PRELIMINARY SEWER
PLAN OF SERVICE STUDY

ESTU#: 2024000635

PC#: 12740AS / CI 2116

Project Site Address:

14500 Avalon Blvd.
GARDENA, CA 90248
APN: 6137-005-032

Prepared For:

Cataldo Architects
835 Mission Street
South Pasadena, CA 91030
Contact: 626-799-4400

Prepared by:

Grand Knight Engineering, Inc.

T. 949-228-1570
F. 949-208-2843
Contact: Gil Evangelista

SEWER AREA STUDY
APPROVED

APPROVED BY: Thong Ngov DATE 11/20/2025

CHECKED BY: Thong Ngov DATE 11/20/2025

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

THIS APPROVAL EXPIRES TWO YEARS FROM THE DATE OF APPROVAL



Revision No: 11/18/2025

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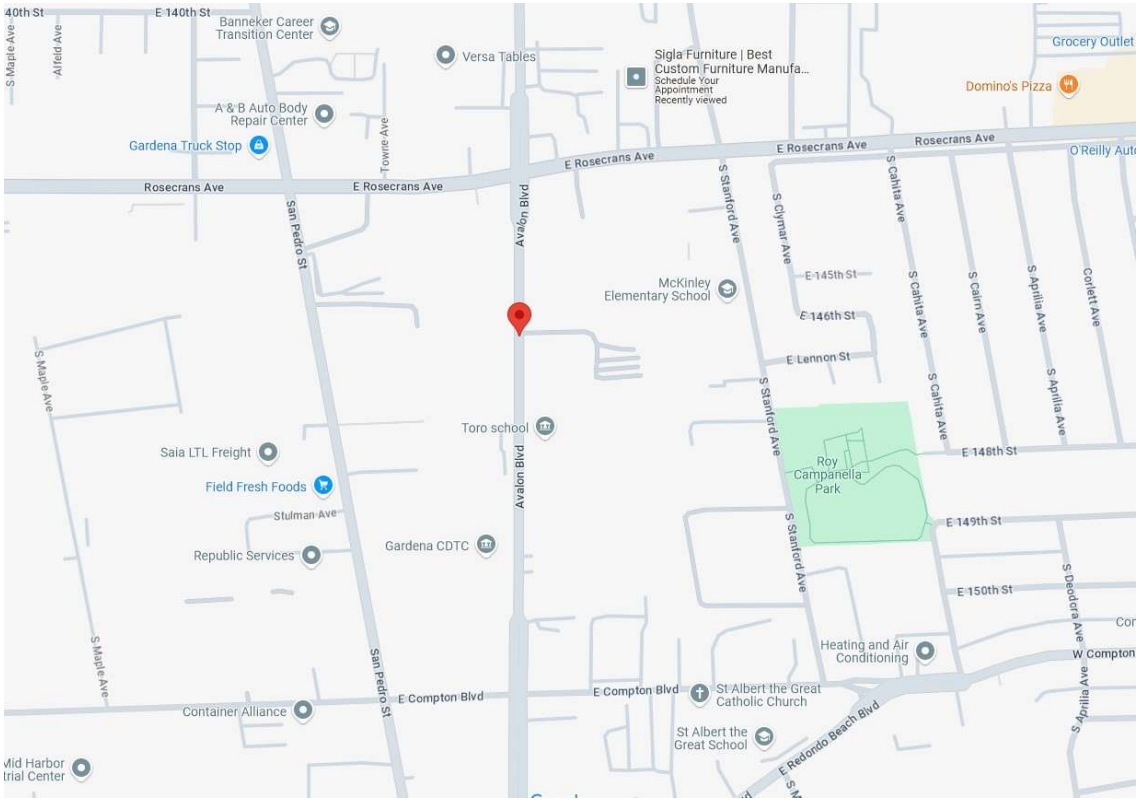
Appendix or Reference 10

I. Introduction

This sewer analysis has been prepared for Cataldo Architects, for the proposed project site located at 14500 South Avalon Blvd., in the City of Gardena, CA. The proposed development, Tract 73119, consists of approximately 2.00 acres. The west property line is bordering Avalon Bld. The sites current Zoning is M1-P.

II. Site Description

The north, south property lines are bordered by adjoining commercial property sites. The eastern property line is primarily residential. The developer of this piece of real estate is proposing to turn the existing condition into a commercial property site and parking lot for trucks



III. Project Description

The site will be dominated by a large commercial truck parking lot, a single office building with a bathroom. The single office building will have several bathrooms and various fixture units for staff. A long 26' drive aisle connects the commercial lot to Avalon. Blvd. The drive aisle connecting to Avalon Blvd. is the sites only street access and is some 300 feet in length. There is no public sewer service immediately in front of the site.

IV. Description of Existing Sewer System

The existing sewer system is 100 feet south of the existing properties driveway on the east side Avalon Blvd. There is an existing 8 inch CSMD sewer line (PC 9667, CI 2116, MH 82) within 10 feet of the eastern sidewalk of Avalon Blvd. The existing 8 inch CSMD line serves the light commercial parcels on the eastern side of Avalon Boulevard only. An identical 8 inch line resides on the west side of Avalon Blvd. and runs parallel to the eastern line. This line and serves commercial sites on the western side of Avalon Blvd. Both are identified as PC 9667. Effluent is then carried south to a CSMD trunk sewer on Compton Blvd.

V. Description of Proposed Sewer System

The effluents produced by the site will be conveyed via gravity flow through a proposed on-site sewer system consisting of a 6-inch house lateral from the proposed office building. The private 6-inch PVC sewer line will then connect to a proposed private 8-inch PVC sewer line that will carry effluents west along the previously described 300 foot in length drive aisle. This single sewer line will be designed to connect a private sewer line from the proposed small office building to the right of way. This will then connect to the proposed extension of the existing public CSMD sewer line 100 feet south of the properties right of way as described in detail below.

A proposed 100' northerly extension of CSMD (PC 9667) is proposed along the easterly side of Avalon Blvd. to connect the previously described private sewer line in the previous paragraph. The purpose of the extension is to allow for the proposed office building to have sewer access as there is currently no public sewer in front of the site.

The purpose of this analysis is to determine the amount of sewer waste generated by this proposed development. The calculations are based on the sewer design in the Private Sewer Improvements plan.

VI. Methodology and list of references

Design flows for this project in Gardena were calculated using the table provide by the Los Angeles County Department of Public Works Land Development Division, "Estimated Average Daily Sewage Flows for Various Occupancies", see Appendix A. The table provides a list of flow coefficients in gal per domestic unit of measure bases on the type of occupancy. For this project, one occupancy category will be used, "Commercial - C-1 through C-4" to reflect the planned occupancy type.

Additionally, this report also demonstrates that the proposed sewer design meets the following requirements by the Sanitation Districts of Los Angeles County:

a. Proposed 8-inch sewer mainlines have slopes no less than 0.40%.
b. Proposed 6-inch sewer laterals have slopes no less than 1.50%.
c. Proposed 4-inch house laterals will have slopes no less than 2.00%.

Conversion Factors:

1 CFS = 448.8 GPM

1 GPM = 1,440 GPD

Peaking Factor of 2.5 used.

VII. Sewer Capacity Analysis

a. Existing Condition - Attached Commercial

Occupancy: Commercial "C1 through C4"

Coefficient: 0.015 cfs/acre

Lot: 2 acres

Existing Condition: Vacant Parking lot with no building.

Inflow into Existing Trunk Sewer: 0 cfs

Peaking Factor = 0

Peak Inflow = 0 x 0.0014 = 0 cfs

b. Proposed Condition - Attached Commercial

Occupancy: Commercial "C1 through C4"

Coefficient: 0.021 cfs/acre

Lot: 2 acres

Condition: Office Building

Inflow = 2 x 0.015= **9695 GPD; 6.73 GPM ; 0.042 CFS**

Inflow into proposed Trunk Sewer: 0.042 cfs

VIII. Proposed mitigation

There are currently 5 separate parcels in addition to the "proposed site" development that drain into the existing (PC 9667) sewer line. The studied coefficients are listed below.

See table below:

Table 1:

APN:	AREA	CFS/Acre	CSMD
6137005032* (Proposed Site) (proposed increase)	**2.0**	**0.042**	**PC 9667**
6137005005 (Offsite)	2.12	0.045	PC 9667
6137005028 (Offsite)	1.40	0.029	PC 9667
6137005025 (Offsite)	0.92	0.019	PC 9667
6137005026 (Offsite)	0.92	0.019	PC 9667
6137006037 (Offsite)	0.58	0.012	PC 9667
Total:	**7.94**	**0.167**	

Summary:

The proposed project at 6137005032* is a 2 acre commercial site. The lot will mainly be used for a small commercial office and bathrooms for a truck logistics facility. The daily effluent flows are at a minimum. The remaining parcels in Table 1 and APN's are for future connections to the proposed sewer main on the east side of Avalon Blvd. fronting the property. There is no plan for this site to mitigate the private sewer flows from other privately owned sites that are not owned by the owner at 6137005032* as they would have to apply for their own CSMD connection permit. Table 1 is to show the proposed impact of these properties on the proposed 8-inch sewer line on the east side of Avalon Bvld. See table in the Appendix for details.

IX. Conclusion

In conclusion, the proposed sewer study indicates that an extension of the existing 8 inch PC9667 would not adversely impact the existing sewer line and that the proposed office building would only add an additional 0.042 cfs to the existing sewer line. The current sewer line fronting the site is not at full capacity. A full table showing all downstream impacts can be found in Table 1 in the Appendix.

X. Appendix or Reference

a. Sewer Area Map

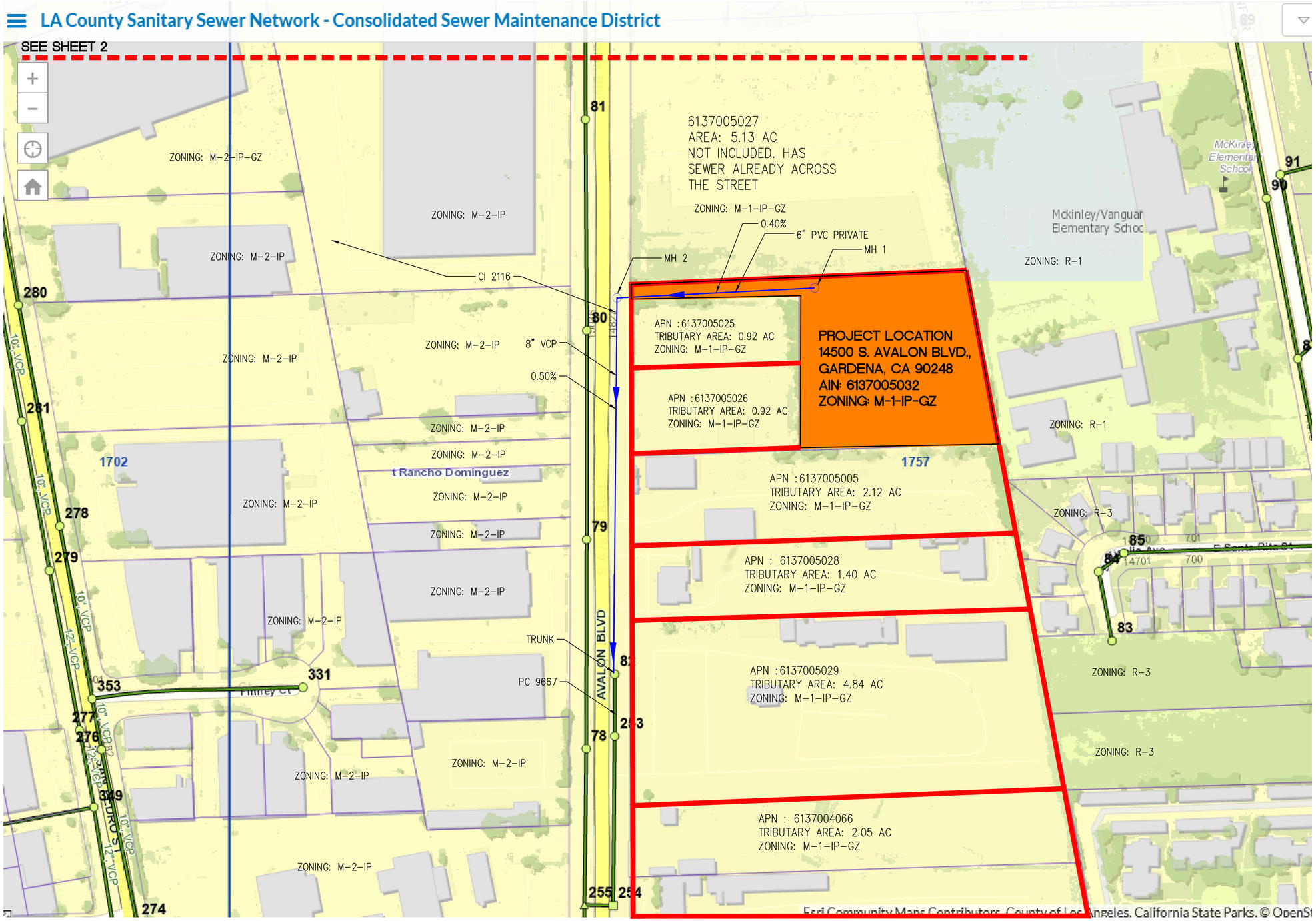
b. Table of Sewer Capacity Analysis

c. Will Serve Letter

d. All Supporting Plans / Maps

1. **Tentative Map / Parcel Map / Site Plans**
2. **SMD map**
3. **As-built**

Appendix A:
Sewer Area Map



DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-422-4133
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

BASIS OF BEARINGS:

BASIS OF BEARINGS OF N89°47'37"E IS BASED ON THE CENTERLINE OF 6TH STREET AS SHOWN ON RECORD OF SURVEY RECORDED IN BOOK 76 PAGE 66 RECORDS OF SAN BERNARDINO COUNTY, CA.

BENCHMARK:

PLAN PREPARED BY:

PLAN PREPARED FOR / DEVELOPER:

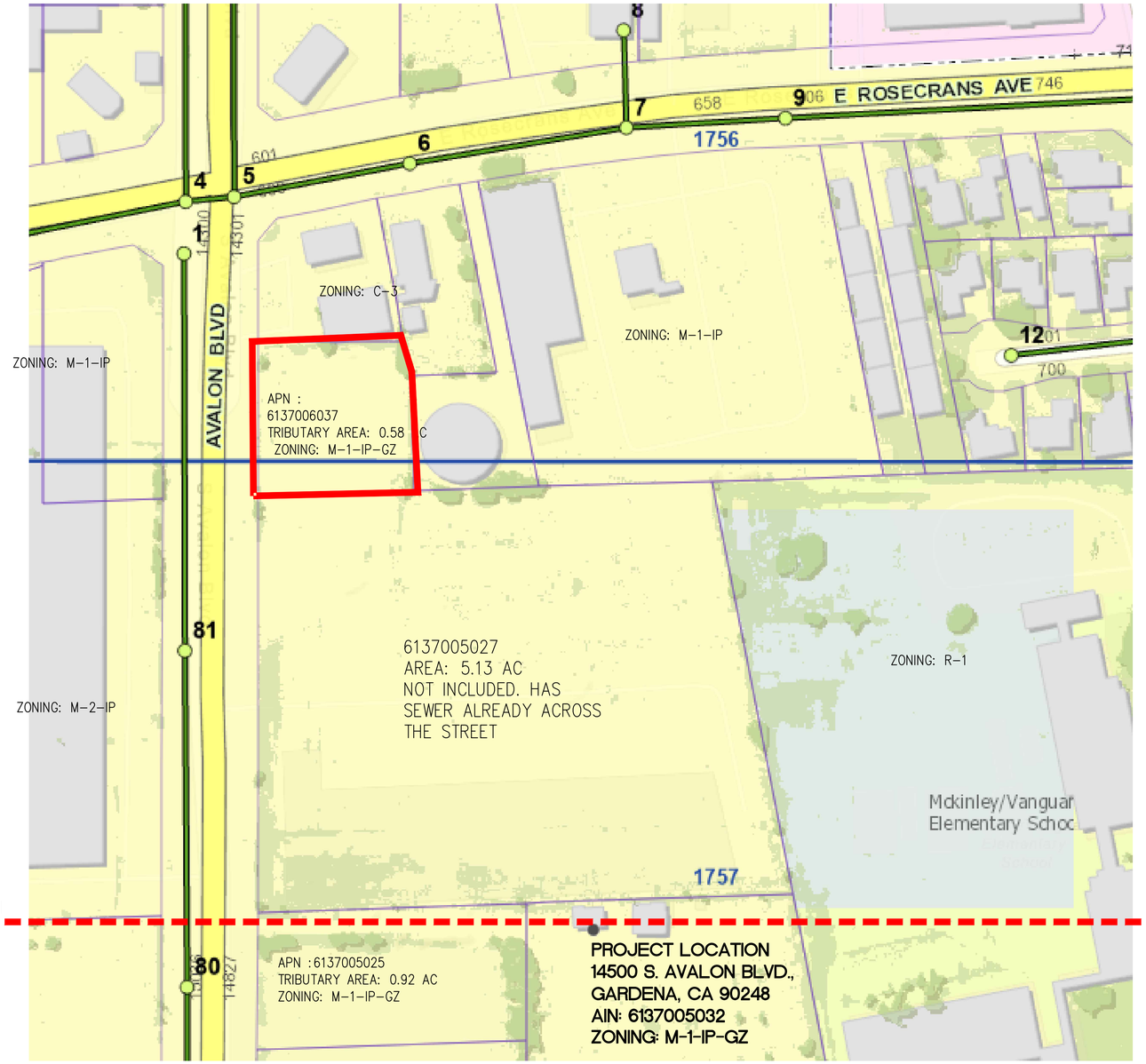
SRP, LLC
4435 KERRI PLACE
RIVERSIDE, CA 92509

LOS ANGELES COUNTY

SEWER MAP
14500 S. AVALON BLVD.,
GARDENA, CA 90248

SHEET
1 OF 2

PROJ: THE WINDROWS DWG: H:\J-Drive\GARDENA-001\VIEW PROJECT-001\dwg\Sheets\SH-SS.dwg BY: crive Nov 11, 2024 - 8:24:26pm



SEE SHEET 1

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-422-4133
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

BASIS OF BEARINGS:

BASIS OF BEARINGS OF N89°47'37"E IS BASED ON THE CENTERLINE OF 6TH STREET AS SHOWN ON RECORD OF SURVEY RECORDED IN BOOK 76 PAGE 66 RECORDS OF SAN BERNARDINO COUNTY, CA.

BENCHMARK:

PLAN PREPARED BY:

PLAN PREPARED FOR / DEVELOPER:

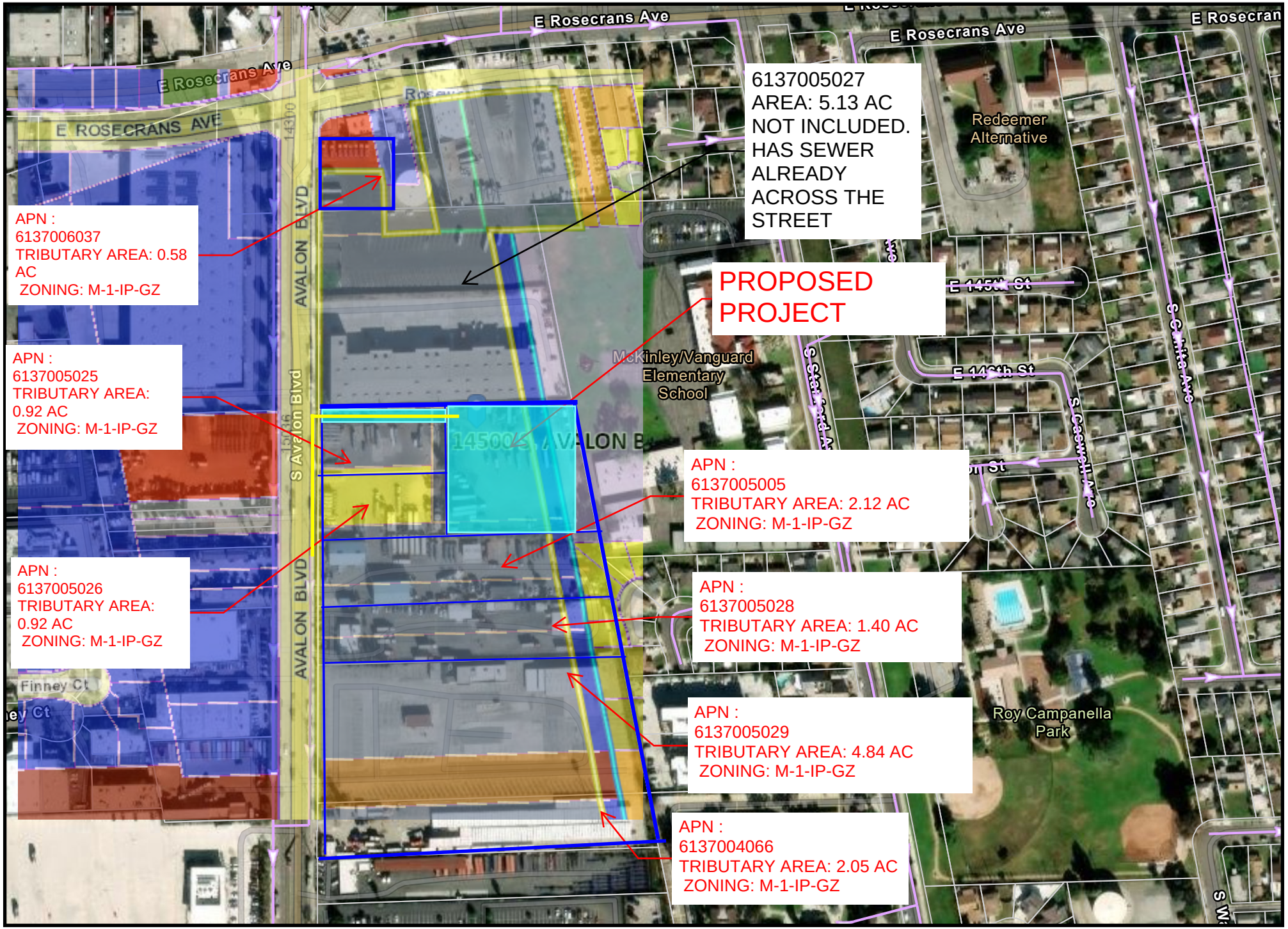
SRP, LLC
4435 KERRI PLACE
RIVERSIDE, CA 92509

LOS ANGELES COUNTY

SEWER MAP
14500 S. AVALON BLVD.,
GARDENA, CA 90248

SHEET
_2_OF_2_

DWG: N:\--Drive\GARDENA-001\NEW PROJECT-001\dwg\Sheets\EH\EH-SS.dwg BY: chee Nov 11, 2024 - 8:24:54pm
PROJ: THE WINGROVE



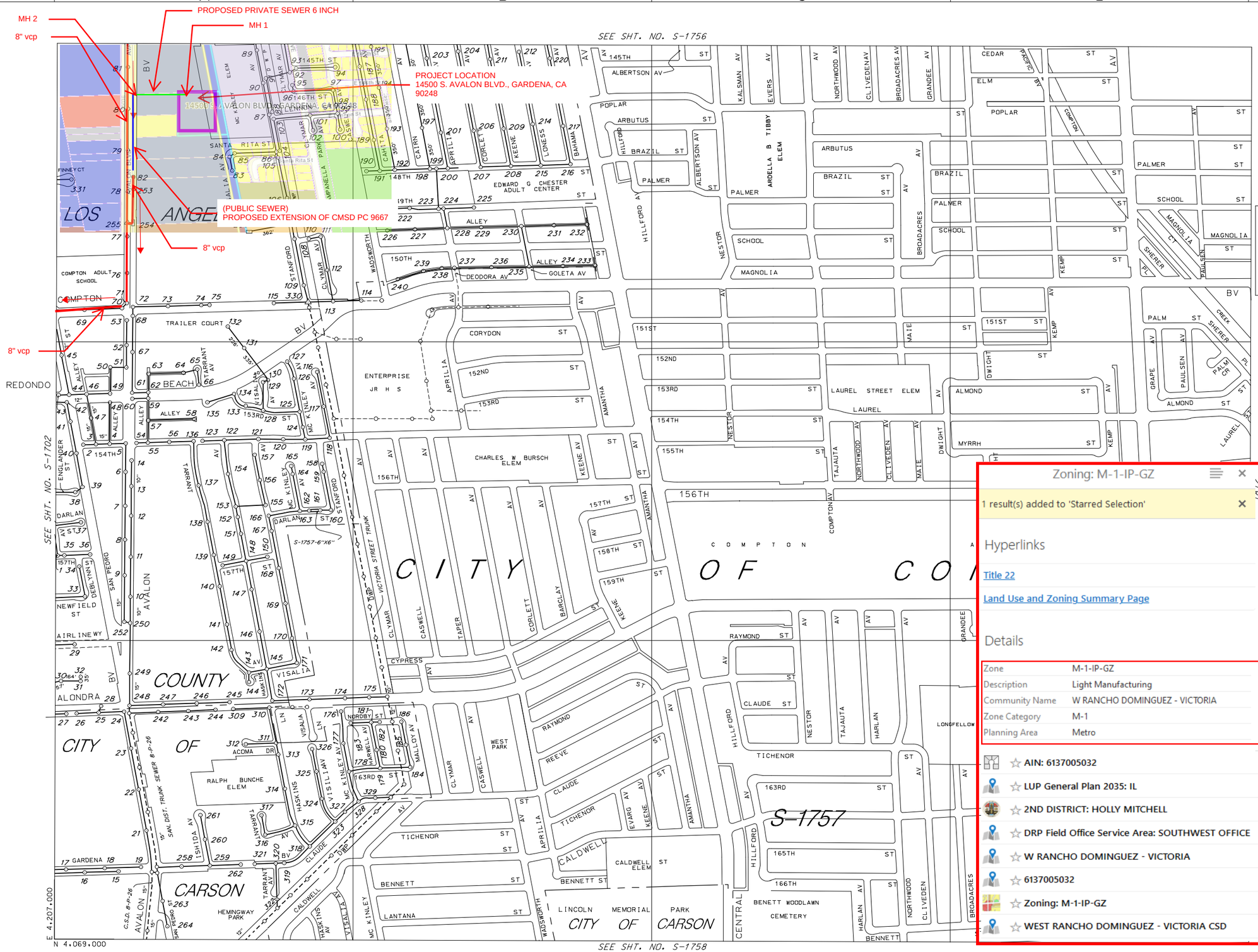
LOS ANGELES COUNTY
SANITATION DISTRICTS
Converting Waste Into Resources

The County Sanitation Districts of Los Angeles County ("Districts") have developed the GIS data and related information files (collectively, the "Information") displayed on this map for the Districts' own internal use, and provide it to the public only to comply with the California Public Records Act (Cal. Gov. Code § 6250 et seq.). The Districts therefore disclaim liability for any other person's reliance on the Information. The Information depicts approximate locations of property, facilities and boundaries. Reasonable efforts have been made to ensure accuracy, but the Information may have spatial and other errors and should not be relied upon for surveying, engineering, excavation, construction, or related purposes. The Information is dynamic and is subject to change without notice. THE INFORMATION IS PROVIDED ON AN "AS IS", "AS AVAILABLE" BASIS AND THE DISTRICTS EXPRESSLY DISCLAIM ALL WARRANTIES (express and implied), INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Prior to any excavation, please call Underground Service Alert by dialing 811 and the Districts' Engineering Counter at (562)908-4288 x1205 to obtain more accurate information about the location of Districts' subsurface facilities.

0 0.05 0.1 0.2 mi

9/5/2024

N



S-1757

C-44
C-90

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

Legend

- EXISTING CONSOLIDATED SEWER MAINTENANCE DISTRICT SANITARY SEWER
- EXISTING SANITATION DISTRICTS OF LA COUNTY SANITARY TRUNK SEWER
- FLOW DIRECTION
- PROJECT SITE BOUNDARY

N
AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 282

Zoning: M-1-IP-GZ

1 result(s) added to 'Starred Selection'

Hyperlinks

Title 22

Land Use and Zoning Summary Page

Details

Zone	M-1-IP-GZ
Description	Light Manufacturing
Community Name	W RANCHO DOMINGUEZ - VICTORIA
Zone Category	M-1
Planning Area	Metro

- AIN: 6137005032
- LUP General Plan 2035: IL
- 2ND DISTRICT: HOLLY MITCHELL
- DRP Field Office Service Area: SOUTHWEST OFFICE
- W RANCHO DOMINGUEZ - VICTORIA
- 6137005032
- Zoning: M-1-IP-GZ
- WEST RANCHO DOMINGUEZ - VICTORIA CSD

MAP REV
06-08-17

DATA BASE REV
04-07-92

CONSOLIDATED S.M.D.

S-1757

S-1757

T: 734 F-5

0519.0619.1757

MH 2

PROPOSED PRIVATE SEWER 6 INCH

MH 1

PROJECT LOCATION

(PUBLIC SEWER)
PROPOSED EXTENSION OF CMSD PC 9667

S-1757

SEE SHT. NO. S-1756

C-44
C-90

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

SEE SHT. NO. S-1702

SEE SHT. NO. S-1758

E 4,207,000
N 4,069,000

LOS ANGELES COUNTY

CITY OF COMPTON

CITY OF CARSON

REDONDO BEACH

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 282

MAP REV.
09-21-11

S-1757

MAP REV
06-08-17

DATA BASE REV
04-07-92

CONSOLIDATED S.M.D.

S-1757

T: 734 F-5

0519.0619.1757

SEE SHT. NO. S-1755

C-87
C-88
C-89
C-90

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

LOS ANGELES COUNTY

CITY OF COMPTON

NORTH OF PROJECT AREA

SEE SHT. NO. S-1701

SEE SHT. NO. S-1811

SEE SHT. NO. S-1757

N AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 515

MAP REV.
04-22-15

S-1756

MAP REV
07-26-16

DATA BASE REV
04-29-92

CONSOLIDATED S.M.D.

S-1756

T: 734 F-2

0519.0619.1756

Appendix B:
Table of Sewer Capacity Analysis

Table 1: Sewer Area Study Table: Cataldo Distribution Center

14500 S. Avalon Blvd., Gardena, CA 90248

* Calculated using Kutter's Formula with n=0.013
** Design capacity keeps three decimal places at least
*** Based on current land use and coefficients per LA County, (Attach supporting calculations)
**** For pipes < 15", design capacity of the sewer mainline is defined as 1/2 full = 100% capacity (d/D)
***** For pipes ≥ 15", design capacity of the sewer mainline is defined as 3/4 full = 100% capacity (d/D)

Kutter's Formula

$$C = \frac{41.65 + \frac{0.00281}{s} + \frac{1.811}{n}}{1 + \frac{n}{\sqrt{R}}\left(41.65 + \frac{0.00281}{s}\right)} \qquad V = C\sqrt{RS} \qquad Q = CA\sqrt{RS}$$

Street Name	Segment		Pipe		* Design capacity (cfs)		Area[1] (Acres)	Zoning Coeff.[1]	Q (cfs)	Industrial Flow[2]		***Cumulative Calculated Flow (cfs)	PC or CI Plan #	%Full	Comment	Jurisdiction
	M.H. #	M.H. #	Size (in.)	Slope (%)	1/2 Full(<15")	3/4 Full(≥15")				(gpm)	(cfs)			Cumulative Flow/ Capacity		
Project Site	**1A**	**2B**	**8**	**0.4**	0.35		**2.00**	**0.021**	**0.042**			**0.042**	**CI 2116**	12.00	**OK**	**LA County**
Avalon Blvd	**83**	**82**	**8**	**0.5**	0.35		**7.94**	**0.021**	**0.167**			**0.209**	**CI 2116**	59.71	**OK**	**LA County**
Avalon Blvd	82	253	8	0.4	0.35		2.11	0.021		65	0.145	0.354	PC09667	101.14	OK	LA County
Avalon Blvd	253	254	8	0.4	0.35		4.84	0.021	0.102			0.456	PC09668	130.29	OK	LA County
Avalon Blvd	254	255	8	0.4	0.35		2.05	0.021	0.043			0.499	PC09669	142.57	OK	LA County
Avalon Blvd N[3]	1	255	8	0.56	0.35		11.00	0.021	0.231			0.231			OK	LA County
Avalon Blvd[8]	255	77	8	0.48	0.38		0.00	0.021	0.142			0.538	CI2116	141.58	OK	LA County
Avalon Blvd	77	76	8	0.72	0.47		0.50	0.021	0.011			0.549	CI2116	116.81	OK	LA County
Avalon Blvd	76	71	8	0.68	0.46		0.50	0.021	0.011			0.560	CI2116	121.74	OK	LA County
Compton Blvd	71	271	8	0.56	0.41		2.00	0.021	0.042			0.602	CI2116	146.83	OK	LA County
San Pedro N[4,5]		271	12	0.56	1.27		46.00	0.004	0.184		0.0086	0.543			OK	LA County
San Pedro N[4]		271	12	0.56	1.27		38.32	0.021	0.805			1.348			OK	LA County
San Pedro St	271	269	12	1.44	2.04		4.53	0.021	0.095			1.652	CI2116	80.98	OK	LA County
San Pedro St	269	45	12	0.56	1.27		4.53	0.021	0.095			1.747	CI2116	137.56	OK	LA County
San Pedro St	45	44	12	1.24	1.90		4.82	0.021	0.101			1.848	CI2116	97.26	OK	LA County
Redundo Beach	44	46	12	3.52	3.20		0.41	0.021	0.009			1.857	CI2116	58.03	OK	LA County
San Pedro Alley	46	47	15	0.20		2.59	0.42	0.021	0.009			1.866	CI2116	72.05	OK	LA County
San Pedro Alley	47	3	15	0.20		2.59	0.30	0.021	0.006			1.872	CI2116	72.28	OK	LA County
154th St	3	5	15	0.20		2.59	0.61	0.021	0.013			1.885	CI2116	72.78	OK	LA County
Avalon Blvd	5	6	15	0.48		4.03	0.93	0.021	0.020			1.905	CI2116	47.27	OK	LA County
Avalon Blvd	6	7	15	0.48		4.03	0.93	0.021	0.020			1.925	CI2116	47.77	OK	LA County
Avalon Blvd	7	8	15	0.48		4.03	1.98	0.021	0.042			1.967	CI2116	48.81	OK	LA County
Avalon Blvd	8	9	15	0.48		4.03	1.04	0.021	0.022			1.989	CI2116	49.35	OK	LA County
Avalon Blvd	9	252	15	0.20		2.59	0.73	0.021	0.015			2.004	CI2116	77.37	OK	LA County
Avalon Blvd	252	250	15	2.80		9.75	5.33	0.021	0.112			2.116	CI2116	21.70	OK	LA County
Avalon Blvd N[6]		250	15	0.56		4.35	12.80	0.021	0.269			2.385		54.83	OK	LA County
Avalon Blvd	250	249	15	1.08		6.05	3.04	0.021	0.064			2.449	CI2116	40.48	OK	LA County
Avalon Blvd	249	248	15	1.60		7.37	1.50	0.021	0.032			2.481	CI2116	33.66	OK	LA County
Avalon Blvd W[7]	245	248	15	1.60		7.37	1.50	0.021	0.032			2.513		34.10	OK	LA County
Trunk Sewer	248	Trunk	15	3.30		10.59	4.98	0.021	0.105			2.618	CI2116	24.72	OK	LA County

Appendix C:
Will Serve Letter

PROVIDED TO CSMD

Appendix D:

All Supporting Plans / Maps

1. **Site Plan**

2. **SMD Map**

3. **As-Built**

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Saturday, Sep 21 2024

Proposed 8 Inch Sewer

Circular

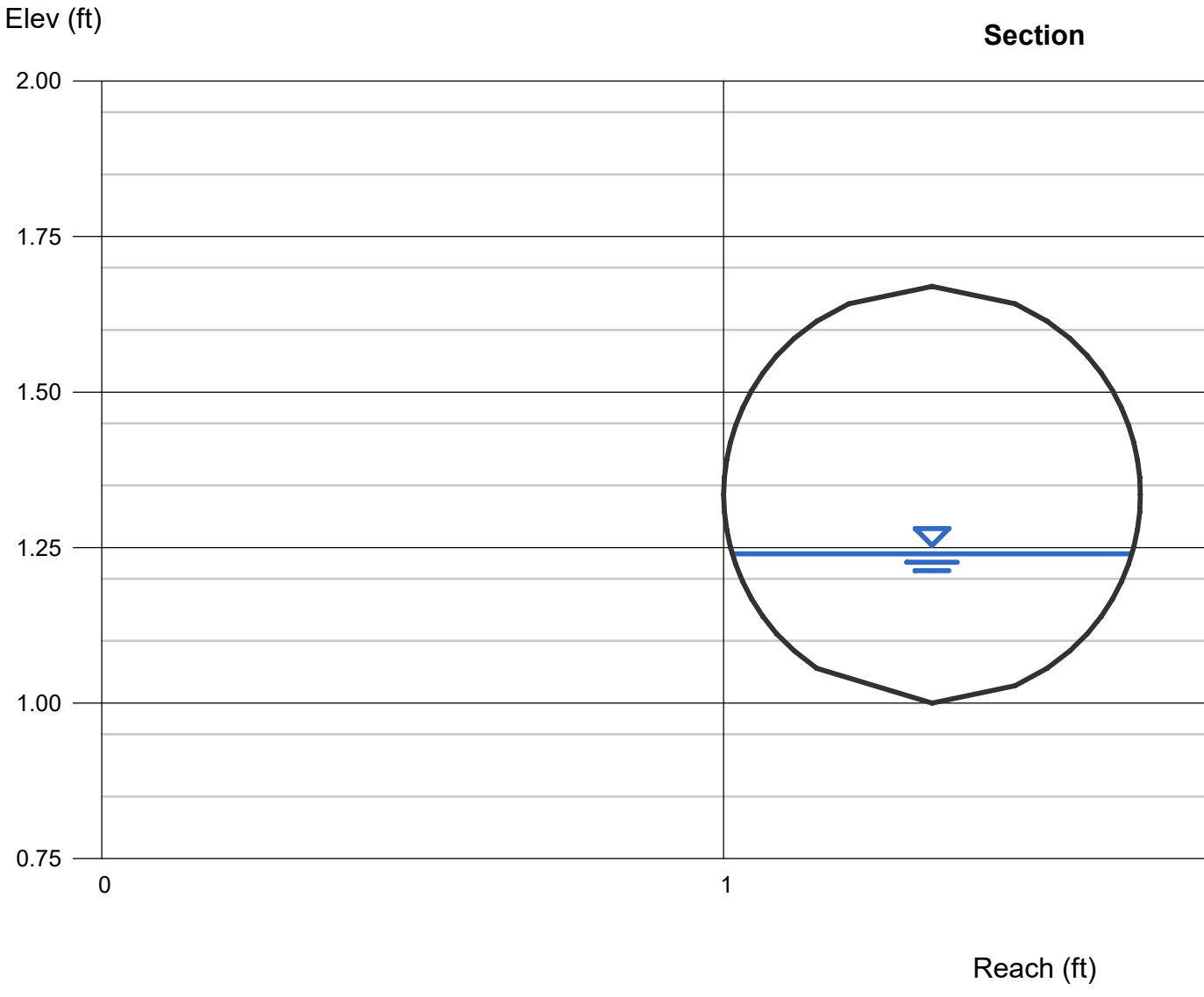
Diameter (ft)	= 0.67
Invert Elev (ft)	= 1.00
Slope (%)	= 0.40
N-Value	= 0.012

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.22

Highlighted

Depth (ft)	= 0.24
Q (cfs)	= 0.220
Area (sqft)	= 0.11
Velocity (ft/s)	= 1.93
Wetted Perim (ft)	= 0.86
Crit Depth, Yc (ft)	= 0.22
Top Width (ft)	= 0.64
EGL (ft)	= 0.30



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Nov 11 2024

6 INCH PVC

Circular

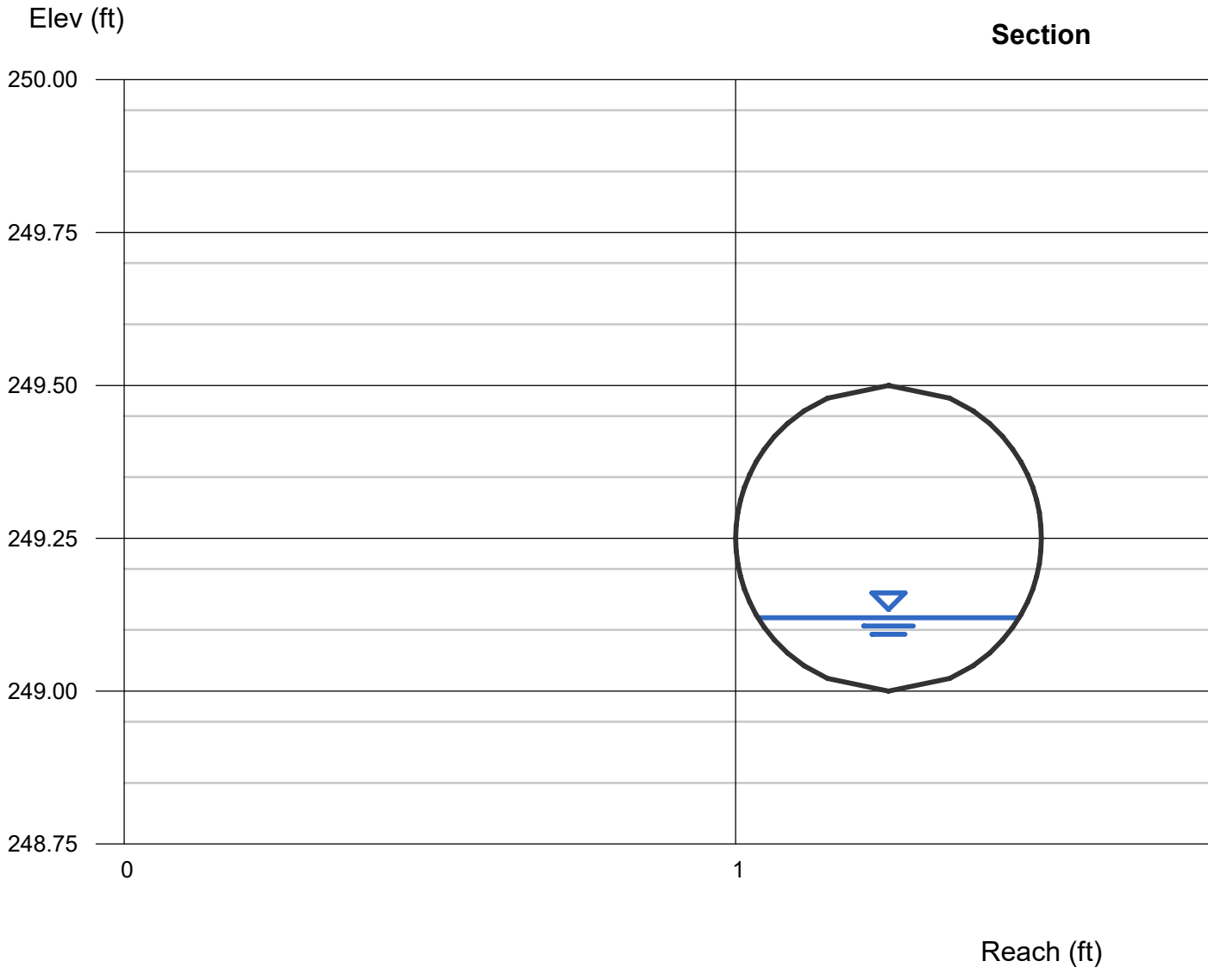
Diameter (ft)	= 0.50
Invert Elev (ft)	= 249.00
Slope (%)	= 0.19
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.03

Highlighted

Depth (ft)	= 0.12
Q (cfs)	= 0.030
Area (sqft)	= 0.04
Velocity (ft/s)	= 0.83
Wetted Perim (ft)	= 0.51
Crit Depth, Yc (ft)	= 0.09
Top Width (ft)	= 0.43
EGL (ft)	= 0.13



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Nov 11 2024

8 INCH PVC

Circular

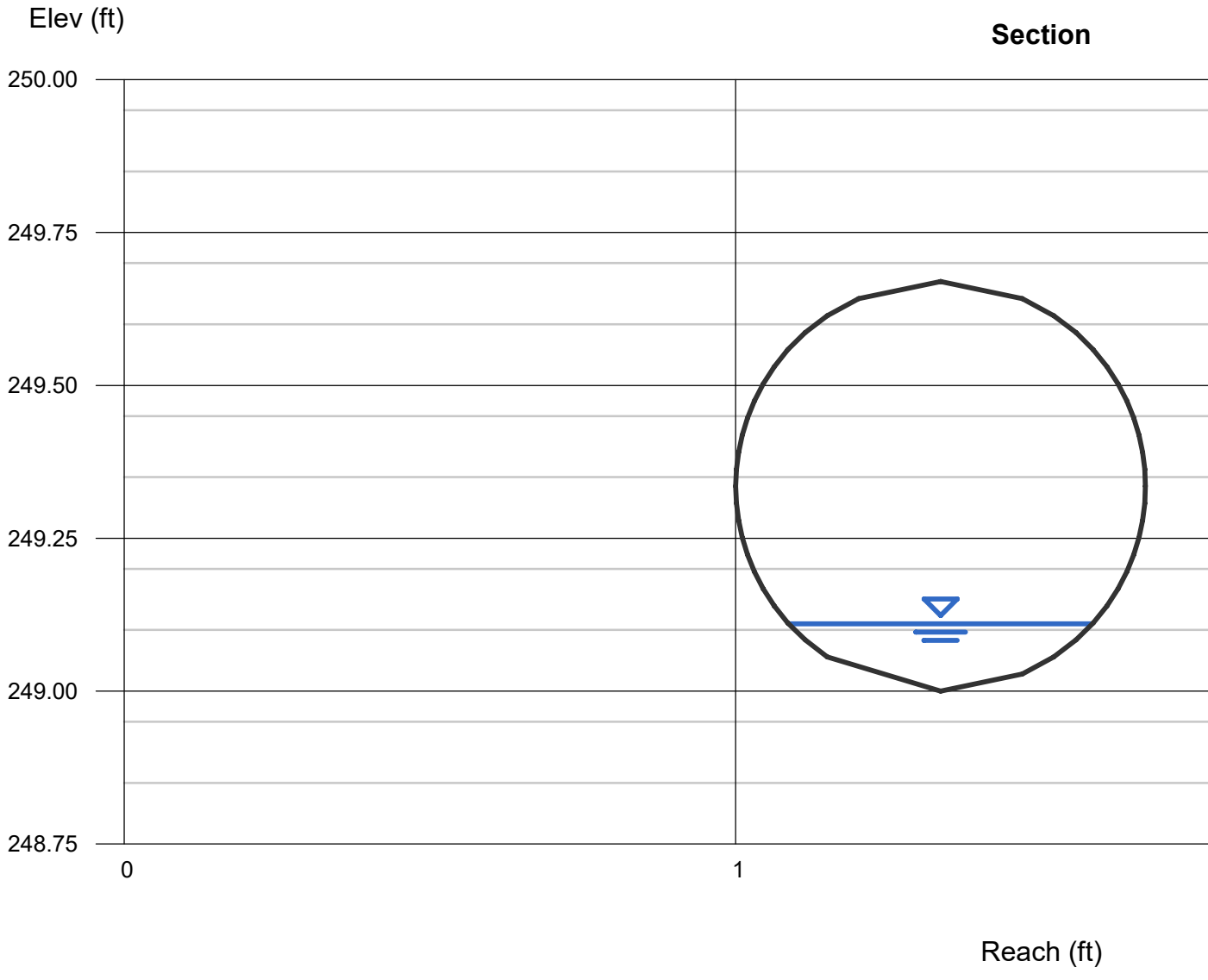
Diameter (ft)	= 0.67
Invert Elev (ft)	= 249.00
Slope (%)	= 0.19
N-Value	= 0.013

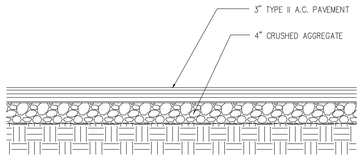
Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.03

Highlighted

Depth (ft)	= 0.11
Q (cfs)	= 0.030
Area (sqft)	= 0.04
Velocity (ft/s)	= 0.79
Wetted Perim (ft)	= 0.56
Crit Depth, Yc (ft)	= 0.08
Top Width (ft)	= 0.50
EGL (ft)	= 0.12





TYPICAL FIRE ACCESS ROAD SECTION
OPTION A ALL WEATHER ACCESS REQUIREMENTS

1

PART II — **INFORMATION ON FIRE FLOW AVAILABILITY**
(Part II to be completed by Water Purveyor)

Location of hydrant: On S. Avalon Blvd ~ 760' S/o E. Rosecrans Ave
Hydrant Number: 4229
Distance from Nearest Property Line: ~70'
Size of Hydrant: 6"
Size of Water main: 12"
Static PSI: 60
Residual PSI: 56
Orifice size: 4"
Pitot: 25 psi
Fire Flow at 20 PSI: 7440 gpm
Duration: 4 Hours
[x] Flow Test Date / Time: 3/21/23 9:15AM
[ ] Hydraulic model

Location of hydrant:
Hydrant Number:
Distance from Nearest Property Line: Size of Hydrant: Size of Water main:
Static PSI: Residual PSI: Orifice size: Pitot:
Fire Flow at 20 PSI: Duration: [ ] Flow Test Date / Time: [ ] Hydraulic model
[ ] (Check box if Simultaneous/ Dual flow test was performed) Combined flow at 20 psi:

Location of hydrant:
Hydrant Number:
Distance from Nearest Property Line: Size of Hydrant: Size of Water main:
Static PSI: Residual PSI: Orifice size: Pitot:
Fire Flow at 20 PSI: Duration: [ ] Flow Test Date / Time: [ ] Hydraulic model
[ ] (Check box if Simultaneous/ Triple flow test was performed) Combined flow at 20 psi:

Golden State Water Company — Water Purveyor
310-767-8200 — Phone Number
3/24/2023 — Date
Michael Carbajal — Signature
Operations Engineer Technician — Title

This Information is Considered Valid for Twenty Four Months

Fire Department approval of building plans shall be required prior to the issuance of a Building Permit by the jurisdictional Building Department. Any deficiencies in water systems will need to be resolved by the Fire Prevention Division only prior to this department's approval of building plans.

Project Address: 14500 Avalon Blvd

FORM 196
Rev. 09/20

COUNTY OF LOS ANGELES FIRE DEPARTMENT
FIRE PREVENTION DIVISION
Fire Prevention Engineering
5823 Rickenbacker Road
Los Angeles, CA 90040
Telephone (323) 890-4125 Fax (323) 890-4129

Information on Fire Flow Availability for Building Permit

For All Buildings Other Than One and Two Family Dwellings (R-3), Townhomes, and Accessory Dwelling Unit's

INSTRUCTIONS:

Complete parts I & II:

Verifying fire flow, fire hydrant location and fire hydrant size.

PROJECT INFORMATION
(To be completed by applicant)

PART I

Building Address: 14500 S. AVALON BLVD.
City or Area: GARDENA — APN: 6137-005-032
Nearest Cross Street: ROSECRAN BLVD.
Distance of Nearest Cross Street to Property Line: 870 FEET
Applicant: NATHAN BATTLE — Telephone: (626) 799 4900
Address: 835 MISSION ST.
City: SOUTH PASADENA, CA 91030
Occupancy (Use of Building): B/S-1 — Fire Sprinklered: Yes [x] No [ ]
Type of Construction: III-B
Square Footage: 5,547 SF. — Number of Stories: 2

Nathan Battle — Applicant's Signature
3/2/2023 — Date

ATTACHMENT A

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES*

Storm Water Pollution Control Requirements for Construction Activities
Minimum Water Quality Protection Requirements for All Development Construction Projects/Certification Statement

The following is intended as minimum notes or as an attachment for building and grading plans and represent the minimum standards of good housekeeping that must be implemented on all construction sites regardless of size. (Applies to all permits)

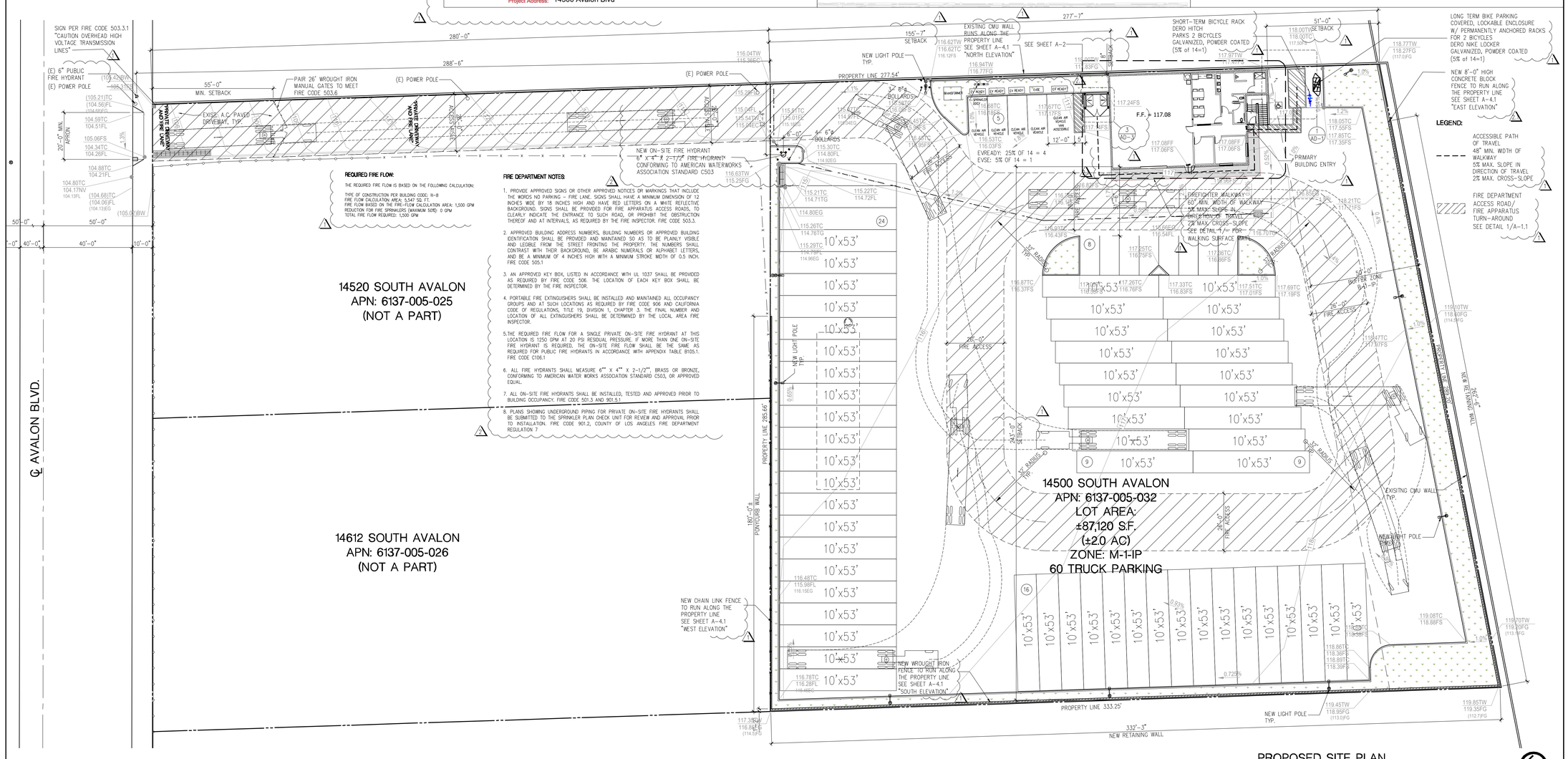
- Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage courses or wind.
- Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
- Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
- Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site.
- Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
- Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
- Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
- Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.
- Other: _____

As the project owner or authorized agent of the owner, I have read and understand the requirements listed above, necessary to control storm water pollution from sediments, erosion, and construction materials, and I certify that I will comply with these requirements.

Print Name: JOHN CATALDO (Owner or authorized agent of the owner)
Signature: _____ (Owner or authorized agent of the owner) Date: 10/31/2022

*The above Best Management Practices are detailed in the California Storm Water Best Management Practices Handbook, January 2003. www.cabmphandbooks.com

Attachment A BMP Notes.doc



PROPOSED SITE PLAN

SCALE: 1" = 20' - 0"

North

JOHN G. CATALDO A.I.A. C.S.I.

ARCHITECTURE . ENGINEERING

835 MISSION STREET, SOUTH PASADENA, CA 91030
OFFICE : 626-799-4400 FAX : 626-799-7010

PROJECT NAME & SITE ADDRESS:

NEW BUILDING

14500 S AVALON BLVD.
GARDENA, CA 90248

DEVELOPER :

Drawing Content :

SITE PLAN

REGISTERED ARCHITECT
JOHN G. CATALDO
RENEW 11-30-25
Lic. No. C-10457
STATE OF CALIFORNIA

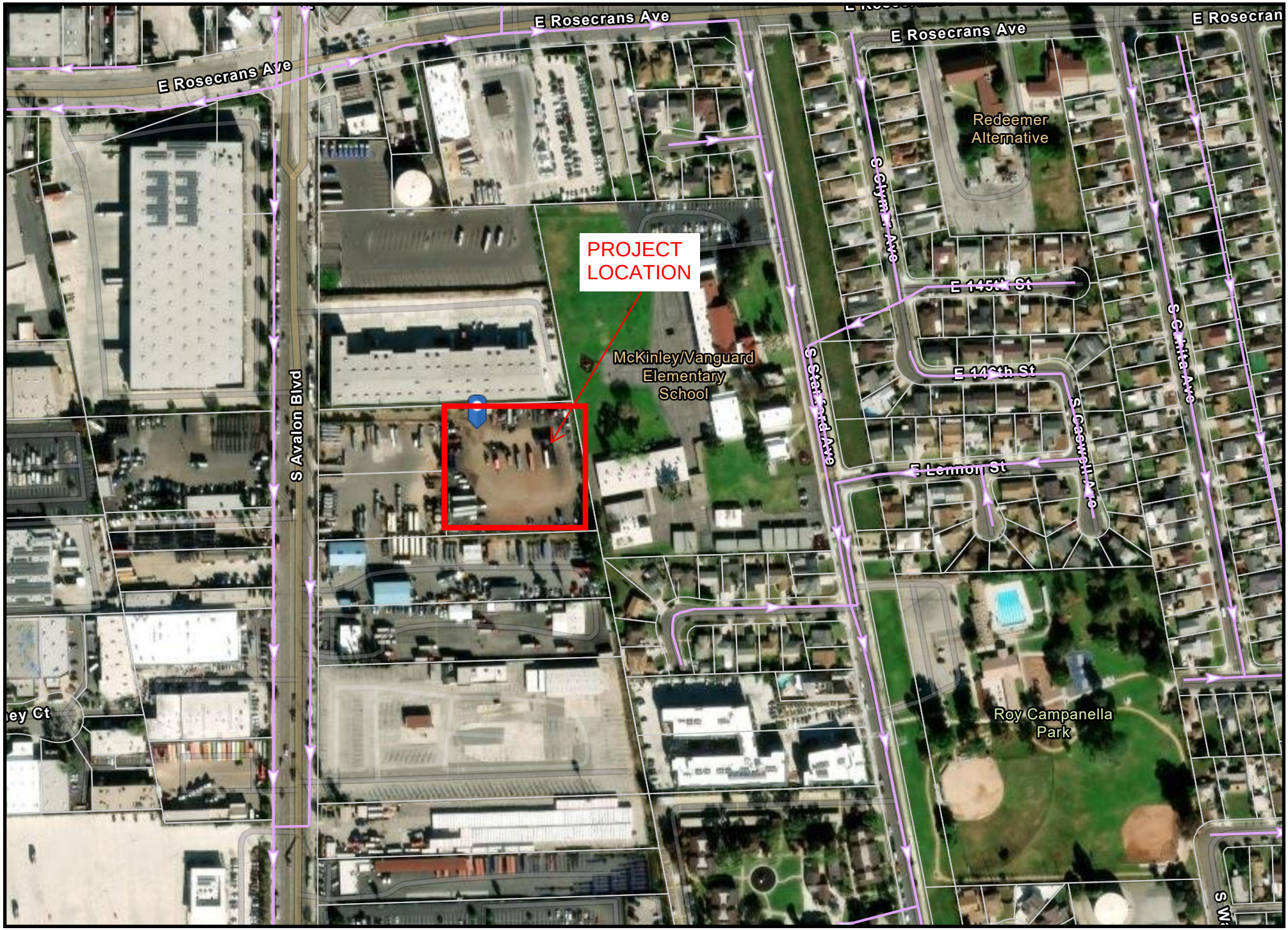
Revisions :	Date :
1 PLAN CHECK	10/31/2022
2 PLAN CHECK (FIRE)	04/12/2023
3 PLAN CHECK	06/11/2024

Designer :	J.C.
Manager :	EC
Date :	7/23/2024
Job No :	2020 - 106
Scale :	AS NOTED

Drawing No :

A-1

SHEET : OF :



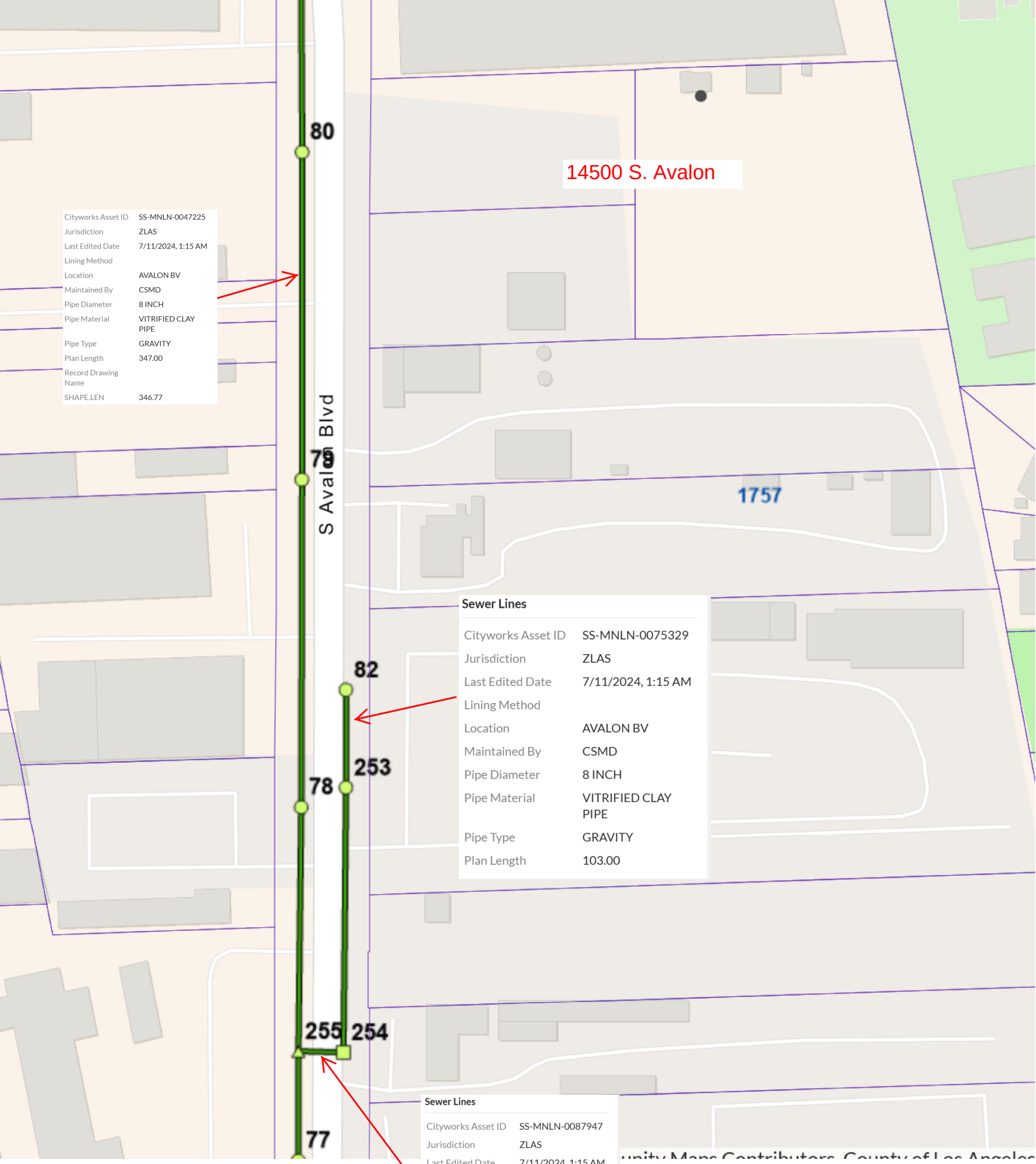
LOS ANGELES COUNTY SANITATION DISTRICTS
Converting Waste Into Resources

The County Sanitation Districts of Los Angeles County ("Districts") have developed the GIS data and related information files (collectively, the "Information") displayed on this map for the Districts' own internal use, and provide it to the public only to comply with the California Public Records Act (Cal. Gov. Code § 6250 et seq.). The Districts therefore disclaim liability for any other person's reliance on the Information. The Information depicts approximate locations of property, facilities and boundaries. Reasonable efforts have been made to ensure accuracy, but the Information may have spatial and other errors and should not be relied upon for surveying, engineering, excavation, construction, or related purposes. The Information is dynamic and is subject to change without notice. THE INFORMATION IS PROVIDED ON AN "AS IS", "AS AVAILABLE" BASIS AND THE DISTRICTS EXPRESSLY DISCLAIM ALL WARRANTIES (express and implied), INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Prior to any excavation, please call Underground Service Alert by dialing 811 and the Districts' Engineering Counter at (562)908-4288 x1205 to obtain more accurate information about the location of Districts' subsurface facilities.

0 0.05 0.1 0.2 mi

9/5/2024

N


14500 S. Avalon
S Avalon Blvd
1757
80
79
82
253
78
255
254
77
Cityworks Asset ID SS-MNLN-0047225
Jurisdiction ZLAS
Last Edited Date 7/11/2024, 1:15 AM
Lining Method
Location AVALON BV
Maintained By CSMD
Pipe Diameter 8 INCH
Pipe Material VITRIFIED CLAY PIPE
Pipe Type GRAVITY
Plan Length 347.00
Record Drawing Name
SHAPE.LEN 346.77
Sewer Lines
Cityworks Asset ID SS-MNLN-0075329
Jurisdiction ZLAS
Last Edited Date 7/11/2024, 1:15 AM
Lining Method
Location AVALON BV
Maintained By CSMD
Pipe Diameter 8 INCH
Pipe Material VITRIFIED CLAY PIPE
Pipe Type GRAVITY
Plan Length 103.00
Sewer Lines
Cityworks Asset ID SS-MNLN-0087947
Jurisdiction ZLAS
Last Edited Date 7/11/2024, 1:15 AM
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Location AVALON BV
Maintained By CSMD
Pipe Diameter 8 INCH
Pipe Material VITRIFIED CLAY PIPE
Pipe Type GRAVITY
Plan Length 48.00
Record Drawing

October 12, 2005

Approved

TO: Dean Efstathiou

FROM: Dennis Hunter
Land Development Division

POLICIES FOR MANAGING AVAILABLE SEWER CAPACITY AND SEWAGE DISCHARGE IN EXCESS OF DESIGN CAPACITY

The following will set forth Public Works' policies related to managing sewer infrastructure capacity. Design capacity of the sewer mainline is defined as follows:

< 15" diameter	½ full = 100% capacity (d/D)
≥ 15" diameter	¾ full = 100% capacity (d/D)

When Public Works determines there is available capacity in a mainline sewer for infill and redevelopment projects, the remaining available capacity shall be allocated on a first come – first serve basis.

Sewer Advisory Committee

A Sewer Advisory Committee (SAC) will be formed for the purpose of recommending courses of action to address proposed development connecting to existing sewers that will cause them to be operating beyond their design capacity. The SAC will make their recommendations to Dean Efstathiou, Assistant Director. The SAC will be chaired by Waterworks and Sewer Maintenance Division and will have representatives from Design and Land Development Divisions. Each Division will appoint a Principal Engineer or Senior Civil Engineer as a representative to the SAC and will convene whenever sewer decisions are required to address developmental impacts. Sewer Maintenance will maintain records of SAC meetings and will prepare recommendations to Administration for approval. The SAC may require other Division representatives to participate on a case-by-case basis when necessary, such as Building and Safety and Programs Development.

Divisional Responsibilities

Design Division

1. Support activities of the SAC.

2. Prepare sewer area studies when required.

3. Maintain records/archive of all approved sewer area studies and flow measurements.

Land Development Division

1. Support activities of the SAC.

2. Impose sewer area study requirements for private developments if necessary and review/approve all submittals.

3. Refer cases to SAC when both sewer area studies and flow measurements indicate that a potential overload situation exists or will exist based on criteria described below.

4. Provide copies of all approved sewer area studies and flow measurements to Design Division for archiving.

Waterworks and Sewer Maintenance Division

1. Chair the SAC, maintain meeting records and prepare position papers to Administration.

2. Advise the SAC when an overload condition is observed during maintenance activities.

3. Initiate effort to track and map all overload areas within the Consolidated Maintenance District.

4. Keep database of all flow measurement results.

Design Criteria

1. Capacity of sewer mainlines less than 15" in diameter are considered full (100 percent) when the ratio of the depth of flow (d) over the pipe diameter (D) is equal to 0.5, expressed as d/D = 0.5.

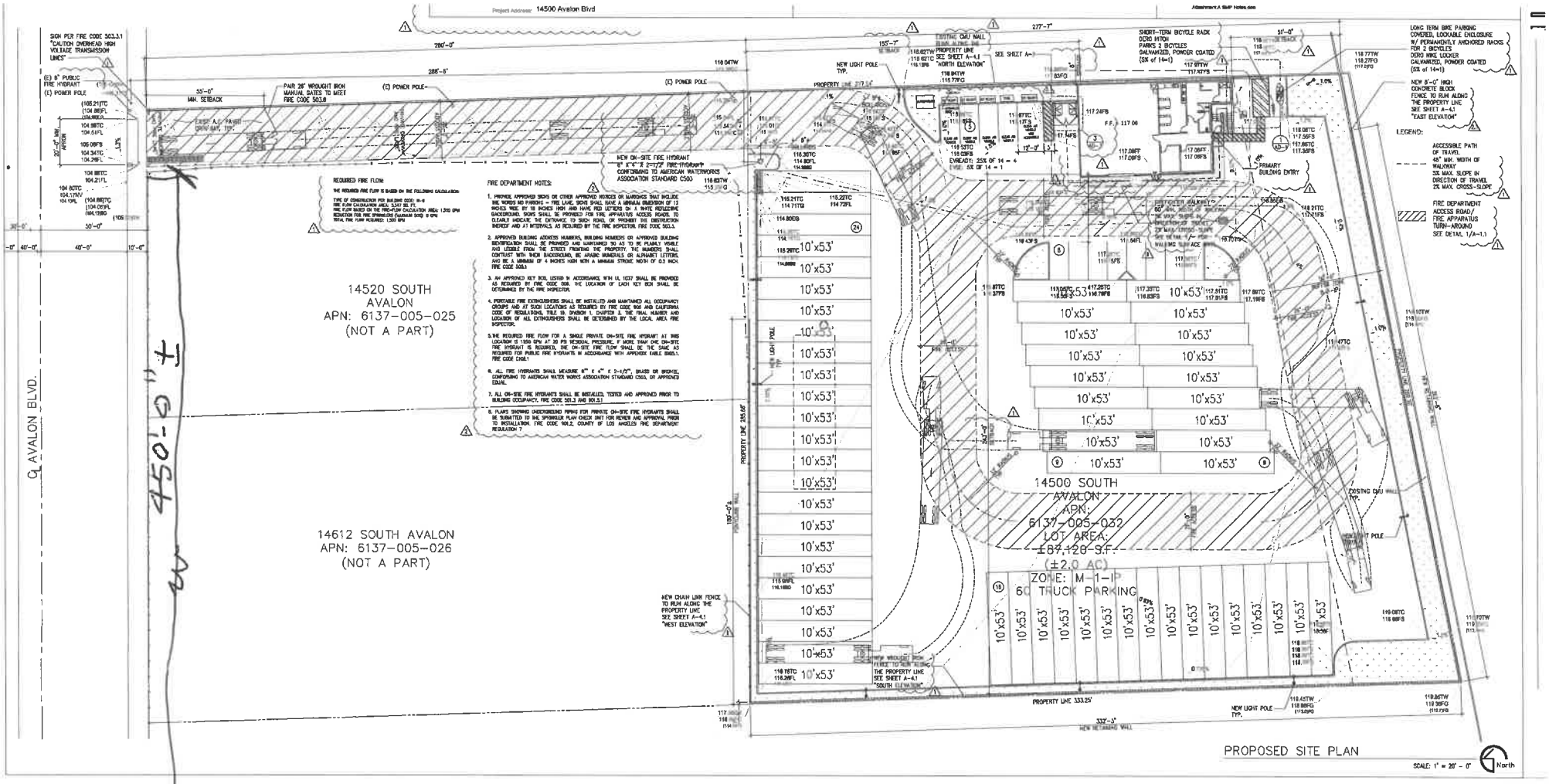
2. Capacity of sewer mainlines equal to or greater than 15" in diameter are considered full (100 percent) when the ratio of the depth of flow (d) over the pipe diameter (D) is equal to 0.75, expressed as d/D = 0.75.

3. When an area study indicates that flow conditions based on calculated discharges is between 101 percent to 150 percent of capacity, no flow measurements and no mitigation will be required. If maintenance records warrant, a flow test may be required.

4. When an area study for a development that proposes to increase the density or change the zoning indicates that flow conditions are between 151 to 200 percent of capacity, flow measurements shall be required. If the flow test indicates that the actual flow condition is below 151 percent, no mitigation will be required. If the flow test results indicate the actual flow is above 151 percent, the case shall be referred to the SAC to evaluate options and make recommendations to Administration for approval. These options may include, but are not limited to: requiring full mitigation from the development, assessing pro-rata shares, creation of a reimbursement district, or establishing a County Improvement (CI) district.

AHN:ca
P:\LDPUB\SUBPCHECK\SEWER\MISCELLANEOUS\SEWER INFRASTRUCTURE MANAGEMENT

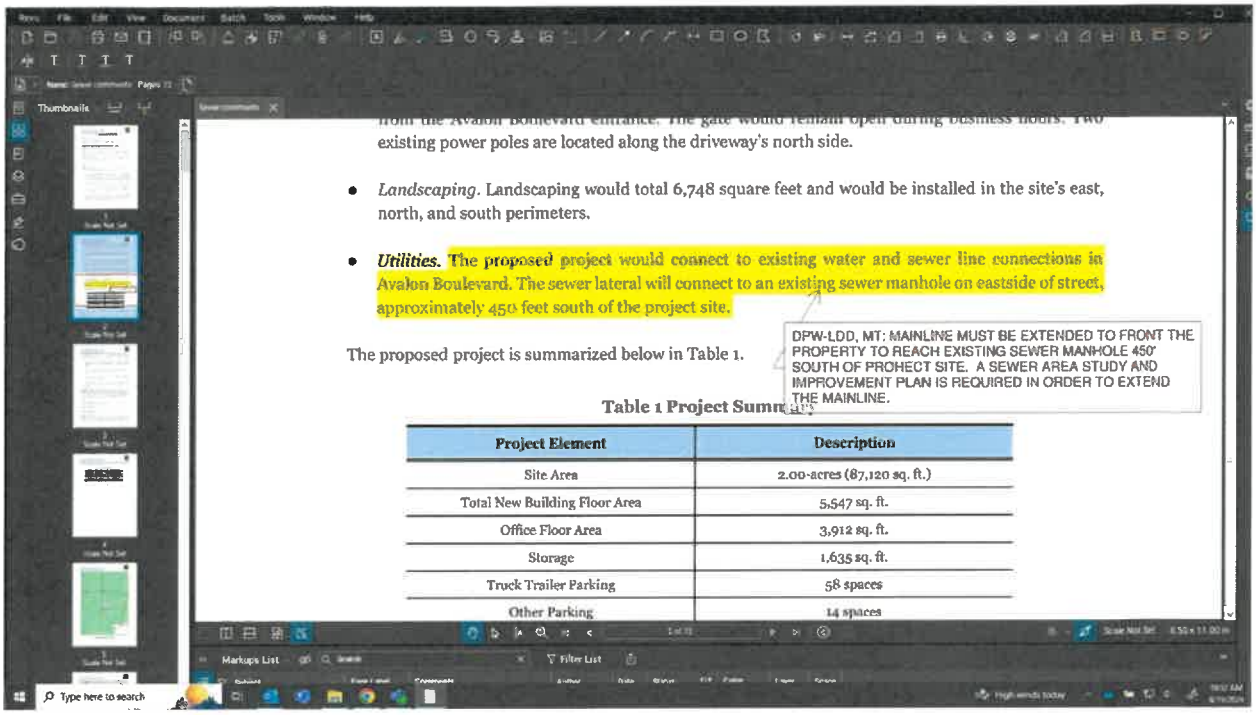
cc: Administration (Kelly)
Building and Safety (Patel)
Design (Kumar)
Land Development (D'Antonio, Burger, Ruiz, Chong, Witler, Narag)
Programs Development (Afshari)
Waterworks and Sewer Maintenance (Del Real, Lehto)



EXISTING SEWER MANHOLE

14500 S. AVALON BLVD.
GARDENA, CA 90248

y is confusing. It is unclear if a public sewer will be extended. If so, we will need an approved sewer area study, see screenshot below. If sewer discharge is through a private sewer connection, the Initial Study needs to be revised to reflect that and include all recorded sewer access easement references. The applicant should clear this issue with Mike Tran to get sewer CEQA clearance.



existing power poles are located along the driveway's north side.

- *Landscaping.* Landscaping would total 6,748 square feet and would be installed in the site's east, north, and south perimeters.
- ***Utilities.*** The proposed project would connect to existing water and sewer line connections in Avalon Boulevard. The sewer lateral will connect to an existing sewer manhole on eastside of street, approximately 450 feet south of the project site.

DPW-LDD, MT: MAINLINE MUST BE EXTENDED TO FRONT THE PROPERTY TO REACH EXISTING SEWER MANHOLE 450' SOUTH OF PROHECT SITE. A SEWER AREA STUDY AND IMPROVEMENT PLAN IS REQUIRED IN ORDER TO EXTEND THE MAINLINE.

The proposed project is summarized below in Table 1.

Table 1 Project Summ

Project Element	Description
Site Area	2.00-acres (87,120 sq. ft.)
Total New Building Floor Area	5,547 sq. ft.
Office Floor Area	3,912 sq. ft.
Storage	1,635 sq. ft.
Truck Trailer Parking	58 spaces
Other Parking	14 spaces

Appendix E:
Reference Report

ESTU20200000373

PC 12537AS

SEWER AREA STUDY REPORT

CHEMTRANS TREATMENT FACILITY
GARDENA, CA

SUBMITTED TO:

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORK
LAND DEVELOPMENT DIVISION

900 S. Fremont Ave.
Alhambra, CA 91803



SUBMITTED BY:

CHEMTRANS

14700 S. Avalon Blvd
Gardena, CA 90248

PREPARED BY:

INVIROTREAT, INC.

P.O. Box 3970
Fullerton, CA 92834

SEWER AREA STUDY
APPROVED
APPROVED BY:_____ DATE_9/23/2020_
CHECKED BY:_____Mike Tran_____DATE_9/23/2020_

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

THIS APPROVAL IS ONLY GOOD FOR TWO YEARS FROM THE DATE OF SEWER AREA STUDY APPROVAL

September 22, 2020

TABLE OF CONTENTS

1 INTRODUCTION 1

2 PROJECT DESCRIPTION 3

3 SEWER PIPE CAPACITY ANALYSIS 4

4 EXISTING AND PROPOSED SEWER SYSTEM DESCRIPTION 9

5 CONCLUSIONS 10

6 ENGINEER'S CERTIFICATION 11

FIGURES:

Figure 1: Location Map

Figure 2: Sewer Map – ChemTrans Facility to Trunk Sewer

TABLES:

Table 1: Sewer Area Study Table: ChemTrans Facility

ATTACHMENTS:

Appendix A: Facility Drawings

Appendix B: CSMD and As-Builts

Appendix C: Calculations

Appendix D: Flow Monitoring Study at MH 77

Appendix E: Will Serve Letter

1 INTRODUCTION

The ChemTrans facility is a non-hazardous centralized waste treatment (CWT) facility located in Gardena, regulated under Industrial Waste (IW) Permit No. 012874 from Los Angeles County Sanitation Districts (LACSD). The facility permit includes two additional treatment systems which discharge to the County sewer: Wash Rack treatment system, which process tanker trucks wash water - regulated under 40 CFR Part 442, and a food processing waste system, which is an unregulated waste stream. Both the CWT and the food wastewater are delivered to ChemTrans by vacuum trucks from industrial facilities in Southern California for treatment and discharge to the County sewer system. The discharge volume from the treatment facility to the County sewer is limited in IW Permit 012874 to daily average of 50,000 gallons per day (gpd), with 5-minute peak flow of 55 gallon per minute (gpm).

The facility is located in the City of Gardena in an industrial area about ¼ mile south of Rosecrans Avenue, over an area of 2.11 acres, mostly used as parking (location map is presented in Figure 1). Avalon Premium Tank Cleaning operates a tank cleaning facility on the premises, producing wastewater that is processed in the Wash Rack treatment system. The facility also includes a maintenance shop and offices.

The permit revision plan for the ChemTrans facility will relocate the treatment facility to the maintenance shop area on 14700 S. Avalon Blvd, and will use the existing sewer discharge system to discharge treated effluent to the County sewer. ChemTrans requests an increase of the average daily flow to 100,000 gpd, with a peak flow increase from the currently permitted peak flow of 55 gpm to a peak flow of 120 gpm.

The sewer area study report analyzes the capacity of the main trunk sewer on Avalon Blvd to accept the increased capacity requested in the new permit. The analysis will determine the impact of the proposed increase in daily discharge flow from the ChemTrans Treatment Facility on the existing County sewer system.

This sewer study report is submitted to the Land Development Division of Los Angeles County Department of Public Works (LACDPW) to obtain approval to increase the sewer discharge capacity from the ChemTrans facility to 100,000 gpd with a peak flow of 120 gpm.

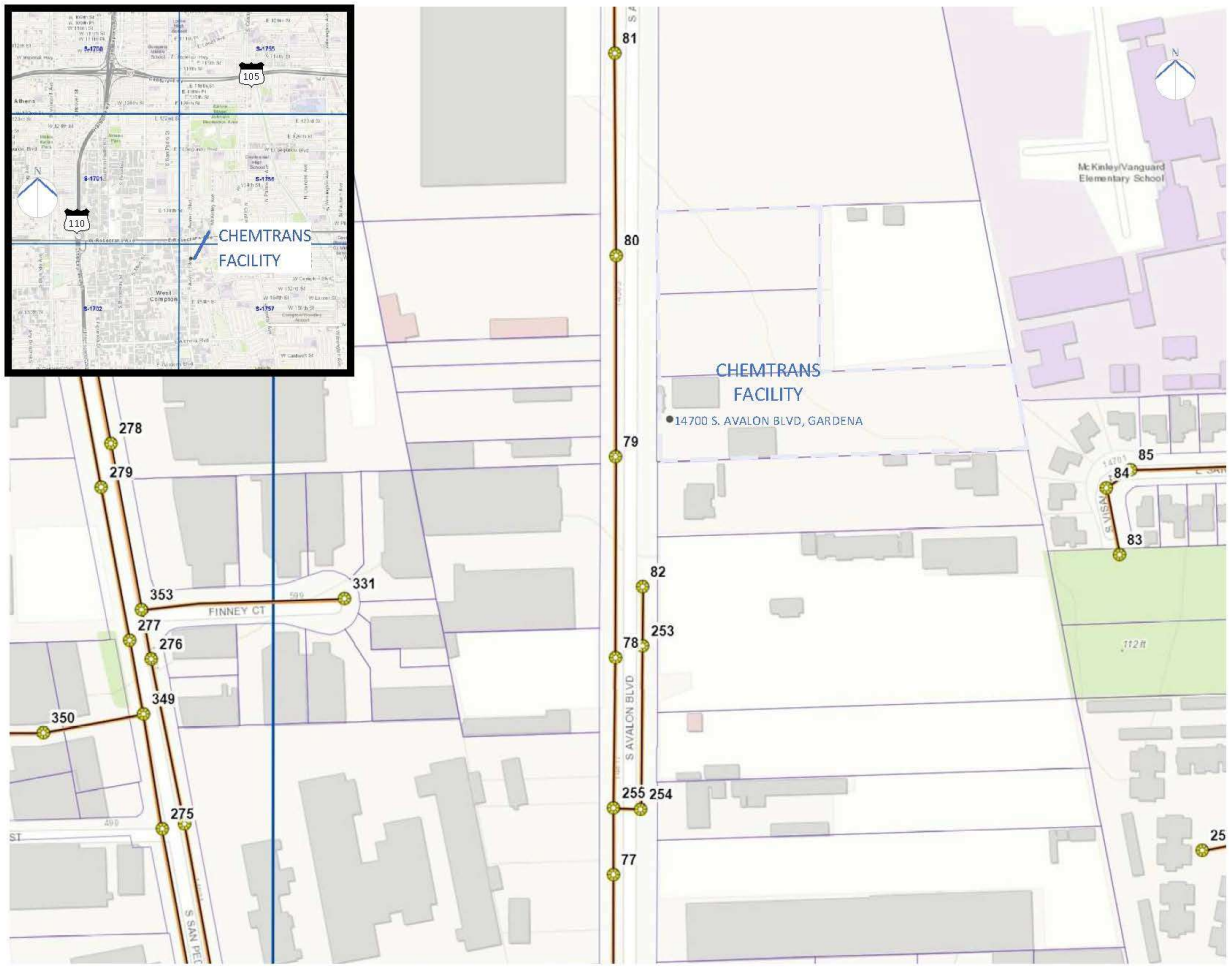


Figure 1: Location Map

2 PROJECT DESCRIPTION

The planned project involves relocation of the industrial waste treatment systems at the ChemTrans facility to the maintenance shop in the northwest area of 14700 S. Avalon Blvd, Gardena, California. The treatment system receives industrial wastewater from outside industrial customers in Southern California. Waste is brought to the facility in vacuum trucks and will be processed through the appropriate treatment train and discharged to the County sewer similar to the existing system. ChemTrans requests to increase the discharge capacity of the treatment facility from 50,000 gpd to 100,000 gpd with a peak flow of 120 gpm, using the existing sewer discharge system.

The general plan of the ChemTrans facility including the existing treatment systems and the sewer discharge system is depicted in Drawing G-0 of the approved IW Permit No. 012874. The connection to County Sewer Manhole No. 82 is identified in the drawing. A preliminary plan of the relocated treatment facility to the maintenance shop, using the existing sewer discharge system is presented in Drawing M-1. The planned relocation of the CWT will be included in an application for permit revision after the approval of the capacity increase. The drawings are included in Appendix A.

The various treatment trains, identified in Drawing M-1, include the CWT treatment system, the wash rack treatment system, food processing waste system. All treatment trains in the relocated system will be discharged via a common 3" pipe to the sample box of the existing 3-stage sewer clarifier, which has been bypassed in the existing IW permit, as shown in Drawing M-1. The entire sewer discharge system, including the sample box and the discharge pipe to the County sewer main on Avalon Blvd, which is connected to County Sewer Manhole No. 82, will remain as currently installed.

The capacity increase is analyzed in this report, as required by LACDPW, to confirm that the County Sewer Manhole No. 82 on Avalon Boulevard can receive industrial flow of 100,000 gpd with a peak flow of 120 gpm from the ChemTrans CWT facility.

3 SEWER PIPE CAPACITY ANALYSIS

The sewer capacity analysis uses the following information from LACDPW:

- County Sewer Map S-1757
- Sanitary Sewers As-Built
  – Private Contract No. 12537AS
  – County Improvement No. 2116
- Figure 2 – Sewer Map – ChemTrans Facility to Trunk Sewer
- Sewer Route Map – Sections 1 through 6 (Appendix B)
- Sewer Route Map – Upstream Parcels Contributing to Manholes 255 & 271 (Appendix B)
- Sewer Area Study Table Sample
- Flow Study at MH 77, performed by US^3 between 9/8 and 9/17/2020 (Appendix D)

Assumptions used in the calculations are:

- County sewer pipe: based on the Sewer As-Builts (Appendix B)
- Sewer line slope: based on the Sewer As-Builts (Appendix B)
- Design capacity is based on ½ full pipe for pipe size <15%, and ¾ full pipe for pipe size ≥15%
- Zoning Coefficient for Commercial Zoning – 0.021 cfs/Acre, based on Zoning noted in the Planning Zoning Information in the County Website
- Peak flow of the Industrial Waste Discharge from ChemTrans – 120 gpm, adding 65 gpm (0.145 cfs) to the current peak flow of 55 gpm (0.145 cfs)
- Area of the parcels on the sewer route to the Trunk Sewer on Avalon and Alondra, obtained from the GIS-NET zoning map in the County Website
- A peak flow (Q) value for segment 255 – 77 in Table 1, used the maximum measured flow rate at MH 77 during the US^3 flow monitoring study of 0.142 cfs (63.79 gpm) (see Appendix D)

The County sewer plans and As-Builts are presented in Appendix B. Table 1 presents a summary of the sewer capacity calculations for the sewer manhole sections from the ChemTrans discharge manhole No. 82 to the Trunk Sewer on Avalon and Alondra, shown in Figure 2. The sewer area study table shows the “Cumulative Calculated Flow” and the “% Full” after each segment.

Calculation in Table 1 utilized the Kutter's formula, based on the design capacity for a ½ full (8" and 12" sewer pipe) and ¾ full (from 15" sewer pipe), using pipe size and % slope to obtain the design capacity in cubic feet per second (cfs). The Kutter formula requires determination of area and hydraulic radius for each pipe size. The Kutter's formula calculations of the design capacity and the calculation of the area and hydraulic radius for each sewer pipe size and slope are presented in Appendix C.

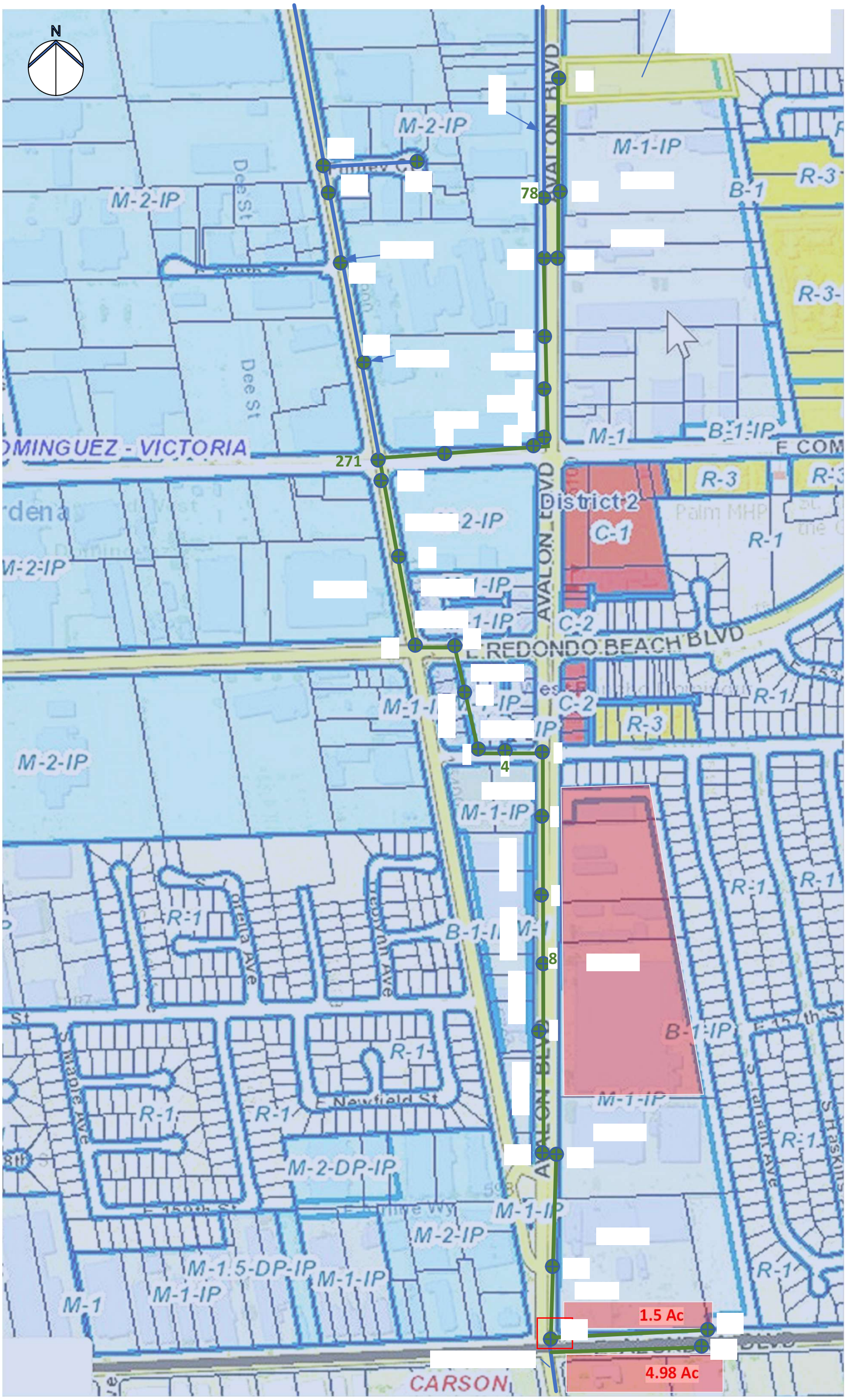
Calculation of the sanitary flow from each parcel along the sewer network flowing to the sewer manholes on route to the Trunk Sewer on Avalon and Alondra was calculated using the formula below and presented for each segment in Table 1.

$$Q = Z \times A$$

Where: Q = Sewer discharge (cfs), Z = Zoning coefficient (cfs/acre), and
A = Area (acres)

The calculated "% Full" at the discharge to the Trunk Sewer, where the pipe size is 15" was 22.72%. The highest "% Full" calculated for the various segments on the route was 121.09% at Compton and San Pedro (Manhole No. 45).

Contribution from the Avalon Gardens Elementary School, located northwest of Avalon Blvd and Rosecrans Ave, and is part of the contribution calculated for areas upstream of Manhole 271, was based on 217 students and 13 teachers (Google Information Page included in Appendix C) x 10 gallons/student/day x 2.5 peak flow factor = 5,750 gpd = 0.00863 cfs. It is included in Table 1 under Industrial Flow and explained in footnote 5.



INVIROTREAT INC.
INNOVATIVE TREATMENT

FIGURE 2: SEWER MAP – CHEMTRANS FACILITY TO TRUNK SEWER

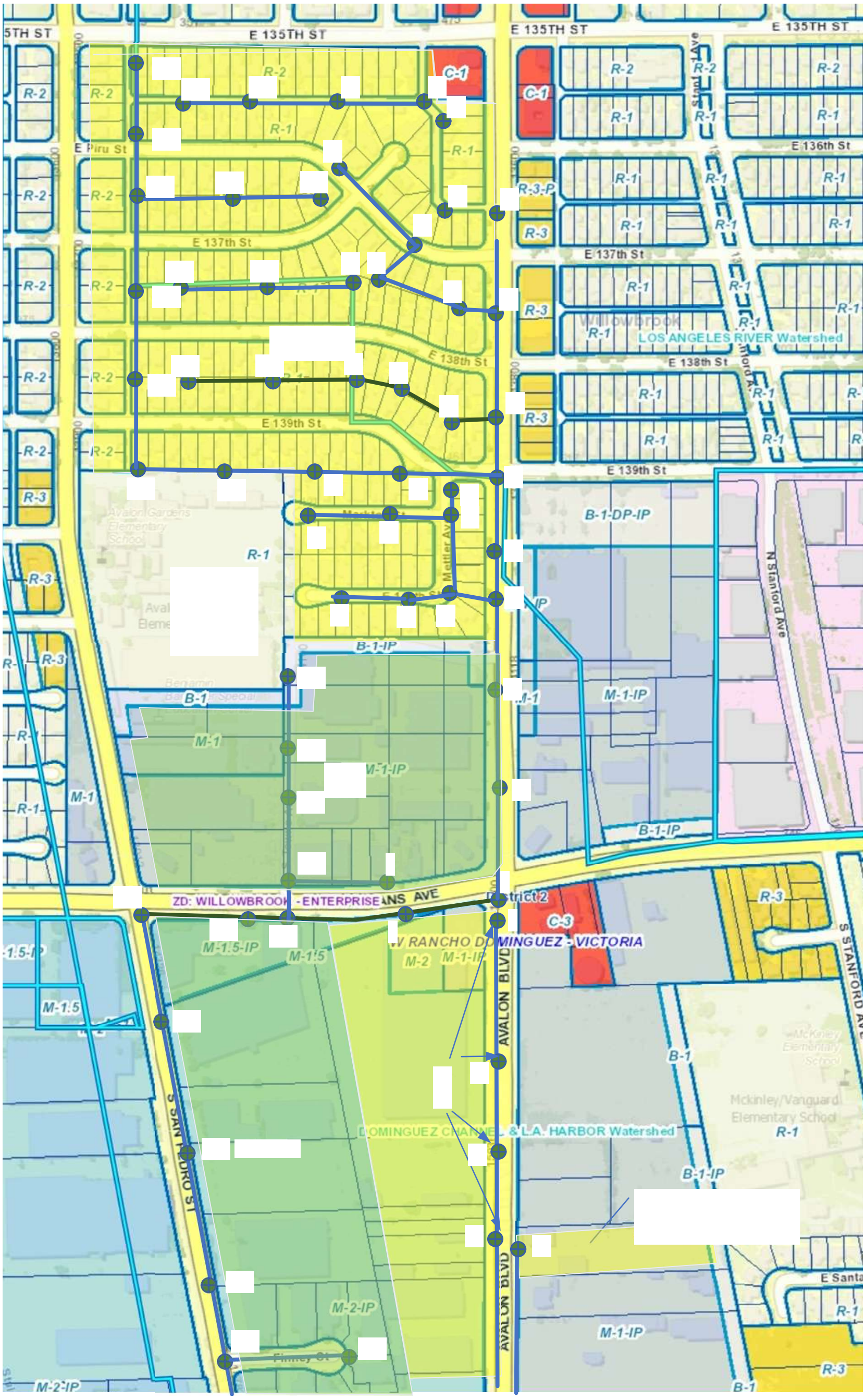


FIGURE 2: SEWER MAP – CHEMTRANS FACILITY TO TRUNK SEWER

INVIROTREAT INC.
INNOVATIVE TREATMENT

Table 1: Sewer Area Study Table: ChemTrans Facility

14700 S. Avalon Blvd., Gardena, CA 90248

* Calculated using Kutter's Formula with n=0.013

** Design capacity keeps three decimal places at least

*** Based on current land use and coefficients per LA County, (Attach supporting calculations)

**** For pipes < 15", design capacity of the sewer mainline is defined as 1/2 full = 100% capacity (d/D)

***** For pipes ≥ 15", design capacity of the sewer mainline is defined as 3/4 full = 100% capacity (d/D)

Kutter's Formula

$$C = \frac{41.65 + \frac{0.00281}{s} + \frac{1.811}{n}}{1 + \frac{n}{\sqrt{R}}\left(41.65 + \frac{0.00281}{s}\right)}$$

$V = C\sqrt{RS}$

$Q = CA\sqrt{RS}$

Street Name	Segment		Pipe		* Design capacity (cfs)		Area[1]	Zoning Coeff.[1]	Q	Industrial Flow[2]		***Cumulative Calculated Flow (cfs)	PC or CI Plan #	%Full	Comment	Jurisdiction
	M.H. #	M.H. #	Size (in.)	Slope (%)	1/2 Full(<15")	3/4 Full(≥15")	(Acres)		(cfs)	(gpm)	(cfs)			Cumulative Flow/ Capacity		
Avalon Blvd	82	253	8	0.4	0.35		2.11	0.021		65	0.145	0.145	PC09667	41.41	OK	LA County
Avalon Blvd	253	254	8	0.4	0.35		4.84	0.021	0.102			0.247	PC09668	70.45	OK	LA County
Avalon Blvd	254	255	8	0.4	0.35		2.05	0.021	0.043			0.290	PC09669	82.75	OK	LA County
Avalon Blvd N[3]	1	255	8	0.56	0.35		11.00	0.021	0.231			0.231		66.00	OK	LA County
Avalon Blvd[8]	255	77	8	0.48	0.38		0.00	0.021	0.142			0.287	CI2116	75.58	OK	LA County
Avalon Blvd	77	76	8	0.72	0.47		0.50	0.021	0.011			0.298	CI2116	63.34	OK	LA County
Avalon Blvd	76	71	8	0.68	0.46		0.50	0.021	0.011			0.308	CI2116	67.00	OK	LA County
Compton Blvd	71	271	8	0.56	0.41		2.00	0.021	0.042			0.350	CI2116	85.42	OK	LA County
San Pedro N[4,5]		271	12	0.56	1.27		46.00	0.004	0.184		0.0086	0.543		42.74	OK	LA County
San Pedro N[4]		271	12	0.56	1.27		38.32	0.021	0.805			1.348		106.11	OK	LA County
San Pedro St	271	269	12	1.44	2.04		4.53	0.021	0.095			1.443	CI2116	70.72	OK	LA County
San Pedro St	269	45	12	0.56	1.27		4.53	0.021	0.095			1.538	CI2116	121.09	OK	LA County
San Pedro St	45	44	12	1.24	1.90		4.82	0.021	0.101			1.639	CI2116	86.26	OK	LA County
Redundo Beach	44	46	12	3.52	3.20		0.41	0.021	0.009			1.648	CI2116	51.49	OK	LA County
San Pedro Alley	46	47	15	0.20		2.59	0.42	0.021	0.009			1.656	CI2116	63.96	OK	LA County
San Pedro Alley	47	3	15	0.20		2.59	0.30	0.021	0.006			1.663	CI2116	64.20	OK	LA County
154th St	3	5	15	0.20		2.59	0.61	0.021	0.013			1.676	CI2116	64.69	OK	LA County
Avalon Blvd	5	6	15	0.48		4.03	0.93	0.021	0.020			1.695	CI2116	42.06	OK	LA County
Avalon Blvd	6	7	15	0.48		4.03	0.93	0.021	0.020			1.715	CI2116	42.55	OK	LA County
Avalon Blvd	7	8	15	0.48		4.03	1.98	0.021	0.042			1.756	CI2116	43.58	OK	LA County
Avalon Blvd	8	9	15	0.48		4.03	1.04	0.021	0.022			1.778	CI2116	44.12	OK	LA County
Avalon Blvd	9	252	15	0.20		2.59	0.73	0.021	0.015			1.793	CI2116	69.24	OK	LA County
Avalon Blvd	252	250	15	2.80		9.75	5.33	0.021	0.112			1.905	CI2116	19.54	OK	LA County
Avalon Blvd N[6]		250	15	0.56		4.35	12.80	0.021	0.269			2.174		49.98	OK	LA County
Avalon Blvd	250	249	15	1.08		6.05	3.04	0.021	0.064			2.238	CI2116	36.99	OK	LA County
Avalon Blvd	249	248	15	1.60		7.37	1.50	0.021	0.032			2.269	CI2116	30.79	OK	LA County
Avalon Blvd W[7]	245	248	15	1.60		7.37	1.50	0.021	0.032			2.301		31.22	OK	LA County
Trunk Sewer	248	Trunk	15	3.30		10.59	4.98	0.021	0.105			2.406	CI2116	22.72	OK	LA County

1 - From County, based on Commencial Zoning

2 - 5-Minute Peak Flow adder to the 55 gpm Current Permitted Flow, which is included in the USCube Flow Measurement at MH 77 (ChemTrans Permit Application)

3 - See Figure 2 - Upstream Parcels on Avalon N of , Contributing to MH 255 for areas and zoning information

4 - See Appendix B - Sewer Route Map – Upstream Parcels Contributing to MH 271 for areas and zoning information

5 - Avalon Garden Elementry School, based on 230 students & teachers* 10 gpd/student = 2,300 gpd * 2.5 Peak Factor = 5,750 gpd = 0.0086 cfs (shows in Industrial Flow)

6 - See Figure 2 - Upstream Parcels on Northeast of Avalon, Contributing to MH 250 for areas and zoning information

7 - See Figure 2 - Upstream Parcels on Alondra NE of Avalon, Contributing to MH 248 for areas and zoning information

8 - Max Flow Measured at MH 77 = 63.79 gpm or 0.142 cfs (USCube - 9/8 - 9/17/20)

4 EXISTING AND PROPOSED SEWER SYSTEM DESCRIPTION

The existing sewer system includes a 3-stage clarifier, a sample box, and a discharge pipeline the connects to the County sewer line at Avalon Blvd, as shown in Drawing G-0 (Appendix A). As per the approved current permit, the 3-stage clarifier is bypassed, and the treatment systems effluent is routed directly to the sample box. Refer to Drawings G-0 and M-1 (Appendix A) and the County sewer maps (Appendix B) for the connection the County sewer and the route the sewer discharge system to the Trunk Sewer. The connection to the County sewer line is located at Manhole No. 82. The proposed sewer system description is similar to the existing sewer system and no change is proposed by ChemTrans.

5 CONCLUSIONS

Based on the findings of this report, the downstream sewer system has adequate capacity to accommodate the proposed discharge volume increase from ChemTrans. Calculations show that a portion of the existing sewer system will result in only 22.72% capacity (at 150% full pipe) at the Trunk Sewer on Avalon and Alondra. The maximum "% Full" condition of 121.09% was calculated for Segment 269 - 45 in Table 1, on San Pedro Street, south of Compton Blvd. Therefore, ChemTrans' request to increase the sewer discharge capacity to 100,000 gpd with 120 gpm peak flow is warranted and should be approved by LACDPW.

6 ENGINEER'S CERTIFICATION

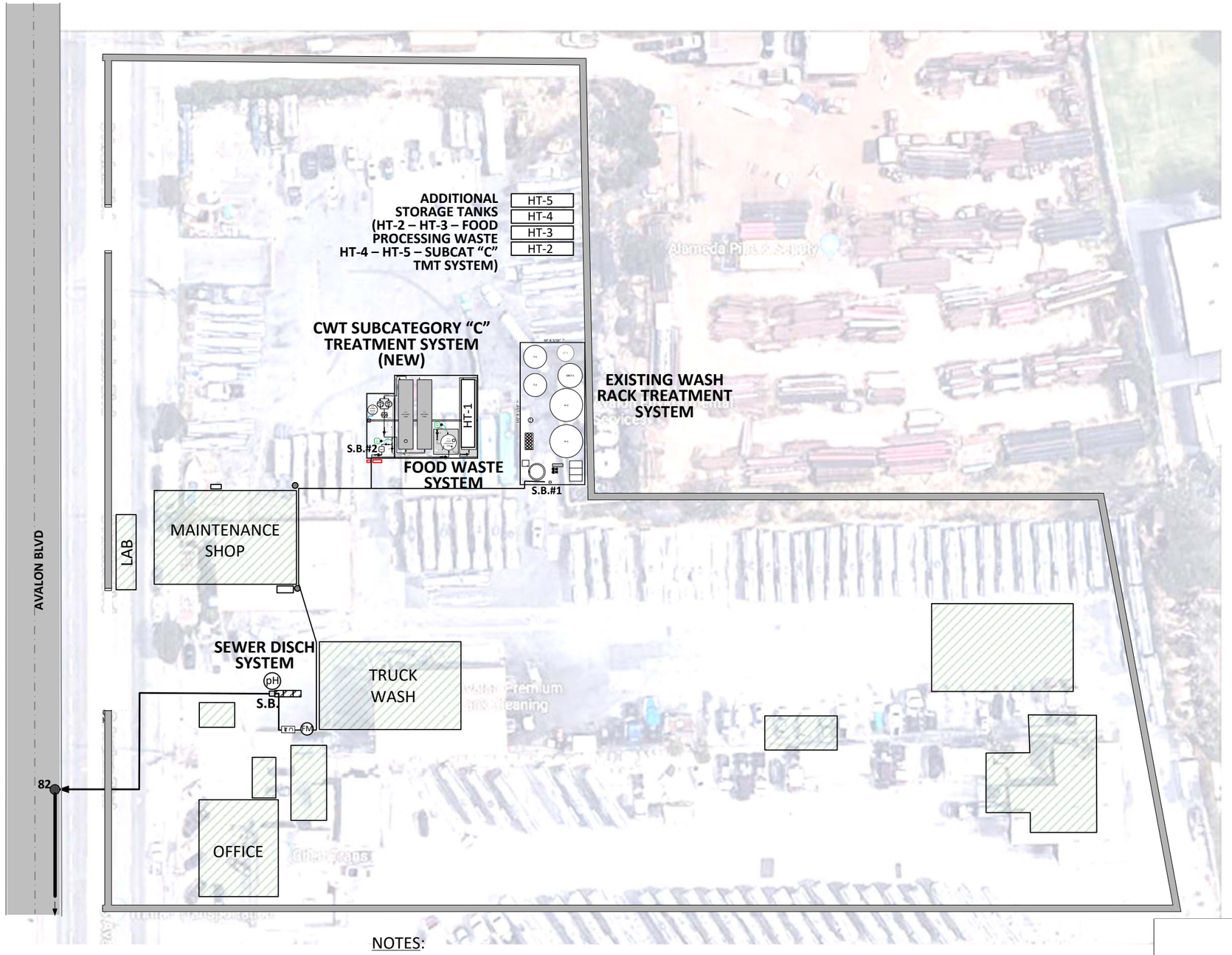
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted, and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Gary Wert, PE
Registered Professional Engineer

APPENDIX A

Facility Drawings



REV: 10/9/2019

NOTES:

1. HT-1, HT-2, HT-3 WILL RECEIVE AND TREAT FOOD PROCESSING WASTES; HT-4 AND HT-5 WILL RECEIVE SUBCATEGORY C WASTES; LOCATION OF THESE TANKS MAY CHANGE IN THE FUTURE
2. SOLID PIPE CONNECTION IS INSTALLED TO DISCHARGE FROM WASH RACK, FOOD PROCESSING WASTE AND SUBCATEGORY C SYSTEMS DIRECTLY TO THE REGULATED SAMPLE BOX (S.B.)

INVIROTREAT INC.
INNOVATIVE TREATMENT
P.O Box 3970
Fullerton, CA 92834

N

TO DEWATERING

HT-1

HT-2

HT-3

TRUCK OFF LOADING AREA 2

SLUDGE THICKENING TANK T-5

SLUDGE THICKENING TANK T-5A

DECANT

DECANT

P-5

INFLUENT TANK T-1

pH

P-1

EMUL BKR

NaOH

PAC

pH

P-4

H_2SO_4

WASH RACK TREATMENT SYSTEM

SETTLING TANK T-2

SETTLING TANK T-3

SETTLING TANK T-4

P-2

INFLUENT TANK T-1C

P-1C

INFLUENT TANK T-2C

P-2C

SUBCAT C CWT SYSTEM

ORP

EFFLUENT TANK T-3C

ORP

EFFLUENT TANK T-4C

NaOCl

NaOCl

P-3C

ORP

NaOH

pH

NEUTR TANK T-1F

FOOD WASTE SYSTEM

P-2F

P-3A

P-4A

UF SKID

P-2A

SUBCAT A CWT SYSTEM

P-1A

INFLUENT TANK T-1A

NaOH

PAC

pH

P-5A

SETTLING TANK T-2A

SETTLING TANK T-3A

S.B. #2

S.B. #1

pH/FM REC

TRUCK OFF LOADING AREA 1

0.0 ft. 6.0 ft. 10.0 ft. 20.0 ft.

TO COUNTY SEWER

pH

S.B.

3-STAGE CLARIFIER (BYPASSED)

FM F

pH RECORDER

INVIROTREAT INC.
INNOVATIVE TREATMENT
P.O Box 3970
Fullerton, CA 92834

CHEMTRANS CWT FACILITY

GARDENA, CA

DESCRIPTION				DWG #
MECHANICAL PLAN OF CWT FACILITY RELOCATION PLAN				M-1
SCALE	DRAWN BY	APPD BY	DATE	
NONE	AL	AL	4/22/2020	

APPENDIX B

CSMD and As-Builts

S-1757

SEE SHT. NO. S-1756

C-44
C-90

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.



AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 282

MAP REV.
09-21-11

S-1757

MAP REV
03-19-12

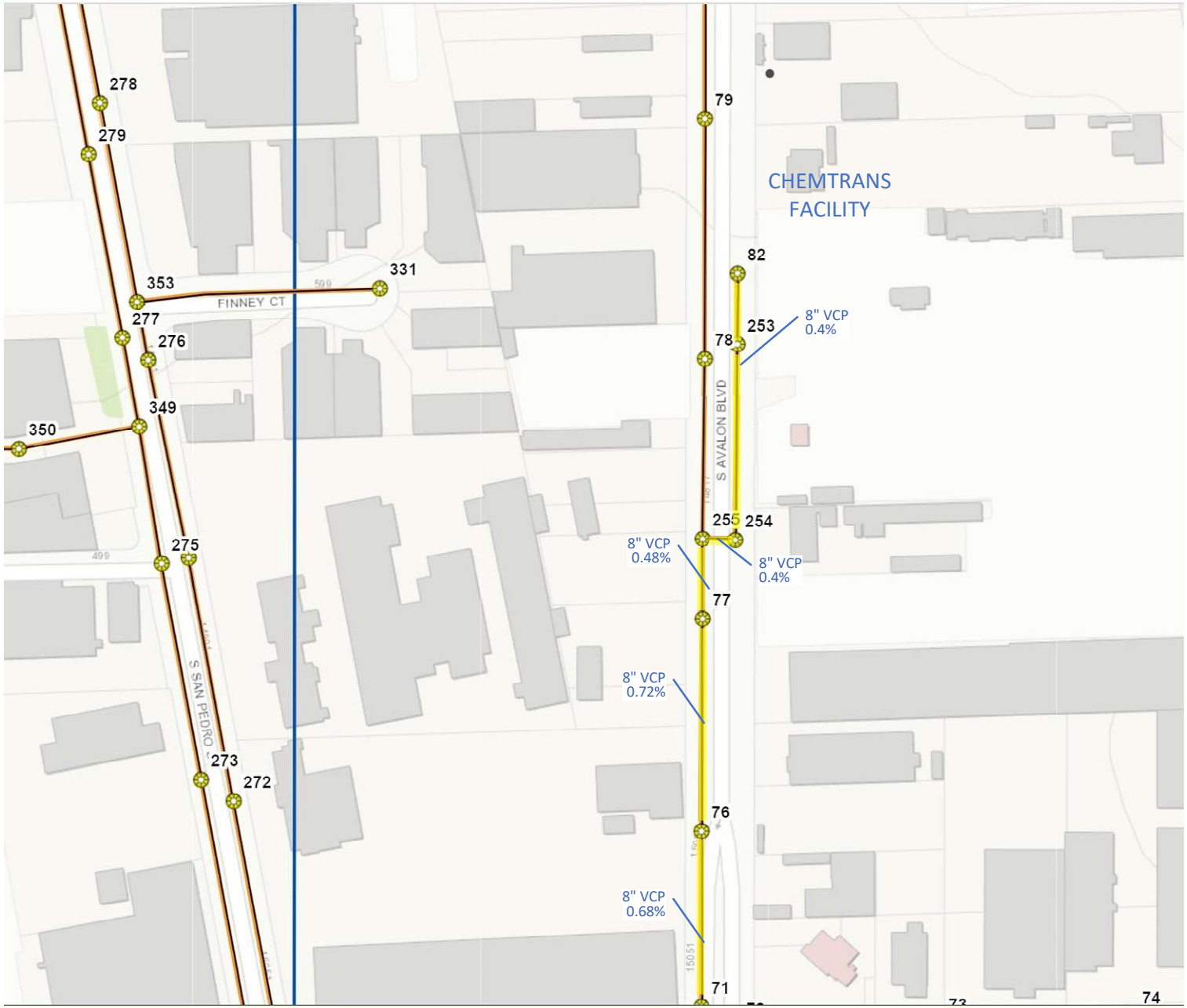
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04-07-92

CONSOLIDATED S.M.D.

S-1757

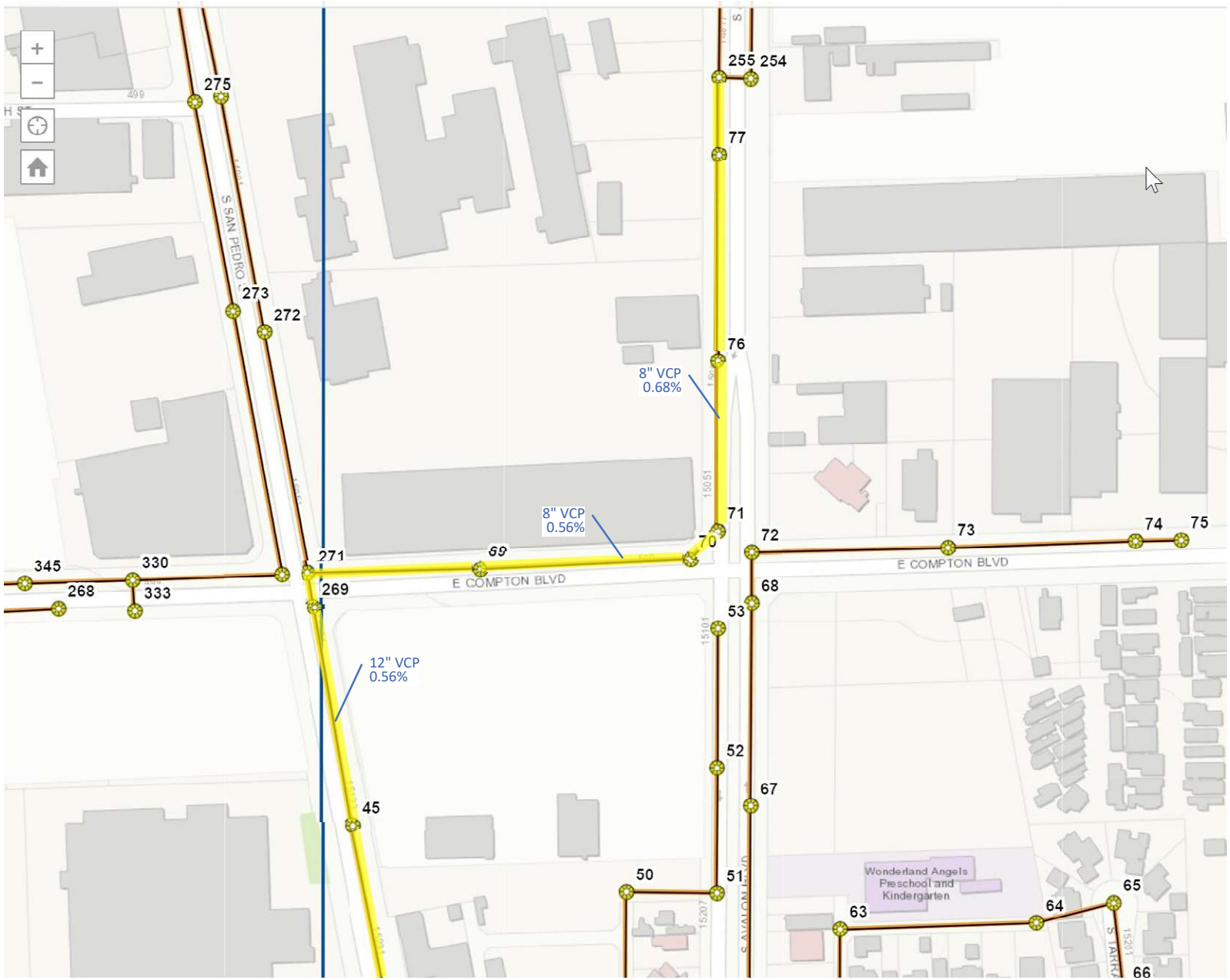
T: 734 F-5

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INVIROTREAT INC.
INNOVATIVE TREATMENT

SEWER ROUTE MAP – CHEMTRANS FACILITY TO TRUNK SEWER – SECTION 1



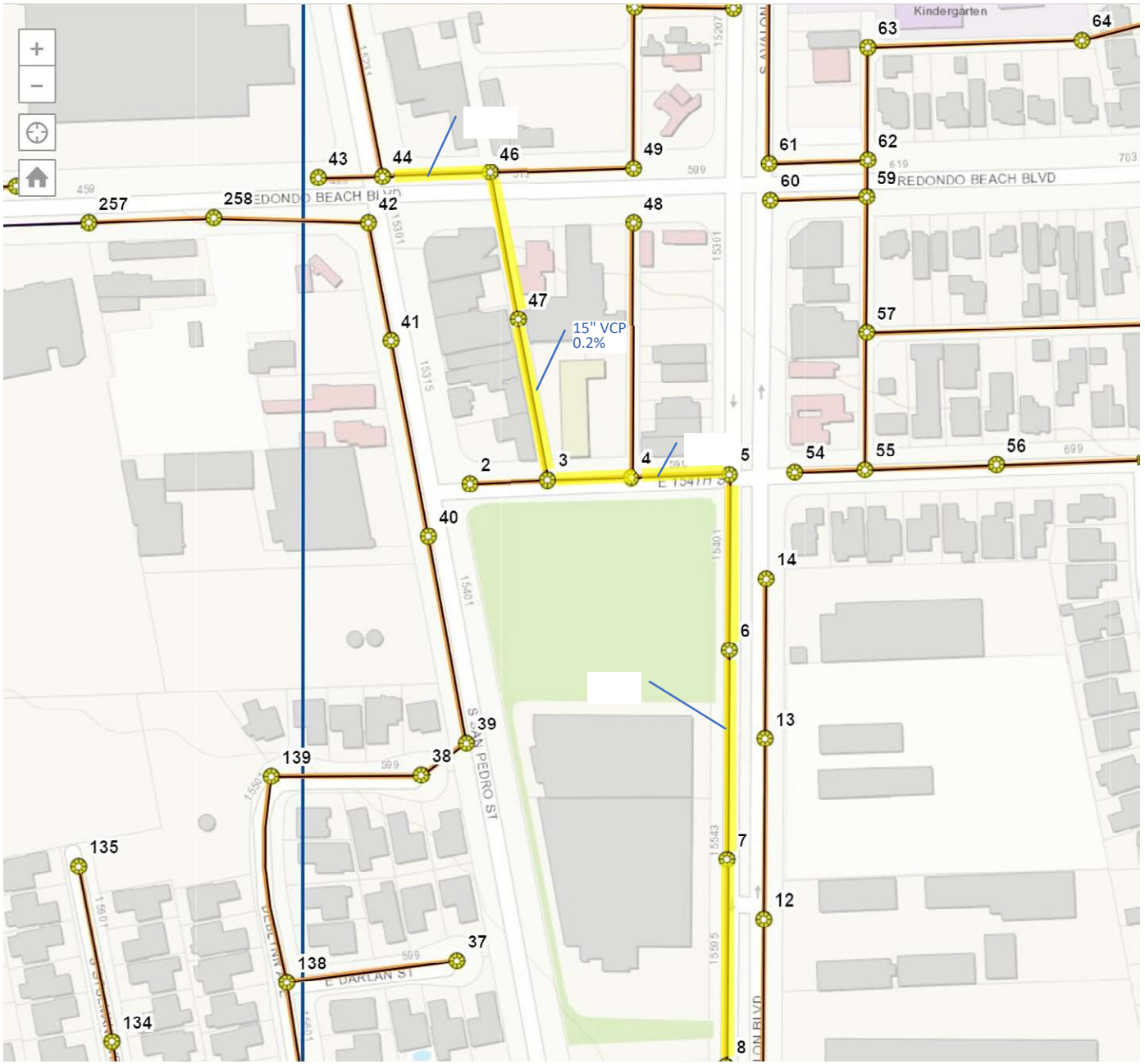
INVIROTREAT INC.
INNOVATIVE TREATMENT

SEWER ROUTE MAP – CHEMTRANS FACILITY TO TRUNK SEWER – SECTION 2



INVIROTREAT INC.
INNOVATIVE TREATMENT

SEWER ROUTE MAP – CHEMTRANS FACILITY TO TRUNK SEWER – SECTION 3



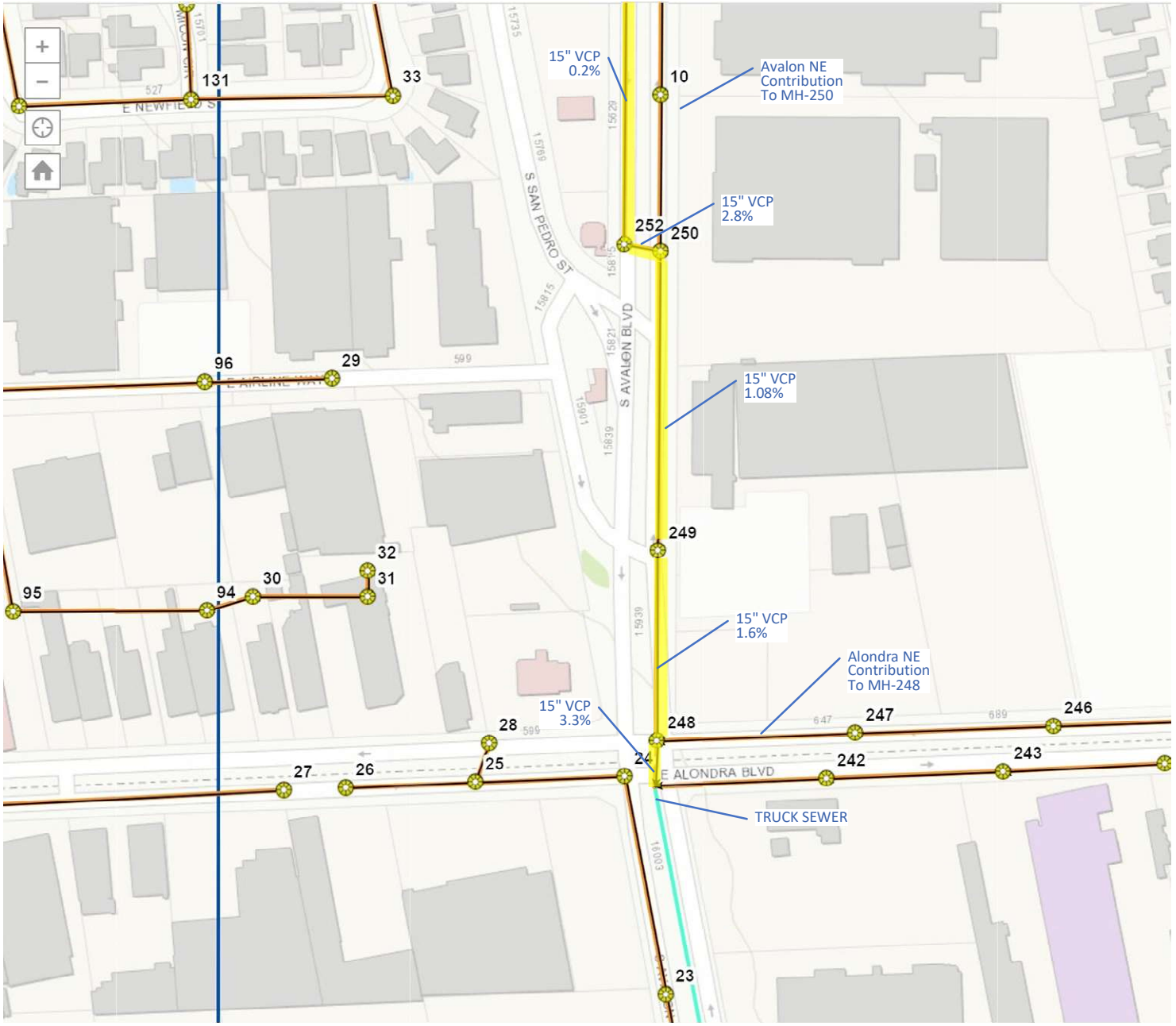
INVIROTREAT INC.
INNOVATIVE TREATMENT

SEWER ROUTE MAP – CHEMTRANS FACILITY TO TRUNK SEWER – SECTION 4



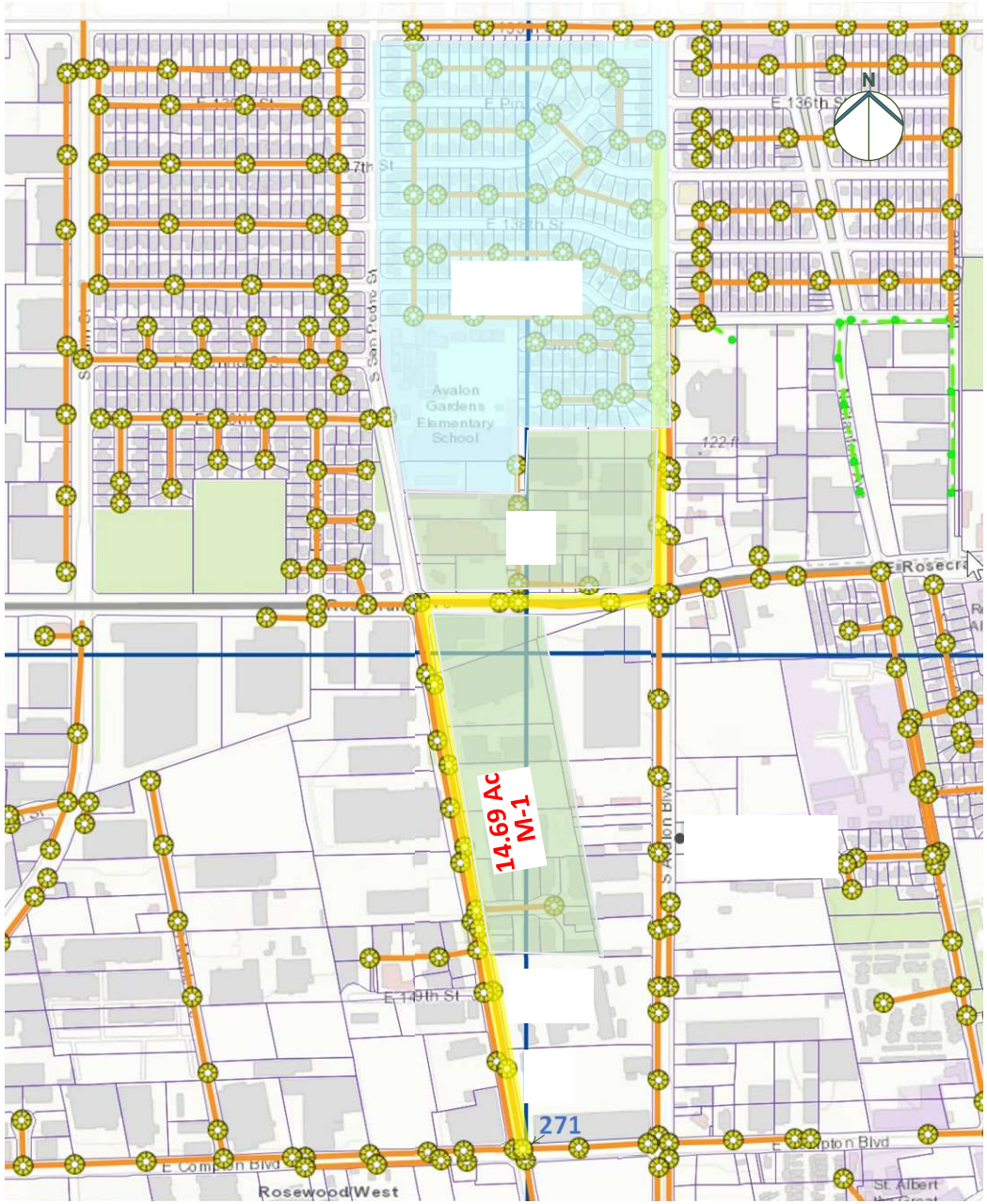
INVIROTREAT INC.
INNOVATIVE TREATMENT

SEWER ROUTE MAP – CHEMTRANS FACILITY TO TRUNK SEWER – SECTION 5



INVIROTREAT INC.
INNOVATIVE TREATMENT

SEWER ROUTE MAP – CHEMTRANS FACILITY TO TRUNK SEWER – SECTION 6



INVIROTREAT INC.
INNOVATIVE TREATMENT

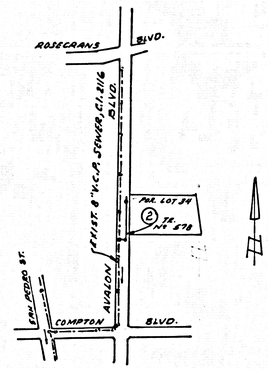
SEWER ROUTE MAP – UPSTREAM PARCELS CONTIBUTING TO MANHOLE 271

B.M. BY 3141 ELEV. 95.327

L & B NAIL EAST CURB OF AVALON BLVD. 40' S. OF & 1000' N. COMPTON BLVD. GARDENA QUAD. 1976

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THIS PLAN ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINE NOT OF RECORD OR NOT SHOWN ON THIS DRAWING.

NOTE: CONTRACTOR TO NOTIFY METROPOLITAN WATER DISTRICT 48 HOURS BEFORE START OF CONSTRUCTION PHONE 213-626-4282.



NOTE: NUMBER IN CIRCLE INDICATES PAGE NUMBER

INDEX MAP
SCALE: 1"=600'
P.C. 9667

NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS UNLESS A PERMIT FOR INDUSTRIAL WASTE WATER DISCHARGE HAS BEEN ISSUED BY THE SANITATION DISTRICTS FOR SAID CONNECTION

BEFORE BREAKING INTO OR CONSTRUCTION ON A COUNTY SANITATION DISTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, ALL CONNECTIONS SHALL BE RECORDED BY MEANS OF A MOVIE CAMERA SO THAT REQUIRED INSPECTION CAN BE MADE.

GENERAL NOTES:

1. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
2. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE COUNTY ENGINEER.
3. NO REPRESENTATIVE OF THE COUNTY ENGINEER WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
4. GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTER LINE OF STREETS, OR CENTER LINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES. AT ALL POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
5. THE PRIVATE ENGINEER SHALL FURNISH THE COUNTY ENGINEER WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y" OR "T" BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHANNELS SHALL NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE MAIN LINE SEWER. ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
6. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP OF CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.
7. BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST OBTAIN A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE L.A. COUNTY ROAD DEPT., DISTRICT OFFICE NO. 3 AND PAY A FEE TO THE COUNTY ENGINEER, 550 S. VERMONT AVE., L.A. TO COVER THE COST OF CONSTRUCTION INSPECTION AND RECORD PLANS.
8. IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA, DIVISION OF HIGHWAYS, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.
9. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE, OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
10. REFER TO SECTION 7-10.4.3 OF THE STANDARD SPECIFICATIONS, REGARDING SAFETY ORDERS.
11. PRIOR TO THE ISSUANCE OF THE REQUIRED SEWER CONSTRUCTION PERMIT, THE CONTRACTOR SHALL OBTAIN AND FILE WITH THE COUNTY ENGINEER COPIES OF A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE L.A. COUNTY ROAD DEPT., A PERMIT FOR EXCAVATIONS AND TRENCHES FROM THE STATE OF CALIFORNIA, DIVISION OF IND. SAFETY AND A CERTIFICATE OF WORKERS' COMPENSATION INSURANCE WITH THE DEPT. OF COUNTY ENGINEER, 550 S. VERMONT AVE, ROOM 801, L.A. CALIFORNIA, NAMING AS THE CERTIFICATE HOLDER TO BE NOTIFIED 30 DAYS PRIOR TO CANCELLATION OF POLICY.

CONSTRUCTION NOTES:

1. WORK SHALL BE CONSTRUCTED ACCORDING TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (1976 EDITION WITH 77-78 SUPPLEMENTS AND COUNTY ENGINEER SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS DATED SEPT. 21, 1972, AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE COUNTY ENGINEER.
2. THE CONTRACTOR SHALL NOTIFY THE ENV. DEV. DIVISION BY TELEPHONE, 974-7283 AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
3. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE 6 FEET BELOW CURB GRADE EXCEPT AS NOTED.
4. WYE OR TEE BRANCHES MAY BE USED FOR CONNECTIONS TO MAINLINE SEWERS EXCEPT AS NOTED.
5. ALL STRUCTURES SHALL BE EITHER BRICK MANHOLES PER S-3 OR PRECAST CONCRETE MANHOLES PER S-36, EXCEPT AS NOTED.
6. PROVIDE STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTER LINE OF EACH MANHOLE.
7. MANHOLE TOPS IN UNIMPROVED RIGHTS OF WAY TO BE SIX INCHES ABOVE FINISHED GRADE.
8. VITRIFIED CLAY PIPE JOINTS SHALL BE TYPE "D", "F", OR "G" PER STANDARD SPECIFICATIONS SECTION 306-2.
9. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED, PER S-23, CASE II, TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
10. IF DURING THE COURSE OF CONSTRUCTION IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAIN LINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER S-23, CASE II UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.
11. ALL JOINTS BETWEEN CAST IRON PIPE AND VITRIFIED CLAY PIPE SHALL BE MADE WITH A RUBBER SLEEVE JOINT, TYPE "C" OR "B", (WITH BUSHING IF NECESSARY) PER STANDARD SPECIFICATIONS, SECTION 306-2.
12. SEWERS TO BE TESTED FOR LEAKAGE PER SECTION 306 1.4 OF THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
13. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET L.A. COUNTY ROAD DEPT. OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH PERMITS.
14. FULL COMPLIANCE WITH SECTION 306-1.3.5 OF THE SPECIAL PROVISIONS WILL BE REQUIRED FOR BACKFILL IN STREETS. CERTIFICATION OF BACKFILL COMPACTION AND SAND EQUIVALENTS BY A QUALIFIED, REGISTERED TESTING LABORATORY SHALL BE PROVIDED BY THE PERMITTEE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF PARTIAL ACCEPTANCE.

PROFILE, ALIGNMENT AND GRADE OF

SANITARY SEWERS

PAGE 1

TO BE CONSTRUCTED IN

AVALON BLVD.

PRIVATE CONTRACT NO. 9667

W.S. 26

1 SHEET, 2 PAGES

47083

SCALE: VERT. 1"=4' HORIZ. 1"=40' FEB., 1979

PREPARED IN THE OFFICES OF

J. H. EDWARDS CO.

BY: Darryl E. Wilcox

REG. C. E. No. 27797

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE COUNTY ENGINEER SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT.

LEGEND	S-1
MINIMUM PUBLIC SAFETY REQUIREMENTS	S-2
BRICK MANHOLE	S-3
STANDARD MANHOLE STEP	S-17
BEDDING FOR SEWER PIPE	S-21
CRADLING AND ENCASEMENT	S-22
WYE OR TEE SUPPORT	S-26
ALLOWABLE TRENCH WIDTHS	S-28
LOCKING MANHOLE FRAME AND COVER	S-35
NON-REINFORCED PRECAST CONCRETE MANHOLE	S-36
REDD MANHOLE	S-4
SHALLOW MANHOLE	S-7, S-32

COUNTY OF LOS ANGELES, CALIFORNIA

STEPHEN J. KOONCE, COUNTY ENGINEER

W. E. GARRISON, CHIEF ENGINEER

APPROVED Leda W. Kriegl 6-9-79 (DATE)

APPROVED Frank R. Dias 5/11/79 (ROAM DIST. NO. 4 OFFICE ENGINEER)

CHECKED Ralph David Smart 5/5/79 (DATE)

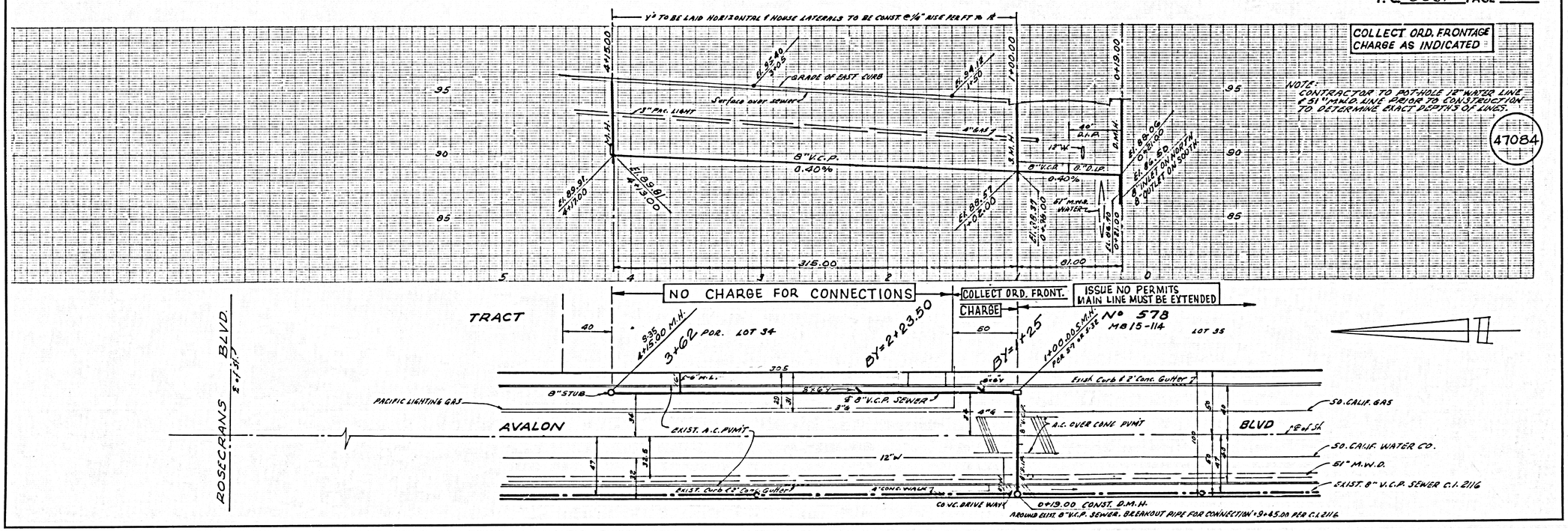
REG. C.E. NO. 16883

LENNOX BLDG. DIST. 7

J.N. 0358.01

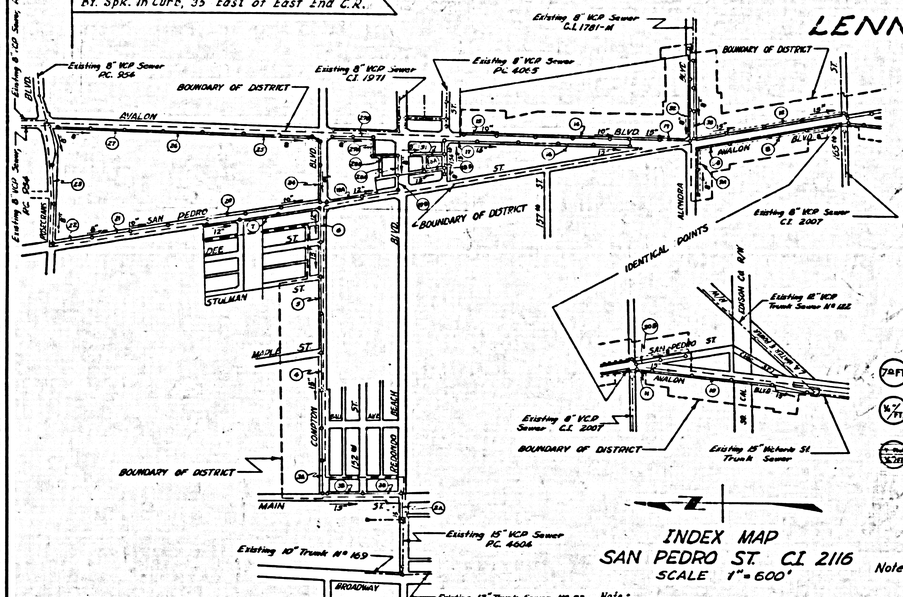
MH-253 MH-254 MH-255

P. C. 9667 PAGE 2



B.M. ZA-48 Elev. = 54.630 F.B. 2195-19
Broadway & Redondo Beach Blvd. S.E. Cor.
Bf. Spk. in Curb, 35' East of East End C.R.

LENNOX BUILDING DISTRICT NO. 7



INDEX MAP
SAN PEDRO ST. CI 2116
SCALE 1" = 600'

Note: See page 24 for key to Underground Identification.

Note: Figures in Circles Indicate Page Numbers

BEFORE BREAKING INTO ANY EXISTING STRUCTURE AND BEFORE FINAL ACCEPTANCE OF THIS WORK, COUNTY SANITATION DISTRICT (CI 4-1281) SHALL BE NOTIFIED IN ORDER THAT REQUIRED INSPECTION CAN BE MADE.

USE STANDARD STRENGTH PIPE EXCEPT AS NOTED.

USE CEMENT MORTAR FOR ALL VITRIFIED CLAY PIPE JOINTS.

ALL STRUCTURES SHALL BE BRICK SEWER STRUCTURES AS PER PLAN NO. S-A-104, ~~EXCEPT AS NOTED~~

USE STANDARD MANHOLE FRAMES AND COVERS AS PER PLAN NO. S-A-117, ~~EXCEPT AS NOTED~~

SEE ATTACHED SHEET FOR RESURFACING SCHEDULE.

USE FORMULA NO. 1 SEC. 54 OF SPECIFICATIONS TO COMPUTE ALLOWABLE LEAKAGE.

THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION ~~AND STORM DRAIN~~ DIVISION BY TELEPHONE MADISON 9-4747, EXT. 81551 AT LEAST 24 HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.

CONSTRUCT HOUSE LATERALS WITH INVERTS AT PROPERTY LINE 6 FEET BELOW CURB GRADE, OR GRADE OF CENTER LINE OF STREET EXCEPT AS NOTED

(7aFT) FIGURES IN CIRCLES AT ENDS OF HOUSE LATERALS INDICATE DEPTH BELOW CURB GRADE, OR GRADE OF CENTER LINE OF STREET.

(¼/FT) FIGURES IN CIRCLES AT ENDS OF HOUSE LATERALS INDICATE HOUSE LATERALS SHALL BE CONSTRUCTED WITH ¼" RISE PER FOOT TO PROPERTY LINE.

~~WORDS IN CIRCLES AT ENDS OF HOUSE LATERALS INDICATE "I" SHALL BE LAID HORIZONTAL AND HOUSE LATERALS SHALL BE CONSTRUCTED WITH ¼" RISE PER FOOT TO PROPERTY LINE.~~

~~CONSTRUCTION IN STATE HIGHWAYS SHALL CONFORM WITH STATE HIGHWAY PERMIT.~~

~~CONSTRUCT HOUSE LATERALS WITH "Y" AT THE FOR FT. TO PROPERTY LINE, EXCEPT AS NOTED~~

NO CONNECTIONS FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS WITHOUT WRITTEN PERMISSION FROM THE CHIEF ENGINEER AND GENERAL MANAGER OF THE COUNTY SANITATION DISTRICTS.

COUNTY IMPROVEMENT NO. 2116

PROFILE, ALIGNMENT AND GRADE OF

SANITARY SEWERS

TO BE CONSTRUCTED IN

SAN PEDRO ST.

AND OTHER RIGHTS OF WAY

32204

PAGE 1 OF 33 PAGES

SCALE HOR. 1" = 40'
VERT. 1" = 4'

F.B. 1961

COUNTY OF LOS ANGELES, CALIFORNIA

JOHN A. LAMBIE — COUNTY ENGINEER

SUBMITTED _____ ASSISTANT SANITARIAN ENGINEER

APPROVED _____ SANITATION ENGINEER

C. B. COMPTON
CHIEF ENGINEER OF COUNTY SANITATION DISTRICT NO. 8
BY _____ OFFICE ENGINEER

FOR LEGEND
SEE PLAN NO. S-A-44

NOTE:
GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURB, CENTER LINE OF STREET OR CENTER LINE OF ALLEY ARE SHOWN BY CIRCLES ON PROFILES. AT ALL POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED BY AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
ELEVATIONS ARE IN FEET ABOVE M.S.L. DATUM AS OF 1929
UNIT PRICES FOR ADDITIONAL WORK WHICH MAY BE REQUIRED BUT WHICH CANNOT BE ASCERTAINED IN ADVANCE, SHALL BE SUBMITTED IN THE PROPOSAL.
THIS DRAWING AND THE DATA HEREON ARE HEREBY MADE A PART OF THE SPECIFICATIONS.

REFERENCES					
W.S.	26, C-3, C-4	DESIGNED	JAIME	JUNE 1960
A.B.	837 & 1380-81	TRACED	JAIME	JUNE 1960
F.B.	2195, 2196	CHECKED	ARZOLA	FEB 1961

Trim Line

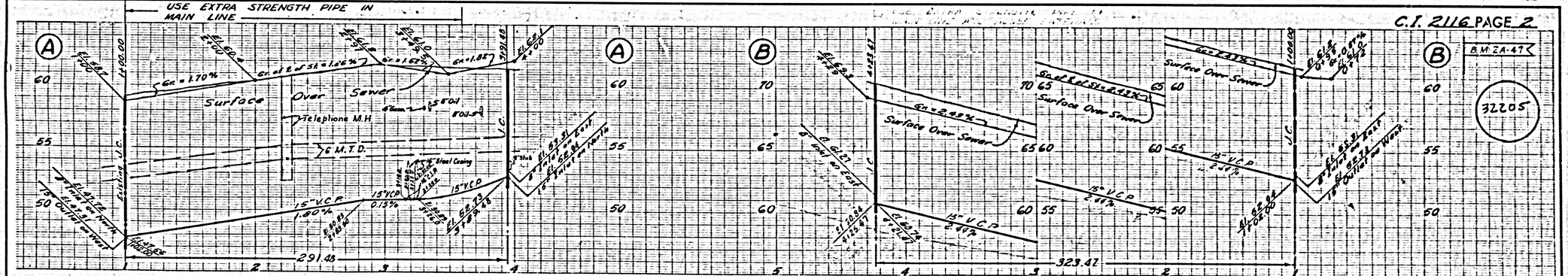
UG GR'D 8-21-61 RL
SWR'S GR'D 3/12/61

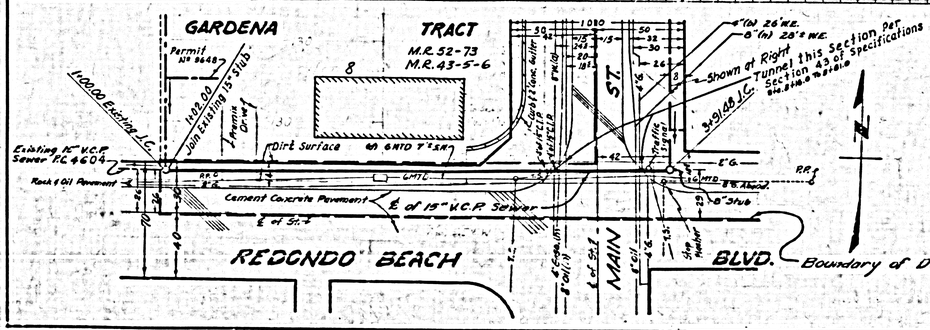
USE EXTRA STRENGTH PIPE IN MAIN LINE

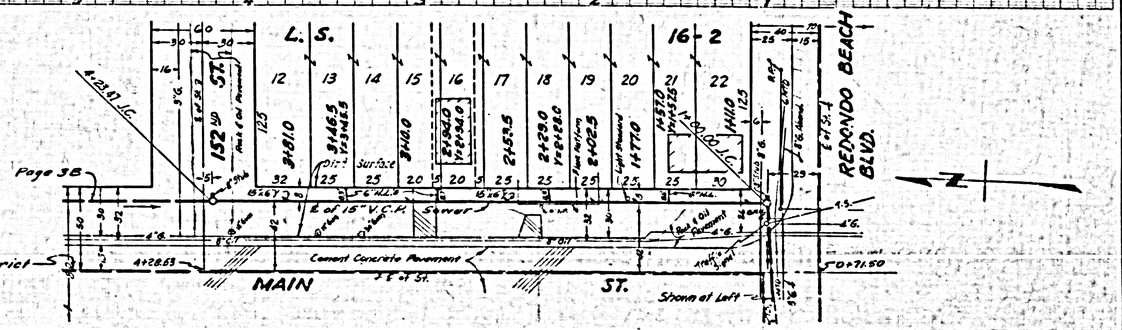
C.I. 2116 PAGE 2

B.M. ZA-47

32205







F.B. 2195 { ℄ F.B. 2195 - 48
Tops F.B. 2195 - 249-250
X-Sec. F.B. 2195 - 251-254 & 244

Trim Line

F.B. 2195 { ℄ Tops : 47-48
X-Sects : 239 - 245
243 - 248

UG GR'D 8-21-61 RL
SWR'S GR'D 3/12/61

("X" Sect. : 124, 94 - 98, 104

MH-249

MH-248

USE EXTRA STRENGTH PIPE IN MAIN LINE

C.T. 2116 PAGE 13

B.M. ZA-25

B.M. ZA-24

Gr = 0.51%

Gr of ℄ of St. = 0.10%

Surface Over Sewer

El 42.50 8" Inlet on East

15" V.C.P. 1.60%

15" V.C.P. 0.28%

15" V.C.P. 0.28%

37.216

245.69

46.53

282.78

350.00

DUNCAN TRACT M.R. 78-67, 68

PORTION OF SAN PEDRO RANCHO Lot 4 RANGE 3 M.B. 4-348

Proposed Widening Line Per Ord. 1494 As Amended

208.00

℄ of 15" V.C.P. Sewer

Rock & Oil Pavement

Macadam Curb & Gutter

℄ of St.

Boundary of District

SAN PEDRO ST.

AVALON BLVD.

ALONDRA BLVD.

Tunnel from 15+38 to 15+75

Encase 6' of 18" V.C.P. Sewer Under 6 M.T.D. Per S-a-178, Case III

Proposed Widening Line per Ordinance 1494 as Amended

SANITARY SEWER R/W

Traffic Sig. Control

Concrete Pavement

Page 9-A

Page 9-B

Page 12

Page 14

Page 32

Page 33

Trim Line

MH-250

MH-249

C.T. 2116 PAGE 14

B.M. ZA-28

Gr = 0.40%

Gr = 0.51%

Gr = 0.90%

Gr of ℄ of St. = 1.00%

Surface Over Sewer

10" V.C.P. 0.52%

10" V.C.P. 0.84%

10" V.C.P. 0.84%

15" V.C.P. 1.08%

32217

325.00

325.00

177.52

272.48

DUNCAN TRACT M.R. 78-67-68

Lot 7

Lot 8

555.18

555.49

℄ of 10" V.C.P. Sewer

Dirt Surface

Rock & Oil Pvmt.

Conc. Pvmt.

℄ of Street

AVALON BLVD.

℄ of 10" V.C.A Sewer

℄ of 15" V.C.R. Sewer

℄ of Conc. box drain

℄ of St. M.W.D.

Page 15

Page 16

Page 13

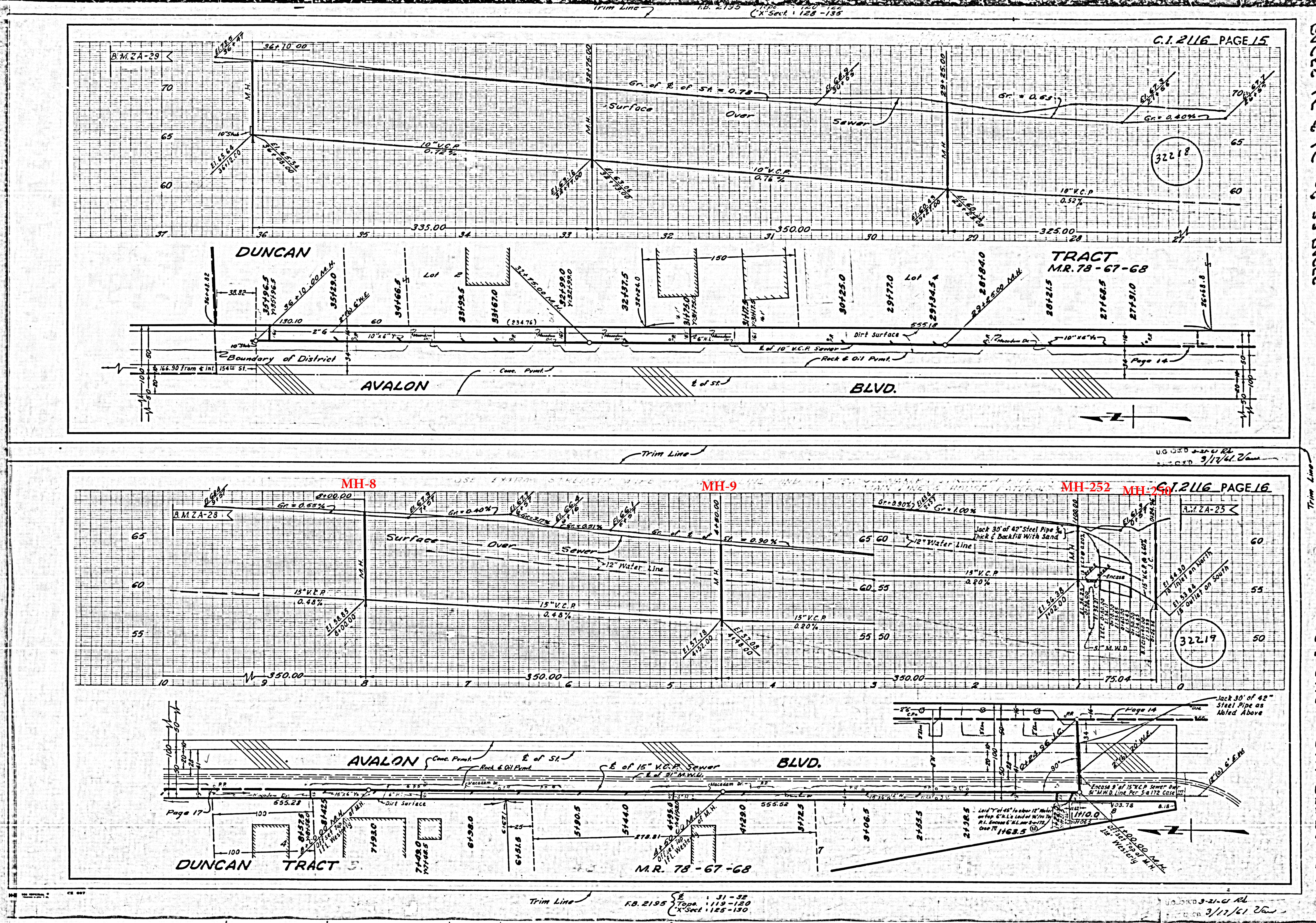
Trim Line

F.B. 2195 ℄ Topo. : 32 "X" Sect : 110-120 124-128

U.S.C.&G.D. 3-21-61 Rd

3/17/61 Chm

C.T. 2116 PAGE 13 & 14 OF 33 PAGES


Trim Line
F.B. 2195
Topo. : 120-122
"X" Sect. : 128-135
C.I. 2116 PAGE 15
B.M. ZA-29
El. 73.5 36+47
36+70.00
M.H.
10" Stub
El. 65.64 36+12.00
El. 65.54 36+08.00
Gr. of ℄ of St. = 0.78
Surface Over Sewer
El. 68.9 30+65
10" V.C.P. 0.72%
El. 63.16 33+77.00
El. 63.06 32+73.00
10" V.C.P. 0.76%
32+75.00
29+25.00
El. 60.43 29+27.00
El. 60.33 29+23.00
Gr. = 0.63
El. 67.3 27+56
Gr. = 0.40%
El. 67.7 26+53
18" V.C.P. 0.52%
32218
335.00
350.00
325.00
DUNCAN TRACT
M.R. 78-67-68
36+48.82
38.82
35+96.5 Y:35+96.5
36+10.00 M.H.
35+29.0
130.10
2"G
2"(E) 6" W.E.
60
34+66.5
Lot 2
33+99.5
33+67.0
(234.76)
32+75.00 M.H.
32+99.0 Y:32+99.0
32+37.5
32+24.0
150
31+75.0 Y:31+75.0
31+17.5 Y:31+17.5
30+25.0
29+77.0
Lot 4
29+34.5
28+84.0
29+25.00 M.H.
28+21.5
27+68.5
27+31.0
26+68.8
10" Stub
10"x6" Y
6" H.L.
Dirt Surface
555.18
℄ of 10" V.C.P. Sewer
Rock & Oil Pvmt.
10"x6" Ys
Page 14
Boundary of District
166.90 from ℄ int. 154th St.
Conc. Pvmt.
AVALON
℄ of St.
BLVD.
U.G. CK'D 3-21-61 RL
3/17/61 Van
Trim Line
MH-8
MH-9
MH-252
MH-250
C.I. 2116 PAGE 16
B.M. ZA-28
El. 68.4 9+57
8+00.00
Gr. = 0.55%
El. 67.3 7+57
Gr. = 0.40%
El. 67.7 6+57
Gr. = 3.17%
El. 66.4 6+16
Gr. = 0.51%
El. 66.1 5+57
Gr. of ℄ of St. = 0.90%
4+50.00
Surface Over Sewer
12" Water Line
15" V.C.P. 0.48%
El. 58.85 8+00.00
El. 57.18 4+52.00
El. 57.08 4+48.00
15" V.C.P. 0.20%
Gr. = 0.90%
El. 63.4 2+57
Gr. = 1.00%
Jack 30' of 42" Steel Pipe 3/16" Thick & Backfill With Sand
1+00.00
El. 61.3 0+57
0+24.96
15" V.C.P. @ 0.20%
15" V.C.P. @ 1.60% J.C.
Encase
El. 56.38 1+02.00
El. 54.30 18" Inlet on North
El. 53.84 18" Outlet on South
51" M.W.D.
B.Z.A-25
32219
350.00
75.04
AVALON BLVD.
Conc. Pvmt.
℄ of St.
Rock & Oil Pvmt.
℄ of 15" V.C.P. Sewer
℄ of 51" M.W.D.
Macadam Dr.
15"x6" Ys
Dirt Surface
555.28
555.52
Page 17
100
8+57.5 Y:8+54.0
8+42.5
8+00.00 M.H. Offset Top of M.H. 1 Ft. Westerly
7+93.0
7+49.0 Y:7+48.5
6+98.0
6+67.1
25
6+51.6
5+90.5
5+44.0
4+95.0 Y:4+93.0
278.81
4+50.00 M.H. Offset Top of M.H. 1 Ft. Westerly
4+29.0
3+72.5
3+06.5
2+55.5
2+38.5
0+24.96 J.C.
90°
20' W.E.
12"(E) 6" E.W.
Page 14
Jack 30' of 42" Steel Pipe as Noted Above
Encase 9' of 15" V.C.P. Sewer Over 51" M.W.D. Line Per S-a 172 Case III
Laid "Y" at 45° to clear 12" Water on top. 6" H.L.'s Laid at 1/8"/ft. To P.L. Encase 6" H.L. per S-a-172 Case III
1+63.5
1+10.0
103.78
1+00.00 M.H. Offset Top of M.H. 1 Ft. Westerly
DUNCAN TRACT
M.R. 78-67-68
Trim Line
F.B. 2195
℄ : 31-32
Topo. : 119-120
"X" Sect. : 125-130
U.G. CK'D 3-21-61 RL
3/17/61 Van

Trim Line

"X" Sect. : 130-135

MH-5 USE EXTRA STRENGTH PIPE IN MAIN LINE MH-6 MH-7

C.I. 2116 PAGE 17

B.M. 2A-31

Gr. = 1.10%

Gr. = 0.81%

Surface Over Sewer

12" Water Line

15" V.C.P. 0.43%

Gr. = 0.41%

Gr. of E. of St. = 0.75%

15" V.C.P. 0.48%

Gr. = 0.35%

A.M. 2A-29

32220

282.75

350.00

350.00

Boundary of District

AVALON BLVD.

E. 15th St.

Concrete Pavement

Rock & Oil Pavement

E. of St.

E. 50' MWD

Dirt Surface

E. 15" VCP Sewer

Transit Line Per F.B. 2195-33

309.42

335.28

9+19.0

Page 16

Offset M.H. 1st Westerly

Page 18B

DUNCAN TRACT M.R. 78 - 67,68

Trim Line

MH-46 USE EXTRA STRENGTH PIPE IN MAIN LINE & HOUSE LATERALS MH-47 MH-3

USE EXTRA STRENGTH PIPE IN MAIN LINE MH-3 MH-4 MH-5

C.I. 2116 PAGE 18

B.M. 2A-33

B.M. 2A-32

B.M. 2A-31

Surface Over Sewer

12" Water

45" M.W.D.

Encase 85' of 16" C.I.P.

15" V.C.P. 0.20%

Gr. = 4.00%

Gr. = 1.20%

Gr. of Alley = 2.25%

Gr. = 9.13%

Gr. = 1.00%

Gr. = 0.40%

Gr. of T.L. = 0.44%

8" V.C.P. 1.20%

12" V.C.P. 0.20%

15" V.C.P. 0.20%

32221

296.87

189.08

67.12

122.85

112.94

TRACT No. 9728 M.B. 137-43-44

REDONDO BEACH BLVD.

ALLEY

1st ALLEY EAST OF SAN PEDRO ST.

Page 19A

Page 19B

Page 19

Page 31

Encase P.I. of 15" V.C.P. Sewer Under 45" M.W.D. Per S-d-172 Case III

Shown at Right

SAN PEDRO ST.

Boundary of District

Shown at Left

Proposed Widening Line Per Ordinance 1494 As Amended

AVALON BLVD.

DUNCAN TRACT M.R. 78 - 67-68

Offset M.H. 1st Westerly

F.B. 2195 { Topo. : 52-64 "X" Sect. : 180-181, 184-187

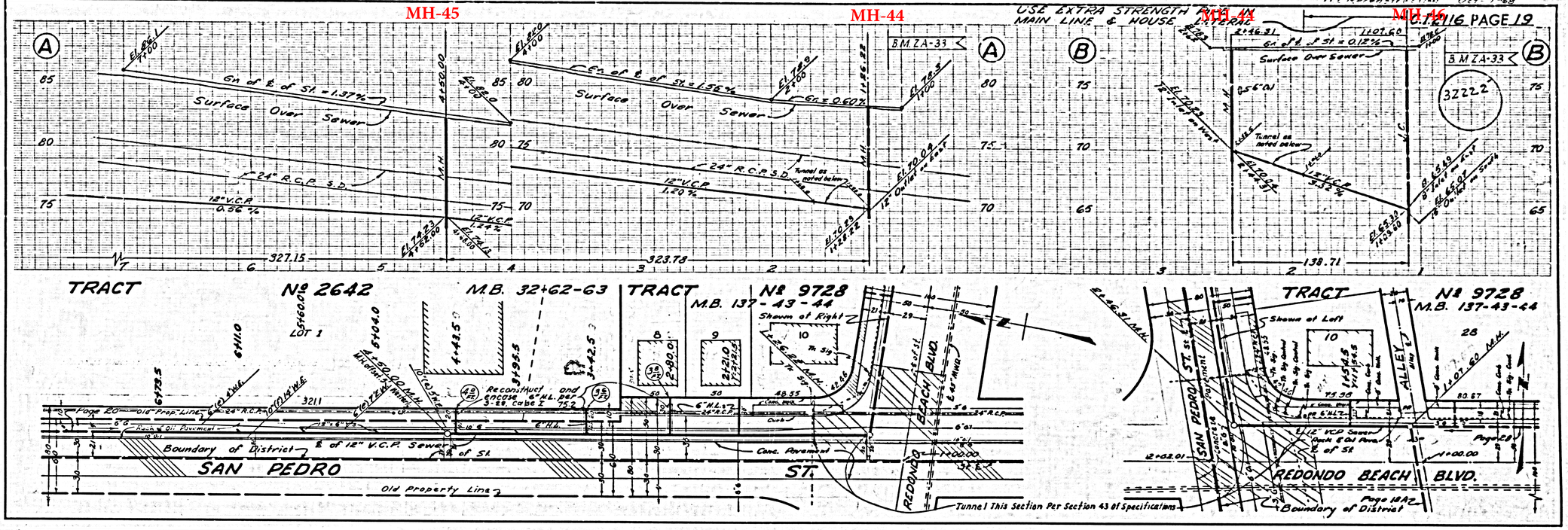
F.B. 2195 { Topo. : 93, 64-65 "X" Sect. : 160, 162-164

Trim Line

MH-45 MH-44 MH-43 MH-46

USE EXTRA STRENGTH V.C.P. FOR MAIN LINE & HOUSE CONNECTIONS

C.I. 2116 PAGE 19

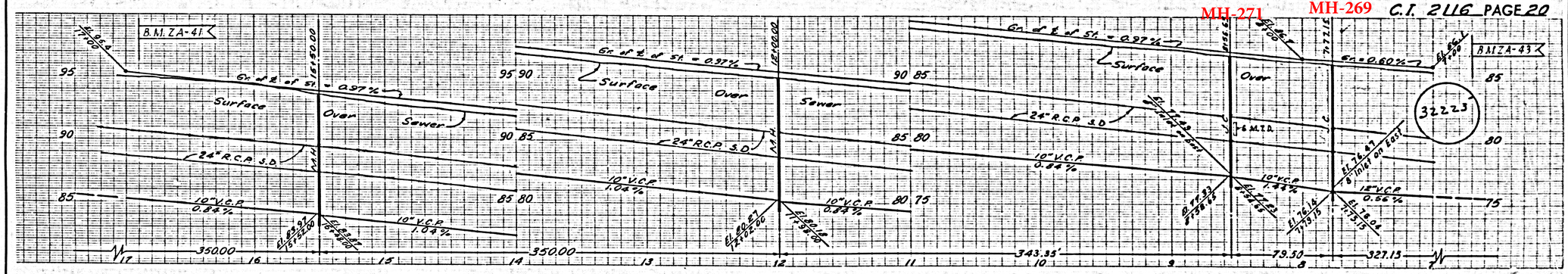


Trim Line

U.S.C.&G.S. 3-21-61 RL
Engrs. 3/17/61 Dave

H.L. Reconstruction Oct-1962

MH-271 MH-269 C.I. 2116 PAGE 20



Trim Line F.B. 2195 { S. : 39-42; Topo. : 201-203; "X" Sect. : 210-216 }

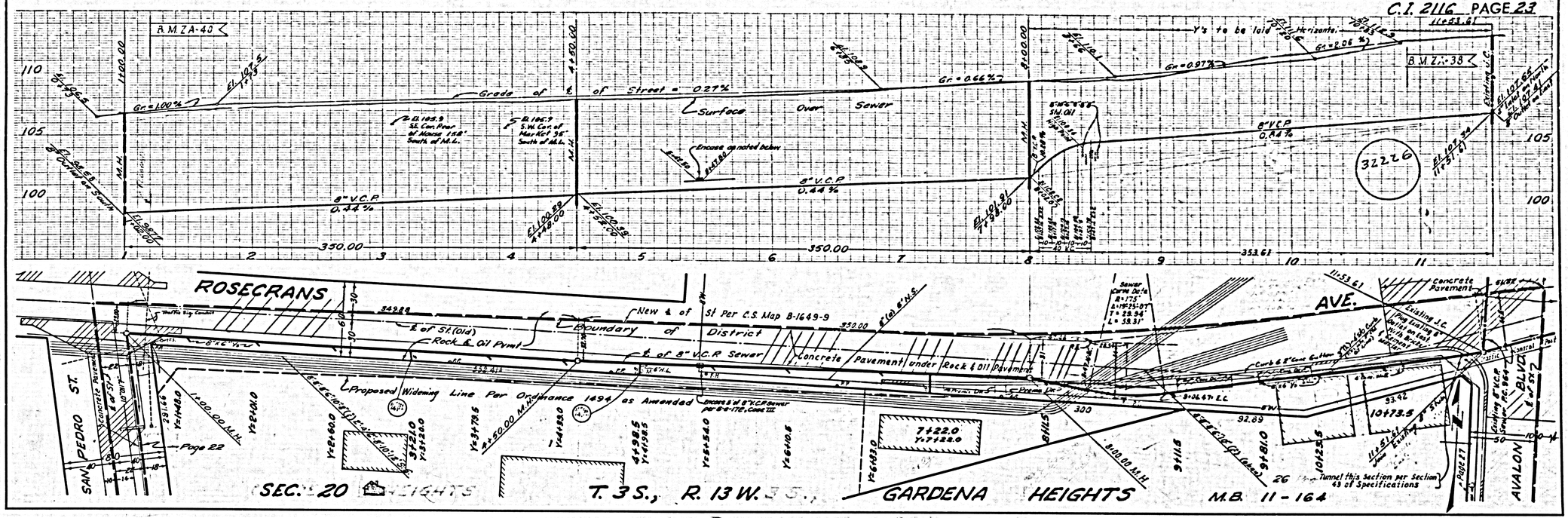
3-21-61 RL
3/17/61 Dave

Trim Line

Trim Line

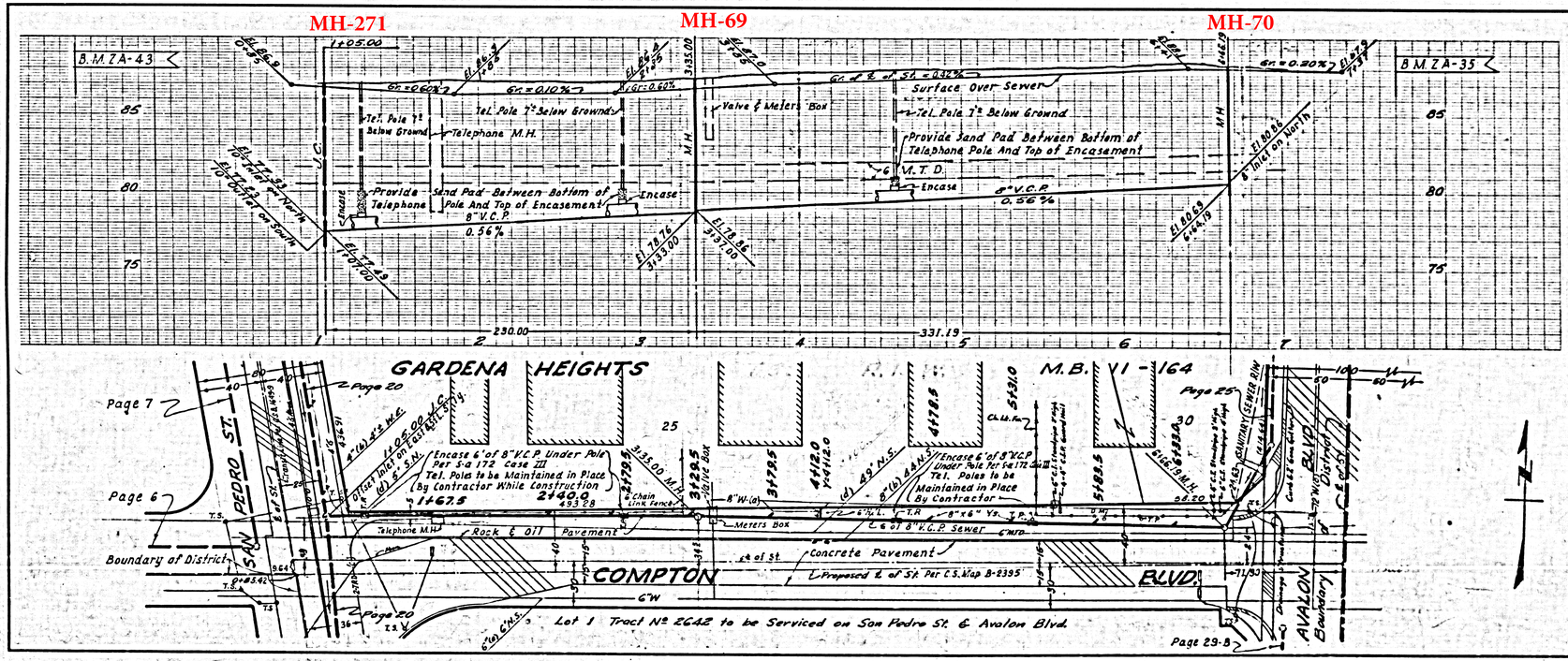
("K" Sect. : 276-280

C.I. 2116 PAGE 23



Trim Line

C.I. 2116 PAGE 24



KEY TO UNDERGROUND IDENTIFICATION

32227

(a) Sou. Calif. Water Co.
(b) Sou. Calif. Gas Co.
(c) Pac. Tel. & Tel. Co.
(d) Sou. Calif. Tel. Co.
(e) Union Oil Co.
(f) Richfield Oil Co.
(g) Shell Oil Co.
(h) Pacific Lighting Gas Co.
(i) Traffic Signal Conduit
(j) Standard Oil Co.
(k) Cowan Oil & Refining Co.
(l) Atlantic Oil Co.
(m) Sou. Calif. Pet. Corp.
(n) Gen. Pet. Corp.
(o) Am. States Water

Trim Line

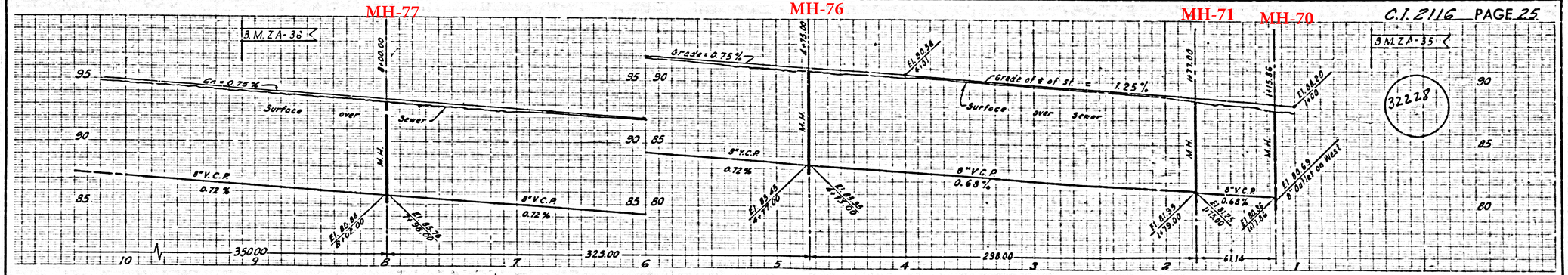
F.B. 2195 ℄ Topo. : 42, 35 , F.B. 1443 : 41, 42
"K" Sect. : 276-287
260-262

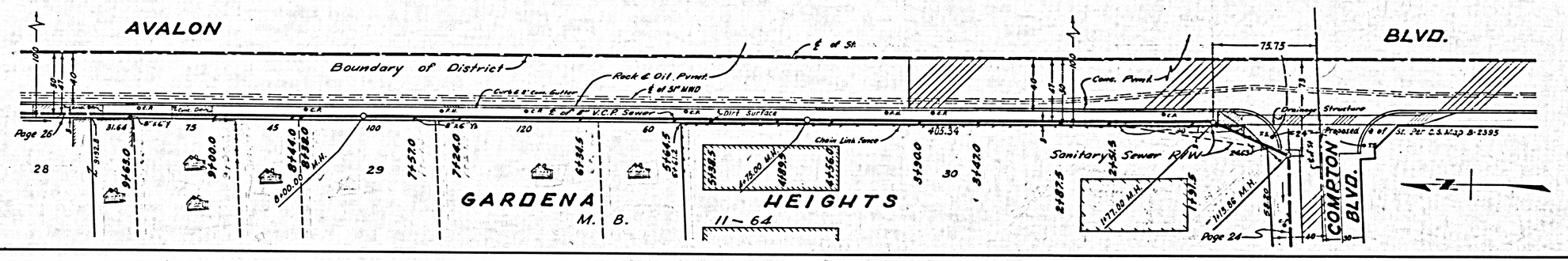
Trim Line

Trim Line

MH-77 MH-76 MH-71 MH-70

C.I. 2116 PAGE 25

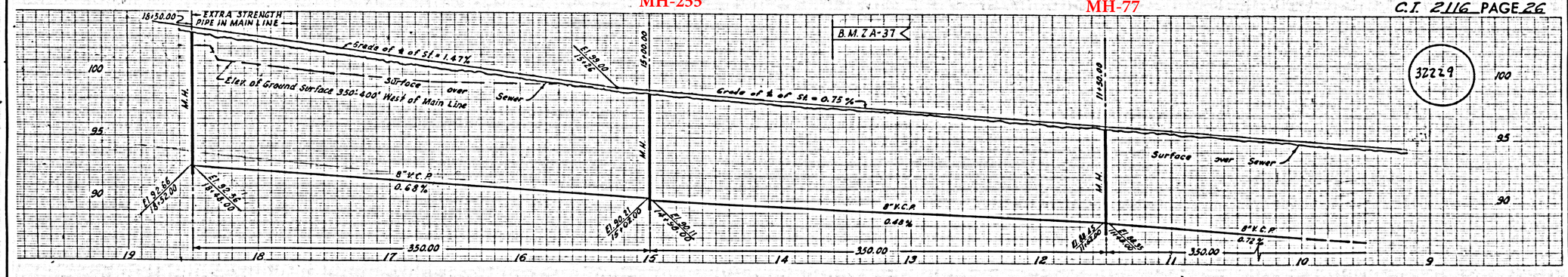


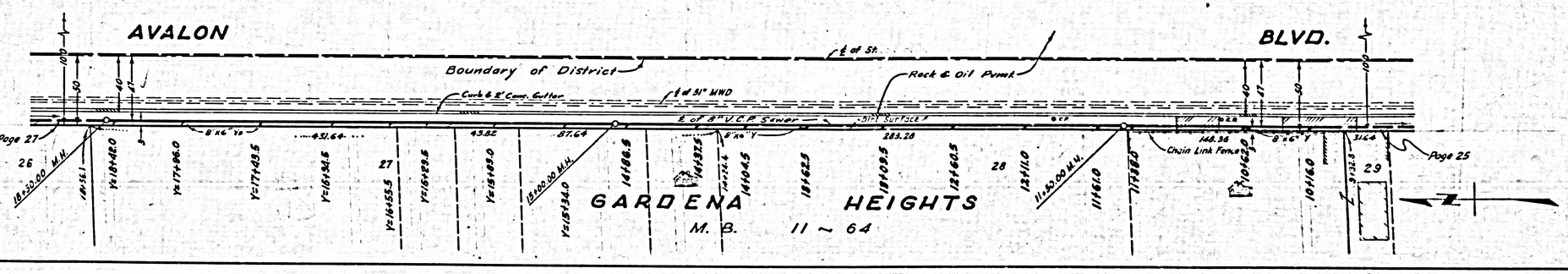


Trim Line

MH-255 MH-77

C.I. 2116 PAGE 26





Trim Line

T.S. ORDER NO. 211512

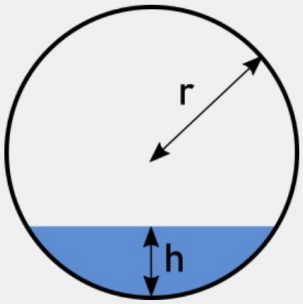
UG'D 3-28-61 R.L.

ENG'D 3/13/61 R.L.

APPENDIX C

Calculations

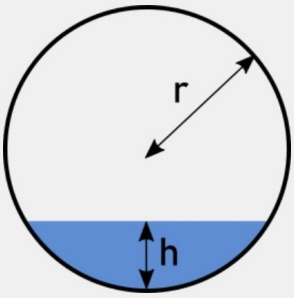
Shape	pipe (part-filled)



Radius (r)	7.5	in
Pipe fill (h)	11.25	in
Area	0.9873	ft²
Wetted perimeter	2.618	ft
Hydraulic radius	0.3771	ft

15 in VCP 3/4 Full

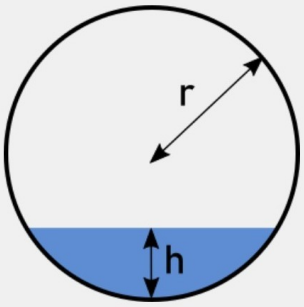
Shape	pipe (part-filled)



Radius (r)	4	in
Pipe fill (h)	4	in
Area	0.17453	ft²
Wetted perimeter	1.0472	ft
Hydraulic radius	0.16667	ft

8 in VCP 1/2 Full

Shape	pipe (part-filled)



Radius (r)	6	in
Pipe fill (h)	6	in
Area	0.3927	ft²
Wetted perimeter	1.5708	ft
Hydraulic radius	0.25	ft

12 in VCP 1/2 Full

12 in VCP

1.44%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams
Runoff Curve No.
Time of Concentration
Rational C Values
Mississippi Rainfall Amounts
Concrete Pipe Sizes
ADS Pipe Sizes

Hydraulics

Pipe Flow
Channel Flow
Manning's Formula
Kutter's Formula
Talbot's Formula
Weir Flow
Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:			Results:		
Area =	0.3927	ft²	Flow =	2.04	cfs
Hydraulic Radius =	0.25	ft	Velocity =	5.21	ft/s
Mannings 'n' =	0.013				
Slope =	0.0144	ft/ft			

8 in VCP

0.56%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:			Results:		
Area =	0.17453	ft²	Flow =	0.41	cfs
Hydraulic Radius =	0.16667	ft	Velocity =	2.37	ft/s
Mannings 'n' =	0.013				
Slope =	0.0056	ft/ft			

8 in VCP

0.68%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:			Results:		
Area =	0.17453	ft²	Flow =	0.46	cfs
Hydraulic Radius =	0.16667	ft	Velocity =	2.61	ft/s
Mannings 'n' =	0.013				
Slope =	0.0068	ft/ft			

8 in VCP

0.24%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:			Results:		
Area =	0.17453	ft²	Flow =	0.27	cfs
Hydraulic Radius =	0.16667	ft	Velocity =	1.54	ft/s
Mannings 'n' =	0.013				
Slope =	0.0024	ft/ft			

8 in VCP

0.72%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams
Runoff Curve No.
Time of Concentration
Rational C Values
Mississippi Rainfall Amounts
Concrete Pipe Sizes
ADS Pipe Sizes

Hydraulics

Pipe Flow
Channel Flow
Manning's Formula
Kutter's Formula
Talbot's Formula
Weir Flow
Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.17453	ft²
Hydraulic Radius =	0.16667	ft
Mannings 'n' =	0.013	
Slope =	0.0072	ft/ft

Results:

Flow =	0.47	cfs
Velocity =	2.69	ft/s

8 in VCP

0.48%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams
Runoff Curve No.
Time of Concentration
Rational C Values
Mississippi Rainfall Amounts
Concrete Pipe Sizes
ADS Pipe Sizes

Hydraulics

Pipe Flow
Channel Flow
Manning's Formula
Kutter's Formula
Talbot's Formula
Weir Flow
Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.17453	ft²
Hydraulic Radius =	0.16667	ft
Mannings 'n' =	0.013	
Slope =	0.0048	ft/ft

Results:

Flow =	0.38	cfs
Velocity =	2.19	ft/s

12 in VCP

1.24%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams
Runoff Curve No.
Time of Concentration
Rational C Values
Mississippi Rainfall Amounts
Concrete Pipe Sizes
ADS Pipe Sizes

Hydraulics

Pipe Flow
Channel Flow
Manning's Formula
Kutter's Formula
Talbot's Formula
Weir Flow
Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.3927	ft²
Hydraulic Radius =	0.25	ft
Mannings 'n' =	0.013	
Slope =	0.0124	ft/ft

Results:

Flow =	1.9	cfs
Velocity =	4.83	ft/s

12 in VCP

0.56%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.3927	ft
Hydraulic Radius =	0.25	ft
Mannings 'n' =	0.013	
Slope =	0.0056	ft/ft

Results:

Flow =	1.27	cfs
Velocity =	3.24	ft/s

12 in VCP

0.56%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.3927	ft²
Hydraulic Radius =	0.25	ft
Mannings 'n' =	0.013	
Slope =	0.0352	ft/ft

Results:

Flow =	3.2	cfs
Velocity =	8.15	ft/s

15 in VCP

0.2%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.9873	ft²
Hydraulic Radius =	0.3771	ft
Mannings 'n' =	0.013	
Slope =	0.002	ft/ft

Results:

Flow =	2.59	cfs
Velocity =	2.62	ft/s

15 in VCP

0.24%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.9873	ft²
Hydraulic Radius =	0.3771	ft
Mannings 'n' =	0.013	
Slope =	0.0024	ft/ft

Results:

Flow =	2.84	cfs
Velocity =	2.87	ft/s

15 in VCP

0.48%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.9873	ft²
Hydraulic Radius =	0.3771	ft
Mannings 'n' =	0.013	
Slope =	0.0048	ft/ft

Results:

Flow =	4.03	cfs
Velocity =	4.08	ft/s

15 in VCP

1.08%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams

Runoff Curve No.

Time of Concentration

Rational C Values

Mississippi Rainfall Amounts

Concrete Pipe Sizes

ADS Pipe Sizes

Hydraulics

Pipe Flow

Channel Flow

Manning's Formula

Kutter's Formula

Talbot's Formula

Weir Flow

Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.9873	ft²
Hydraulic Radius =	0.3771	ft
Mannings 'n' =	0.013	
Slope =	0.0108	ft/ft

Results:

Flow =	6.05	cfs
Velocity =	6.13	ft/s

15 in VCP

1.6%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams
Runoff Curve No.
Time of Concentration
Rational C Values
Mississippi Rainfall Amounts
Concrete Pipe Sizes
ADS Pipe Sizes

Hydraulics

Pipe Flow
Channel Flow
Manning's Formula
Kutter's Formula
Talbot's Formula
Weir Flow
Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.9873	ft²
Hydraulic Radius =	0.3771	ft
Mannings 'n' =	0.013	
Slope =	0.016	ft/ft

Results:

Flow =	7.37	cfs
Velocity =	7.46	ft/s

15 in VCP

2.80%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams
Runoff Curve No.
Time of Concentration
Rational C Values
Mississippi Rainfall Amounts
Concrete Pipe Sizes
ADS Pipe Sizes

Hydraulics

Pipe Flow
Channel Flow
Manning's Formula
Kutter's Formula
Talbot's Formula
Weir Flow
Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.9873	ft²
Hydraulic Radius =	0.3771	ft
Mannings 'n' =	0.013	
Slope =	0.028	ft/ft

Results:

Flow =	9.75	cfs
Velocity =	9.88	ft/s

15 in VCP

3.30%

Kutters Formula

Hydrology

Flood Characteristics of Mississippi Streams
Runoff Curve No.
Time of Concentration
Rational C Values
Mississippi Rainfall Amounts
Concrete Pipe Sizes
ADS Pipe Sizes

Hydraulics

Pipe Flow
Channel Flow
Manning's Formula
Kutter's Formula
Talbot's Formula
Weir Flow
Head Loss

$$Q = a * c * [R * S]^{1/2}$$

$$c = \frac{41.65 + 0.00281/S + 1.811/n}{1 + [41.65 + 0.00281/S] * n/R^{1/2}}$$

Input Data:

Area =	0.9873	ft²
Hydraulic Radius =	0.3771	ft
Mannings 'n' =	0.013	
Slope =	0.033	ft/ft

Results:

Flow =	10.59	cfs
Velocity =	10.72	ft/s

APPENDIX D

Flow Monitoring Study at MH 77

Site Report 9/17/2020

Confidential Proprietary Information

Invirotreat

2020.09 Avalon MH 77

MH at ~14825 S. Avalon Blvd
Gardena, CA 90248
MH # 77

Access:
MH on sidewalk east of address

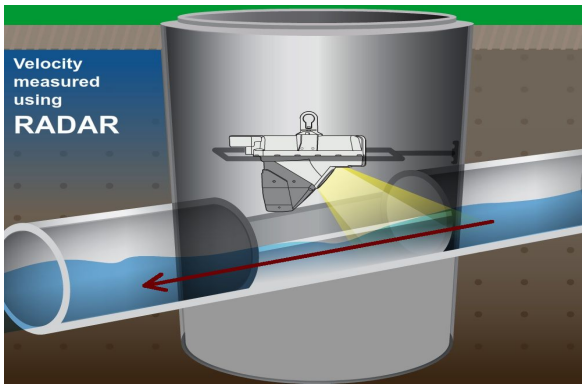
System Type:
Sanitary [X] Storm [ ]

Install Date: 9/08/2020

Map



Technology



Traffic Plan



Flow Meter			
Meter Depth: 78"			
MH Coordinates: 33.897131, -118.265475			
Moderate open channel hydraulics			
Avg Velocity	Avg Measured Level		Multiplier
1.66 fps	1.0"		1.0
Gas			
O2	H2S	CO	LEL
20.9	0	0	0
Notes			
No laterals; monitored the upstream line as it provided the best hydraulics.			
Traffic Safety			
No formal TCP required; used cones to designate work zone per site-specific WATCH requirements.			
Land Use			
Residential	Commercial	Industrial	Trunk
	X	X	

Manhole Depth	93"
Monitored Pipe Size	8"
Inner Pipe Size (In/Out)	8"/8"
Pipe Shape	
Pipe Condition	Good
Manhole Material	Brick
Silt	None observed
Velocity Profile Data	*
Velocity Profile Taken	0.4 2-D
Sensor Offset	15.15"
Sensor Dist. to Crown	7.15"
Sensor Direction	Upstream
Flow Heading	South

Meter Site Document

2020.09 Avalon MH 77

MH at ~14825 S. Avalon Blvd

Gardena, CA 90248

Site



Manhole Before Install



Installation Process



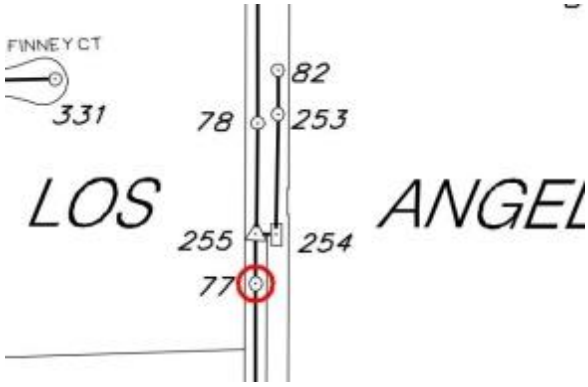
Installed



Upstream



CSMD S-1757 Sewer Map



Temporary Flow Study

Invirotreat

2020.09 Avalon MH 77

Meter Start Date		From	9/08/2020
Meter Stop Date		To	9/17/2020
Velocity (fps)		Level (in)	Flow (mgd)
Average	1.651	1.053	0.033 (0.051 cfs)
Maximum	2.750	2.000	0.092 (0.142 cfs)
Minimum	0.590	0.640	0.007 (0.011 cfs)
Pipe Size		8.000	
Estimated Capacity (mgd)		Not Calculated	
Capacity Used		Not Calculated	
Sensor Type		Hach - Flodar	

Utility Systems, Science and Software

9314 Bond Av, Suite A
El Cajon, CA 92021

601 N. Parkcenter Dr, Suite 209
Santa Ana, CA 92705

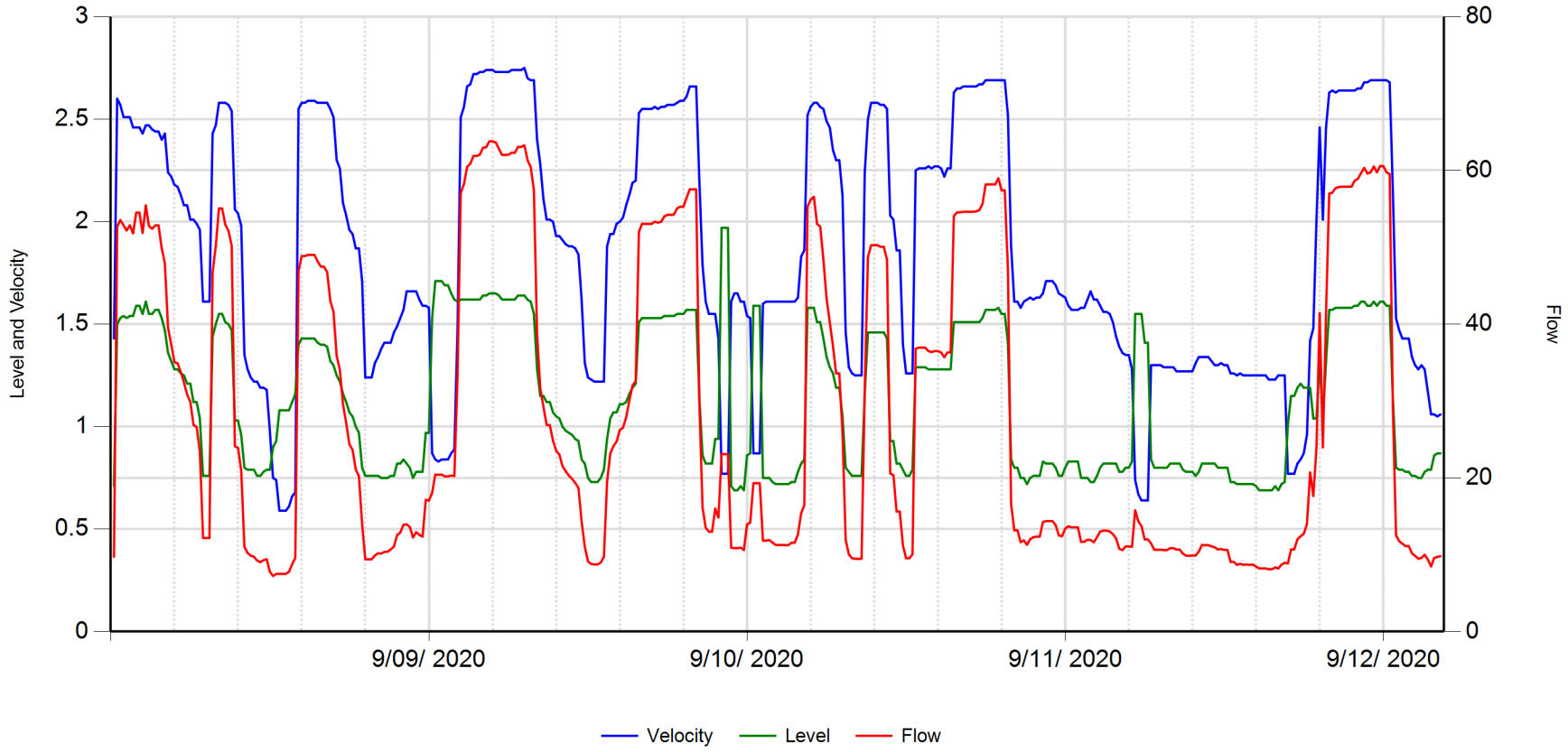
Utility Systems Science and Software

Report Date: 09/17/2020
Customer: Invirotreat
Group: Chemtrans Project
Site: 2020.09 Avalon MH 77

Statistics for 2020.09 Avalon MH 77: 9/08/2020 thru 9/17/2020

	Flow (GPM)			Flow (MGD)			Velocity (FPS)			Level (inches)				
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gal**	**Rain**
9/8/20	32.45	55.46	7.25	0.05	0.08	0.01	1.92	2.60	0.59	1.22	1.61	0.71	46,731	
9/9/20	31.48	63.79	8.73	0.05	0.09	0.01	1.95	2.75	0.83	1.20	1.71	0.73	45,329	
9/10/20	30.16	57.55	9.48	0.04	0.08	0.01	1.97	2.66	0.77	1.16	1.97	0.69	43,428	
9/11/20	22.74	58.98	9.89	0.03	0.08	0.01	1.74	2.69	0.64	1.02	1.58	0.72	32,739	
9/12/20	21.23	60.58	8.12	0.03	0.09	0.01	1.58	2.69	0.77	0.98	1.61	0.69	30,572	
9/13/20	9.93	52.55	6.44	0.01	0.08	0.01	1.22	2.46	0.83	0.78	1.55	0.68	14,298	
Week:	**24.66**	**63.79**	**6.44**	**0.04**	**0.09**	**0.01**	**1.73**	**2.75**	**0.59**	**1.06**	**1.97**	**0.68**	**213,097**	
9/14/20	16.40	52.55	7.33	0.02	0.08	0.01	1.26	2.46	0.63	1.07	1.59	0.82	23,611	
9/15/20	23.55	59.45	4.84	0.03	0.09	0.01	1.80	2.61	0.83	1.02	1.96	0.64	33,905	
9/16/20	20.42	47.18	7.22	0.03	0.07	0.01	1.52	2.33	1.06	1.08	2.00	0.65	29,409	
9/17/20	22.88	33.68	10.97	0.03	0.05	0.02	1.82	2.27	1.01	1.05	1.21	0.78	32,954	
Week:	**20.81**	**59.45**	**4.84**	**0.03**	**0.09**	**0.01**	**1.60**	**2.61**	**0.63**	**1.06**	**2.00**	**0.64**	**119,879**	
Totals:	**23.12**	**63.79**	**4.84**	**0.03**	**0.09**	**0.01**	**1.68**	**2.75**	**0.59**	**1.06**	**2.00**	**0.64**	**332,976**	

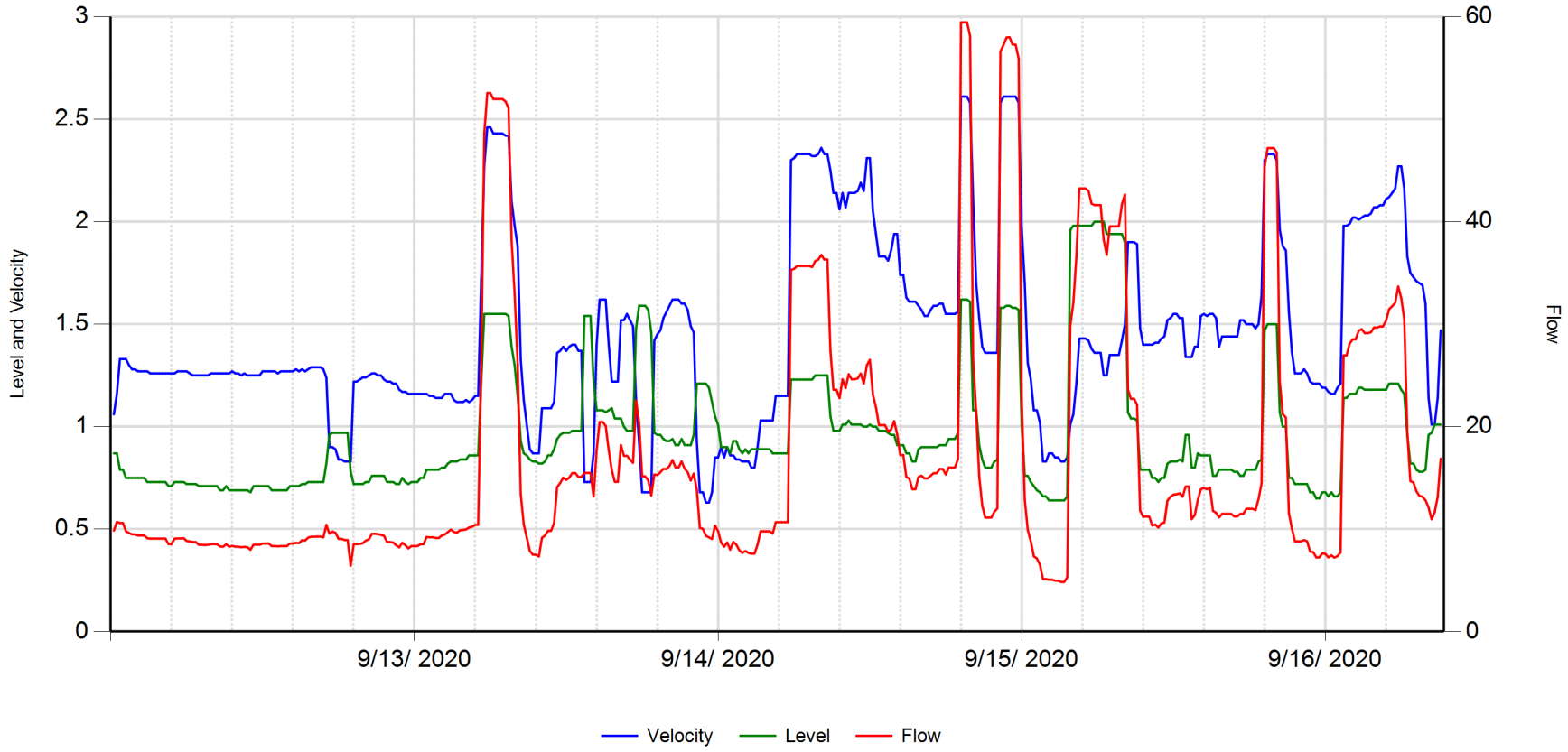
2020.09 Avalon MH 77



Average	1.861	1.134	28.444	**RainFall**	Inches
Maximum	2.750	1.970	63.791		
Minimum	0.590	0.690	7.251		

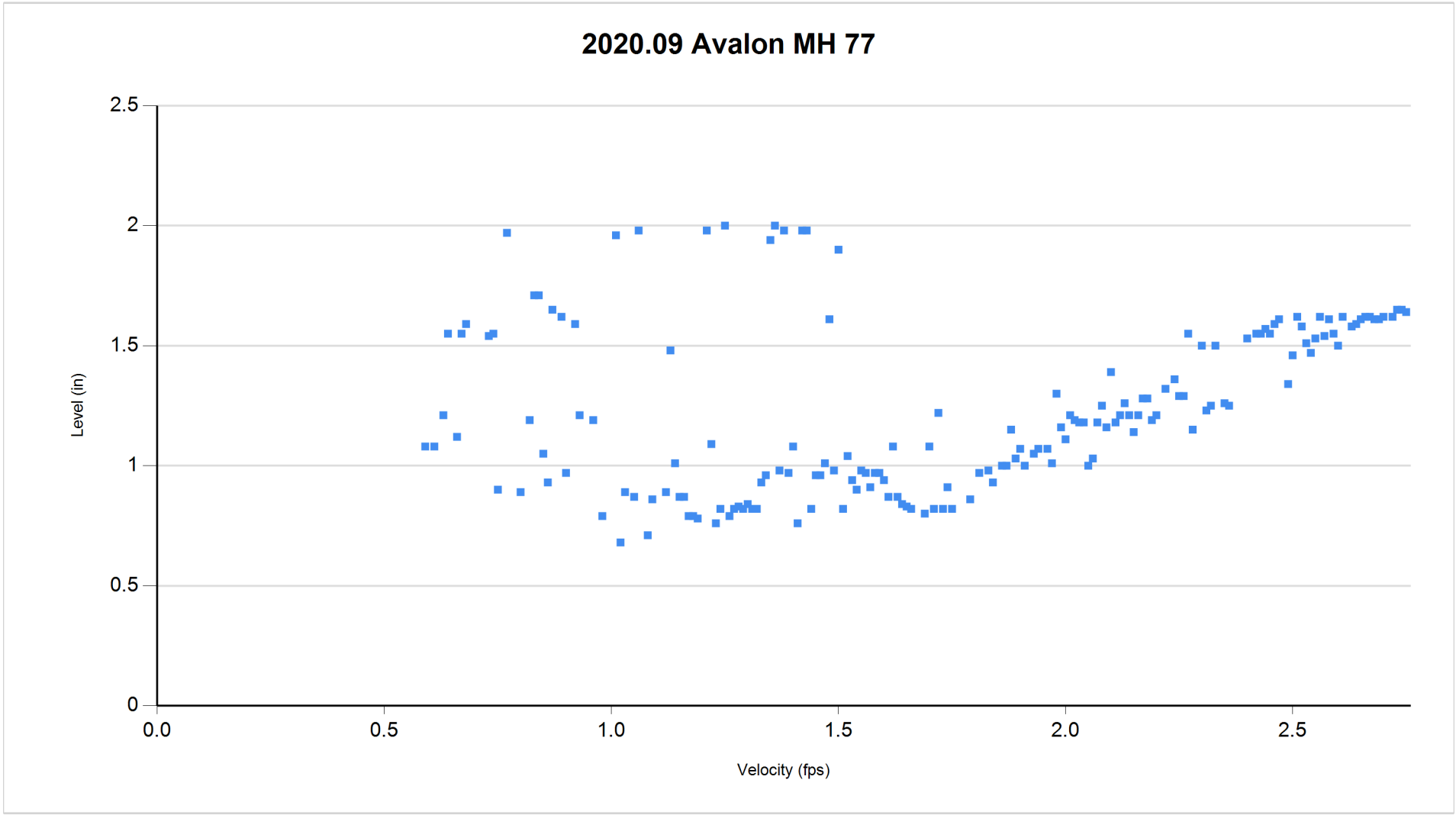
9/17/2020

2020.09 Avalon MH 77



Average	1.460	0.976	17.360	**RainFall**	Inches
Maximum	2.610	2.000	59.450		
Minimum	0.630	0.640	4.845		

9/17/2020



9/08/2020 thru 9/17/2020

9/17/2020 1:55:44 PM

Utility Systems Science and Software

Report Date: 09/17/2020
Customer: US3
Group: Chemtrans Project
Site: 2020.09 Avalon MH 77

Data for 2020.09 Avalon MH 77: 9/08/2020 thru 9/17/2020

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/08 08:41	0.71	9.72	1.43
2020/09/08 08:56	1.50	52.69	2.60
2020/09/08 09:11	1.53	53.56	2.57
2020/09/08 09:26	1.54	52.87	2.51
2020/09/08 09:41	1.53	52.19	2.51
2020/09/08 09:56	1.54	52.87	2.51
2020/09/08 10:11	1.54	51.81	2.46
2020/09/08 10:26	1.59	54.51	2.46
2020/09/08 10:41	1.59	54.51	2.46
2020/09/08 10:56	1.55	51.86	2.43
2020/09/08 11:11	1.61	55.46	2.47
2020/09/08 11:26	1.55	52.74	2.47
2020/09/08 11:41	1.55	52.42	2.45
2020/09/08 11:56	1.57	52.86	2.44
2020/09/08 12:11	1.57	52.86	2.44
2020/09/08 12:26	1.53	49.90	2.40
2020/09/08 12:41	1.47	47.92	2.43
2020/09/08 12:56	1.36	39.51	2.24
2020/09/08 13:11	1.32	37.36	2.22
2020/09/08 13:26	1.28	35.05	2.18
2020/09/08 13:41	1.28	34.93	2.17
2020/09/08 13:56	1.26	33.77	2.13
2020/09/08 14:11	1.25	32.40	2.08
2020/09/08 14:26	1.21	30.85	2.08
2020/09/08 14:41	1.21	29.90	2.01
2020/09/08 14:56	1.12	26.88	2.01
2020/09/08 15:11	1.12	26.62	1.99
2020/09/08 15:26	1.04	23.39	1.96
2020/09/08 15:41	0.76	12.19	1.61
2020/09/08 15:56	0.76	12.19	1.61
2020/09/08 16:11	0.76	12.19	1.61
2020/09/08 16:26	1.44	46.71	2.43
2020/09/08 16:41	1.50	50.15	2.47
2020/09/08 16:56	1.55	55.06	2.58
2020/09/08 17:11	1.55	55.06	2.58
2020/09/08 17:26	1.51	52.95	2.58
2020/09/08 17:41	1.50	52.13	2.57
2020/09/08 17:56	1.47	50.21	2.54

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/08 18:11	1.03	24.14	2.06
2020/09/08 18:26	1.03	23.90	2.04
2020/09/08 18:41	0.96	20.93	1.98
2020/09/08 18:56	0.80	11.05	1.35
2020/09/08 19:11	0.79	10.24	1.28
2020/09/08 19:26	0.79	9.88	1.24
2020/09/08 19:41	0.79	9.75	1.22
2020/09/08 19:56	0.76	9.25	1.22
2020/09/08 20:11	0.76	9.05	1.19
2020/09/08 20:26	0.78	9.29	1.19
2020/09/08 20:41	0.79	9.43	1.18
2020/09/08 20:56	0.79	7.80	0.98
2020/09/08 21:11	0.90	7.25	0.75
2020/09/08 21:26	0.93	7.50	0.74
2020/09/08 21:41	1.08	7.52	0.59
2020/09/08 21:56	1.08	7.52	0.59
2020/09/08 22:11	1.08	7.52	0.59
2020/09/08 22:26	1.08	7.79	0.61
2020/09/08 22:41	1.12	8.78	0.66
2020/09/08 22:56	1.16	9.60	0.68
2020/09/08 23:11	1.40	46.89	2.55
2020/09/08 23:26	1.43	48.87	2.58
2020/09/08 23:41	1.43	48.87	2.58
2020/09/08 23:56	1.43	49.01	2.59
2020/09/09 00:11	1.43	49.01	2.59
2020/09/09 00:26	1.43	49.01	2.59
2020/09/09 00:41	1.41	48.18	2.58
2020/09/09 00:56	1.40	47.50	2.58
2020/09/09 01:11	1.40	47.48	2.58
2020/09/09 01:26	1.39	46.80	2.58
2020/09/09 01:41	1.32	43.04	2.55
2020/09/09 01:56	1.30	41.60	2.51
2020/09/09 02:11	1.25	35.88	2.30
2020/09/09 02:26	1.22	34.06	2.26
2020/09/09 02:41	1.16	29.53	2.09
2020/09/09 02:56	1.12	27.13	2.03
2020/09/09 03:11	1.07	24.38	1.96
2020/09/09 03:26	1.05	23.66	1.94
2020/09/09 03:41	1.00	21.11	1.87
2020/09/09 03:56	0.97	20.21	1.87
2020/09/09 04:11	0.80	14.01	1.71
2020/09/09 04:26	0.76	9.41	1.24
2020/09/09 04:41	0.76	9.41	1.24
2020/09/09 04:56	0.76	9.41	1.24
2020/09/09 05:11	0.76	9.91	1.31

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/09 05:26	0.76	10.20	1.34
2020/09/09 05:41	0.75	10.16	1.38
2020/09/09 05:56	0.75	10.38	1.41
2020/09/09 06:11	0.75	10.41	1.41
2020/09/09 06:26	0.76	10.69	1.41
2020/09/09 06:41	0.76	11.08	1.46
2020/09/09 06:56	0.82	12.57	1.49
2020/09/09 07:11	0.82	12.90	1.53
2020/09/09 07:26	0.84	13.91	1.57
2020/09/09 07:41	0.82	13.96	1.66
2020/09/09 07:56	0.80	13.62	1.66
2020/09/09 08:11	0.75	12.26	1.66
2020/09/09 08:26	0.78	12.93	1.66
2020/09/09 08:41	0.78	12.60	1.62
2020/09/09 08:56	0.78	12.36	1.59
2020/09/09 09:11	0.97	17.15	1.59
2020/09/09 09:26	0.97	17.06	1.58
2020/09/09 09:41	1.53	18.02	0.87
2020/09/09 09:56	1.71	20.44	0.84
2020/09/09 10:11	1.71	20.40	0.83
2020/09/09 10:26	1.71	20.44	0.84
2020/09/09 10:41	1.69	20.20	0.84
2020/09/09 10:56	1.69	20.20	0.84
2020/09/09 11:11	1.65	20.31	0.87
2020/09/09 11:26	1.62	20.24	0.89
2020/09/09 11:41	1.61	33.31	1.48
2020/09/09 11:56	1.62	57.02	2.51
2020/09/09 12:11	1.62	58.20	2.56
2020/09/09 12:26	1.62	60.46	2.66
2020/09/09 12:41	1.62	60.87	2.67
2020/09/09 12:56	1.62	61.88	2.72
2020/09/09 13:11	1.62	61.88	2.72
2020/09/09 13:26	1.62	62.05	2.73
2020/09/09 13:41	1.64	62.96	2.73
2020/09/09 13:56	1.64	63.03	2.74
2020/09/09 14:11	1.65	63.79	2.74
2020/09/09 14:26	1.65	63.79	2.74
2020/09/09 14:41	1.65	63.65	2.73
2020/09/09 14:56	1.64	62.81	2.73
2020/09/09 15:11	1.62	62.02	2.73
2020/09/09 15:26	1.62	62.02	2.73
2020/09/09 15:41	1.62	62.05	2.73
2020/09/09 15:56	1.62	62.30	2.74
2020/09/09 16:11	1.62	62.30	2.74
2020/09/09 16:26	1.64	63.06	2.74

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/09 16:41	1.64	63.06	2.74
2020/09/09 16:56	1.64	63.27	2.75
2020/09/09 17:11	1.62	61.36	2.70
2020/09/09 17:26	1.61	60.44	2.69
2020/09/09 17:41	1.55	57.41	2.69
2020/09/09 17:56	1.28	38.66	2.40
2020/09/09 18:11	1.15	31.64	2.28
2020/09/09 18:26	1.15	29.25	2.11
2020/09/09 18:41	1.12	26.88	2.01
2020/09/09 18:56	1.12	26.88	2.01
2020/09/09 19:11	1.07	24.84	2.00
2020/09/09 19:26	1.05	23.53	1.93
2020/09/09 19:41	1.04	23.04	1.93
2020/09/09 19:56	1.00	21.54	1.91
2020/09/09 20:11	0.98	20.87	1.89
2020/09/09 20:26	0.97	20.31	1.88
2020/09/09 20:41	0.96	19.88	1.88
2020/09/09 20:56	0.94	19.33	1.87
2020/09/09 21:11	0.93	18.70	1.84
2020/09/09 21:26	0.84	14.33	1.62
2020/09/09 21:41	0.82	11.04	1.31
2020/09/09 21:56	0.75	9.14	1.24
2020/09/09 22:11	0.73	8.81	1.23
2020/09/09 22:26	0.73	8.75	1.22
2020/09/09 22:41	0.73	8.73	1.22
2020/09/09 22:56	0.75	8.99	1.22
2020/09/09 23:11	0.79	9.74	1.22
2020/09/09 23:26	0.94	19.51	1.88
2020/09/09 23:41	1.04	23.17	1.94
2020/09/09 23:56	1.07	24.14	1.94
2020/09/10 00:11	1.07	24.74	1.99
2020/09/10 00:26	1.11	26.24	2.00
2020/09/10 00:41	1.11	26.52	2.02
2020/09/10 00:56	1.12	27.86	2.08
2020/09/10 01:11	1.16	30.05	2.13
2020/09/10 01:26	1.19	32.03	2.19
2020/09/10 01:41	1.21	32.59	2.20
2020/09/10 01:56	1.51	52.01	2.53
2020/09/10 02:11	1.53	53.05	2.55
2020/09/10 02:26	1.53	53.05	2.55
2020/09/10 02:41	1.53	53.05	2.55
2020/09/10 02:56	1.53	53.05	2.55
2020/09/10 03:11	1.53	53.34	2.56
2020/09/10 03:26	1.53	53.21	2.55
2020/09/10 03:41	1.53	53.34	2.56

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/10 03:56	1.54	54.03	2.56
2020/09/10 04:11	1.54	54.23	2.57
2020/09/10 04:26	1.54	54.23	2.57
2020/09/10 04:41	1.54	54.26	2.57
2020/09/10 04:56	1.55	55.06	2.58
2020/09/10 05:11	1.55	55.29	2.59
2020/09/10 05:26	1.55	55.29	2.59
2020/09/10 05:41	1.57	56.46	2.61
2020/09/10 05:56	1.57	57.55	2.66
2020/09/10 06:11	1.57	57.55	2.66
2020/09/10 06:26	1.57	57.55	2.66
2020/09/10 06:41	1.14	29.99	2.20
2020/09/10 06:56	0.86	16.21	1.79
2020/09/10 07:11	0.82	13.53	1.61
2020/09/10 07:26	0.82	13.00	1.55
2020/09/10 07:41	0.82	13.00	1.55
2020/09/10 07:56	0.94	16.01	1.55
2020/09/10 08:11	0.94	14.84	1.43
2020/09/10 08:26	1.97	23.10	0.77
2020/09/10 08:41	1.97	23.10	0.77
2020/09/10 08:56	1.97	23.10	0.77
2020/09/10 09:11	0.71	10.93	1.61
2020/09/10 09:26	0.69	10.87	1.65
2020/09/10 09:41	0.69	10.87	1.65
2020/09/10 09:56	0.71	10.93	1.61
2020/09/10 10:11	0.69	10.62	1.61
2020/09/10 10:26	0.86	13.96	1.54
2020/09/10 10:41	0.87	14.19	1.53
2020/09/10 10:56	1.59	19.31	0.87
2020/09/10 11:11	1.59	19.31	0.87
2020/09/10 11:26	1.59	19.31	0.87
2020/09/10 11:41	0.75	11.84	1.60
2020/09/10 11:56	0.75	11.85	1.61
2020/09/10 12:11	0.75	11.92	1.61
2020/09/10 12:26	0.73	11.60	1.61
2020/09/10 12:41	0.72	11.27	1.61
2020/09/10 12:56	0.72	11.27	1.61
2020/09/10 13:11	0.72	11.27	1.61
2020/09/10 13:26	0.72	11.25	1.61
2020/09/10 13:41	0.72	11.25	1.61
2020/09/10 13:56	0.73	11.57	1.61
2020/09/10 14:11	0.73	11.57	1.61
2020/09/10 14:26	0.78	12.67	1.63
2020/09/10 14:41	0.82	15.40	1.83
2020/09/10 14:56	0.84	16.46	1.86

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/10 15:11	1.58	55.30	2.52
2020/09/10 15:26	1.58	56.21	2.56
2020/09/10 15:41	1.58	56.58	2.58
2020/09/10 15:56	1.51	53.05	2.58
2020/09/10 16:11	1.51	52.70	2.56
2020/09/10 16:26	1.43	48.40	2.55
2020/09/10 16:41	1.34	43.30	2.49
2020/09/10 16:56	1.29	40.27	2.46
2020/09/10 17:11	1.26	37.18	2.35
2020/09/10 17:26	1.19	33.61	2.30
2020/09/10 17:41	1.19	33.61	2.30
2020/09/10 17:56	1.05	25.97	2.13
2020/09/10 18:11	0.80	11.98	1.46
2020/09/10 18:26	0.78	10.07	1.29
2020/09/10 18:41	0.76	9.56	1.26
2020/09/10 18:56	0.76	9.48	1.25
2020/09/10 19:11	0.76	9.48	1.25
2020/09/10 19:26	0.76	9.48	1.25
2020/09/10 19:41	1.16	31.55	2.24
2020/09/10 19:56	1.46	48.72	2.50
2020/09/10 20:11	1.46	50.27	2.58
2020/09/10 20:26	1.46	50.27	2.58
2020/09/10 20:41	1.46	50.27	2.58
2020/09/10 20:56	1.46	50.06	2.57
2020/09/10 21:11	1.46	50.06	2.57
2020/09/10 21:26	1.43	48.40	2.55
2020/09/10 21:41	0.93	20.57	2.03
2020/09/10 21:56	0.93	20.37	2.01
2020/09/10 22:11	0.82	15.63	1.86
2020/09/10 22:26	0.82	15.63	1.86
2020/09/10 22:41	0.79	11.21	1.40
2020/09/10 22:56	0.76	9.55	1.26
2020/09/10 23:11	0.76	9.55	1.26
2020/09/10 23:26	0.79	10.06	1.26
2020/09/10 23:41	1.29	36.82	2.25
2020/09/10 23:56	1.29	36.95	2.26
2020/09/11 00:11	1.29	36.95	2.26
2020/09/11 00:26	1.29	36.95	2.26
2020/09/11 00:41	1.28	36.50	2.27
2020/09/11 00:56	1.28	36.37	2.26
2020/09/11 01:11	1.28	36.50	2.27
2020/09/11 01:26	1.28	36.50	2.27
2020/09/11 01:41	1.28	36.33	2.26
2020/09/11 01:56	1.28	35.71	2.22
2020/09/11 02:11	1.28	36.33	2.26

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/11 02:26	1.28	36.33	2.26
2020/09/11 02:41	1.51	54.05	2.63
2020/09/11 02:56	1.51	54.55	2.65
2020/09/11 03:11	1.51	54.55	2.65
2020/09/11 03:26	1.51	54.62	2.66
2020/09/11 03:41	1.51	54.62	2.66
2020/09/11 03:56	1.51	54.62	2.66
2020/09/11 04:11	1.51	54.62	2.66
2020/09/11 04:26	1.51	54.68	2.66
2020/09/11 04:41	1.51	54.84	2.67
2020/09/11 04:56	1.53	55.62	2.67
2020/09/11 05:11	1.57	58.18	2.69
2020/09/11 05:26	1.57	58.18	2.69
2020/09/11 05:41	1.57	58.18	2.69
2020/09/11 05:56	1.57	58.18	2.69
2020/09/11 06:11	1.58	58.98	2.69
2020/09/11 06:26	1.55	57.41	2.69
2020/09/11 06:41	1.55	57.41	2.69
2020/09/11 06:56	1.41	47.16	2.52
2020/09/11 07:11	0.84	16.62	1.88
2020/09/11 07:26	0.80	13.19	1.61
2020/09/11 07:41	0.80	13.19	1.61
2020/09/11 07:56	0.75	11.64	1.58
2020/09/11 08:11	0.75	11.87	1.61
2020/09/11 08:26	0.72	11.32	1.62
2020/09/11 08:41	0.75	12.03	1.63
2020/09/11 08:56	0.76	12.29	1.62
2020/09/11 09:11	0.76	12.36	1.63
2020/09/11 09:26	0.76	12.36	1.63
2020/09/11 09:41	0.83	14.26	1.65
2020/09/11 09:56	0.82	14.39	1.71
2020/09/11 10:11	0.82	14.39	1.71
2020/09/11 10:26	0.82	14.39	1.71
2020/09/11 10:41	0.80	13.86	1.69
2020/09/11 10:56	0.76	12.52	1.65
2020/09/11 11:11	0.76	12.41	1.64
2020/09/11 11:26	0.80	13.40	1.63
2020/09/11 11:41	0.83	13.71	1.59
2020/09/11 11:56	0.83	13.58	1.57
2020/09/11 12:11	0.83	13.58	1.57
2020/09/11 12:26	0.83	13.58	1.57
2020/09/11 12:41	0.75	11.68	1.58
2020/09/11 12:56	0.75	11.69	1.58
2020/09/11 13:11	0.75	11.96	1.62
2020/09/11 13:26	0.73	11.92	1.66

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/11 13:41	0.73	11.64	1.62
2020/09/11 13:56	0.76	12.29	1.62
2020/09/11 14:11	0.80	13.03	1.59
2020/09/11 14:26	0.82	13.14	1.56
2020/09/11 14:41	0.82	13.14	1.56
2020/09/11 14:56	0.82	13.05	1.55
2020/09/11 15:11	0.82	12.68	1.51
2020/09/11 15:26	0.82	12.14	1.44
2020/09/11 15:41	0.78	10.79	1.39
2020/09/11 15:56	0.78	10.60	1.36
2020/09/11 16:11	0.80	11.09	1.35
2020/09/11 16:26	0.80	11.09	1.35
2020/09/11 16:41	0.83	11.05	1.28
2020/09/11 16:56	1.55	15.79	0.74
2020/09/11 17:11	1.55	14.35	0.67
2020/09/11 17:26	1.55	13.73	0.64
2020/09/11 17:41	1.41	12.00	0.64
2020/09/11 17:56	1.41	12.00	0.64
2020/09/11 18:11	0.84	11.47	1.30
2020/09/11 18:26	0.80	10.65	1.30
2020/09/11 18:41	0.80	10.66	1.30
2020/09/11 18:56	0.80	10.66	1.30
2020/09/11 19:11	0.80	10.61	1.29
2020/09/11 19:26	0.80	10.60	1.29
2020/09/11 19:41	0.82	10.87	1.29
2020/09/11 19:56	0.82	10.87	1.29
2020/09/11 20:11	0.82	10.68	1.27
2020/09/11 20:26	0.82	10.68	1.27
2020/09/11 20:41	0.79	10.15	1.27
2020/09/11 20:56	0.78	9.89	1.27
2020/09/11 21:11	0.78	9.89	1.27
2020/09/11 21:26	0.78	9.91	1.27
2020/09/11 21:41	0.76	9.91	1.31
2020/09/11 21:56	0.78	10.42	1.34
2020/09/11 22:11	0.82	11.28	1.34
2020/09/11 22:26	0.82	11.26	1.34
2020/09/11 22:41	0.82	11.26	1.34
2020/09/11 22:56	0.82	11.10	1.32
2020/09/11 23:11	0.82	10.97	1.30
2020/09/11 23:26	0.80	10.70	1.30
2020/09/11 23:41	0.80	10.75	1.31
2020/09/11 23:56	0.80	10.64	1.30
2020/09/12 00:11	0.80	10.64	1.30
2020/09/12 00:26	0.73	9.07	1.26
2020/09/12 00:41	0.73	9.07	1.26

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/12 00:56	0.72	8.70	1.25
2020/09/12 01:11	0.72	8.82	1.26
2020/09/12 01:26	0.72	8.70	1.25
2020/09/12 01:41	0.72	8.74	1.25
2020/09/12 01:56	0.72	8.70	1.25
2020/09/12 02:11	0.72	8.73	1.25
2020/09/12 02:26	0.71	8.47	1.25
2020/09/12 02:41	0.69	8.23	1.25
2020/09/12 02:56	0.69	8.23	1.25
2020/09/12 03:11	0.69	8.23	1.25
2020/09/12 03:26	0.69	8.12	1.23
2020/09/12 03:41	0.69	8.12	1.23
2020/09/12 03:56	0.71	8.36	1.23
2020/09/12 04:11	0.69	8.23	1.25
2020/09/12 04:26	0.72	8.72	1.25
2020/09/12 04:41	0.73	8.96	1.25
2020/09/12 04:56	1.01	8.87	0.77
2020/09/12 05:11	1.15	10.70	0.77
2020/09/12 05:26	1.15	10.70	0.77
2020/09/12 05:41	1.19	12.00	0.82
2020/09/12 05:56	1.21	12.41	0.84
2020/09/12 06:11	1.19	12.74	0.87
2020/09/12 06:26	1.19	14.01	0.96
2020/09/12 06:41	1.19	20.71	1.42
2020/09/12 06:56	1.04	17.66	1.48
2020/09/12 07:11	1.04	23.97	2.01
2020/09/12 07:26	1.32	41.45	2.46
2020/09/12 07:41	1.04	23.97	2.01
2020/09/12 07:56	1.32	41.45	2.46
2020/09/12 08:11	1.57	56.99	2.63
2020/09/12 08:26	1.57	57.12	2.64
2020/09/12 08:41	1.58	57.71	2.63
2020/09/12 08:56	1.58	57.85	2.64
2020/09/12 09:11	1.58	57.88	2.64
2020/09/12 09:26	1.58	57.88	2.64
2020/09/12 09:41	1.58	57.88	2.64
2020/09/12 09:56	1.58	57.88	2.64
2020/09/12 10:11	1.59	58.68	2.64
2020/09/12 10:26	1.59	58.91	2.65
2020/09/12 10:41	1.61	59.65	2.65
2020/09/12 10:56	1.61	60.34	2.68
2020/09/12 11:11	1.59	59.59	2.68
2020/09/12 11:26	1.59	59.76	2.69
2020/09/12 11:41	1.61	60.51	2.69
2020/09/12 11:56	1.59	59.76	2.69

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/12 12:11	1.61	60.58	2.69
2020/09/12 12:26	1.61	60.58	2.69
2020/09/12 12:41	1.59	59.76	2.69
2020/09/12 12:56	1.59	59.52	2.68
2020/09/12 13:11	1.14	29.22	2.15
2020/09/12 13:26	0.80	12.54	1.53
2020/09/12 13:41	0.79	11.77	1.47
2020/09/12 13:56	0.79	11.44	1.43
2020/09/12 14:11	0.78	11.14	1.43
2020/09/12 14:26	0.78	11.14	1.43
2020/09/12 14:41	0.76	10.20	1.34
2020/09/12 14:56	0.76	9.86	1.30
2020/09/12 15:11	0.75	9.49	1.28
2020/09/12 15:26	0.75	9.60	1.30
2020/09/12 15:41	0.78	10.01	1.28
2020/09/12 15:56	0.79	9.38	1.17
2020/09/12 16:11	0.79	8.48	1.06
2020/09/12 16:26	0.86	9.60	1.06
2020/09/12 16:41	0.87	9.72	1.05
2020/09/12 16:56	0.87	9.82	1.06
2020/09/12 17:11	0.87	9.85	1.06
2020/09/12 17:26	0.87	10.70	1.16
2020/09/12 17:41	0.79	10.60	1.33
2020/09/12 17:56	0.79	10.60	1.33
2020/09/12 18:11	0.75	9.79	1.33
2020/09/12 18:26	0.75	9.63	1.30
2020/09/12 18:41	0.75	9.49	1.28
2020/09/12 18:56	0.75	9.49	1.28
2020/09/12 19:11	0.75	9.37	1.27
2020/09/12 19:26	0.75	9.37	1.27
2020/09/12 19:41	0.75	9.37	1.27
2020/09/12 19:56	0.73	9.12	1.27
2020/09/12 20:11	0.73	9.07	1.26
2020/09/12 20:26	0.73	9.07	1.26
2020/09/12 20:41	0.73	9.07	1.26
2020/09/12 20:56	0.73	9.07	1.26
2020/09/12 21:11	0.73	9.07	1.26
2020/09/12 21:26	0.73	9.07	1.26
2020/09/12 21:41	0.71	8.54	1.26
2020/09/12 21:56	0.71	8.54	1.26
2020/09/12 22:11	0.73	9.07	1.26
2020/09/12 22:26	0.73	9.10	1.27
2020/09/12 22:41	0.73	9.10	1.27
2020/09/12 22:56	0.73	9.12	1.27
2020/09/12 23:11	0.72	8.84	1.27

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/12 23:26	0.72	8.81	1.26
2020/09/12 23:41	0.72	8.74	1.25
2020/09/12 23:56	0.72	8.74	1.25
2020/09/13 00:11	0.71	8.47	1.25
2020/09/13 00:26	0.71	8.47	1.25
2020/09/13 00:41	0.71	8.45	1.25
2020/09/13 00:56	0.71	8.47	1.25
2020/09/13 01:11	0.71	8.54	1.26
2020/09/13 01:26	0.71	8.54	1.26
2020/09/13 01:41	0.71	8.53	1.26
2020/09/13 01:56	0.69	8.32	1.26
2020/09/13 02:11	0.69	8.29	1.26
2020/09/13 02:26	0.71	8.53	1.26
2020/09/13 02:41	0.69	8.29	1.26
2020/09/13 02:56	0.69	8.37	1.27
2020/09/13 03:11	0.69	8.29	1.26
2020/09/13 03:26	0.69	8.29	1.26
2020/09/13 03:41	0.69	8.24	1.25
2020/09/13 03:56	0.69	8.28	1.26
2020/09/13 04:11	0.69	8.24	1.25
2020/09/13 04:26	0.68	7.99	1.25
2020/09/13 04:41	0.71	8.48	1.25
2020/09/13 04:56	0.71	8.48	1.25
2020/09/13 05:11	0.71	8.48	1.25
2020/09/13 05:26	0.71	8.59	1.27
2020/09/13 05:41	0.71	8.59	1.27
2020/09/13 05:56	0.71	8.62	1.27
2020/09/13 06:11	0.69	8.35	1.27
2020/09/13 06:26	0.69	8.35	1.27
2020/09/13 06:41	0.69	8.33	1.26
2020/09/13 06:56	0.69	8.35	1.27
2020/09/13 07:11	0.69	8.35	1.27
2020/09/13 07:26	0.69	8.35	1.27
2020/09/13 07:41	0.71	8.60	1.27
2020/09/13 07:56	0.71	8.60	1.27
2020/09/13 08:11	0.71	8.67	1.28
2020/09/13 08:26	0.71	8.64	1.27
2020/09/13 08:41	0.72	8.92	1.28
2020/09/13 08:56	0.72	8.89	1.27
2020/09/13 09:11	0.73	9.17	1.28
2020/09/13 09:26	0.73	9.26	1.29
2020/09/13 09:41	0.73	9.26	1.29
2020/09/13 09:56	0.73	9.28	1.29
2020/09/13 10:11	0.73	9.28	1.29
2020/09/13 10:26	0.73	9.19	1.28

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/13 10:41	0.82	10.42	1.24
2020/09/13 10:56	0.96	9.56	0.90
2020/09/13 11:11	0.97	9.76	0.90
2020/09/13 11:26	0.97	9.65	0.89
2020/09/13 11:41	0.97	9.06	0.84
2020/09/13 11:56	0.97	9.06	0.84
2020/09/13 12:11	0.97	8.94	0.83
2020/09/13 12:26	0.97	8.94	0.83
2020/09/13 12:41	0.78	6.44	0.83
2020/09/13 12:56	0.72	8.55	1.22
2020/09/13 13:11	0.72	8.55	1.22
2020/09/13 13:26	0.72	8.56	1.23
2020/09/13 13:41	0.72	8.63	1.24
2020/09/13 13:56	0.73	8.88	1.24
2020/09/13 14:11	0.73	9.01	1.25
2020/09/13 14:26	0.76	9.55	1.26
2020/09/13 14:41	0.76	9.55	1.26
2020/09/13 14:56	0.76	9.51	1.25
2020/09/13 15:11	0.76	9.44	1.25
2020/09/13 15:26	0.76	9.34	1.23
2020/09/13 15:41	0.73	8.73	1.22
2020/09/13 15:56	0.73	8.73	1.22
2020/09/13 16:11	0.73	8.70	1.21
2020/09/13 16:26	0.72	8.43	1.21
2020/09/13 16:41	0.72	8.23	1.18
2020/09/13 16:56	0.75	8.67	1.17
2020/09/13 17:11	0.73	8.44	1.17
2020/09/13 17:26	0.72	8.12	1.16
2020/09/13 17:41	0.73	8.35	1.16
2020/09/13 17:56	0.73	8.35	1.16
2020/09/13 18:11	0.73	8.35	1.16
2020/09/13 18:26	0.75	8.53	1.16
2020/09/13 18:41	0.75	8.53	1.16
2020/09/13 18:56	0.79	9.24	1.16
2020/09/13 19:11	0.79	9.21	1.15
2020/09/13 19:26	0.79	9.21	1.15
2020/09/13 19:41	0.79	9.14	1.14
2020/09/13 19:56	0.79	9.14	1.14
2020/09/13 20:11	0.80	9.37	1.14
2020/09/13 20:26	0.80	9.47	1.16
2020/09/13 20:41	0.82	9.72	1.16
2020/09/13 20:56	0.83	9.96	1.16
2020/09/13 21:11	0.83	9.74	1.13
2020/09/13 21:26	0.83	9.66	1.12
2020/09/13 21:41	0.84	9.89	1.12

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/13 21:56	0.84	9.92	1.12
2020/09/13 22:11	0.84	9.98	1.13
2020/09/13 22:26	0.86	10.16	1.12
2020/09/13 22:41	0.86	10.24	1.13
2020/09/13 22:56	0.86	10.42	1.15
2020/09/13 23:11	0.86	10.42	1.15
2020/09/13 23:26	1.22	25.95	1.72
2020/09/13 23:41	1.55	48.57	2.27
2020/09/13 23:56	1.55	52.55	2.46
2020/09/14 00:11	1.55	52.55	2.46
2020/09/14 00:26	1.55	51.96	2.43
2020/09/14 00:41	1.55	51.96	2.43
2020/09/14 00:56	1.55	51.96	2.43
2020/09/14 01:11	1.55	51.96	2.43
2020/09/14 01:26	1.55	51.73	2.42
2020/09/14 01:41	1.54	51.07	2.42
2020/09/14 01:56	1.39	38.15	2.10
2020/09/14 02:11	1.30	32.91	1.98
2020/09/14 02:26	1.15	26.08	1.88
2020/09/14 02:41	0.93	13.46	1.33
2020/09/14 02:56	0.87	10.49	1.13
2020/09/14 03:11	0.86	9.18	1.01
2020/09/14 03:26	0.84	7.89	0.89
2020/09/14 03:41	0.83	7.51	0.87
2020/09/14 03:56	0.83	7.51	0.87
2020/09/14 04:11	0.82	7.33	0.87
2020/09/14 04:26	0.82	9.15	1.09
2020/09/14 04:41	0.83	9.38	1.09
2020/09/14 04:56	0.86	9.84	1.09
2020/09/14 05:11	0.86	9.84	1.09
2020/09/14 05:26	0.89	10.60	1.12
2020/09/14 05:41	0.94	14.10	1.36
2020/09/14 05:56	0.96	14.50	1.37
2020/09/14 06:11	0.97	15.03	1.39
2020/09/14 06:26	0.97	14.81	1.37
2020/09/14 06:41	0.97	15.03	1.39
2020/09/14 06:56	0.98	15.48	1.40
2020/09/14 07:11	0.98	15.48	1.40
2020/09/14 07:26	0.98	15.09	1.37
2020/09/14 07:41	0.98	15.09	1.37
2020/09/14 07:56	1.54	15.49	0.73
2020/09/14 08:11	1.54	15.49	0.73
2020/09/14 08:26	1.54	15.49	0.73
2020/09/14 08:41	1.22	13.19	0.87
2020/09/14 08:56	1.08	17.68	1.40

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/14 09:11	1.08	20.46	1.62
2020/09/14 09:26	1.08	20.46	1.62
2020/09/14 09:41	1.07	20.08	1.62
2020/09/14 09:56	1.08	17.70	1.40
2020/09/14 10:11	1.09	15.77	1.22
2020/09/14 10:26	1.04	14.61	1.22
2020/09/14 10:41	1.04	14.61	1.22
2020/09/14 10:56	1.04	18.21	1.52
2020/09/14 11:11	1.00	17.15	1.52
2020/09/14 11:26	0.98	17.16	1.55
2020/09/14 11:41	0.98	16.81	1.52
2020/09/14 11:56	0.98	16.47	1.49
2020/09/14 12:11	1.48	22.54	1.13
2020/09/14 12:26	1.59	20.39	0.92
2020/09/14 12:41	1.59	15.14	0.68
2020/09/14 12:56	1.59	15.14	0.68
2020/09/14 13:11	1.57	14.77	0.68
2020/09/14 13:26	1.46	13.29	0.68
2020/09/14 13:41	0.97	15.32	1.42
2020/09/14 13:56	0.96	15.30	1.45
2020/09/14 14:11	0.96	15.55	1.47
2020/09/14 14:26	0.94	15.89	1.53
2020/09/14 14:41	0.93	15.86	1.56
2020/09/14 14:56	0.93	16.17	1.59
2020/09/14 15:11	0.94	16.74	1.62
2020/09/14 15:26	0.91	16.03	1.62
2020/09/14 15:41	0.91	16.03	1.62
2020/09/14 15:56	0.94	16.62	1.60
2020/09/14 16:11	0.91	15.90	1.60
2020/09/14 16:26	0.91	15.56	1.57
2020/09/14 16:41	0.91	14.74	1.49
2020/09/14 16:56	0.96	15.42	1.46
2020/09/14 17:11	1.21	13.86	0.93
2020/09/14 17:26	1.21	10.12	0.68
2020/09/14 17:41	1.21	10.03	0.68
2020/09/14 17:56	1.21	9.35	0.63
2020/09/14 18:11	1.19	9.20	0.63
2020/09/14 18:26	1.12	9.04	0.68
2020/09/14 18:41	1.05	10.34	0.85
2020/09/14 18:56	1.01	9.82	0.85
2020/09/14 19:11	0.90	8.70	0.90
2020/09/14 19:26	0.90	8.29	0.85
2020/09/14 19:41	0.90	8.70	0.90
2020/09/14 19:56	0.87	8.00	0.86
2020/09/14 20:11	0.93	8.76	0.86

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/14 20:26	0.93	8.49	0.84
2020/09/14 20:41	0.89	7.94	0.84
2020/09/14 20:56	0.87	7.69	0.83
2020/09/14 21:11	0.89	7.87	0.83
2020/09/14 21:26	0.87	7.69	0.83
2020/09/14 21:41	0.89	7.61	0.80
2020/09/14 21:56	0.89	7.61	0.80
2020/09/14 22:11	0.89	8.49	0.90
2020/09/14 22:26	0.89	9.79	1.03
2020/09/14 22:41	0.89	9.79	1.03
2020/09/14 22:56	0.89	9.79	1.03
2020/09/14 23:11	0.89	9.79	1.03
2020/09/14 23:26	0.87	9.57	1.03
2020/09/14 23:41	0.87	10.69	1.15
2020/09/14 23:56	0.87	10.69	1.15
2020/09/15 00:11	0.87	10.69	1.15
2020/09/15 00:26	0.87	10.69	1.15
2020/09/15 00:41	0.87	10.69	1.15
2020/09/15 00:56	1.23	35.30	2.30
2020/09/15 01:11	1.23	35.39	2.31
2020/09/15 01:26	1.23	35.67	2.33
2020/09/15 01:41	1.23	35.67	2.33
2020/09/15 01:56	1.23	35.67	2.33
2020/09/15 02:11	1.23	35.67	2.33
2020/09/15 02:26	1.23	35.67	2.33
2020/09/15 02:41	1.23	35.58	2.32
2020/09/15 02:56	1.25	36.16	2.32
2020/09/15 03:11	1.25	36.30	2.33
2020/09/15 03:26	1.25	36.76	2.36
2020/09/15 03:41	1.25	36.30	2.33
2020/09/15 03:56	1.25	36.30	2.33
2020/09/15 04:11	1.05	27.40	2.25
2020/09/15 04:26	0.98	23.61	2.14
2020/09/15 04:41	0.98	23.61	2.14
2020/09/15 04:56	0.98	22.79	2.06
2020/09/15 05:11	1.01	24.62	2.14
2020/09/15 05:26	1.01	23.77	2.07
2020/09/15 05:41	1.03	25.12	2.14
2020/09/15 05:56	1.01	24.62	2.14
2020/09/15 06:11	1.01	24.62	2.14
2020/09/15 06:26	1.01	24.71	2.15
2020/09/15 06:41	1.01	25.19	2.19
2020/09/15 06:56	1.00	24.22	2.15
2020/09/15 07:11	1.00	25.99	2.31
2020/09/15 07:26	1.01	26.52	2.31

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/15 07:41	1.00	23.12	2.05
2020/09/15 07:56	1.00	21.88	1.94
2020/09/15 08:11	0.98	20.14	1.83
2020/09/15 08:26	0.98	20.14	1.83
2020/09/15 08:41	0.98	20.14	1.83
2020/09/15 08:56	0.97	19.51	1.81
2020/09/15 09:11	0.96	19.74	1.86
2020/09/15 09:26	0.96	20.54	1.94
2020/09/15 09:41	0.91	19.25	1.94
2020/09/15 09:56	0.91	17.24	1.74
2020/09/15 10:11	0.91	17.24	1.74
2020/09/15 10:26	0.87	15.10	1.63
2020/09/15 10:41	0.87	14.93	1.61
2020/09/15 10:56	0.83	13.89	1.61
2020/09/15 11:11	0.83	13.89	1.61
2020/09/15 11:26	0.89	15.09	1.59
2020/09/15 11:41	0.90	15.21	1.57
2020/09/15 11:56	0.90	14.95	1.54
2020/09/15 12:11	0.90	14.95	1.54
2020/09/15 12:26	0.90	15.21	1.57
2020/09/15 12:41	0.90	15.46	1.59
2020/09/15 12:56	0.90	15.46	1.59
2020/09/15 13:11	0.91	15.87	1.60
2020/09/15 13:26	0.91	15.87	1.60
2020/09/15 13:41	0.91	15.33	1.55
2020/09/15 13:56	0.94	16.01	1.55
2020/09/15 14:11	0.94	16.01	1.55
2020/09/15 14:26	0.94	16.01	1.55
2020/09/15 14:41	0.97	16.84	1.56
2020/09/15 14:56	1.62	59.45	2.61
2020/09/15 15:11	1.62	59.45	2.61
2020/09/15 15:26	1.62	59.45	2.61
2020/09/15 15:41	1.61	58.11	2.58
2020/09/15 15:56	1.08	26.66	2.11
2020/09/15 16:11	1.08	21.48	1.70
2020/09/15 16:26	0.91	15.19	1.53
2020/09/15 16:41	0.84	12.29	1.39
2020/09/15 16:56	0.80	11.13	1.36
2020/09/15 17:11	0.80	11.13	1.36
2020/09/15 17:26	0.80	11.13	1.36
2020/09/15 17:41	0.83	11.70	1.36
2020/09/15 17:56	0.84	12.04	1.36
2020/09/15 18:11	1.58	56.61	2.58
2020/09/15 18:26	1.58	57.24	2.61
2020/09/15 18:41	1.59	57.97	2.61

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/15 18:56	1.59	58.00	2.61
2020/09/15 19:11	1.58	57.28	2.61
2020/09/15 19:26	1.58	57.28	2.61
2020/09/15 19:41	1.57	55.90	2.58
2020/09/15 19:56	1.01	22.64	1.97
2020/09/15 20:11	0.76	12.89	1.70
2020/09/15 20:26	0.76	9.93	1.31
2020/09/15 20:41	0.73	8.81	1.23
2020/09/15 20:56	0.71	7.35	1.08
2020/09/15 21:11	0.69	7.14	1.08
2020/09/15 21:26	0.68	6.54	1.02
2020/09/15 21:41	0.66	5.13	0.83
2020/09/15 21:56	0.66	5.13	0.83
2020/09/15 22:11	0.64	5.07	0.87
2020/09/15 22:26	0.64	5.07	0.87
2020/09/15 22:41	0.64	4.98	0.85
2020/09/15 22:56	0.64	4.98	0.85
2020/09/15 23:11	0.64	4.84	0.83
2020/09/15 23:26	0.64	4.84	0.83
2020/09/15 23:41	0.66	5.30	0.85
2020/09/15 23:56	1.96	29.84	1.01
2020/09/16 00:11	1.98	32.06	1.06
2020/09/16 00:26	1.98	36.59	1.21
2020/09/16 00:41	1.98	43.24	1.43
2020/09/16 00:56	1.98	43.24	1.43
2020/09/16 01:11	1.98	43.24	1.43
2020/09/16 01:26	1.98	43.01	1.42
2020/09/16 01:41	1.98	41.76	1.38
2020/09/16 01:56	2.00	41.61	1.36
2020/09/16 02:11	2.00	41.61	1.36
2020/09/16 02:26	2.00	41.61	1.36
2020/09/16 02:41	2.00	38.26	1.25
2020/09/16 02:56	1.94	36.76	1.25
2020/09/16 03:11	1.94	39.54	1.35
2020/09/16 03:26	1.94	39.54	1.35
2020/09/16 03:41	1.94	39.54	1.35
2020/09/16 03:56	1.94	39.54	1.35
2020/09/16 04:11	1.94	41.69	1.42
2020/09/16 04:26	1.90	42.65	1.50
2020/09/16 04:41	1.07	23.61	1.90
2020/09/16 04:56	1.04	22.72	1.90
2020/09/16 05:11	1.04	22.72	1.90
2020/09/16 05:26	1.03	22.13	1.89
2020/09/16 05:41	0.79	11.82	1.48
2020/09/16 05:56	0.79	11.22	1.40

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/16 06:11	0.79	11.22	1.40
2020/09/16 06:26	0.79	11.22	1.40
2020/09/16 06:41	0.75	10.36	1.40
2020/09/16 06:56	0.75	10.44	1.41
2020/09/16 07:11	0.73	10.16	1.41
2020/09/16 07:26	0.75	10.57	1.43
2020/09/16 07:41	0.75	10.65	1.44
2020/09/16 07:56	0.82	12.78	1.52
2020/09/16 08:11	0.83	13.17	1.53
2020/09/16 08:26	0.83	13.37	1.55
2020/09/16 08:41	0.83	13.41	1.55
2020/09/16 08:56	0.84	13.49	1.53
2020/09/16 09:11	0.83	13.17	1.53
2020/09/16 09:26	0.96	14.16	1.34
2020/09/16 09:41	0.96	14.16	1.34
2020/09/16 09:56	0.80	10.98	1.34
2020/09/16 10:11	0.80	11.38	1.39
2020/09/16 10:26	0.87	12.85	1.39
2020/09/16 10:41	0.86	13.89	1.54
2020/09/16 10:56	0.86	14.03	1.55
2020/09/16 11:11	0.86	13.89	1.54
2020/09/16 11:26	0.86	14.05	1.55
2020/09/16 11:41	0.76	11.78	1.55
2020/09/16 11:56	0.76	11.60	1.53
2020/09/16 12:11	0.79	11.15	1.39
2020/09/16 12:26	0.79	11.49	1.44
2020/09/16 12:41	0.79	11.49	1.44
2020/09/16 12:56	0.79	11.49	1.44
2020/09/16 13:11	0.79	11.49	1.44
2020/09/16 13:26	0.78	11.24	1.44
2020/09/16 13:41	0.78	11.24	1.44
2020/09/16 13:56	0.76	11.49	1.52
2020/09/16 14:11	0.76	11.49	1.52
2020/09/16 14:26	0.79	11.99	1.50
2020/09/16 14:41	0.79	11.99	1.50
2020/09/16 14:56	0.79	11.99	1.50
2020/09/16 15:11	0.79	11.86	1.48
2020/09/16 15:26	0.83	12.93	1.50
2020/09/16 15:41	0.84	14.48	1.64
2020/09/16 15:56	1.47	45.42	2.30
2020/09/16 16:11	1.50	47.18	2.33
2020/09/16 16:26	1.50	47.18	2.33
2020/09/16 16:41	1.50	47.18	2.33
2020/09/16 16:56	1.50	46.75	2.30
2020/09/16 17:11	1.07	24.38	1.96

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/16 17:26	1.00	21.21	1.88
2020/09/16 17:41	1.00	20.90	1.86
2020/09/16 17:56	0.75	11.55	1.56
2020/09/16 18:11	0.75	10.05	1.36
2020/09/16 18:26	0.72	8.81	1.26
2020/09/16 18:41	0.72	8.81	1.26
2020/09/16 18:56	0.72	8.81	1.26
2020/09/16 19:11	0.72	8.94	1.28
2020/09/16 19:26	0.72	8.81	1.26
2020/09/16 19:41	0.68	7.80	1.22
2020/09/16 19:56	0.68	7.77	1.21
2020/09/16 20:11	0.65	7.25	1.21
2020/09/16 20:26	0.65	7.25	1.21
2020/09/16 20:41	0.68	7.63	1.19
2020/09/16 20:56	0.68	7.59	1.19
2020/09/16 21:11	0.66	7.25	1.17
2020/09/16 21:26	0.68	7.45	1.16
2020/09/16 21:41	0.66	7.22	1.16
2020/09/16 21:56	0.66	7.37	1.19
2020/09/16 22:11	0.68	7.72	1.21
2020/09/16 22:26	1.14	26.95	1.98
2020/09/16 22:41	1.14	26.95	1.98
2020/09/16 22:56	1.16	28.11	1.99
2020/09/16 23:11	1.16	28.52	2.02
2020/09/16 23:26	1.16	28.52	2.02
2020/09/16 23:41	1.19	29.38	2.01
2020/09/16 23:56	1.19	29.51	2.02
2020/09/17 00:11	1.18	29.12	2.03
2020/09/17 00:26	1.18	29.12	2.03
2020/09/17 00:41	1.18	29.21	2.04
2020/09/17 00:56	1.18	29.67	2.07
2020/09/17 01:11	1.18	29.67	2.07
2020/09/17 01:26	1.18	29.78	2.08
2020/09/17 01:41	1.18	29.78	2.08
2020/09/17 01:56	1.18	30.35	2.11
2020/09/17 02:11	1.21	31.46	2.12
2020/09/17 02:26	1.21	31.75	2.14
2020/09/17 02:41	1.21	32.07	2.16
2020/09/17 02:56	1.21	33.68	2.27
2020/09/17 03:11	1.18	32.56	2.27
2020/09/17 03:26	1.16	30.48	2.16
2020/09/17 03:41	0.96	19.35	1.83
2020/09/17 03:56	0.82	14.70	1.75
2020/09/17 04:11	0.82	14.55	1.73
2020/09/17 04:26	0.79	13.70	1.71

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/09/17 04:41	0.78	13.24	1.70
2020/09/17 04:56	0.78	13.18	1.69
2020/09/17 05:11	0.79	12.81	1.60
2020/09/17 05:26	0.96	12.11	1.14
2020/09/17 05:41	0.97	10.97	1.01
2020/09/17 05:56	1.01	11.66	1.01
2020/09/17 06:11	1.01	13.15	1.14
2020/09/17 06:26	1.01	16.89	1.47