

# Appendix H

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Sewer Capacity Study

**SEWER CAPACITY STUDY**  
**8555 SANTA MONICA BOULEVARD**  
**WEST HOLLYWOOD, CALIFORNIA 90069**

**July 8, 2019**

Prepared For:

**SOTO CAPITAL, LP**

P.O. BOX 17119

BEVERLY HILLS, CA 90209

Prepared by:



**VIRGIL C. AOANAN, P.E. S.E., QSD**

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## 1. Introduction

This sewer capacity study has been prepared by VCA Engineers, Inc. to examine the existing sanitary sewer system that will be affected by the proposed mixed-use project located at 8555 Santa Monica Boulevard in the City of West Hollywood. The project involves the demolition of three two-story commercial structures, four one-story single-family residence, surface parking areas, and the construction of a mixed-use development with commercial and residential uses including one level of subterranean parking.

**This study will verify that the proposed development will not adversely impact the flow capacity of the existing sewer infrastructure downstream of the project location.**

This study will analyze the existing peak flow demand of the existing 8-inch vitrified clay pipe (VCP) sewer line along Santa Monica Boulevard extending from West Knoll Drive to Westbourne Drive by conducting a 7-day flow monitoring of this sewer mainline. Furthermore, the peak flow generated by the proposed development will be determined using land use table of the LA County Sanitation District No 4. Similarly, the peak flow of the existing land use will be calculated for the demolished area using the same LA County table. These two flows increased with a peaking factor of 2.5 will be used to determine the net flow generated by the proposed development. From this data, the Post Development Flow downstream of the development can then be determined by adding the monitored existing maximum flow to the factored Proposed Peak Flow and reducing it by the factored Existing Peak Flow associated with the demolished site.

The post development flow will then be compared to the calculated designed flow capacity of the existing sewer mainline flowing at half full and with a roughness coefficient of 0.013 using Manning's Formula per LA County Department of Public Works standards. If the sewer mainline has enough capacity for the post development flow, we can then conclude that the sewer mainline is adequate to handle the increase in flow of the new development.

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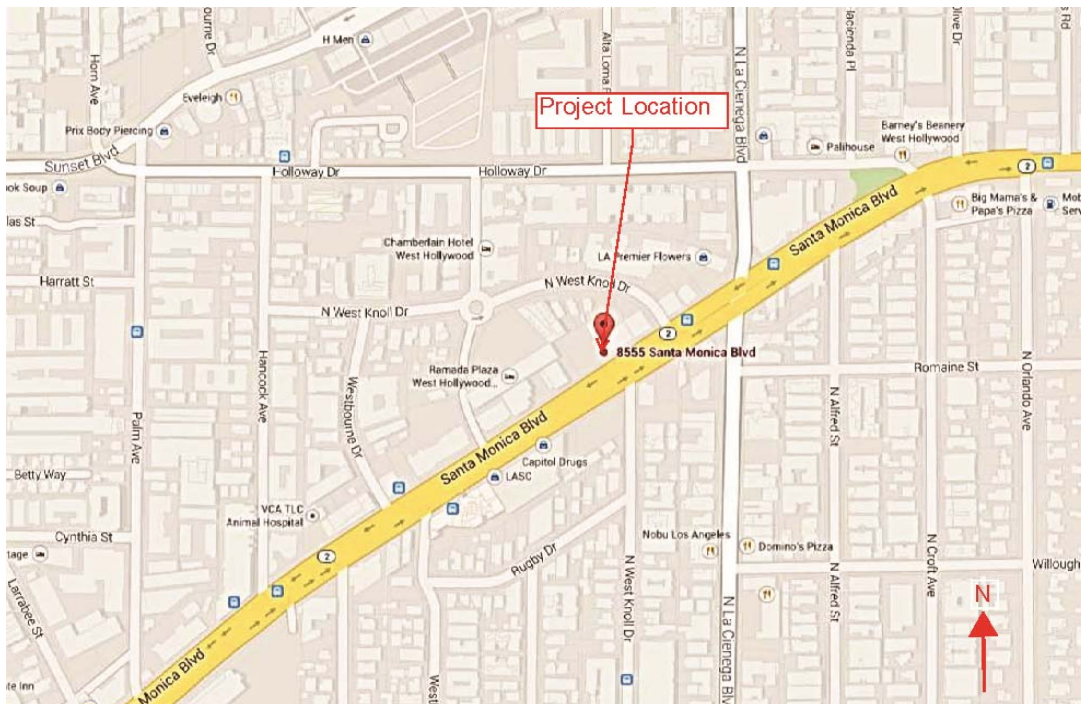
## 2. Project Description

The proposed development consists of a 5-story mixed-used development with commercial and residential uses with one (1) level of subterranean parking. The 61,097 square foot site is composed of Lots 5-11 located at the northwest intersection of Santa Monica Boulevard and West Knoll Drive. There will be a driveway entrance at Santa Monica Boulevard to the subterranean parking and at West Knoll Drive to the mezzanine level parking.

The existing site currently consists of three two-story commercial structures, four existing one-story single-family residence, and surface parking areas. Existing commercial structures usage consists of various units such as retail stores, restaurant, massage parlor, shoe repair, and acupuncture clinic.

## 3. Site Description

The project site is composed of Lot 5 APN: 4339-005-013, Lot 6 APN: 4339-005-010, 4339-005-011, and 4339-005-012, Lot 7 APN: 4339-005-013, and Lots 8-11: APN: 4339-005-025 per Los Angeles County Assessor Parcel Map. The site acreage is approximately 1.266 acres. See Figure 1 for the Vicinity Map.



**Figure 1. Vicinity Map**

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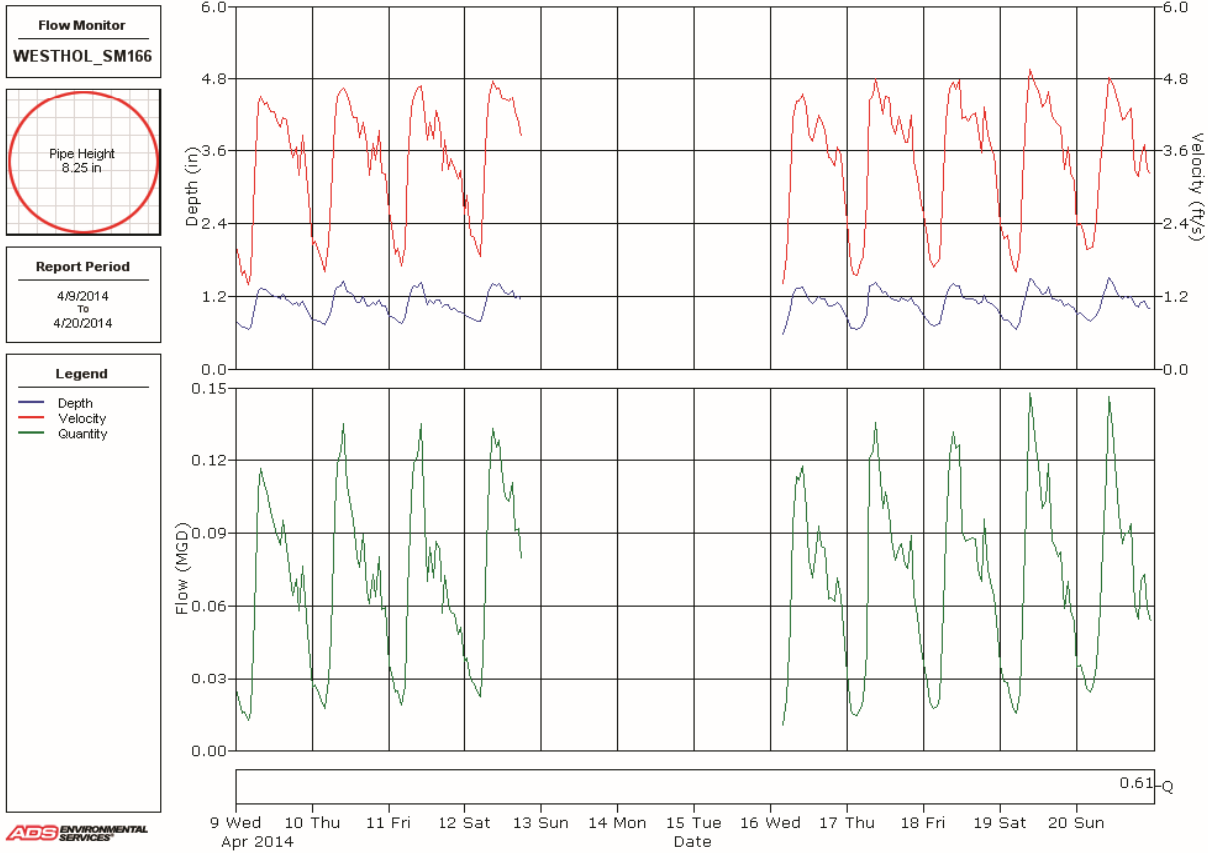
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**HYDROGRAPH REPORT**  
 WESTHOL\_SM166



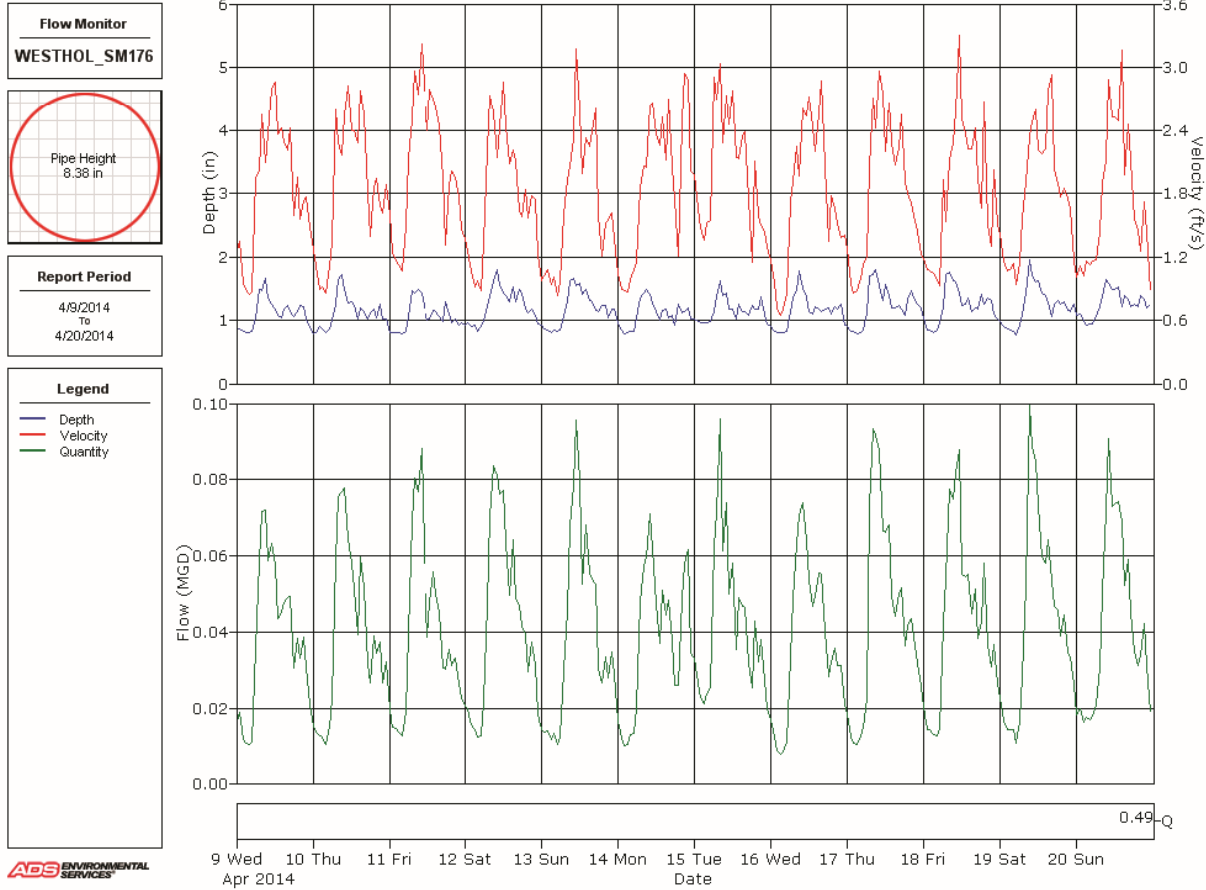
SM#166 Observed Flow Conditions				
Item	Depth (in)	Velocity (ft/s)	Quantity	
			(MGD)	(CFS)
Average	1.07	3.47	0.072	0.11140
Minimum	0.50	1.08	0.008	.012378
Maximum (Peak)	1.91	5.88	0.251	0.38835

**Figure 3. GRAPHICAL AND TABULAR SUMMARY OF SANTA MONICA BOULEVARD SMH #166 SEWER FLOW MONITORING**



**HYDROGRAPH REPORT**

WESTHOL\_SM176



**SM#176 Observed Flow Conditions**

Item	Depth (in)	Velocity (ft/s)	Quantity	
			(MGD)	(CFS)
<b>Average</b>	1.17	1.84	0.041	.06344
<b>Minimum</b>	0.66	0.42	0.005	.00774
<b>Maximum (Peak)</b>	2.55	4.35	0.201	.31099

**Figure 4. GRAPHICAL AND TABULAR SUMMARY OF SANTA MONICA BOULEVARD SMH #176 SEWER FLOW MONITORING**

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**C. Existing Site Flow Generated**

The calculated flow demand produced from the existing site will be based off the chart in the “City of West Hollywood Department of Public Works Engineering Division Sewer Capacity Study Requirements” (See Appendix I for detailed chart). Table 1 summarizes the total GPD generated per each existing user category in the aforementioned table. To determine the maximum peak flow rate for sewer diameters less than 15 inches, a peaking factor of 2.5 was used per City of West Hollywood requirements. The calculated existing site peak flow rate (QPF) equates to 0.02635 CFS (See Appendix III for detailed Sewer Capacity Calculations).

No. of Units	Unit Type	User Category	Flow Per Unit (Gallons Per Day)	Total
4058	1,000 ft <sup>2</sup>	Gymnasium (Health/Fitness)	250	1,014.50 GPD
32	Seat	Restaurant: Full Service (Indoor Seating)	30	960 GPD
37	Seat	Restaurant: Full Service (Outdoor Seating)	18	666 GPD
21,130	1,000 ft <sup>2</sup>	Auto Parking	20	422.60 GPD
10,426	1000 ft <sup>2</sup>	Store (Retail)	80	834.08 GPD
4	EA Unit	Residential: Single Family Detached – 2 Bedroom	180	720 GPD
4,211	1,000 ft <sup>2</sup>	Office	150	631.65 GPD
6,218	1,000 ft <sup>2</sup>	Beauty Parlor (Hair Salon/Facial)	280	1,741.04 GPD
<b>Total Existing Flow Rate</b>				<b>6,989.87 GPD</b>
				<b>0.01081 CFS</b>
<b>Total Existing Peak Flow Rate (Q<sub>PF-EXIST</sub>) ( X 2.5 Peaking Factor)</b>				<b>0.02703 CFS</b>

**TABLE 1. TABULAR SUMMARY OF EXISTING USER CATEGORIES AND MEAN LOADING**



## 5. Proposed Flow Generation

### A. Proposed Land Use

The proposed development will consist of a combination of the following categories:

- 111 residential apartments.
- 12 live/work units.
- 113,225 square feet of auto parking/garage.
- 6,711 square feet of office space.
- Indoor seating restaurant with 98 seats.
- 3,643 square feet of hair salon.
- 14,488 square feet of retail space.
- 4,777 square feet of storage.
- 833 square feet of lobby area.
- 892 square feet of recreation room.

Live/work flow units were calculated using GPD of residential apartments with one bedroom and recreation units were calculated using GPD for a lounge.

### B. Proposed Site Flow Generation

Table 2 summarizes the appropriate user categories and mean loading for the mixed-used development using values taken from the County Sanitation District No. 4 of Los Angeles County Mean Loading table. Based on the amount of residential units, square footage of commercial usage and proposed site usage, the average proposed sewer flow calculated from the proposed site is 25,288.03 gallons per day or 0.03913 CFS. To determine the maximum peak flow rate for sewer diameters less than 15 inches, a peaking factor of 2.5 was used per City of West Hollywood requirements. The calculated proposed site peak flow rate (QPF) equates to 0.09783 CFS (See Appendix III for detailed Sewer Capacity Calculations).

No. of Units	Unit Type	User Category	Flow Per Unit (Gallons Per Day)	Total
47	EA Unit	Residential Apartment - 1 Bedroom	120	5,640.00 GPD
64	EA Unit	Residential Apartment - 2 Bedroom	160	10,240.00 GPD
12	EA Unit	Residential Apartment - Live/Work	120	1,440.00 GPD
113,225	1,000 ft <sup>2</sup>	Auto Parking	20	2,264.50 GPD
98	Seat	Restaurant: Full Service (Indoor Seating)	30	2,940.00 GPD
3,643	1,000 ft <sup>2</sup>	Hair salon	100	364.30 GPD
6,711	1,000 ft <sup>2</sup>	Office	150	1,006.65 GPD
14,488	1,000 ft <sup>2</sup>	Retail	80	1,159.04 GPD
4,777	1,000 ft <sup>2</sup>	Storage	20	95.54 GPD
833	1,000 ft <sup>2</sup>	Lobby of Residential	80	66.64 GPD
892	1,000 ft <sup>2</sup>	Residential Recreation Room (Lounge)	80	71.36 GPD
<b>Total Proposed Flow Rate</b>				<b>25,288.03 GPD</b>
				<b>0.03913 CFS</b>
<b>Total Proposed Peak Flow Rate (Q<sub>PF-PROPOSED</sub>) ( X 2.5 Peaking Factor)</b>				<b>0.09783 CFS</b>

**TABLE 2. TABULAR SUMMARY OF PROPOSED USER CATEGORIES AND MEAN LOADING**

## 6. Conclusion

Peak sewer flow post development was determined by adding the monitored existing maximum flow to the factored proposed peak flow and then reducing the factored existing peak flow from the demolished site. The peak sewer flow post development was then compared to the sewer pipe capacity to determine adequacy of the existing pipe (See Appendix III for detailed calculation.)

As shown on Table 3, the sewer main at sewer manhole #176 has a sewer pipe capacity of 0.88 CFS while the demand of the post development peak flow rate equals 0.38 CFS. The demand from the new development does not exceed the capacity of the existing sewer main (D/C = 43%)\*.

Also per Table 3, the sewer main at sewer manhole #166 has a sewer pipe capacity of 0.90 CFS while the demand of the post development peak flow rate equals 0.45 CFS. The demand from the new development does not exceed the capacity of the existing sewer main (D/C = 50%)\*.

**Despite the increase in sewer flow from the new development, the existing sanitary sewer system owned and operated by the City of West Hollywood will not be detrimentally affected by the additional flow. The existing sewer system is adequately sized to handle peak flow generated by the new development without impacting the existing sewer capacity. Applicant/Developer to replace the existing sewer, between manholes 81 to 179, with installation of a new sewer which will be placed partially within proposed Development's parking garage. Also new manhole and cleanouts, accessible to maintenance crew, will be built by Applicant/Developer per City specifications. Sewer service to buildings at 8562 West Knoll will be maintained during construction.**

**Prior to issuance of building permits, the applicant shall have a Civil Engineer licensed to practice in the State of California prepare sewer plans to the satisfaction of the City Engineer for replacement of the sewer line between manholes 81 and 179, including installation of a new sewer which will be partially within the proposed development's parking garage, with a new manhole and cleanouts which are accessible to the City's maintenance crew.**

**Prior to issuance of the certificate of occupancy, the applicant shall complete construction of the new sewer as well as dedicate to the City easements for access and maintenance of the new sewer.**

\* *D/C = Demand-Capacity Ratio*

Sewer Manhole	Size (in)	Inlet Pipe Slope	7-Day Sewer Flow Monitoring		LA County Sanitation District 4 Table		Sewer Pipe Capacity @ D/d = 0.5 Q <sub>CAP</sub> (CFS)	Proposed Peak Flow Q <sub>PF</sub> = 2.5 X Q <sub>AF</sub> (CFS)	Peak Sewer Flow Post Development (CFS)
			Existing Sewer Ave. Flow Q <sub>exist</sub> (CFS)	Existing Sewer Peak Flow Q <sub>EXIST-PEAK</sub> (CFS)	Average Daily Proposed Flow Rate Q <sub>AF</sub> (CFS)	Average Daily Existing Flow Rate Q <sub>EXIST-AF</sub> (CFS)			
<b>SM #176</b>	8	2.12%	0.06344	0.31099	0.03624	0.01054	0.88	0.09061	0.38
<b>SM # 166</b>	8	2.20%	0.11140	0.38835	0.03624	0.01054	0.90	0.09061	0.45

**TABLE 3. TABULAR SUMMARY OF SEWER CAPACITY ANALYSIS**

## Appendix I: City of West Hollywood Sewer Capacity Study Requirements & Los Angeles County Bureau of Sanitation District User Categories and Loading

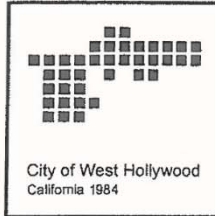
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**City of West Hollywood  
Department of Public Works  
Engineering Division**

**Sewer Capacity Study Requirements**

1. The sewer capacity study shall be certified by a California licensed Civil Engineer.
2. Project Description: The study should have a project description describing what is being proposed on the development site. The current land uses and proposed land uses of the development shall also be indentified.
3. Site Description: The site description shall describe the project's location, the approximate acreage of the project site, and contain a vicinity map to identify the project's location.
4. Existing Sewer Pipe Capacity Analysis: This section shall identify any existing connections to the sewer system. A 7-day flow monitoring study will be required to obtain the existing flow capacity. This shall be done at the downstream sewer manhole, or at a location that makes sense to adequately determine existing flow capacity. Additional monitoring locations may be required to verify downstream capacity of the local sewer network as well as if the project will connect to a nearby trunk line. The City of Los Angeles sewers located downstream may be impacted by a proposed development project. Therefore, the sewer study may need to include monitoring locations in the City of Los Angeles. The existing average daily flow ( $Q_{exist}$ ) and peak flow shall be determined in cubic feet per second.
5. Proposed Flow Generation: This section shall include the proposed land use(s). Flow generation shall be determined by the user category that most closely matches the County Sanitation District No. 4 of Los Angeles County mean loading table. This will determine your average daily flow ( $Q_{AF}$ ) in gallons per day (gpd) that shall then be converted to cubic feet per second (cfs).

The City of West Hollywood was an unincorporated area of Los Angeles County until 1984; therefore the sewer system was designed to the County of Los Angeles Department of Public Works standards, where all pipes are designed for peak flow.

$$n = 0.013$$
$$D/d \leq 0.50 \text{ for } d \leq 15''$$
$$D/d \leq 0.75 \text{ for } d > 15''$$

These assumptions will determine the  $Q_{cap}$  = Sewer pipe capacity.

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The peak flow ( $Q_{PF}$ ) for this study shall be calculated in cubic feet per second (cfs) by  $Q_{PF} = 2.5 \times Q_{AF}$  where 2.5 is the peaking factor used to determine the maximum peak flow rate for sewer diameters less than 15". The peaking factor shall be 2.0 for diameters greater than 15".

6. Conclusion: The conclusion shall identify the sewer capacity of the pipe as a flow rate ( $Q_{cap}$ ). The calculations shall demonstrate that the sewer mainline has the capacity for the existing flow and the added flow at average and peak conditions. If the sewer is found to be inadequate, recommendations shall be provided to handle the increase in sewer flow. If this is a large site that has several sewer connection options, the conclusion shall address those options and make a recommendation for the project. The recommendations will be incorporated into the mitigation measures for the project.

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SANITATION DISTRICT NO. 4  
 CONNECTION FEE LOADINGS, CAPACITY UNITS, AND UNIT RATES  
 July 1, 2013 - June 30, 2014

CATEGORY	UNIF OF USAGE	LOADINGS		SS (PPD)	CAPACITY UNITS	CHARGE
		FLOW (GPD)	COD (PPD)			
Acupuncture Office/Clinic	1000 ft <sup>2</sup>	150	0.16	0.10	0.48	821.00
Arcade - Video Games	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00
Auditorium	Seat	4	0.01	0.01	0.02	34.00
Auto Parking	1000 ft <sup>2</sup>	20	0.03	0.03	0.07	120.00
Auto Body/Mech. Repair Shop	1000 ft <sup>2</sup>	80	0.12	0.19	0.31	530.00
Bakery	1000 ft <sup>2</sup>	280	2.34	1.40	2.16	3,694.00
Bank: Headquarters	1000 ft <sup>2</sup>	150	0.16	0.10	0.48	821.00
Bank: Branch	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00
Banquet Room/Ballroom	1000 ft <sup>2</sup>	800	6.67	4.00	6.17	10,551.00
Bar: Cocktail, Fixed Seat	Seat	18	0.03	0.03	0.07	120.00
Bar: Juice, No Baking Facilities	1000 ft <sup>2</sup>	120	0.20	0.20	0.45	770.00
Bar: Juice, With Baking Facilities	1000 ft <sup>2</sup>	280	2.34	1.40	2.16	3,694.00
Bar: Cocktail, Public Table Area	1000 ft <sup>2</sup>	500	4.17	2.50	3.85	6,584.00
Barber Shop	1000 ft <sup>2</sup>	100	0.13	0.13	0.35	595.00
Beauty Parlor	1000 ft <sup>2</sup>	280	0.35	0.35	0.97	1,659.00
Bldg. Const./Field Office	Office	150	0.19	0.19	0.52	895.00
Bowling Alley: Alley, Lanes & Lobby Area	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00
Cafeteria: Fixed Seat	Seat	30	0.25	0.15	0.15	34.00
Car Wash: Wand Type	1000 ft <sup>2</sup>	700	3.00	1.58	3.56	6,089.00
Car Wash: Tunnel - Recycling Type	1000 ft <sup>2</sup>	2,700	11.74	6.16	13.63	23,649.00
Car Wash: Tunnel - Non-Recycling Type	1000 ft <sup>2</sup>	3,700	15.88	8.33	18.82	32,182.00
Chapel: Fixed Seat	Seat	4	0.01	0.01	0.02	34.00
Chiropractic Office	1000 ft <sup>2</sup>	150	0.16	0.10	0.48	821.00
Church: Fixed Seat	Seat	4	0.01	0.01	0.02	34.00
Church School: Day Care/Elementary	Occupant	8	0.01	0.01	0.03	51.00
Church School: One Day Use	1000 ft <sup>2</sup>	200	0.22	0.17	0.85	1,112.00
Cocktail Lounge: Fixed Seat	Seat	18	0.03	0.03	0.07	120.00
Coffee House: No Pastry Baking/Food Prep	1000 ft <sup>2</sup>	120	0.20	0.20	0.45	770.00
Coffee House: Pastry Baking Only	1000 ft <sup>2</sup>	280	2.34	1.40	2.16	3,694.00
Coffee House: Serves Prepared Food	Seat	30	0.25	0.15	0.23	393.00
Cold Storage: No Sales	1000 ft <sup>2</sup>	20	0.03	0.03	0.07	120.00
Cold Storage: Retail Sales	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00
Comfort Station: Public	Fixture	100	0.13	0.13	0.35	599.00
Commercial Use	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00
Community Center	Occupant	4	0.01	0.01	0.02	34.00
Counseling Center	1000 ft <sup>2</sup>	150	0.16	0.10	0.48	821.00
Credit Union	1000 ft <sup>2</sup>	150	0.19	0.19	0.52	895.00
Dairy: Retail Area	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00
Dancing Area (of Bars or Nightclub)	1000 ft <sup>2</sup>	600	1.00	1.00	2.27	3,892.00
Dance Studio	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00
Dental Office/Clinic	1000 ft <sup>2</sup>	250	0.27	0.17	0.80	1,368.00
Doughnut Shop	1000 ft <sup>2</sup>	280	2.34	1.40	2.16	3,694.00
Drug Rehabilitation Center	1000 ft <sup>2</sup>	150	0.16	0.10	0.48	821.00
Equipment Booth	1000 ft <sup>2</sup>	20	0.03	0.03	0.07	120.00
Film Processing - 1 Hour Photo, Etc.	1000 ft <sup>2</sup>	100	0.13	0.13	0.35	599.00
Gas Station: Self Service	1000 ft <sup>2</sup>	100	0.15	0.23	0.39	667.00
Gas Station: Four Bays Max	Station	430	0.65	1.00	1.69	2,890.00
Gymnasium - Basketball, Volleyball	1000 ft <sup>2</sup>	250	0.31	0.31	0.86	1,471.00
Hanger (Aircraft)	1000 ft <sup>2</sup>	80	0.12	0.19	0.31	530.00
Health Club/Spa	1000 ft <sup>2</sup>	800	1.00	1.00	2.27	4,737.00
Homeless Shelter	Bed	75	0.13	0.13	0.29	496.00
Hospital: Convalescent	Bed	75	0.16	0.06	0.28	479.00

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X = 0.6567 Y = 0.1992 Z = 0.1441 Connection Fee Rate = \$1,710.00

\* Including, but not limited to, Convention Center, Fairground, Racetrack, Sports Stadium/Arena

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SANITATION DISTRICT NO. 4  
 CONNECTION FEE LOADINGS, CAPACITY UNITS, AND UNIT RATES  
 July 1, 2013 - June 30, 2014

CATEGORY	UNIT OF USAGE	LOADINGS				CAPACITY UNITS	CHARGE
		FLOW (GPD)	COD (PPD)	SS (PPD)			
Hospital: Animal	1000 ft <sup>2</sup>	280	0.35	0.35	0.97	1,659.00	
Hotel: Use Guest Rooms Only	Room	130	0.34	0.13	0.52	889.00	
Jail	Inmate	85	0.22	0.09	0.34	581.00	
Kennel: Dog Kennel/Open	1000 ft <sup>2</sup>	100	0.13	0.13	0.35	599.00	
Laundromat	Machine	170	0.21	0.16	0.67	975.00	
Library: Public Area	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00	
Library: Stocks, Storage	1000 ft <sup>2</sup>	25	0.03	0.03	0.09	154.00	
Lobby Of Retail Area	1000 ft <sup>2</sup>	80	0.10	0.28	0.10	479.00	
Lodge Hall	Seat	4	0.01	0.01	0.02	34.00	
Lounge	1000 ft <sup>2</sup>	80	0.13	0.13	0.30	513.00	
Machine Shop	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00	
Manufacturing (Dry) Facility	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00	
Massage Parlor	1000 ft <sup>2</sup>	275	0.34	0.34	0.95	1,625.00	
Medical Building	1000 ft <sup>2</sup>	250	0.27	0.17	0.80	1,368.00	
Medical: Lab In Hospital	1000 ft <sup>2</sup>	250	0.69	0.31	1.03	1,761.00	
Medical Office/Clinic	1000 ft <sup>2</sup>	250	0.27	0.17	0.80	1,368.00	
Mini-Mail	1000 ft <sup>2</sup>	80	0.40	0.27	0.46	787.00	
Mortuary: Chapel	Seat	4	0.01	0.01	0.02	34.00	
Mortuary: Embalming	1000 ft <sup>2</sup>	715	4.77	4.77	5.39	9,217.00	
Mortuary: Living Area	1000 ft <sup>2</sup>	80	0.14	0.14	0.31	530.00	
Motor: Use Guest Rooms Only	Room	130	0.34	0.13	0.52	889.00	
Museum: All Area	1000 ft <sup>2</sup>	20	0.03	0.03	0.07	120.00	
Museum: Office Over 15%	1000 ft <sup>2</sup>	150	0.19	0.19	0.52	889.00	
Museum: Sales Area	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00	
Office Building	1000 ft <sup>2</sup>	150	0.16	0.16	0.48	821.00	
Office Bldg W/ Cooling Tower	1000 ft <sup>2</sup>	180	0.16	0.16	0.56	958.00	
Pool Hall (No Alcohol)	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00	
Post Office: Full Service	1000 ft <sup>2</sup>	150	0.19	0.19	0.52	889.00	
Post Office: Private Mail Box Rental	1000 ft <sup>2</sup>	80	0.10	0.10	0.28	479.00	
Prisons	Inmate	175	0.45	0.18	0.69	1,180.00	
Residential Dorm: College Or Residential	Student	75	0.13	0.13	0.29	496.00	
Residential: Boarding House	Bed	75	0.13	0.13	0.29	496.00	
Residential: Apt - Bachelor	Dwelling Unit	80	0.14	0.14	0.31	530.00	
Residential: Apt - 1 Bedroom	Dwelling Unit	120	0.22	0.21	0.47	804.00	
Residential: Apt - 2 Bedroom	Dwelling Unit	160	0.29	0.27	0.62	1,060.00	
Residential: Apt - 3 Bedroom	Dwelling Unit	200	0.36	0.34	0.77	1,317.00	
Residential: Apt - >3 Bedroom	Additional Bdrm	40	0.07	0.07	0.15	257.00	
Residential: Condo - 1 Bedroom	Dwelling Unit	120	0.22	0.21	0.47	804.00	
Residential: Condo - 2 Bedroom	Dwelling Unit	160	0.29	0.27	0.62	1,060.00	
Residential: Condo - 3 Bedroom	Dwelling Unit	200	0.36	0.34	0.77	1,317.00	
Residential: Condo - >3 Bedroom	Additional Bdrm	40	0.07	0.07	0.15	257.00	
Residential: Duplex/Townhse/SFD - 1 Bdrm	Dwelling Unit	130	0.23	0.22	0.50	855.00	
Residential: Duplex/Townhse/SFD - 2 Bdrm	Dwelling Unit	180	0.32	0.31	0.69	1,180.00	
Residential: Duplex/Townhse/SFD - 3 Bdrm	Dwelling Unit	230	0.41	0.39	0.88	1,505.00	
Residential: Duplex/Townhse/SFD - >3 Bdrm	Additional Bdrm	50	0.09	0.09	0.19	325.00	
Residential Room Addition: Bedroom	Bedroom	50	0.09	0.09	0.19	325.00	
Residential Room Conversion: Into A Bdrm	Bedroom	50	0.09	0.09	0.19	325.00	
Residential: Mobile Home	Dwelling Unit	160	0.29	0.27	0.62	1,060.00	
Residential: Artist (2/3 Area)	Dwelling Unit	250	0.45	0.43	0.86	1,642.00	
Residential: Artist Residence	Dwelling Unit	80	0.14	0.14	0.31	530.00	
Residential: Guest Home w/ Kitchen	Same As Residential Apartment	0	0.00	0.00	0.00	.00	
Residential: Guest Home w/o Kitchen	Bedroom	50	0.06	0.06	0.17	291.00	
Rest Home	Bed	75	0.16	0.06	0.28	479.00	

X = 0.6567 Y = 0.1992 Z = 0.1441 Connection Fee Rate = \$1,710.00

\* Including, but not limited to, Convention Center, Fairground, Racetrack, Sports Stadium/Arena

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# VCA ENGINEERS, INC.

CIVIL ■ STRUCTURAL  
 MBE ■ DBE ■ SBE

SANITATION DISTRICT NO. 4  
 CONNECTION FEE LOADINGS, CAPACITY UNITS, AND UNIT RATES  
 July 1, 2013 - June 30, 2014

CATEGORY	UNIT OF USAGE	LOADINGS		CAPACITY UNITS	CHARGE
		FLOW (GPD)	COD (PPD)		
Restaurant: Drive-In	Seat	40	0.33	0.20	530.00
Restaurant: Drive-In	Seat	20	0.17	0.10	274.00
Restaurant: Fast Food - Indoor Seat	Seat	20	0.17	0.10	274.00
Restaurant: Fast Food - Outdoor Seat	Seat	12	0.10	0.06	154.00
Restaurant: Full Service - Indoor Seat	Seat	50	0.25	0.15	393.00
Restaurant: Full Service - Outdoor Seat	Seat	18	0.15	0.09	239.00
Restaurant: Take-Out	1000 ft²	300	2.50	1.50	3,950.00
Retail Area	1000 ft²	80	0.10	0.10	479.00
Rifle Range: Shootin Stalls & Lanes, Lobby	1000 ft²	80	0.10	0.28	479.00
School: Arts/Dancing/Music	1000 ft²	80	0.09	0.07	445.00
School: Day Care Center	Child	8	0.01	0.01	51.00
School: Elementary/Jr. High	Student	8	0.01	0.01	51.00
School: High School	Student	12	0.01	0.01	68.00
School: Kindergarten	1000 ft²	200	0.22	0.17	1,112.00
School: Manual Arts	1000 ft²	80	0.09	0.07	445.00
School: Nursery/Day Care	Child	8	0.01	0.01	51.00
School: Special Class	Student	8	0.01	0.01	51.00
School: Trade Or Vocational	Student	12	0.01	0.01	68.00
School: Training	Student	18	0.02	0.02	103.00
School: University/College	Student	18	0.02	0.02	103.00
School: Dormitory	Student	75	0.13	0.13	495.00
School: Stadium, Pavilion	Seat	4	0.01	0.01	34.00
Storage: Building/Warehouse	1000 ft²	20	0.03	0.03	120.00
Storage: Self Storage Bldg.	1000 ft²	20	0.03	0.03	120.00
Store: Ice Cream/Yogurt	1000 ft²	80	0.67	0.40	1,950.00
Store: Retail	1000 ft²	60	0.10	0.10	479.00
Studio: Film/TV - Audience Viewing Room	Seat	4	0.01	0.01	34.00
Studio: Film/TV - Regular Use-Indoor Filming Ar	1000 ft²	80	0.10	0.10	479.00
Studio: Film/TV - Industrial Use (Domestic)	1000 ft²	80	0.10	0.10	479.00
Studio: Recording	1000 ft²	80	0.10	0.10	479.00
Tanning Salon: Independent, No Shower	1000 ft²	80	0.10	0.10	479.00
Tanning Salon: Within A Health Spa/Club	1000 ft²	800	1.00	1.00	4,737.00
Theater: Drive-In	Vehicle	10	0.01	0.01	51.00
Theater: Cinema	Seat	4	0.01	0.01	34.00
Theater: Commercial/Residential	Acre	4	0.01	0.01	34.00
Trailer - Const/Field Office	Office	1	0.00	0.00	.00
Veterinary/Clinic/Office	Office	150	0.19	0.19	889.00
Warehouse	1000 ft²	280	0.30	0.19	1,539.00
Waste Dump: Recreational	1000 ft²	20	0.03	0.03	120.00
Wine Tasting Room: Kitchen	Station	430	0.54	0.27	2,548.00
Wine Tasting Room: All Area	1000 ft²	215	0.27	0.27	1,283.00
Fourplex	Parcel	624	2.82	1.40	479.00
				3.28	5,609.00

X = 0.6567 Y = 0.1992 Z = 0.1441 Connection Fee Rate = \$1,710.00  
 \* Including, but not limited to, Convention Center, Fairground, Racetrack, Sports Stadium/Arena

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## Appendix II: City of West Hollywood Sewer As-Built

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### Los Angeles County

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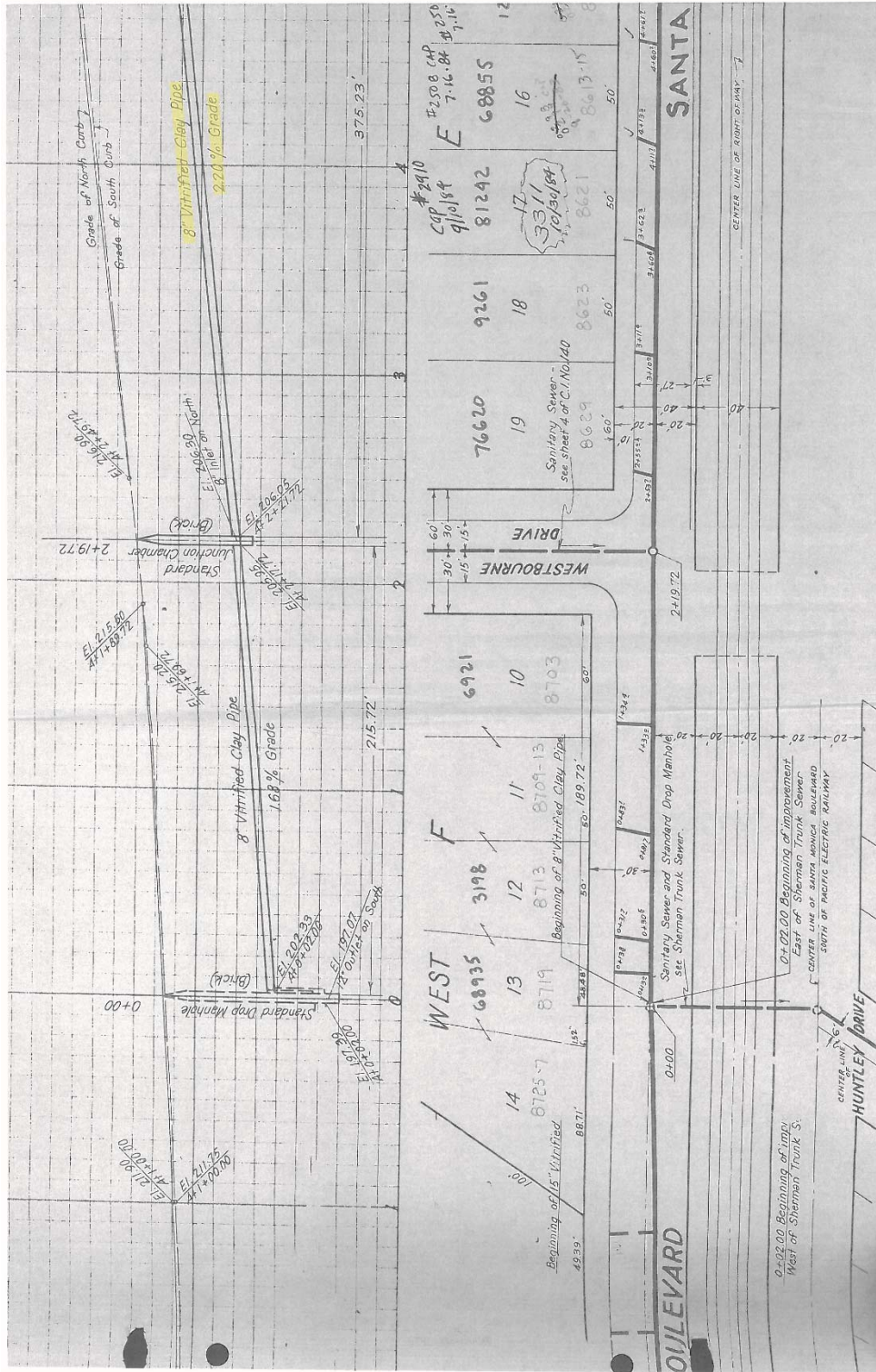
### Orange County

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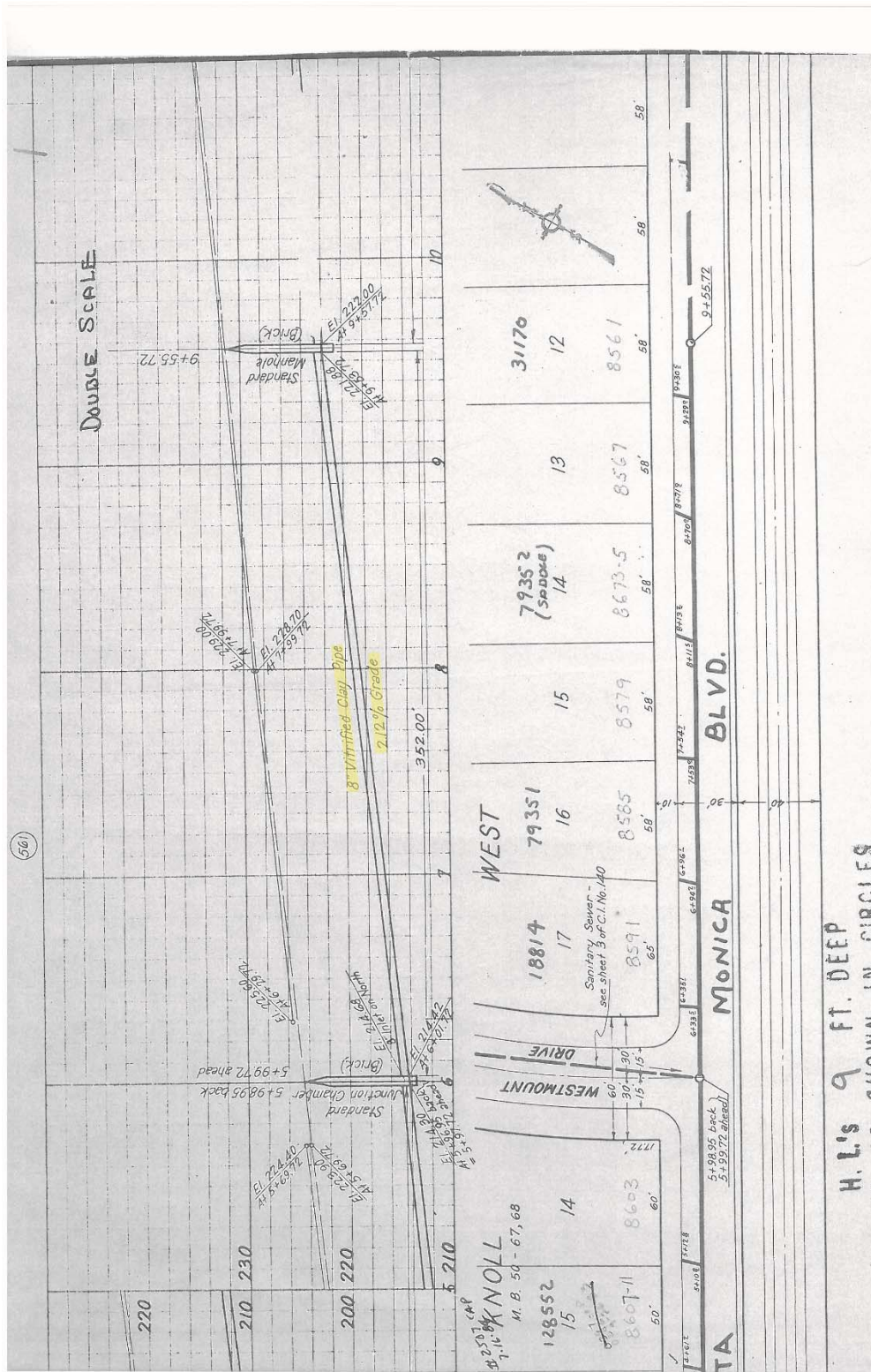
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## Appendix III: Sewer Capacity Calculations

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**Project:** 8555 Santa Monica Blvd.

**Project Number:** 1082-114

**Developer:** Soto Capital, LP

**Santa Monica Boulevard Sewer Manhole #176 Capacity Calculations**

Manhole Location: Santa Monica Boulevard & Westmount Drive  
 Existing Pipe Size: 8 inches  
 Existing Material: Vitrified Clay Pipe  
 Pipe Area: .349066 SF  
 Date of Flow Test: 04/09/2014 – 04/20/2014  
 Sewer Design Capacity: **0.88 CFS**  
 568,761 gal/day

**Existing Sewer Monitoring Average Flow (Q<sub>EXIST</sub>)**

Calculated Average Flow (Gallons/Day):

Average Flow Condition 0.041 MGD

$$41,000 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.06344 \text{ CFS}}$$

**Existing Sewer Monitoring Maximum Flow**

Calculated Maximum Flow (Gallons/Day):

Maximum Flow Condition 0.201 MGD

$$201,000 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.31099 \text{ CFS}}$$

**Existing Site Flow Rate**

Calculated Average Flow (Gallons/Day):

$$6,809.87 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.01054 \text{ CFS}}$$

\* Apply Peak Factor of 2.5 per City of West Hollywood for d < 15"

$$Q_{PF} = 0.01054 \text{ CFS} \times 2.5$$

$$= \mathbf{0.02635 \text{ CFS}}$$

**Proposed New Site Sewer Flow (Q<sub>AF</sub>)**

Calculated Average Flow (Gallons/Day):

$$25,288.03 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.03913 \text{ CFS}}$$

\* Apply Peak Factor of 2.5 per City of West Hollywood for d < 15"

$$Q_{PF} = 0.03913 \text{ CFS} \times 2.5$$

$$= \mathbf{0.09783 \text{ CFS}}$$

**Peak Sewer Flow Post Development**

$$\begin{aligned} \text{Post Development Flow} &= \text{Existing Sewer Max Flow} - \text{Existing Peak Flow} + \text{Proposed Peak Flow} \\ &= 0.31099 \text{ CFS} - 0.02635 \text{ CFS} + 0.09783 \text{ CFS} \end{aligned}$$

$$\text{Post Development Flow} = \mathbf{0.38247 \text{ CFS}}$$

**Peak Sewer Flow Post Development and Sewer Pipe Capacity Comparison**

Post Development Flow < Sewer Pipe Capacity (Q<sub>CAP</sub>)

$$0.38247 \text{ CFS} < 0.88 \text{ CFS} \quad \mathbf{O.K.}$$



**Project:** 8555 Santa Monica Blvd.

**Project Number:** 1082-114

**Developer:** Soto Capital, LP

**Santa Monica Boulevard Sewer Manhole #166 Capacity Calculations**

Manhole Location: Santa Monica Boulevard & Westbourne Drive  
 Manhole No.: SM# 166  
 Existing Pipe Size: 8 inches  
 Existing Material: Vitrified Clay Pipe  
 Pipe Area: .349066 SF  
 Date of Flow Test: 04/09/2014 – 04/20/2014  
 Sewer Design Capacity: **0.90 CFS**  
 568,761 gal/day

**Existing Sewer Monitoring Average Flow (Q<sub>EXIST</sub>)**

Calculated Average Flow (Gallons/Day):

Average Flow Condition 0.072 MGD

$$72,000 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.11140 \text{ CFS}}$$

**Existing Sewer Monitoring Maximum Flow**

Calculated Maximum Flow (Gallons/Day):

Maximum Flow Condition 0.251 MGD

$$251,000 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.38835 \text{ CFS}}$$

**Existing Site Flow Rate**

Calculated Average Flow (Gallons/Day):

$$6,809.87 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.01054 \text{ CFS}}$$

\* Apply Peak Factor of 2.5 per City of West Hollywood for d < 15"

$$Q_{PF} = 0.01054 \text{ CFS} \times 2.5$$

$$= \mathbf{0.02635 \text{ CFS}}$$

**Proposed New Site Sewer Flow (Q<sub>AF</sub>)**

Calculated Average Flow (Gallons/Day):

$$25,288.03 \text{ gal/day} \times 0.133681 \text{ ft}^3/\text{gal} \times 1.1574 \times 10^{-5} \text{ sec/day} = \mathbf{0.03913 \text{ CFS}}$$

\* Apply Peak Factor of 2.5 per City of West Hollywood for d < 15"

$$\begin{aligned} Q_{PF} &= 0.03913 \text{ CFS} \times 2.5 \\ &= \mathbf{0.09783 \text{ CFS}} \end{aligned}$$

**Peak Sewer Flow Post Development**

$$\text{Post Development Flow} = \text{Existing Sewer Max Flow} - \text{Existing Peak Flow} + \text{Proposed Peak Flow}$$

$$= 0.38835 \text{ CFS} - 0.02635 \text{ CFS} + 0.09783 \text{ CFS}$$

$$\text{Post Development Flow} = \mathbf{0.45983 \text{ CFS}}$$

**Peak Sewer Flow Post Development and Sewer Pipe Capacity Comparison**

$$\text{Post Development Flow} < \text{Sewer Pipe Capacity (Q}_{CAP})$$

$$0.45983 \text{ CFS} < 0.90 \text{ CFS} \quad \mathbf{O.K.}$$