DEXTER WILSON ENGINEERING, INC.

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CONSULTING ENGINEERS

CITY OF CHULA VISTA

PRIVATE WATER SYSTEM ANALYSIS FOR THE VILLAGE 8 WEST PARCEL C PROJECT

September 16, 2022

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

CITY OF CHULA VISTA

PRIVATE WATER SYSTEM ANALYSIS
FOR THE
VILLAGE 8 WEST
PARCEL C PROJECT

September 16, 2022



9-16-2022

Prepared by:
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Job No. 509-137

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CITY OF CHULA VISTA

September 16, 2022 509-137

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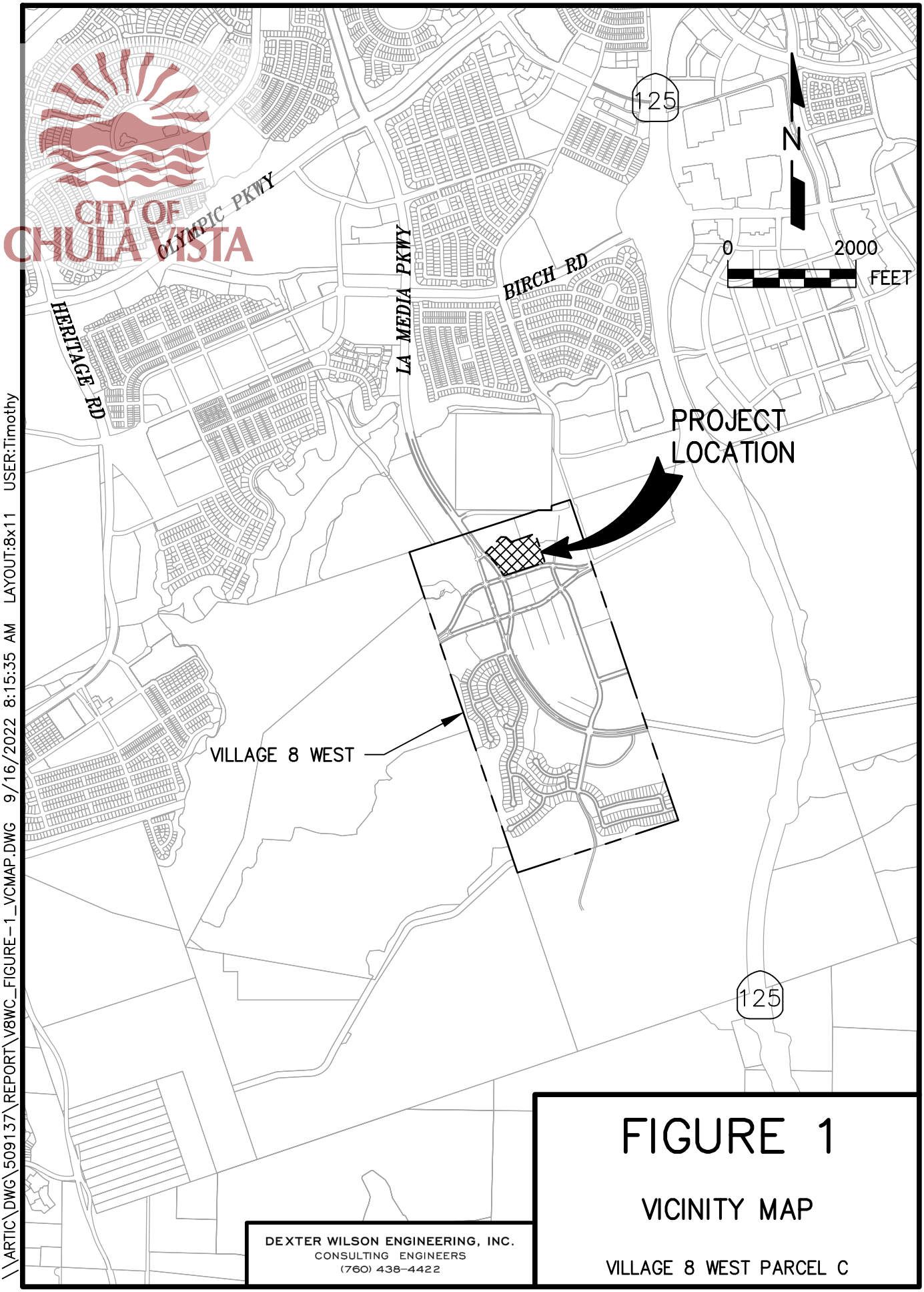
Subject: Private Water System Analysis for the Otay Ranch Village 8 West Parcel C Project

Introduction

The Village 8 West Parcel C project is located in the City of Chula Vista. The project is located in Otay Ranch Village 8 West, east of the La Media Parkway and north of Main Street West. Figure 1 provides a vicinity map for the project site.

The Village 8 West Parcel C project encompasses 8.6 acres and is proposing to develop a total of 267 multi-family residential units. The project site has Finish Floor elevations that range from 469 feet to 481 feet.

The project will receive water service from the Otay Water District 711 Pressure Zone. The purpose of this letter report is to present the sizing and configuration of the private domestic water system and private fire protection system for the Parcel C project.



\\ARTIC\DWG\509137\REPORT\V8WC_FIGURE-1_VCMAP.DWG 9/16/2022 8:15:35 AM LAYOUT:8x11 USER:Timothy

FIGURE 1

VICINITY MAP

VILLAGE 8 WEST PARCEL C

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Private Water System Design Criteria

Water service to the Parcel C project will consist of a private domestic water system and private fire protection system. The private domestic water system is sized in accordance with the 2019 California Plumbing Code. The private fire protection system is sized to meet City of Chula Vista Fire Department requirements.

Existing Water System

The Parcel C project is within the City of Chula Vista and will obtain water service from the Otay Water District's public water system. Water service to the project will be from the 711 Pressure Zone. Existing 711 Zone water lines in the vicinity of the project include 12-inch public water lines in La Media Parkway and Main Street West.

Water Service Overview

Water service to the project will be provided by making four connections to the existing Otay Water District 711 Pressure Zone water system. The private domestic water system and the private fire protection system will each make one connection to the existing 12-inch public water line in Main Street West and one connection to the existing 12-inch public water line in La Media Parkway.

Finish Floor elevations for the project will range from 469 feet to 481 feet. The maximum static pressure range within the project based on Finish Floor elevations is 99 psi and 104 psi with service from the 711 Pressure Zone. When static pressures exceed 80 psi, the California Plumbing Code requires pressure regulating valves at each building supply. During final individual building design, a review of maximum static pressures should be conducted to determine the need for pressure regulating valves at each building supply.

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Private Domestic Water System

The project's private domestic water system will consist of two domestic water master meters to serve the project. One domestic water master meter will be supplied by a connection to the existing 12-inch public water line in Main Street West and the other domestic water master meter will be supplied by a connection to the existing 12-inch public water line in La Media Parkway.

Each master meter will have a service lateral and will include a reduced pressure principle backflow preventer of the same size as the meter. The domestic water system after the meter will be a private system and the responsibility of the project association. The sizing of the project's water meters and private domestic water system distribution piping is presented in the following sections.

Water Meter Sizing. Two master water meters will provide service to the project. The meter sizing was determined based on the total number of water fixture units (WFU) that will be served by the meters. Irrigation internal to the project is proposed to be connected separately and, therefore, only domestic demands are being met by the domestic water service meters.

Using the California Plumbing Code, the water fixture unit data for the residences within the project to be served by each meter was used to determine the maximum expected demand for the project. Appendix A of this report includes a spreadsheet calculation of the water fixture units for all the proposed dwellings. The WFU count for the project is summarized in Table 1 and totals 4,810 WFUs.

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TABLE 1
VILLAGE 8 WEST PARCEL C
WATER FIXTURE UNIT SUMMARY

Description	Quantity	WFUs
Residential Dwelling Units	267	4,726
Clubhouse	1	36.5
Fitness Center	1	47.5
TOTAL		**4,810**

Chart A-103.1 in the 2019 California Plumbing Code was used to convert the total Water Fixture Units to the maximum expected demand for the project. Chart A-103.1 provides demands for up to 3,000 Water Fixture Units. Therefore, the maximum expected demand for the Parcel C project was extrapolated. The Water Fixture Unit versus Demand chart extrapolation is presented at the end of Appendix A. The extrapolation shows that 4,810 Water Fixture Units converts to a maximum expected demand of approximately 582 gpm for the Parcel C project.

The maximum expected demand of 582 gpm can be accommodated by two 3-inch water meters, which have a capacity of 400 gpm each. Water meter capacities are shown in Appendix B. The configuration of the water meters and private domestic water system for the project is shown on Figure 2. A 3-inch public service lateral is recommended to supply each 3-inch master meter.

Private Domestic System Pipe Sizing. The private domestic system piping for the Parcel C project has been sized in accordance with the Uniform Plumbing Code and the Installation Standard for PVC Cold Water Building Supply and Yard Piping (IAPMO IS 8-2006). The Installation Standard requires that the maximum pipeline velocity be limited to eight feet per second (8 fps).

Figure 2 presents a graphic of the recommended private domestic water system for the project. The pipe sizes shown are the minimum allowable based on the WFU summary presented in Table 1 and may be increased for uniformity or ease of construction.

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LEGEND

- PROJECT BOUNDARY
- EXISTING PUBLIC WATER LINE (711 PZ)
- PROPOSED PUBLIC WATER LINE (711 PZ)
- PROPOSED PRIVATE DOMESTIC WATER LINE
- EXISTING PUBLIC FIRE HYDRANT

VILLAGE 8 WEST BOUNDARY

PARCEL C BOUNDARY

3" DOMESTIC SERVICE LATERAL WITH 3" METER AND BACKFLOW

3" DOMESTIC SERVICE LATERAL WITH 3" METER AND BACKFLOW

PVT DR A
PVT DR B
PVT DR C
PVT DR D
PVT DR E
PVT DR F
PVT DR G
PVT DR H
PVT DR I
PVT DR J
PVT DR K
PVT DR L

LEASING OFFICE
POOL
BLDG. 1
BLDG. 2
BLDG. 3
BLDG. 4
BLDG. 5
BLDG. 6
CALI ROOM
TOWER DECK
MAINT.
OS-A
OS-B
OS-C

EX.12"
EX.16"

LA MEDIA PKWY
MAIN ST W
AVENIDA CAPRISE

N

0 100 FEET

FIGURE 2

PROPOSED PRIVATE DOMESTIC WATER SYSTEM

VILLAGE 8 WEST PARCEL C

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\\ARTIC\DWG\509137\REPORT\V8WC_WTR_FIGURE-2_PROWTRDOM.DWG 9/15/2022 3:34:50 PM LAYOUT:11x17 USER:Timothy

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Private Fire Protection System

All fire hydrants for the Parcel C project will be connected to the private fire protection water system which will be independent of the private domestic water system. The private fire protection system will be supplied by one connection to the existing 12-inch public water line in Main Street West and one connection to the existing 12-inch public water line in La Media Parkway. The Chula Vista Fire Department has indicated that fire flow requirement for the Parcel C project will be 4,125 gpm.

The private fire protection system was sized based on the fire hydrant flow requirement for the project. In order to establish the required fire protection system pipe sizing, a computer model was generated for the project's fire protection system. Figure 3 presents the proposed private fire protection system for the Parcel C project.

Fire Sprinkler System. The private fire protection system that supplies the hydrants will also supply the building fire sprinkler systems for the Parcel C residences. Sizing of these lines will be by the building fire sprinkler designer. Underground lateral supplies for sprinkler systems shall be a minimum of 4-inches for multi-family residential properties.

Hydraulic Model Development. Analysis using the KYPIPE computer software program developed by the University of Kentucky determined residual pressures throughout the fire protection system. This computer software utilizes the Hazen-Williams equation for determining head loss in pipes. The Hazen-Williams "C" value used for all pipe sizes in our analysis is 120.

Fitting and Valve Losses. To simulate minor losses through pipe fittings and valves, minor loss coefficients, or "k" values, for all fittings associated with pipes were included in the hydraulic model.

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VILLAGE 8 WEST BOUNDARY

PARCEL C BOUNDARY

12" FIRE SERVICE LATERAL WITH 8" RPDA BACKFLOW PREVENTER

12" FIRE SERVICE LATERAL WITH 8" RPDA BACKFLOW PREVENTER

LEGEND

- PROJECT BOUNDARY
- EXISTING PUBLIC WATER LINE (711 PZ)
- PROPOSED PUBLIC WATER LINE (711 PZ)
- PROPOSED PRIVATE FIRE PROTECTION LINE
- EXISTING PUBLIC FIRE HYDRANT
- PROPOSED PRIVATE FIRE HYDRANT

N

0 100 FEET

PVT DR A
PVT DR B
PVT DR C
PVT DR D
PVT DR E
PVT DR F
PVT DR G
PVT DR H
PVT DR I
PVT DR J
PVT DR K
PVT DR L
PVT DR B MAINT.

LEASING OFFICE
POOL
BLDG. 1
BLDG. 2
BLDG. 3
BLDG. 4
BLDG. 5
BLDG. 6
CALI ROOM
TOWER DECK
OS-A
OS-B
OS-C

LA MEDIA PKWY
MAIN ST W
AVENIDA CAPRISE

EX.12"
EX.16"
10"
8"
12"

FIGURE 3

PROPOSED PRIVATE FIRE PROTECTION SYSTEM

VILLAGE 8 WEST PARCEL C

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\\ARTIC\DWG\509137\REPORT\V8WC_WTR_FIGURE-3_PROWTRFIRE.DWG 9/15/2022 3:34:31 PM LAYOUT:11x17 USER: Timothy

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Backflow Assembly Losses. The backflow preventer devices were modeled as loss element nodes. A loss element node uses a flow-versus-pressure-loss curve to determine the pressure loss at a given flow. Appendix C presents a candidate reduced pressure detector assembly (RPDA) backflow preventer. The manufacturer's literature includes charts which show pressure loss through the backflow preventer as a function of flow. These charts were used to approximate the pressure losses which were reflected in the computer modeling and are presented in the model output as minor losses calculated in feet.

Hydraulic Grade Line Available. The hydraulic grade line (HGL) was determined using a hydrant flow test performed by the Otay Water District. Appendix D presents the fire flow calculations from the Otay Water District. For the Parcel C project, the available hydraulic grade line at the fire hydrant near the intersection of La Media Parkway and Main Street West is 630 feet for a flow of 4,125 gpm.

Fire Protection System Analysis. Appendix E presents the computer modeling results for the private fire protection system and Exhibit A provides the computer model node and pipe diagram. The fire flow requirement of 4,125 gpm was split and modeled across three scenarios. Table 2 presents a summary of the fire flow runs. For each fire flow scenario modeled, the fire flow requirement is met with at least 20 psi residual pressure at all locations within the project. Minimum pressures are 27 psi under the fire flow scenarios modeled.

TABLE 2
OTAY RANCH VILLAGE 8 WEST PARCEL C
FIRE HYDRANT FLOW COMPUTER MODELING SUMMARY

Description	Minimum Residual Pressure, psi	At Node	Node Elevation, ft
4,125 gpm Fire Flow split between Nodes FH1 and FH9	43	84	481
4,125 gpm Fire Flow split between Nodes FH2 and FH3	30	FH3	475
4,125 gpm Fire Flow split between Nodes FH4 and FH8	39	84	481
4,125 gpm Fire Flow split between Nodes FH6 and FH7	27	82	480.5

The City of Chula Vista Fire Department typical requirements for fire hydrants, fire hydrant locations, fire department connection (FDC) locations, and post indicator valves (PIV) are included in Appendix F of this report for reference.

Conclusion and Recommendations

The following conclusions and recommendations are presented based upon the private domestic water system and private fire protection system sizing performed for the Otay Ranch Village 8 West Parcel C project.

1. Water service to the project will be provided by the Otay Water District 711 Pressure Zone water system.

2. Finish Floor elevations within the project range from 469 feet to 481 feet resulting in a maximum static water pressure range of 99 psi to 104 psi.

3. Private domestic service for the Parcel C will be supplied by two 3-inch domestic water meters. One meter will connect to the existing 12-inch public water line in Main Street West and the other will connect to the existing 12-inch public water line in La Media Parkway.

4. The domestic meters will be followed by reduced pressure principle backflow preventers of the same size as the meter.

5. Figure 2 in this report provides the recommended pipe sizes for the private domestic water system.

6. The private fire protection system for the Parcel C project will make two connections to the public water system. One connection will be made to the existing 12-inch public water line in Main Street West and the other connection will be made to the existing 12-inch public water line in La Media Parkway.

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7. Figure 3 in this report provides the recommended fire protection system layout.

8. Underground lateral supplies for sprinkler systems shall be a minimum of 4-inches for multi-family residential properties. The sizing of the building fire services is to be as recommended by the building fire sprinkler system designer.

9. Private water lines for the project downstream of the backflow preventer are recommended to be AWWA C900, DR-14 (Class 305) for pipes 4-inch through 12-inch. Pipes smaller than 4-inch in diameter may be solvent welded Schedule 40 PVC; as an alternative, copper piping may be used.

Thank you for the opportunity to assist you with the water system planning for this project. If you have any questions regarding the information presented in this report, please do not hesitate to call.

Dexter Wilson Engineering, Inc.

Steven Henderson, P.E.

SH:ah

Attachments

CITY OF CHULA VISTA

APPENDIX A

WATER FIXTURE UNIT COUNT
AND
DEMAND EXTRAPOLATION

Project Name Otay Ranch Village 8 West Parcel C

Job Number 509-137
Date 5/31/2022

Water Fixture Units

The basis for the Water Fixture Units is "Private" per the 2019 California Plumbing Code.

DESCRIPTION	Unit A1-A			Unit A1-B			Unit A2-A			Unit A2-B			Unit A2-BL			Unit A3		
	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS
CLOTHES WASHER	1	4	4	1	4	4	1	4	4	1	4	4	1	4	4	1	4	4
LAUNDRY SINK		1.5	0		1.5	0		1.5	0		1.5	0		1.5	0		1.5	0
TUB/SHOWER	1	4	4		4	0	1	4	4	1	4	4	1	4	4	1	4	4
SHOWER		2	0	1	2	2		2	0		2	0		2	0		2	0
KITCHEN SINK	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5
DISHWASHER	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5
LAVATORY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WATER CLOSET (1.6 GPF)	1	2.5	2.5	1	2.5	2.5	1	2.5	2.5	1	2.5	2.5	1	2.5	2.5	1	2.5	2.5
HOSE BIBB		2.5	0		2.5	0		2.5	0		2.5	0		2.5	0		2.5	0
EACH ADDTL HB		1	0		1	0		1	0		1	0		1	0		1	0
OTHER			0			0			0			0			0			0
TOTAL			14.5			12.5			14.5			14.5			14.5			14.5

DESCRIPTION	Unit B1-A			Unit B1-B			Unit B1-BD			Unit B2-A			Unit B2-B			Unit B2-BL		
	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS
CLOTHES WASHER	1	4	4	1	4	4	1	4	4	1	4	4	1	4	4	1	4	4
LAUNDRY SINK		1.5	0		1.5	0		1.5	0		1.5	0		1.5	0		1.5	0
TUB/SHOWER	1	4	4	2	4	8	2	4	8	1	4	4	2	4	8	2	4	8
SHOWER	1	2	2		2	0		2	0	1	2	2		2	0		2	0
KITCHEN SINK	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5
DISHWASHER	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5
LAVATORY	2	1	2	2	1	2	2	1	2	2	1	2	3	1	3	3	1	3
WATER CLOSET (1.6 GPF)	2	2.5	5	2	2.5	5	2	2.5	5	2	2.5	5	2	2.5	5	2	2.5	5
HOSE BIBB		2.5	0		2.5	0		2.5	0		2.5	0		2.5	0		2.5	0
EACH ADDTL HB		1	0		1	0		1	0		1	0		1	0		1	0
OTHER			0			0			0			0			0			0
TOTAL			20			22			22			20			23			23

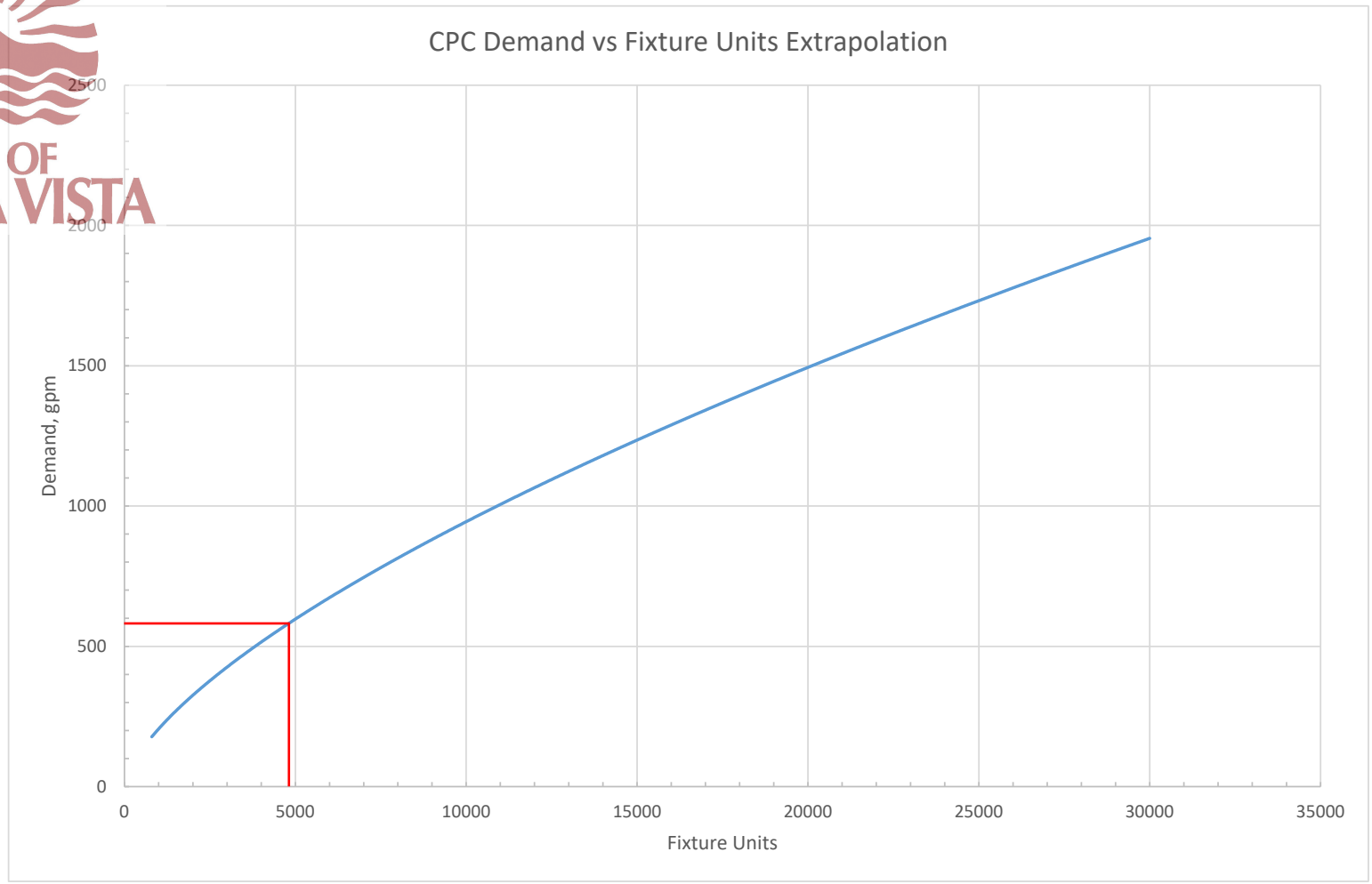
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DESCRIPTION	Unit B3			Unit B4			Clubhouse			Fitness Center		
	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS	QUANTITY	FIXTURE UNITS EACH	TOTAL FIXTURE UNITS
CLOTHES WASHER	1	4	4	1	4	4		4	0		4	0
LAUNDRY SINK		1.5	0		1.5	0		1.5	0		1.5	0
TUB/SHOWER		4	0	1	4	4		4	0		4	0
SHOWER	2	2	4	1	2	2		2	0	4	2	8
MOP BASIN		1.5	0		1.5	0		1.5	0	1	1.5	1.5
BAR SINK		1	0		1	0	1	1	1		1	0
KITCHEN SINK	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5		1.5	0
DISHWASHER	1	1.5	1.5	1	1.5	1.5	1	1.5	1.5		1.5	0
LAVATORY	2	1	2	3	1	3	2	1	2	4	1	4
WATER CLOSET (1.6 GPF)	2	2.5	5	2	2.5	5		2.5	0		2.5	0
WATER CLOSET (FLUSHO)		5	0		5	0	3	5	15	5	5	25
URINAL		3	0		3	0	1	3	3	3	3	9
HOSE BIBB		2.5	0		2.5	0	1	2.5	2.5		2.5	0
EACH ADDTL HB		1	0		1	0		1	0		1	0
POOL EQUIPMENT		10	0		10	0	1	10	10		10	0
TOTAL			18			21			36.5			47.5

TOTAL WFU

Unit	Quantity	WFU/Unit	WFU
Unit A1-A	27	14.5	391.5
Unit A1-B	22	12.5	275.0
Unit A2-A	47	14.5	681.5
Unit A2-B	32	14.5	464.0
Unit A2-BL	2	14.5	29.0
Unit A3	4	14.5	58.0
Unit B1-A	16	20	320.0
Unit B1-B	15	22	330.0
Unit B1-BD	6	22	132.0
Unit B2-A	49	20	980.0
Unit B2-B	37	23	851.0
Unit B2-BL	5	23	115.0
Unit B3	2	18	36.0
Unit B4	3	21	63.0
Clubhouse	1	36.5	36.5
Fitness Center	1	47.5	47.5
TOTAL			**4,810.0**

WFU	Demand, gpm
4810	581.75



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APPENDIX B

OTAY WATER DISTRICT METER CAPACITIES

OTAY WATER DISTRICT
PUBLIC SERVICES
DOMESTIC METER FEES - TRIAD

EFFECTIVE DATE: 7/1/2021

ENR DATE: 6/14/2021

CITY OF CHULA VISTA

	3/4" METER	1" METER	1 1/2" METER	2" METER	3" METER	4" METER	6" METER	8" METER	10" METER
MAXIMUM RATE IN U.S. GALLONS PER MINUTE GPM RATE AT 80% OF MAXIMUM FLOW Updated 12/7/2020 Ord No. 580 Appendix A - Section 28	24 gpm	40 gpm	80 gpm	128 gpm	400 gpm	800 gpm	1600 gpm	2720 gpm	4000 gpm
DEMAND FACTOR Section 28	1	2.5	5	8	16	25	50	80	115
INSTALLATION Updated 12/7/2020 Ord No. 580 Appendix A - Section 28	121.44	121.44	121.44	121.44	731.18	731.18	1,154.95	1,771.01	1,771.01
METER FEE Updated 12/7/2020 Ord No. 580 Appendix A - Section 28	255.91	330.23	536.75	769.12	2,396.87	4,162.98	7,190.58	8,984.10	12,920.82
CAPACITY FEE Effective 12/7/2020 Ord No. 580 Appendix A - Section 28	9,008.87	22,522.18	45,044.35	72,070.96	144,141.92	225,221.75	450,443.50	720,709.60	1,036,020.05
S.D.C.W.A. System Capacity Fee S.D.C.W.A. Water Treatment Capacity Fee Effective 1/1/2021	5,312.00 148.00	8,499.00 237.00	15,936.00 444.00	27,622.00 770.00	50,995.00 1,421.00	87,117.00 2,427.00	159,360.00 4,440.00	276,224.00 7,696.00	414,336.00 11,544.00
POTABLE METERS PURCHASE TOTAL	**14,846.22**	**31,709.85**	**62,082.54**	**101,353.52**	**199,685.97**	**319,659.91**	**622,589.03**	**1,015,384.71**	**1,476,591.88**
WATER ANNEXATION Effective 12/7/2020 Ord No. 580	2,279.26	5,698.15	11,396.30	18,234.08	36,468.16	56,981.50	113,963.00	182,340.80	262,114.90
POTABLE METERS W/ANNEX. FEE	**17,125.48**	**37,408.00**	**73,478.84**	**119,587.60**	**236,154.13**	**376,641.41**	**736,552.03**	**1,197,725.51**	**1,738,706.78**
Meter Box (if needed) ADD: Updated 12/7/2020 Ord No. 580 Appendix A - Section 28	103.10	103.10	233.72	233.72	4,169.23	4,169.23	4,169.23	5,981.06	5,981.06

APPENDIX C

MANUFACTURER'S LITERATURE FOR A REDUCED PRESSURE PRINCIPLE DETECTOR CHECK ASSEMBLY BACKFLOW PREVENTER

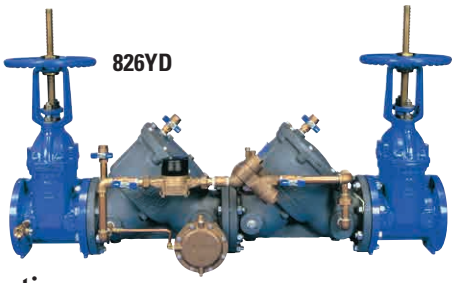
SPECIFICATION SHEET

Series 826YD
Reduced Pressure Detector Assemblies

Size: 2½" - 10" (65mm - 250mm)

CITY OF CHULA VISTA

The FEBCO Series 826YD Reduced Pressure Detector Assemblies designed for use in used applications with Automatic fire sprinkler systems containing toxic substances.



Features

- The DuraCheck, features all stainless steel check assemblies for corrosion resistance, reduced fouling and longer valve life.
- DuraCast, ductile iron body for superior strength, corrosion resistance and lighter weight. By-pass line has water meter in series with an approved reduced pressure assembly.
- Low Head Loss
- Approved by the Foundation for Cross-Connnection Control and Hydraulic Research at the University of Southern California.
- End Detail is Flanged

Operation

In a nonflow condition, check valves on the by-pass and mainline units are closed with pressure between the checks, called the zone, being maintained at least 5psi (35 kPa) lower than the inlet pressure and the relief valve is maintained closed. If the differential between the zone and the upstream pressure drops to 2psi (14kPa), the differential relief valve will open, maintaining proper zone differential. The by-pass reduced pressure backflow preventer will operate identically to the mainline assembly.

The by-pass opens to detect initial flow and the mainline opens for all other flows.

Models

- Less Gates
- Left hand by-pass
- Meter CFM/GPM

Approvals

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.*

ASSE 1047 · CLASSIFIED UL * · FM Approved *

* Valves must be supplied with resilient seated shutoff valves for USC and FM approvals to be in effect. UL and FM Listings only applicable with approved OS&Y gates.

⚠ WARNING

It is illegal to use this product in any plumbing system providing water for human consumption, such as drinking or dishwashing, in the United States. Before installing standard material product, consult your local water authority, building and plumbing codes.

Specifications

Reduced pressure detector assembly shall consist of a mainline reduced pressure configured backflow assembly in parallel with a reduced pressure by-pass assembly.

Flow curves shall be documented by independent laboratory testing. Mainline valve bodies and covers shall be manufactured of ductile iron ASTM A-536, Grade 65-45-12 and shall be flanged, ANSI B 16.1, Class 125, internal and external fusion epoxy coating.

The by-pass shall consist primarily of a bronze water meter in series with a bronze reduced pressure backflow preventer.

All low flow demands up to a minimum of 3 gpm (0.189 L/s) are to pass only through the by-pass meter and meter-size reduced pressure assembly and be accurately recorded. All flows above that of 3 gpm will pass through both the line-size reduced pressure assembly and by-pass without accurate registration by or damage to the meter.

Shutoff valves and testcocks shall be resilient seated with full flow characteristics and are to be considered integral to the assembly. The mainline shut-offs are also to be OS&Y, UL/FM for fireline service.

Reduced pressure detector assemblies shall be rated 175psi CWWP (32°F to 140°F), factory assembled and tested to assure proper mainline/by-pass balance and cross over performance. Reduced pressure detector assemblies shall be FEBCO Series 826YD or prior approved equal.

NOTICE The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

Pressure – Temperature

Maximum Working Pressure:	175psi (12.1 bar)
Hydrostatic Test Press:	350psi (24.1 bar)
Temperature Range:	32ºF to 140ºF (0ºC to 60ºC)

Materials

Main Valve Body:	Ductile iron grade 65-45-12 epoxy coated internal 10-20 mils
Internal Check Assembly:	Stainless Steel
Trim:	Bronze
By-Pass Valve Body:	Bronze
By-Pass Meter:	Totalizing, 1 to 20 gpm, size 5/8" x 3/4"
Main Valve Shutoffs:	OS&Y, UL/FM
Elastomers:	Nitrile and Nitrile/ fabric reinforced

Remote reading flow meters available.

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

FEBCO product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact FEBCO. FEBCO reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on FEBCO products previously or subsequently sold.

Installation

The Reduced Pressure Detector Assembly should be installed horizontally with a suggested minimum clearance of 12" (300mm) between the assembly and the floor or grade. They must be installed where discharge from the relief valve will not be objectionable and can be positively drained away. They should be installed where easily accessible for testing and maintenance and must be protected from freezing. Thermal water expansion and/or water hammer downstream of the backflow preventer can cause excessive pressure. Excessive pressure situations should be eliminated to avoid possible damage to the system and assembly.

CITY OF CHULA VISTA

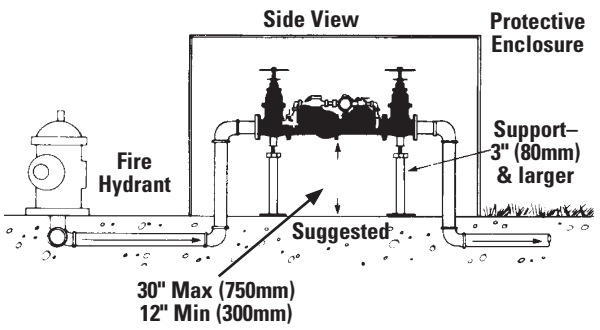
Dimensions – Weights

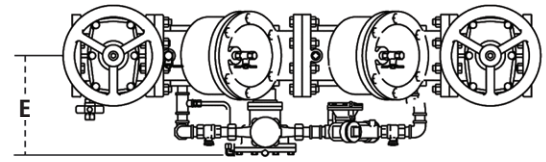
Size: 2½" - 10" (65 - 250mm)

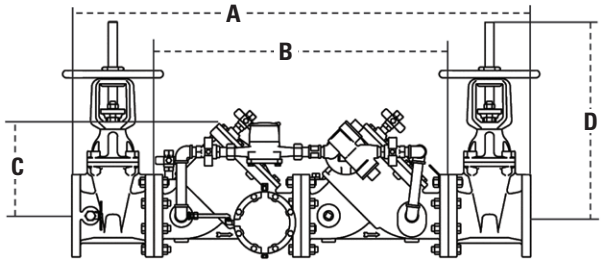
SIZE (DN)	DIMENSIONS												WEIGHT			
	A		B		C		D		E		gates		less gates	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	37¼	946	22⅛	562	7½	191	16⅜	416	10¼	260	243	534.6	134	294.8
3	80	41¾	1061	25⅝	651	8½	216	22¼	565	10½	267	298	655.6	154	338.8
4	100	50⁷⁄₁₆	1281	32⅜	822	11	279	23¼	591	11	279	469	1031.8	194	426.8
6	150	59¾	1518	38⅝	981	14	356	30¼	765	12	305	752	1654.4	397	873.4
8	200	69⁹⁄₁₆	1757	46⅛	1172	18	457	37¾	959	13	330	1207	2655.4	537	1181.4
10	250	84¼	2140	58⅛	1476	22	559	48	1219	14	356	1617	3557.4	957	2105.4

Dimensions shown are nominal, allowance must be made for normal manufacturing tolerances.

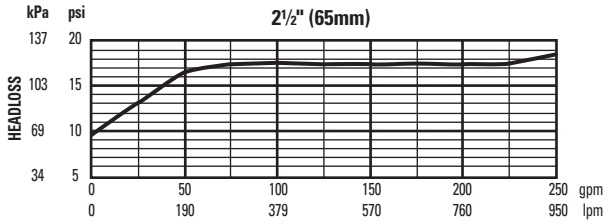
FEBCO MODEL 826YD

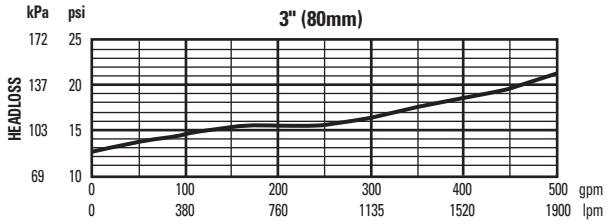


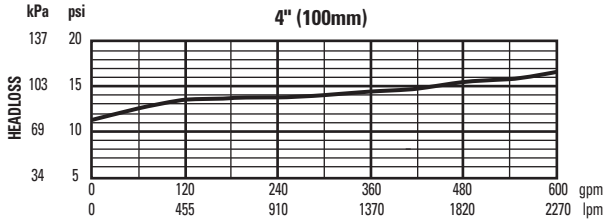


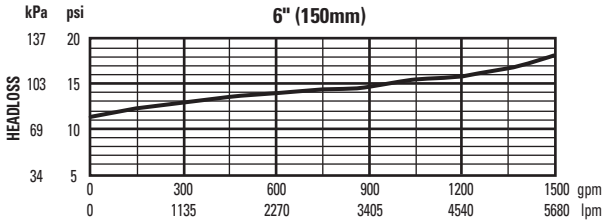


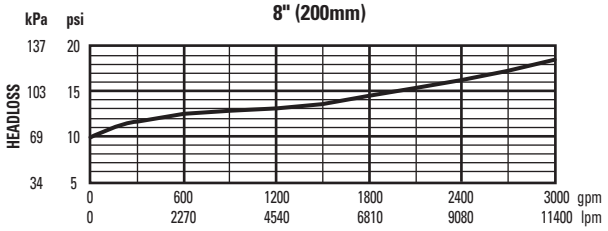
Capacity

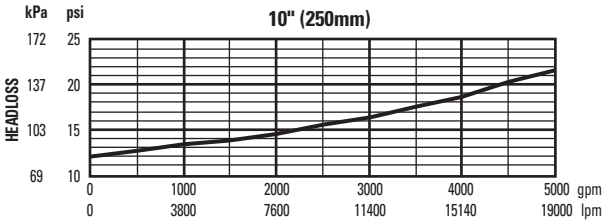












FEBCO®

A Watts Water Technologies Company

USA: Tel: (800) 767-1234 • Fax: (800) 788-4491 • FEBCOonline.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • FEBCOonline.ca
Latin America: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • FEBCOonline.com

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APPENDIX D

OTAY WATER DISTRICT FIRE FLOW LETTER

...Dedicated to Community Service
2554 SWEETWATER SPRINGS BLVD, SPRING VALLEY, CA 91978-2096
TELEPHONE: (619) 670-2222

April 13, 2022

District Ref. No. FLW-22-017
Project No. N/A

JUSTIN GIPSON
CHULA VISTA FIRE DEPARTMENT
276 FOURTH AVE BLDG C
CHULA VISTA, CA 91910

SUBJECT: Fire Flow Calculations for The City of Chula Vista is requesting a fire flow for OR V8 W- Parcel C, Cota Vera II Apartments located between La Media Park North and Main St. West, Chula Vista, CA 91913. APN(s): 644-074-01,02,17,18. Pzone: 711 (H-068-010, H-068-013, H-068-017, H-068-022, H-068-029, H-068-033).

Dear JUSTIN GIPSON,

Fire flow calculations for the subject site were performed by District Consultant using InfoWATER Version 12.1, under the following assumptions:

The water levels in storage facilities at the time of a fire are approximate to the operating levels that typically occur during a maximum day.
The prescribed ***four-hour*** fire duration coincides with a maximum day demand condition.
The immediate area around the fire flow node maintains a minimum pressure of 20 PSI.

The results are as follows:

Hydrant	Static Pressure (psi)	Residual Pressure (psi)	Notes
H-068-010	111	85	Based on tanks half full.
H-068-013	115	88	System and fire flow demand of 4,125 gallons per minute applied at the model node. Maximum fire flow from a single hydrant is approximately 1,500 gallons per minute.
H-068-017	110	82	
H-068-022	103	74	
H-068-029	100	70	
H-068-033	93	63	

The District's Engineering Public Services Division can be contacted at (619) 670-2241 should you require further assistance in this matter.

Sincerely,

OTAY WATER DISTRICT

Michael J Long

CITY OF CHULA VISTA

Michael J. Long, P.E., QSP
Engineering Manager

Otay Water District

CITY OF CHULA VISTA

		ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)	Hydrant Pressure at Available Flow (psi)	Critical Pipe ID at Available Flow	Critical Pipe Velocity at Available Flow (ft/s)
1	☐	LA_MEDIA_RD_017	0	110	697	4,125	82	4,986	71	F-323-0301_F-323-0378	8

Otay Water District



		ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)	Hydrant Pressure at Available Flow (psi)	Critical Pipe ID at Available Flow	Critical Pipe Velocity at Available Flow (ft/s)
1	☐	LA_MEDIA_RD_013	0	115	697	4,125	88	4,963	78	F-323-0301_F-323-0376	9



		ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)	Hydrant Pressure at Available Flow (psi)	Critical Pipe ID at Available Flow	Critical Pipe Velocity at Available Flow (ft/s)
1	☐	MAIN_ST_W_033	0	93	697	4,125	63	4,928	52	F-323-0301_F-323-0496	8



		ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)	Hydrant Pressure at Available Flow (psi)	Critical Pipe ID at Available Flow	Critical Pipe Velocity at Available Flow (ft/s)
1	☐	LA_MEDIA_RD_010	0	111	697	4,125	85	4,961	76	F-323-0301_F-323-0374	10

Otay Water District

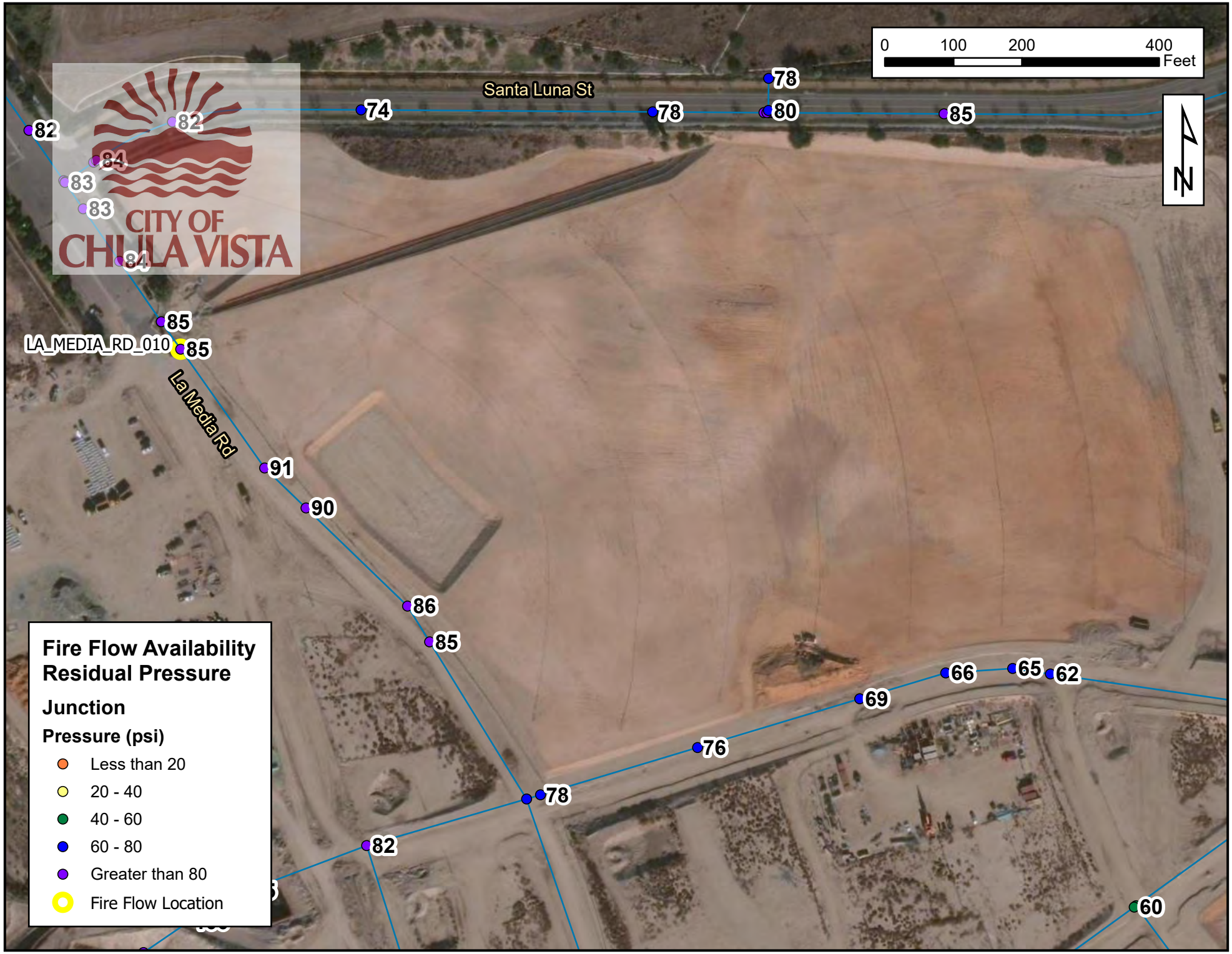


		ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)	Hydrant Pressure at Available Flow (psi)	Critical Pipe ID at Available Flow	Critical Pipe Velocity at Available Flow (ft/s)
1	☐	MAIN_ST_W_029	0	100	697	4,125	70	4,980	59	F-323-0301_F-323-0494	9

Otay Water District



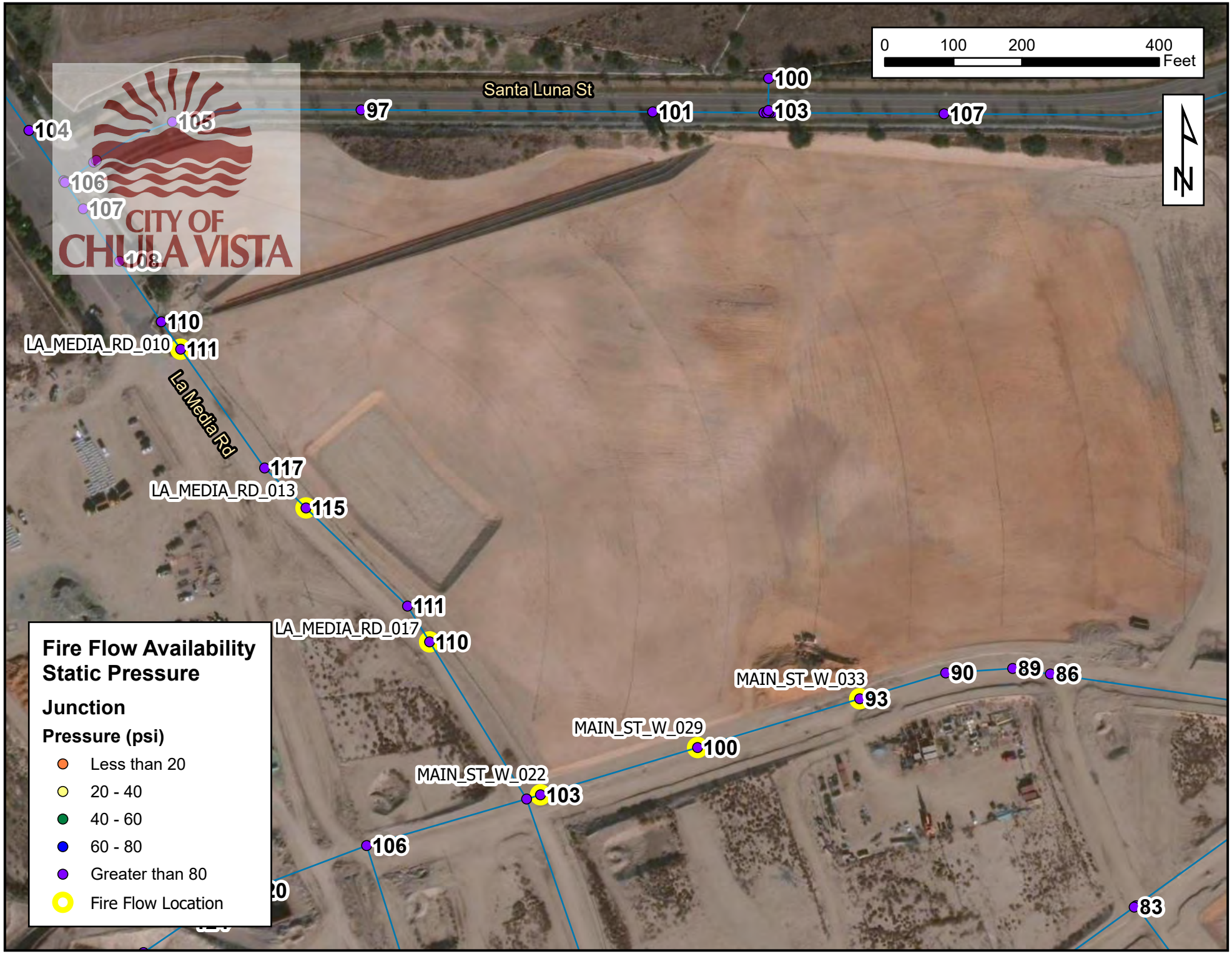
		ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)	Hydrant Pressure at Available Flow (psi)	Critical Pipe ID at Available Flow	Critical Pipe Velocity at Available Flow (ft/s)
1	☐	MAIN_ST_W_022	0	103	697	4,125	74	4,783	66	F-323-0301_F-323-0388	10


0 100 200 400
Feet
N
Santa Luna St
La Media Rd
LA_MEDIA_RD_010
CITY OF CHULA VISTA
Fire Flow Availability
Residual Pressure
Junction
Pressure (psi)
Less than 20
20 - 40
40 - 60
60 - 80
Greater than 80
Fire Flow Location


0 100 200 400
Feet
N
Santa Luna St
La Media Rd
MAIN_ST_W_029
CITY OF CHULA VISTA
Fire Flow Availability
Residual Pressure
Junction
Pressure (psi)
Less than 20
20 - 40
40 - 60
60 - 80
Greater than 80
Fire Flow Location


0 100 200 400
Feet
N
Santa Luna St
La Media Rd
MAIN_ST_W_022
CITY OF CHULA VISTA
Fire Flow Availability
Residual Pressure
Junction
Pressure (psi)
Less than 20
20 - 40
40 - 60
60 - 80
Greater than 80
Fire Flow Location


0 100 200 400
Feet
N
Santa Luna St
La Media Rd
LA_MEDIA_RD_017
CITY OF CHULA VISTA
Fire Flow Availability
Residual Pressure
Junction
Pressure (psi)
Less than 20
20 - 40
40 - 60
60 - 80
Greater than 80
Fire Flow Location


0 100 200 400
Feet
N
CITY OF CHULA VISTA
Santa Luna St
La Media Rd
LA_MEDIA_RD_010
LA_MEDIA_RD_013
LA_MEDIA_RD_017
MAIN_ST_W_033
MAIN_ST_W_029
MAIN_ST_W_022
Fire Flow Availability
Static Pressure
Junction
Pressure (psi)
Less than 20
20 - 40
40 - 60
60 - 80
Greater than 80
Fire Flow Location


0 100 200 400
Feet
N
Santa Luna St
La Media Rd
LA_MEDIA_RD_013
CITY OF CHULA VISTA
Fire Flow Availability
Residual Pressure
Junction
Pressure (psi)
Less than 20
20 - 40
40 - 60
60 - 80
Greater than 80
Fire Flow Location


0 100 200 400
Feet
N
Santa Luna St
La Media Rd
MAIN_ST_W_033
CITY OF CHULA VISTA
Fire Flow Availability
Residual Pressure
Junction
Pressure (psi)
Less than 20
20 - 40
40 - 60
60 - 80
Greater than 80
Fire Flow Location

SANTA LUNA STREET

Santa Luna St

ROW

La Media Rd

La Media Rd

Rock Mountain Rd

MAGDALENA

Magdalena Ave

AVENUE

6442410600

6442410700

6442410800

6443130600

6440711400

6442410400

6440711800

6440711700

6440711900

6440710200

6440710100

6440712100

6440712000

6440710800

6440702100

6440711600

6440710700

6440712200

6440710300

6440710500

6440712400

6440711300

068

913

Flow H-068-010 at
4,125 GPM for 4 hours

Flow H-068-013 at
4,125 GPM for 4 hours

Flow H-068-017 at
4,125 GPM for 4 hours

Flow H-068-022 at
4,125 GPM for 4 hours

Flow H-068-033 at
4,125 GPM for 4 hours

Flow H-068-029 at
4,125 GPM for 4 hours

MAP: 068
AB- 592-22
Pzone :711

4-7-22

CITY OF CHULA VISTA

Otay Water District
Attn: Engineering Department

Requirements for Fire Flow & Fire Hydrant(s)

1. Project Address: **APN 644-071-0100, 0200, 1700 & 1800**
   Total Floor Area: **96,854** square feet
   Fire Flow Calculation Area: **96,854** square feet
   Construction type: **VA** ☐ Single-family ☒ Multi-family ☒ Commercial
   Sprinklers Required: ☒ Yes ☐ No
   Sprinkler System Type: ☒ 13 ☒ 13R ☐ 13D ☐ N/A

2. Based upon California Fire Code Appendix B, a fire flow of **4,125** GPM at 20 PSI for a flow duration of **4** hours is required.

3. Based upon California Fire Code Appendix C, a total of **8** fire hydrant(s) is/are required to serve this project. Hydrants shall be located in accordance with the following:

   ☐ _____ Existing fire hydrant(s) located as follows:

   ☒ **8** New on-site fire hydrant(s) with an average spacing of **300** feet between hydrants. The maximum distance from any point along a fire apparatus access road to a hydrant shall not exceed **180** feet. Hydrants shall be located in accordance with approved plans. Required fire flow shall be available at no less than 1,500gpm per hydrant, up to the required fire flow for on site public hydrants or the required fire flow shall be available at the point of connection for on site private hydrants.

   ☐ _____ New public fire hydrant(s) with an average spacing of _____ feet between hydrants. The maximum distance from any point along a fire apparatus access road to a hydrant shall not exceed _____ feet. Hydrants shall be located in accordance with approved plans. Required fire flow shall be available at 1000gpm per hydrant, up to the required fire flow.

Please perform an analysis to determine if the required fire flow is available and send results to CVFD Fire Prevention Division. Should you have any questions, please contact **Justin Gipson - Fire Marshal** at (619) 691-5029.

CITY OF CHULA VISTA

IMPROVEMENT PLANS FOR
OTAY RANCH, VILLAGE 8 WEST PHASE 1 TOWN CENTER
IN THE CITY OF CHULA VISTA, CALIFORNIA
CHULA VISTA TRACT NO 19-03

A. GENERAL NOTES:

1. ALL UNDERGROUND UTILITIES AND LATERALS TO BE INSTALLED BEFORE CONSTRUCTION OF CURB, SIDEWALK, OR SURFACING OF STREETS.
2. SIDEWALK IS TO BE SIX INCHES THICK THROUGH ALL DRIVEWAYS.
3. ALL WORK SHALL BE COMPLETED PER THESE PLANS AND APPROVED REVISIONS. ALL CHANGES OR REVISIONS THERETO MUST BE APPROVED BY THE CITY ENGINEER, IN WRITING, PRIOR TO ANY REQUEST FOR INSPECTION.
4. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITY PIPES AND STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS, TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN HEREON, HOWEVER, THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING UTILITIES OR STRUCTURES LOCATED AT THE WORK SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT UNDERGROUND SERVICE ALERT (PHONE 1-800-422-4133) TWO (2) WORKING DAYS IN ADVANCE OF ANY EXCAVATION FOR THE MARK OUT OF THE LOCATION OF UTILITIES AND NOTIFICATION OF COMMENCEMENT OF WORK. FOR ANY QUESTIONS REGARDING THE MARK OUT OF UNDERGROUND UTILITIES, THE CONTRACTOR SHOULD CONTACT THE RESPECTIVE UTILITY COMPANY.
5. CITY OF CHULA VISTA INSPECTION NOTICE:
   a. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THE CITY ENGINEER 2 WORKING DAYS IN ADVANCE OF COMMENCEMENT OF WORK. PHONE: (619) 397-6128.
   b. THE CONTRACTOR SHALL GIVE 24 HOURS (ONE WORKING DAY) NOTICE ON CALLS FOR INSPECTION. PHONE: (619) 397-6128.
   c. ANY WORK PERFORMED WITHOUT BENEFIT OF INSPECTION SHALL BE SUBJECT TO REJECTION AND REMOVAL AT CONTRACTOR'S EXPENSE.
   d. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND WORK PRIOR TO THE EXCAVATION FOR INSTALLATION OF NEW UNDERGROUND WORK.
6. STREET LIGHT NOTE:
   THE STREET LIGHTS AND SERVICE POINTS SHOWN HEREON ARE APPROXIMATE ONLY, SERVICE POINTS ARE SUBJECT TO REVISION BY SAN DIEGO GAS AND ELECTRIC COMPANY FINAL PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE PROPER SERVICES TO THE STREET LIGHTS SHOWN ON THE PLAN ACCORDING TO ALL THE APPLICABLE CITY OF CHULA VISTA PLANS AND SPECIFICATIONS. THE DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING CONDUIT AND CONDUCTORS FROM STREET LIGHTS TO APPROVED SERVICE POINTS FURNISHED BY SAN DIEGO GAS AND ELECTRIC COMPANY. CONDUIT RUNS AND CONDUCTOR SIZE FROM STREET LIGHTS TO SERVICE POINTS SHALL BE SHOWN ON THESE PLANS AND APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION. STREET LIGHTING CONDUIT SHALL BE 1 1/2" MIN. PVC (SCHEDULE 80). FINAL LOCATION AND SIZE OF STREET LIGHTS, CONDUIT, WIRE AND PULL BOXES SHALL BE APPROVED PRIOR TO BEGINNING OF CONSTRUCTION.
7. NEITHER THE OWNER NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS DURING CONSTRUCTION OPERATIONS.
8. MAXIMUM DISTANCE BETWEEN PULL BOXES IS 190 FEET.
9. ALL UTILITIES SHALL HAVE A MINIMUM OF 90% RELATIVE COMPACTION IN ALL TRENCH BACKFILL.
10. AS-BUILT DRAWINGS: A SET OF BLUELINE PRINTS AND A SET OF SPECIFICATIONS SHALL BE KEPT AT ALL TIMES ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK, INCLUDING ALL UTILITIES, ARE TO BE RECORDED.
11. CONTRACTOR SHALL FURNISH TO THE ENGINEER OF WORK AS-BUILT PLANS FOR ALL NEW IMPROVEMENTS SHOWN ON THESE PLANS FOR SUBMITTAL TO THE CITY ENGINEER FOR APPROVAL.
12. THE OWNER MUST OBTAIN AN EXCAVATION PERMIT FROM THE DIVISION OF OCCUPATIONAL SAFETY AND HEALTH (D.O.S.H.) PRIOR TO START OF CONSTRUCTION.
13. ALL STORM DRAIN PIPE SHALL BE 1500 D-LOAD UNLESS OTHERWISE SHOWN ON THESE PLANS.
14. DUST GENERATED BY CONSTRUCTION ACTIVITIES SHALL COMPLY WITH LOCAL DUST CONTROL AND UNIFORM BUILDING CODE (UBC) REQUIREMENTS WHICH INCLUDE DUST CONTROL MEASURES FOR CONSTRUCTION SITES. DUST REDUCING MEASURES SHALL INCLUDE REGULAR WATERING OF GRADED SURFACES AND RESTRICTION OF ALL CONSTRUCTION VEHICLES AND EQUIPMENT TO TRAVEL ALONG ESTABLISHED AND REGULARLY WATERED ROADWAYS.

B. DIG ALERT NOTICE:

IMPORTANT NOTICE
SECTION 4215/4217 OF THE GOVERNMENT CODE REQUIRES THAT A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. PER YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT TOLL FREE 1-800-422-4133 TWO WORKING DAYS BEFORE YOU DIG.

UNDERGROUND SERVICE ALERT

CALL BEFORE YOU DIG

CALL: TOLL FREE
(800)422-4133

TWO WORKING DAYS BEFORE YOU DIG

"CAUTION": REMEMBER THAT THE USA CENTER NOTIFIES ONLY THOSE UTILITIES BELONGING TO THE CENTER. THERE COULD BE OTHER UTILITIES PRESENT AT THE WORK SITE. THE CENTER WILL INFORM YOU OF WHOM THEY WILL NOTIFY.

C. SPECIAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSURE THAT ALL SLOPES, STREETS, UTILITIES, AND STORM DRAINS ARE BUILT IN ACCORDANCE WITH THESE PLANS. IF THERE IS ANY QUESTION REGARDING THESE PLANS OR FIELD STAKES, THE CONTRACTOR SHALL REQUEST AN INTERPRETATION BEFORE DOING ANY WORK BY CALLING THE ENGINEER OF WORK AT (858) 715-1420 AND THE CITY INSPECTOR. THE CONTRACTOR SHALL ALSO TAKE THE NECESSARY STEPS TO PROTECT THE PROJECT AND ADJACENT PROPERTY FROM ANY EROSION AND SILTATION THAT RESULT FROM CONTRACTOR'S OPERATIONS BY APPROPRIATE MEANS (SAND BAGS, HAY BALES, TEMPORARY DESILTING BASINS, SILT FENCES, DIKES, SHORING, ETC.) UNTIL SUCH TIME THAT THE TOTAL PROJECT IS COMPLETED AND ACCEPTED FOR MAINTENANCE BY WHATEVER OWNER, AGENCY OR ASSOCIATION IS TO BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE.
2. CONTRACTOR WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES.
3. LOCATION AND ELEVATIONS OF IMPROVEMENTS TO BE MET (OR AVOIDED) BY WORK TO BE DONE SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK. CONTRACTOR SHALL REPORT TO THE ENGINEER OR CITY INSPECTOR ANY DISCREPANCIES BETWEEN FIELD MEASUREMENTS AND THE PLANS.
4. BEFORE EXCAVATING FOR THIS CONTRACT, THE CONTRACTOR SHALL FIELD VERIFY LOCATION OF UNDERGROUND UTILITIES. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO OTHER EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS.
5. CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER EXISTING LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
6. CONTRACTOR AGREES: TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, THE ENGINEER AND THE CITY OF CHULA VISTA HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING THEREFROM LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER OR THE CITY OF CHULA VISTA.
7. CONTRACTOR IS RESPONSIBLE FOR HAVING TRAFFIC CONTROL PLANS APPROVED BY THE CITY ENGINEER PRIOR TO COMMENCING ANY WORK IN THE PUBLIC RIGHT OF WAY.
8. CONTRACTOR SHALL REPAIR ALL DESTROYED OR DAMAGED EXISTING SURFACE IMPROVEMENTS WITH IMPROVEMENTS EQUAL OR SUPERIOR.
9. ALL DEMOLISHED MATERIAL SHALL BE REMOVED FROM THE JOB SITE TO AN APPROVED DISPOSAL SITE.
10. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS AND THE CITY ENGINEER.
11. STOP SIGN AND STREET NAME SIGN POLES SHALL BE CONSTRUCTED CONCURRENT WITH SIDEWALK CONSTRUCTION IN ACCORDANCE WITH TRF-02, TRF-10, AND TRF-07.

D. PUBLIC IMPROVEMENT AND GRADING PLAN MONUMENTATION NOTES:

THE CONTRACTOR/ DEVELOPER SHALL BE RESPONSIBLE THAT ANY MONUMENT OR BENCH MARK WHICH IS DISTURBED OR DESTROYED SHALL BE RE-ESTABLISHED AND REPLACED BY A REGISTERED CIVIL ENGINEER WHO IS ALLOWED TO PRACTICE SURVEYING OR A LICENSED LAND SURVEYOR AND A CORNER RECORD, RECORD OF SURVEY, OR CERTIFICATE OF CORRECTION FILED AS REQUIRED BY THE LAND SURVEYOR'S ACT.

E. PRECONSTRUCTION CONFERENCE:

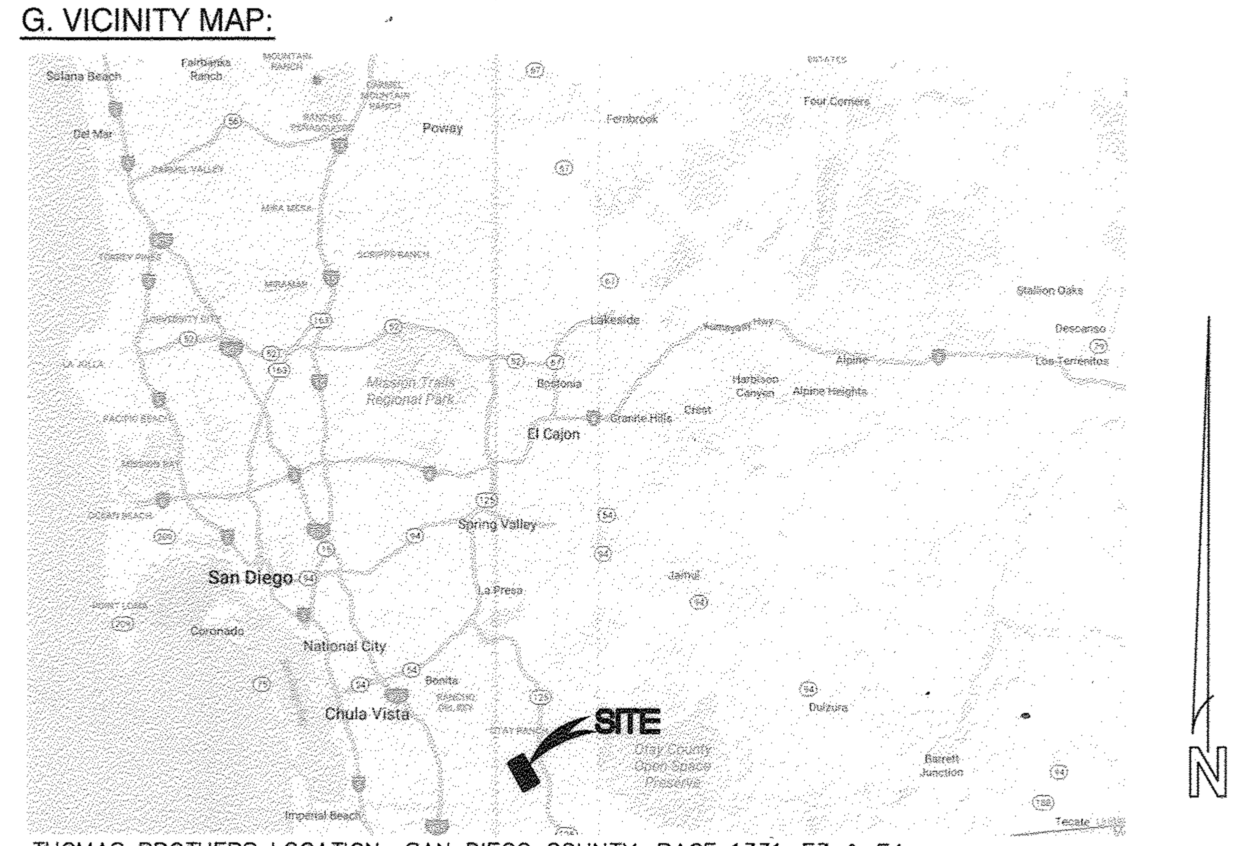
THE CONTRACTOR SHALL NOT BEGIN WORK ON THIS PROJECT UNTIL A PRE- CONSTRUCTION CONFERENCE IS HELD AMONG THE ENGINEER OF WORK, SOILS ENGINEER, DEVELOPER, CONTRACTOR, AND CITY INSPECTOR.

F. SHEET INDEX:

TITLE SHEETS 1-2
KEY MAP 3-4
IMPROVEMENT DETAILS 5
IMPROVEMENT PLAN 6-32
INTERSECTION DETAILS 33-40
STRIPING & SIGNING PLANS 41-47
TRAFFIC SIGNAL PLANS 48-61
CATHODIC PROTECTION DETAILS & NOTES.... 62

NOTE: ALL FIRE HYDRANTS AND HARD SURFACES ACCESS MUST BE IN PLACE BEFORE COMBUSTIBLE MATERIALS ARE DELIVERED TO THE SITE.

G. VICINITY MAP:



THOMAS BROTHERS LOCATION: SAN DIEGO COUNTY, PAGE 1331-E3 & E4

H. OWNER'S CERTIFICATE:

IT IS AGREED THAT FIELD CONDITIONS MAY REQUIRE CHANGES TO THESE PLANS. IT IS FURTHER AGREED THAT THE OWNER (DEVELOPER) SHALL HAVE THE ENGINEER OF WORK MAKE SUCH CHANGES, ALTERATIONS OR ADDITIONS TO THESE PLANS WHICH THE ENGINEER OF WORK DETERMINES ARE NECESSARY AND DESIRABLE FOR THE PROPER COMPLETION OF THE IMPROVEMENTS. ALL PLAN CHANGES SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.

I FURTHER AGREE TO COMMENCE WORK ON ANY IMPROVEMENTS SHOWN ON THESE PLANS WITHIN EXISTING CITY RIGHT-OF-WAY WITHIN 60 DAYS AFTER ISSUANCE OF THE CONSTRUCTION PERMIT AND TO PURSUE SUCH WORK ACTIVELY ON EVERY NORMAL WORKING DAY UNTIL COMPLETED, IRRESPECTIVE AND INDEPENDENT OF ANY OTHER WORK ASSOCIATED WITH THIS PROJECT OR UNDER MY CONTROL.

NAME: HOMEFED VILLAGE 8, LLC
ADDRESS: 1903 WRIGHT PLACE, SUITE 220 CARLSBAD, CA 92008
PHONE: (760) 918-8200
NAME: [signature] DATE: 10/7/20

I. SOILS ENGINEER'S CERTIFICATE:

I, JEFF A. CHANEY, A REGISTERED CIVIL ENGINEER OF THE STATE OF CALIFORNIA, PRINCIPALLY DOING BUSINESS IN THE FIELD OF APPLIED SOIL MECHANICS, HEREBY VERIFY THAT A SAMPLING AND STUDY OF THE SOIL CONDITIONS PREVALENT WITHIN THIS SITE WAS MADE BY ME OR UNDER MY DIRECTION BETWEEN THE DATES OF 10/22/10 AND 6/1/18. ONE COMPLETE COPY OF THE SOILS REPORT COMPILED FROM THIS STUDY, WITH MY RECOMMENDATIONS, HAS BEEN SUBMITTED TO THE OFFICE OF THE CITY ENGINEER.

THESE IMPROVEMENT PLANS HAVE BEEN REVIEWED BY ME OR UNDER MY DIRECTION AND CONFORM TO THE RECOMMENDATIONS MADE IN THE SOILS REPORT MENTIONED ABOVE.

SIGNED: [signature] DATE: 10/7/20
DISCIPLINE: GEOTECHNICAL EXPIRATION DATE: 6/30/21

REGISTERED PROFESSIONAL ENGINEER JOHN J. DONOVAN GE 2790 GEOTECHNICAL STATE OF CALIFORNIA

J. ENGINEER OF WORK:

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE IMPROVEMENTS SHOWN ON THIS SET OF PLANS (SHEET 1 THROUGH SHEET 47) HAVE BEEN INSTALLED AND CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH SAID PLANS, APPROPRIATE STANDARDS AND ANY DISCRETIONARY APPROVAL(S) FOR THE PROJECT.

SIGNED: [signature] DATE: 10/07/20
PRINTED NAME: JOHN A. HAYES P.E. NO: 58003
DISCIPLINE: CIVIL MY REGISTRATION EXPIRES: 06/30/2022

K. DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS. I UNDERSTAND THAT THE CHECK OF THE PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF CHULA VISTA AND OTAY WATER DISTRICT IS CONFINED TO REVIEW ONLY AND DOES NOT RELIEVE ME AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR THE PROJECT DESIGN.

HALE ENGINEERING
7910 CONVOY CT.
SAN DIEGO, CA 92111

BY: [signature] DATE: 10/07/20
JOHN A. HAYES RCE No. 58003 EXP. 6/30/2022

REGISTERED PROFESSIONAL ENGINEER JOHN ANTHONY HAYES C58003 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER BOUSHRA FARAJE SALEM No. C61245 CIVIL STATE OF CALIFORNIA

L. LEGAL DESCRIPTION

BEING PORTIONS OF LOTS 27 AND 28 OF OTAY RANCH, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 862, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 7, 1900.

M. ASSESSOR'S PARCEL

APN 644-070-12,14
APN 644-070-13 (NOT A PART, CITY OF SAN DIEGO RESERVOIR)

N. CALIFORNIA COORDINATES

BASIS OF COORDINATES IS THE CALIFORNIA COORDINATE SYSTEM NORTH AMERICAN DATUM 1983 (NAD83) PER THE CITY OF CHULA VISTA SURVEY CONTROL NETWORK

O. OWNER/DEVELOPER

HOMEFED VILLAGE 8, LLC
1903 WRIGHT PLACE, SUITE 220 CARLSBAD ,CA 92008
(760) 918-8200

P. AS BUILTS

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER OF WORK, AS-BUILT PLANS FOR ALL NEW IMPROVEMENTS AND GRADING SHOWN ON THESE PLANS FOR SUBMITTAL TO THE CITY ENGINEER FOR APPROVAL IN ACCORDANCE WITH SECTION 15.04.140 OF THE CHULA VISTA MUNICIPAL CODE

Q. WORK TO BE DONE:

THE WORK TO BE DONE CONSISTS OF THE ITEMS INDICATED UNDER THE "LEGEND" SHOWN BELOW, AND IS TO BE DONE IN ACCORDANCE WITH THESE PLANS AND THE FOLLOWING LIST OR PRINTED MATERIALS AS CURRENTLY ADOPTED BY THE CITY OF CHULA VISTA CITY COUNCIL INCLUDING THE FOLLOWING:

1. 2018 STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK") AND 2012 REGIONAL SUPPLEMENT AMENDMENTS (TO THE GREENBOOK).
2. 2012 SAN DIEGO AREA REGIONAL STANDARD DRAWINGS.
3. 2019 CITY OF CHULA VISTA STANDARD SPECIAL PROVISIONS (TO THE GREENBOOK).
4. 2017 DESIGN AND CONSTRUCTION STANDARDS OF THE CITY OF CHULA VISTA.
5. PORTION OF THE STATE STANDARD SPECIFICATIONS, STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, DATED JULY 2010 AND ALL SUBSEQUENT ADDITIONS AND REVISIONS.
6. PORTION OF THE STATE STANDARD PLANS, STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, DATED JULY 2010 AND ALL SUBSEQUENT ADDITIONS AND REVISIONS.
7. 2014 CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ("CA-MUTCD") AND ALL SUBSEQUENT ADDITIONS AND REVISIONS.
8. WATER AGENCIES STANDARDS SPECIFICATIONS FOR WATER, RECYCLED WATER AND SEWER FACILITIES, LATEST EDITION.

ALL REFERENCES ARE TO BE MADE PART OF THESE PLANS. ANY CHANGES OR REVISIONS THEREFROM, SHALL BE APPROVED BY THE CITY ENGINEER, OR HIS DESIGNEE, PRIOR TO ANY REQUEST FOR INSPECTION.

LEGEND:	DWG NO.	SYMBOL
RIGHT OF WAY		
PROJECT BOUNDARY		
A.C. PAVING ON BASE		
CONCRETE SIDEWALK/PAVING	S.D.R.S.D. NO. G-7 & LANDSCAPE PLANS	
D.G. SIDEWALK	LANDSCAPE PLANS	
6" CURB & GUTTER TYPE 'G'	S.D.R.S.D. NO. G-2	
6" A.C. BERM	S.D.R.S.D. NO. G-5, TYPE 'A'	
STREET NAME SIGN & STOP SIGN	TRF-02 & TRF-07	
STREET SIGN	PER MUTCD 2012	
WATER MAIN		W
WATER MAIN TO HAVE RESTRAINED JOINTS (INDICATED IN PROFILES)		
RECLAIMED WATER MAIN		RW
2" RW IRRIGATION SERVICE	WS-02, WS-03, WC-17	RW C
2" WATER SERVICE	WS-02, WS-03, WC-17 (PER DETAIL SHT 4)	W C
6"/8" WATER SERVICE (PER PLAN)*,**	WS-05	W
6"/8" FIRE SERVICE (PER PLAN)*,**	WF-05	FS RP
2" BLOW OFF	W.A.S. WB-01, WC-17	C
2" RW BLOW OFF	W.A.S. WB-01, WC-17, WP-01	C T
4" BLOW OFF*	W.A.S. WB-02 OR PER DETAIL SHT 4	
6" FIRE HYDRANT ASSEMBLY*	W.A.S. WF-02 & WF-04 OR PER DETAIL SHT 4	T
WATER END CAP		
GATE VALVE	W.A.S. WV-02, WV-03	
BUTTERFLY VALVE	W.A.S. WV-02, WV-03	
2" AIR VACUUM VALVE	W.A.S. WA-02, WA-03, WC-17	C
4" AIR VACUUM VALVE*	W.A.S. WA-04, WA-06 OR PER DETAIL SHT 4	
CONCRETE THRUST BLOCK	W.A.S. WT-01	
SEWER MAIN - PUBLIC (SDR 35)	S.D.R.S.D. NO. SP-2	
5' SEWER MANHOLE	S.D.R.S.D. NO. SM-2, 3, 5 (3'x5'), M-3A	
4" SEWER SERVICE	SWR-03, 04, 05, 06	S
SEWER END CAP		
2 WIRE TEST STATION		C
STREET LIGHT (LED)	TRF-08 & TRF-09	
STREET LIGHT CONDUIT (SCH 80) & PULL BOX		
STREET LIGHT TRANS. PAD		
CROSS GUTTER	GSI-02	
PED RAMP	GSI-08 & GSI-08 TYPE A	
STREET GUARD POST AND BARRICADE	S.D.R.S.D. M-9	
PROPOSED ROADSIDE SIGN		

* ALL FIRE HYDRANTS (INDICATED IN PROFILES), PVC WATER/FIRE SERVICES (INDICATED IN PLAN VIEW), 6"/8" WATER SERVICES AND 8"/10" FIRE SERVICE (INDICATED IN PROFILES) IN THE TOWN CENTER COUPLETS ARE TO HAVE RESTRAINED JOINTS IN PLACE OF THRUST BLOCKS, SEE DETAILS ON SHEET 4.

** ALL FIRE/WATER SERVICES 4" OR LARGER TO BE INSTALLED PER SHEET 63 DETAIL 1, TYPE 1 UNLESS OTHERWISE STATED

ACCELA NO. 1P13-031
TOTAL NUMBER OF SHEETS = 63

BY	OWD REVISIONS	DATE	APP'D
HE	4 JOINT TRENCH, WATERLINE PROFILE, IRRIG. LAT REMOVAL	8/16/21	MJL
HE	5 WATER PROFILE REVISIONS, BYPASS RECLAIMED WATER RELOCATION	10/12/21	MJL
HE	6 RECLAIMED WATER RELOCATION/PRS. CONN.	1/21/22	MJL

AS BUILT	OWD AS BUILT
SIGNATURE ____ DATE ____	SIGNATURE ____ DATE ____
PRINTED NAME ____ P.E. No. ____	PRINTED NAME ____ P.E. No. ____
My Registration Expires ____ Discipline ____	My Registration Expires ____ Discipline ____

UTILITY NOTE

ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE PLOTTED FROM RECORD DATA AT THEIR APPROXIMATE LOCATIONS. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR ARE NOT OF RECORD. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PERTINENT UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

BY	OWD REVISIONS	DATE	APP'D
	1 CONSTRUCTION CHANGE	2/8/21	MJL
HE	2 WATER LINE REVISIONS		
HE	3 UPDATED WATER LINES, FH, FS & WS	5/13/21	MJL

OTAY WATER DISTRICT
PROJECT # D1044-090379
PERMIT # DEV-19-001 P.Z. 711/624
[signature] 12/17/2020
MICHAEL J. LONG RCE 62216 DATE
[signature] 12/15/2020
REVIEWED BY DATE

"ENGINEER OF WORK CERTIFICATE"
I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE IMPROVEMENTS SHOWN ON THIS SET OF PLANS (SHEET 1 THROUGH SHEETS 47) HAVE BEEN INSTALLED AND CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE SAID PLANS, ALL APPROPRIATE STANDARDS AND ANY DISCRETIONARY APPROVAL(S) FOR THE PROJECT.
SIGNED: [signature] DATE: 10/07/20
PRINTED NAME: JOHN ANTHONY HAYES P.E. No. 58003
DISCIPLINE: CIVIL MY REGISTRATION EXPIRES: 06/30/2022

CONSTRUCTION RECORD	REFERENCES
CONTRACTOR:	C.C.V. DWG. NO. 05040-12 & 13
INSPECTOR:	C.C.V. DWG. NO. 05017- 1-35
DATE COMPLETED:	C.C.V. DWG. NO. 04080-03
	C.C.V. DWG. NO. 04078-09
	C.C.V. DWG. NO. 02025-39
	OWD DWG NO.

BY	REVISIONS	DATE	APP'D
HE	A CONDUIT LAYOUT, STRIPING REVISION	5/21/21	EP
HE	B ADDITIONAL NOTE & DETAIL	8/23/21	EP
HE	C LOT 18 DRIVEWAY ADDITION	8/23/21	EP
HE	D LOT 3 OFF-SITE ADA ADDITION	5/21/21	EP
HE	E SIGHT DISTANCE REVISIONS	5/21/21	EP
HE	F SEWER REVISION	5/21/21	EP
HE	H LOT 3 PED RAMPS REVISION	8/23/21	EP

DATUM: CITY OF CHULA VISTA BENCH MARK NO. 5072 ELEVATION 446.361 NAVD 88 DESCRIPTION: 3" BRASS DISK (LS4324) WELL MON @ CL INT. RUTGERS & OTAY LAKES. PT. NO. 5072 PER ROS 14841

SCALE: HORIZONTAL / VERTICAL

Designed By:	Drawn By:	Checked By:
JAH	WHM	JAH

Plans Prepared Under Supervision of: JOHN ANTHONY HAYES R.C.E. No. 58003 Date: 06/30/22

Submitted: 1/27/2021 By: [signature]
Planning: Landscape
Approved: 1/27/2021 By: [signature] For the City Engineer

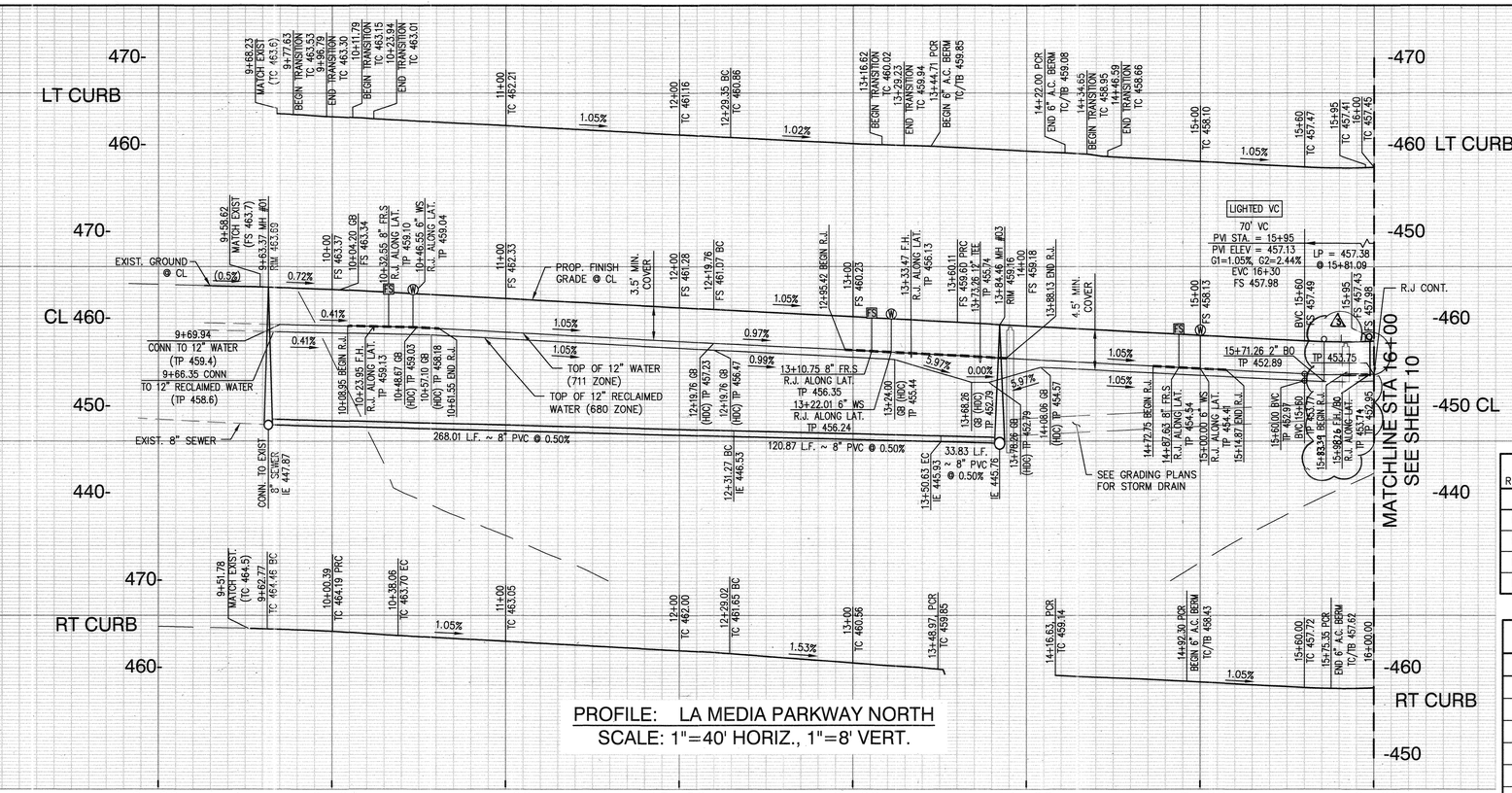
HALE ENGINEERING
7910 CONVOY COURT SAN DIEGO, CA 92111 (858) 715-1420

CITY OF CHULA VISTA DEVELOPMENT SERVICES DEPARTMENT
IMPROVEMENT PLANS FOR
CHULA VISTA TRACT NO. 19-03 PHASE 1
OTAY RANCH, VILLAGE 8 WEST, TOWN CENTER

DRAWING NO. 14012- 01
W.O. No. OR-6511
OWD D1044-090379
DEV-19-001

H.E. JOB NO. 12036, DATE: 10/05/2020

CITY OF CHULA VISTA



PROFILE: LA MEDIA PARKWAY NORTH
SCALE: 1"=40' HORIZ., 1"=8' VERT.

RESTRAINED JOINTS DATA

R.J. TO BE USED FOR ALL CONNECTIONS WITHIN THE FOLLOWING STATIONS

STREET	PIPE DATA	STATIONING
LA MEDIA PKWY N.	12" WATER	10+08.95 – 10+61.55
LA MEDIA PKWY N.	12" WATER	12+95.42 – 13+88.13
LA MEDIA PKWY N.	12" WATER	14+72.75 – 15+14.87
LA MEDIA PKWY N.	12" WATER	15+83.39 – 16+00.00

CURB DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	3.92'	44°53'49"	5.00'	6" TYPE 'G' CURB AND GUTTER
C2	3.92'	44°52'22"	5.00'	6" TYPE 'G' CURB AND GUTTER
C3	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C4	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C5	83.08'	9°37'00"	495.00'	6" TYPE 'G' CURB AND GUTTER
C6	3.86'	44°13'47"	5.00'	6" TYPE 'G' CURB AND GUTTER
C7	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C8	15.00'	1°42'31"	503.00'	6" TYPE 'G' CURB AND GUTTER
C9	12.78'	0°34'49"	1262.50'	6" TYPE 'G' CURB AND GUTTER
C10	3.92'	44°54'23"	5.00'	6" TYPE 'G' CURB AND GUTTER
C11	3.97'	45°27'15"	5.00'	6" TYPE 'G' CURB AND GUTTER
C12	156.05'	7°02'14"	1270.50'	6" TYPE 'G' CURB AND GUTTER
C13	74.86'	3°28'17"	1235.50'	6" TYPE 'G' CURB AND GUTTER
C14	15.48'	1°40'02"	532.00'	6" TYPE 'G' CURB AND GUTTER
C15	107.24'	11°32'22"	532.46'	6" TYPE 'B-1' MEDIAN CURB
C16	40.10'	17°48'34"	129.00'	6" TYPE 'B-1' MEDIAN CURB
C17	37.33'	17°49'29"	120.00'	6" TYPE 'B-1' MEDIAN CURB
C18	81.85'	3°47'44"	1235.50'	6" TYPE 'A' A.C. BERM
C19	24.68'	1°08'41"	1235.50'	6" TYPE 'G' CURB AND GUTTER
L1	9.40'	N34°38'14"W	–	6" TYPE 'G' CURB AND GUTTER
L2	17.10'	N10°15'35"E	–	6" TYPE 'G' CURB AND GUTTER
L3	15.00'	N34°36'47"W	–	6" TYPE 'G' CURB AND GUTTER
L4	7.17'	S79°36'47"E	–	6" TYPE 'G' CURB AND GUTTER
L5	204.93'	S34°36'47"E	–	6" TYPE 'G' CURB AND GUTTER
L6	7.33'	S0°38'19"E	–	6" TYPE 'G' CURB AND GUTTER
L7	77.58'	S47°03'33"E	–	6" TYPE 'A' A.C. BERM
L8	7.12'	N88°25'21"E	–	6" TYPE 'G' CURB AND GUTTER
L9	191.22'	N34°39'24"W	–	6" TYPE 'B-1' MEDIAN CURB
L10	11.00'	S34°38'25"E	–	6" TYPE 'B-1' MEDIAN CURB

CENTERLINE DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	140.35'	15°26'06"	521.00'	LA MEDIA PKWY N.
C2	239.89'	11°00'17"	1249.00'	LA MEDIA PKWY N.
L1	261.14'	S34°39'20"E	–	LA MEDIA PKWY N.

WATER DATA (711 ZONE)

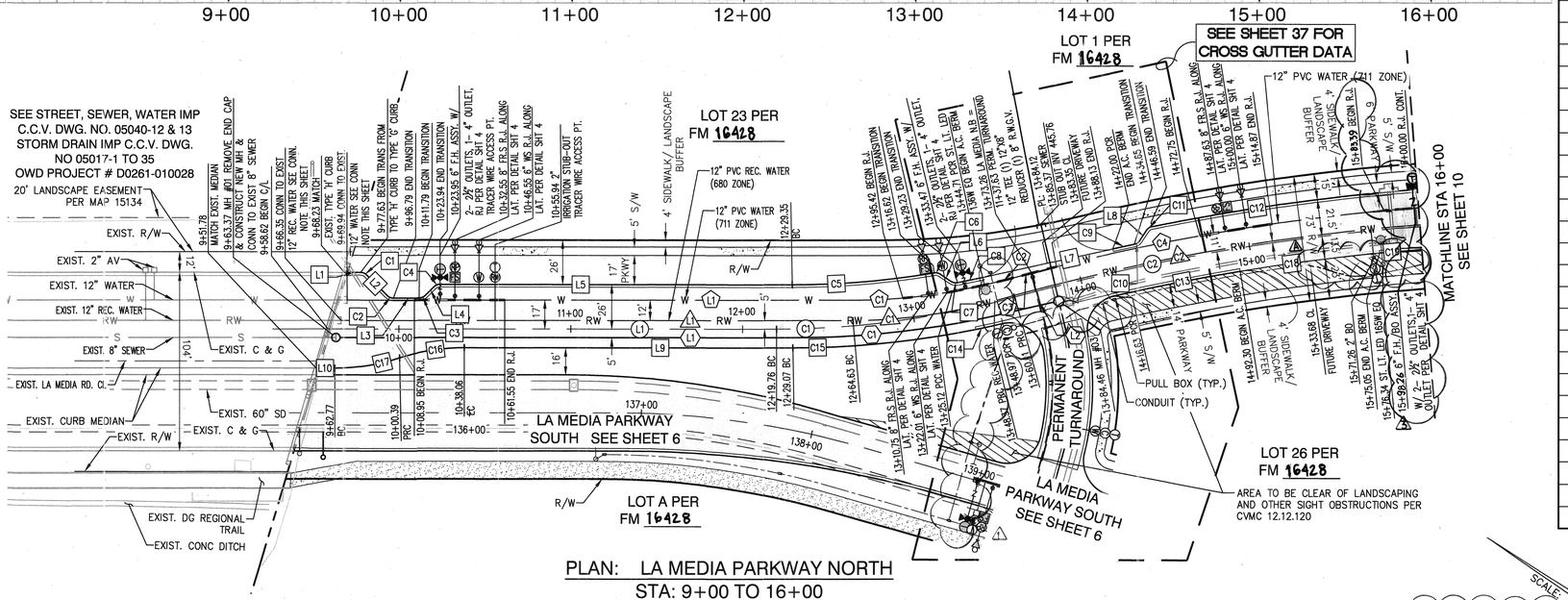
	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	55.18'	10°32'18"	300.00'	12" PVC C-900 CL-305*
C2	40.75'	4°36'01"	507.50'	12" PVC C-900 CL-305*
C3	6.75'	0°18'25"	1260.00'	12" PVC C-900 CL-305*
C4	228.74'	10°24'05"	1260.00'	12" PVC C-900 CL-305
L1	297.25'	S34°39'20"E	–	12" PVC C-900 CL-305

SEWER DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	120.87'	13°09'13"	526.50'	8" PVC SDR-35
L1	268.01'	S34°39'20"E	–	8" PVC SDR-35
L2	33.83'	S47°48'34"E	–	8" PVC SDR-35

RECLAIMED WATER DATA (680 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	83.63'	15°58'20"	300.00'	12" PVC C-900 CL-305*
C2	251.81'	11°32'31"	1250.00'	12" PVC C-900 CL-305*
L1	297.96'	S34°39'20"E	–	12" PVC C-900 CL-305



PLAN: LA MEDIA PARKWAY NORTH
STA: 9+00 TO 16+00
(PUBLIC STREET PER TYPICAL SECTION 2 SHEET 5)

* PVC PIPES IN VERTICAL OR HORIZONTAL CURVES TO HAVE HIGH DEFLECTION COUPLING PER W.A.S. STANDARD SPECIFICATION 15064-1.05.C

WATER CONNECTION NOTES

FOR CONNECTIONS TO EXISTING STUB, THE CONTRACTOR SHALL EXCAVATE, REMOVE THRUST BLOCK AND END CAP, MAKE CONNECTION TO EXISTING STUB, AND BACKFILL. APPROPRIATE THRUST RESTRAINTS SHALL BE INSTALLED ON EACH CONNECTION BETWEEN PIPES OF DIFFERENT MATERIALS OR DIFFERENT OUTSIDE DIAMETERS.

UTILITY NOTE

ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE PLOTTED FROM RECORD DATA AT THEIR APPROXIMATE LOCATIONS. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR ARE NOT OF RECORD. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PERTINENT UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

BY	OWD REVISIONS	DATE	APP'D
	1 REVISE CONDUIT FOR CLEARANCE	2/6/01	MRL
HE	2 RELOCATED FIRE HYDRANT	5/10/21	MRL
HE	3 WATER/FR SERVICE INSTALLATION TYPE	5/10/21	MRL

CONSTRUCTION RECORD	REFERENCES
CONTRACTOR:	C.C.V. DWG. NO. 05040-12 & 13
INSPECTOR:	C.C.V. DWG. NO. 05017- 1-35
DATE COMPLETED:	C.C.V. DWG. NO. 04080-03
	C.C.V. DWG. NO. 04078-09
	C.C.V. DWG. NO. 02025-39
	OWD DWG. NO.

BY	REVISIONS	DATE	APP'D
HE	4 UPDATE CONDUIT LAYOUT	5/21/21	MRL

OTAY WATER DISTRICT

PROJECT # D1044-090379
PERMIT # DEV-19-001 P.Z. 711/624
REVIEWED BY: 12/15/2020 DATE

DATUM	SCALE	Designed By:	Drawn By:	Checked By:
CITY OF CHULA VISTA BENCH MARK NO. 5072 ELEVATION 446.361 NAVD 88 DESCRIPTION: 3" BRASS DISK (LS4324) WELL MON @ CL INT. RUTGERS & OTAY LAKES. PT. NO. 5072 PER ROS 14841	HORIZONTAL 1" = 40'	JAH	WHM	JAH
	VERTICAL 1" = 8'	Plans Prepared Under Supervision of: JOHN ANTHONY HAYES Date: 06/30/22 R.C.E. No. 58003		

AS BUILT
SIGNATURE DATE
PRINTED NAME P.E. No.
My Registration Expires Discipline

OWD AS BUILT
SIGNATURE DATE
PRINTED NAME P.E. No.
My Registration Expires Discipline

Submitted: 1/27/2021
By:
Planning: Landscape:

Approved: 1/27/2021
By: For the City Engineer

CITY OF CHULA VISTA DEVELOPMENT SERVICES DEPARTMENT
IMPROVEMENT PLANS FOR
CHULA VISTA TRACT NO. 19-03 PHASE 1
OTAY RANCH, VILLAGE 8 WEST, TOWN CENTER

DRAWING NO. 14012-09
W.O. No. OR-6511
OWD D1044-090379
DEV-19-001

REGISTERED PROFESSIONAL ENGINEER JOHN ANTHONY HAYES C58003 CIVIL STATE OF CALIFORNIA

NOTES:

3. FIRE/WATER SERVICES 4" OR LARGER TO BE INSTALLED PER SHEET 63 DETAIL 1 TYPE 1 UNLESS OTHERWISE STATED.

SCALE 1" = 40'

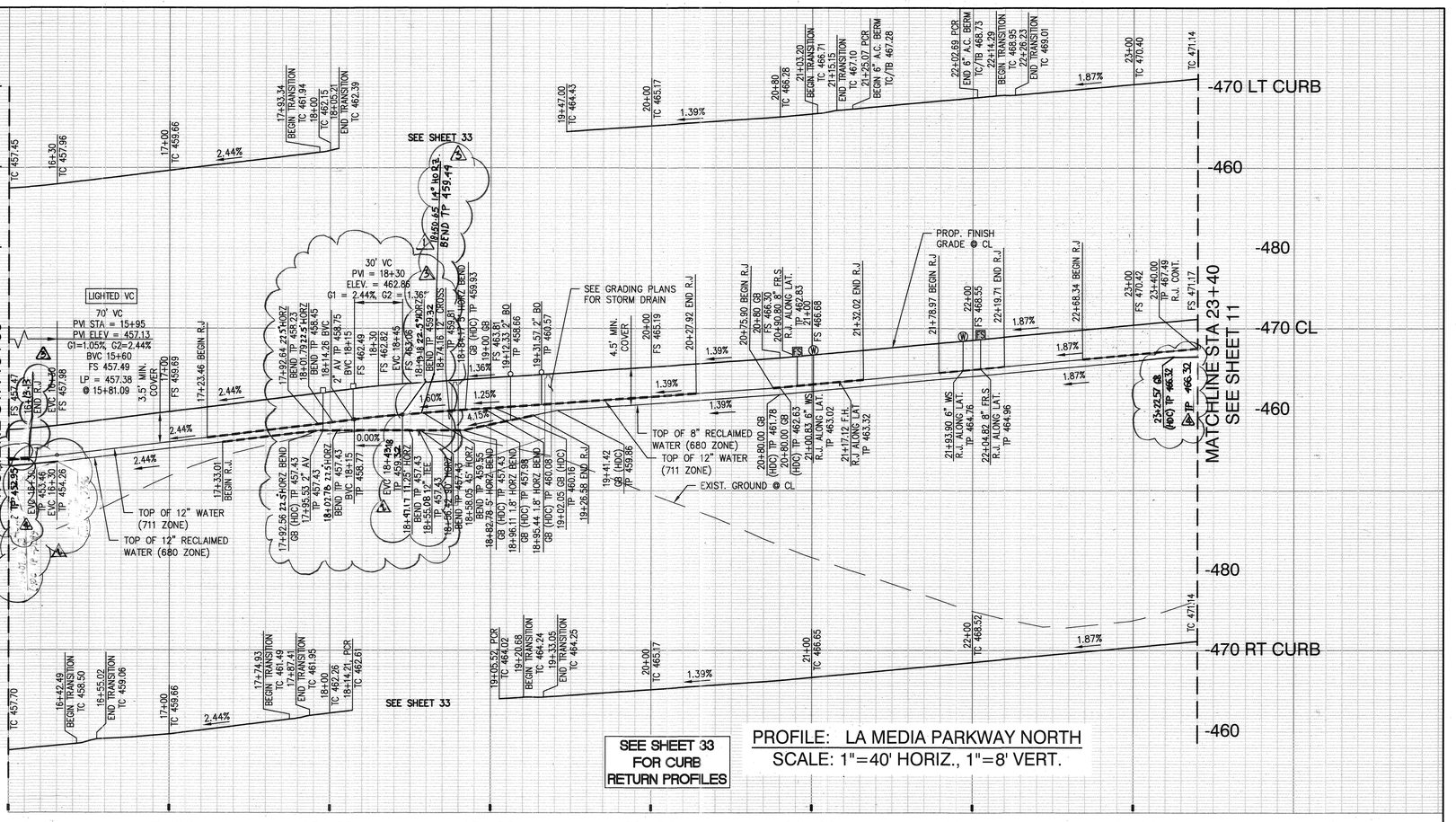
NOTES:

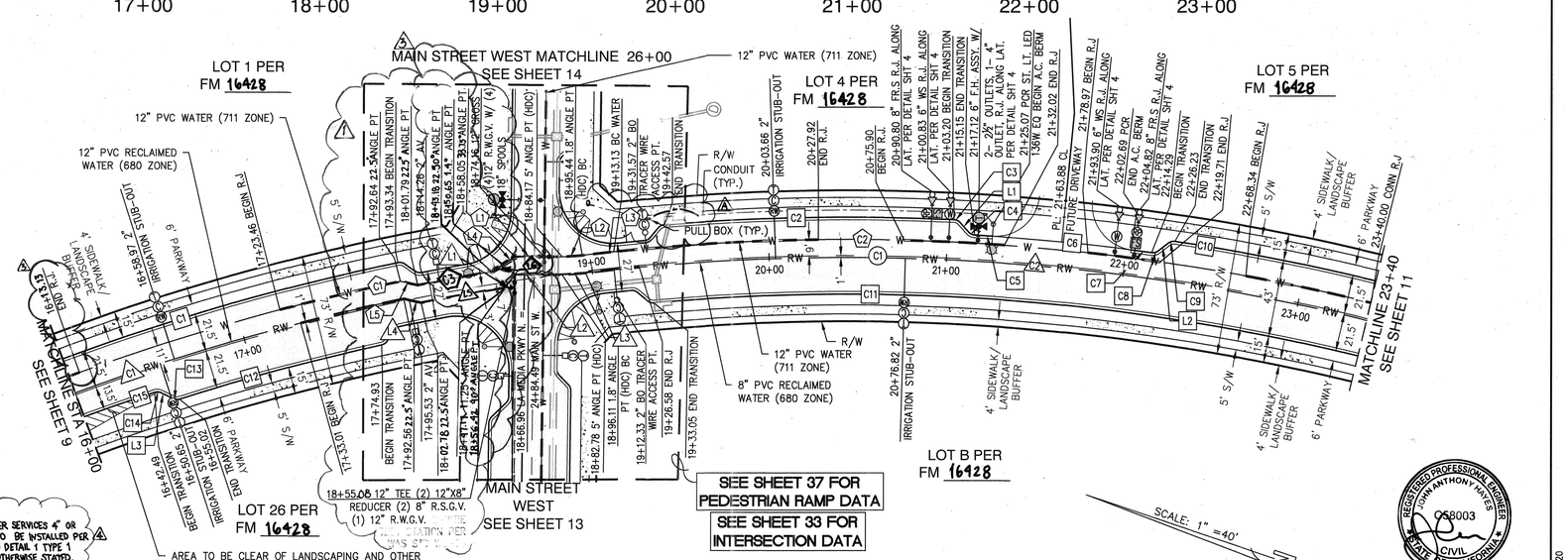
1. ALL POTABLE AND RECLAIMED WATER LINES WITHIN THE TOWN CENTER COUPLETS TO HAVE RESTRAINED JOINTS.
2. VALVE SUPPORT BLOCKS REQUIRED AT ALL GATE AND BUTTERFLY VALVES AND CROSSES PER DETAIL SHT. 4.

HALE ENGINEERING
7810 CONVOY COURT SAN DIEGO, CA 92111 (858) 715-1620

H.E. JOB NO. 12036, DATE: 10/05/20

CITY OF CHULA VISTA





RESTRAINED JOINTS DATA

R.J. TO BE USED FOR ALL CONNECTIONS WITHIN THE FOLLOWING STATIONS

STREET/PIPE ID	PIPE DATA	STATIONING
LA MEDIA PKWY N.	12" WATER (711)	16+00.00 – 16+15.15
LA MEDIA PKWY N.	12" WATER (711)	17+23.46 – 20+27.92
LA MEDIA PKWY N.	12" WATER (711)	20+75.90 – 21+32.02
LA MEDIA PKWY N.	12"/8" REC. WATER	17+33.01 – 19+26.58
LA MEDIA PKWY N.	12" WATER (711)	21+78.97 – 22+19.71
LA MEDIA PKWY N.	12" WATER (711)	22+68.34 – 23+40.00

CENTERLINE DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	740.00'	33°56'47"	1249.00'	LA MEDIA PKWY N.

CURB DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	196.67'	8°52'09"	1270.50'	6" TYPE 'G' CURB AND GUTTER
C2	163.39'	7°22'07"	1270.50'	6" TYPE 'G' CURB AND GUTTER
C3	3.97'	45°27'15"	5.00'	6" TYPE 'G' CURB AND GUTTER
C4	3.92'	44°54'23"	5.00'	6" TYPE 'G' CURB AND GUTTER
C5	10.04'	0°27'20"	1262.50'	6" TYPE 'G' CURB AND GUTTER
C6	78.46'	3°33'39"	1262.50'	6" TYPE 'A–1' A.C. BERM
C7	11.72'	0°31'55"	1262.50'	6" TYPE 'G' CURB AND GUTTER
C8	3.92'	44°54'23"	5.00'	6" TYPE 'G' CURB AND GUTTER
C9	3.97'	45°27'15"	5.00'	6" TYPE 'G' CURB AND GUTTER
C10	115.72'	5°13'08"	1270.50'	6" TYPE 'G' CURB AND GUTTER
C11	399.95'	18°40'06"	1227.50'	6" TYPE 'G' CURB AND GUTTER
C12	117.96'	5°30'22"	1227.50'	6" TYPE 'G' CURB AND GUTTER
C13	3.87'	44°30'03"	4.98'	6" TYPE 'G' CURB AND GUTTER
C14	3.87'	44°08'48"	5.02'	6" TYPE 'G' CURB AND GUTTER
C15	42.02'	1°56'56"	1235.50'	6" TYPE 'G' CURB AND GUTTER
L1	7.12'	N29°27'06"E	–	6" TYPE 'G' CURB AND GUTTER
L2	7.12'	N55°48'46"W	–	6" TYPE 'G' CURB AND GUTTER
L3	7.46'	S7°13'32"W	–	6" TYPE 'G' CURB AND GUTTER

* PVC PIPES IN VERTICAL OR HORIZONTAL CURVES TO HAVE HIGH DEFLECTION COUPLING PER W.A.S. STANDARD SPECIFICATION 15064–1.05.C

RECLAIMED WATER DATA (680 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	192.86'	8°50'25"	1250.00'	12" PVC C–900 CL–305*
C2	443.53'	20°21'46"	1248.00'	8" PVC C–900 CL–305*
L5	49.38'	S10°05'06"E	–	12" PVC C–900 CL–305
L1	800'	S17°50'06"E	–	12" PVC C–900 CL–305
L2	26.70'	N18°03'36"W	–	8" PVC C–900 CL–305
L3	13.34'	S23°03'36"E	–	8" PVC C–900 CL–305
L4	11.12'	S6°35'06"E	–	12" PVC C–900 CL–305

WATER DATA (711 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	194.43'	8°50'29"	1260.00'	12" PVC C–900 CL–305*
C2	429.94'	19°34'54"	1258.00'	12" PVC C–900 CL–305*
L1	26.61'	S18°03'36"E	–	12" PVC C–900 CL–305
L2	11.36'	S23°03'36"E	–	12" PVC C–900 CL–305
L3	17.82'	N25°07'39"W	–	12" PVC C–900 CL–305
L4	8.20'	N51°40'36"E	–	12" PVC C–900 CL–305
L5	10.05'	S7°35'06"E	–	12" PVC C–900 CL–305
L6	8.14'	N50°29'35"W	–	12" PVC C–900 CL–305
C3	41.63'	1°53'56"	1256.00'	12" PVC C–900 CL–305

NOTES:
1. ALL POTABLE AND RECLAIMED WATER LINES WITHIN THE TOWN CENTER COUPLETS TO HAVE RESTRAINED JOINTS.
2. VALVE SUPPORT BLOCKS REQUIRED AT ALL GATE AND BUTTERFLY VALVES AND CROSSES PER DETAIL SHT. 4.
3. FIRE/WATER SERVICES 4" OR LARGER TO BE INSTALLED PER SHEET G3 DETAIL 1 TYPE 1 UNLESS OTHERWISE STATED.

SEE SHEET 33 FOR CURB RETURN PROFILES

SEE SHEET 37 FOR PEDESTRIAN RAMP DATA

SEE SHEET 33 FOR INTERSECTION DATA

PROFILE: LA MEDIA PARKWAY NORTH
SCALE: 1"=40' HORIZ., 1"=8' VERT.

PLAN: LA MEDIA PARKWAY NORTH
STA: 16+00 TO 23+50
(PUBLIC STREET PER TYPICAL SECTION 2 SHEET 5)

SCALE 1" = 40'

AS BUILT

DATE _____
SIGNATURE
P.E. No. _____
PRINTED NAME
My Registration Expires_____ Discipline_____

OWD AS BUILT

DATE _____
SIGNATURE
P.E. No. _____
PRINTED NAME
My Registration Expires_____ Discipline_____

UTILITY NOTE

ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE PLOTTED FROM RECORD DATA AT THEIR APPROXIMATE LOCATIONS. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR ARE NOT OF RECORD. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PERTINENT UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

BY	OWD REVISIONS	DATE	APP'D
HE	1 UPDATE WATERLINE & TABLE	2/3/21	MSL
HE	2 UPDATE WATER & RECLAIMED WATER	5/6/21	MSL
HE	3 REVISE RECLAIMED WATER PROFILE & FR/ WATER SERVICE INSTALLATION TYPE	5/14/21	MSL

REVIEWED BY

OTAY WATER DISTRICT
PROJECT # 01044-090379
PERMIT # DEV-19-001 P.Z. 711/824
12/15/2020
DATE

CONSTRUCTION RECORD	REFERENCES
CONTRACTOR:	C.C.V. DWG. NO. 05040-12 & 13
INSPECTOR:	C.C.V. DWG. NO. 05017- 1-35
DATE COMPLETED:	C.C.V. DWG. NO. 04080-03
	C.C.V. DWG. NO. 04078-09
	C.C.V. DWG. NO. 02025-39
	OWD DWG. NO. _____

BY	REVISIONS	DATE	APP'D
HE	4 UPDATE CONDUIT LAYOUT	5/21/21	MSL

DATUM: CITY OF CHULA VISTA BENCH MARK NO. 5072 ELEVATION 446.361 NAVD 88
DESCRIPTION: 3" BRASS DISK (LS4324) WELL MON @ CL INT. RUTGERS & OTAY LAKES. PT. NO. 5072 PER ROS 14841

SCALE	
HORIZONTAL	1" = 40'
VERTICAL	1" = 8'

Designed By:	Drawn By:	Checked By:
JAH	WHM	JAH

Plans Prepared Under Supervision of: JOHN ANTHONY HAYES Date: 06/30/22 R.C.E. No. 58003

Planning: Landscape:

Submitted: 1/27/2021
By: _____

Approved: 1/27/2021
By: _____ For the City Engineer

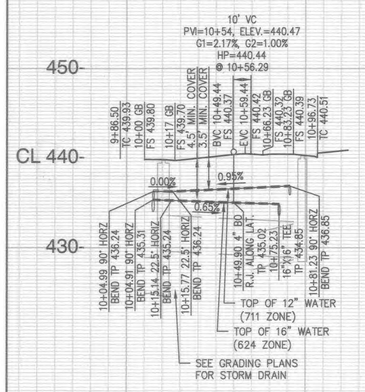
CITY OF CHULA VISTA DEVELOPMENT SERVICES DEPARTMENT
IMPROVEMENT PLANS FOR
CHULA VISTA TRACT NO. 19-03 PHASE 1
OTAY RANCH, VILLAGE 8 WEST, TOWN CENTER

DRAWING NO. 14012- 10
W.O. No. OR-6511
H.E. JOB NO. 12036, DATE: 10/05/20
OWD D1044-090379
DEV-19-001

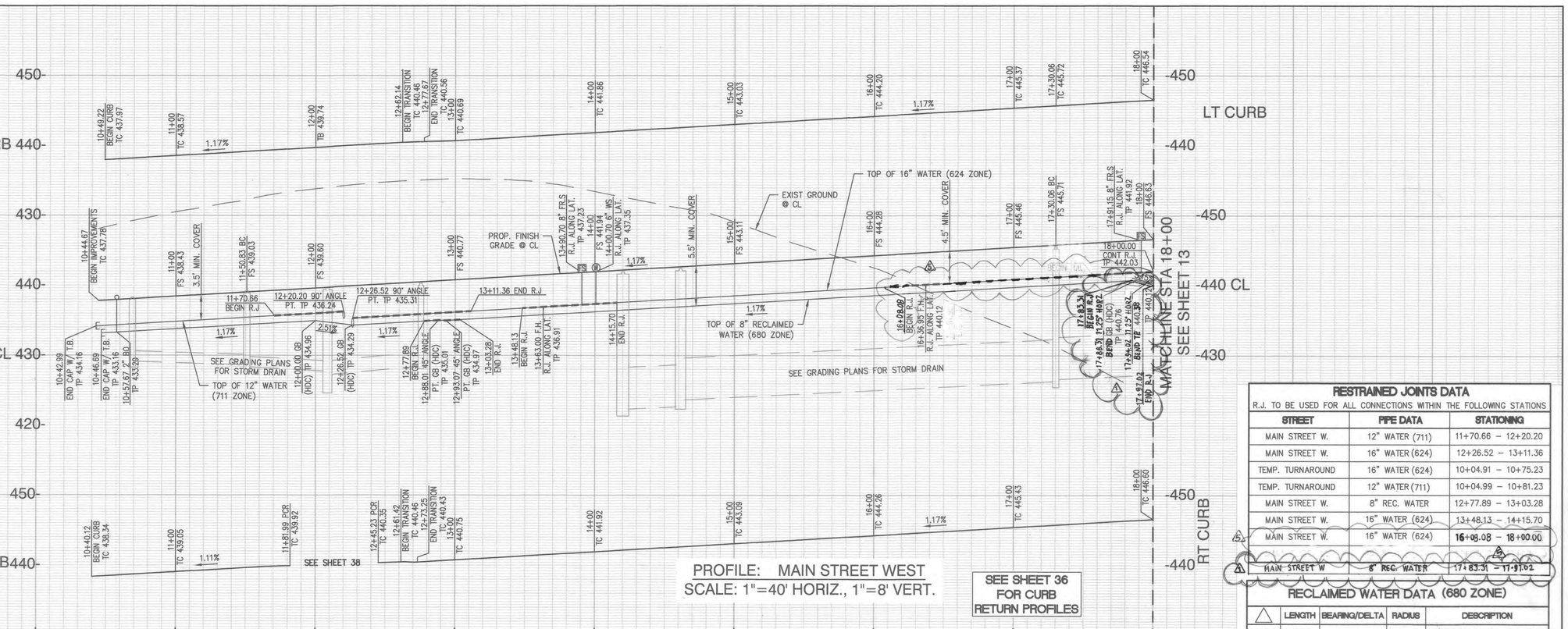
REGISTERED PROFESSIONAL ENGINEER JOHN ANTHONY HAYES 58003 CIVIL STATE OF CALIFORNIA

HALE ENGINEERING
7910 CONVOY COURT SAN DIEGO, CA 92111 (858) 715-1420

CITY OF CHULA VISTA



PROFILE: TEMPORARY TURNAROUND
SCALE: 1"=40' HORIZ., 1"=8' VERT.



PROFILE: MAIN STREET WEST
SCALE: 1"=40' HORIZ., 1"=8' VERT.

SEE SHEET 36 FOR CURB RETURN PROFILES

RESTRAINED JOINTS DATA

R.J. TO BE USED FOR ALL CONNECTIONS WITHIN THE FOLLOWING STATIONS

STREET	PIPE DATA	STATIONING
MAIN STREET W.	12" WATER (711)	11+70.66 – 12+20.20
MAIN STREET W.	16" WATER (624)	12+26.52 – 13+11.36
TEMP. TURNAROUND	16" WATER (624)	10+04.91 – 10+75.23
TEMP. TURNAROUND	12" WATER (711)	10+04.99 – 10+81.23
MAIN STREET W.	8" REC. WATER	12+77.89 – 13+03.28
MAIN STREET W.	16" WATER (624)	13+48.13 – 14+15.70
MAIN STREET W.	16" WATER (624)	16+08.08 – 18+00.00
MAIN STREET W	8" REC. WATER	17+83.31 – 17+91.02

RECLAIMED WATER DATA (680 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	135.65'	14°40'41"	529.50'	8" PVC C-900 CL-305*
C2	108.88'	11°53'39"	524.50'	8" PVC C-900 CL-305*
C3	57.42'	6°05'54"	539.50'	8" PVC C-900 CL-305*
C4	6.09'	0°38'53"	538.00'	8" PVC C-900 CL-305*
L1	104.13'	S52°44'08"W	–	8" PVC C-900 CL-305
L2	7.05'	S7°20'53"E	–	8" PVC C-900 CL-305
L3	318.33'	S25°37'20"W	–	8" PVC C-900 CL-305
L4	8.00'	N42°56'22"W	–	8" PVC C-900 CL-305
L5	7.50'	N25°37'20"E	–	8" PVC C-900 CL-305

WATER DATA (624 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	179.37'	19°00'51"	540.50'	16" PVC C-900 CL305 DR-14*
C2	69.28'	7°34'57"	523.50'	16" PVC C-900 CL305 DR-14*
L1	62.22'	S26°21'06"E	–	16" PVC C-900 CL305 DR-14*
L2	11.15'	N45°21'49"W	–	16" PVC C-900 CL305 DR-14*
L3	325.83'	S25°37'20"W	–	16" PVC C-900 CL305 DR-14*

WATER DATA (711 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C3	70.02'	7°25'22"	540.50'	12" PVC C-900 CL-305*
L4	107.84'	S52°44'08"W	–	12" PVC C-900 CL-305*
L5	11.14'	N44°41'15"W	–	12" PVC C-900 CL-305*
L6	66.14'	N26°21'06"W	–	12" PVC C-900 CL-305*

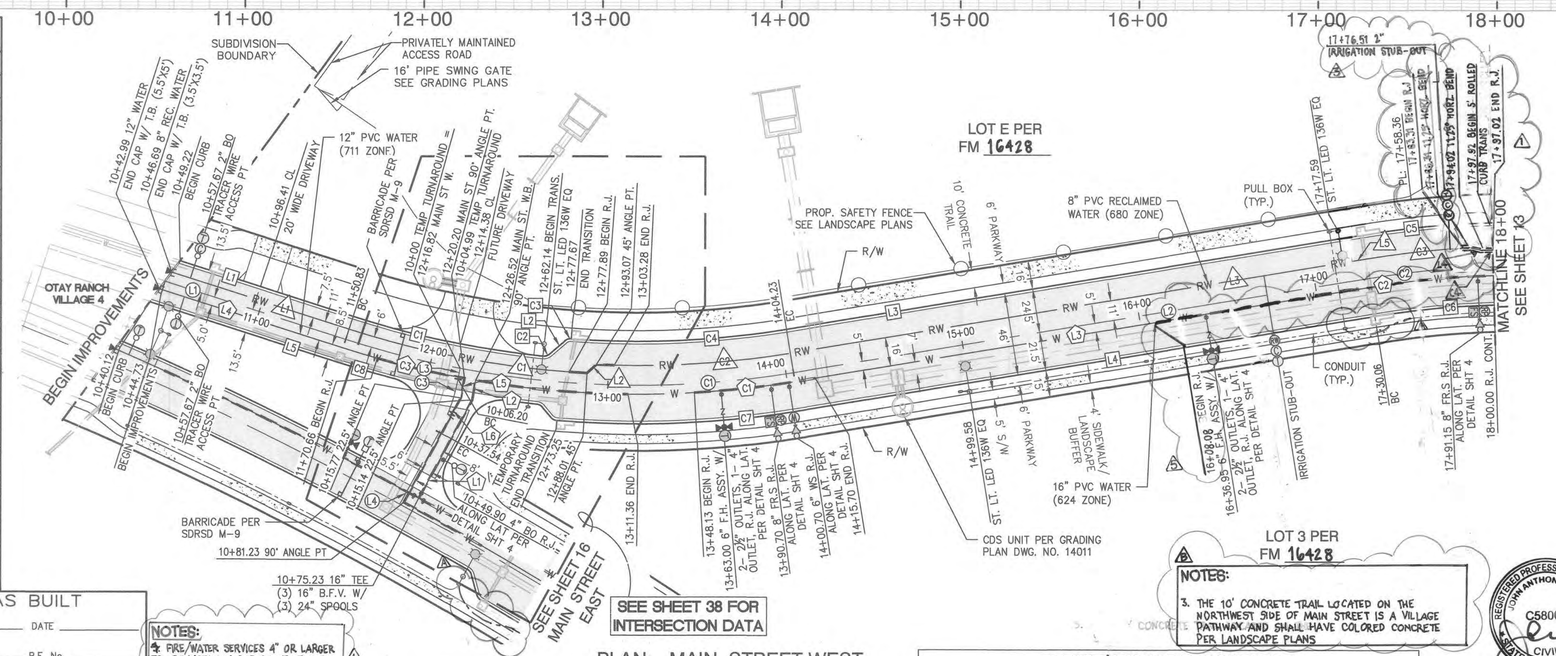
* PVC PIPES IN VERTICAL OR HORIZONTAL CURVES TO HAVE HIGH DEFLECTION COUPLING PER W.A.S. STANDARD SPECIFICATION 15064-1.05.C

CURB DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	108.51'	11°54'37"	522.00'	6" TYPE 'G' CURB AND GUTTER
C2	4.05'	46°25'51"	5.00'	6" TYPE 'G' CURB AND GUTTER
C3	3.91'	44°46'10"	5.00'	6" TYPE 'G' CURB AND GUTTER
C4	120.77'	13°32'30"	511.00'	6" TYPE 'G' CURB AND GUTTER
C5	73.18'	7°34'57"	553.00'	6" TYPE 'G' CURB AND GUTTER
C6	67.10'	7°34'57"	507.00'	6" TYPE 'G' CURB AND GUTTER
C7	136.24'	14°00'52"	557.00'	6" TYPE 'G' CURB AND GUTTER
C8	31.96'	3°20'06"	549.00'	6" TYPE 'B-2' MEDIAN CURB
L1	101.61'	S52°44'08"W	–	6" TYPE 'G' CURB AND GUTTER
L2	11.19'	S5°36'20"E	–	6" TYPE 'G' CURB AND GUTTER
L3	325.83'	N25°37'20"E	–	6" TYPE 'G' CURB AND GUTTER
L4	325.83'	S25°37'20"W	–	6" TYPE 'G' CURB AND GUTTER
L5	110.70'	N52°44'08"E	–	6" TYPE 'B-2' MEDIAN CURB

CENTERLINE DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	253.41'	27°06'48"	535.50'	MAIN ST WEST
C2	69.94'	7°34'57"	528.50'	MAIN ST WEST
C3	31.34'	17°57'31"	100.00'	TEMP. TURNAROUND
L1	96.16'	N52°44'08"E	–	MAIN ST WEST
L2	325.83'	N25°37'20"E	–	MAIN ST WEST
L3	6.20'	S44°19'32"E	–	TEMP. TURNAROUND
L4	45.69'	S26°22'01"E	–	TEMP. TURNAROUND



NOTES:
3. THE 10' CONCRETE TRAIL LOCATED ON THE NORTHWEST SIDE OF MAIN STREET IS A VILLAGE PATHWAY AND SHALL HAVE COLORED CONCRETE PER LANDSCAPE PLANS

NOTES:
4. FIRE/WATER SERVICES 4" OR LARGER TO BE INSTALLED PER SHEET 63 DETAIL 1 TYPE 1 UNLESS OTHERWISE STATED.

PLAN: MAIN STREET WEST
STA: 10+00 TO 18+00
(PUBLIC STREET PER TYPICAL SECTION 4 SHEET 5)

THRUST/ANCHOR BLOCK TABLE

PIPE STATION	TYPE/DIA. OF PIPE	TYPE OF BLOCK	TYPE OF APPURTENANCE	TEST PRESSURE	TOTAL THRUST	ASSUMED SOIL CAPACITY	AREA OR VOLUME OF BLOCK
10+42.99	PVC/12"	THRUST	DEAD END	250 LB/IN²	34,212 LB	2,000 LB/FT²	25.7 FT²
10+46.69	PVC/8"	THRUST	DEAD END	250 LB/IN²	16,082 LB	2,000 LB/FT²	12.1 FT²

NOTE: DENSITY OF BLOCK MATERIAL = 140 LB/FT³

NOTES:
1. ALL POTABLE AND RECLAIMED WATER LINES WITHIN THE TOWN CENTER COUPLETS TO HAVE RESTRAINED JOINTS.
2. VALVE SUPPORT BLOCKS REQUIRED AT ALL GATE AND BUTTERFLY VALVES AND CROSSES PER DETAIL SHT. 4

REGISTERED PROFESSIONAL ENGINEER JOHN ANTHONY HAYES C58003 CIVIL STATE OF CALIFORNIA

SCALE: 1" = 40'

40 0 40 80 120

SCALE 1" = 40'

HALE ENGINEERING
7910 CONVOY COURT SAN DIEGO, CA 92111 (858) 715-1420

AS BUILT
DATE
SIGNATURE
P.E. No.
PRINTED NAME
My Registration Expires Discipline

OWD AS BUILT
DATE
SIGNATURE
P.E. No.
PRINTED NAME
My Registration Expires Discipline

UTILITY NOTE
ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE PLOTTED FROM RECORD DATA AT THEIR APPROXIMATE LOCATIONS. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR ARE NOT OF RECORD. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PERTINENT UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

BY	OWD REVISIONS	DATE	APP'D
HE	1. UPDATED RECLAIMED WATER & PIPE MATERIAL	2/8/21	MSL
HE	2. UPDATE LOCATION OF 2" IRRIGATION STUB-OUT	5/19/21	MSL
HE	3. WATER/FR. SERVICE INSTALLATION TYPE	8/16/21	MSL
HE	5. RESTRAINED JOINT REVISION	10/14/21	MSL

BY	REVISIONS	DATE	APP'D
HE	4. UPDATE CONDUIT LAYOUT	12/21/21	VP
HE	6. ADDITIONAL NOTE FOR VILLAGE PATHWAY	12/23/21	VP

OTAY WATER DISTRICT
PROJECT # D1044-090379
PERMIT # DEV-19-001 P.Z. 711/624
REVIEWED BY 12/15/2020 DATE

CONSTRUCTION RECORD	REFERENCES
CONTRACTOR:	C.C.V. DWG. NO. 05040-12 & 13
INSPECTOR:	C.C.V. DWG. NO. 05017- 1-35
DATE COMPLETED:	C.C.V. DWG. NO. 04080-03
	C.C.V. DWG. NO. 04078-09
	C.C.V. DWG. NO. 02025-39
	OWD DWG. NO.

DATUM: CITY OF CHULA VISTA BENCH MARK NO. 5072 ELEVATION 446.361 NAVD 88 DESCRIPTION: 3" BRASS DISK (LS4324) WELL MON @ CL INT. RUTGERS & OTAY LAKES. PT. NO. 5072 PER ROS 14841

SCALE	Designed By:	Drawn By:	Checked By:
HORIZONTAL 1" = 40'	JAH	WHM	JAH
VERTICAL 1" = 8'	Plans Prepared Under Supervision of: JOHN ANTHONY HAYES	Date: 06/30/22	R.C.E. No. 58003

Submitted: 1/27/2021 By: Planning: Landscape:

Approved: 1/27/2021 By: For the City Engineer

CITY OF CHULA VISTA DEVELOPMENT SERVICES DEPARTMENT
IMPROVEMENT PLANS FOR
CHULA VISTA TRACT NO. 19-03 PHASE 1
OTAY RANCH, VILLAGE 8 WEST, TOWN CENTER

DRAWING NO. 14012-12
W.O. No. OR-6511
OWD D1044-090379
DEV-19-001
H.E. JOB NO. 12036, DATE: 10/05/20

CITY OF CHULA VISTA

PROFILE: MAIN STREET WEST
SCALE: 1"=40' HORIZ., 1"=8' VERT.

SEE SHEET 33 FOR CURB RETURN PROFILES

PROFILE: 8" FIRE SERV. @ 18+99.28
SCALE: 1"=40' HORIZ., 1"=8' VERT.

PROFILE: 6" WATER SERV. @ 19+10.13
SCALE: 1"=40' HORIZ., 1"=8' VERT.

PROFILE: 6" FIRE HYDRANT @ 22+56.50
SCALE: 1"=40' HORIZ., 1"=8' VERT.

PRESSURE REDUCING STATION DETAIL
NOT TO SCALE

RESTRAINED JOINTS DATA

R.J. TO BE USED FOR ALL CONNECTIONS WITHIN THE FOLLOWING STATIONS

STREET	PIPE DATA	STATIONING
MAIN STREET WEST	16" WATER	18+00.00 – 26+00.00
		–
MAIN STREET WEST	8"REC. WATER	20+48.53 – 20+67.61
MAIN STREET WEST	8"REC. WATER	23+91.94 – 24+86.45
		–
MAIN STREET WEST	12" WATER	22+06.34 – 26+00.00

CENTERLINE DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	357.30'	38°44'07"	528.50'	MAIN ST WEST
L1	442.70'	N71°56'24"E	–	MAIN ST WEST

CURB DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	50.64'	5°14'47"	553.00'	6" TYPE 'G' CURB AND GUTTER
C2	4.06'	46°33'25"	5.00'	6" TYPE 'G' CURB AND GUTTER
C3	3.93'	44°59'39"	5.00'	6" TYPE 'G' CURB AND GUTTER
C4	18.44'	1°56'56"	542.00'	6" TYPE 'G' CURB AND GUTTER
C5	74.62'	7°53'17"	542.00'	6" TYPE 'A' A.C. BERM
C6	18.44'	1°56'57"	542.00'	6" TYPE 'G' CURB AND GUTTER
C7	3.92'	44°58'09"	5.00'	6" TYPE 'G' CURB AND GUTTER
C8	4.06'	46°31'59"	5.00'	6" TYPE 'G' CURB AND GUTTER
C9	121.62'	12°36'05"	553.00'	6" TYPE 'G' CURB AND GUTTER
C10	81.36'	9°52'21"	507.00'	6" TYPE 'G' CURB AND GUTTER
C11	3.83'	43°51'42"	5.00'	6" TYPE 'G' CURB AND GUTTER
C12	3.95'	45°13'56"	5.00'	6" TYPE 'G' CURB AND GUTTER
C13	3.04'	0°20'18"	515.00'	6" TYPE 'G' CURB AND GUTTER
C14	3.98'	45°39'02"	5.00'	6" TYPE 'G' CURB AND GUTTER
C15	3.86'	44°17'19"	5.00'	6" TYPE 'G' CURB AND GUTTER
C16	72.49'	8°11'31"	507.00'	6" TYPE 'G' CURB AND GUTTER
C17	1.55'	17°43'24"	5.00'	6" TYPE 'G' CURB AND GUTTER
C18	2.82'	0°17'33"	553.00'	6" TYPE 'G' CURB AND GUTTER
C19	20.00'	2°04'21"	553.00'	ROLLED CURB
C22	40.96'	78°13'26"	30.00'	6" TYPE 'G' CURB AND GUTTER
L1	11.13'	N87°22'24"E	–	6" TYPE 'G' CURB AND GUTTER
L2	11.14'	S9°11'41"W	–	6" TYPE 'G' CURB AND GUTTER
L3	123.82'	N71°56'24"E	–	6" TYPE 'G' CURB AND GUTTER
L4	78.75'	N71°56'24"E	–	6" TYPE 'G' CURB AND GUTTER
L5	37.11'	N71°56'24"E	–	6" TYPE 'G' CURB AND GUTTER
L6	144.82'	N71°56'24"E	–	6" TYPE 'G' CURB AND GUTTER
L7	7.31'	N80°41'50"W	–	6" TYPE 'G' CURB AND GUTTER
L8	7.18'	N25°51'12"W	–	6" TYPE 'G' CURB AND GUTTER
C23	4.00'	45°56'10"	5.00'	6" TYPE 'G' CURB AND GUTTER
C24	3.91'	44°46'01"	5.00'	6" TYPE 'G' CURB AND GUTTER
C25	24.44'	2°47'23"	502.00'	6" TYPE 'G' CURB AND GUTTER
L9	2.86'	S68°51'00"E	–	6" TYPE 'G' CURB AND GUTTER

WATER DATA (711 ZONE) CONT.

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
L10	12.00'	S35°02'37"W	–	16" PVC C-900 CL-305
L11	10.00'	S35°02'37"W	–	16" PVC C-900 CL-305
L12	13.98'	N3°24'00"E	–	16" PVC C-900 CL-305
L13	27.83'	N36°56'28"E	–	16" PVC C-900 CL-305

RECLAIMED WATER DATA (680 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	97.68'	10°22'26"	539.50'	8" PVC C-900 CL-305
C2	259.10'	27°35'38"	538.00'	8" PVC C-900 CL-305
L1	7.37'	N49°24'46"E	–	8" PVC C-900 CL-305
L2	321.64'	S71°56'24"W	–	8" PVC C-900 CL-305

WATER DATA (624 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	8.98'	0°58'59"	523.50'	16" PVC C-900 CL 305 DR-14*

WATER DATA (711 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C2	94.62'	10°15'30"	528.50'	16" PVC C-900 CL 305 DR-14*
C3	175.79'	25°24'34"	527.00'	16" PVC C-900 CL 305 DR-14*
L1	30.48'	N71°56'24"E	–	16" PVC C-900 CL 305 DR-14
L2	7.78'	N63°05'25"W	–	16" PVC C-900 CL 305 DR-14
L3	13.06'	N71°56'24"E	–	16" PVC C-900 CL 305 DR-14
L4	290.11'	S71°56'24"W	–	12" PVC C-900 CL-305
L5	103.55'	N71°56'24"E	–	12" PVC C-900 CL-305
L6	7.29'	S49°24'46"W	–	16" PVC C-900 CL-235

SEWER DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
L1	15.00'	N71°56'24"E	–	8" PVC SDR-35
L2	50.65'	N71°56'24"E	–	8" PVC SDR-35
L3	327.87'	N71°56'24"E	–	8" PVC SDR-35
L4	35.01'	N19°02'36"W	–	8" PVC SDR-35

* PVC PIPES IN VERTICAL OR HORIZONTAL CURVES TO HAVE HIGH DEFLECTION COUPLING PER W.A.S. STANDARD SPECIFICATION 15064-1.05.C

PRESSURE REDUCING STATION, SEE DETAIL THIS SHEET. SEE SEPARATE PLAN OWD PERMIT NO. DEV-19-011 OWD PROJECT NO. D1044-090418

LOT A PER FM 19428

LOT 3 PER FM 16428

LOT 26 PER FM 16428

LOT 1 PER FM 16428

LOT B PER FM 16428

LOT 4 PER FM 16428

LA MEDIA PKWY S. SEE SHEET 7

LA MEDIA PKWY SOUTH SEE SHEET 7

LA MEDIA PKWY N. SEE SHEET 10

LA MEDIA PKWY NORTH SEE SHEET 10

SEE SHEET 37 FOR PEDESTRIAN RAMP DATA

SEE SHEET 33 FOR INTERSECTION DATA

SEE SHEET 37 FOR A.D.A. STREET PARKING DETAILS

SEE SHEET 37 FOR PEDESTRIAN RAMP & DRIVEWAY DETAILS

SEE GRADING PLANS FOR STORM DRAIN

3. THE 10' CONCRETE TRAIL LOCATED ON THE NORTHWEST SIDE OF MAIN STREET IS A VILLAGE PATHWAY AND SHALL HAVE COLORED CONCRETE PER LANDSCAPE PLANS.

NOTES:
1. ALL POTABLE AND RECLAIMED WATER LINES WITHIN THE TOWN CENTER COUPLETS TO HAVE RESTRAINED JOINTS.
2. VALVE SUPPORT BLOCKS REQUIRED AT ALL GATE AND BUTTERFLY VALVES AND CROSSES PER DETAIL SHT. 4.

NOTES:
4. FIRE/WATER SERVICES 4" OR LARGER TO BE INSTALLED PER SHEET 63 DETAIL 1 TYPE 1 UNLESS OTHERWISE STATED.

SCALE 1" = 40'

AS BUILT

SIGNATURE DATE

PRINTED NAME P.E. No.

My Registration Expires Discipline

OWD AS BUILT

SIGNATURE DATE

PRINTED NAME P.E. No.

My Registration Expires Discipline

PLAN: MAIN STREET WEST
STA: 18+00 TO 26+00
(PUBLIC STREET PER TYPICAL SECTION 4 SHEET 5)

BY	OWD REVISIONS	DATE	APP'D
HE	5 T11/624 PRS. BYPASS/RJ REVISION	10/6/21	MTL

UTILITY NOTE

ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE PLOTTED FROM RECORD DATA AT THEIR APPROXIMATE LOCATIONS. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR ARE NOT OF RECORD. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PERTINENT UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

BY	OWD REVISIONS	DATE	APP'D
HE	1 UPDATED RECLAIM AND DOMESTIC WATER LOCATIONS	2/8/21	MJL
	REPLACEMENT SHEET 13		
HE	2 REVISED FIRE HYDRANT LOCATION & TYPE AT STA. 22+56.50	5/14/21	MTL
HE	3 WATER PIPE SERVICE INSTALLATION TYPE	5/14/21	MTL

CONSTRUCTION RECORD	REFERENCES
CONTRACTOR:	C.C.V. DWG. NO. 05040-12 & 13
INSPECTOR:	C.C.V. DWG. NO. 05017- 1-35
DATE COMPLETED:	C.C.V. DWG. NO. 04080-03
	C.C.V. DWG. NO. 04078-09
	C.C.V. DWG. NO. 02025-39
	OWD DWG. NO.

BY	REVISIONS	DATE	APP'D
HE	4 ADDITIONAL NOTE FOR VILLAGE PATHWAY	5/24/21	EP
HE	5 ADDED A.D.A. STREET PARKING	5/24/21	EP
HE	6 LOT 3 PED RAMP REVISION	5/24/21	EP

OTAY WATER DISTRICT
PROJECT # D1044-G90379
PERMIT # DEV-19-001 P.Z. 711/624
REVIEWED BY DATE

DATUM	SCALE	Designed By:	Drawn By:	Checked By:
CITY OF CHULA VISTA BENCH MARK NO. 5072 ELEVATION 446.361 NAVD 88	HORIZONTAL 1" = 40'	JAH	WHM	JAH
DESCRIPTION: 3" BRASS DISK (LS4324) WELL MON @ CL INT. RUTGERS & OTAY LAKES. PT. NO. 5072 PER ROS 14841	VERTICAL 1" = 8'	Plans Prepared Under Supervision of: JOHN ANTHONY HAYES R.C.E. No. 58003		Date: 06/30/22

Submitted By: 5/24/21

Planning: JH Landscape: JC

Approved: 5/26/2021
By: For the City Engineer

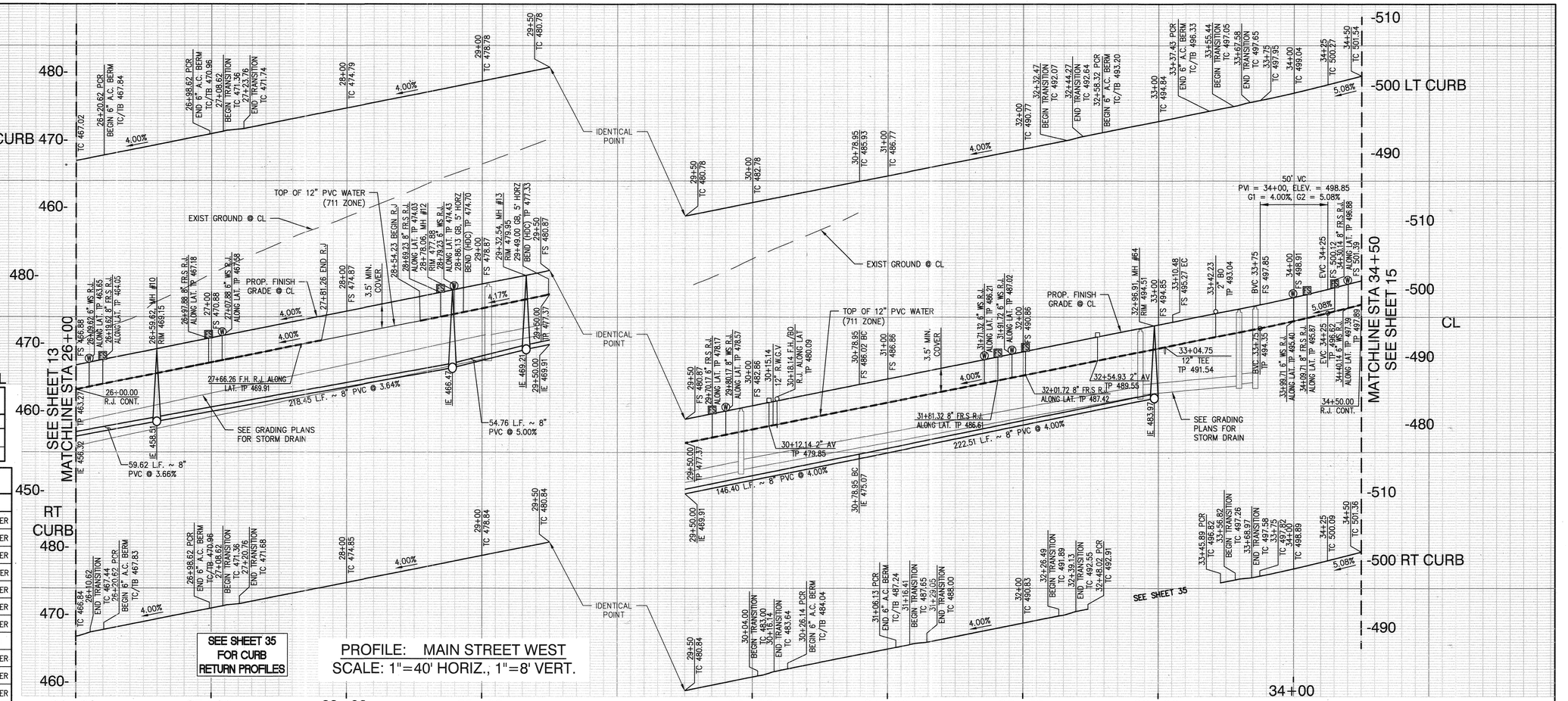
CITY OF CHULA VISTA DEVELOPMENT SERVICES DEPARTMENT
IMPROVEMENT PLANS FOR
CHULA VISTA TRACT NO. 19-03 PHASE 1
OTAY RANCH, VILLAGE 8 WEST, TOWN CENTER

DRAWING NO. 14012-13
W.O. No. OR-6511
OWD D1044-090379
DEV-19-001

HALE ENGINEERING
7910 CONVOY COURT SAN DIEGO, CA 92111 (858) 715-1420

H.E. JOB NO. 12035, DATE: 04/27/21

CITY OF CHULA VISTA



RESTRAINED JOINTS DATA

R.J. TO BE USED FOR ALL CONNECTIONS WITHIN THE FOLLOWING STATIONS

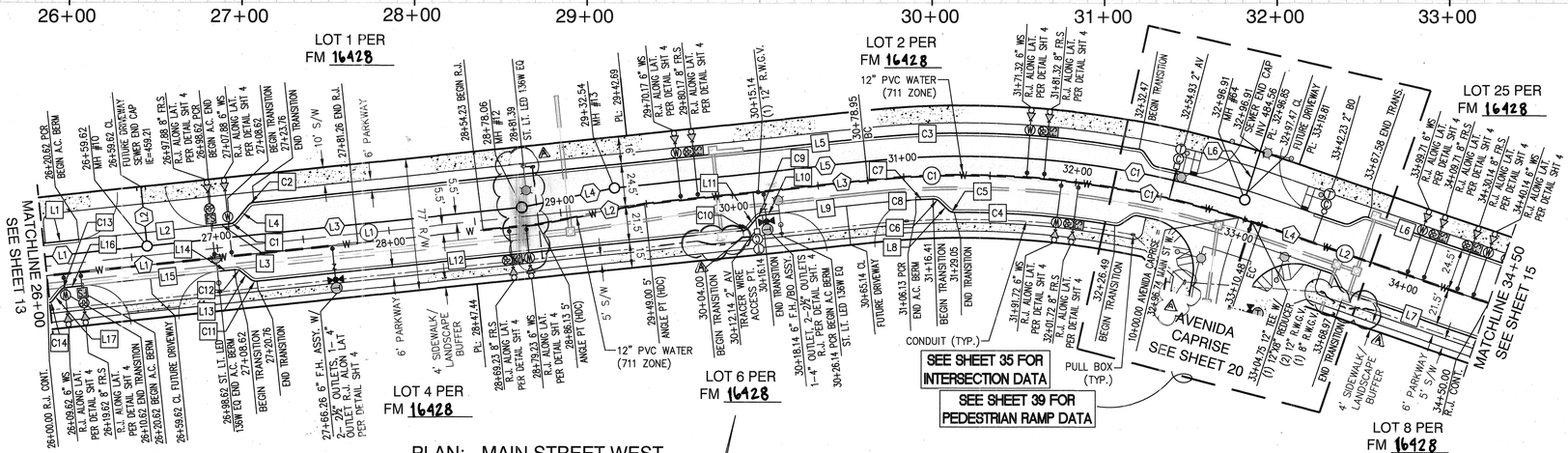
STREET	PIPE DATA	STATIONING
MAIN STREET WEST	12" WATER	26+00.00 – 27+81.26
MAIN STREET WEST	12" WATER	28+54.23 – 34+50.00

CURB DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C2	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C3	160.64'	16°38'36"	553.00'	6" TYPE 'G' CURB AND GUTTER
C4	93.47'	10°33'47"	507.00'	6" TYPE 'G' CURB AND GUTTER
C5	3.83'	43°51'42"	5.00'	6" TYPE 'G' CURB AND GUTTER
C6	3.95'	45°13'56"	5.00'	6" TYPE 'G' CURB AND GUTTER
C7	10.01'	1°06'50"	515.00'	6" TYPE 'G' CURB AND GUTTER
C8	26.49'	2°56'51"	515.00'	6" TYPE 'A' A.C. BERM
C9	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C10	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C11	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C12	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C13	3.93'	45°00'00"	5.00'	6" TYPE 'G' CURB AND GUTTER
C14	2.38'	27°16'36"	5.00'	6" TYPE 'G' CURB AND GUTTER
L1	20.62'	S71°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L2	78.00'	N71°56'24"E	–	6" TYPE 'A' A.C. BERM
L3	10.00'	S71°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L4	11.41'	S26°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L5	355.19'	S71°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L6	82.42'	S82°57'32"E	–	6" TYPE 'G' CURB AND GUTTER
L7	81.03'	S82°57'32"E	–	6" TYPE 'G' CURB AND GUTTER
L8	7.31'	S58°45'59"E	–	6" TYPE 'G' CURB AND GUTTER
L9	52.80'	S71°56'24"W	–	6" TYPE 'A' A.C. BERM
L10	10.00'	S71°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L11	7.17'	S26°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L12	283.24'	N71°56'24"E	–	6" TYPE 'G' CURB AND GUTTER
L13	7.17'	N63°03'36"W	–	6" TYPE 'G' CURB AND GUTTER
L14	10.00'	S71°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L15	78.00'	S71°56'24"W	–	6" TYPE 'A' A.C. BERM
L16	10.00'	S71°56'24"W	–	6" TYPE 'G' CURB AND GUTTER
L17	7.17'	S26°56'24"W	–	6" TYPE 'G' CURB AND GUTTER

SEE SHEET 35 FOR CURB RETURN PROFILES

PROFILE: MAIN STREET WEST
SCALE: 1"=40' HORIZ., 1"=8' VERT.



PLAN: MAIN STREET WEST
STA: 26+00 TO 34+50
(PUBLIC STREET PER TYPICAL SECTION 4 SHEET 5)

40 0 40 80 120
SCALE 1" = 40'

SCALE: 1" =40'

NOTES:

3. THE 10' CONCRETE TRAIL LOCATED ON THE NORTHWEST SIDE OF MAIN STREET IS A VILLAGE PATHWAY AND SHALL HAVE COLORED CONCRETE PER LANDSCAPE PLANS.
4. FIRE/WATER SERVICES 4" OR LARGER TO BE INSTALLED PER SHEET G3 DETAIL 1 TYPE 1 UNLESS OTHERWISE STATED.

CENTERLINE DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	231.54'	25°06'04"	528.50'	MAIN ST WEST
L1	478.95'	N71°56'24"E	–	MAIN ST WEST
L2	139.52'	S82°57'32"E	–	MAIN ST WEST

SEWER DATA

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	222.51'	23°37'50"	539.50'	8" PVC SDR–35
L1	59.62'	S71°56'23"W	–	8" PVC SDR–35
L2	39.00'	S18°03'36"E	–	8" PVC SDR–35
L3	218.44'	N71°56'24"E	–	8" PVC SDR–35
L4	54.76'	N66°10'31"E	–	8" PVC SDR–35
L5	146.40'	N71°56'24"E	–	8" PVC SDR–35
L6	29.50'	S5°34'14"W	–	8" PVC SDR–35

WATER DATA (711 ZONE)

	LENGTH	BEARING/DELTA	RADIUS	DESCRIPTION
C1	231.54'	25°06'04"	528.50'	12" PVC C–900 CL–305*
L1	286.13'	N71°56'24"E	–	12" PVC C–900 CL–305
L2	63.11'	N66°56'24"E	–	12" PVC C–900 CL–305
L3	129.95'	N71°56'24"E	–	12" PVC C–900 CL–305
L4	139.52'	S82°57'32"E	–	12" PVC C–900 CL–305*

* PVC PIPES IN VERTICAL OR HORIZONTAL CURVES TO HAVE HIGH DEFLECTION COUPLING PER W.A.S. STANDARD SPECIFICATION 15064–1.05.C

AS BUILT

DATE _____
SIGNATURE
P.E. No. _____
PRINTED NAME
My Registration Expires _____ Discipline _____

OWD AS BUILT

DATE _____
SIGNATURE
P.E. No. _____
PRINTED NAME
My Registration Expires _____ Discipline _____

NOTES:

1. ALL POTABLE AND RECLAIMED WATER LINES WITHIN THE TOWN CENTER COUPLETS TO HAVE RESTRAINED JOINTS.
2. VALVE SUPPORT BLOCKS REQUIRED AT ALL GATE AND BUTTERFLY VALVES AND CROSSES PER DETAIL SHT. 4.

UTILITY NOTE

ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE PLOTTED FROM RECORD DATA AT THEIR APPROXIMATE LOCATIONS. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR ARE NOT OF RECORD. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PERTINENT UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

BY	OWD REVISIONS	DATE	APP'D
HE	⚠1 WATER/FR SERVICE INSTALLATION TYPE	5/6/21	MSL

OTAY WATER DISTRICT
PROJECT # D1044–090379
PERMIT # DEV–19–001 P.Z. 711/624
REVIEWED BY 12/15/2020 DATE

CONSTRUCTION RECORD	REFERENCES
CONTRACTOR:	C.C.V. DWG. NO. 05040–12 & 13
INSPECTOR:	C.C.V. DWG. NO. 05017– 1–35
DATE COMPLETED:	C.C.V. DWG. NO. 04080–03
	C.C.V. DWG. NO. 04078–29
	C.C.V. DWG. NO. 02025–39
	OWD DWG. NO. _____

BY	REVISIONS	DATE	APP'D
HE	⚠1 UPDATE CONDUIT LAYOUT.	5/21/21	CP
HE	⚠2 ADDITIONAL NOTE FOR VILLAGE PATHWAY		

DATUM: CITY OF CHULA VISTA BENCH MARK NO. 5072 ELEVATION 44.6.361 NAVD 88
DESCRIPTION: 3" BRASS DISK (LS4324) WELL MON @ CL INT. RUTGERS & OTAY LAKES. PT. NO. 5072 PER ROS 14841

SCALE	
HORIZONTAL	1" = 40'
VERTICAL	1" = 8'

Designed By:	Drawn By:	Checked By:
JAH	WHM	JAH

Plans Prepared Under Supervision of: Date: 06/30/22
JOHN ANTHONY HAYES R.C.E. No. 58003

Submitted: _____ By: _____
Planning: Landscape:

Approved: 1/27/2021 By: _____
For the City Engineer

REGISTERED PROFESSIONAL ENGINEER JOHN ANTHONY HAYES C58003 CIVIL STATE OF CALIFORNIA

HALE ENGINEERING
7910 CONVOY COURT SAN DIEGO, CA 92111 (858) 715–1420

CITY OF CHULA VISTA DEVELOPMENT SERVICES DEPARTMENT
IMPROVEMENT PLANS FOR
CHULA VISTA TRACT NO. 19–03 PHASE 1
OTAY RANCH, VILLAGE 8 WEST, TOWN CENTER

DRAWING NO. 14012–14
W.O. No. OR–6511
OWD D1044–090379
DEV–19–001

H.E. JOB NO. 12036, DATE: 10/05/20

APPENDIX E

HYDRAULIC MODELING OUTPUT FOR PRIVATE FIRE PROTECTION SYSTEM ANALYSIS

NODE AND PIPE DIAGRAM REFERENCE:

Exhibit A at the back of this report.

CONDITIONS MODELED:

0. 4,125 gpm Fire Flow Split between Nodes FH1 and FH9

1. 4,125 gpm Fire Flow Split between Nodes FH2 and FH3

2. 4,125 gpm Fire Flow Split between Nodes FH4 and FH8

3. 4,125 gpm Fire Flow Split between Nodes FH6 and FH7

U N I T S S P E C I F I E D

FLOWRATE ..... = gallons/minute
HEAD (HGL) ..... = feet
PRESSURE ..... = psig

P I P E L I N E D A T A

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NAMES #1	#2	LENGTH (ft)	DIAMETER (in)	ROUGHNESS COEFF.	MINOR LOSS COEFF.
5	6	I-M-1	40.00	12.00	120.0000	2.25
7	6	R-1	485.00	12.00	120.0000	1.30
9	10	R-1	500.00	12.00	120.0000	0.00
15	10	I-M-2	50.00	12.00	120.0000	0.00
17	O-M-1	FH9	325.00	10.00	120.0000	1.09
19	FH9	FH1	250.00	10.00	120.0000	2.22
27	FH1	28	180.00	10.00	120.0000	1.47
29	28	34	125.00	12.00	120.0000	2.80
31	34	FH2	105.00	10.00	120.0000	1.30
33	FH2	38	40.00	10.00	120.0000	0.00
39	40	38	250.00	10.00	120.0000	1.50
41	FH3	40	90.00	10.00	120.0000	0.00
43	44	FH3	45.00	10.00	120.0000	1.30
49	52	44	190.00	10.00	120.0000	1.85
53	34	52	140.00	10.00	120.0000	1.50
55	28	FH4	175.00	10.00	120.0000	1.65
56	FH8	O-M-2	235.00	10.00	120.0000	0.00
57	56	FH8	150.00	10.00	120.0000	2.25
58	FH4	56	35.00	10.00	120.0000	0.00
59	56	60	100.00	12.00	120.0000	1.67
61	60	64	130.00	8.00	120.0000	3.00
68	60	FH6	115.00	12.00	120.0000	1.47
69	64	FH5	40.00	8.00	120.0000	0.00
71	FH6	74	40.00	10.00	120.0000	1.30
75	74	78	150.00	10.00	120.0000	0.75
79	78	80	130.00	10.00	120.0000	1.50
80	80	FH7	25.00	10.00	120.0000	0.00
81	FH7	82	50.00	10.00	120.0000	0.00
83	84	82	130.00	10.00	120.0000	1.50
85	78	84	70.00	10.00	120.0000	1.30

P U M P/L O S S E L E M E N T D A T A

THERE IS A DEVICE AT NODE M-1 DESCRIBED BY THE FOLLOWING DATA: (ID= 1)

HEAD (ft)	FLOWRATE (gpm)	EFFICIENCY (%)
-23.08	0.00	
-28.85	600.00	
-30.00	1200.00	
-33.46	1800.00	
-37.38	2400.00	
-42.69	3000.00	

THERE IS A DEVICE AT NODE M-2 .....> (ID= 1)

CITY OF CHULA VISTA

N O D E D A T A

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	JUNCTION ELEVATION (ft)	EXTERNAL GRADE (ft)
6		0.00	460.00	
10		0.00	481.00	
28		0.00	469.00	
34		0.00	471.00	
38		0.00	472.00	
40		0.00	473.00	
44		0.00	475.00	
52		0.00	472.50	
56		0.00	476.00	
60		0.00	476.50	
64		0.00	477.20	
74		0.00	478.00	
78		0.00	479.00	
80		0.00	480.00	
82		0.00	480.50	
84		0.00	481.00	
FH1		2000.00	468.00	
FH2		0.00	472.50	
FH3		0.00	475.00	
FH4		0.00	476.50	
FH5		0.00	479.50	
FH6		0.00	477.50	
FH7		0.00	480.00	
FH8		0.00	478.00	
FH9		2125.00	465.00	
O-M-1		0.00	460.00	
I-M-2		0.00	479.00	
R-1		----	459.00	630.00
I-M-1		0.00	460.00	
O-M-2		0.00	479.00	

O U T P U T O P T I O N D A T A

OUTPUT SELECTION: ALL RESULTS ARE INCLUDED IN THE TABULATED OUTPUT
MAXIMUM AND MINIMUM PRESSURES = 5
MAXIMUM AND MINIMUM VELOCITIES = 5

S Y S T E M C O N F I G U R A T I O N

NUMBER OF PIPES .....(P) = 30
NUMBER OF END NODES .....(J) = 27
NUMBER OF PRIMARY LOOPS .....(L) = 3
NUMBER OF SUPPLY NODES .....(F) = 1
NUMBER OF SUPPLY ZONES .....(Z) = 1

==========

Case: 0

CITY OF CHULA VISTA

RESULTS OBTAINED AFTER 10 TRIALS: ACCURACY = 0.99631E-04

Otay Ranch Village 8 West Parcel C
Private Fire Protection System Analysis
4125 GPM Fire Flow split between Nodes FH1 and FH9

P I P E L I N E R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1	#2	FLOWRATE gpm	HEAD LOSS ft	MINOR LOSS ft	LINE VELO. ft/s	HL+ML/ 1000 ft/f	HL/ 1000 ft/f
5	6	I-M-1	2324.15	0.56	1.52	6.59	51.98	14.02
7	6	R-1	-2324.15	6.80	0.88	6.59	15.83	14.02
9	10	R-1	-1800.85	4.37	0.00	5.11	8.74	8.74
15	10	I-M-2	1800.85	0.44	0.00	5.11	8.74	8.74
17	O-M-1	FH9	2324.15	11.07	1.53	9.49	38.77	34.08
19	FH9	FH1	199.15	0.09	0.02	0.81	0.45	0.36
27	FH1	28	-1800.85	3.82	1.23	7.36	28.11	21.25
29	28	34	0.00	0.00	0.00	0.00	0.00	0.00
31	34	FH2	-0.32	0.00	0.00	0.00	0.00	0.00
33	FH2	38	-0.32	0.00	0.00	0.00	0.00	0.00
39	40	38	0.32	0.00	0.00	0.00	0.00	0.00
41	FH3	40	0.32	0.00	0.00	0.00	0.00	0.00
43	44	FH3	0.32	0.00	0.00	0.00	0.00	0.00
49	52	44	0.32	0.00	0.00	0.00	0.00	0.00
53	34	52	0.32	0.00	0.00	0.00	0.00	0.00
55	28	FH4	-1800.85	3.72	1.39	7.36	29.17	21.25
56	FH8	O-M-2	-1800.85	4.99	0.00	7.36	21.25	21.25
57	56	FH8	-1800.85	3.19	1.89	7.36	33.85	21.25
58	FH4	56	-1800.85	0.74	0.00	7.36	21.25	21.25
59	56	60	0.00	0.00	0.00	0.00	0.00	0.00
61	60	64	0.00	0.00	0.00	0.00	0.00	0.00
68	60	FH6	0.00	0.00	0.00	0.00	0.00	0.00
69	64	FH5	0.00	0.00	0.00	0.00	0.00	0.00
71	FH6	74	0.00	0.00	0.00	0.00	0.00	0.00
75	74	78	0.00	0.00	0.00	0.00	0.00	0.00
79	78	80	-0.04	0.00	0.00	0.00	0.00	0.00
80	80	FH7	-0.04	0.00	0.00	0.00	0.00	0.00
81	FH7	82	-0.04	0.00	0.00	0.00	0.00	0.00
83	84	82	0.04	0.00	0.00	0.00	0.00	0.00
85	78	84	0.04	0.00	0.00	0.00	0.00	0.00

P U M P/L O S S E L E M E N T R E S U L T S

NAME	FLOWRATE gpm	INLET HEAD ft	OUTLET HEAD ft	PUMP HEAD ft
M-1	2324.15	160.24	123.46	-36.8
M-2	1800.85	146.19	112.72	-33.5

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N O D E R E S U L T S

NODE NAME	NODE TITLE	EXTERNAL DEMAND gpm	HYDRAULIC GRADE ft	NODE ELEVATION ft	PRESSURE HEAD ft	NODE PRESSURE psi
6		0.00	622.32	460.00	162.32	70.34
10		0.00	625.63	481.00	144.63	62.67
28		0.00	575.81	469.00	106.81	46.28
34		0.00	575.81	471.00	104.81	45.42
38		0.00	575.81	472.00	103.81	44.98
40		0.00	575.81	473.00	102.81	44.55
44		0.00	575.81	475.00	100.81	43.68
52		0.00	575.81	472.50	103.31	44.77
56		0.00	581.65	476.00	105.65	45.78
60		0.00	581.65	476.50	105.15	45.57
64		0.00	581.65	477.20	104.45	45.26
74		0.00	581.65	478.00	103.65	44.92
78		0.00	581.65	479.00	102.65	44.48
80		0.00	581.65	480.00	101.65	44.05
82		0.00	581.65	480.50	101.15	43.83
84		0.00	581.65	481.00	100.65	43.62
FH1		2000.00	570.75	468.00	102.75	44.52
FH2		0.00	575.81	472.50	103.31	44.77
FH3		0.00	575.81	475.00	100.81	43.68
FH4		0.00	580.91	476.50	104.41	45.24
FH5		0.00	581.65	479.50	102.15	44.27
FH6		0.00	581.65	477.50	104.15	45.13
FH7		0.00	581.65	480.00	101.65	44.05
FH8		0.00	586.73	478.00	108.73	47.12
FH9		2125.00	570.86	465.00	105.86	45.87
O-M-1		0.00	583.46	460.00	123.46	53.50
I-M-2		0.00	625.19	479.00	146.19	63.35
R-1		----	630.00	459.00	171.00	74.10
I-M-1		0.00	620.24	460.00	160.24	69.44
O-M-2		0.00	591.72	479.00	112.72	48.85

M A X I M U M A N D M I N I M U M V A L U E S

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES psi	JUNCTION NUMBER	MINIMUM PRESSURES psi
R-1	74.10	84	43.62
6	70.34	44	43.68
I-M-1	69.44	FH3	43.68
I-M-2	63.35	82	43.83
10	62.67	80	44.05

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V E L O C I T I E S

PIPE NUMBER	MAXIMUM VELOCITY (ft/s)	PIPE NUMBER	MINIMUM VELOCITY (ft/s)
17	9.49	79	0.00
27	7.36	80	0.00
55	7.36	81	0.00
56	7.36	83	0.00
57	7.36	85	0.00

S U M M A R Y O F I N F L O W S A N D O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES
(-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE gpm	NODE TITLE
R-1	4125.00	

NET SYSTEM INFLOW = 4125.00
NET SYSTEM OUTFLOW = 0.00
NET SYSTEM DEMAND = 4125.00

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Case: 1

C H A N G E S F O R N E X T S I M U L A T I O N (Change Number = 1)

JUNCTION DEMANDS CHANGED - PLEASE SEE RESULTS TABLE

RESULTS OBTAINED AFTER 4 TRIALS: ACCURACY = 0.41873E-06

Otay Ranch Village 8 West Parcel C
Private Fire Protection System Analysis
4125 GPM Fire Flow split between Nodes FH2 and FH3

P I P E L I N E R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1	#2	FLOWRATE gpm	HEAD LOSS ft	MINOR LOSS ft	LINE VELO. ft/s	HL+ML/ 1000 ft/f	HL/ 1000 ft/f
5	6	I-M-1	1956.88	0.41	1.08	5.55	37.11	10.20
7	6	R-1	-1956.88	4.95	0.62	5.55	11.48	10.20
9	10	R-1	-2168.12	6.16	0.00	6.15	12.33	12.33
15	10	I-M-2	2168.12	0.62	0.00	6.15	12.33	12.33
17	O-M-1	FH9	1956.88	8.05	1.08	7.99	28.11	24.78
19	FH9	FH1	1956.88	6.19	2.20	7.99	33.59	24.78
27	FH1	28	1956.88	4.46	1.46	7.99	32.88	24.78

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29	28	34	4125.00	5.07	5.95	11.70	88.19	40.58
31	34	FH2	2664.30	4.61	2.39	10.88	66.65	43.88
33	FH2	38	539.30	0.09	0.00	2.20	2.28	2.28
39	40	38	-539.30	0.57	0.11	2.20	2.73	2.28
41	FH3	40	-539.30	0.20	0.00	2.20	2.28	2.28
43	44	FH3	1460.70	0.65	0.72	5.97	30.39	14.42
49	52	44	1460.70	2.74	1.02	5.97	19.80	14.42
53	34	52	1460.70	2.02	0.83	5.97	20.34	14.42
55	28	FH4	-2168.12	5.24	2.01	8.86	41.44	29.96
56	FH8	O-M-2	-2168.12	7.04	0.00	8.86	29.96	29.96
57	56	FH8	-2168.12	4.49	2.74	8.86	48.23	29.96
58	FH4	56	-2168.12	1.05	0.00	8.86	29.96	29.96
59	56	60	0.00	0.00	0.00	0.00	0.00	0.00
61	60	64	0.00	0.00	0.00	0.00	0.00	0.00
68	60	FH6	0.00	0.00	0.00	0.00	0.00	0.00
69	64	FH5	0.00	0.00	0.00	0.00	0.00	0.00
71	FH6	74	0.00	0.00	0.00	0.00	0.00	0.00
75	74	78	0.00	0.00	0.00	0.00	0.00	0.00
79	78	80	0.00	0.00	0.00	0.00	0.00	0.00
80	80	FH7	0.00	0.00	0.00	0.00	0.00	0.00
81	FH7	82	0.00	0.00	0.00	0.00	0.00	0.00
83	84	82	0.00	0.00	0.00	0.00	0.00	0.00
85	78	84	0.00	0.00	0.00	0.00	0.00	0.00

P U M P/L O S S E L E M E N T R E S U L T S

NAME	FLOWRATE gpm	INLET HEAD ft	OUTLET HEAD ft	PUMP HEAD ft
M-1	1956.88	162.95	128.49	-34.5
M-2	2168.12	144.22	108.61	-35.6

N O D E R E S U L T S

NODE NAME	NODE TITLE	EXTERNAL DEMAND gpm	HYDRAULIC GRADE ft	NODE ELEVATION ft	PRESSURE HEAD ft	NODE PRESSURE psi
6		0.00	624.43	460.00	164.43	71.25
10		0.00	623.84	481.00	142.84	61.90
28		0.00	565.04	469.00	96.04	41.62
34		0.00	554.01	471.00	83.01	35.97
38		0.00	546.92	472.00	74.92	32.47
40		0.00	546.24	473.00	73.24	31.74
44		0.00	547.40	475.00	72.40	31.37
52		0.00	551.16	472.50	78.66	34.09
56		0.00	573.34	476.00	97.34	42.18
60		0.00	573.34	476.50	96.84	41.96
64		0.00	573.34	477.20	96.14	41.66
74		0.00	573.34	478.00	95.34	41.31
78		0.00	573.34	479.00	94.34	40.88
80		0.00	573.34	480.00	93.34	40.45
82		0.00	573.34	480.50	92.84	40.23
84		0.00	573.34	481.00	92.34	40.01
FH1		0.00(0.00)	570.95	468.00	102.95	44.61

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FH2	2125.00	547.01	472.50	74.51	32.29
FH3	2000.00	546.03	475.00	71.03	30.78
FH4	0.00	572.29	476.50	95.79	41.51
FH5	0.00	573.34	479.50	93.84	40.66
FH6	0.00	573.34	477.50	95.84	41.53
FH7	0.00	573.34	480.00	93.34	40.45
FH8	0.00	580.57	478.00	102.57	44.45
FH9	0.00(0.00)	579.35	465.00	114.35	49.55
O-M-1	0.00	588.49	460.00	128.49	55.68
I-M-2	0.00	623.22	479.00	144.22	62.49
R-1	----	630.00	459.00	171.00	74.10
I-M-1	0.00	622.95	460.00	162.95	70.61
O-M-2	0.00	587.61	479.00	108.61	47.06

M A X I M U M A N D M I N I M U M V A L U E S

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES psi	JUNCTION NUMBER	MINIMUM PRESSURES psi
R-1	74.10	FH3	30.78
6	71.25	44	31.37
I-M-1	70.61	40	31.74
I-M-2	62.49	FH2	32.29
10	61.90	38	32.47

V E L O C I T I E S

PIPE NUMBER	MAXIMUM VELOCITY (ft/s)	PIPE NUMBER	MINIMUM VELOCITY (ft/s)
29	11.70	79	0.00
31	10.88	80	0.00
55	8.86	81	0.00
56	8.86	83	0.00
57	8.86	85	0.00

S U M M A R Y O F I N F L O W S A N D O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES
(-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE gpm	NODE TITLE
R-1	4125.00	

NET SYSTEM INFLOW = 4125.00
NET SYSTEM OUTFLOW = 0.00
NET SYSTEM DEMAND = 4125.00

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Case: 2

C H A N G E S F O R N E X T S I M U L A T I O N (Change Number = 2)

JUNCTION DEMANDS CHANGED - PLEASE SEE RESULTS TABLE

RESULTS OBTAINED AFTER 5 TRIALS: ACCURACY = 0.84143E-05

Otay Ranch Village 8 West Parcel C
Private Fire Protection System Analysis
4125 GPM Fire Flow split between Nodes FH4 and FH8

P I P E L I N E R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1	#2	FLOWRATE gpm	HEAD LOSS ft	MINOR LOSS ft	LINE VELO. ft/s	HL+ML/ 1000 ft/f	HL/ 1000 ft/f
5	6	I-M-1	1602.12	0.28	0.72	4.54	25.08	7.04
7	6	R-1	-1602.12	3.41	0.42	4.54	7.90	7.04
9	10	R-1	-2522.88	8.16	0.00	7.16	16.32	16.32
15	10	I-M-2	2522.88	0.82	0.00	7.16	16.32	16.32
17	O-M-1	FH9	1602.12	5.56	0.72	6.54	19.34	17.11
19	FH9	FH1	1602.12	4.28	1.48	6.54	23.01	17.11
27	FH1	28	1602.12	3.08	0.98	6.54	22.54	17.11
29	28	34	0.00	0.00	0.00	0.00	0.00	0.00
31	34	FH2	-0.02	0.00	0.00	0.00	0.00	0.00
33	FH2	38	-0.02	0.00	0.00	0.00	0.00	0.00
39	40	38	0.02	0.00	0.00	0.00	0.00	0.00
41	FH3	40	0.02	0.00	0.00	0.00	0.00	0.00
43	44	FH3	0.02	0.00	0.00	0.00	0.00	0.00
49	52	44	0.02	0.00	0.00	0.00	0.00	0.00
53	34	52	0.02	0.00	0.00	0.00	0.00	0.00
55	28	FH4	1602.12	2.99	1.10	6.54	23.38	17.11
56	FH8	O-M-2	-2522.88	9.32	0.00	10.31	39.67	39.67
57	56	FH8	-522.88	0.32	0.16	2.14	3.21	2.15
58	FH4	56	-522.88	0.08	0.00	2.14	2.15	2.15
59	56	60	0.00	0.00	0.00	0.00	0.00	0.00
61	60	64	0.00	0.00	0.00	0.00	0.00	0.00
68	60	FH6	0.00	0.00	0.00	0.00	0.00	0.00
69	64	FH5	0.00	0.00	0.00	0.00	0.00	0.00
71	FH6	74	0.00	0.00	0.00	0.00	0.00	0.00
75	74	78	0.00	0.00	0.00	0.00	0.00	0.00
79	78	80	0.00	0.00	0.00	0.00	0.00	0.00
80	80	FH7	0.00	0.00	0.00	0.00	0.00	0.00
81	FH7	82	0.00	0.00	0.00	0.00	0.00	0.00
83	84	82	0.00	0.00	0.00	0.00	0.00	0.00
85	78	84	0.00	0.00	0.00	0.00	0.00	0.00

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P U M P/L O S S E L E M E N T R E S U L T S

NAME	FLOWRATE gpm	INLET HEAD ft	OUTLET HEAD ft	PUMP HEAD ft
M-1	1602.12	165.17	132.93	-32.2
M-2	2522.88	142.02	103.62	-38.4

N O D E R E S U L T S

NODE NAME	NODE TITLE	EXTERNAL DEMAND gpm	HYDRAULIC GRADE ft	NODE ELEVATION ft	PRESSURE HEAD ft	NODE PRESSURE psi
6		0.00	626.17	460.00	166.17	72.01
10		0.00	621.84	481.00	140.84	61.03
28		0.00	576.83	469.00	107.83	46.73
34		0.00	576.83	471.00	105.83	45.86
38		0.00	576.83	472.00	104.83	45.43
40		0.00	576.83	473.00	103.83	45.00
44		0.00	576.83	475.00	101.83	44.13
52		0.00	576.83	472.50	104.33	45.21
56		0.00	572.82	476.00	96.82	41.95
60		0.00	572.82	476.50	96.32	41.74
64		0.00	572.82	477.20	95.62	41.43
74		0.00	572.82	478.00	94.82	41.09
78		0.00	572.82	479.00	93.82	40.65
80		0.00	572.82	480.00	92.82	40.22
82		0.00	572.82	480.50	92.32	40.00
84		0.00	572.82	481.00	91.82	39.79
FH1		0.00(0.00)	580.89	468.00	112.89	48.92
FH2		0.00	576.83	472.50	104.33	45.21
FH3		0.00	576.83	475.00	101.83	44.13
FH4		2125.00	572.74	476.50	96.24	41.71
FH5		0.00	572.82	479.50	93.32	40.44
FH6		0.00	572.82	477.50	95.32	41.30
FH7		0.00	572.82	480.00	92.82	40.22
FH8		2000.00	573.30	478.00	95.30	41.30
FH9		0.00(0.00)	586.65	465.00	121.65	52.71
O-M-1		0.00	592.93	460.00	132.93	57.60
I-M-2		0.00	621.02	479.00	142.02	61.54
R-1		----	630.00	459.00	171.00	74.10
I-M-1		0.00	625.17	460.00	165.17	71.57
O-M-2		0.00	582.62	479.00	103.62	44.90

CITY OF CHULA VISTA

M A X I M U M A N D M I N I M U M V A L U E S

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES psi	JUNCTION NUMBER	MINIMUM PRESSURES psi
R-1	74.10	84	39.79
6	72.01	82	40.00
I-M-1	71.57	80	40.22
I-M-2	61.54	FH7	40.22
10	61.03	FH5	40.44

V E L O C I T I E S

PIPE NUMBER	MAXIMUM VELOCITY (ft/s)	PIPE NUMBER	MINIMUM VELOCITY (ft/s)
56	10.31	79	0.00
9	7.16	80	0.00
15	7.16	81	0.00
17	6.54	83	0.00
19	6.54	85	0.00

S U M M A R Y O F I N F L O W S A N D O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES
(-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE gpm	NODE TITLE
R-1	4125.00	

NET SYSTEM INFLOW = 4125.00
NET SYSTEM OUTFLOW = 0.00
NET SYSTEM DEMAND = 4125.00

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Case: 3

C H A N G E S F O R N E X T S I M U L A T I O N (Change Number = 3)

JUNCTION DEMANDS CHANGED - PLEASE SEE RESULTS TABLE

RESULTS OBTAINED AFTER 4 TRIALS: ACCURACY = 0.77757E-06

Otay Ranch Village 8 West Parcel C
Private Fire Protection System Analysis
4125 GPM Fire Flow split between Nodes FH6 and FH7

P I P E L I N E R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1	#2	FLOWRATE gpm	HEAD LOSS ft	MINOR LOSS ft	LINE VELO. ft/s	HL+ML/ 1000 ft/f	HL/ 1000 ft/f
5	6	I-M-1	1731.22	0.33	0.84	4.91	29.19	8.13
7	6	R-1	-1731.22	3.94	0.49	4.91	9.13	8.13
9	10	R-1	-2393.78	7.41	0.00	6.79	14.81	14.81
15	10	I-M-2	2393.78	0.74	0.00	6.79	14.81	14.81
17	O-M-1	FH9	1731.22	6.42	0.85	7.07	22.35	19.75
19	FH9	FH1	1731.22	4.94	1.72	7.07	26.64	19.75
27	FH1	28	1731.22	3.55	1.14	7.07	26.09	19.75
29	28	34	0.00	0.00	0.00	0.00	0.00	0.00
31	34	FH2	0.00	0.00	0.00	0.00	0.00	0.00
33	FH2	38	0.00	0.00	0.00	0.00	0.00	0.00
39	40	38	0.00	0.00	0.00	0.00	0.00	0.00
41	FH3	40	0.00	0.00	0.00	0.00	0.00	0.00
43	44	FH3	0.00	0.00	0.00	0.00	0.00	0.00
49	52	44	0.00	0.00	0.00	0.00	0.00	0.00
53	34	52	0.00	0.00	0.00	0.00	0.00	0.00
55	28	FH4	1731.22	3.46	1.28	7.07	27.07	19.75
56	FH8	O-M-2	-2393.78	8.46	0.00	9.78	35.99	35.99
57	56	FH8	-2393.78	5.40	3.34	9.78	58.26	35.99
58	FH4	56	1731.22	0.69	0.00	7.07	19.75	19.75
59	56	60	4125.00	4.06	3.55	11.70	76.08	40.58
61	60	64	0.00	0.00	0.00	0.00	0.00	0.00
68	60	FH6	4125.00	4.67	3.12	11.70	67.75	40.58
69	64	FH5	0.00	0.00	0.00	0.00	0.00	0.00
71	FH6	74	2000.00	1.03	1.35	8.17	59.48	25.80
75	74	78	2000.00	3.87	0.78	8.17	30.98	25.80
79	78	80	1136.02	1.18	0.50	4.64	12.91	9.05
80	80	FH7	1136.02	0.23	0.00	4.64	9.05	9.05
81	FH7	82	-863.98	0.27	0.00	3.53	5.45	5.45
83	84	82	863.98	0.71	0.29	3.53	7.68	5.45
85	78	84	863.98	0.38	0.25	3.53	9.04	5.45

P U M P/L O S S E L E M E N T R E S U L T S

NAME	FLOWRATE gpm	INLET HEAD ft	OUTLET HEAD ft	PUMP HEAD ft
M-1	1731.22	164.40	131.37	-33.0
M-2	2393.78	142.85	105.52	-37.3

CITY OF CHULA VISTA

N O D E R E S U L T S

NODE NAME	NODE TITLE	EXTERNAL DEMAND gpm	HYDRAULIC GRADE ft	NODE ELEVATION ft	PRESSURE HEAD ft	NODE PRESSURE psi
6		0.00	625.57	460.00	165.57	71.75
10		0.00	622.59	481.00	141.59	61.36
28		0.00	572.75	469.00	103.75	44.96
34		0.00	572.75	471.00	101.75	44.09
38		0.00	572.75	472.00	100.75	43.66
40		0.00	572.75	473.00	99.75	43.23
44		0.00	572.75	475.00	97.75	42.36
52		0.00	572.75	472.50	100.25	43.44
56		0.00	567.32	476.00	91.32	39.57
60		0.00	559.72	476.50	83.22	36.06
64		0.00	559.72	477.20	82.52	35.76
74		0.00	549.55	478.00	71.55	31.00
78		0.00	544.90	479.00	65.90	28.56
80		0.00	543.22	480.00	63.22	27.40
82		0.00	543.27	480.50	62.77	27.20
84		0.00	544.27	481.00	63.27	27.42
FH1		0.00(0.00)	577.45	468.00	109.45	47.43
FH2		0.00	572.75	472.50	100.25	43.44
FH3		0.00	572.75	475.00	97.75	42.36
FH4		0.00	568.01	476.50	91.51	39.66
FH5		0.00	559.72	479.50	80.22	34.76
FH6		2125.00	551.92	477.50	74.42	32.25
FH7		2000.00	542.99	480.00	62.99	27.30
FH8		0.00	576.06	478.00	98.06	42.49
FH9		0.00(0.00)	584.11	465.00	119.11	51.61
O-M-1		0.00	591.37	460.00	131.37	56.93
I-M-2		0.00	621.85	479.00	142.85	61.90
R-1		----	630.00	459.00	171.00	74.10
I-M-1		0.00	624.40	460.00	164.40	71.24
O-M-2		0.00	584.52	479.00	105.52	45.73

M A X I M U M A N D M I N I M U M V A L U E S

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES psi	JUNCTION NUMBER	MINIMUM PRESSURES psi
R-1	74.10	82	27.20
6	71.75	FH7	27.30
I-M-1	71.24	80	27.40
I-M-2	61.90	84	27.42
10	61.36	78	28.56

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V E L O C I T I E S

PIPE NUMBER	MAXIMUM VELOCITY (ft/s)	PIPE NUMBER	MINIMUM VELOCITY (ft/s)
59	11.70	31	0.00
68	11.70	33	0.00
56	9.78	39	0.00
57	9.78	41	0.00
71	8.17	43	0.00

S U M M A R Y O F I N F L O W S A N D O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES
(-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE gpm	NODE TITLE
R-1	4125.00	

NET SYSTEM INFLOW = 4125.00
NET SYSTEM OUTFLOW = 0.00
NET SYSTEM DEMAND = 4125.00

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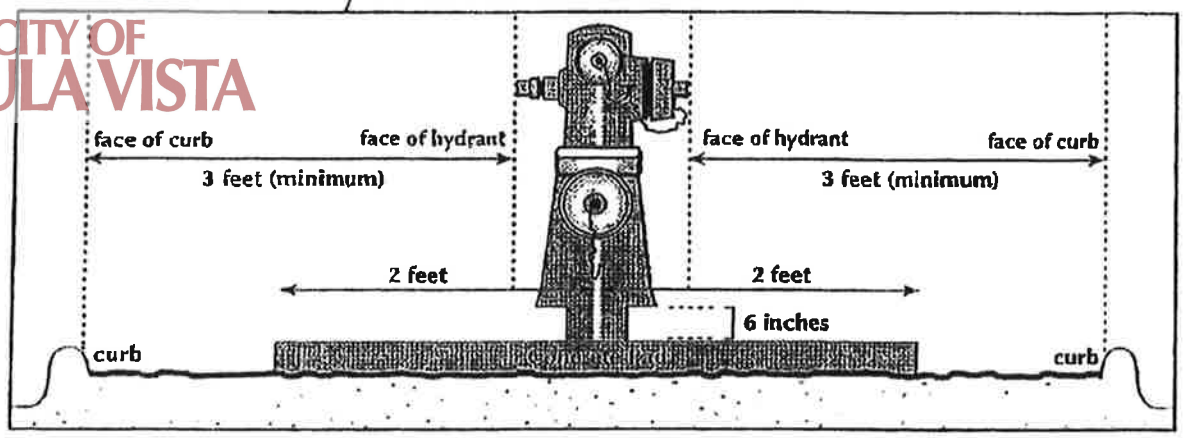
APPENDIX F

FIRE DEPARTMENT DETAILS FOR HYDRANTS, FDCs, AND PIVs

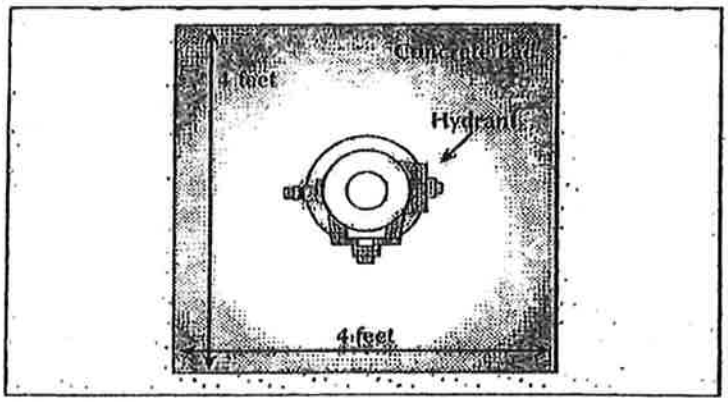
CHULA VISTA FIRE DEPARTMENT

FIRE PREVENTION DIVISION

Fire Hydrant Detail



SIDE VIEW



TOP VIEW

Hydrant Specifications

1. Measurements MUST be exact and will be subject to a field inspection
2. Residential and commercial hydrants must have one 4 inch port and two 2 1/2 inch ports with national standard threads (NST)
3. Industrial fire hydrants must have two 4 inch port and one 2 1/2 inch port with NST
4. Painted (OSHA) yellow
5. Must have concrete pad adhering to the above specifications
6. A blue reflective marker must be in place to identify fire hydrant location
7. Concrete pad must be a minimum of 4 inches thick
8. Base of hydrant must be 6 inches from concrete pad
9. Provide 3-feet (minimum) from the face of the hydrant to the face of the curb (bollards are required if distance is not met)

CITY OF CHULA VISTA

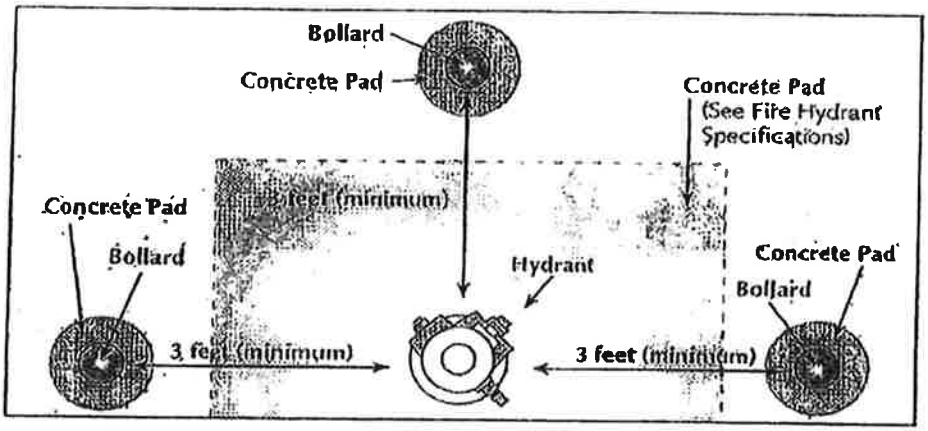
Fire Department • 447 F Street • (619) 691-5055 • fax (619) 691-5057 • www.chulavistaca.gov

CITY OF CHULA VISTA

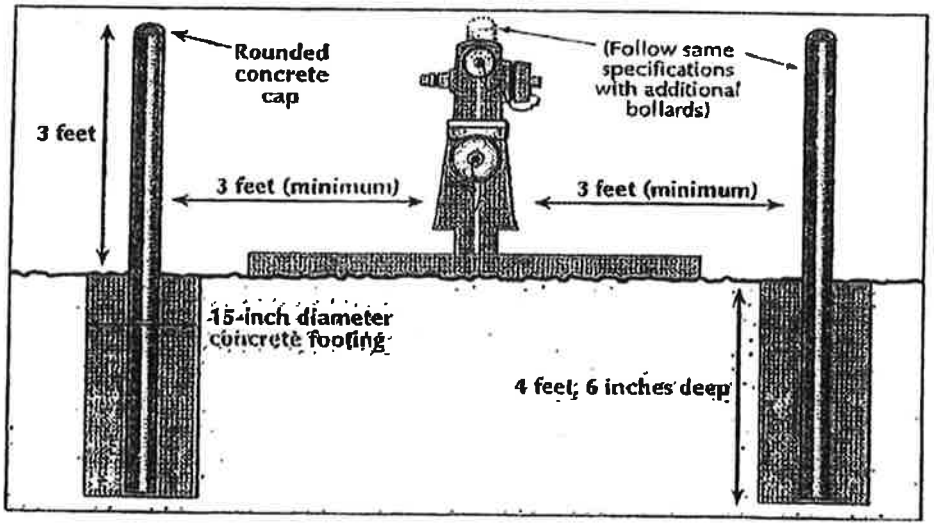
Water Supply - Bollards

Fire Hydrants / Fire Dept. Connections / Post Indicating Valves

TOP VIEW



SIDE VIEW



Bollard Specifications

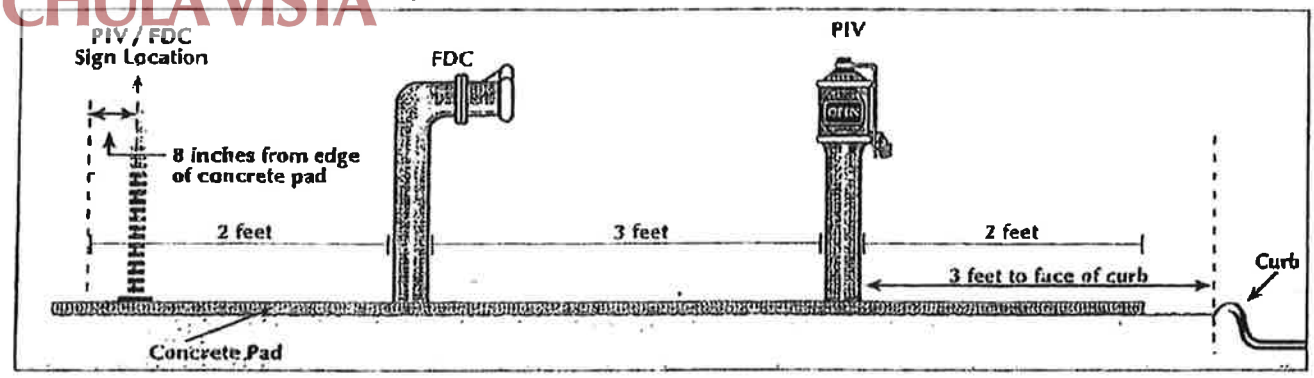
1. Measurements MUST be exact and will be subject to a field inspection
2. Bollards must be 4-inch diameter galvanized steel post (1/4" wall) filled with concrete
3. A blue reflective marker must be in place to identify fire hydrant location
4. Bollards must be coated using safety yellow paint.

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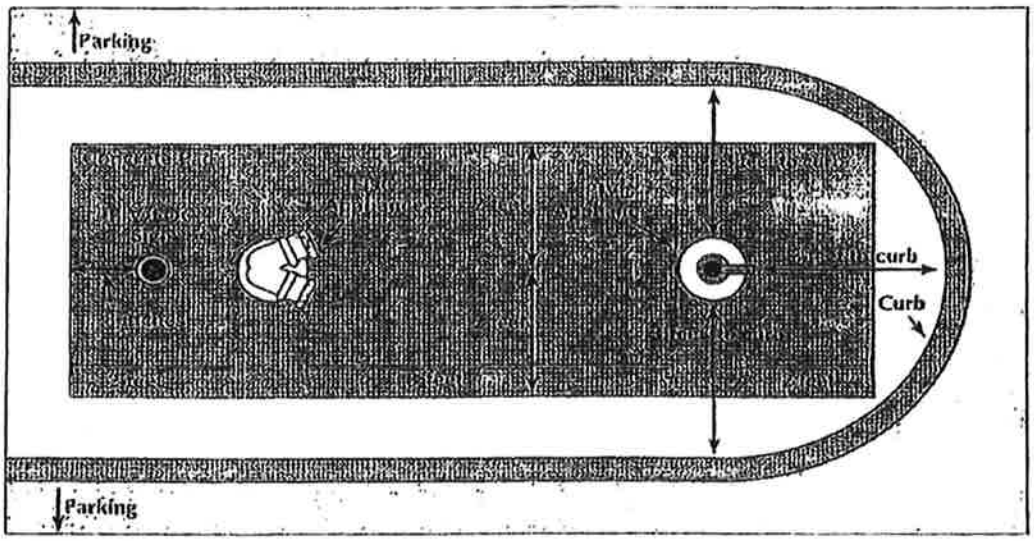
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Concrete Pad PIV/FDC Detail



SIDE VIEW



TOP VIEW

PIV/FDC Specifications

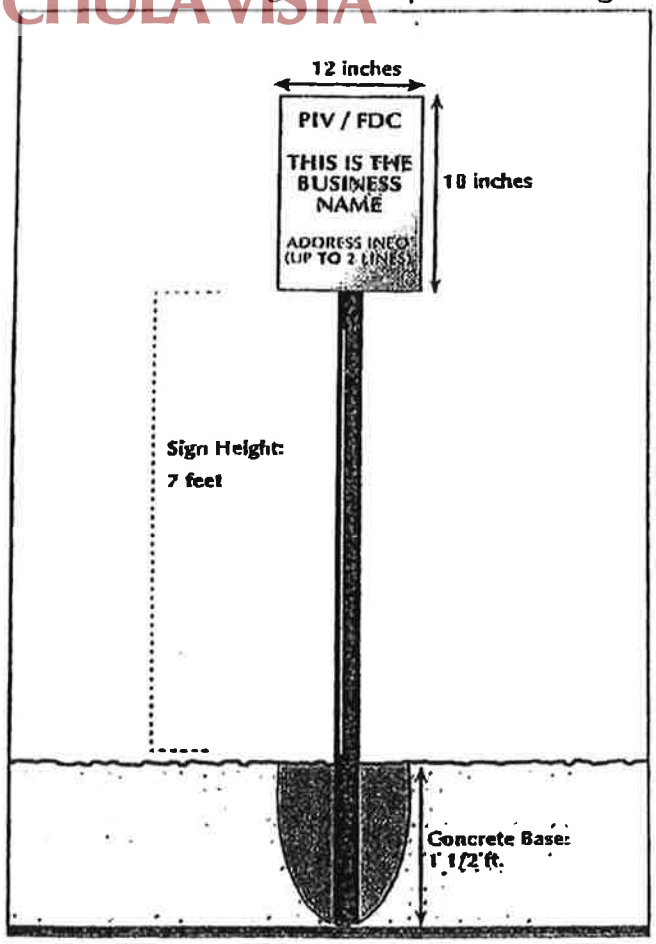
1. Measurements MUST be exact and will be subject to a field inspection
2. Fire Department appliances shall be no closer than 3 feet to the face of the curb
3. Concrete pad must be a minimum of 4 inches thick
4. A blue reflective marker must be in place to identify PIV/FDC location

CHULA VISTA FIRE DEPARTMENT

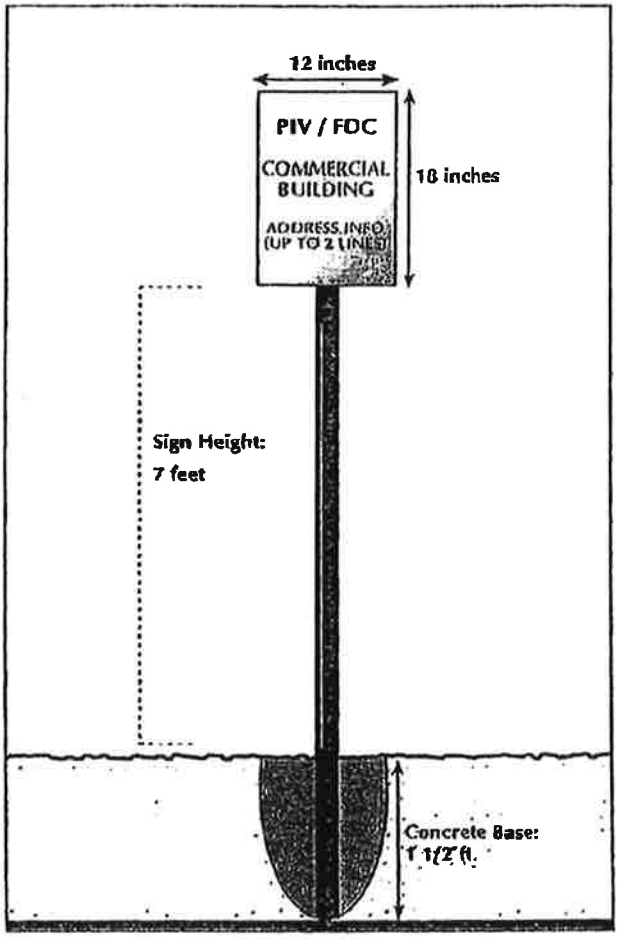
FIRE PREVENTION DIVISION

CITY OF CHULA VISTA

Detail A - Single Occupant Building



Detail B - Multiple Occupant Building



Sign Specifications

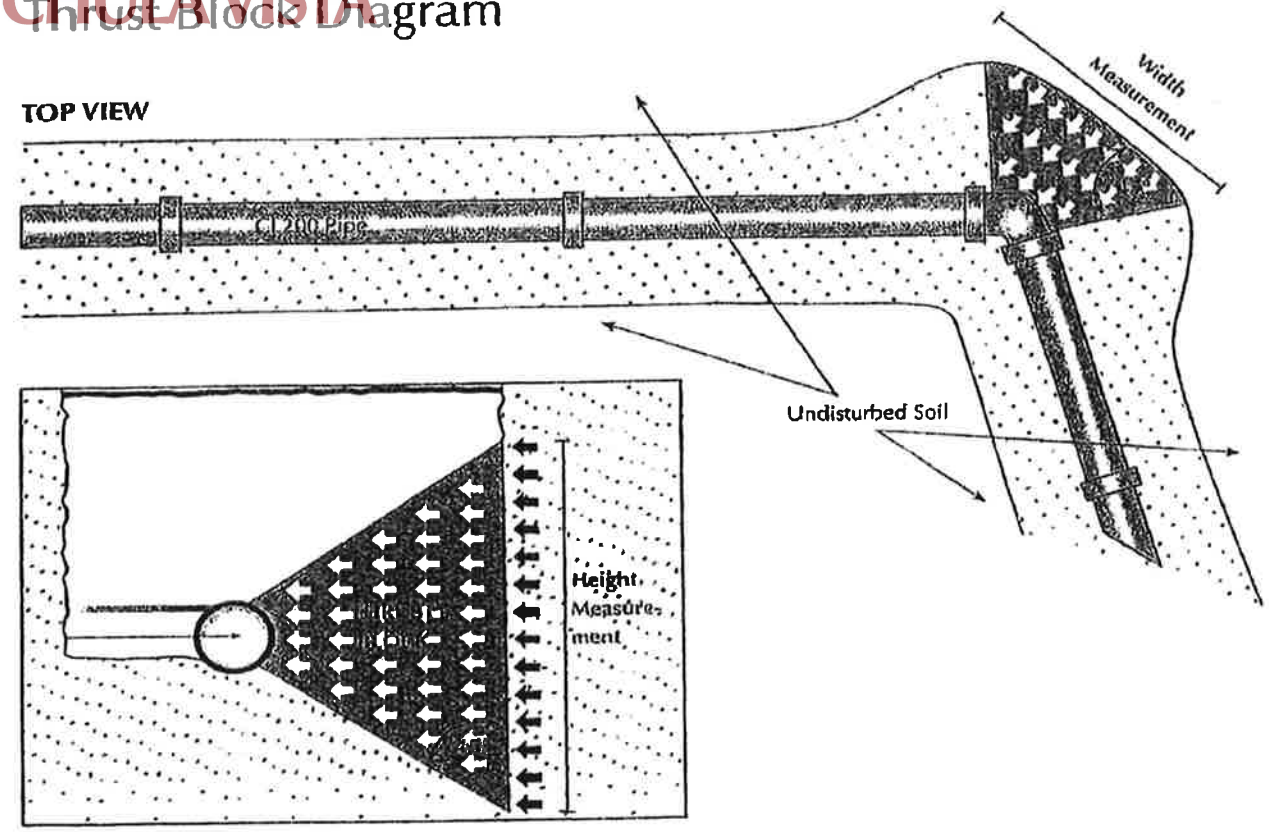
1. Measurements MUST be exact and will be subject to a field inspection
2. Sign must be .080 gauge aluminum
3. Holes and radii must adhere to FHWA standards
4. Sign must be Type IV high intensity prismatic sheeting [H.I.P.]
5. Protective overlay film on sign [P.O.F.]
6. Sign support pole: schedule 40, 2-inch galvanized pipe
7. Sign must be buried in concrete base buried 1 1/2 feet dee
8. Signage letter height:
   - PIV/FDC and business name = 1 1/2 inches tall
9. White background with black lettering

CITY OF CHULA VISTA

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CITY OF CHULA VISTA

Thrust Block Diagram



Notes

1. Underground fire service utilities shall be AWWA C-900 Class 200 pipe
2. Pipe joints shall be exposed at the time of hydrostatic test
3. Hydrostatic test shall be 200 psi for 2 hours
4. Tracer wire and tape are required and shall be in accordance with AWWA
5. Thrust blocks shall be Class 560-C-32.50 concrete, unless specified otherwise
6. For thrust block dimensions, see thrust block calculation detail.
7. Pipe shall be buried a minimum of 3 feet
8. Pipe shall be sleeved per NFPA for penetrating foundations
9. Provide an underground pipe certification at the time of the underground final

CITY OF CHULA VISTA

VILLAGE 8 WEST BOUNDARY

PARCEL C BOUNDARY

LEGEND

- PROJECT BOUNDARY
- EXISTING PUBLIC WATER LINE (711 PZ)
- PROPOSED PUBLIC WATER LINE (711 PZ)
- PROPOSED PRIVATE FIRE PROTECTION LINE
- EXISTING PUBLIC FIRE HYDRANT
- PROPOSED PRIVATE FIRE HYDRANT
- (2) COMPUTER MODEL NODE NUMBER
- [1] COMPUTER MODEL PIPE NUMBER

N

0 100 FEET

12" FIRE SERVICE LATERAL WITH 8" RPDA BACKFLOW PREVENTER

12" FIRE SERVICE LATERAL WITH 8" RPDA BACKFLOW PREVENTER

PVT DR A
PVT DR B
PVT DR C
PVT DR D
PVT DR E
PVT DR F
PVT DR H

LEASING OFFICE
POOL
BLDG. 1
BLDG. 2
BLDG. 3
BLDG. 4
BLDG. 5
BLDG. 6

LA MEDIA PKWY
MAIN ST W
AVENIDA CAPRISE

EX.12"
EX.16"

EXHIBIT A

NODE AND PIPE DIAGRAM

VILLAGE 8 WEST PARCEL C

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

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