APPENDIX C
DISINFECTION AND FLUSHING PLAN

City of Corona Department of Water and Power

Flushing & Disinfection Plan

PROJECT: Ontario Zone 4 Waterline Fullerton to Kellogg

DATE: 06/24/2016

LOCATION: Ontario Avenue from Fullerton Avenue to Kellogg Avenue

DESCRIPTION:

Installation of approximately **1,755 LF of 12" DI pipe** along Ontario Avenue from Fullerton Avenue to Kellogg Avenue and approximately **53 LF of 8" DI pipe** from Ontario Avenue to a private property.

HANDLING AND PROTECTION OF NEW PIPE:

All pipe and fittings shall arrive on-site with end caps in place or they will be rejected. At the site, all pipe and fittings shall be wrapped in plastic with the end caps installed and kept out of contact with the ground. During installation, the contractor will take care to ensure that no dirt or debris enters the pipe. The joints of pipe will be prepared in accordance with the manufacturer's specifications and joined together in the trench. The ends of the lines will be sealed after installation and until such time as connections are made for flushing. **Please be aware that keeping dirt and debris from entering the pipe is the most important factor in being able to have the pipe disinfected in the shortest timeframe.**

HYDROSTATIC TESTING:

Prior to flushing the line the pipeline shall be hydrostatic tested in accordance to City Standards sections 351-1.6.2. The lines shall be filled and allowed to soak for 24 hours prior to testing.

The pipeline shall be filled by receiving potable water from the existing fire hydrant located at the hydrostatic pressure testing **Supply Source (SS)** hydrant located in Kellogg Avenue as shown in **Exhibit A** and supplied potable water to the pipe at the **Supply Point (SP) at STA 9+71.34**. The SS fire hydrant shall be modified by removing the fire hydrant head, installing a 6"x6"x6" tee, a 6" potable construction water meter and a 6" highline to the SP.

The pipe shall be tested at 250 psi for 4-hours and an inspector from the City of Corona will be present to witness the pressure test.

Prepared: MC, 06/24/16

City of Corona Department of Water and Power

Flushing & Disinfection Plan

PROJECT: Ontario Zone 4 Waterline Fullerton to Kellogg

DATE: 06/24/2016

FLUSHING PROCEDURE:

The lines will be flushed at **STA 11+25.00, STA 13+55.00, STA 15+12.00, STA 15+30.00, STA 17+56.80, STA 19+22.00, STA 21+30.00, STA23+07.00, STA 23+82.00, STA 26+24.46 and STA 27+26.24 at the Flushing Point (FP)**. Flush the FP and all water services per the duration indicated in the Project Method below. The pipe shall be flushed for a period of time specified to turnover the total volume in the pipe twice. The discharged water will not be permitted to leave the project site. The contractor shall install a temporary discharge facility at the flushing points to achieve the flushing rates with a highline to the discharge catch basin. **All water shall be discharged to a storm water catch basin via a highline.**

The equation Q=A*V (Quantity = Area x Velocity) is used to determine the demand for flushing water to achieve a cleansing velocity of 5.0 feet per second (fps). Calculations are presented below.

GENERAL GUIDELINES:

1) Ensure all FH and DDC connections are closed.
2) Ensure all Corp Stops are closed.
3) Flushing velocities must be at least 5 fps.
4) All services must be flushed and de-chlorinated to a Cl_2 Residual of less than 0.10 mg/L.
5) Refer to attached plans for reference points.
6) All discharged flows will be placed into a storm drain system.
7) Flushing shall not exceed 50,000 gallons of water per flush cycle.

PROJECT METHOD:

This project is broken into **ten (10)** pipe segment for flushing.

Segment 1: STA 9+71.34 to 11+25.00

Pipe Diam (in):	8	Length (ft):	153.66	START STA.:	971.34
A (ft^2) =	0.35			END STA.:	1125.00
V (ft/s) =	5.00			LENGTH (L.F.):	153.66
Q (ft^3/s) =	1.75	**-> Q (gpm) = 783**			
Volume (gal) =	401			Total Water Usage (gallons) =	7834
Time (min) =	1.02	**Suggested Time (min)= 10**			

Segment 2: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft):	383.66	START STA.:	971.34
A (ft^2) =	0.35			END STA.:	1355.00
V (ft/s) =	5.00			LENGTH (L.F.):	383.66

Prepared: MC, 06/24/16

PROJECT: Ontario Zone 4 Waterline Fullerton to Kellogg

DATE: 06/24/2016

Q (ft^3/s) =	1.75	-> Q (gpm) = 783	Total Water Usage (gallons) =	7834
Volume (gal) =	1,002			
Time (min) =	2.56	Suggested Time (min)= 10		

Segment 3: STA 9+71.34 TO 15+12.00

Pipe Diam (in):	8	Length (ft): 540.66	START STA.:	971.34
A (ft^2) =	0.35		END STA.:	1512.00
V (ft/s) =	5.00		LENGTH (L.F.):	540.66
Q (ft^3/s) =	1.75	-> Q (gpm) = 783	Total Water Usage (gallons) =	7834
Volume (gal) =	1,412			
Time (min) =	3.60	Suggested Time (min)= 10		

Segment 4: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft): 611.66	START STA.:	971.34
A (ft^2) =	0.35		END STA.:	1530.00
V (ft/s) =	5.00		LENGTH (L.F.):	558.66
Q (ft^3/s) =	1.75	-> Q (gpm) = 783	Total Water Usage (gallons) =	7834
Volume (gal) =	1,597			
Time (min) =	4.08	Suggested Time (min)= 10		

Segment 5: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft): 785.46	START STA.:	971.34
A (ft^2) =	0.35		END STA.:	1756.80
V (ft/s) =	5.00		LENGTH (L.F.):	785.46
Q (ft^3/s) =	1.75	-> Q (gpm) = 783	Total Water Usage (gallons) =	7834
Volume (gal) =	2,051			
Time (min) =	5.24	Suggested Time (min)= 10		

Segment 6: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft): 950.66	START STA.:	971.34
A (ft^2) =	0.35		END STA.:	1922.00
V (ft/s) =	5.00		LENGTH (L.F.):	950.66
Q (ft^3/s) =	1.75	-> Q (gpm) = 783	Total Water Usage (gallons) =	7834
Volume (gal) =	2,483			
Time (min) =	6.34	Suggested Time (min)= 10		

PROJECT: Ontario Zone 4 Waterline Fullerton to Kellogg

DATE: 06/24/2016

Segment 7: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft):	1,158.66	START STA.:	971.34
A (ft^2) =	0.35			END STA.:	2130.00
V (ft/s) =	5.00			LENGTH (L.F.):	1158.66
Q (ft^3/s) =	1.75	**-> Q (gpm) = 783**			
Volume (gal) =	3,026			Total Water Usage (gallons) =	7834
Time (min) =	7.72	**Suggested Time (min)= 10**			

Segment 8: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft):	1,335.66	START STA.:	971.34
A (ft^2) =	0.35			END STA.:	2307.00
V (ft/s) =	5.00			LENGTH (L.F.):	1335.66
Q (ft^3/s) =	1.75	**-> Q (gpm) = 783**			
Volume (gal) =	3,488			Total Water Usage (gallons) =	7834
Time (min) =	8.90	**Suggested Time (min)= 10**			

Segment 9: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft):	1,410.66	START STA.:	971.34
A (ft^2) =	0.35			END STA.:	2382.00
V (ft/s) =	5.00			LENGTH (L.F.):	1410.66
Q (ft^3/s) =	1.75	**-> Q (gpm) = 783**			
Volume (gal) =	3,684			Total Water Usage (gallons) =	7834
Time (min) =	9.40	**Suggested Time (min)= 10**			

Segment 10: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft):	1,410.66	START STA.:	971.34
A (ft^2) =	0.35			END STA.:	2382.00
V (ft/s) =	5.00			LENGTH (L.F.):	1410.66
Q (ft^3/s) =	1.75	**-> Q (gpm) = 783**			
Volume (gal) =	3,684			Total Water Usage (gallons) =	7834
Time (min) =	9.40	**Suggested Time (min)= 10**			

Segment 11: STA 9+71.34 TO 13+55.00

Pipe Diam (in):	8	Length (ft):	1,654.12	START STA.:	971.34
A (ft^2) =	0.35			END STA.:	2625.46
V (ft/s) =	5.00			LENGTH (L.F.):	1654.12

City of Corona Department of Water and Power

Flushing & Disinfection Plan

PROJECT: Ontario Zone 4 Waterline Fullerton to Kellogg

DATE: 06/24/2016

Q (ft^3/s) =	1.75	**-> Q (gpm) = 783**	Total Water Usage (gallons) =	11751
Volume (gal) =	4,320			
Time (min) =	11.03	**Suggested Time (min)= 15**		

Total Water Usage (gallons) = 82,258

CHLORINATION AND DE-CHLORINATION PROCEDURE:

All flushing and chlorination will be done per AWWA C651 and City of Corona Specifications. Where the City's standard is more stringent than the AWWA standard, the City standard shall be used.

All requirements of the NPDES Permit # (R8-2009-0003) will be complied with. Contractor will dechlorinate and remove pollutants from water flushed from water mains in accordance with AWWA C655 . Flushing to a sanitary sewer system must be approved; provide notification of discharge time and duration, utilizing a proper air gap. Flushing to a storm drain must be approved; follow SWPPP standards, and maintain a chlorine residual lower than 0.10 mg/L, not to exceed 29 minutes of continual flushing.

Dechlorination and removal of pollutants from water flushed from water mains shall be in accordance with AWWA C655 and the NPDES Permit applicable for the Water Quality Region. Calcium hypochlorite tablets or granules may be used to disinfect reclaimed waterlines.

STEPS TO BE TAKEN AFTER FLUSHING PLAN IS COMPLETED:

1) The water main will be disinfected utilizing a port as near as possible but downstream of the proposed RPP device.

2) A 12.5% sodium hypochlorite solution will be injected with an initial dose of 100 mg/L spreading through the main and the services to achieve a residual of 100 mg/L or greater of free chlorine on the date of the injection. The dose may need to be increased to achieve the residual. The residual will be checked to ensure 50 mg/L is present after 24 hours. All service laterals will be chlorinated and flushed and residual checked at the same time as the main to meet the 100 mg/L at initial and 50 mg/L after 24 hours.

3) After 24 hours, the residual at all outlets will be checked and shall contain no less than 50 mg/L of free chlorine. If residuals are less than 50 mg/L, re-chlorination shall occur.

4) Final flushing of the main shall occur after the 24 hour "Bake" and all outlet residuals are 50 mg/L or greater. The heavily chlorinated water shall be dechlorinated to a residual of 0.10 mg/L or less, and all heavily chlorinated water shall be removed and replenished with new water utilizing the Flushing Plan described above.

5) After final flushing and before connections to the system are made, two consecutive bacteriological samples taken 24 hours apart will be collected. These samples shall come back Absent of Coliform Bacteria, E-Coli and have a heterotrophic plate count (HPC) less than 100 with a CL2 Residual no less than 50% of source

6) Samples will be collected at the points shown on the attached figure per testing requirements.

7) If the samples come back and they do not meet requirements, repeat steps 1-6 above before proceeding to step 8.

8) When the samples come back within acceptable parameters, the inter-ties to the existing main may be completed. **The tie-ins shall be completed with 30 days of the approved disinfection testing results or the contractor must start the process over.**
9) All testing and sampling of water, including measurement of chlorine content, coliform and heterotrophic plate count shall be done by a certified laboratory.
10) Contractor is responsible for achieving all target values.
11) Only City of Corona DWP staff is to operate system valves including valves that feed hydrants.

PROCEDURE FOR TIE-INS:
After testing, and with the approval and supervision of the City inspector, the temporary flushing connections will be removed. A permanent connection will be made at the tie-in point shown on the attached figure. Care will be taken to ensure that neither dirt nor debris enters the system and all parts will be swabbed with a minimum 5 percent solution of chlorine. **Note this is only applicable for sections that are less than 18 feet in length. If the tie in is greater than 18 feet the section shall be disinfected as described in the steps above.**

IMPORTANT NOTES:

1. THE CONTRACTOR SHALL NOT OPERATE ANY MAIN LINE OR SERVICE VALVES. CONTACT EUGENE SILVIAS AT 951-232-2787 TO SCHEDULE CITY STAFF TO OPEN OR CLOSE CITY VALVES.

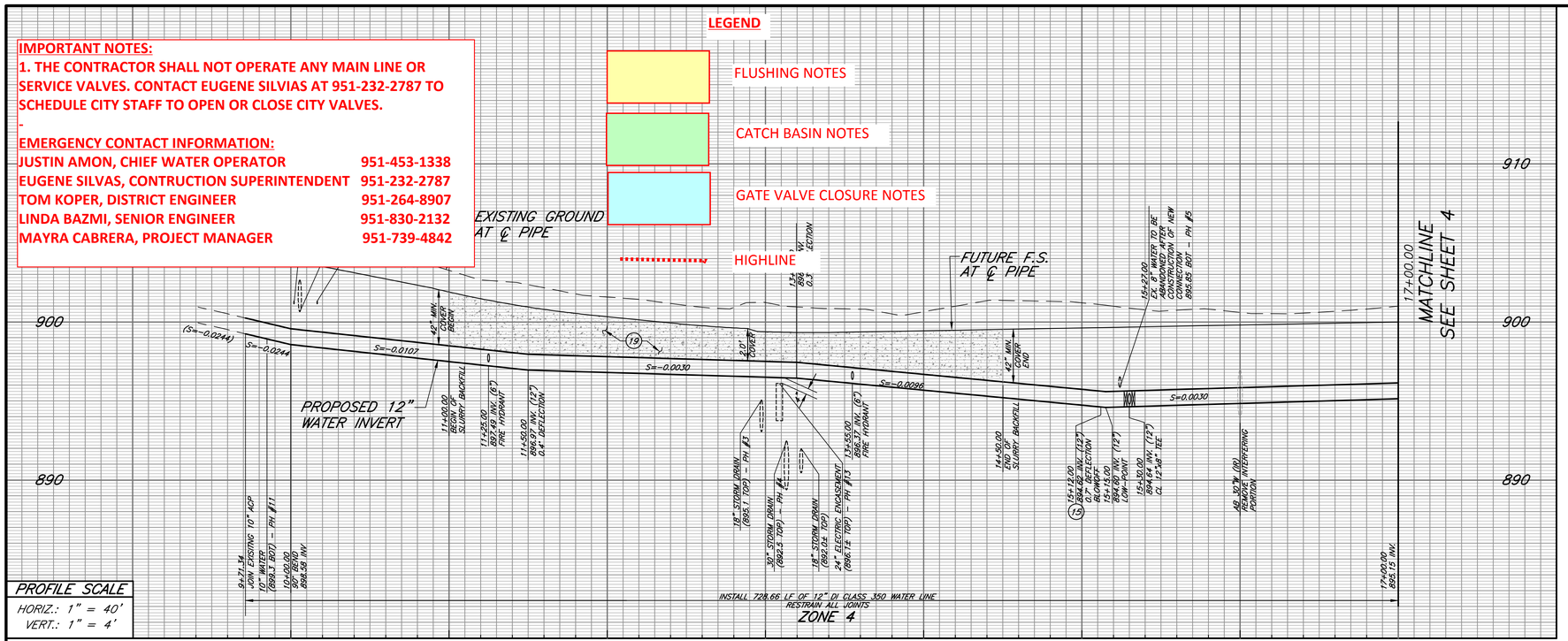
-

EMERGENCY CONTACT INFORMATION:

JUSTIN AMON, CHIEF WATER OPERATOR	951-453-1338
EUGENE SILVAS, CONTRUCTION SUPERINTENDENT	951-232-2787
TOM KOPER, DISTRICT ENGINEER	951-264-8907
LINDA BAZMI, SENIOR ENGINEER	951-830-2132
MAYRA CABRERA, PROJECT MANAGER	951-739-4842

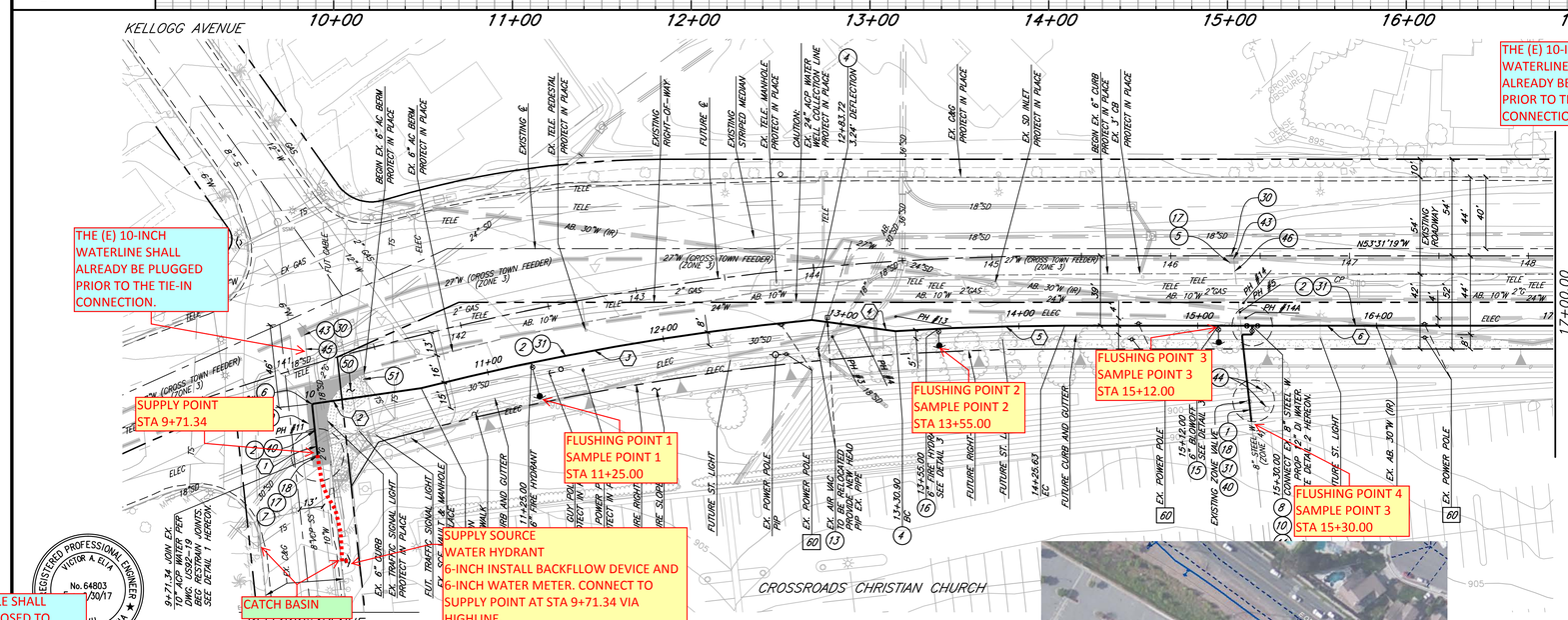
LEGEND

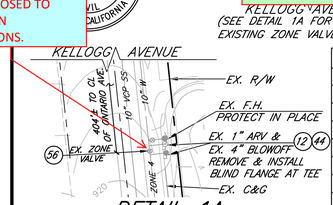
- FLUSHING NOTES
- CATCH BASIN NOTES
- GATE VALVE CLOSURE NOTES
- HIGHLINE



CONSTRUCTION NOTES:

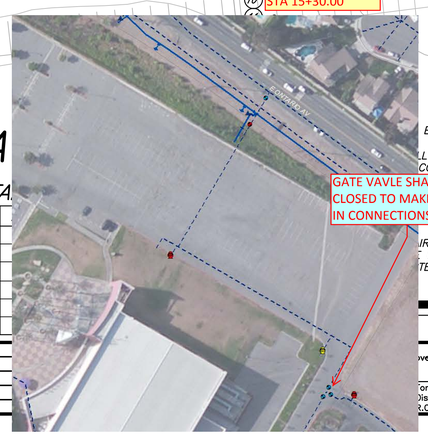
1. CONSTRUCT 8" DUCTILE IRON PIPE, CLASS 350, CEMENT MORTAR LINED AND ENCASED WITH 2 LAYERS OF 8-MIL BLUE POLYETHYLENE ENCASEMENT, PER CITY OF CORONA PIPE BEDDING DETAIL STANDARD 406. RESTRAIN ALL JOINTS.
2. CONSTRUCT 12" DUCTILE IRON PIPE, CLASS 350, CEMENT MORTAR LINED AND ENCASED WITH 2 LAYERS OF 8-MIL BLUE POLYETHYLENE ENCASEMENT, PER CITY OF CORONA PIPE BEDDING DETAIL STANDARD 406. RESTRAIN ALL JOINTS.
3. CONSTRUCT 8" DI 90° BEND CLASS 350 WITH RESTRAINED JOINTS.
4. CONSTRUCT 12" DI 11.25° BEND CLASS 350 WITH RESTRAINED JOINTS.
5. PLUGGING OF EXISTING WATER MAIN PER DETAIL ON SHEET 2.
6. CONSTRUCT 12" DI 90° BEND CLASS 350 WITH RESTRAINED JOINTS.
7. CONSTRUCT 10" x 12" CLASS 350 DI REDUCER.
8. CONSTRUCT 12"x12"x8" CLASS 350 DI TEE.
10. CONSTRUCT 8" GATE VALVE AND VALVE CAN PER CITY OF CORONA STANDARD 420 & 422.
11. CONSTRUCT 12" GATE VALVE AND VALVE CAN PER CITY OF CORONA STANDARD 420 & 422.
12. CONSTRUCT BLIND FLANGE WITH COUPLING (TYP.), SIZE MATCH PIPE DIAMETER ON PLAN.
13. RELOCATE EXISTING AIR/VAC PER CITY OF CORONA STANDARD 413.
15. CONSTRUCT FIRE HYDRANT BLOW-OFF ASSEMBLY PER CITY OF CORONA STANDARD 416.
16. CONSTRUCT 6" FIRE HYDRANT ASSEMBLY PER CITY OF CORONA STANDARD 412 AND BLUE DOT MARKER PER CITY OF CORONA STANDARD 531.
17. CONSTRUCT THRUST BLOCK PER CITY OF CORONA STANDARD 401.
18. JOIN EXISTING WATERLINE WITH DUCTILE IRON STRAIGHT TRANSITION COUPLING, PER CITY OF CORONA APPROVED MATERIAL LIST.
19. BACKFILL WITH 1 SACK SLURRY
30. CONSTRUCT TRENCH BACKFILL AND PAVEMENT REPAIRS PER CITY OF CORONA STANDARD 150. (SEE TYPICAL SECTIONS FOR OVERLAY LIMITS, EXISTING PAVEMENT SECTION IS 6" AC OVER 8" AB MINIMUM)
31. CONSTRUCT PIPE BEDDING PER CITY OF CORONA STANDARD 406 AND BACKFILL PER CITY OF CORONA STANDARD 150 IN UNPAVED AREA.
40. REMOVE AND DISPOSE OF PORTION OF EXISTING WATERLINE.
43. REMOVE AND DISPOSE OF EXISTING WATER VALVE AND INSTALL BLIND FLANGE WITH COUPLING (TYP.).
44. REMOVE AND DISPOSE OF EXISTING BLOWOFF AND AIR VAC 3'- 5' BELOW FINISHED GRADE PER CITY OF CORONA STANDARD 413 & 416.
45. ABANDON IN PLACE AND DEWATER EXISTING 10" PVC WATERLINE (US92-19) AFTER CONSTRUCTION OF NEW 12" WATERLINE AND SWITCHOVER OF WATER SERVICES.
46. ABANDON IN PLACE AND DEWATER EXISTING 8" STEEL WATERLINE (US92-19) AFTER CONSTRUCTION OF NEW 12" WATERLINE AND SWITCHOVER OF WATER SERVICES.
48. REMOVE EXISTING ABANDONED INTERFERING PORTION OF 30" WATERLINE (IR).
50. REMOVE AND REPLACE PEDESTRIAN RAMP TYPE I CASE A (IN KIND) PER CITY OF CORONA STANDARD 146.
51. PRIOR TO REMOVAL OF PEDESTRIAN RAMP, DISCONNECT AND REMOVE EXISTING WALK SIGNAL LIGHT. AFTER CONSTRUCTION OF PEDESTRIAN RAMP RECONNECT EXISTING WALK SIGNAL LIGHT.
56. CONTACT DWP TO MODIFY EXISTING ZONE VALVE TO CONVENTIONAL VALVE PER DWP'S SPECS AT THE TIME OF CONNECTION.
60. EXISTING POWER POLES TO BE RELOCATED BY OTHERS PRIOR TO CONSTRUCTION OF WATERLINE.

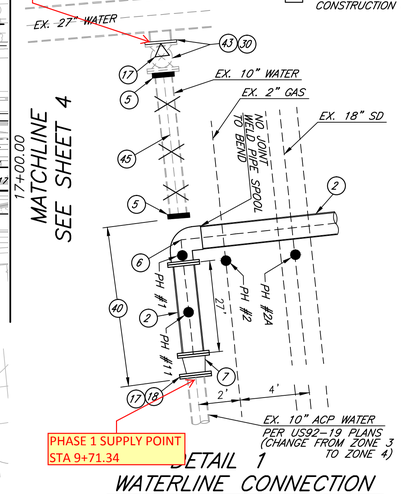




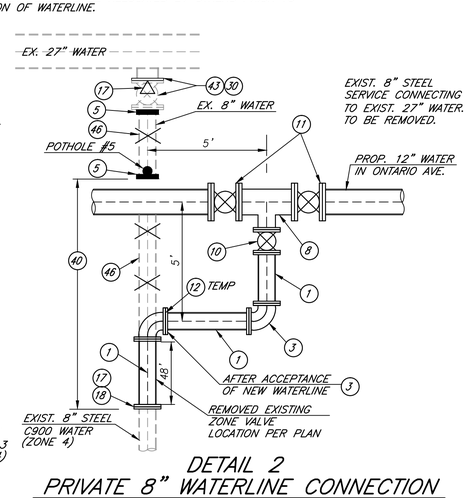
DETAIL 1A
REPLACE EX. ZONE VALVE

SCALE: 1"=40'





DETAIL 1
WATERLINE CONNECTION
STATION 10+00.00
NTS



DETAIL 2
PRIVATE 8" WATERLINE CONNECTION
STATION 15+33.00
NTS

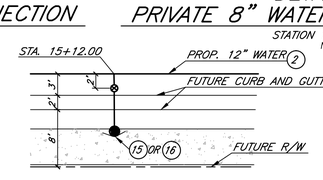
BE FULLY RESTRAINED.

L PROTECT ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON CONTRACTOR SHALL PROVIDE STRUCTURAL SUPPORTS TO PROTECT QUIRED.

DAMAGED TRAFFIC SIGNAL LOOPS & CONDUITS AS CTOR'S COST.

IR SHALL BE PER CITY OF CORONA STANDARD 150. ALL PIPE PER CITY OF CORONA STANDARD 406. STRUCTURAL BACKFILL TED TO A RELATIVE COMPACTION OF NOT LESS THAN 95%.

120'



DETAIL 3

POTHOLE SUMMARY TABLE

POTHOLE #	UTILITY	TOP	BOTTOM	SIZE	TYPE
1	WATER	4.50'	5.33'	10"	ACP
2	GAS	2.70'	2.87'	2"	STEEL
2A	SD	1.20'	2.70'	18"	STEEL
3	SD	6.20'	8.20'	24"	HDPE
4	SD	8.50'	11.00'	30"	RCP
5	WATER	4.40'	5.07'	8"	STEEL
11	WATER	4.12'	4.95'	10"	ACP
13	ELEC	4.66'	6.42'	24"	ASPH ENCASEMENT
14	DRY	–	–	–	–
14A	ELEC	5.28'	7.04'	24"	ASPH ENCASEMENT

ONTARIO A

LINE/CURVE DATA TA

LINE/CURVE #	LENGTH	RADIUS
1	28.66'	–
2	61.65'	–
3	222.06'	1464'
4	47.18'	–
5	94.74'	1454'
6	472.50'	–

Underground Service Alert
Call: TOLL FREE
811

ONTARIO ZONE 4 WATERLINE FULLERTON TO KELLOGG
EXHIBIT A - FLUSHING AND DISINFECTION PLAN
JUNE 24, 2016

SH 1 OF 3

KWC ENGINEERS
CIVIL ENGINEERS • PLANNERS • SURVEYORS
1880 COMPTON AVENUE, SUITE 100 • CORONA, CA. 92881-3370 • 951-734-2130

Designed by VAE | Drawn by BMB | Checked by VAE

PLANS PREPARED UNDER SUPERVISION OF
VICTOR A. ELIA
R.C.E. 64803 Exp. 6-30-17
Date

SEE SHEET 2
Reference Plans for these Improvements

Date | By | REVISIONS

Approved: Department of Water and Power
Tom Koper, P.E.
District Engineer
R.C.E. No. 50258

Approved: Public Works Department
By
Nelson D. Nelson, P.E.
City Engineer
R.C.E. No. 54435

CITY OF CORONA
ONTARIO AVE. ZONE 4 WATER IMPROVEMENT
ONTARIO PLAN AND PROFILE
WATER IMP. PLANS
STA.10+00 TO 17+00

Drawing No. 14-027U
Sh 3 of 5

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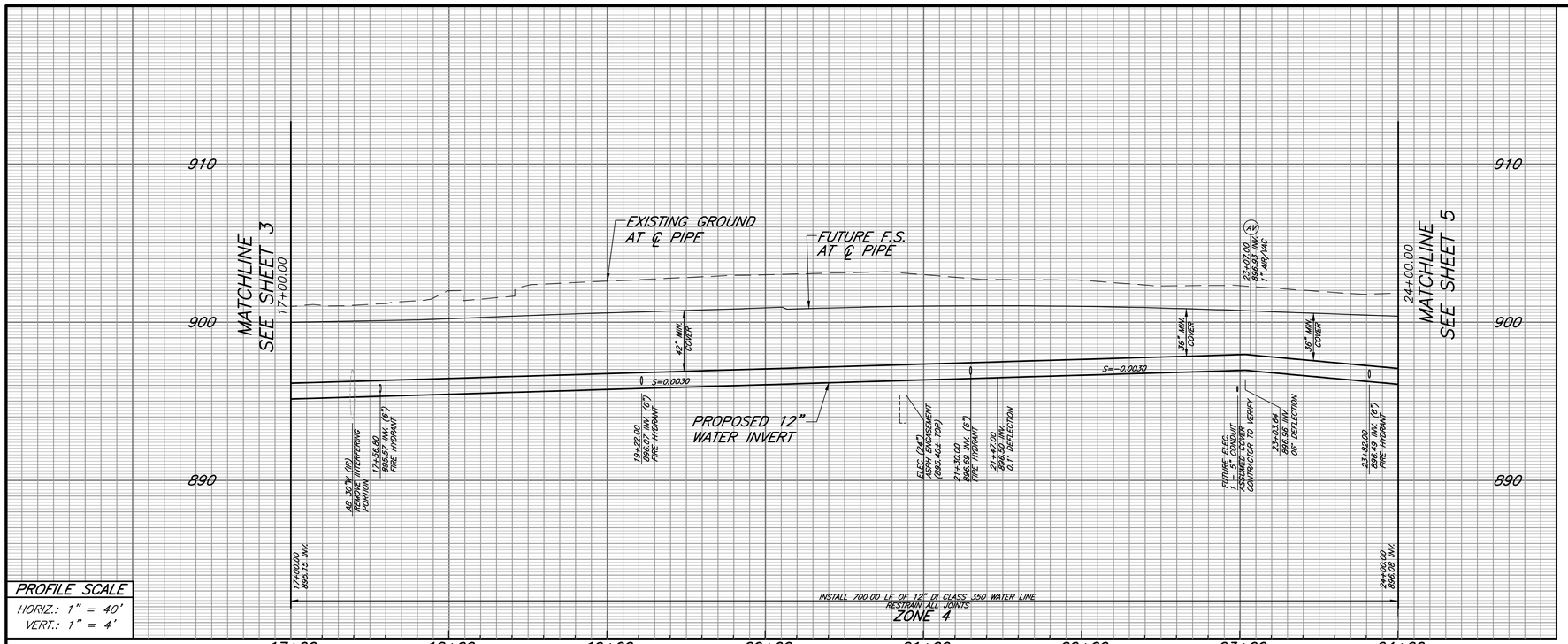


PROFILE SCALE
HORIZ.: 1" = 40'
VERT.: 1" = 4'

CONSTRUCTION NOTES:

(2) CONSTRUCT 12" DUCTILE IRON PIPE, CLASS 350, CEMENT MORTAR LINED AND ENCASED WITH 2 LAYERS OF 8-MIL BLUE POLYETHYLENE ENCASEMENT, PER CITY OF CORONA PIPE BEDDING DETAIL STANDARD 406. RESTRAIN ALL JOINTS.

(14) CONSTRUCT 1" COMBINATION AIR/VAC VALVE ASSEMBLY PER CITY OF CORONA STANDARD 413.

(16) CONSTRUCT 6" FIRE HYDRANT ASSEMBLY PER CITY OF CORONA STANDARD 412 AND BLUE DOT MARKER PER CITY OF CORONA STANDARD 531.

(30) CONSTRUCT TRENCH BACKFILL AND PAVEMENT REPAIRS PER CITY OF CORONA STANDARD 150. (SEE TYPICAL SECTIONS FOR OVERLAY LIMITS, EXISTING PAVEMENT SECTION IS 6" AC OVER 8" AB MINIMUM)

(31) CONSTRUCT PIPE BEDDING PER CITY OF CORONA STANDARD 406 AND BACKFILL PER CITY OF CORONA STANDARD 150 IN UNPAVED AREA.

(41) REMOVE EXISTING FIRE HYDRANT ASSEMBLY AND REMOVE FLANGE SPOOL 3'-5' BELOW FINISHED GRADE PER CITY OF CORONA STANDARD 416.

(42) REMOVE AND DISPOSE OF EXISTING PRECAST CONCRETE WATER VAULT AND 6-INCH STEEL PIPE.

(43) REMOVE AND DISPOSE OF EXISTING WATER VALVE AND INSTALL BLIND FLANGE WITH COUPLING (TYP.).

(47) REPLACE EXISTING CURB ONLY, AND CURB & GUTTER PER CITY OF CORONA STANDARD 135 TYPE 6, AND STANDARD 137 TYPE 6A, RESPECTIVELY.

(48) REMOVE EXISTING ABANDONED INTERFERING PORTION OF 30" WATERLINE (IR).

(52) REMOVE EXISTING CURB / CURB AND GUTTER.

(53) REMOVE AND REPLACE EXISTING DELINEATORS IN KIND.

[60] EXISTING POWER POLES TO BE RELOCATED BY OTHERS PRIOR TO CONSTRUCTION OF WATERLINE.

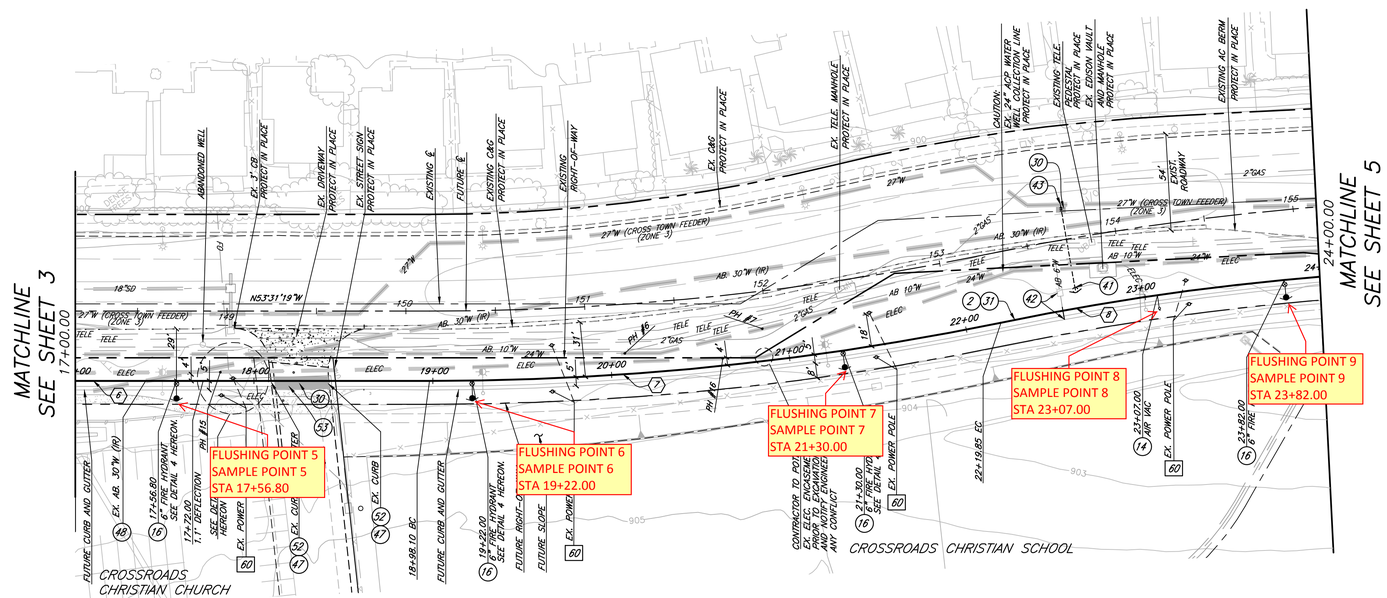
NOTES:

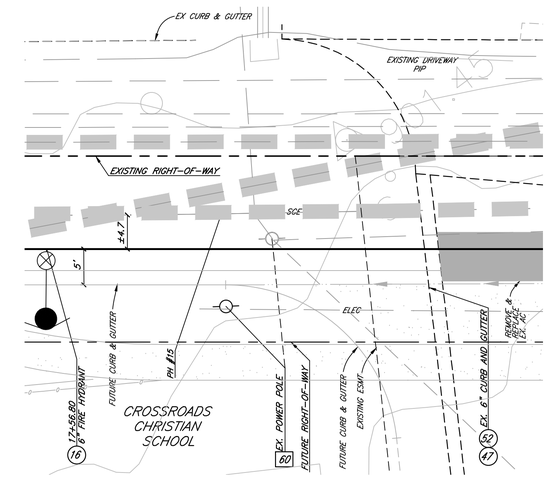
1) ALL JOINTS SHALL BE FULLY RESTRAINED.

2) CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDE STRUCTURAL SUPPORTS TO PROTECT ALL EXISTING FACILITIES IF REQUIRED.

3) CONTRACTOR SHALL REPLACE DAMAGED TRAFFIC SIGNAL LOOPS & CONDUITS AS DIRECTED BY CITY AT CONTRACTOR'S COST.

4) ALL TRENCH REPAIR SHALL BE PER CITY OF CORONA STANDARD 150. ALL PIPE BEDDING SHALL BE PER CITY OF CORONA STANDARD 406. STRUCTURAL BACKFILL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF NOT LESS THAN 95%.





DETAIL 7
ONTARIO AVENUE AT EXISTING DRIVEWAY
SCALE: 1"=10'

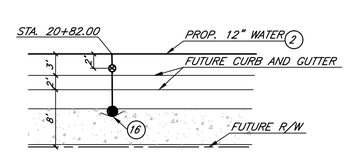
ONTARIO AVENUE

LINE/CURVE DATA TABLE

LINE/CURVE #	LENGTH	RADIUS	TANGENT	BEARING/DELTA
6	472.50'	–	–	S53°31'19"E
7	321.72'	1583'	161.41'	11.64°
8	186.26'	1505'	93.25'	7.09°

POTHOLE SUMMARY TABLE

POTHOLE #	UTILITY	TOP	BOTTOM	SIZE	TYPE
6	WATER	6.74'	8.74'	24"	CML
7	WATER	6.54'	8.54'	24"	CML
15	ELEC	4.64'	6.42'	24"	ASPH ENCASEMENT
16	ELEC	5.60'	7.08'	24"	ASPH ENCASEMENT



DETAIL 4
FIRE HYDRANT DETAILS
SCALE: 1"=10'

REGISTERED PROFESSIONAL ENGINEER VICTOR A. ELIA No. 64803 Exp. 6/30/17 CIVIL STATE OF CALIFORNIA

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ONTARIO ZONE 4 WATERLINE FULLERTON TO KELLOGG
EXHIBIT A - FLUSHING AND DISINFECTION PLAN
JUNE 24, 2016

SH 2 OF 3

KWC ENGINEERS
CIVIL ENGINEERS • PLANNERS • SURVEYORS
1880 COMPTON AVENUE, SUITE 100 • CORONA, CA 92881-3370 • 951-734-2130

Designed by VAE | Drawn by BMB | Checked by VAE
PLANS PREPARED UNDER SUPERVISION OF VICTOR A. ELIA R.C.E. 64803 Exp. 6-30-17
Date

SEE SHEET 2
Reference Plans for these Improvements

Date | By | REVISIONS | App'd

BENCH MARK: SEE SHEET NO. 1
Scale 1" = 40'

Engineering
DWP

Approved: Department of Water and Power
By Tom Koper, P.E. District Engineer R.C.E. No. 50258

Approved: Public Works Department
By Nelson D. Nelson, P.E. City Engineer R.C.E. No. 54435

CITY OF CORONA
WATER IMP. PLANS
ONTARIO AVE. ZONE 4 WATER IMPROVEMENT
ONTARIO PLAN AND PROFILE STA. 17+00 TO 24+00

Drawing No. 14-027U
Sh 4 of 5

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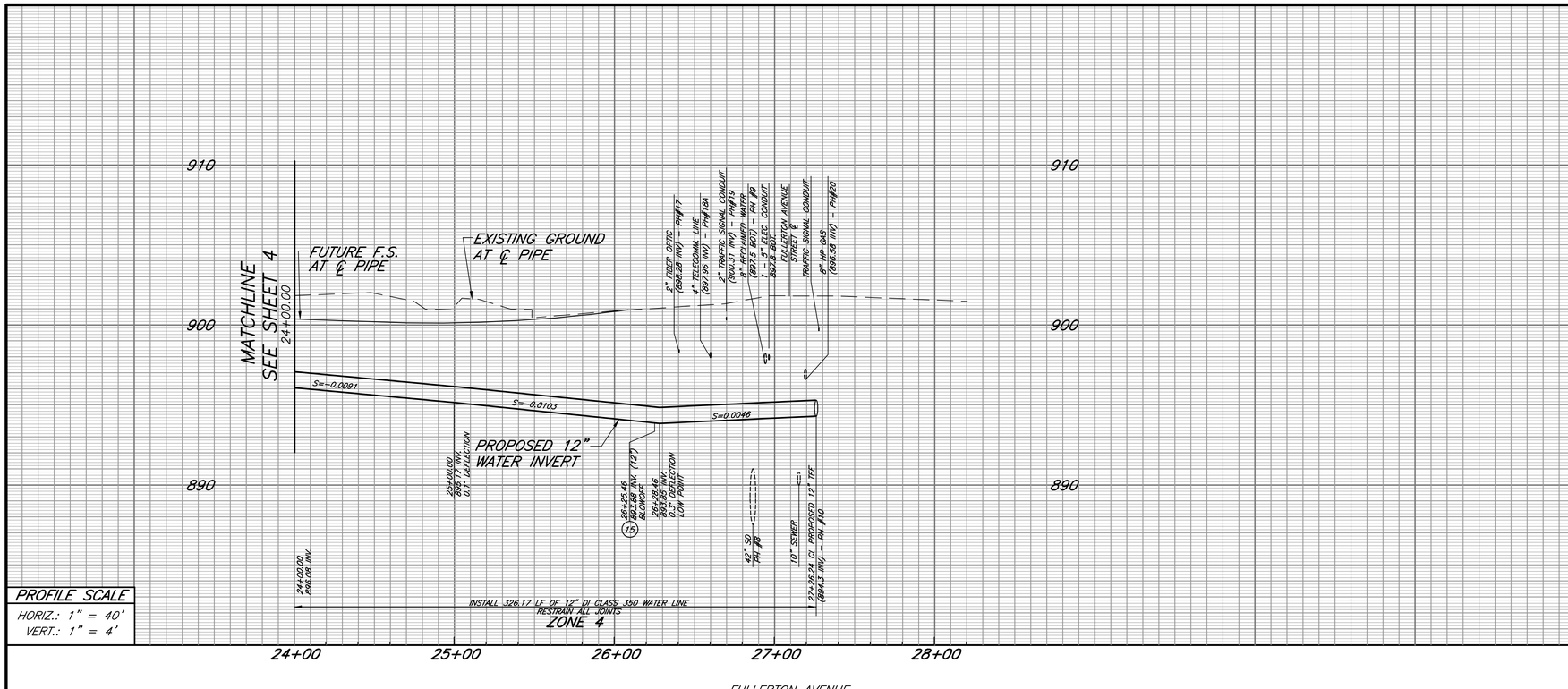


PROFILE SCALE
HORIZ.: 1" = 40'
VERT.: 1" = 4'

CONSTRUCTION NOTES:

(2) CONSTRUCT 12" DUCTILE IRON PIPE, CLASS 350, CEMENT MORTAR LINED AND ENCASED WITH 2 LAYERS OF 8-MIL BLUE POLYETHYLENE ENCASEMENT, PER CITY OF CORONA PIPE BEDDING DETAIL STANDARD 406. RESTRAIN ALL JOINTS.

(9) CONSTRUCT 12"x12"x12"X12" CLASS 350 DI CROSS WITH RESTRAINED JOINTS.

(11) CONSTRUCT 12" GATE VALVE AND VALVE CAN PER CITY OF CORONA STANDARD 420 & 422.

(12) CONSTRUCT BLIND FLANGE WITH COUPLING (TYP.), SIZE MATCH PIPE DIAMETER ON PLAN.

(15) CONSTRUCT FIRE HYDRANT BLOW-OFF ASSEMBLY PER CITY OF CORONA STANDARD 416.

(17) CONSTRUCT THRUST BLOCK PER CITY OF CORONA STANDARD 401.

(18) JOIN EXISTING WATERLINE WITH DUCTILE IRON STRAIGHT TRANSITION COUPLING PER CITY OF CORONA APPROVED MATERIAL LIST.

(30) CONSTRUCT TRENCH BACKFILL AND PAVEMENT REPAIRS PER CITY OF CORONA STANDARD 150. (SEE TYPICAL SECTIONS FOR OVERLAY LIMITS, EXISTING PAVEMENT SECTION IS 6" AC OVER 8" AB MINIMUM)

(31) CONSTRUCT PIPE BEDDING PER CITY OF CORONA STANDARD 406 AND BACKFILL PER CITY OF CORONA STANDARD 150 IN UNPAVED AREA.

(40) REMOVE AND DISPOSE OF PORTION OF EXISTING WATERLINE.

(43) REMOVE AND DISPOSE OF EXISTING WATER VALVE AND INSTALL BLIND FLANGE WITH COUPLING (TYP.).

(54) REMOVE AND REPLACE EXISTING AC BERM (LENGTH 10')

[60] EXISTING POWER POLES TO BE RELOCATED BY OTHERS PRIOR TO CONSTRUCTION OF WATERLINE.

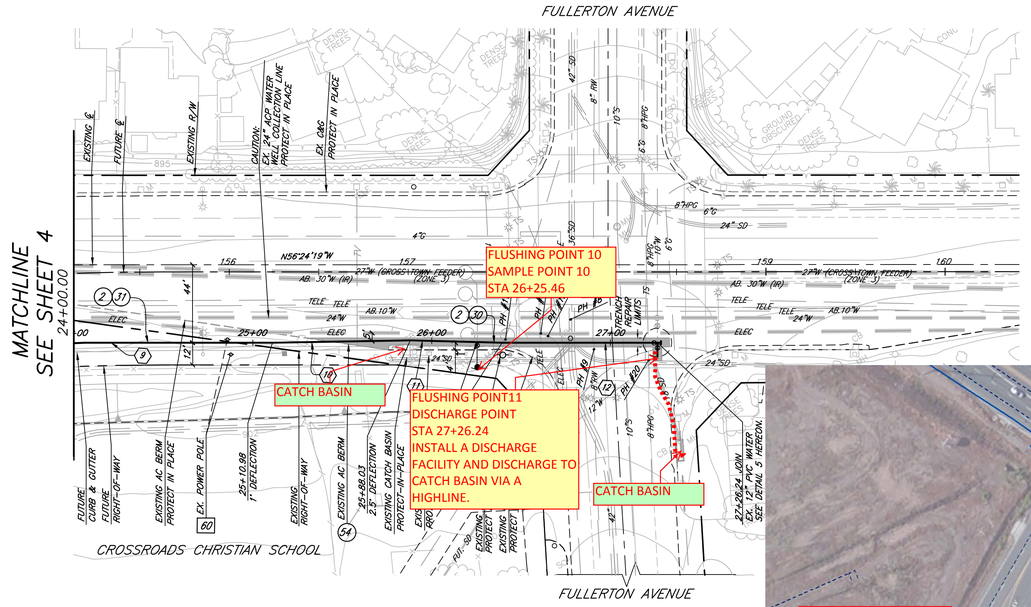
NOTES:

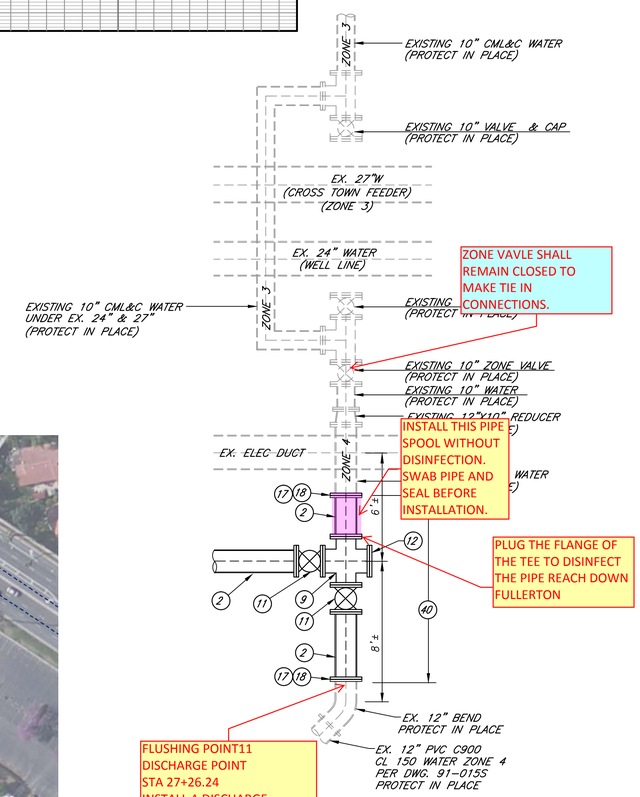
1) ALL JOINTS SHALL BE FULLY RESTRAINED.

2) CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDE STRUCTURAL SUPPORTS TO PROTECT ALL EXISTING FACILITIES IF REQUIRED.

3) CONTRACTOR SHALL REPLACE DAMAGED TRAFFIC SIGNAL LOOPS & CONDUITS AS DIRECTED BY CITY AT CONTRACTOR'S COST.

4) ALL TRENCH REPAIR SHALL BE PER CITY OF CORONA STANDARD 150. ALL PIPE BEDDING SHALL BE PER CITY OF CORONA STANDARD 406. STRUCTURAL BACKFILL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF NOT LESS THAN 95%.





DETAIL 5

40' 0 40' 80' 120'
SCALE IN FEET

ONTARIO AVENUE

REGISTERED PROFESSIONAL ENGINEER
VICTOR A. ELIA
No. 64803
Exp. 6/30/17
CIVIL
STATE OF CALIFORNIA

LINE/CURVE DATA TABLE

LINE/CURVE #	LENGTH	RADIUS	TANGENT	BEARING/DELTA
(9)	104.87'	–	–	S56°24'19"E
(10)	77.06'	–	–	S57°24'19"E
(11)	51.37'	–	–	S54°54'19"E
(12)	88.83'	–	–	S56°24'19"E

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WATER IMP. PLANS
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ONTARIO PLAN AND PROFILE STA. 24+00 TO 27+26

Drawing No. 14-027U
Sh 5 of 5

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