.88		.20	498.31	972.75	2.3	)1.8	15 8	RANCHO DR INT REGENCY WAY
228	1	.81238	12	1786.83	36.2 <b>9</b>			584,93	984.46	5.2	.53		RIOS AVE S OF ALLEY D

POSGI BASIN SENER - EXISTING ANALYSIS FILE:POSGI7EX

								Frist	m 5754	en
開		甜			]	Design Crit	eria	レストリ	7 (	•
Ооня	Slope	Πb	a or C	Dias	d/9	Flow	Veloc		•	
								. 1	1,108	FO/1
1	.812386	228	.813	12	.93	1986.8	5.4	Maa	$J_{j} \cap a$	
228	. 223286	221	.813	12	.93	972.5	2.8			
221	.284886	222	.213	12	.93	1987.4	3.2			
222	.024500	224	.813	12	.93	2691.2	7.9			
224	.884888	226	.813	12	.93	1887.4	3.2	•		
226	. 233220	228	<b>.15.</b>	12	.93	3123.3	9.i			
228	.884588	238	.813	12	.93	1153.4	3.4	•		
230	.216158	232	.813	8	.93	741.1	4.9			
232	.015000	234	.813	3	.93	714.2	4.7			
234	.017402	236	.213	8	. 93	769.2	5.i			
236	.017400	238	.813	8	.93	769.2	5.1			
238	. 315623	248	<b>.9</b> 13	ชื	.93	728.4	4.8	• '		
248	.225288	442	.813	18	1.39	3379.2	4.3			
442	.238522	244	. <b>2</b> 13	3	.93	1144.2	7.5			
244	. 316802	246	.913	8	.93	737.6	4.9			Ē
246	.216962	248	<b>.</b> 813	8	.73	737.6	4.9			
248	316888	258	.213	8	.93	737.5	4.9		·	
250	.883888	251	.013	21	1.89	4443.4	4.1			
251	. 264868	301	.013	21	1.82	4558.9	4.2			
301	. 384388	383	.213	21	1.33	4558.9	4.2			
383	. 207303	385	.813	21	1.98	8951.3	5.4	_		
385	. 208708	327	.213	18	1.30	4457.2	5.6			
++++++	+++++++++	++++++++	++++ END OF	AREA +++	++++++++	++++++++	++++++			

POGGI BASIN SEWER - EXISTING ANALYSIS FILE:POGGITEX

Manhole	Total	Contributed	Point
	Area	Flow	Source
227	36. <b>88</b>	6.62	. 98
221	79.90	12.88	. 22
222	149.88	27.42	. 36
224	13.88	2.39	.33
226	36.38	15.82	. 23
228	68.88	11.84	.23
238	53.00	9.75	.22
232	1.20	.18	.88
234	87. <b>29</b>	16.91	. 22
236	76.00	13.98	. 22
238	19.99	1.84	. 23
248	684.78	125.98	. 20
244	58.39	9.28	.28
246	83.90	15.27	.28
248	157.29	28.39	.23
250	357.20	65.72	. 38
301	7.22	1.66	.88
3 <b>8</b> 3	113.30	20.85	. 22
385	168.88	38.71	. 33
3 <b>8</b> 7	1128.22	293.87	. 25
<b>∪0</b> /	1100.00	180.07	. 50

 $(-1)^{-1} \cdot (-1)$ 

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SEMER ANALYSIS BANITARY LOAD APPLICATIONS POSGI BASIN SEMER - EXISTING ANALYSIB FILE:POGGI7EX

MH Up	ad Bown	Slope	Diam	Capa- city	Area	Flow Input	Point Source	Average Flow	Peak Flow	Vei- ocity	Depth Ratio	Under Capacity Replace Relief	Identification
3 <b>9</b> 7	305	.88873	81	4457.19	1108.80	293.87	. 23	203.87	432.86	3.5	.21		CONNECTION TO SUNSOW II
3 <b>8</b> 5	3 <b>8</b> 3	.88939	21	6951.32	168.90	30.91	.00	234.78	491.92	3.7	.18		ORANGE AVE
<b>39</b> 3	301	. 88428	21	4558.86	113.39	20.85	.88	255,63	531.33	2.7	.23		CENTER OF CONDO DEVELOPMENT
301	251	. 39499	21	4558.86	7.22	1.66	.29	257.29	534.45	2.8	.24		NEST END GRANGE AVE CONDOS
<b>25</b> i	258	. 262288	21	4443.42	. 38	. 26	.99	257.29	534,45	2.3	.24		
250	248	.01620	8	737.64	357.20	65.72	. 50	323 <b>.8</b> i	656.79	5.8	.78		OLEAN. 400'S OF SATINHOOD
248	246	.01600	3	737.64	157 <b>.80</b>	28.89	.28	351.90	7 <b>8</b> 9.78	5.8	.65		OLEANDER AVE INT SEQUOIA
246	244	.91689	9	737.64	83.28	15.27	. 38	367.17	737.63	4.9	.92		OLEANDER 400' S OF SEQUOIA
244	442	.83958	8	1144.23	58.08	9.28	.88	376.37	754.36	7.4	.62		OLEANDER 320' N OF TILIA
442	248	.20502	18	3378.98	.93	.00	.29	376.37	754.36	3.4	.32		UNDER 1-905
248	238	.81568	3	728.36	684.79	125.98	.92	502.34	979.91	6.3	>1.0	17 3	MELROSE 130'S OF TALUS ST
238	23á	.81748	8	769.23	10.20	1.84	.28	504.20	783.16	á.3	)1. <b>3</b>	19 8	MELROSE 360' N OF TURQUOIS
236	234	.81748	8	769.23	75.20	13.98	.88	519.18	1 <b>00</b> 7.83	5.4	>1.8	18 8	MELROSE AVE INT TURQUOISE
234	232	.81509	8	714.22	87.99	16.01	.28	534.19	1036.00	6.6	)1. <b>3</b>	10 8	MELROSE 200'S OF TOURMALI
232	236	.01515	8	741.09	1.99	.18	, <u>aa</u>	-534.37	1836.32	5.6	)1. <b>2</b>	រំតី ខិ	MAIN ST INT MELROSE AVE
239	228	. 00450	12	1153.36	53.00	9.75	.09	544.12	1953.44	3.5	.81		MELROSE AVE 238'S OF MAIN
228	228	.03300	12	3123.33	68.88	11.04	. 28	555.16	1872.79	7.6	.41		MELROSE AVE 340'S OF MAIN
226	224	. 22402	12	1987.48	26.22	15.82	.29	<b>578.</b> 99	1198.46	3.1	)1. <b>8</b>	. 15 8	MELROSE AVE INT RANCHO CT
224	222	.02450	12	2691.19	13.96	2.39	. 22	573.38	11 <b>84.</b> 63	7.8	.47		ALLEY 150'S OF RANCHO CT
222	221	. 39466	12	1987.48	149.99	27.42	.20	<b>689.88</b>	1152.38	3.3	8.10	15 8	RANCHO DR S OF RANCHO CT
221	228	.88328	12	972.68	78.20	12.88	.29	613.68	1174.74	3.3	M.#	15 8	RANCHO DR INT REGENCY WAY
228	1	.81230	12	19 <b>8</b> 4.83	36.88	6.62		628.38	1186.22	5,4	.68		RIOS AVE S OF ALLEY D

90881 BASIN SEWER - EXISTING ANALYSIS FILE:PC8817EX

語		措持				Design Criti	
ยือสก	5155 <b>e</b>	Up	a or C	Diam	d/9	Flow	Asjoc
1	.812399	229	.013	12	.93	1986.8	5.5
229	.993296	221	.913	12	.93	972.6	2.8
221	.224822	222	.213	12	.93	1287.4	3.2
222	.024580	224	.813	12	.93	2691.2	7.7
224	. 394226	226	.213	12	.93	1087.4	3.2
22á	.033800	228	.213	12	.93	3123.3	9.i
228	.204530	239	.013	12	.93	1153.4	3.4
232	.816158	232	.213	8	.93	741.1	4.9
232	.815000	234	.313	3	1,93	714.2	4.7
234	.017400	236	.213	8	.93	749.2	5.i
236	.317499	238	.313	8	.93	767.2	5.1
238	.215628	248	.813	8	.93	728.4	4.8
242	.065268	442	.013	18	1.00	3379.8	4.3
442	.038590	244	.8:3	8	.93	1144.2	7.5
244	.016000	246	.813	8	.93	737.5	4.9
246	.916999	248	<b>.8</b> 13	8	.93	737.6	4.9
248	. 315399	258	.013	8	.93	737.6	4.7
258	.203889	251	.813	21	1.27	4443.4	4.i
251	.884338	381	.813	21	1.88	4558.9	4.7
381	.234963	<b>38</b> 3	.913	21	1.80	4558.9	4.2
303	.889388	305	<b>.81</b> 3	21	1.23	6951.3	<b>5.4</b>
385	.008700	387	.213	18	1.88	4457.2	5.6
*****	******	<del>+++++++</del>	e <del>eee</del> e END OF	AREA +	++++++++++	++++++++++	++++++

Existing System

Add 1,109 EDUs

Reach 246-244 is

over capacity

PODDI SASIN SEMER - EXISTING ANALYSIS FILE:POGGI7EX

สือกลับไล	Total	Contributed	Point
	Area	Flow	Saurce
222	Je. <b>30</b>	6.62	. 35
221	79.38	12.88	.26
222	149.88	27.42	. 88
224	13.56	2.39	. 20
225	86. <b>88</b>	15.82	. 22
228	69.20	11.24	. 33
239	53.88	9.75	. 33
232	1.38	.18	. 88
234	87.09	16.31	. 23
236	74 <b>.88</b>	13.98	. 20
238	18.88	1.84	. 28
249	684.7 <b>8</b>	125.98	. 28
244	58.88	9.28	.87
746	33 <b>.28</b>	15.27	.29
248	157.00	28.89	.98
259	357.28	65.72	. <del>22</del>
381	9 <b>.86</b>	1.66	.76
383	113.39	29.85	.00
385	168.00	38.71	.22
387	1129.20	294.06	. 88

SEMER ANALYSIS SANITARY LOAD APPLICATIONS POBBI BASIN SEMER - EXISTING ANALYSIS FILE:POGBITEX

88 89	AH Down	Slope	9ia⊕	Capa- city	Area		Point Source	Average Flow	Peak Flow	Vel- ocity	Depth Ratio	Under C Replace		Identification
387	385	.02878	18	4457.19	1199.88	204.86	. 26	284.86	433.21	3.5	.21			CONNECTION TO SUMBON II
3#5	383	.28739	21	6951.32	163.00	38.91	. 28	234.97	492.27	3.7	.18			ORANGE AVE
383	301	.88423	21	4558.86	113.30	29.85	. 28	255.82	531.68	× 2.7	.23			CENTER OF CONDO DEVELOPMNT
3 <b>0</b> 1	251	. 20489	21	4558.86	7.23	1.66	. 26	257.47	534.88	2.8	24			WEST END GRANGE AVE CONDOS
251	258	. 20322	21	4443.42	.88	. 38	. 23	257.47	534.38	2.8	. 24			
250	248	.01690	8	737.64	357.20	65.72	. 20	323.20	657.12	5.8	.78	•		OLEAN. 400 S OF SATINACOD
248	246	.01600	8	737.64	157.90	28.89	.22	352.88	718.12	5.8	.85			OLEANDER AVE INT SEGUDIA
246	244	.01639	8	737.64	83.29	15.27	.98	367.36	737.97	4.7	>1.0	18	8	OLEANDER 40%' S OF SEDUCIA
244	442	.83850	8	1144.23	58.98	7.2 <del>8</del>	. 38	376.56	754.69	7.4	.62			OLEANDER 328' N OF TILIA
442	248	. 20500	18	3378.98	.23	.00	.23	376.56	754.69	3.4	.32			UNDER 1-885
248	238	.81560	9	728.34	484.70	125.98	. 29	582.54	988.23	6.3	)1 <b>.8</b>	18	. 8	MELROSE 138' S OF TALUS ST
238	236	.81748	8	769.23	19.00	1.84	. 29	584.38	983.48	<b>6.</b> 3	>1.9	18	3	MELROSE 368' N OF TURBUDIS
236	234	.81748	3	769.23	76 <b>.08</b>	13.98	. 23	518.36	1 <b>99</b> 8.15	6.4	)1.4	18	8	MELROSE AVE INT TURQUOISE
234	232	.91500	8	714.22	87.88	16.81	. 30	534.37	1936.32	6.6	)i.0	19	8	MELROSE 200'S OF TOURHALI
232	238	.81615	3	741.39	1.88	.18		534.56	1934.65	6.6	)1. <b>2</b>	13	8	HAIN ST INT MELROSE AVE
238	223	.26459	12	1153.36	53.09	9.75	. 20	544.31	1853.77	3.5	.81			HELROSE AVE 238' S OF MAIN
228	226	. 83328	12	3123.33	69.88	11.84	. 02	555.35	1873.11	7.6	.41			HELROSE AVE 340' S OF HAIN
226	224	. 68468	12	1887.48	86.88	15.82		571.17	1188.78	3.1	>1.8	15	8	HELROSE AVE INT RANCHO CT
224	222	.82450	17	2691.18	13.88	2.39	.89	573.56	1184.95	7.8	.47			ALLEY 150' S OF RANCHO CT
222	2 221	. 88483	12	1087.48	149.00	27.42	2 .80	688.98	1152.78	3.3	>1.8	15	8	RANCHO DR S OF RANCHO CT
221	229	. 39329	12	972.60	78.39	12.88	3 .86	613.86	1175.86	3.3	)i. <b>2</b>	15	8	RANCHO DR INT REGENCY WAY
221	3 1	.81238	12	1986.83	36.00	6.62	2 .94	628.48	1186.54	5.4	.60			RIOS AVE S OF ALLEY D
												•		

## APPENDIX G DETAILED BASIN MAPS AND EDU SUMMARY

Appendix G: POGGI Basin Development Data and Flow Projection

	SUMMARY OF NEIGHBORHOOD EDU		Subtotal					
	Development	EDUs	Total Built/Permitted EDUs	Remaining EDUs	MAX EDUs	Permanent EDUs	Committed	Built/ Permitted
	Village 11	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Freeway Commercial	1,136.8	647.4	489.4	1,136.8	1,136.8	1136.8	647.4
	EUC	189.0	0.0	189.0	189.0	189.0	189.0	0.0
	EUC (approved/not approved = NTE 470)	281.0	0.0	281.0	281.0	281.0		0.0
	Eastlake LS/Greens	2,207.8	2,124.5	83.4	2,207.8	2,207.8	2207.8	2,124.5
	Village 5 ORC	580.5	537.9	42.6	580.5	580.5	580.5	537.9
	OWD parcel near V5	256.6	0.0	256.6	256.6	256.6	256.6	0.0
u	Village 1/5 McMillin	323.4	323.4	0.0	323.4	323.4	323.4	323.4
Poggi Cnayon	Village 7	832.7	353.6	479.1	832.7	832.7	832.7	353.6
gi C	Village 7 (interim)	463.7	210.4	253.3	463.7			210.4
Pog	Village 6	2,320.8	2,165.6	155.1	2,320.8	2,320.8	2320.8	2,165.6
	Village 2 HS & FS	242.4	242.4	0.0	242.4	242.4	242.4	242.4
	Village 2	1,101.0		1,101.0	1,101.0	1,101.0	1101.0	0.0
	Village 2 (assumed committed)	1,437.0		1,437.0	1,437.0	1,437.0	1437.0	0.0
	Village 1 ORC	1,164.5	1,164.5	0.0	1,164.5	1,164.5	1164.5	1,164.5
	Village 1 West	519.6	519.6	0.0	519.6	519.6	519.6	519.6
	Sunbow	1,943.5	1,271.1	672.4	1,943.5	1,943.5	1943.5	1,271.1
	Med Ctr	109.4	45.3	64.2	109.4	109.4	109.4	45.3
	East of I805	963.3	963.3	0.0	963.3	963.3	963.3	963.3
	West of I805	875.3	875.3	0.0	875.3	875.3	875.3	875.3
	Tot	al		5,346.8	16,948.4	16,484.7	16,203.7	11,601.6

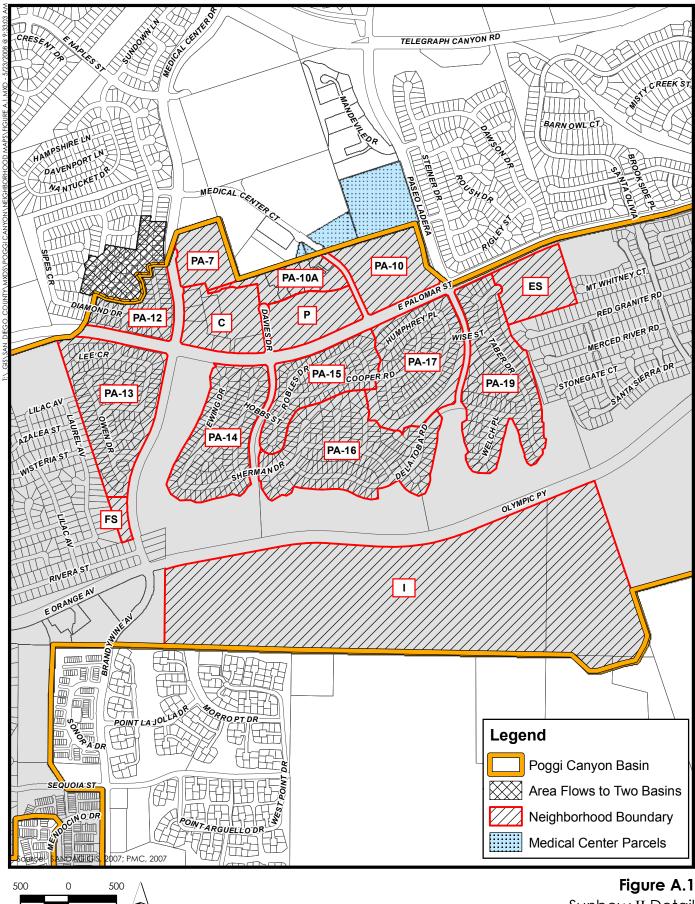
<sup>1</sup> ORC requested 769 additional EDUs, but is not currently being pursued.
2 P230, estimated 673 EDUs enter at this point based on 1997 Basin Plan, pg B-23.
3 EUC NTE 580 EDUs on 215 gpd/EDU basis; converting to 265 gpd/basis, this becomes 470 EDUs max and 429 preferred.

## EAST of I805 - Existing Development Data and Flow Projection

	Land Use	Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF	658.0	265.0	174,370.0	658.0	658.0	0.0	Table A-1 of Appendix A (page 21) of 1997 Basin Plan and 1 EDU = 265 gpd.
	MF	286.0	199.0	56,914.0	214.8	214.8	0.0	Table A-1 of Appendix A (page 21) of 1997 Basin Plan and 1 EDU = 265 gpd.
u o	Mixed-Use	0.0	2,500.0	0.0	0.0			
Canyo	Commercial	0.0	2,500.0	0.0	0.0			
gi C	Industrial	0.0	2,500.0	0.0	0.0			
Poggi	Parks	0.0	500.0	0.0	0.0			
	Elementary School	2.0	12,000.0	24,000.0	90.6	90.6	0.0	Table A-1 of Appendix A (page 21) of 1997 Basin Plan and 1 EDU = 265 gpd.
	Middle School	0.0	28,000.0	0.0	0.0			
	High School	0.0	48,000.0	0.0	0.0			
	CPF	0.0	2,500.0	0.0	0.0			
			Total	EDUs	963.3	963.3	0.0	

# WEST of I805 Development Data and Flow Projection

	Land Use	Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF	496.0	265.0	131,440.0	496.0	496.0	0.0	Table A-1 of Appx A (page A-21) of 1997 Basin Plan (265 gpd = 1 EDU)
	MF	343.0	199.0	68,257.0	257.6	257.6	0.0	Table A-1 of Appx A (page A-21) of 1997 Basin Plan (265 gpd = 1 EDU)
e o	Mixed-Use	0.0	2,500.0	0.0	0.0			
Canyo	Commercial	8.1	2,500.0	20,250.0	76.4	76.4	0.0	Table A-1 of Appx A (page A-21) of 1997 Basin Plan (265 gpd = 1 EDU)
igi C	Industrial	0.0	2,500.0	0.0	0.0			
Poggi	Parks	0.0	500.0	0.0	0.0			
	Elementary School	1.0	12,000.0	12,000.0	45.3	45.3	0.0	Table A-1 of Appx A (page A-21) of 1997 Basin Plan (265 gpd = 1 EDU)
	Middle School		28,000.0	0.0	0.0			
	High School		48,000.0	0.0	0.0			
	CPF		2,500.0	0.0	0.0			
			Total	EDUs	875.3	875.3	0.0	

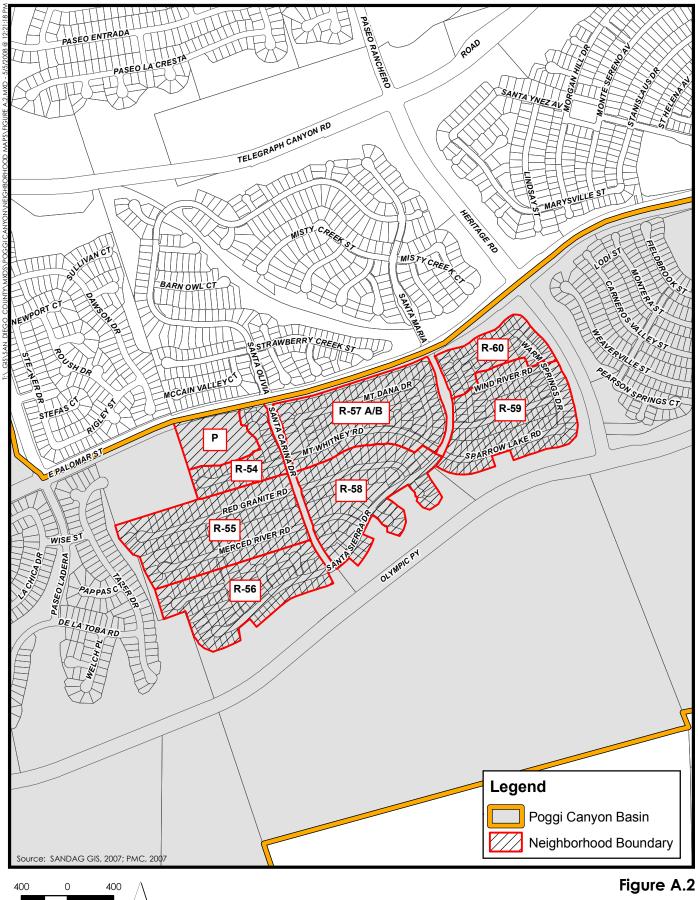


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# **SUNBOW 2 Development Data and Flow Projection**

Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
SF		773.0	265.0	204,845.0	773.0	773.0	0.0	
PA 12	100							Assessor Map 641-11, Dwg 97-313
PA 13	112							Assessor Map 641-12
PA 14	110							Assessor Map 641-13
PA 15	93							Assessor Map 641-13
PA 16	144							Assessor Map 641-14, 84 units enter MH 7 per 99-386
PA 17	102							Assessor Map 641-14, 56 units enter MH 7 per 99-386
PA 19	112							Assessor Map 641-20, Enters MH 12 per 99-384
MF		609.0	199.0	121,191.0	457.3	457.3	0.0	
PA 7 PA 10 PA 10A - Att condo	156							Development Status Update 7/07
PA 10	336							Development Status Update 7/07
PA 10A - Att condo	117							Assessor Map 641-12, M14290
Mixed-Use		0.0	2,500.0	0.0	0.0			
Commercial		12.4	2,500.0	31,000.0	117.0	117.0	0.0	Assessor Map 641-12
Industrial		54.6	2,500.0	136,500.0	515.1		515.1	Based on Sewer MP, Total is 136 acres, Enters at MH 6 per 99-386
Parks		10.0	500.0	5,000.0	18.9	18.9	0.0	Assessor Map 641-12
Misc								
Med Center (NAP of Sunbow 2)		11.6	2,500.0	29,000.0	109.4	45.3	64.2	Estimated tributary acreage.
Private Rec Acres		2.8	265.0	742.0	2.8	2.8	0.0	Payment records: Tivoli and Apt Rec bldg
Elementary School		1.0	12,000.0	12,000.0	45.3	45.3	0.0	Assessor Map 641-20, Enters MH 12 per 99-384
Middle School			28,000.0	0.0	0.0			
High School			48,000.0	0.0	0.0			
CPF		1.5	2,500.0	3,750.0	14.2	14.2	0.0	Assessor Map 641-12, Fire station site
			Total	EDUs	2,052.9	1,473.7	579.2	

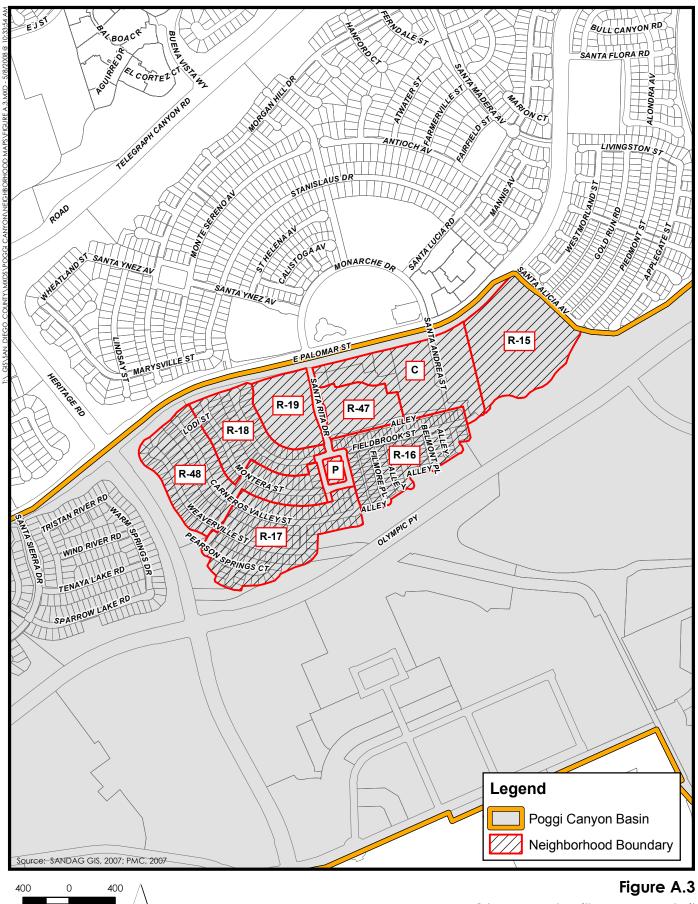






**VILLAGE 1 WEST Development Data and Flow Projection** 

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF		509.0	265.0	134,885.0	509.0	509.0	0.0	
	R 54	37							Assessor Map 641-24
	R 55	87							Assessor Map 641-25
	R 56	74							Assessor Map 641-26
	R 57	94							Assessor Map 641-27
	R 58	62							Assessor Map 641-28
	R 59A	23							Assessor Map 641-23
Poggi Canyon	R 59B	40							Assessor Map 641-29
Car	R 59C	43							Assessor Map 641-30
oggi	R 60	49							Assessor Map 641-30
_	MF		0.0	199.0	0.0	0.0			
	Mixed-Use		0.0	2,500.0	0.0	0.0			
	Commercial		0.0	2,500.0	0.0	0.0			
	Industrial		0.0	2,500.0	0.0	0.0			
	Parks		5.6	500.0	2,800.0	10.6	10.6	0.0	Assessor Map 641-07
	Elementary School			12,000.0	0.0	0.0			
	Middle School			28,000.0	0.0	0.0			
	High School			48,000.0	0.0	0.0			
	CPF			2,500.0	0.0	0.0			
	· · · · · · · · · · · · · · · · · · ·		Total	EDUs	519.6	519.6	0.0		



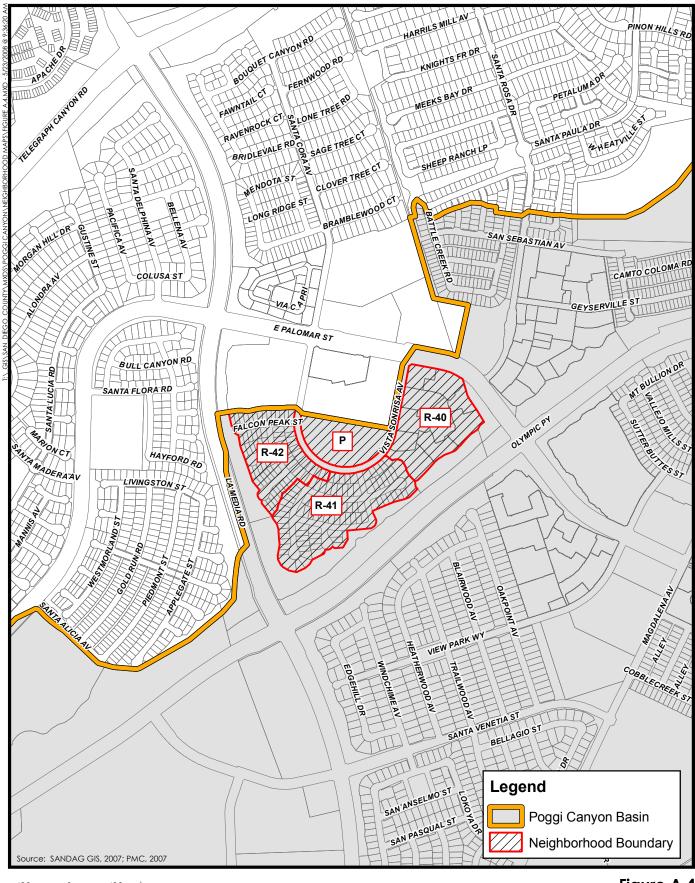
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Figure A.3

Otay Ranch Village 1 - Detail  $\mathbf{PMC}$ 

### **VILLAGE 1 Development Data and Flow Projection**

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF		381.0	265.0	100,965.0	381.0	381.0	0.0	
	R16	115							Assessor Map 642-69
	R17	98							Assessor Map 642-66
	R18	73							Assessor Map 642-67
	R48	95							Assessor Map 642-68
	MF		897.0	199.0	178,503.0	673.6	673.6	0.0	
Poggi Canyon	R15 - Apts	422							Development Status Update 7/07
Car	R19 - Apts	204							Development Status Update 7/07
oggi	R47 - Apts	271							Development Status Update 7/07
4	Mixed-Use		0.0	2,500.0	0.0	0.0			
	Commercial		11.7	2,500.0	29,135.0	109.9	109.9	0.0	Assessor Map 642-56, M14314
	Industrial		0.0	2,500.0	0.0	0.0			
	Parks		0.0	500.0	0.0	0.0			
	Elementary School			12,000.0	0.0	0.0			
	Middle School			28,000.0					
	High School			48,000.0	0.0	0.0			
	CPF			2,500.0	0.0	0.0			
				Total	EDUs	1,164.5	1,164.5	0.0	



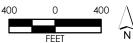


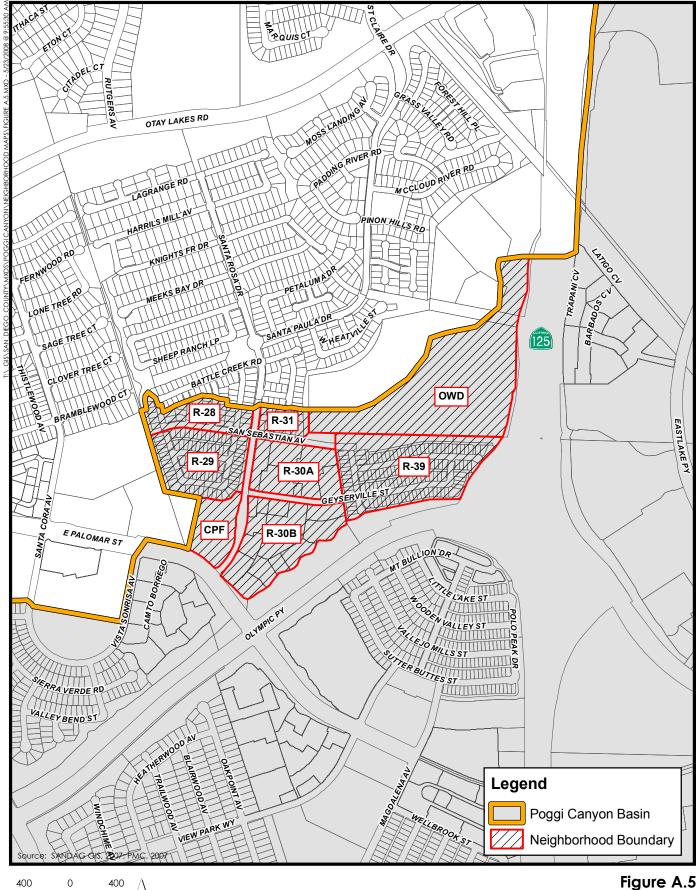
Figure A.4

McMillin Otay Ranch Village 1/5 - Detail



### VILLAGE 1 & 5 (McMillin) Development Data and Flow Projection

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF		164.0	265.0	43,460.0	164.0	164.0	0.0	
	R41	90							Assessor Map 642-65
	R42	74							Assessor Map 642-64
	MF		198.0	199.0	39,402.0	148.7	148.7	0.0	
Canyon	R40 - Att condo	198							Assessor Map 642-08
Car	Mixed-Use		0.0	2,500.0	0.0	0.0			
Poggi	Commercial		0.0	2,500.0	0.0	0.0			
۵	Industrial		0.0	2,500.0	0.0	0.0			
	Parks		5.7	500.0	2,850.0	10.8	10.8	0.0	Dwg 98-716 thru 719
	Elementary School			12,000.0	0.0	0.0			
	Middle School			28,000.0	0.0	0.0			
	High School			48,000.0	0.0	0.0			
	CPF			2,500.0	0.0	0.0			
					EDUs	323.4	323.4	0.0	



FEET

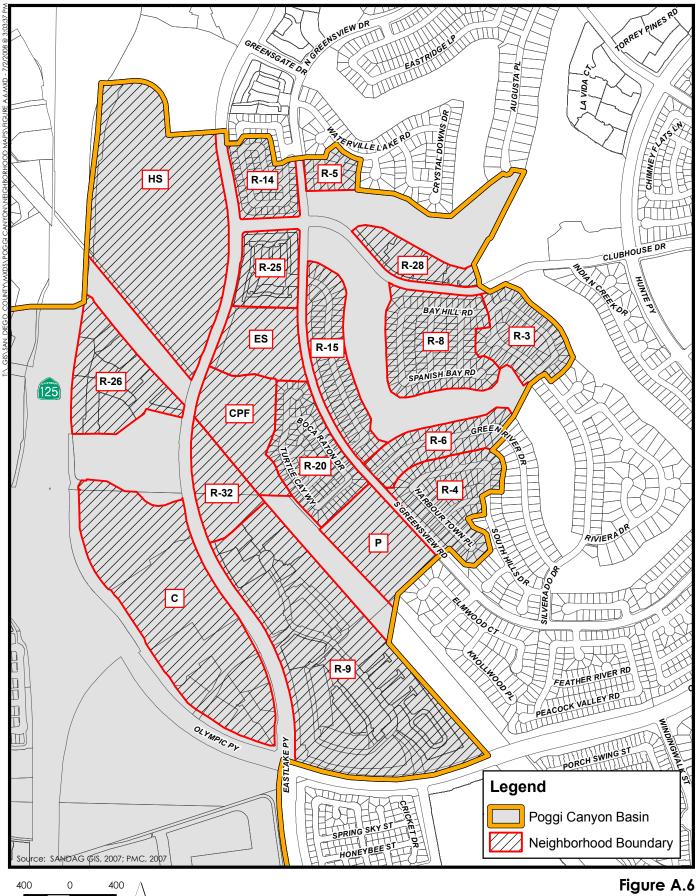


### **VILLAGE 5 Development Data and Flow Projection**

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF		251.0	265.0	66,515.0	251.0	251.0	0.0	
	R28	33							Assessor Map 643-46, Dwg 00118
	R29	83							Assessor Map 643-42
	R31	14							Assessor Map 643-43, Dwg 00125 & 00004
	R39	121							Assessor Map 643-53 and 58
	MF		382.0	199.0	76,018.0	286.9	286.9	0.0	
Canyon	R30A - Condos - Att	141							M14602
Can	R30B - Condos - Att	241							Development Status Update 7/07
Poggi	Mixed-Use		0.0	2,500.0	0.0	0.0			
۵	Commercial			2,500.0	0.0	0.0			
	Industrial		0.0	2,500.0	0.0	0.0			
	Parks		0.0	500.0	0.0	0.0			Does not reflect park site in R30. Assumed no facilities.
	Misc - OWD parcel	27.2	27.2	2,500.0	68,000.0	256.6		256.6	Approx 3/4s of acreage.
	Elementary School			12,000.0	0.0	0.0			
	Middle School			28,000.0	0.0	0.0			
	High School			48,000.0	0.0	0.0			
	CPF		4.5	2,500.0	11,300.0	42.6		42.6	Assessor Map 643-36
	_		•	Total	EDUs	837.1	537.9	299.2	

Note:

OWD parcel may or may not develop to residential.

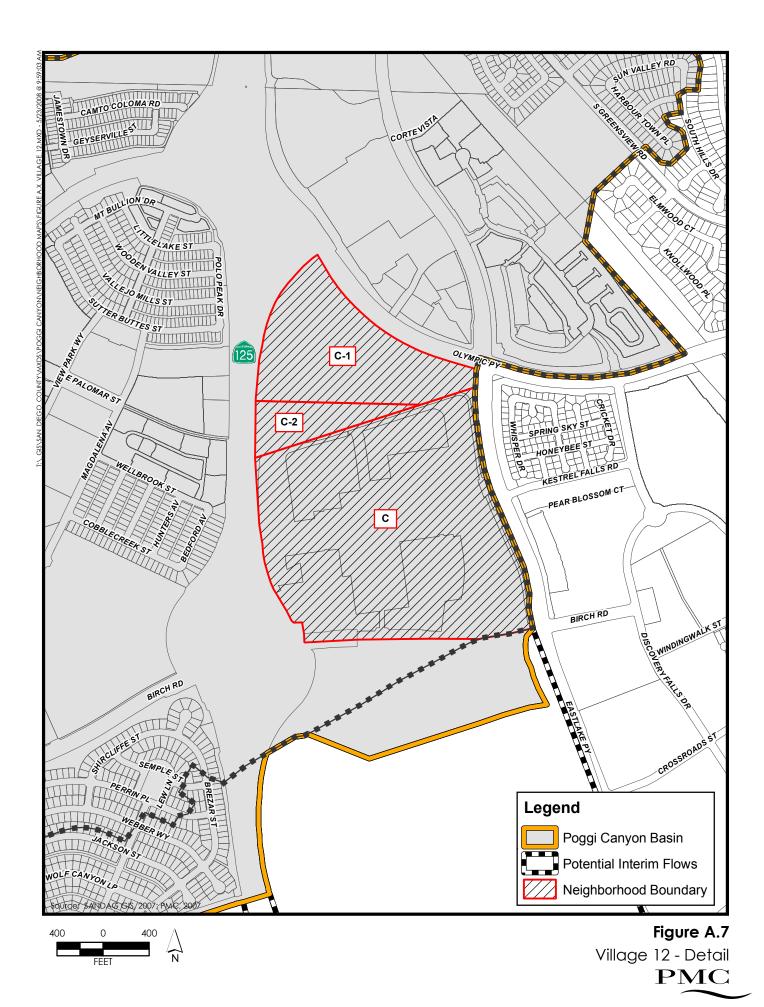


East Lake Greens and Land Swap Detail



# EASTLAKE GREENS & LANDSWAP Development Data and Flow Projection

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Subtotal Remaining EDUs	Source
	SF		846.0	265.0	224,190.0	846.0	846.0	0.0	0.0	
	R3 Fieldstone	51								Assessor Map 643-11, 643-21, Dwg 94-271-274
	R4 Galerie	77								Assessor Map 643-18, Dwg 95-451, 95-456
	R5 Maracay	14								Assessor Map 595-33, Dwg 90-566, 90-568
	R6 Ridgewood I	37								Assessor Map 643-19, Dwg 95-208 and no plans available at Lot 21.
	R8 Fairway Ridge	96								Assessor Map 643-09
	R14 Cypress	58								Assessor Map 595-44, Dwg 93-382, 93-379, 93-377
	R15 Cobblestone	64								Assessor Map 643-14
	R20 Ventanas	109								Assessor Map 643-13
	R25 Classics II-Det condo	78								Assessor Map 643-10
	R9A Firenze - Det condo	76								Assessor Map 643-63, M14814
	R9B Andorra - Det condo	135								Assessor Map 643-63, M14814
	R28 Palomira - Det condo	51								Assessor Map 595-50, M13254, Dwg 90-0015, 90-0032
	MF		791.0	199.0	157,409.0	594.0			83.4	
on	R9C Veranza - Triplex	129					13.5	83.4		Assessor Map 643-63, M14814
Sany	R9D Cortina - Triplex	126					94.6	0.0		Assessor Map 643-63, M14814
Poggi Canyon	R9E Capria - Apts	134					100.6	0.0		Assessor Map 643-63, M14814
Ъ	R9F Rcho Vista Apts	150					112.6	0.0		Development Status Update 7/07 (Assumed R32 is R9F)
	R26 Antigua - Att condo	252					189.2	0.0		Assessor Map 643-38, M14003, PM 18559
	Mixed-Use		0.0	2,500.0	0.0	0.0				
	Commercial		42.7	2,500.0	106,675.0	402.5	402.5	0.0	0.0	Assessor Map 643-02
	Industrial		0.0	2,500.0	0.0	0.0				
	Parks		12.5	500.0	6,255.0	23.6	23.6	0.0	0.0	
	595-320-02 (Com Park)	0								Assessor Map, Dwg 89-460-471
	643-033-01	11.77								Assessor Map 643-03
	643-100-18 (R25 Rec)	0								Assessor Map 643-10
	643-380-16 (R26 Rec)	0.74								Assesor Map 643-38
	Golf Course	0								Dwg 90-11 & 12
	Elementary School		1.0	12,000.0	12,000.0	45.3	45.3	0.0	0.0	Assessor Map 643-12
	Middle School		0.0	28,000.0						
	High School		1.0	48,000.0	48,000.0	181.1	181.1	0.0	0.0	Assessor map 595-32, Dwg 89-460-471
	CPF (Church)		12.2	2,500.0	30,550.0	115.3	115.3	0.0	0.0	Assessor Map 643-12
_				Total	EDUs	2,207.8	2,124.5	83.4	83.4	



#### **VILLAGE 12 Development Data and Flow Projection**

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF			265.0	0.0	0.0			
	MF			199.0	0.0	0.0			
	Mixed-Use		0.0	2,500.0	0.0	0.0			
	Commercial		120.5	2,500.0	301,250.0	1,136.8			Sewer Study dated May 2007 Update #2
Canyon	C-1	30.4						286.9	
Car	C-2	8.2						77.1	
Poggi	C - Otay Ranch Town Center	81.92					647.4	125.4	Built EDUs based on figure provided by City.
4	Industrial		0.0	2,500.0	0.0	0.0			
	Parks			500.0	0.0	0.0			
	Elementary School			12,000.0	0.0	0.0			
	Middle School			28,000.0					
	High School			48,000.0	0.0	0.0			
	CPF			2,500.0	0.0	0.0			
	·			Total	EDUs	1.136.8	647.4	489.4	

Notes:

C-1 Otay Ranch
C-2 Otay Ranch
C General Growth
C General Growth
C Total

Total

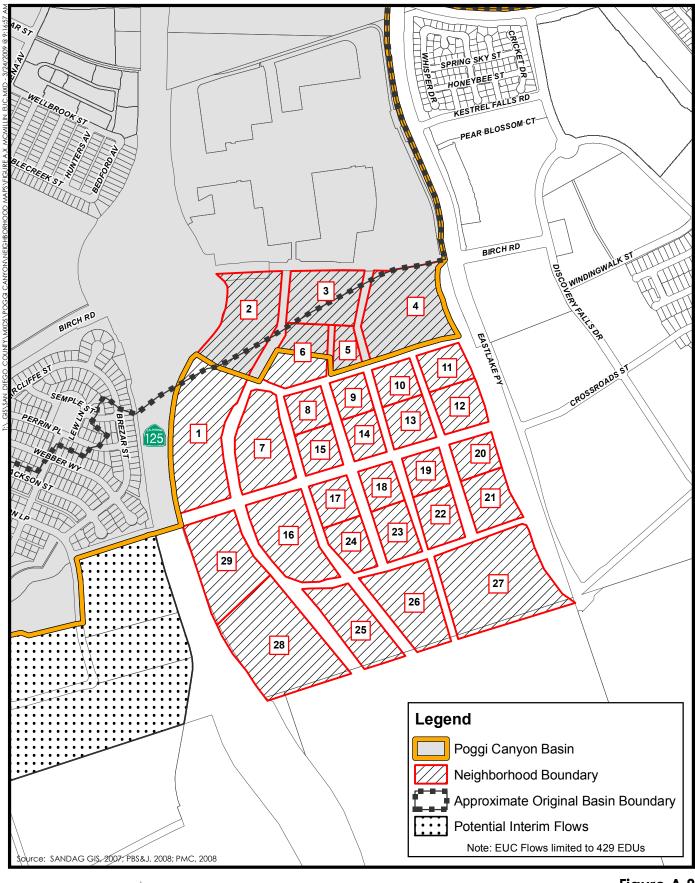
Total

C-1 Otay Ranch
B .2 643-051-30

7.7

5.66
52.36
9.14
8.96
Total

122.4
-1.9 Unknown Adjustment to total 120.5 ac per City Sewer Studies.



N.T.S

Figure A.8 McMillin Eastern Urban Center Detail  $\mathbf{PMC}$ 

# EASTERN URBAN CENTER (EUC) Development Data and Flow Projection

	Land Use	Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
	SF	0.0	265.0	0.0	0.0			
	MF	0.0	199.0	0.0	0.0			
5	Mixed-Use	0.0	2,500.0	0.0	0.0			
Canyon	Commercial	0.0	2,500.0	0.0	0.0			
	Industrial	0.0	2,500.0	0.0	0.0			
Poggi	Parks	0.0	500.0	0.0	0.0			
	Elementary School	0.0	12,000.0	0.0	0.0			
	Middle School	0.0	28,000.0					
	High School	0.0	48,000.0	0.0	0.0			
	CPF	0.0	2,500.0	0.0	0.0			
			Total	EDUs	189.0	0.0	189.0	Per Table A-2 footnote 9 of EUC Tech Sewer Study.

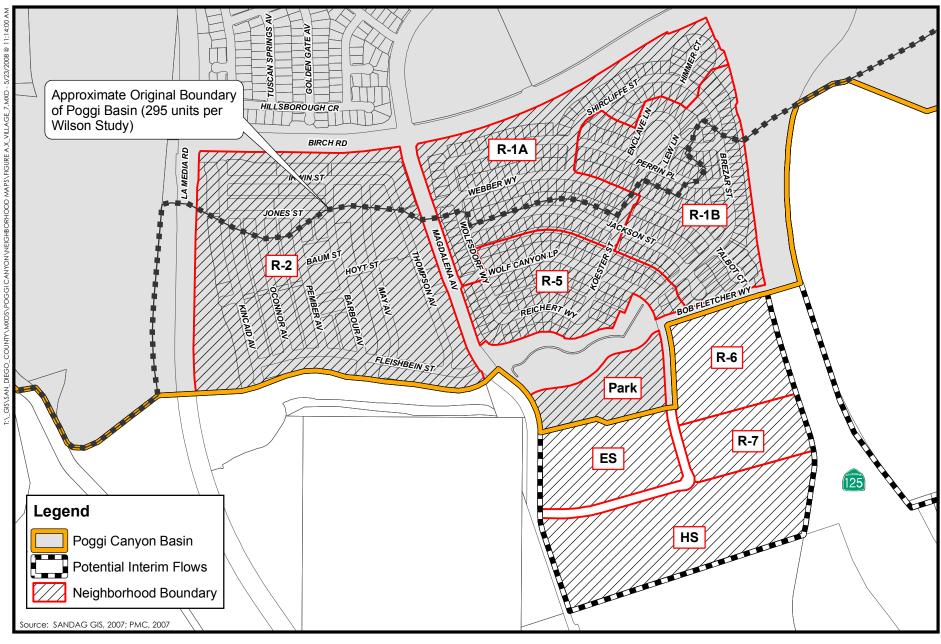




Figure A.9
Village 7 Detail
PMC

#### **VILLAGE 7 Development Data and Flow Projection**

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Subtotal Remaining EDUs	Source
	SF		804.0	265.0	213,060.0	804.0			461.0	
	R1A/B	311					107.0	204.0		M 15106
	R2	361					186.0	175.0		M15282, M15283
	R5	132					50.0	82.0		M15107
	MF - Interim/Addl		316.0	199.0	62,884.0	237.3	29.3	208.0	208.0	
	R6/R7	316								M 15104 shows 316 but on "wrong" lots; R7 212 MF - Att per Major Proj
Canyon	Miscellaneous									
Car	Clubhouse					10.4	10.4			Based on permit data
Poggi	Swim Club					0.3	0.3			Based on permit data
4	Mixed-Use		0.0	2,500.0	0.0	0.0				
	Commercial			2,500.0	0.0	0.0				
	Industrial		0.0	2,500.0	0.0	0.0				
	Parks		7.6	500.0	3,800.0	14.3		14.3	14.3	Assessor Map 644-24
	Elementary School - Interim/Addl		1.0	12,000.0	12,000.0	45.3		45.3	45.3	Assessor Map 644-24
	Middle School			28,000.0	0.0	0.0				
	High School - Interim/Addl		1.0	48,000.0	48,000.0	181.1	181.1	0.0	0.0	Assessor Map 644-24, Built per City memo dated 5-6-08 (KY054)
	CPF - Parks		2.0	500.0	1,000.0	3.8		3.8	3.8	M15134
	_		•	Total	EDUs	1,296.5	564.0	732.4	732.4	

210.4

353.6

463.7

832.7

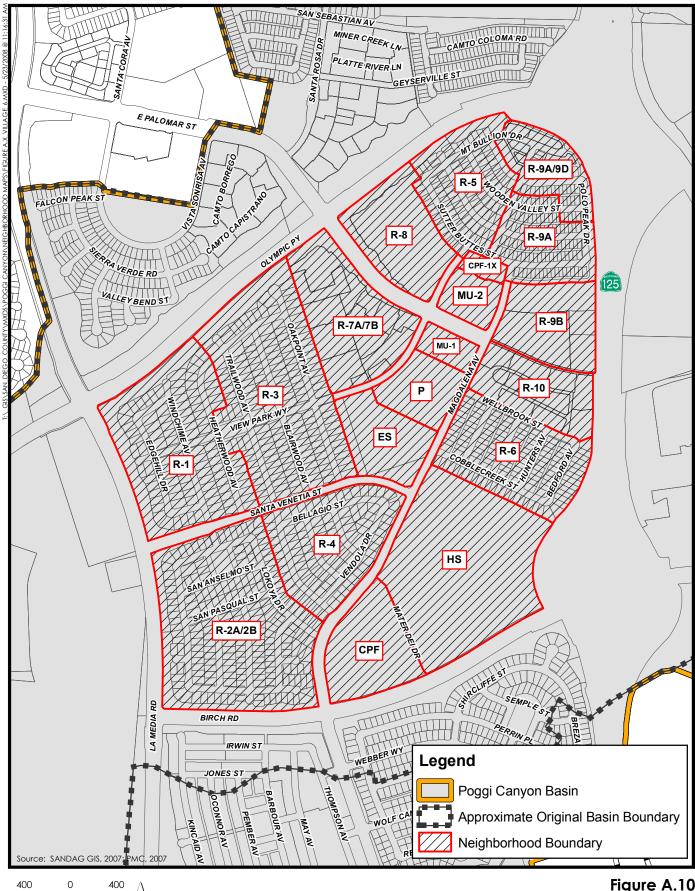
Interim/Addl EDUs<sup>1</sup>

Permanent EDUs

253.3

479.1

<sup>1</sup> Village 7 Interim flows of 464 EDUs until Wolf Trunk is constructed. 2 Once R6 is submitted, confirm as attached product.

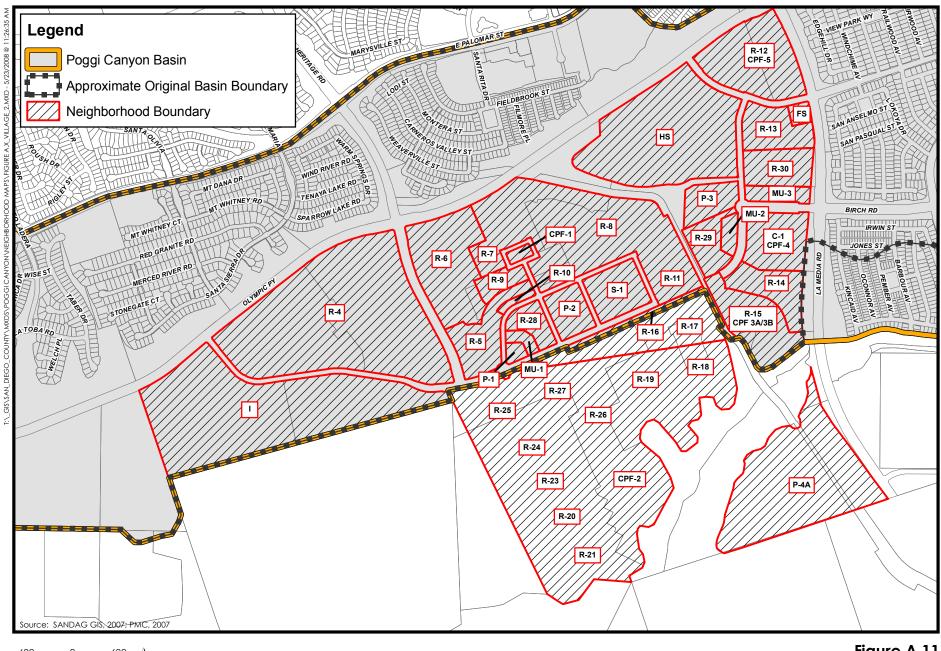


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# VILLAGE 6 Development Data and Flow Projection

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Subtotal Remaining EDUs	Source
	SF		925.0	265.0	245,125.0	925.0			0.0	
	R1	101					101.0	0.0		Assessor Map 643-54
	R2A/2B	198					198.0	0.0		Assessor Map 643-57 & 64
	R3	163					163.0	0.0		Assessor Map 643-54
	R4	92					92.0	0.0		Assessor Map 643-55
	R5	106					106.0	0.0		Assessor Map 643-60
	R6	126					126.0	0.0		Assessor Map 643-56
	R9A	139					139.0	0.0		Assessor Map 643-59 & 68
	MF		1,258.0	199.0	250,342.0	944.7			86.6	
	R7A/7B - Att	291					218.5	0.0		Assessor Map 643-55, M14615
	R8 - Att per GIS	293					220.0	0.0		Assessor Map 643-05, M14970
	R9B/9C - Att Condo	255					191.5	0.0		M14871, Permitted based on Bldg Permit data
	R9D - Att per Major Project	49					36.8	0.0		Assessor Map 643-68
'n	R10 - Att per GIS	212					159.2	0.0		M14432, Permitted based on Bldg Permit data
anyc	MU 1	60						45.1		Amended TM
Poggi Canyon	MU 2	98					32.0	41.6		Amended TM, M15618, Paid fees in the amount of \$9600.
Pog	Mixed-Use		7.3	2,500.0	18,150.0	68.5		68.5	68.5	
	MU 1	2.95								Amended TM
	MU 2	4.31								Amended TM,M15618
	Commercial			2,500.0	0.0	0.0				
	Industrial		0.0	2,500.0	0.0	0.0				
	Parks		7.5	500.0	3,750.0	14.2	14.2	0.0	0.0	Assessor Map 643-05
	Misc		1.9	500.0	935.0	3.5	3.5	0.0	0.0	
	R -2 Private Rec area	0.7								
	R -3 Private Rec area	0.67								
	R -10 Private Rec area	0.5								
	Elementary School		1.0	12,000.0	12,000.0	45.3	45.3	0.0	0.0	Other studies showed 1400 students. Constructed per City staff.
	Middle School			28,000.0						
	High School - Private		1.0	48,000.0	48,000.0	181.1	181.1	0.0	0.0	
	CPF		14.7	2,500.0	36,700.0	138.5	138.5	0.0	0.0	
	CPF 1X	1.57								M 14446, acreage per Assessor map for M15618
	Church	13.11								Assessor Map
			-	Total	EDUs	2,320.8	2,165.6	155.1	155.1	





# VILLAGE 2 Development Data and Flow Projection

	Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
SF			585.0	265.0	155,025.0	585.0		585.0	
-	R4	160							Substantial Conformance
	R5	130							Substantial Conformance
	R6	59							Substantial Conformance
-	R7	48							Substantial Conformance
-	R8	50							Substantial Conformance
-	R9	101							Substantial Conformance
-	R15	37							Substantial Conformance
SF	- Additional		0.0	265.0	0.0	0.0		0.0	
	R17	119							Substantial Conformance
	R18	113							Substantial Conformance
	R19	83							Substantial Conformance
	R20	83							Substantial Conformance
	R21	62							Substantial Conformance
	R22								Per City/Dexter-Wilson, no longer a neighborhood
-	R23	71							Substantial Conformance
	R24								Substantial Conformance 41 units - Per City/Dextor-Wilson, won't sewer to Poggi.
-	R25	68							Substantial Conformance
-	R26	75							Substantial Conformance
MF			1,374.0	199.0	273,426.0	1,031.8		1,031.8	
	R10	90							Substantial Conformance
-	R11	144							Substantial Conformance
-	R12	295							Substantial Conformance
-	R13	149							Substantial Conformance
	R14	165							Substantial Conformance
-	R16	74							Substantial Conformance
<u> </u>	R28	85							Substantial Conformance
roggi canyon	R29	134							Substantial Conformance
د ا	R30	178							Substantial Conformance
<u> </u>	MU 1-3	60							Substantial Conformance, Assessor Map 644-31
MF	- Additional		0.0	199.0	0.0	0.0		0.0	Substantial Conformance
	R27	110							
Mix	ed-Use		8.5	2,500.0	21,250.0	80.2		80.2	
-	MU 1	1.8							Substantial Conformance, Assessor Map 644-31
-	MU 2	2.4							Substantial Conformance, Assessor Map 644-31
-	MU 3	4.3							Substantial Conformance, Assessor Map 644-31
Co	nmercial C-1		13.7	2,500.0	34,250.0	129.2		129.2	Assessor Map 644-31
Ind	ustrial I-1		59.6	2,500.0	149,000.0	562.3		562.3	Substantial Conformance, I-2 and I-3 go to Wolf Cyn Basin
Pa	ks		15.4	500.0	7,720.0	29.1		29.1	
-	P-1	1.41							M 15350
$\vdash$	P-2	7.1							M 15350
	P-3	6.9							M 15350
Pa	ks - Additional		0.0	500.0	0.0	0.0		0.0	Consider as interim flow to Poggi Sewer, per City.
	P-4 in V4 but develop with V2	50.54							M 15350
Ele	mentary School S-1	-	1.0	12,000.0	12,000.0	45.3		45.3	
-	dle School			28,000.0					
	h School		1.0	48,000.0	48,000.0	181.1	181.1	0.0	
	h School - Addl students		1.0	12,000.0	12,000.0	45.3	45.3	0.0	Current enrollment is 3000
6				,000.0	,000.0			<u> </u>	

Poddi Canvon

#### **VILLAGE 2 Development Data and Flow Projection**

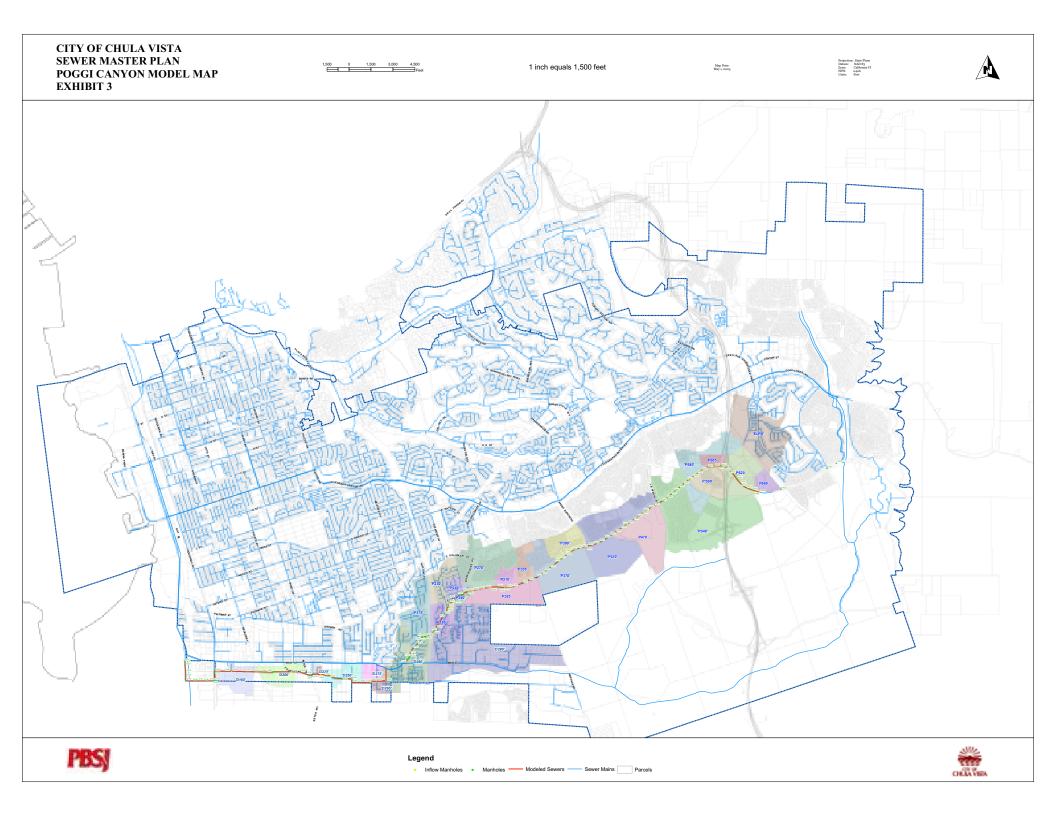
Land Use		Units	GF	Flow	EDUs	Built/ Permitted	Remaining EDUs	Source
CPF		8.0	2,500.0	19,900.0	75.1			
CPF 1	1.2					0.0	11.3	Assessor Map 644-31
CPF 3	4.5					0.0	42.1	Assessor Map 644-31, acreage is high as it includes street
CPF 4	1.5					0.0	14.2	Substantial Conformance
CPF 5	0.8					0.0	7.5	Substantial Conformance
Fire Station site		1.7	2,500.0	4,225.0	15.9	15.9	0.0	Assessor Map 644-31
CPF - Additional		0.0	2,500.0	0.0	0.0		0.0	
CPF 2	0.9							Substantial Conformance - Not requested by ORC.

Total EDUs	2,780.4	242.4	2,538.0
Less original EDUs	2,780.4	242.4	2,538.0
Perm Diversion to Poggi	0.0	0.0	0.0

Note: 1997 Basin Plan (page B-7) identified 1201 EDUs (at 265 gpd/EDU) for V2. Fire Station and HS estimated to be 127 EDUs in Ovewrview of SS for OR V2, V3 and port V4. Does not reflect additional 132 EDUs for increased density per PBSJ memo dated 5-3-07. Assumed all MF as attached.

# **APPENDIX H**

POGGI CANYON MODEL MAP, WASTEWATER
MASTER PLAN



# APPENDIX I CAPACITY ANALYSES

Appendix I: POGGI Basin Development Data and Flow Projection

TABI	LE I-1
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	SUMMARY OF NEIGHBORHOOD EDUS					total	ı	
	Development	EDUs	Total Built/Permitted EDUs	Remaining EDUs	MAX EDUs	Permanent EDUs	Committed	Built/ Permitted
	Village 11	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Freeway Commercial	1,136.8	647.4	489.4	1,136.8	1,136.8	1136.8	647.4
	EUC	189.0	0.0	189.0	189.0	189.0	189.0	0.0
	EUC (approved/not approved = 470)	281.0	0.0	281.0	281.0	281.0		0.0
	Eastlake LS/Greens	2,207.8	2,124.5	83.4	2,207.8	2,207.8	2207.8	2,124.5
	Village 5 ORC	580.5	537.9	42.6	580.5	580.5	580.5	537.9
	OWD parcel near V5	256.6	0.0	256.6	256.6	256.6	256.6	0.0
	Village 1/5 McMillin	323.4	323.4	0.0	323.4	323.4	323.4	323.4
	Village 7	832.7	353.6	479.1	832.7	832.7	832.7	353.6
	Village 7 (interim)	463.7	210.4	253.3	463.7			210.4
	Village 6	2,320.8	2,165.6	155.1	2,320.8	2,320.8	2320.8	2,165.6
	Village 2 HS & FS	242.4	242.4	0.0	242.4	242.4	242.4	242.4
	Village 2	1,101.0		1,101.0	1,101.0	1,101.0	1101.0	0.0
	Village 2 (assumed committed)	1,437.0		1,437.0	1,437.0	1,437.0	1437.0	0.0
	Village 2 (132 not approved)	0.0		0.0	0.0	0.0		0.0
	Village 2 (not approved) <sup>1</sup>	0.0		0.0	0.0	0.0		0.0
	Village 2 (P-4) - Interim only	0.0		0.0	0.0	0.0		0.0
	Less Village 2 entering downstream of P 410	-722.3		-722.3	-722.3	-722.3	-722.3	0.0
	SUBtotal - Upstream of P410	10,650.5	6,605.2	4,045.2	10,650.5	10,186.8	9,905.8	6,605.2
	Village 1 ORC at P410	1,164.5	1,164.5	0.0	1,164.5	1,164.5	1164.5	1,164.5
ayon	SUBtotal P410 to P405	11,815.0	7,769.8	4,045.2	11,815.0	11,351.3	11,070.3	7,769.8
Poggi Cnayon	Village 1 West at P405	519.6	519.6	0.0	519.6	519.6	519.6	519.6
Pog	SUBtotal at P405 to P365	12,334.6	8,289.3	4,045.2	12,334.6	11,870.9	11,589.9	8,289.3
	Village 2 - R4 and I-1 at P365	722.3		722.3	722.3	722.3	722.3	0.0
	SUBtotal P365 to P345	13,056.9	8,289.3	4,767.5	13,056.9	12,593.2	12,312.2	8,289.3
	Sunbow - PA19 and ES at P345	157.3	157.3	0.0	157.3	157.3	157.3	157.3
	SUBtotal P345 to P310	13,214.2	8,446.6	4,767.5	13,214.2	12,750.4	12,469.4	8,446.6
	Sunbow - portions of PA 16/17 at P310	140.0	140.0	0.0	140.0	140.0	140.0	140.0
	SUBtotal P310 to P305	13,354.2	8,586.6	4,767.5	13,354.2	12,890.4	12,609.4	8,586.6
	Sunbow - Industrial Park at P305	515.1	0.0	515.1	515.1	515.1	515.1	0.0
	Subtotal P305 to P270	13,869.2	8,586.6	5,282.6	13,869.2	13,405.5	13,124.5	8,586.6
	Sunbow at P270	1,131.1	1,131.1	0.0	1,131.1	1,131.1	1131.1	1131.1
	Med Ctr at P270	109.4	45.3	64.2	109.4	109.4	109.4	45.3
	Subtotal P270 to P253R	15,109.8	9,763.0	5,346.8	15,109.8	14,646.1	14,365.1	9,763.0
	East of I805 at P253	290.0	290.0	0.0	290.0	290.0	290.0	290.0
	Subtotal P253R to P230	15,399.8	10,053.0	5,346.8	15,399.8	14,936.1	14,655.1	10,053.0
	East of I805 at P230	673.3	673.3	0.0	673.3	673.3	673.3	673.3
	Subtotal P230 to P195	16,073.1	10,726.4	5,346.8	16,073.1	15,609.4	15,328.4	10,726.4
	West of I805 at P195	875.3	875.3	0.0	875.3	875.3	875.3	875.3
	Total P195 to P102	16,948.4	11,601.6	5,346.8	16,948.4	16,484.7	16,203.7	11,601.6
	1 ORC requested 769 additional EDUs, but is 2 P230, estimated 673 EDUs enter at this po							

				TABLE I-	2							
									ity Pipe Ca			
	Neder		EDIL		k Flow	D' (' - )	Minimum		apacity (cfs		EDUs at	Remaining
	Nodes P400 to P440	Mari	EDUs 40.040	MGD	CFS	Diameter (in) 21	Slope			d/D=0.75	d/D = .85	Capacity
	P102 to P140	Max	16,948 16,485	7.46 7.25	11.5 11.2	21	0.50%	12.1 12.1	12.5 12.5	11.1		
		Permanent	16,204	7.25 7.13	11.2			12.1	12.5	11.1 11.1		
		Committed	,								40.007	0.705
	P140-P175R	Permitted	11,602	5.10	7.9	21	0.700/	12.1	12.5	11.1	18,367	6,765
	P140-P175R	Max Permanent	16,948 16,485	7.46 7.25	11.5 11.2	21	0.73%	14.7 14.7	15.1 15.1	13.4 13.4		
		Committed	16,465	7.25 7.13	11.2			14.7	15.1	13.4		
		Permitted	11,602	7.13 5.10	7.9			14.7	15.1	13.4	22,192	10,591
-	P175R-P195	Max	16,948	7.46	11.5	27	0.50%	23.7	24.4	21.6	22,192	10,591
	1 17510-1 195	Permanent	16,485	7.40	11.2	21	0.50 /6	23.7	24.4	21.6		
		Committed	16,204	7.13	11.0			23.7	24.4	21.6		
		Permitted	11,602	5.10	7.9			23.7	24.4	21.6	35,898	24,296
	P195-P230	Max	16,073	7.07	10.9	21	0.50%	12.1	12.5	11.1	33,030	24,230
	1 100 1 200	Permanent	15,609	6.87	10.6		0.0070	12.1	12.5	11.1		
		Committed	15,328	6.74	10.4			12.1	12.5	11.1		
		Permitted	10,726	4.72	7.3			12.1	12.5	11.1	18,367	7,640
	P230-P240	Max	15,400	6.77	10.5	21	0.40%	10.8	11.2	9.9	.0,00.	7,010
	. 200 . 2 .0	Permanent	14,936	6.57	10.2		0070	10.8	11.2	9.9		
		Committed	14,655	6.45	10.0			10.8	11.2	9.9		
		Permitted	10,053	4.42	6.8			10.8	11.2	9.9	16,427	6,374
	P240-P253R	Max	15,400	6.77	10.5	21	0.40%	10.8	11.2	9.9		-,
		Permanent	14,936	6.57	10.2			10.8	11.2	9.9		
		Committed	14,655	6.45	10.0			10.8	11.2	9.9		
		Permitted	10,053	4.42	6.8			10.8	11.2	9.9	16,427	6,374
	P253R-P270	Max	15,110	6.65	10.3	18	0.50%	8.0	8.3	7.3	-,	-,-
		Permanent	14,646	6.44	10.0			8.0	8.3	7.3		
		Committed	14,365	6.32	9.8			8.0	8.3	7.3		
		Permitted	9,763	4.29	6.6			8.0	8.3	7.3	12,175	2,412
	P270-P305	Max	13,869	6.10	9.4	18	0.50%	8.0	8.3	7.3		
		Permanent	13,406	5.90	9.1			8.0	8.3	7.3		
		Committed	13,125	5.77	8.9			8.0	8.3	7.3		
		Permitted	8,587	3.78	5.8			8.0	8.3	7.3	12,175	3,589
	P305-P310	Max	13,354	5.87	9.1	18	5.00%	25.4	26.2	23.2		
		Permanent	12,890	5.67	8.8			25.4	26.2	23.2		
		Committed	12,609	5.55	8.6			25.4	26.2	23.2		
		Permitted	8,587	3.78	5.8			25.4	26.2	23.2	38,503	29,916
	P310-P345	Max	13,214	5.81	9.0	18	0.98%	11.3	11.6	10.3		
		Permanent	12,750	5.61	8.7			11.3	11.6	10.3		
		Committed	12,469	5.49	8.5			11.3	11.6	10.3		
		Permitted	8,447	3.72	5.8			11.3	11.6	10.3	17,047	8,600
	P345-P365	Max	13,057	5.74	8.9	18	0.60%	8.8	9.1	8.0		
		Permanent	12,593	5.54	8.6			8.8	9.1	8.0		
		Committed	12,312	5.42	8.4			8.8	9.1	8.0	40.000	5.046
	P365-P405	Permitted	8,289	3.65	5.6	18	1.01%	8.8	9.1 11.8	8.0	13,339	5,049
	P365-P405	Max	12,335	5.43	8.4	18	1.01%	11.4		10.4		
		Permanent	11,871	5.22 5.10	8.1 7.9			11.4	11.8	10.4 10.4		
		Committed Permitted	11,590 8,289	3.65	7.9 5.6			11.4 11.4	11.8 11.8	10.4	17,305	9,016
	P405-P410	Max	11,815	5.20	8.0	18	0.60%	8.8	9.1	8.0	17,303	9,010
	1 400-5410	Permanent	11,351	4.99	7.7	10	0.00%	8.8	9.1	8.0		
		Committed	11,070	4.99 4.87	7.7 7.5			8.8	9.1	8.0 8.0		
		Permitted	7,770	3.42	7.5 5.3			8.8	9.1	8.0 8.0	13,339	5.569
Un	stream of P410 to SR 125	Max	10,650	4.69	7.3	18	0.60%	8.8	9.1	8.0	10,009	3,308
οp.	511 5411 511 710 to 511 125		10,030	4.48	6.9	10	0.0076	8.8	9.1	8.0		
		Permanent										
		Permanent Committed	9,906	4.36	6.7			8.8	9.1	8.0		

Permanent excludes 464 Interim EDUs for Village 7
Committed excludes 464 Interim EDUS for Village 7, 281 EDUs for EUC.
Permitted includes Village 7's interim EDUs.
PF assumed to be 1.66
Rate is estimated at 265 gpd

Village 2 additional EDUs assumed to enter at Heritage Road.

#### NODES P102 TO P140 – NORTH OF MAIN STREET

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 21-inch diameter pipe from node P102² to P140³ is sized adequately for the design flows. The pipe slope ranges between 0.5% and 0.54% according to the plans. The design capacity of the pipe at 0.5% slope and 85% full pipe flow, using Manning's equation, is 18,367 EDUs. As shown in the table, there are cases where the flow may exceed 75% and consequently this reach should be monitored closely during build-out of the basin.

TABLE I-3
CAPACITY ANALYSIS NODES P102 TO P140

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P102-P140	21" Diameter	16,948	7.46	11.5	78%
Permanent	P102-P140	21" Diameter	16,485	7.25	11.2	77%
Committed	P102-P140	21" Diameter	16,204	7.13	11.0	75%
Built	P102-P140	21" Diameter	11,602	5.10	7.9	59%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved..

Remaining capacity at d/D of .85 is approximately 6,765 EDUs (18,367 EDUs less 11,602 EDUs).

Assumes all EDUs west of I-805 enter at node P185 for analysis only.

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n=0.012, peak factor = 1.66 and slope = 0.5%.

The critical reach to monitor is between nodes P1024 and P1055.

<sup>&</sup>lt;sup>2</sup> Node P102 is north of manhole 47 per drawing 01-028-28.

<sup>&</sup>lt;sup>3</sup> Node P140 is manhole 16 per drawing 97-355.

<sup>&</sup>lt;sup>4</sup> Node P102 is north of manhole 47 per drawing 01-028-28.

<sup>&</sup>lt;sup>5</sup> Node P105 is manhole 102 per drawing 97-356.

#### NODES P140 TO P175R – NORTH OF MAIN STREET TO MELROSE AVENUE

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 21-inch diameter pipe from node P1406 to P1757 is sized adequately for the design flows. The pipe slope ranges between 0.73% and 4.39% according to the plans. The design capacity of the pipe at 0.73% slope and 85% full pipe flow, using Manning's equation, is 22,192 EDUs. As shown in the table, this reach of sewer pipe is adequate for build out of the basin.

TABLE I-4
CAPACITY ANALYSIS NODES P140 TO P175R

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P140-P175R	21" Diameter	16,948	7.46	11.5	67%
Permanent	P140-P175R	21" Diameter	16,485	7.25	11.2	66%
Committed	P140-P175R	21" Diameter	16,204	7.13	11.0	65%
Built	P140-P175R	21" Diameter	11,602	5.10	7.9	52%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 10,590 EDUs (22,192 EDUs less 11,602 EDUs).

Assumes all EDUs west of I-805 enter at node P185 for analysis only.

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 0.73%.

<sup>&</sup>lt;sup>6</sup> Node P140 is manhole 16 per drawing 97-355.

<sup>&</sup>lt;sup>7</sup> Node P175R is manhole 1 per drawing 05022-02.

#### Nodes P175R to P195 – Melrose Avenue easterly under I-805

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 27-inch diameter pipe from node P175R<sup>8</sup> to P195<sup>9</sup> is sized adequately for the design flows. The pipe slope is 0.5% according to the plans. The design capacity of the pipe at 0.5% slope and 85% full pipe flow, using Manning's equation, is 35,898 EDUs. As shown in the table, this reach of sewer pipe is adequate for build out of the basin.

TABLE I-5
CAPACITY ANALYSIS NODES P175R TO P195

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P175R-P195	27" Diameter	16,948	7.46	11.5	49%
Permitted	R175R-P195	27" Diameter	16,485	7.25	11.2	49%
Committed	P175R-P195	27" Diameter	16,204	7.13	11.0	48%
Built	P175R-P195	27" Diameter	11,602	5.10	7.9	40%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 24,296 EDUs (35,898 EDUs less 11,602 EDUs).

Assumes all EDUs west of I-805 enter at node P185 for analysis only.

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n=0.012, peak factor = 1.66 and slope = 0.5%.

<sup>&</sup>lt;sup>8</sup> Node P175R is manhole 1 per drawing 05022-02.

<sup>&</sup>lt;sup>9</sup> Node P195 is manhole 6 per drawing 05-022-03.

#### NODES P195 TO P230- FAST OF I-805 TO OLEANDER AVENUE

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 21-inch diameter pipe from node P195<sup>10</sup> to P230<sup>11</sup> is sized adequately for the design flows. The pipe slope ranges between 0.5% and 9.65% according to the plans. The design capacity of the pipe at 0.5% slope and 85% full pipe flow, using Manning's equation, is 18,367 EDUs. As shown in the table, this reach of sewer pipe is adequate for build out of the basin.

TABLE I-6
CAPACITY ANALYSIS NODES P195 TO P230

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P195-P230	21" Diameter	16,073	7.07	10.9	75%
Permanent	P195-P230	21" Diameter	15,609	6.87	10.6	74%
Committed	P195-P230	21" Diameter	15,328	6.74	10.4	72%
Built	P195-P230	21" Diameter	10,726	4.72	7.3	56%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 7,641 EDUs (18,367 EDUs less 10,726 EDUs).

Assumes all EDUs east of I-805 enter at node P230 for analysis only.

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n=0.012, peak factor = 1.66 and slope = 0.5%.

<sup>&</sup>lt;sup>10</sup> Node P195 is manhole 6 per drawing 05022-03.

<sup>11</sup> Node P230 is manhole 30 per drawing 97-348.

## NODES P230 TO P240 – EAST OF OLEANDER AVENUE TO SOUTH OF OLYMPIC PKWY

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 21-inch diameter pipe from node P230<sup>12</sup> to P240<sup>13</sup> is sized adequately for the design flows. The pipe slope is 0.4% according to the plans. The design capacity of the pipe at 0.4% slope and 85% full pipe flow, using Manning's equation, is 16,427 EDUs. As shown in the table, there are cases where the flow may exceed 75% and consequently this reach should be monitored closely during build-out of the basin.

TABLE I-7
CAPACITY ANALYSIS NODES P230 TO P240

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P230-P240	21" Diameter	15,400	6.77	10.5	79%
Permanent	P230-P240	21" Diameter	14,936	6.57	10.2	77%
Committed	P-230-P240	21" Diameter	14,655	6.45	10.0	75%
Built	P230-P240	21" Diameter	10,053	4.42	6.8	58%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately EDUs 6,374 (16,427 EDUs less 10,053 EDUs).

Assumes 290 EDUs east of I-805 enter upstream of node P240 for analysis only.

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 0.4%.

<sup>&</sup>lt;sup>12</sup> Node P230 is manhole 30 per drawing 97-348.

<sup>&</sup>lt;sup>13</sup> Node P240 is manhole 16 per drawing 97-355.

# P240 TO P253R – OLYMPIC PARKWAY (WEST OF BRANDYWINE AVENUE)

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 21-inch diameter pipe from node P240<sup>14</sup> to P253<sup>15</sup> is sized adequately for the design flows. The pipe slope ranges between 0.4% and 1.22% according to the plans. The design capacity of the pipe at 0.4% slope and 85% full pipe flow, using Manning's equation, is 16,427 EDUs. As shown in the table, there are cases where the flow may exceed 75% and consequently this reach should be monitored closely during build-out of the basin.

TABLE I-8
CAPACITY ANALYSIS NODES P240 TO P253R

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P240-P253R	21" Diameter	15,400	6.77	10.5	79%
Permanent	P240-P253R	21" Diameter	14,936	6.57	10.2	77%
Committed	P240-P253R	21" Diameter	14,655	6.45	10.0	75%
Built	P240-P253R	21" Diameter	10,053	4.42	6.8	58%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately EDUs 6,374 (16,427 EDUs less 10,053 EDUs).

Assumes 290 EDUs east of I-805 enter upstream of node P240 for analysis only.

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n=0.012, peak factor = 1.66 and slope = 0.4%.

The critical reach is between nodes P250R16 and P253R17.

<sup>&</sup>lt;sup>14</sup> Node P240 is manhole 16 per drawing 97-355.

<sup>&</sup>lt;sup>15</sup> Node P253R is manhole 3 per drawing 00110-04.

<sup>&</sup>lt;sup>16</sup> Node P250 is manhole 2 per drawing 00110-04.

<sup>&</sup>lt;sup>17</sup> Node P253R is manhole 3 per drawing 00110-04.

# P253R TO P305 – OLYMPIC PARKWAY WEST AND EAST OF BRANDYWINE AVENUE

These 18-inch diameter reaches are discussed in the report and indicate a d/D exceeding 0.85 based on Tables I-1 and I-2 of this appendix.

## P305 TO P310 – OLYMPIC PARKWAY (WITHIN SUNBOW II)

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 18-inch diameter pipe from node P305<sup>18</sup> to P310<sup>19</sup> is sized adequately for the design flows. The pipe slope is 5% according to the plans. The design capacity of the pipe at 5% slope and 85% full pipe flow, using Manning's equation, is 38,503 EDUs. As shown in the table, this reach of sewer pipe is adequate for build out of the basin.

TABLE I-9
CAPACITY ANALYSIS NODES P305 TO P310

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P305- P310	18" Diameter	13,354	5.87	9.1	Less than 50%
Permanent	P305-P310	18" Diameter	12,890	5.67	8.8	Less than 50%
Committed	P305- P310	18" Diameter	12,609	5.55	8.6	Less than 50%
Built	P305- P310	18" Diameter	8,587	3.78	5.8	Less than 50%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 29,916 EDUs (38,503 EDUs less 8,587 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 5%.

<sup>&</sup>lt;sup>18</sup> Node P305 is manhole 6 per drawing 99-386.

<sup>&</sup>lt;sup>19</sup> Node P310 is manhole 7 per drawing 99-386.

## P310 TO P345 – OLYMPIC PARKWAY (WITHIN SUNBOW II)

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 18-inch diameter pipe from node P310<sup>20</sup> to P345<sup>21</sup> is sized adequately for the design flows. The pipe slope is ranges between 0.98% and 2.13% according to the plans. The design capacity of the pipe at 0.98% slope and 85% full pipe flow, using Manning's equation, is 17,047 EDUs. As shown in the table, this reach of sewer pipe is adequate for build out of the basin.

TABLE I-10
CAPACITY ANALYSIS NODES P310 TO P345

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P310- P345	18" Diameter	13,214	5.81	9.0	68%
Permanent	P310- P345	18" Diameter	12,750	5.61	8.7	67%
Committed	P310- P345	18" Diameter	12,469	5.49	8.5	65%
Built	P310- P345	18" Diameter	8,447	3.72	5.8	51%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 8,600 EDUs (17,047 EDUs less 8,447 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 0.98%.

<sup>&</sup>lt;sup>20</sup> Node P310 is manhole 7 per drawing 99-386.

<sup>&</sup>lt;sup>21</sup> Node P345 is manhole 14 per drawing 99-382.

Nodes P345 to P365 – Olympic Pkwy (Sunbow II to Village 2 Westerly Access Road)

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 18-inch diameter pipe from node P345<sup>22</sup> to P365<sup>23</sup> is sized adequately for the design flows. The pipe slope ranges between 0.6% and 0.83% according to the plans. The design capacity of the pipe at 0.6% slope and 85% full pipe flow, using Manning's equation, is 13,339 EDUs. As shown in the table, there are cases where the flow may exceed 75% and consequently this reach should be monitored closely during build-out of the basin.

TABLE I-11
CAPACITY ANALYSIS NODES P345 TO P365

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P345-P365	18" Diameter	13,057	5.74	8.9	84%
Permanent	P345-P365	18" Diameter	12,593	5.54	8.6	81%
Committed	P345-P365	18" Diameter	12,312	5.42	8.4	78%
Built	P345- P365	18" Diameter	8,289	3.65	5.6	58%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 5,050 EDUs (13,339 EDUs less 8,289 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 0.6%.

The critical reach to monitor is between nodes P345<sup>24</sup> and P360<sup>25</sup>.

<sup>&</sup>lt;sup>22</sup> Node P345 is manhole 14 per drawing 99-382.

<sup>&</sup>lt;sup>23</sup> Node P365 is manhole 18 per drawing 99-380.

<sup>&</sup>lt;sup>24</sup> Node P345 is manhole 14 per drawing 99-382.

<sup>&</sup>lt;sup>25</sup> Node P360 is manhole 17 per drawing 99-380.

Nodes P365 to P405 – Olympic Pkwy (Village 2 Westerly Access Road to West of Heritage Road)

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 18-inch diameter pipe from node P365<sup>26</sup> to P405<sup>27</sup> is sized adequately for the design flows. The pipe slope ranges between 1.01% and 3.36% according to the plans. The design capacity of the pipe at 1.01% slope and 85% full pipe flow, using Manning's equation, is 17,304 EDUs. As shown in the table, this reach of sewer pipe is adequate for build out of the basin.

TABLE I-12
CAPACITY ANALYSIS NODES P365 TO P405

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P365-P405	18" Diameter	12,335	5.43	8.4	64%
Permanent	P365-P405	18" Diameter	11,871	5.22	8.1	63%
Committed	P365-P405	18" Diameter	11,590	5.10	7.9	61%
Built	P365- P405	18" Diameter	8,289	3.65	5.6	50%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 9,016 EDUs (17,304 EDUs less 8,289 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 1.01%.

<sup>&</sup>lt;sup>26</sup> Node P365 is manhole 18 per drawing 99-380.

<sup>&</sup>lt;sup>27</sup> Node P405 is manhole 26 per drawing 99-374.

# NODES P405 TO P410 – OLYMPIC PARKWAY (AT HERITAGE ROAD)

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 21-inch diameter pipe from node P405<sup>28</sup> to P410<sup>29</sup> is sized adequately for the design flows. The pipe slope is 0.6% according to the plans. The design capacity of the pipe at 0.6% slope and 85% full pipe flow, using Manning's equation, is 13,339 EDUs. As shown in the table, only under the Maximum flow scenario, with temporarily diverted flows (464 EDUs from Village 7), would the flow slightly exceed 75% and consequently this reach is not critical and does not need to be monitored.

TABLE I-13
CAPACITY ANALYSIS NODES P405 TO P410

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P405-P410	18" Diameter	11,815	5.20	8.0	76%
Permitted	P405-P410	18" Diameter	11,351	4.99	7.7	73%
Committed	P405-P410	18" Diameter	11,070	4.87	7.5	71%
Built	P405- P410	18" Diameter	7,770	3.42	5.3	55%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 5,569 EDUs (13,339 EDUs less 7,770 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 0.6%.

<sup>&</sup>lt;sup>28</sup> Node P405 is manhole 26 per drawing 99-374.

<sup>&</sup>lt;sup>29</sup> Node P410 is manhole 27 per drawing 99-374.

# UPSTREAM OF NODE P410 – OLYMPIC PKWY (EAST OF HERITAGE ROAD TO SR 125)

Based on a sewage generation rate of 265 gpd/EDU and the maximum EDUs shown in Tables I-1 and I-2 of this appendix, the 18-inch diameter pipe upstream of node P410<sup>30</sup> is sized adequately for the design flows. The pipe slope ranges between 0.6% and 6.2% according to the plans. The design capacity of the pipe at 0.6% slope and 85% full pipe flow, using Manning's equation, is 13,339 EDUs. As shown in the table, the reach of sewer pipe upstream of Heritage Road to SR 125 is adequate for build out of the basin.

TABLE I-14
CAPACITY ANALYSIS UPSTREAM OF NODE P410

	Nodes	Pipe Size	Project EDUs	Project Flows (mgd)	Project Flows (cfs)	d/D percent
Maximum	P410	18" Diameter	10,650	4.69	7.3	70%
Permanent	P410	18" Diameter	10,187	4.48	6.9	67%
Committed	P410	18" Diameter	9,906	4.36	6.7	65%
Built	P410	18" Diameter	6,605	2.91	4.5	51%

Maximum includes interim flows of 464 EDUs for Village 7.

Permanent excludes interim flows of 464 EDUs for Village 7.

Committed excludes 464 interim EDUs for Village 7 and 281 EDUs for EUC that are not yet approved.

Remaining capacity at d/D of .85 is approximately 6,733 EDUs (13,339 EDUs less 6,605 EDUs).

Analysis is based on 1 EDU = 265 gpd.

For DIF purposes, capacity calculated based on n = 0.012, peak factor = 1.66 and slope = 0.6%.

<sup>&</sup>lt;sup>30</sup> Node P410 is manhole 27 per drawing 99-374.

#### MISCELLANEOUS

In Oleander Avenue and in Melrose Drive, 8-inch diameter sewer mains connect to the Poggi Canyon Interceptor sewer. There may be a possibility to reconnect these lines to the Date-Faivre sewer reducing the overall flows going through the Poggi Canyon Interceptor sewer. This alternative should be explored should actual flow data indicate that upgrades are needed to the Poggi Canyon Interceptor sewer downstream of node P230, in Oleander Avenue.

# **APPENDIX J**FUTURE REVENUES - ESTIMATE

#### Appendix J Future Revenues - From Constructed Projects (Prepared 3-20-08)

Development	EDUs	Payı	ment Pending	Notes
Sunbow II				
Planning Areas	274.3	\$	109,720	No record of payment and/or type (credit v.
				cash/check is unknown)
Park	18.0		7,200	City fee
Elementary School <sup>1</sup>	32.1		12,840	School District fee
Fire Station	13.7	_	5,480	City fee
Subtotal	338.1	\$	135,240	
Otay Ranch Village 1 West				
Park		\$	-	Assumed Credit from CFD 99-1.
Otay Ranch Village 1		\$	_	NA
City Kulleri Village i		Ψ		
Otay Ranch Village 5				
CPF		\$	-	Un-built CPF site assumed credit from CFD 99-1.
Otay Ranch Village 1/5 (McMillin)				
Park		\$	-	Assumed Credit from CFD 97-3.
Eastlake Greens/Land Swap				
Park APN 643-033-01				Assumed Existing
Elementary School				Assumed Existing
High School		•		Assumed Existing
Subtotal	0	\$	-	
EUC		\$	-	NA
Freeway Commercial		\$	-	NA
Village 7				
High School				
Elementary School				
Subtotal	0	\$	_	Interim flows not required to pay
		,		
Village 6				
Elementary School <sup>2</sup>	42.9	\$	17,160	School District fee
Village 2				
High School <sup>3</sup>	214.2	¢	85,680	School District fee
Fire Station	15.2	\$ \$	6,080	City fee
				City 100
Subtotal	229.4	\$	91,760	
TOTAL	610.4	\$	244,160	

<sup>&</sup>lt;sup>1</sup> EDUs based on 1997 Basin Plan; Ordinance is 3.6 EDUs/acre.

<sup>&</sup>lt;sup>2</sup> EDUs based on 800 students at .0536 EDU/student.

 $<sup>^{\</sup>rm 3}$  EDUs based on 3,000 students at .0714 EDU/student.

 $<sup>^{\</sup>rm 4}$  Sunbow II figure includes the 45.3 EDUs for medical parcel.