

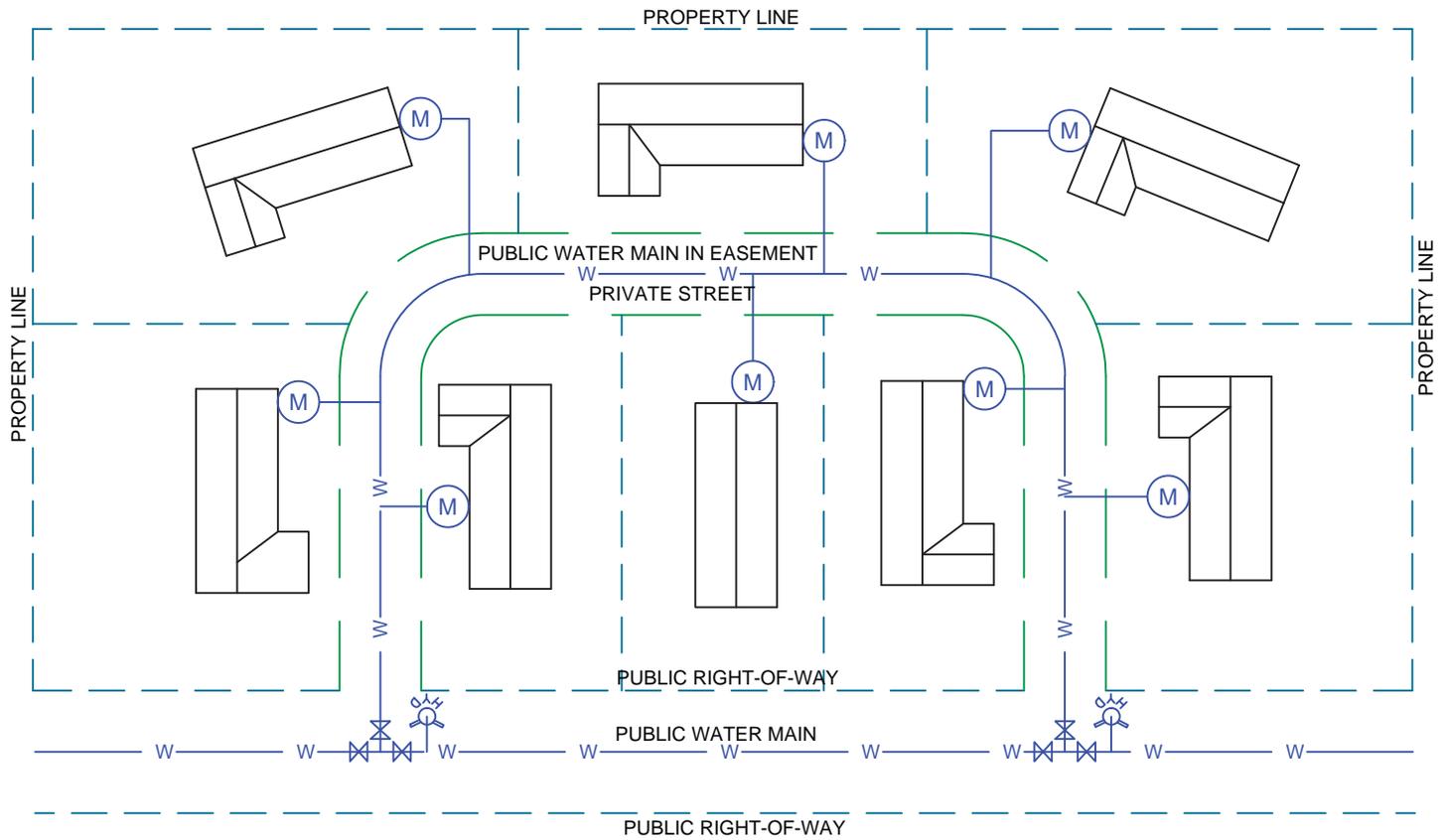
SHEET NO.	SHEET TITLE
<b>SECT B1</b>	<b>TAP &amp; METER DETAILS</b>
B1-1	TAPPING DETAILS 3/4" THRU 2" FOR TYPE "K" COPPER
B1-2	DETAILS FOR TAPS 4" AND OVER FOR DUCTILE OR PVC PIPE
B1-3	TYPICAL INSTALLATION FOR TYPE "K" COPPER SERVICE LINE, STOP BOX AND METER INSTALLATION 3/4" – 2"
B1-4	TYPICAL INSTALLATION FOR 3/4" THRU 1" METERS INSIDE RESIDENTIAL COPPER SERVICE
B1-5	3/4" THRU 1" OUTSIDE METER FOR RESIDENTIAL TYPE "K" COPPER AND HDPE SERVICE
B1-6	TYPICAL INSTALLATION FOR HDPE SERVICE LINE AND STOP BOX
B1-7	TYPICAL INSTALLATION FOR 3/4" THRU 1" METERS INSIDE RESIDENTIAL HDPE SERVICE
B1-8	TYPICAL INSTALLATION FOR 3/4" THRU 1" METERS INSIDE COMMERCIAL COPPER SERVICE
B1-9	TYPICAL INSTALLATION FOR 3/4" THRU 1" METERS INSIDE COMMERCIAL HDPE SERVICE
B1-10	METER BY-PASS PLAN AND ELEVATION FOR COMMERCIAL METERS 1-1/2" THRU 6"
B1-11	TYPICAL INSTALLATION FOR 1-1/2" THRU 6" METERS INSIDE BUILDING
B1-12	ENTRANCE OF WATER PIPING INTO BUILDING
B1-13	4" OR LARGER MJ RESTRAINT ENTERING BUILDINGS
B1-14	INSTALLATION FOR SERVICE LINE W/SLEEVE UNDER A UTILITY 3/4" – 2"
B1-15	COMMUNITY GARDEN SERVICE DETAIL
B1-16	TYPICAL COMMERCIAL OUTDOOR WATER METER AND BACKFLOW PREVENTION ASSEMBLY
B1-17	TYPICAL COMMERCIAL OUTDOOR WATER METER AND BACKFLOW PREVENTION ASSEMBLY FOR IRRIGATION SYSTEMS
B1-18	REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY W/OUT METER
B1-19	"N" or "Z" BACKFLOW PREVENTION ASSEMBLY
B1-20	TYPICAL CLEARANCE FOR BACKFLOW PREVENTION ASSEMBLY
B1-21	SCHEMATIC DETAIL OF IRRIGATION AND CONSUMPTIVE USE SUB-METER INSTALLATION
B1-22	SCHEMATIC DETAIL OF IRRIGATION AND CONSUMPTIVE USE SUB-METER INSTALLATION
<b>SECT B2</b>	<b>WATER SERVICE LINE SCHEMATICS</b>
B2-1	TYPICAL SERVICE LOCATIONS TO A RESIDENTIAL DWELLING
B2-2	TYPICAL SERVICE LOCATIONS WITH FIRE LINE TO A RESIDENTIAL DWELLING
B2-3	RESIDENTIAL STREET CURB STOP LOCATION
B2-4	MULTI-FAMILY CONFIGURATION OPTIONS
B2-5	FIRE AND DOMESTIC WATER SERVICE PLAN FOR A COMMERCIAL BUILDING
B2-6	TYPICAL COMMON SERVICE TRENCH SECTION

SHEET NO.	SHEET TITLE
SECT B3	METER VAULTS
B3-1	STANDARD ROUND PRE-CAST VAULT FOR 1-1/2" AND 2" METERS
B3-2	PRE-CAST CONCRETE VAULT FOR 3" THRU 10" METERS W/BYPASS
B3-3	CAST IN PLACE CONCRETE VAULT FOR 8" AND 10" METERS
B3-4	CAST IN PLACE CONCRETE VAULT FOR 8" AND 10" METERS
B3-5	CONCRETE VAULT FOR 3" AND 6" METERS

NOTE: ALL DETAIL DRAWINGS NOT TO SCALE (NTS) UNLESS OTHERWISE NOTED.

### LEGEND

	DEVELOPER PHASE LINE
	EASEMENT LINE
	EXISTING ROW/PROPERTY LINE
	EXISTING CURB LINE
	EXISTING GAS MAIN
	EXISTING WATER
	PROPOSED WATER
	EXISTING NON POTABLE WATER
	EXISTING SEWER
	VALVE (PROPOSED)
	VALVE (EXISTING)
	BLOWOFF (PROPOSED)
	BLOWOFF (EXISTING)
	PLUG (PROPOSED)
	PLUG (EXISTING)
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
	EXISTING/PROPOSED METER PIT
	BACKFLOW PREVENTION ASSEMBLY (BFP)



**NOTE:**

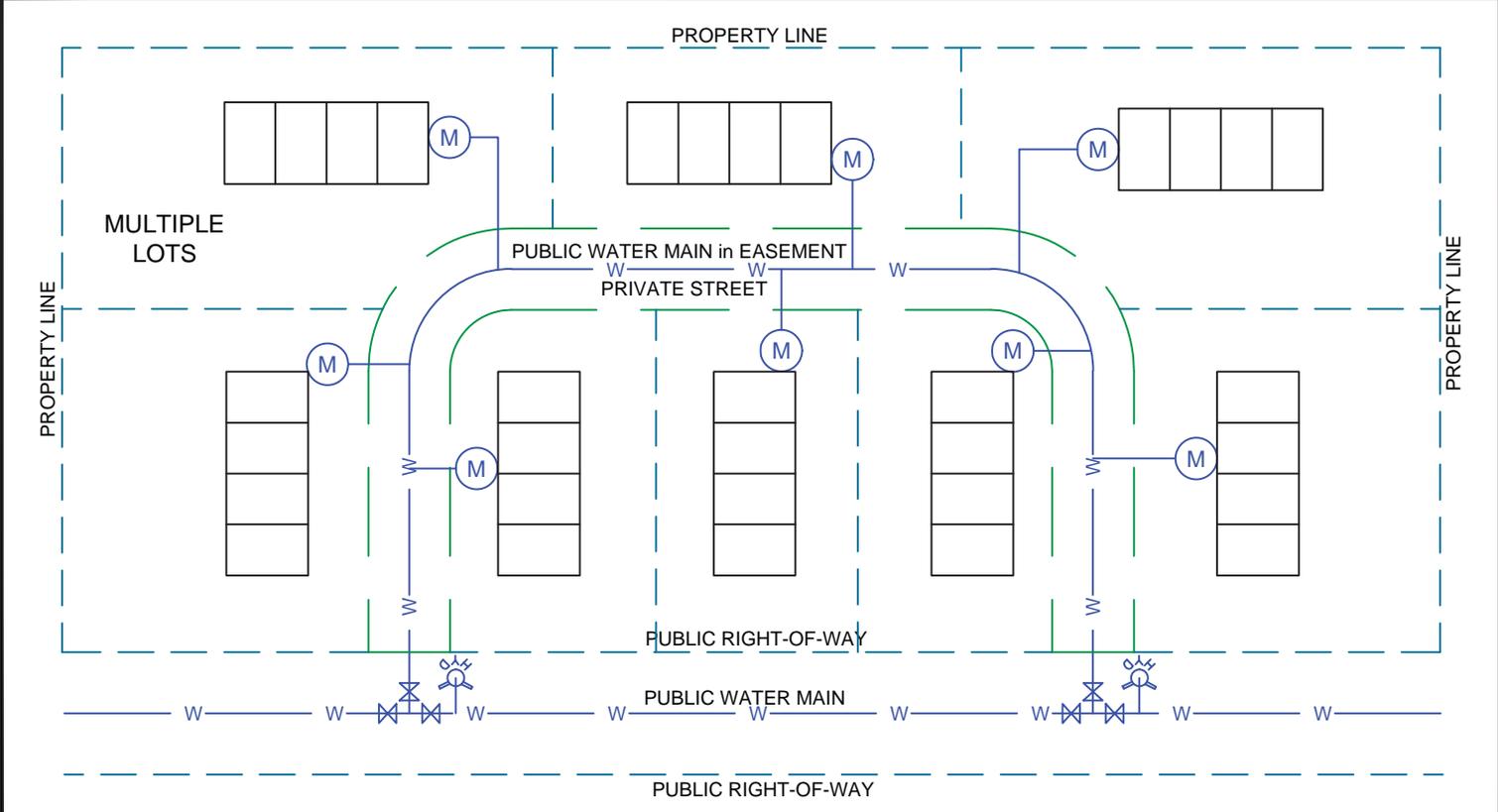
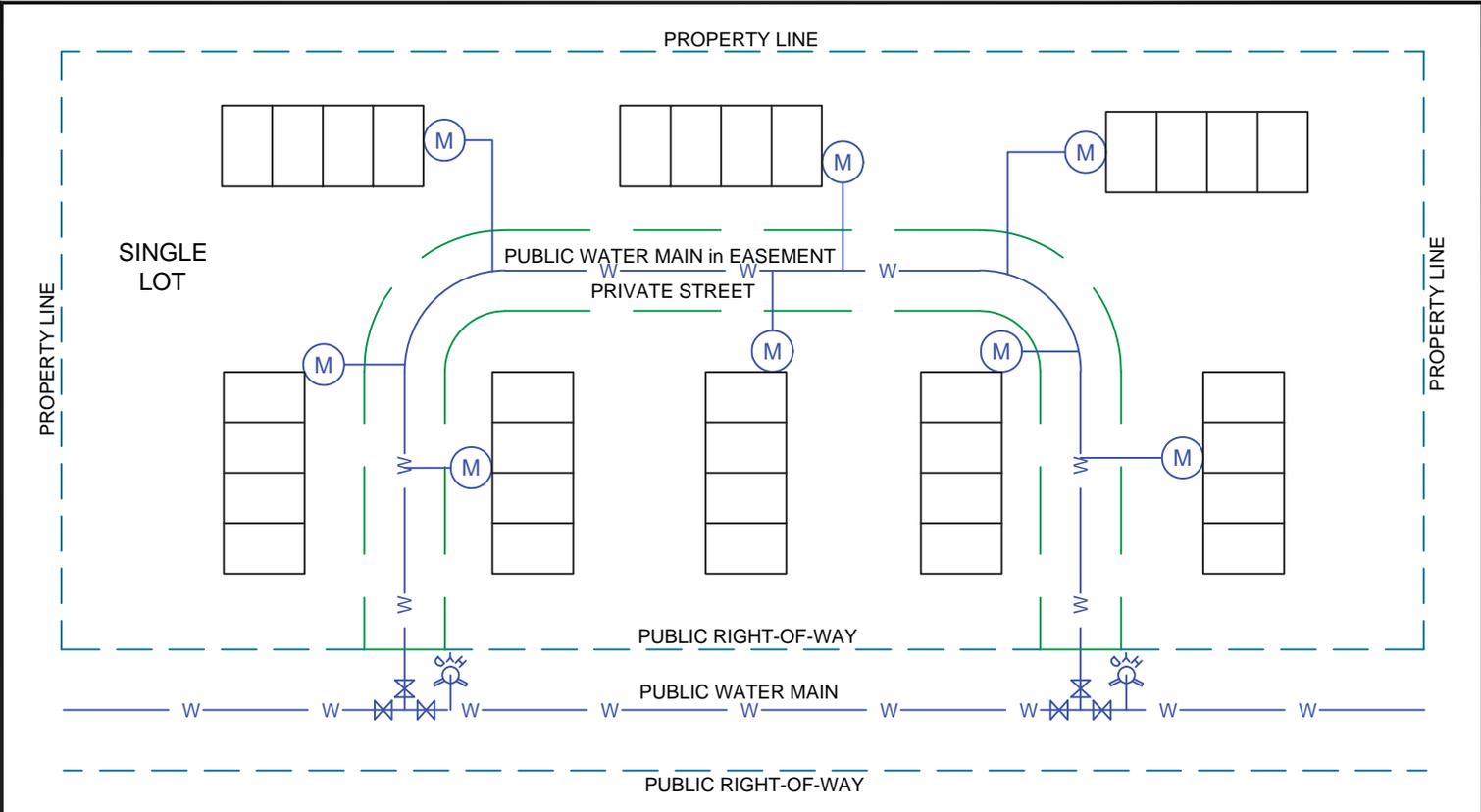
1. SINGLE FAMILY RESIDENTIAL SUBDIVISION ARE TO HAVE PUBLIC WATER MAINS EITHER IN A RIGHT OF WAY OR EASEMENT AS DESCRIBED IN SECTION 2.3.C.
2. PRIVATE WATER MAINS, CONSECUTIVE SYSTEMS, OR MASTER METERED SYSTEMS ARE NOT ALLOWED.
3. FOR EASEMENT WIDTHS SEE SECTION 2.6.F.



**SINGLE FAMILY RESIDENTIAL  
PUBLIC WATER SYSTEM  
IN AN EASEMENT ON PRIVATE PROPERTY**

A1-1

DATED 03/2014

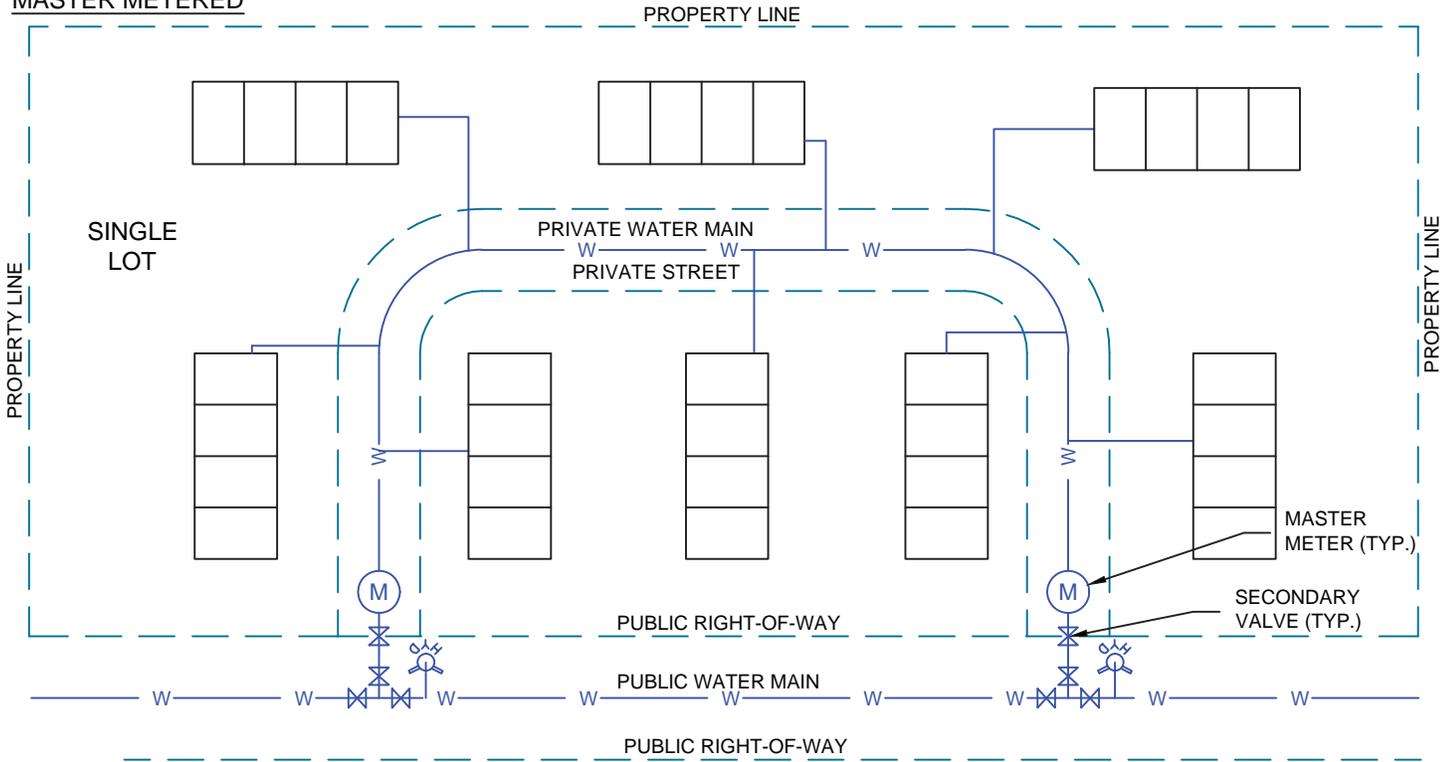


- NOTE:**
1. MULTI-FAMILY RESIDENTIAL ON A SINGLE PLATTED LOT ARE ALLOWED THE INSTALLATION OF PUBLIC WATER MAIN EITHER IN A RIGHT OF WAY OR EASEMENT AS DESCRIBED IN SECTION 2.3.C.
  2. FOR EASEMENT WIDTHS SEE SECTION 2.6.F.

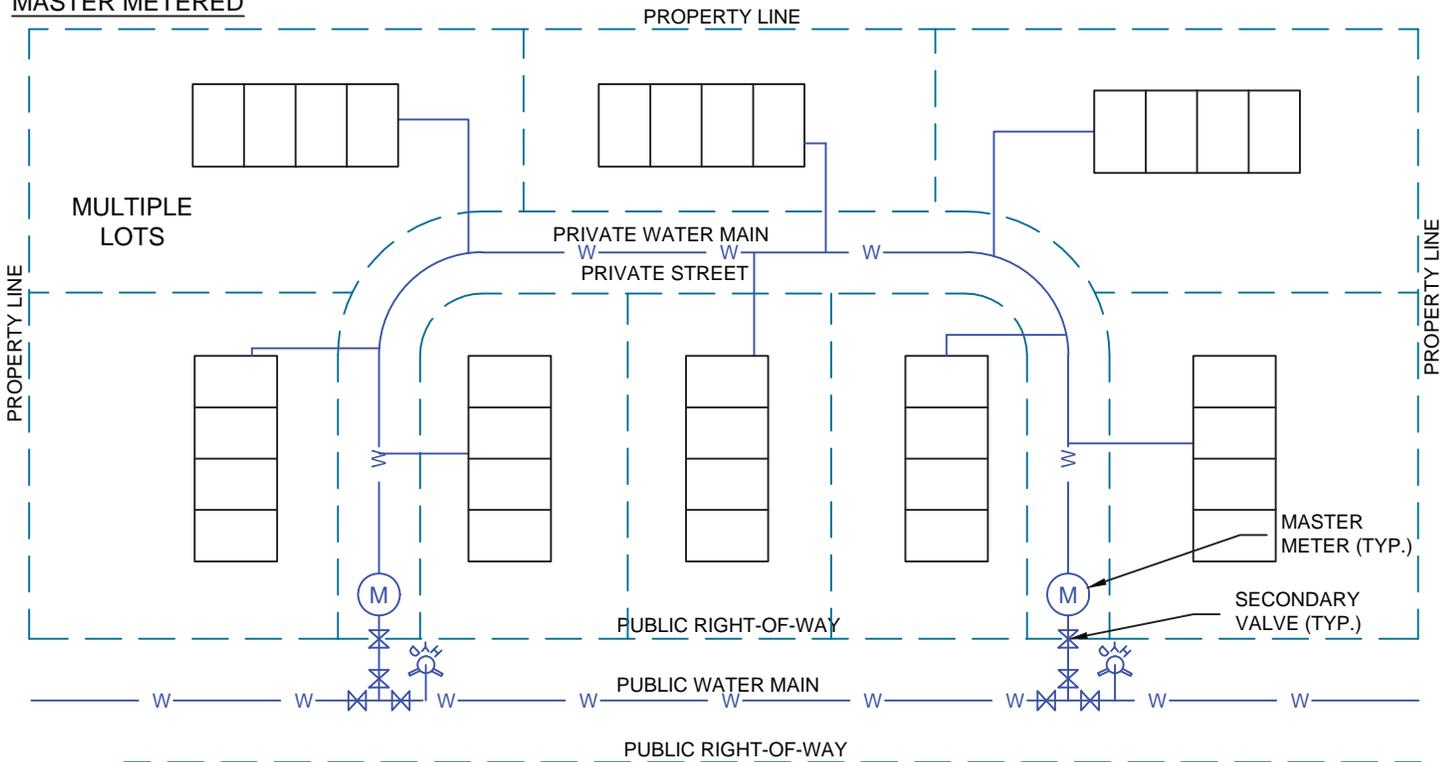


MULTI-FAMILY RESIDENTIAL  
PUBLIC WATER SYSTEM  
IN AN EASEMENT ON PRIVATE PROPERTY

**MASTER METERED**



**MASTER METERED**

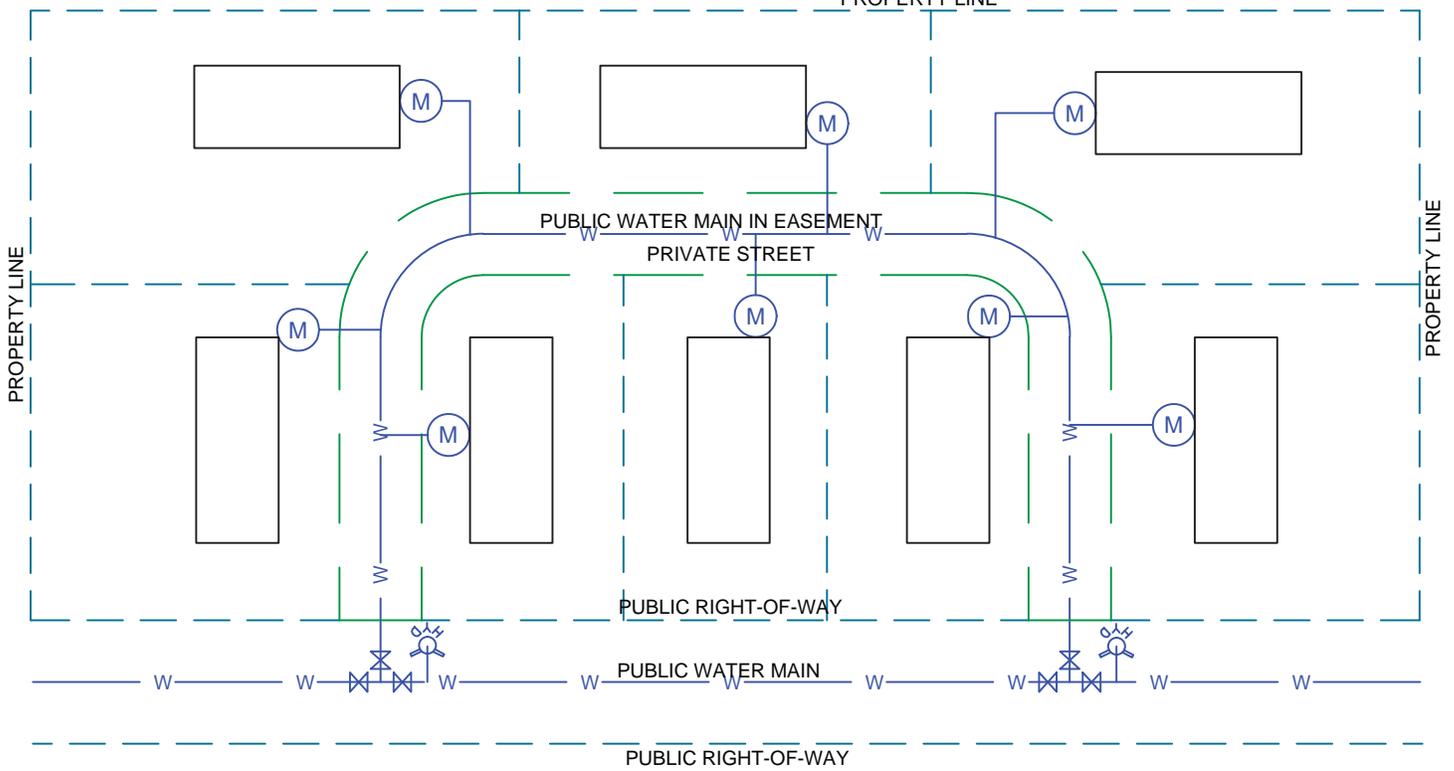


**NOTE:**

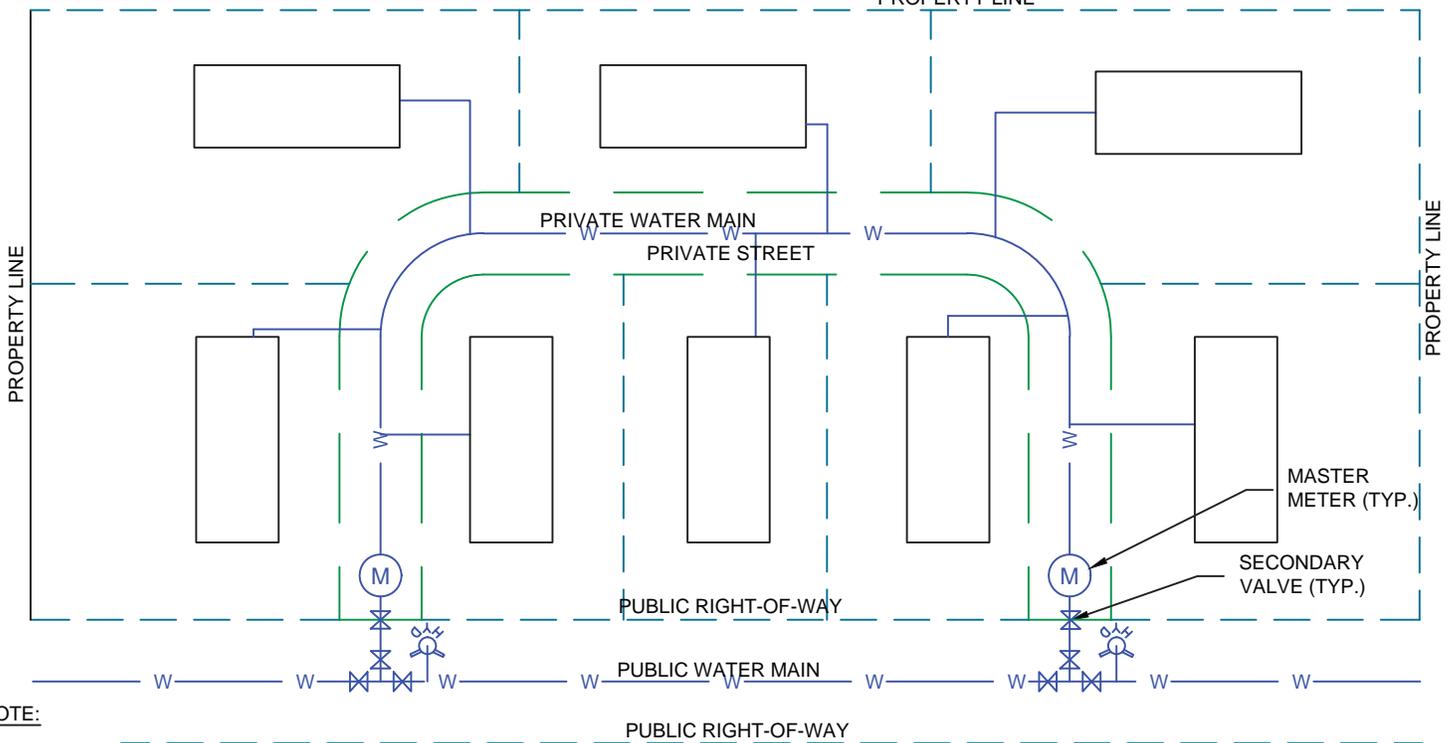
1. PRIVATE WATER MAINS ON PRIVATE PROPERTY ARE NOT ALLOWED UNLESS A MASTERED METERED SYSTEM IS INSTALLED.
2. BACKFLOW PREVENTION ASSEMBLY IS REQUIRED TO BE LOCATED AFTER THE MASTERED METER AND BEFORE FIRST BRANCH SERVICE LINE. SEE DETAIL DRAWING **B1-16**.
3. A NOTICE OF PRIVATE WATER SYSTEM IS REQUIRED PER SECTION **2.3.D**.



**PUBLIC WATER MAIN IN A RIGHT - OF - WAY / EASEMENT**



**PRIVATE WATER SYSTEM BEHIND A MASTER METER**

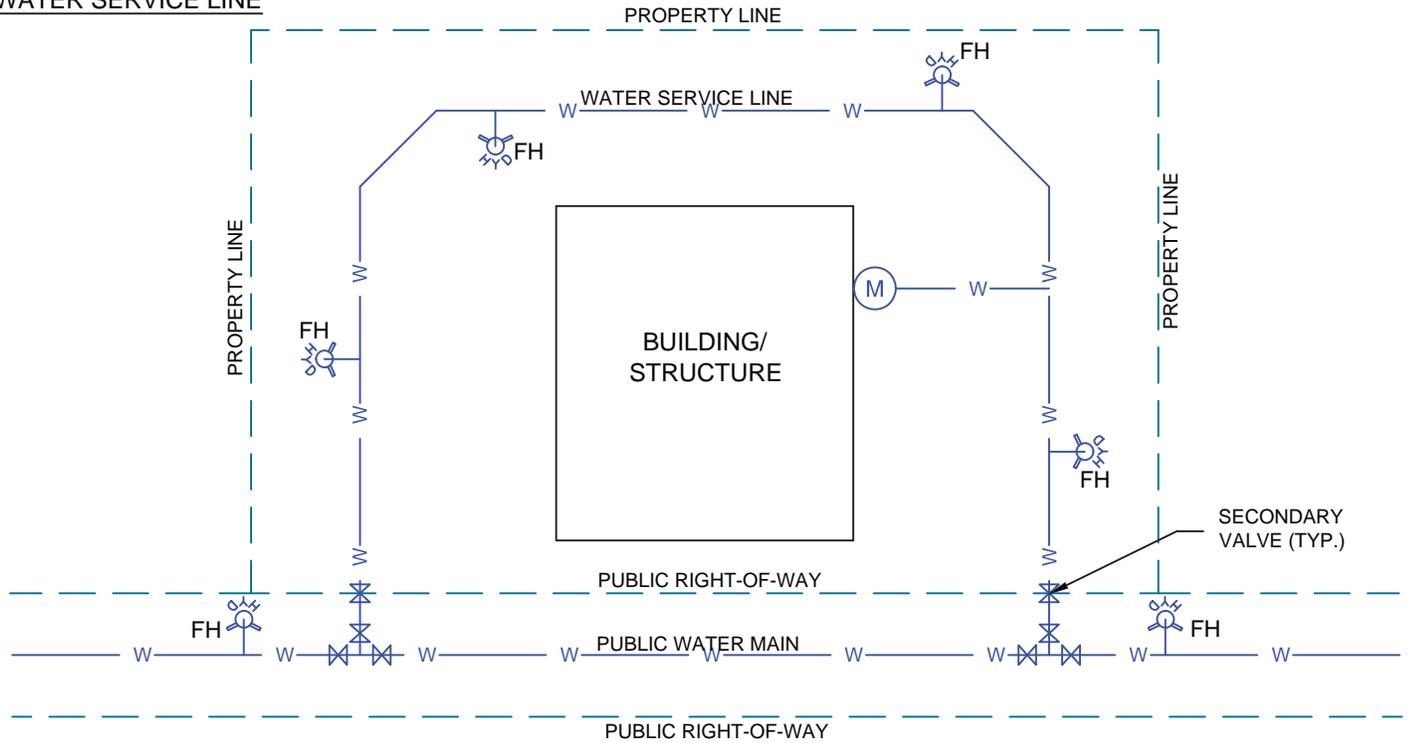


**NOTE:**

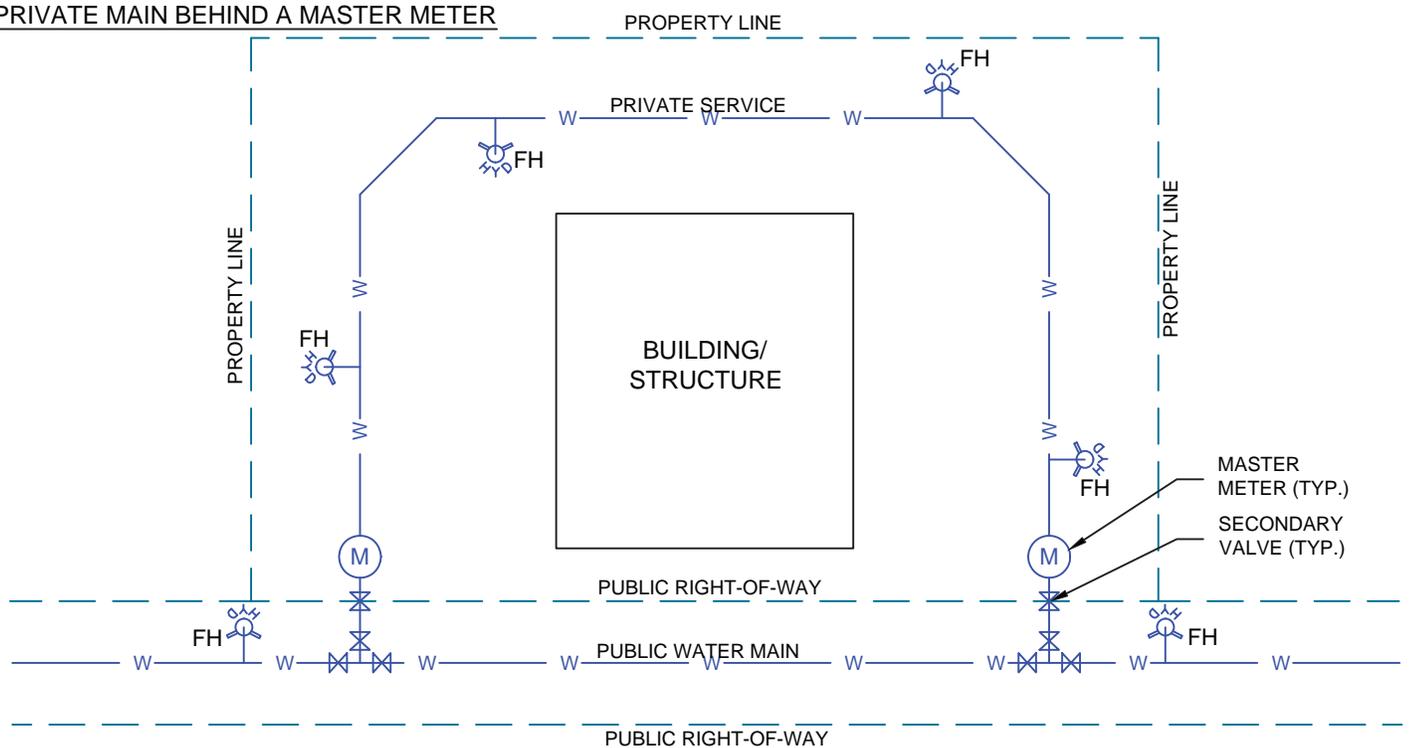
1. NON-RESIDENTIAL MULTIPLE LOTS MAY HAVE A PUBLIC WATER MAIN EITHER IN A RIGHT OF WAY OR EASEMENT AS DESCRIBED IN SECTION 2.3.C.
2. PRIVATE WATER MAINS BEHIND A MASTER METER ARE ALLOWED BUT NOT RECOMMENDED DUE TO FIRE FLOW AND BACKFLOW PREVENTION WATER METER REQUIREMENTS AND OWNERSHIP RESPONSIBILITIES.
3. BACKFLOW PREVENTION ASSEMBLY IS REQUIRED TO BE LOCATED AFTER MASTER METERED SYSTEM AND BEFORE FIRST BRANCH SERVICE LINE. SEE DETAIL DRAWING B1-16.
4. FOR EASEMENT WIDTHS SEE SECTION 2.6.F.



**WATER SERVICE LINE**



**PRIVATE MAIN BEHIND A MASTER METER**



**NOTE:**

1. PRIVATE WATER MAINS BEHIND A MASTER METER ARE ALLOWED BUT NOT RECOMMENDED DUE TO FIRE FLOW AND BACKFLOW PREVENTION WATER METER REQUIREMENTS AND OWNERSHIP RESPONSIBILITIES.
2. BACKFLOW PREVENTION ASSEMBLY IS REQUIRED TO BE LOCATED AFTER MASTER METERED SYSTEM AND BEFORE FIRST BRANCH SERVICE LINE. SEE DETAIL DRAWING B1-16.
3. FOR EASEMENT WIDTHS SEE SECTION 2.6.F.

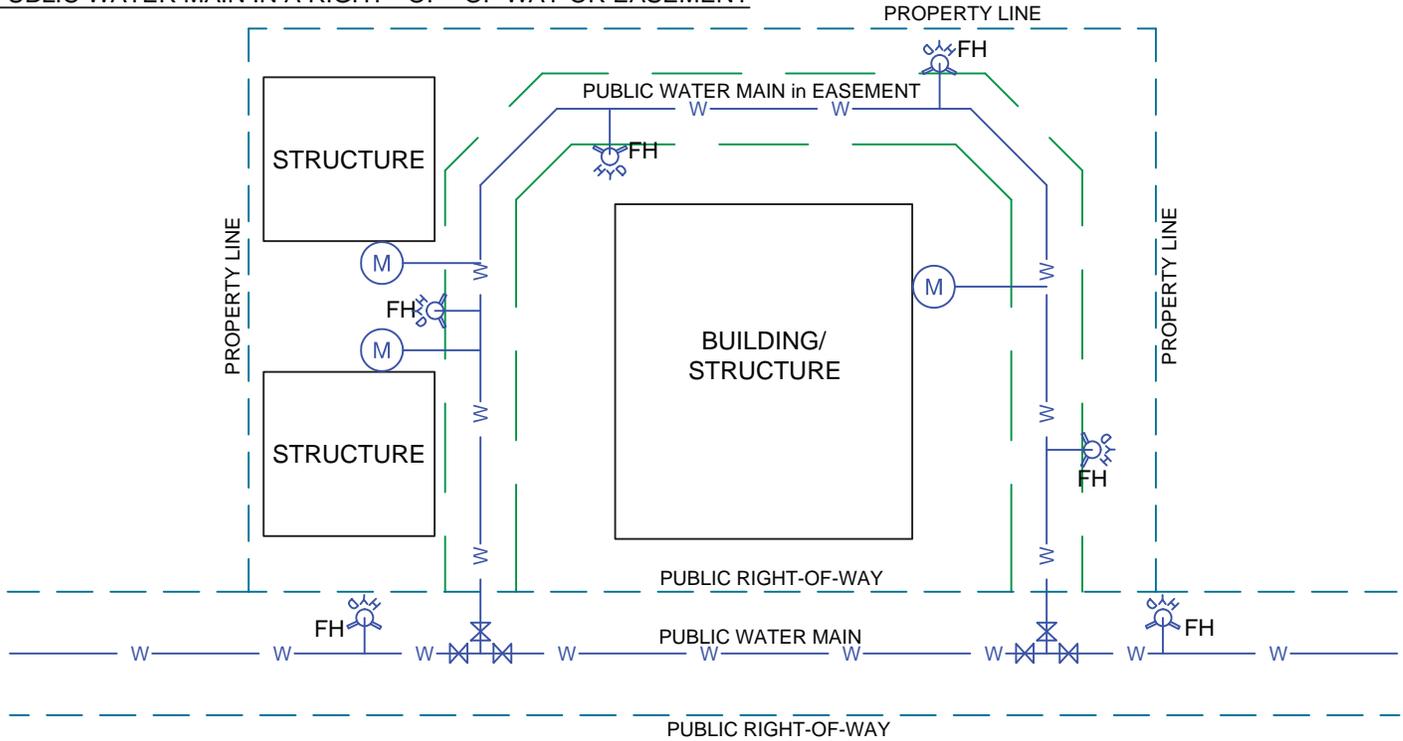


**NON-RESIDENTIAL AND APARTMENTS  
ONE PLATTED LOT AND ONE BUILDING  
RECEIVING SERVICE**

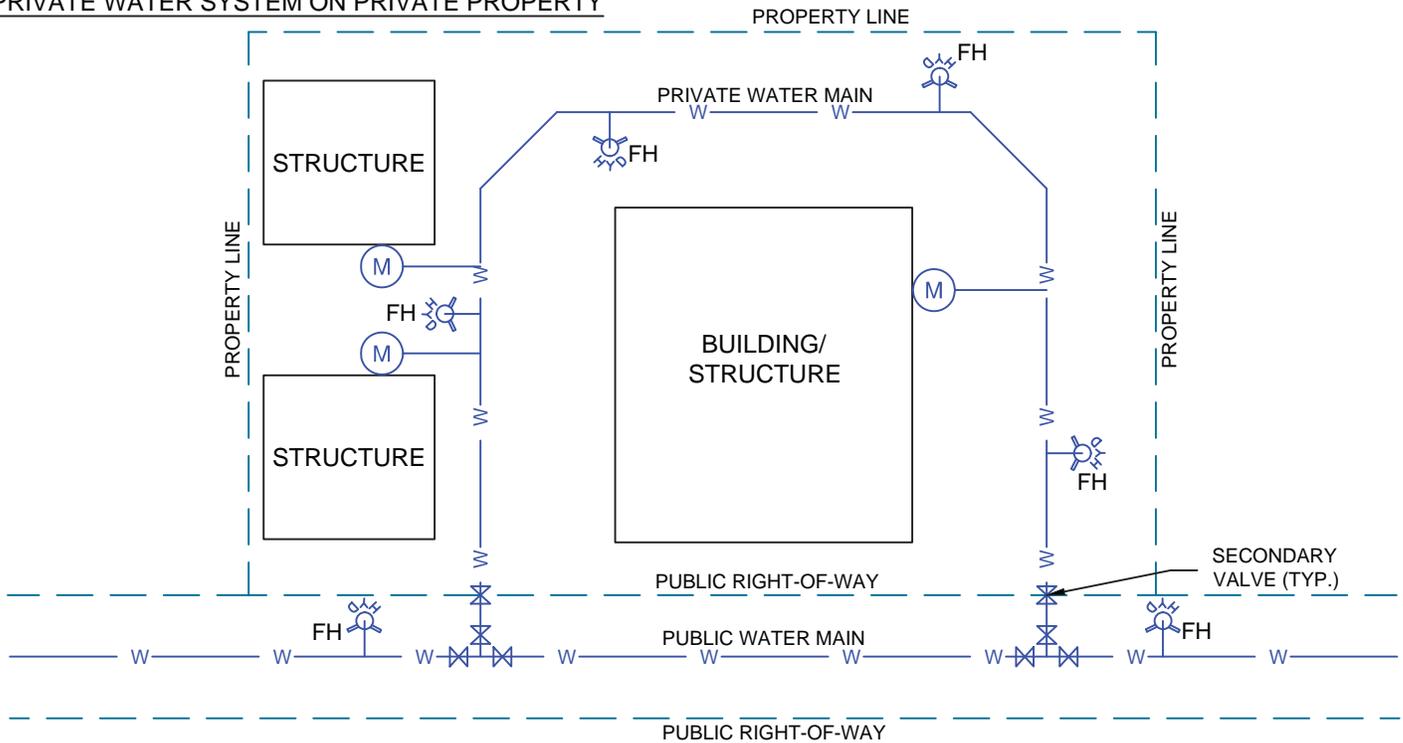
**A1-5**

DATED 03/2014

**PUBLIC WATER MAIN IN A RIGHT - OF - OF WAY OR EASEMENT**



**PRIVATE WATER SYSTEM ON PRIVATE PROPERTY**



**NOTE:**

1. NON-RESIDENTIAL AND APARTMENTS ONE PLATTED LOT WITH MULTIPLE BUILDINGS/STRUCTURES HAS THE OPTION OF A PUBLIC WATER MAIN EITHER IN A RIGHT OF WAY OR EASEMENT AS DESCRIBED IN SECTION 2.3.C.
2. FOR EASEMENT WIDTHS SEE SECTION 2.6.F.

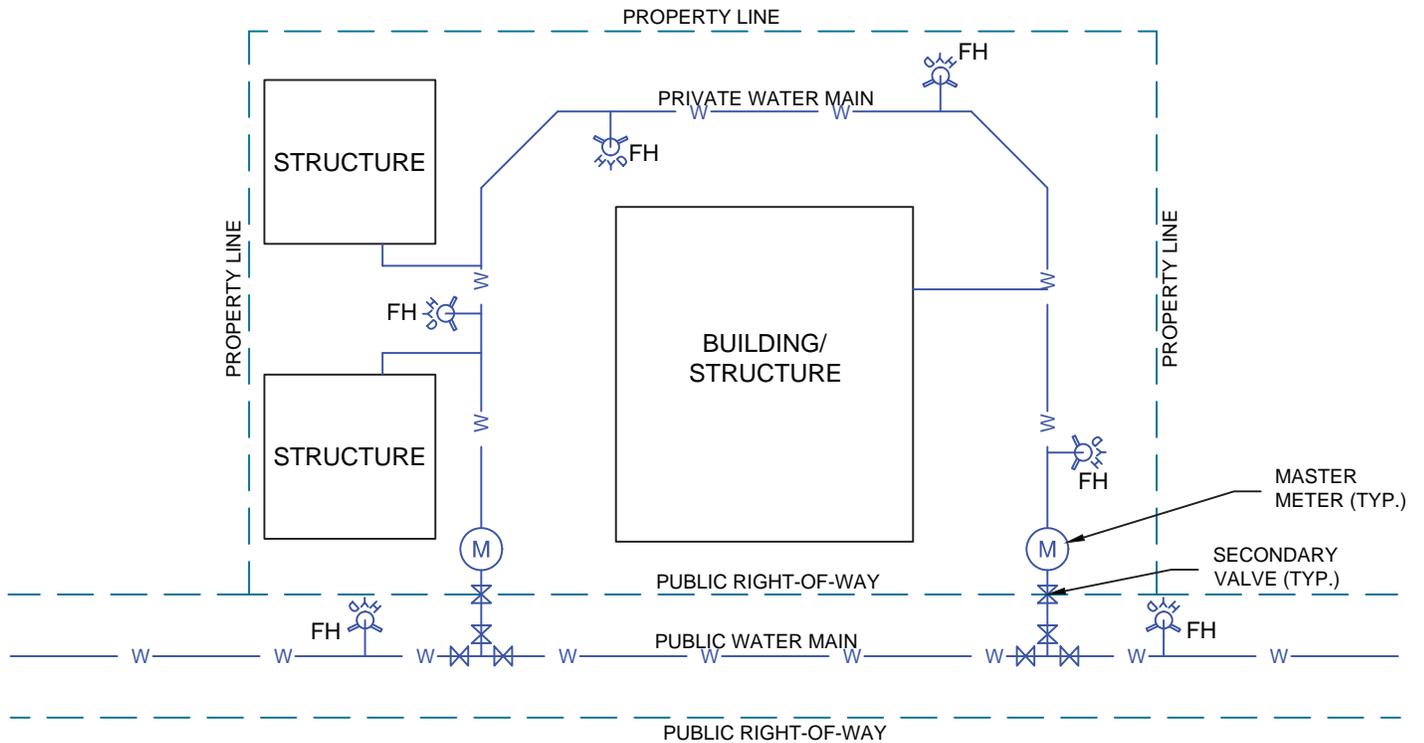


**NON-RESIDENTIAL AND APARTMENTS  
ONE PLATTED LOT WITH MULTIPLE BUILDINGS  
RECEIVING INDIVIDUAL WATER SERVICE**

A1-6

DATED 03/2014

**PRIVATE WATER SYSTEM BEHIND A MASTER METER**



**NOTE:**

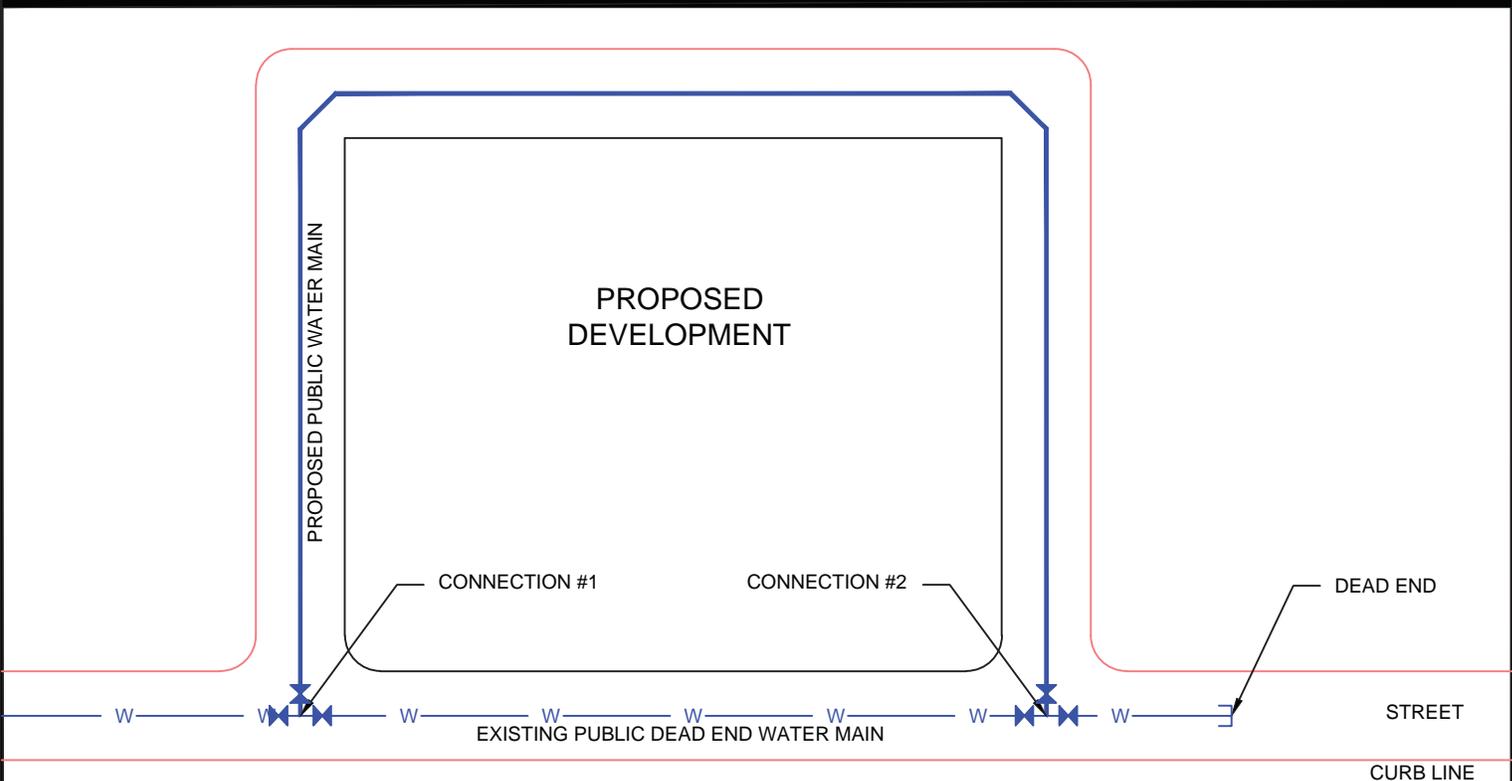
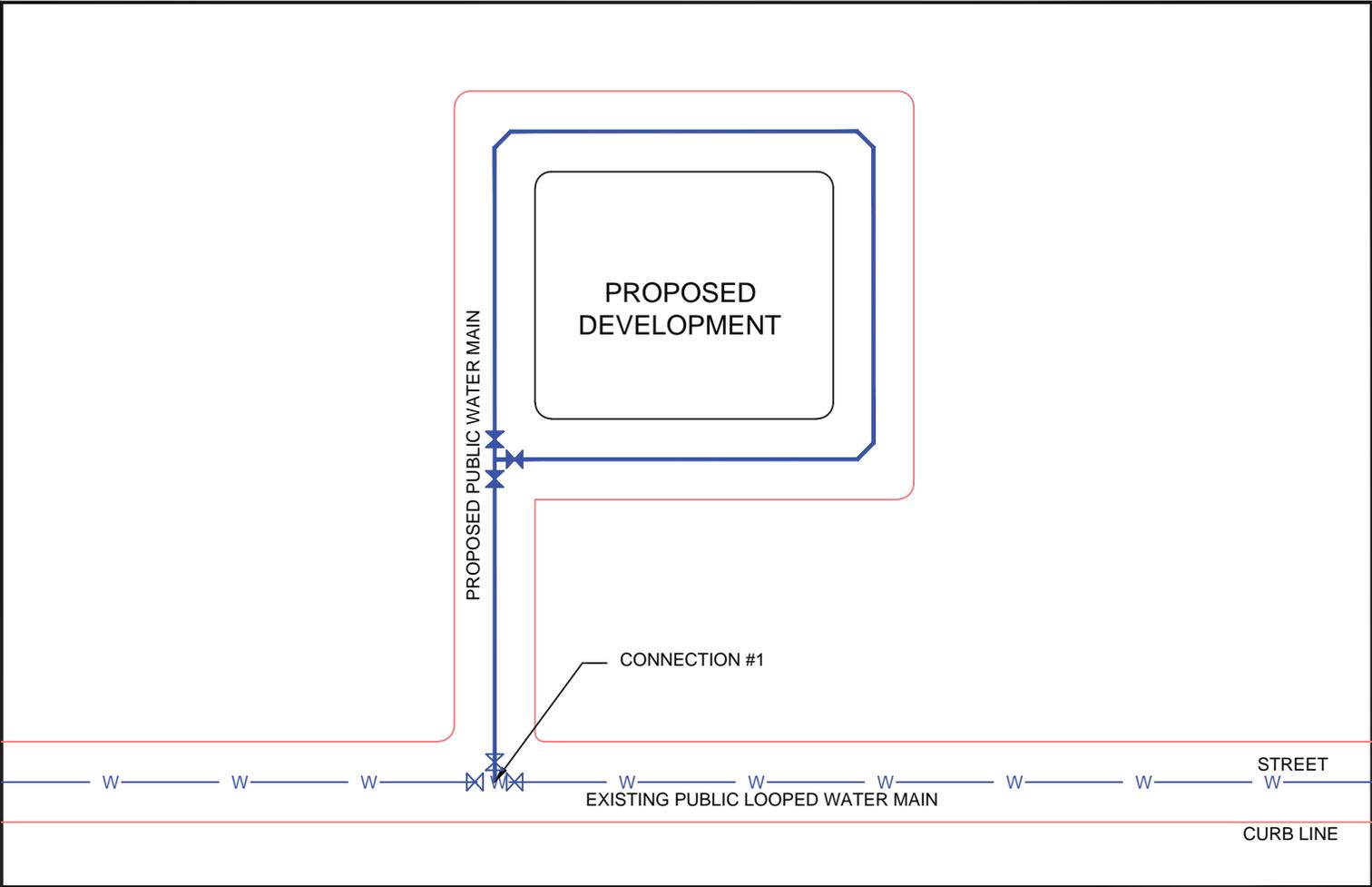
1. A NOTICE OF PRIVATE WATER SYSTEM IS REQUIRED PER SECTION 2.3.D.
2. PRIVATE WATER MAINS BEHIND A MASTER METER ARE ALLOWED BUT NOT RECOMMENDED DUE TO FIRE FLOW AND BACKFLOW PREVENTION WATER METER REQUIREMENTS AND OWNERSHIP RESPONSIBILITIES.
3. BACKFLOW PREVENTION ASSEMBLY IS REQUIRED TO BE LOCATED AFTER MASTER METERED SYSTEM AND BEFORE FIRST BRANCH SERVICE LINE. SEE DETAIL DRAWING B1-16.
4. FOR EASEMENT WIDTHS SEE SECTION 2.6.F.



**NON-RESIDENTIAL AND APARTMENTS  
ONE PLATTED LOT WITH MULTIPLE BUILDINGS  
RECEIVING INDIVIDUAL WATER SERVICE**

A1-7

DATED 03/2014



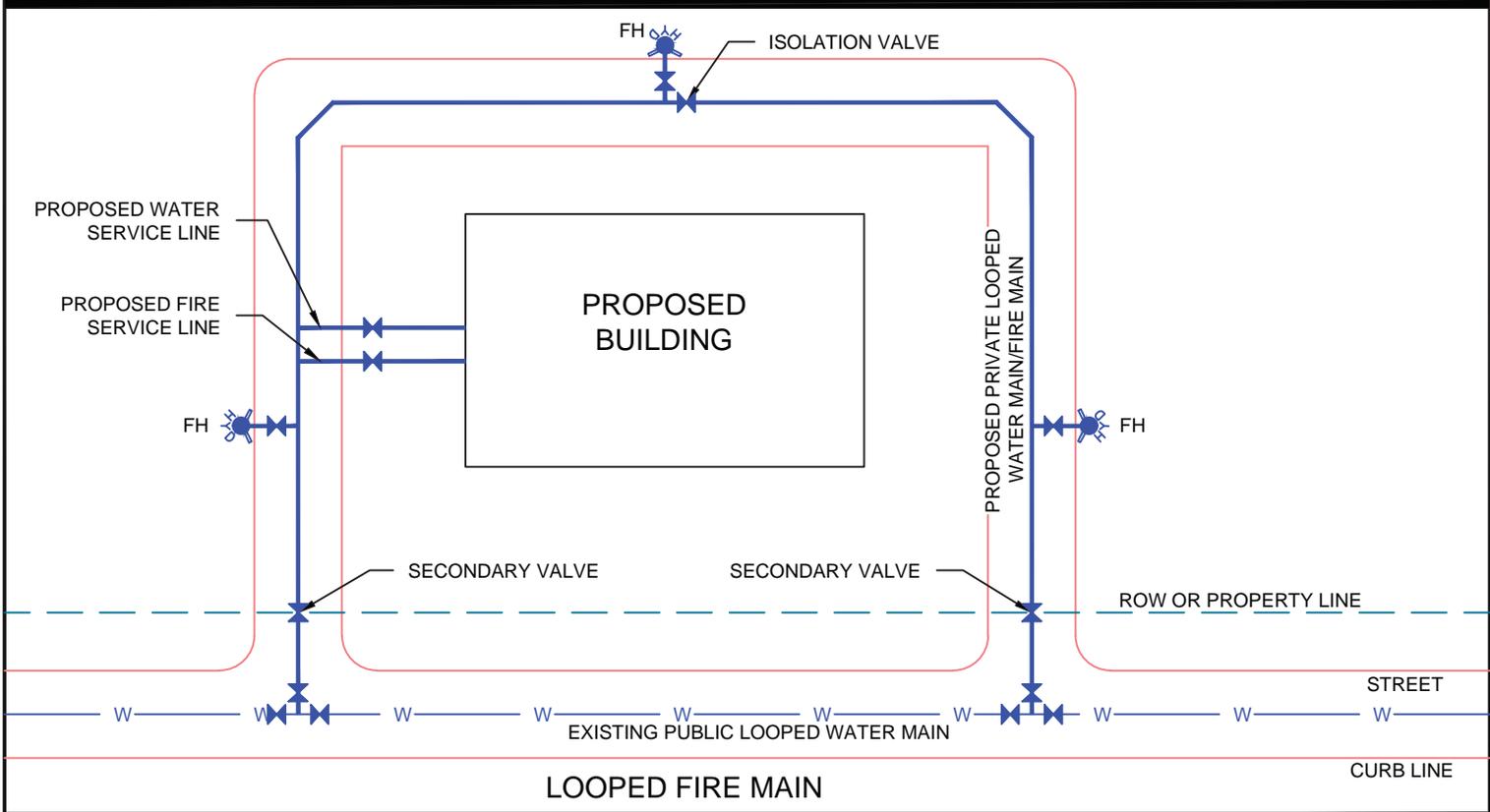
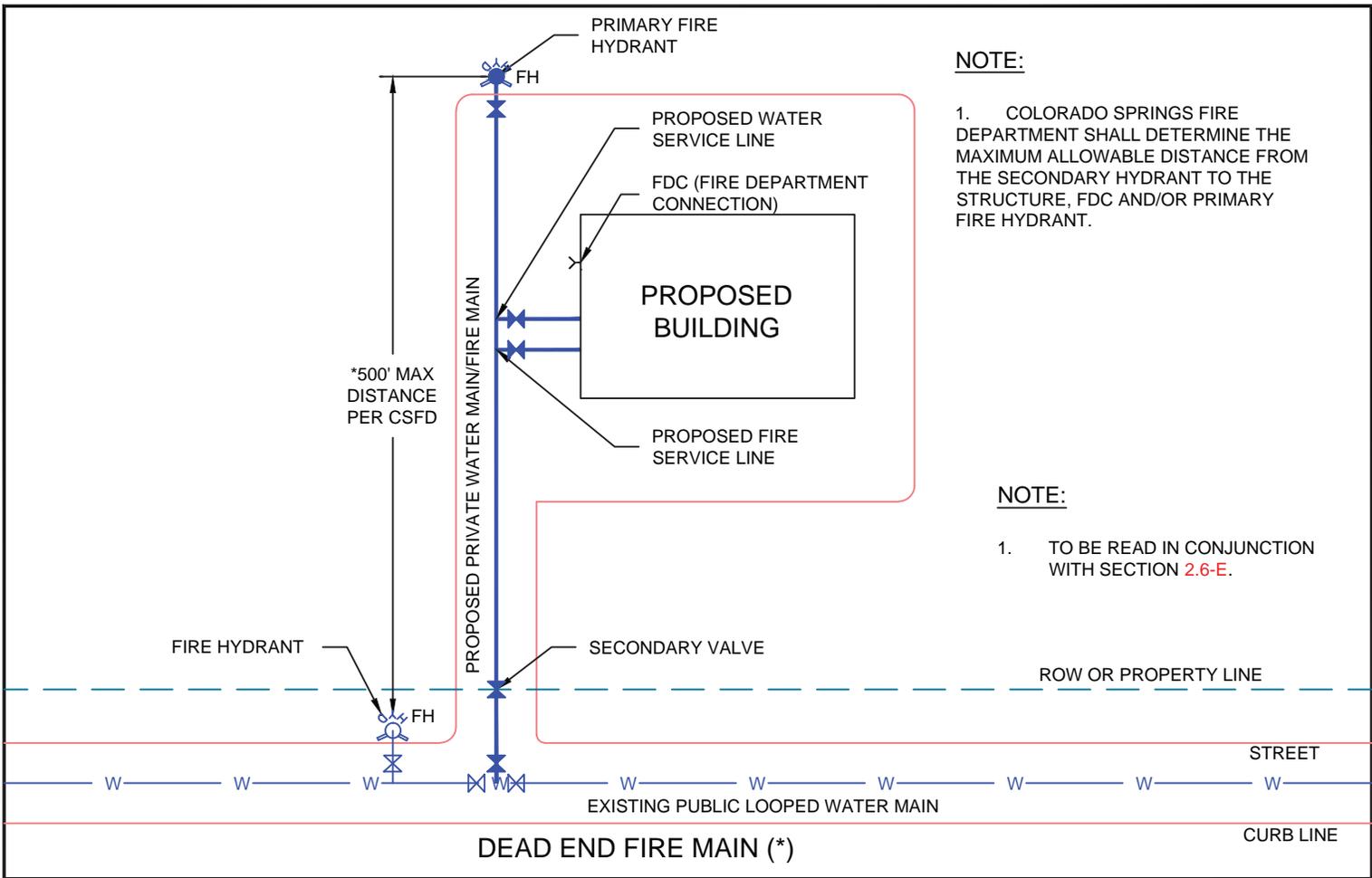
NOTE: THE PROPOSED DEVELOPMENT HAS TWO INDEPENDENT FEEDS BUT THEY ARE FED OFF OF A DEAD END MAIN.

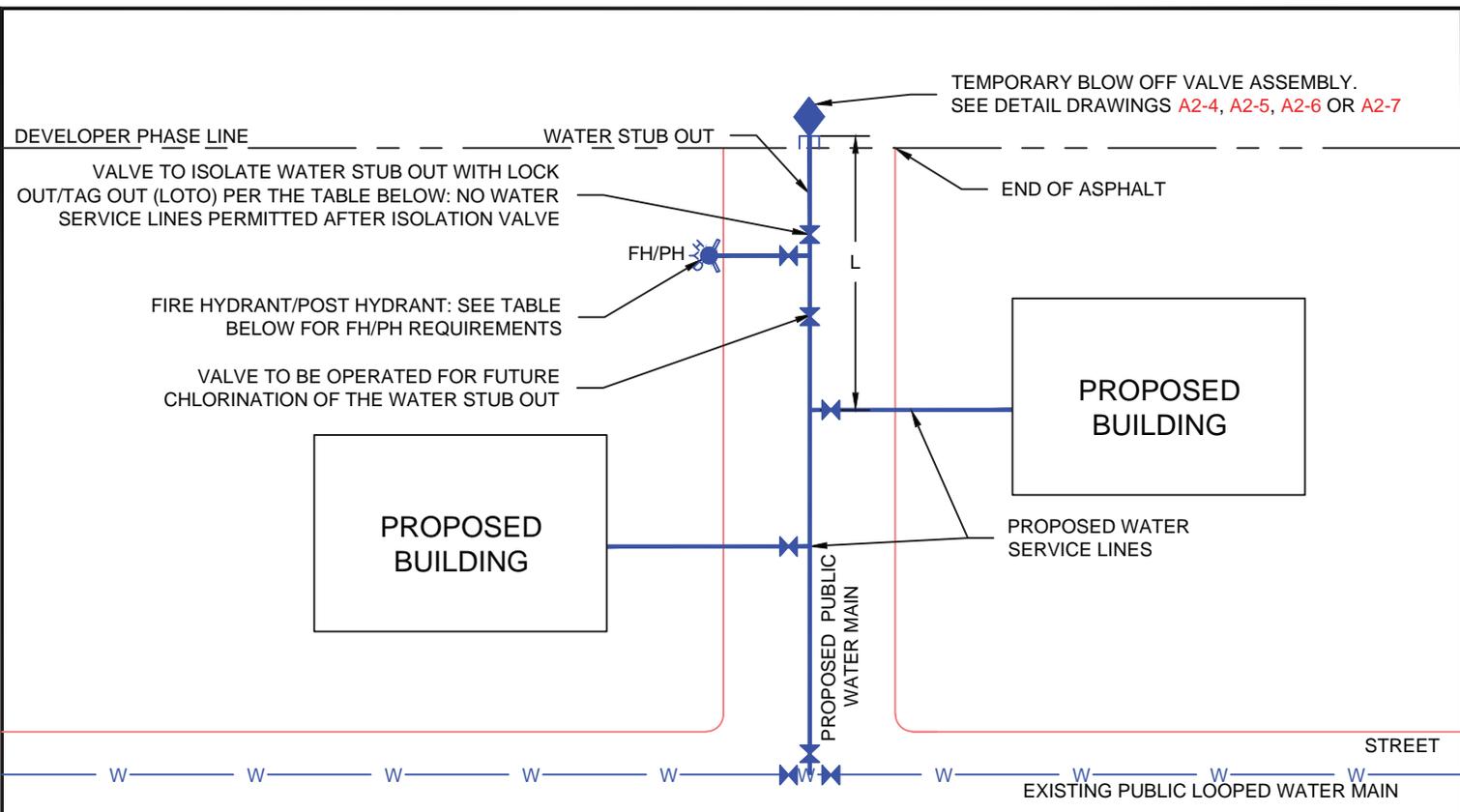


EXAMPLES OF  
DEAD END MAINS

A2-1

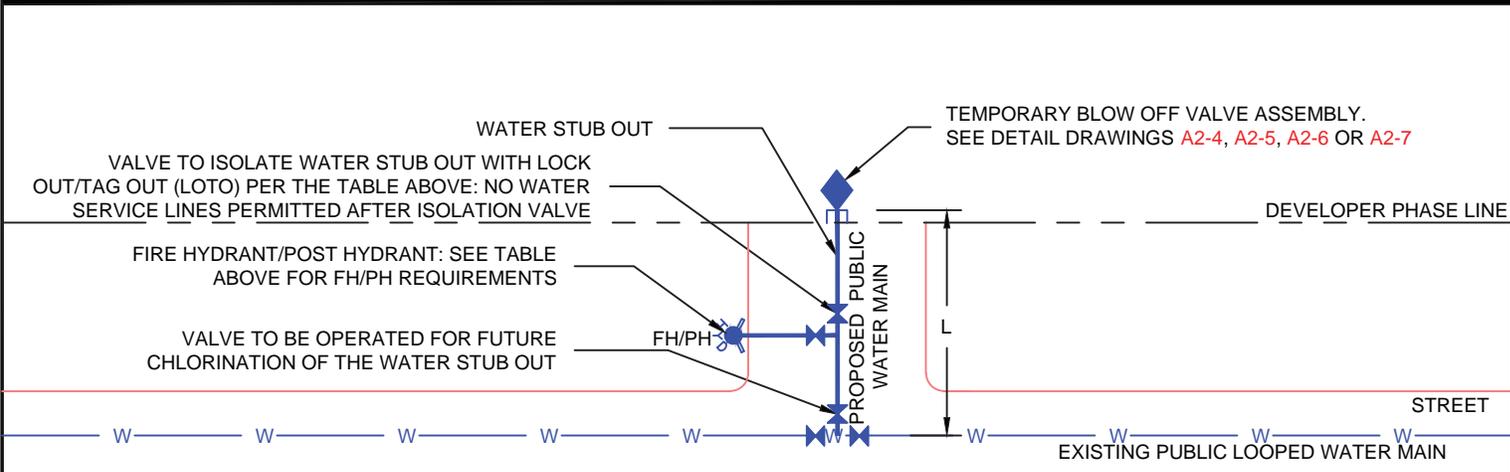
DATED 03/2014





**EXAMPLE 1 = WATER STUB OUTS; WITH WATER SERVICES**

BLOW-OFF AND FIRE HYDRANT REQUIREMENTS			
LENGTH (L) OF TEMPORARY DEAD END MAIN (FEET)	TEMPORARY BLOW-OFF REQUIRED AT END OF MAIN	FIRE HYDRANT/POST HYDRANT REQUIRED NEAR END OF MAIN	LOCK OUT/TAG OUT REQUIRED
L ≤ 400' FOR 8" ≤ 200' FOR 12"	YES	NO	YES
L > 400' FOR 8" > 200' FOR 12"	YES	YES	YES
ANY LENGTH FOR 16" AND GREATER	YES	YES	YES



**EXAMPLE 2 = WATER STUB OUTS; W/NO WATER SERVICES**

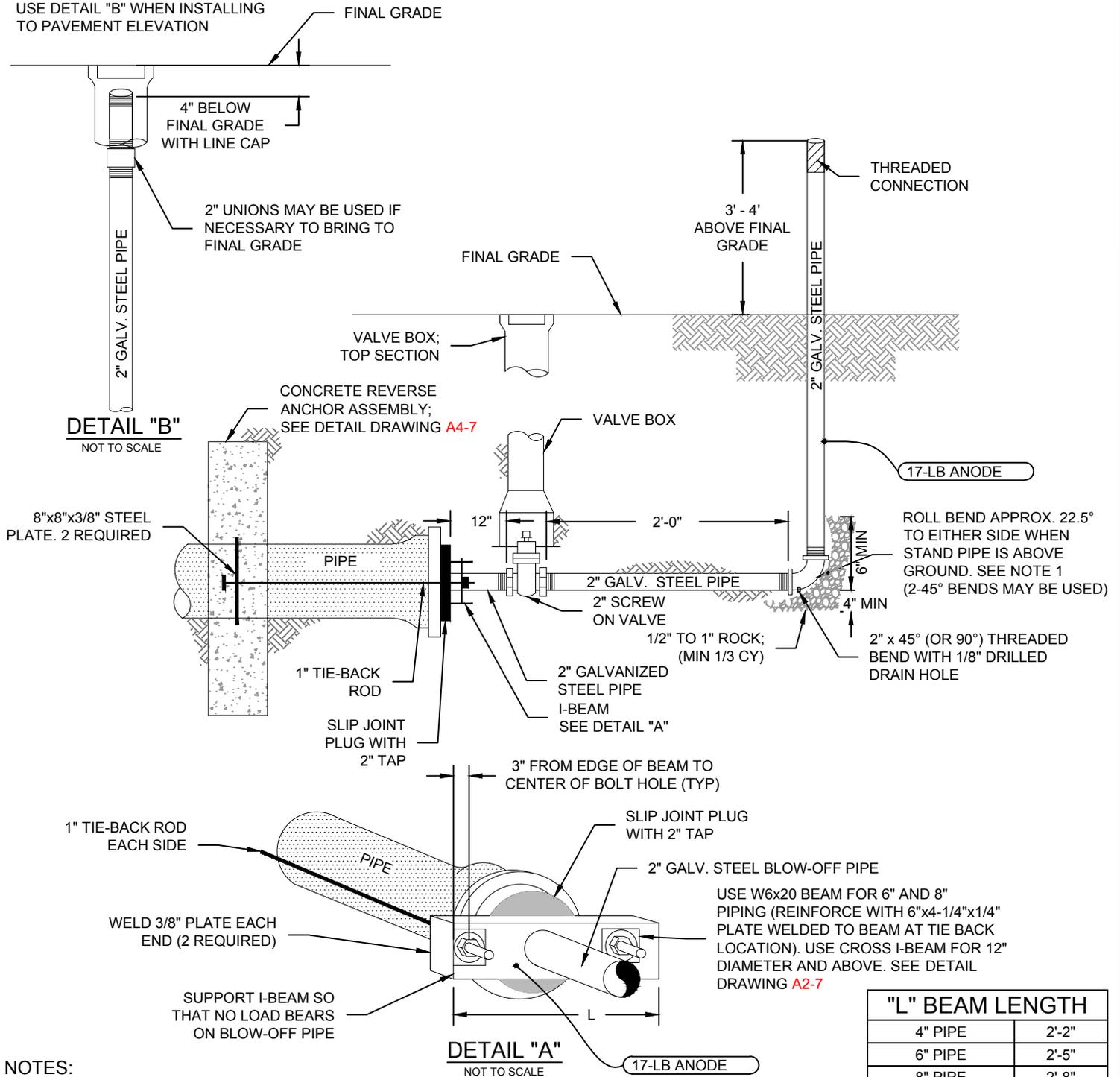


**WATER STUB OUTS**

**A2-3**

DATED 03/2014

NOTE:  
USE DETAIL "B" WHEN INSTALLING  
TO PAVEMENT ELEVATION



NOTES:

1. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND ADDITIONAL BENDS MAY BE REQUIRED BY THE COLORADO SPRINGS UTILITIES INSPECTOR.
2. COAT TIE RODS, BEAM AND GALVANIZED STEEL PIPE. SEE DETAIL DRAWING A8-11.
3. ENTIRE BLOW-OFF ASSEMBLY MUST BE ADEQUATELY SUPPORTED, CONCRETE PAVER STONES MAY BE REQUIRED.
4. PIPE DOPE APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED FITTINGS.
5. TEMPORARY BLOW-OFF VALVE ASSEMBLIES SHALL BE INSPECTED BY THE COLORADO SPRINGS UTILITIES INSPECTOR PRIOR TO BACKFILL. BACKFILL COMPACTION TO BE SAME AS PIPE COMPACTION SPECIFICATIONS.
6. 2" GALVANIZED PIPE MUST BE RATED TO 250 PSI AND CONFORM TO NSF-61 SPECIFICATIONS.
7. THERE SHALL BE NO SERVICE LINES CONNECTED BETWEEN THE LAST ISOLATION VALVE AND THE TEMPORARY BLOW-OFF ASSEMBLY.
8. TIE BACK RODS SHALL BE A MINIMUM ASTM A307 GRADE A STEEL WITH MINIMUM ASTM A-36 NUTS. STEEL BEAMS SHALL BE ASTM A992 GD 50.
9. ALL HOLES IN STEEL SHALL BE OVERSIZED HOLES.

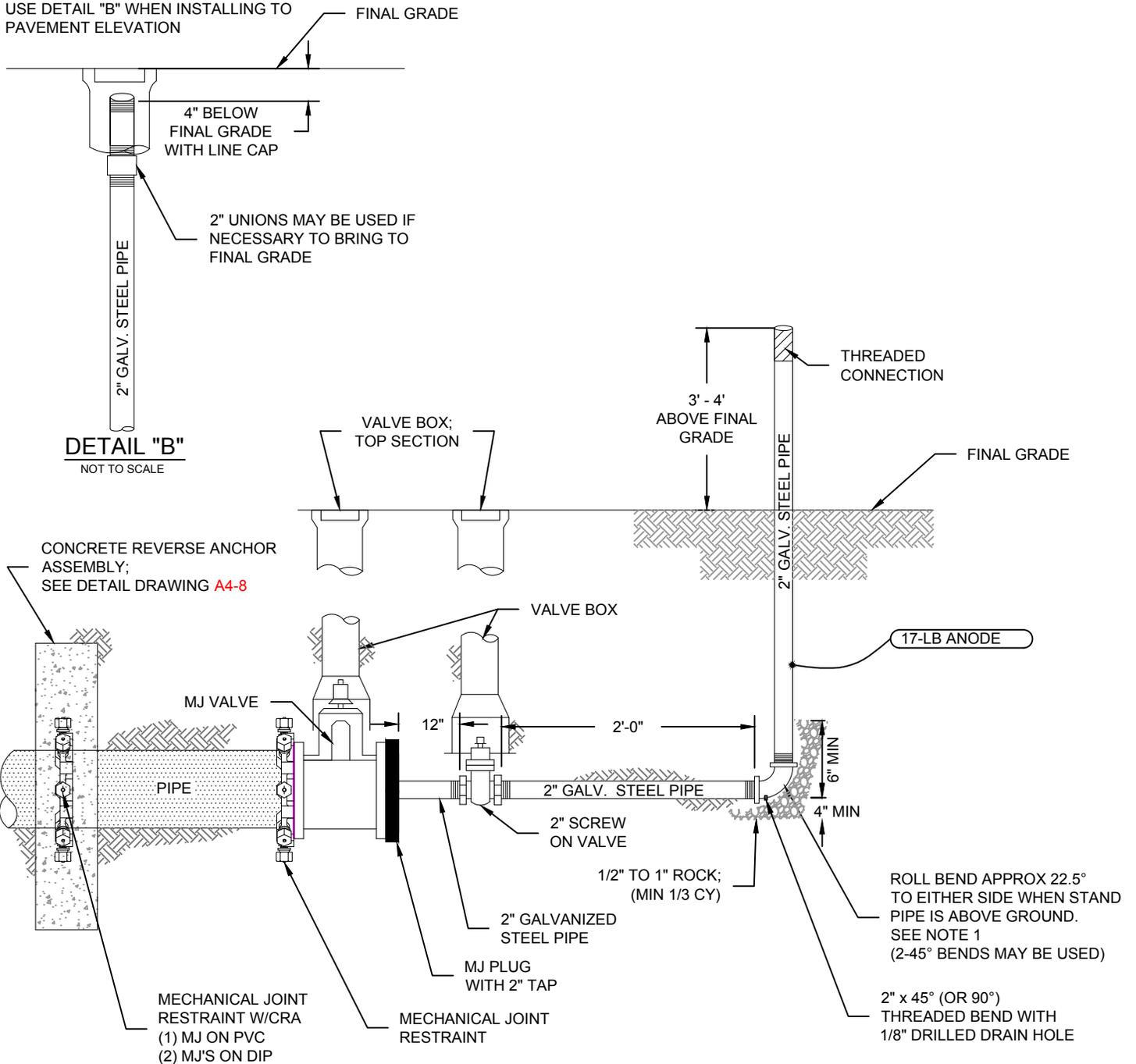


TEMPORARY  
BLOW-OFF ASSEMBLIES-  
4", 6" & 8" MAINS WITH  
SLIP JOINT PLUG

A2-4

DATED 03/2014

NOTE:  
USE DETAIL "B" WHEN INSTALLING TO  
PAVEMENT ELEVATION



**NOTES:**

1. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND ADDITIONAL BENDS MAY BE REQUIRED BY THE COLORADO SPRINGS UTILITIES INSPECTOR.
2. COAT TIE RODS, BEAM AND GALVANIZED STEEL PIPE. SEE DETAIL DRAWING A8-11.
3. ENTIRE BLOW-OFF ASSEMBLY MUST BE ADEQUATELY SUPPORTED, CONCRETE PAVER STONES MAY BE REQUIRED.
4. PIPE DOPE APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED FITTINGS.
5. TEMPORARY BLOW-OFF VALVE ASSEMBLIES SHALL BE INSPECTED BY THE COLORADO SPRINGS UTILITIES INSPECTOR PRIOR TO BACKFILL. BACKFILL COMPACTION TO BE SAME AS AS PIPE COMPACTION SPECIFICATIONS.
6. 2" GALVANIZED PIPE MUST BE RATED TO 250 PSI AND CONFORM TO NSF-61 SPECIFICATIONS.
7. THE COLORADO SPRINGS UTILITIES INSPECTOR MAY REQUIRE TIE-BACK RODS IN ADDITION TO THE MJ RESTRAINTS DEPENDING ON FIELD CONDITIONS AND SYSTEM PRESSURES. SEE TIE-BACK ROD DETAIL DRAWING A2-4.

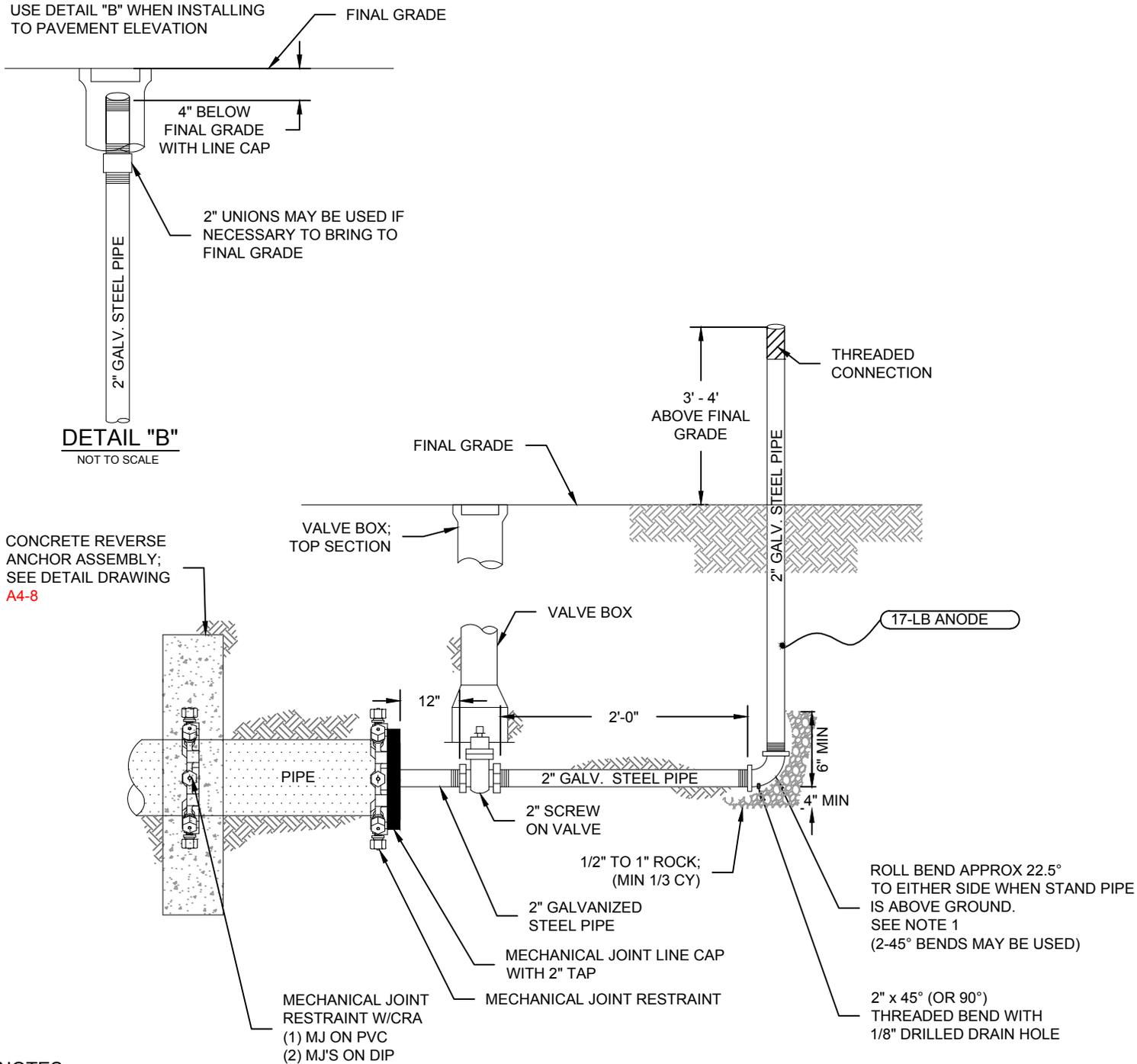


TEMPORARY  
BLOW-OFF ASSEMBLIES-  
4", 6" & 8" MAINS WITH  
MECHANICAL JOINT PLUG

A2-5

DATED 03/2014

NOTE:  
USE DETAIL "B" WHEN INSTALLING  
TO PAVEMENT ELEVATION



**NOTES:**

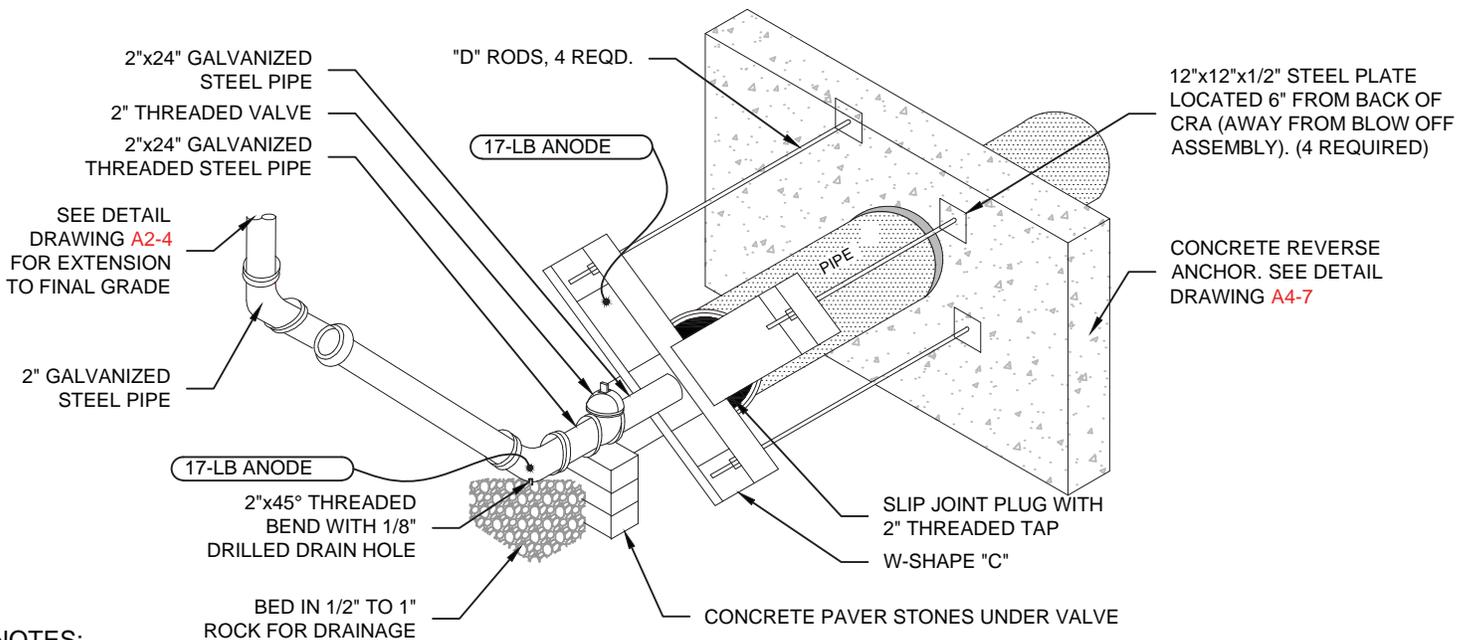
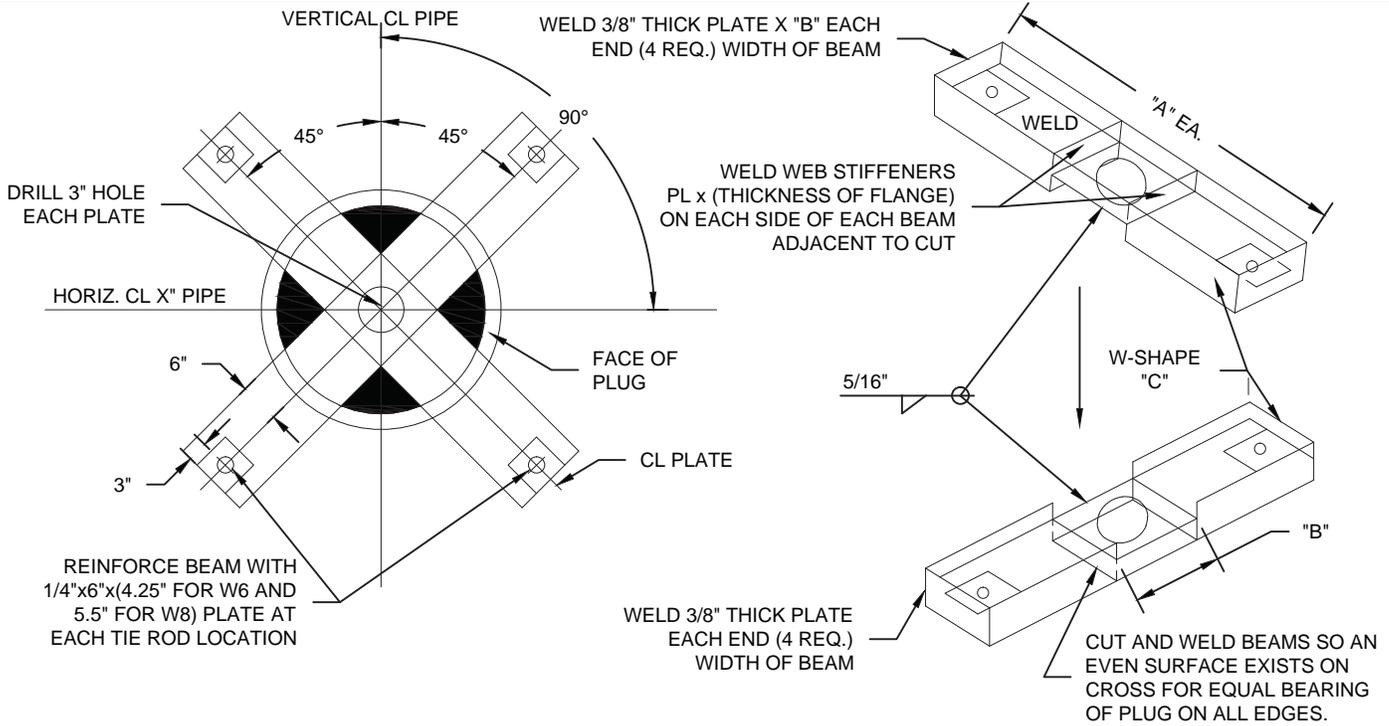
1. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND ADDITIONAL BENDS MAY BE REQUIRED BY THE COLORADO SPRINGS UTILITIES INSPECTOR.
2. COAT TIE RODS, BEAM AND GALVANIZED STEEL PIPE. SEE DETAIL DRAWING **A8-11**.
3. ENTIRE BLOW-OFF ASSEMBLY MUST BE ADEQUATELY SUPPORTED, CONCRETE PAVER STONES MAY BE REQUIRED.
4. PIPE DOPE APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED FITTINGS.
5. TEMPORARY BLOW-OFF VALVE ASSEMBLIES SHALL BE INSPECTED BY THE COLORADO SPRINGS UTILITIES INSPECTOR PRIOR TO BACKFILL. BACKFILL COMPACTION TO BE SAME AS AS PIPE COMPACTION SPECIFICATIONS.
6. 2" GALVANIZED PIPE MUST BE RATED TO 250 PSI AND CONFORM TO NSF-61 SPECIFICATIONS.
7. THE COLORADO SPRINGS UTILITIES INSPECTOR MAY REQUIRE TIE-BACK RODS IN ADDITION TO THE MJ RESTRAINTS DEPENDING ON FIELD CONDITIONS AND SYSTEM PRESSURES. SEE TIE-BACK ROD DETAIL DRAWING **A2-4**. IF THE MJ RESTRAINT CONFLICTS WITH THE PLATES FOR THE TIE RODS IN THE REVERSE ANCHOR, SUBMIT AN INDEPENDENT DESIGN TO MODIFY THE CROSS BEAM DESIGN AND TIE BACK ROD CONNECTIONS.
8. THERE SHALL BE NO SERVICE LINES CONNECTED BETWEEN THE LAST ISOLATION VALVE AND THE TEMPORARY BLOW-OFF ASSEMBLY.



TEMPORARY  
BLOW-OFF ASSEMBLIES-  
4", 6" & 8" MAINS WITH  
MECHANICAL JOINT LINE CAP

A2-6

DATED 03/2014



**NOTES:**

1. REFER TO DETAIL DRAWING A2-8 FOR ALL DIMENSIONS AND SIZES FOR BLOW-OFF ASSEMBLY.
2. IF APPROPRIATE LOCATION FOR DISCHARGED WATER CANNOT BE REACHED BY ROLLING THE BEND ADDITIONAL BENDS MAY BE REQUIRED BY THE COLORADO SPRINGS UTILITIES INSPECTOR.
3. COAT TIE RODS, BEAMS AND GALVANIZED STEEL PIPE. SEE DETAIL DRAWING A8-11.
4. ENTIRE BLOW-OFF ASSEMBLY MUST BE ADEQUATELY SUPPORTED, CONCRETE PAVER STONES MAY BE REQUIRED.
5. PIPE DOPE APPROVED FOR USE IN POTABLE WATER SYSTEMS MUST BE USED ON ALL THREADED FITTINGS.
6. TEMPORARY BLOW-OFF VALVE ASSEMBLIES SHALL BE INSPECTED BY THE COLORADO SPRINGS UTILITIES INSPECTOR PRIOR TO BACKFILL. BACKFILL COMPACTION TO BE SAME AS AS PIPE COMPACTION SPECIFICATIONS.
7. ALL BLOW OFF PIPING IS 2" GALVANIZED PIPE AND MUST BE RATED TO 250 PSI AND CONFORM TO NSF-61 SPECIFICATIONS. ALL BLOW OFF PIPING LARGER THAN 2" MUST BE SPECIFIED AND APPROVED BY COLORADO SPRINGS UTILITIES.
8. SEE DETAIL DRAWINGS A2-5 AND A2-6 FOR MECHANICAL JOINT PLUG OR LINE CAP PIPE TERMINATION.
9. ALL HOLES IN STEEL SHALL BE OVERSIZED HOLES.
10. THERE SHALL BE NO SERVICE LINES CONNECTED BETWEEN THE LAST ISOLATION VALVE AND THE TEMPORARY BLOW-OFF ASSEMBLY.
11. MAINS GREATER THAN 16" SHALL BE DESIGNED BY THE DESIGN ENGINEER AND REVIEWED AND APPROVED BY COLORADO SPRINGS UTILITIES.

**TEMPORARY BLOW-OFF ASSEMBLY SIZING  
FOR 12" AND GREATER PIPE**

DIMENSIONS FROM DETAIL DRAWING <i>A2-7</i>							
MAIN PIPE DIA. (IN.)	STATIC PRESSURE RANGE (P.S.I.)	"A" (IN)	"B" (IN)	"C" (W-SHAPE)	"D" ROD SIZE (IN)	BLOW-OFF PIPE SIZE (IN)	NUMBER OF RODS REQUIRED
12	100	36	6"	W6 x 16	5/8	2	4
	101-150	36	6-1/4"	W6 x 20	3/4	2	
	151-200	36	6-1/4"	W6 x 20	7/8	2	
	201-250	36	8"	W8 x 28	1	2	
16	100	40	6"	W6 x 20	7/8	2	4
	101-150	40	8"	W8 x 28	1	2	
	151-200	40	8"	W8 x 35	1-1/8	2	
	201-250	40	8-1/8"	W8 x 40	1-1/4	2	

**NOTES:**

1. ALL W-SHAPES SHALL BE FABRICATED FROM ASTM A992 GD 50.
2. ALL RODS SHALL BE MIN. GRADE A307 .
3. A 50% SURGE FACTOR HAS BEEN INCLUDED IN DESIGN.
4. THE DESIGN ENGINEER SHALL DESIGN THE BLOW-OFF ASSEMBLY FOR SIZES AND PRESSURES GREATER THAN THOSE SHOWN IN THE TABLE. DESIGN CALCULATIONS MUST BE SUBMITTED TO COLORADO SPRINGS UTILITIES FOR REVIEW.



**TEMPORARY BLOW-OFF ASSEMBLY  
DIMENSION DATA FOR  
12" OR GREATER PIPE**

**A2-8**

DATED 03/2014

## NOTES FOR APPLYING STREET CROSS SECTION TEMPLATES

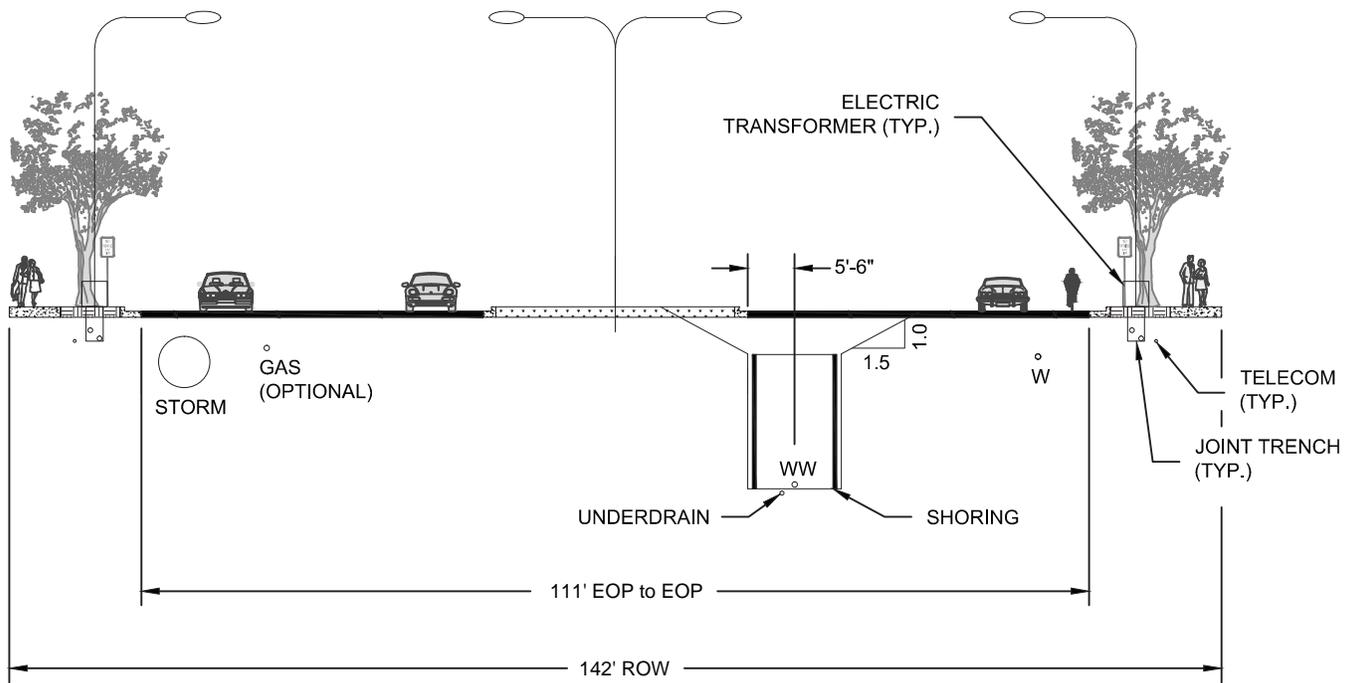
DRAWINGS 1 THROUGH 10 ARE INTENDED TO GIVE THE DEVELOPMENT COMMUNITY ADDITIONAL DESIGN OPTIONS TO ASSIST IN CONSTRUCTING MAINTAINABLE STREETS AND UTILITIES. THESE DRAWINGS ARE MEANT TO BE USED IN CONJUNCTION WITH THE LATEST VERSION OF THE CITY OF COLORADO SPRINGS TRAFFIC DESIGN MANUAL AND REPRESENT LAYOUTS THAT CAN BE APPROVED IF DESIGNED AS SHOWN ON THESE DRAWINGS. VARIATIONS FROM THESE SECTIONS FOR UTILITY MAIN SIZE OR HORIZONTAL AND/OR VERTICAL LOCATION WILL BE REVIEWED AND APPROVED BY COLORADO SPRINGS UTILITIES ON A CASE BY CASE BASIS. THE FOLLOWING ABBREVIATIONS APPLY TO ALL DRAWINGS: W=WATER WW= WASTEWATER.

### PHILOSOPHIES IN INTERPRETING THE DRAWINGS:

1. THE DEPTH OF WW IS SHOWN TO BE BETWEEN 10 FEET AND 12 FEET. HOWEVER, THE DEPTH OF THE WW LINE WILL VARY AND WILL NOT BE INSTALLED EXACTLY AT THE DEPTH SHOWN IN THE DRAWINGS.
2. THE STORM SEWER PIPE IS SHOWN 1 FOOT OFF THE EDGE OF PAVEMENT AND 24 INCHES BELOW SUBGRADE. HOWEVER, THE STORM SEWER DEPTH WILL VARY DEPENDING ON TOPOGRAPHY AND PIPE GRADES.
3. FOR A TYPICAL REPAIR, SHORING SHOWN ON THE DRAWINGS IS ASSUMED TO BE 8 FEET IN WIDTH AND LOCATED 4 FEET FROM THE TOP OF THE PAVEMENT TO ALLOW CROSSING OF GAS AND ELECTRIC SERVICES AND MAINS. A 6 INCH OVER DIG IS ASSUMED ON EITHER SIDE OF THE SHORING.
4. FOR FUTURE OPERATION AND MAINTENANCE, THE STORM SEWER SHALL BE LOCATED A MINIMUM OF 10 FEET FROM THE WW MAIN, OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
5. STORM SEWER MATERIALS SHALL CONFORM TO THE CITY OF COLORADO SPRINGS STANDARDS AND SPECIFICATIONS. IN CASES WHERE THE STORM SEWER IS LOCATED LESS THAN 10 FEET FROM THE WW MAIN OUTSIDE DIAMETER TO OUTSIDE DIAMETER, THE MATERIAL OF THE STORM SEWER WILL BE EVALUATED ON A CASE BY CASE BASIS. REVIEWS WILL BE CONDUCTED BY CITY ENGINEERING AND COLORADO SPRINGS UTILITIES.
6. STORM SEWER SIZES OVER 48 INCHES WILL NEED TO BE REVIEWED BY COLORADO SPRINGS UTILITIES SO THE IMPACT ON THE DESIGN OF ELECTRIC CROSSINGS CAN BE PROPERLY COORDINATED WITH COLORADO SPRINGS UTILITIES FIELD ENGINEERING.
7. SHORING TO BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER AND INSPECTED BY A COMPETENT PERSON IN ACCORDANCE WITH OSHA REQUIREMENTS.

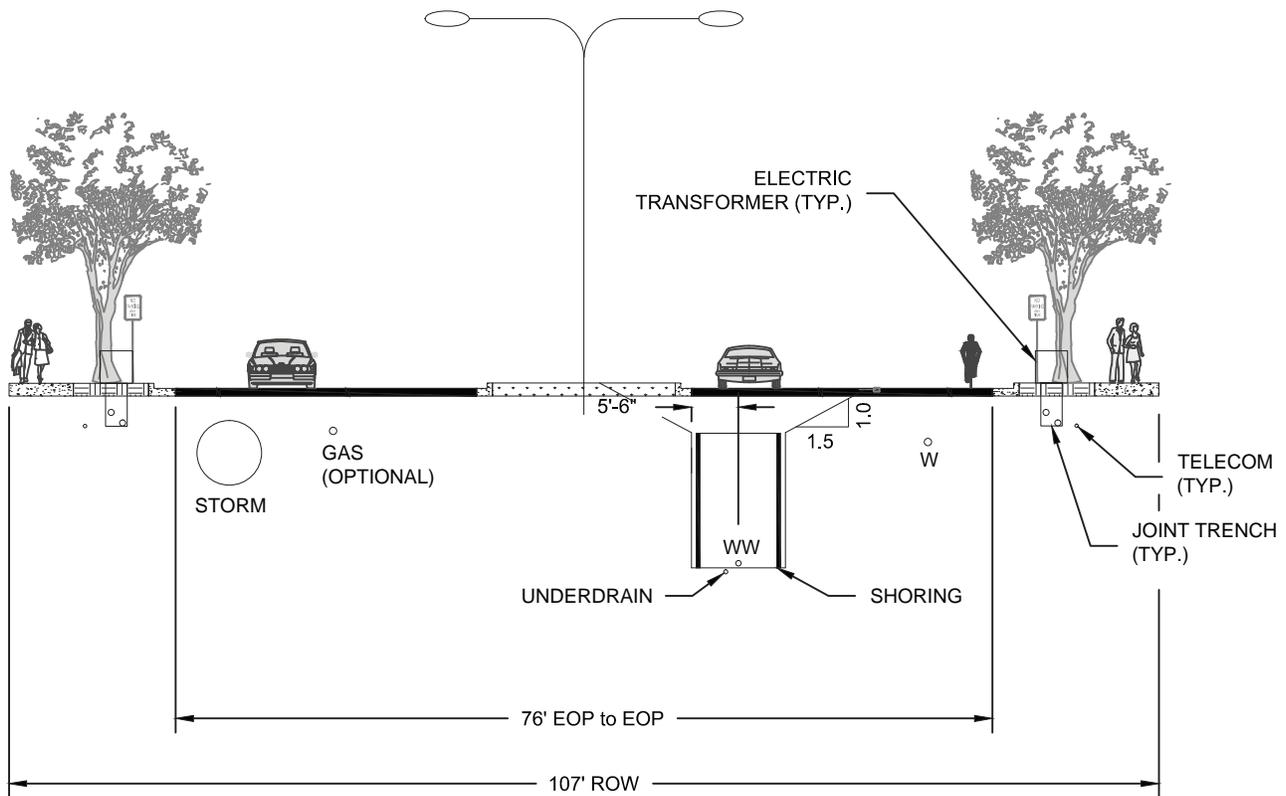
THE CROSS SECTIONS SHOW ACCEPTABLE DESIGNS FOR UTILITY LOCATIONS IN THE STREETS. THESE STREET CROSS SECTIONS DO NOT MEET EVERY REQUIREMENT OF THE APPLICABLE COLORADO SPRINGS UTILITIES LESS, BUT WILL BE ACCEPTABLE IF CONSTRUCTED IN THE CORRIDORS SHOWN IN THE ATTACHED DRAWINGS. IN USING THE DRAWINGS, THE FOLLOWING LOGIC SHOULD BE APPLIED WHEN USING THE CROSS SECTION TEMPLATES:

- A. THE SEPARATION OF THE WATER MAIN FROM THE EDGE OF PAVEMENT VARIES DEPENDING ON THE WIDTH OF THE STREET AND HOW THE PLACEMENT OF THE WATER MAIN AFFECTS THE PLACEMENT OF OTHER UTILITIES. IN ORDER TO MAKE BEST USE OF LIMITED SPACE AND ALLOW THE WW LINE TO BE BUILT IN THE CENTER OF THE ROAD, SOME OF THE NARROW STREETS SHOW THE WATER MAIN CLOSER TO THE EDGE OF PAVEMENT, BUT WOULD REQUIRE THE WATER MAIN TO BE CONSTRUCTED OF PVC OR HDPE PIPE AND LIMITED TO 12 INCH DIAMETER OR SMALLER. CARE MUST BE TAKEN TO ENSURE THE HYDRANT VALVE BOX IS INSTALLED OUTSIDE THE CONCRETE CURB AND GUTTER PAN AND MAY REQUIRE THE USE OF AN ANCHOR TEE TO ELIMINATE THE 30 INCH SPACER PIPE.
- B. WHILE THE DEPTH OF THE WW MAINS WILL VARY, THEY ARE GENERALLY SHOWN AT A MAXIMUM DEPTH OF 12 FEET TO SHOW A SOLUTION FOR MORE TYPICAL PROJECTS.
- C. THE WW LINE SHALL NOT BE INSTALLED DEEPER THAN 20 FEET, UNLESS SPECIAL CIRCUMSTANCES EXIST. THOSE DESIGNS WILL REQUIRE A MORE DETAILED REVIEW AND SPECIFIC APPROVAL BY COLORADO SPRINGS UTILITIES.
- D. THE PREFERRED LOCATION OF THE STORM SEWER MAIN IS SHOWN ON THE DRAWINGS BUT THE LOCATION MAY VARY DEPENDING ON MULTIPLE DESIGN FACTORS. THE FINAL LOCATION OF THE STORM SEWER MAIN WILL BE APPROVED BY CITY ENGINEERING.
- E. SPACE IS ALLOWED ON EITHER SIDE OF THE ROAD FOR GAS AND ELECTRIC LINES AS SHOWN ON THE CROSS SECTIONS. THE TELECOMMUNICATIONS LINES CAN BE INSTALLED BETWEEN THE SIDEWALK AND THE GAS AND ELECTRIC LINES.



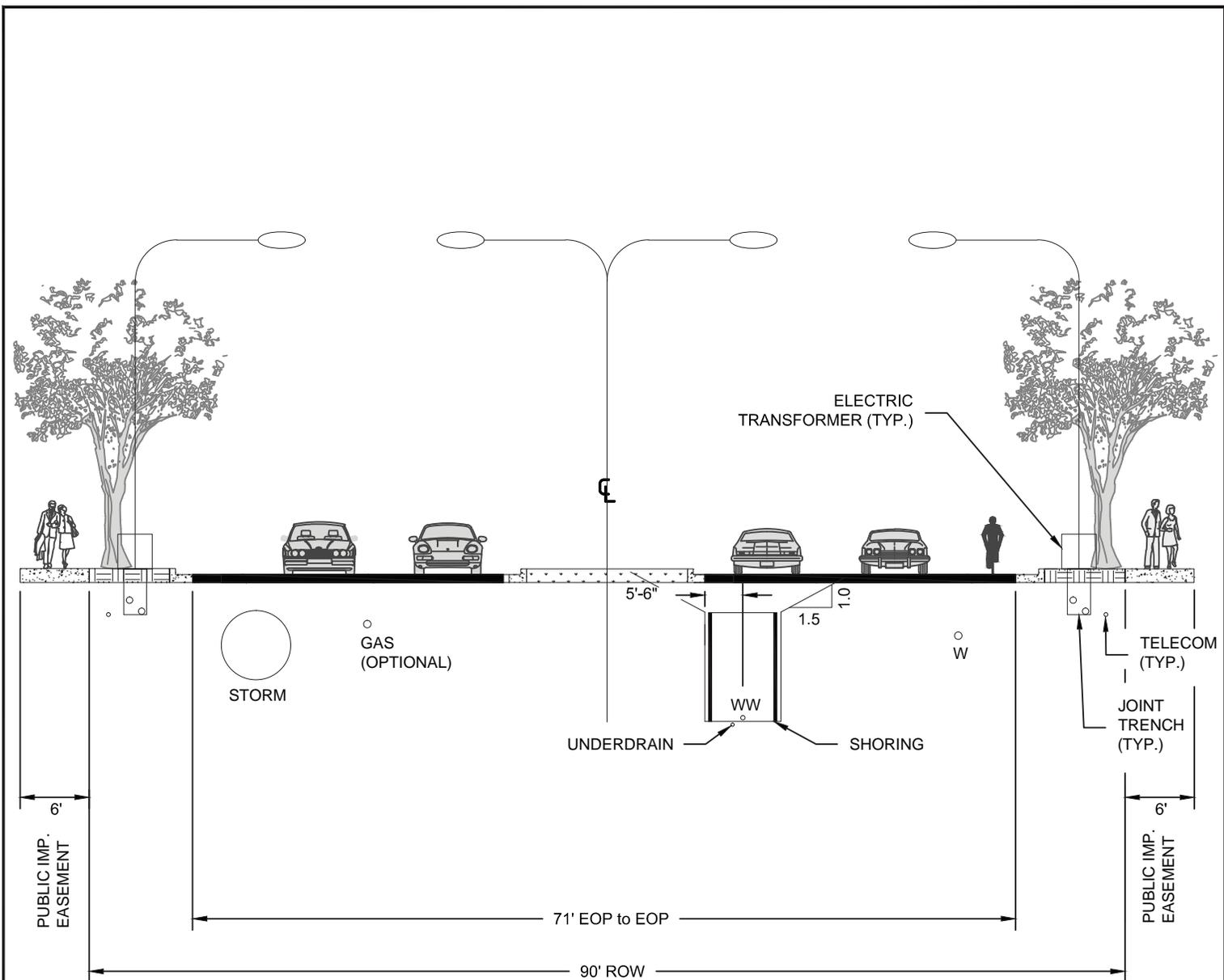
**NOTES:**

1. THE WATER MAIN SHALL BE INSTALLED ON THE NORTH OR EAST SIDE OF THE STREET, A MINIMUM OF 6 FT FROM THE EDGE OF PAVEMENT WITH 5 FT TO 6 FT OF COVER OVER THE PIPE.
2. THE WASTEWATER MAIN SHALL BE INSTALLED IN THE MIDDLE OF THE DRIVE LANE DEPICTED ABOVE, WITH A MAXIMUM COVER OF 20 FT OVER THE PIPE.
3. GAS AND ELECTRIC MAINS ARE USUALLY INSTALLED IN A JOINT TRENCH BEHIND THE CURB. WHEN THE GAS PRESSURE IS GREATER THAN 60 PSI THE GAS LINE IS INSTALLED, AT A DEPTH OF 4 FT, 10 FT FROM THE EDGE OF THE STORM SEWER MAIN.
4. THE PREFERRED LOCATION FOR THE STORM SEWER IS 2 FT FROM THE OUTSIDE EDGE OF THE GUTTER PAN AND 3 FT OF COVER OVER THE PIPE ON THE OPPOSITE SIDE OF THE STREET FROM THE WATER MAIN, HOWEVER OTHER LOCATIONS MAY BE APPROVED BY CITY ENGINEERING AS LONG AS IT IS OUTSIDE THE WASTEWATER TRENCH ENVELOPE.
5. THE STORM SEWER MAY BE LOCATED IN THE MEDIAN FOR SHORT RUNS BETWEEN INLETS IF THIS LEADS TO A MORE EFFICIENT DESIGN. IF THIS LOCATION IS PROPOSED, THE DESIGN REQUIREMENTS FOR MATERIAL, SIZE AND SEPARATION FROM WASTEWATER WOULD BE THE SAME AS ON DETAIL DRAWING **A3-5**.
6. IN THE CASE THAT THE STORM SEWER IS REQUIRED TO BE 60" OR LARGER, IT MUST BE COORDINATED WITH COLORADO SPRINGS UTILITIES-FIELD ENGINEERING, SMALLER SIZES ARE REVIEWED ONLY BY CITY ENGINEERING.



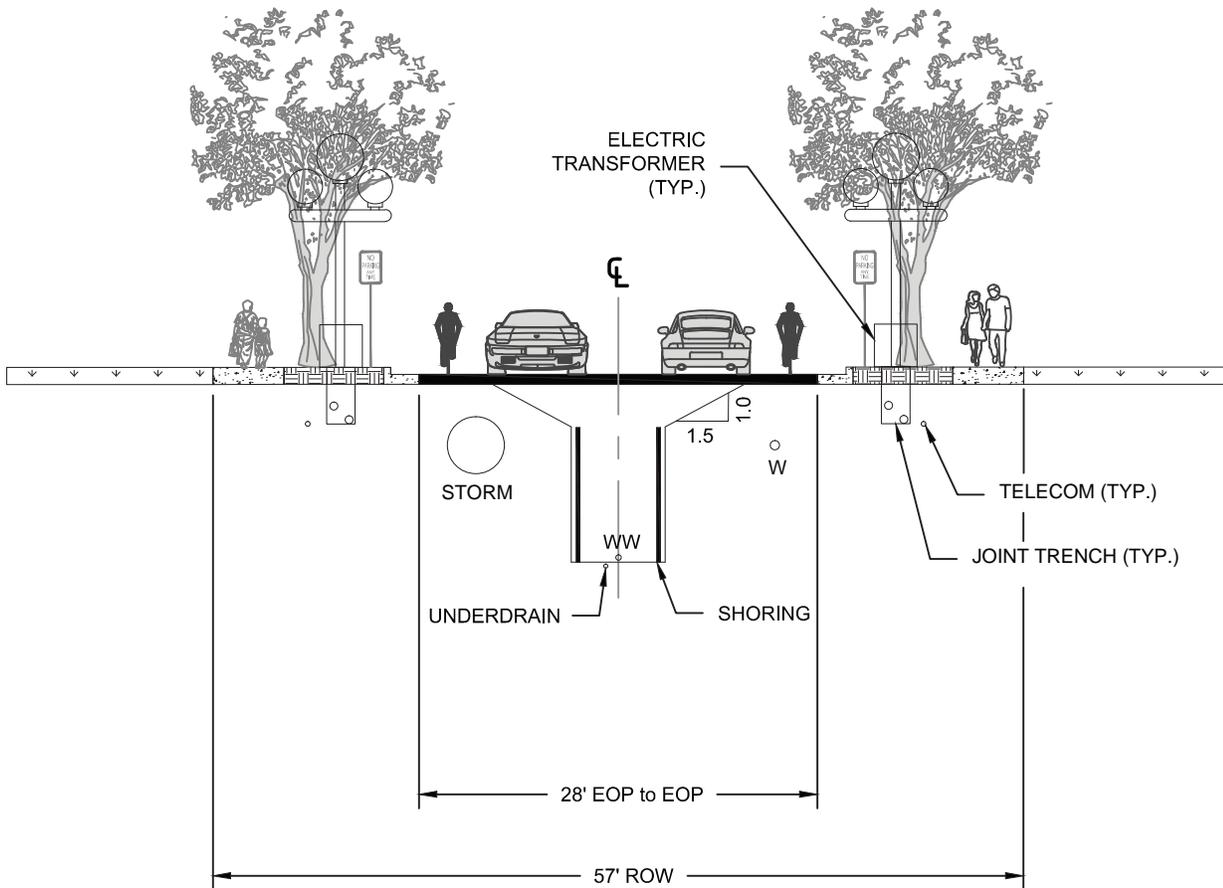
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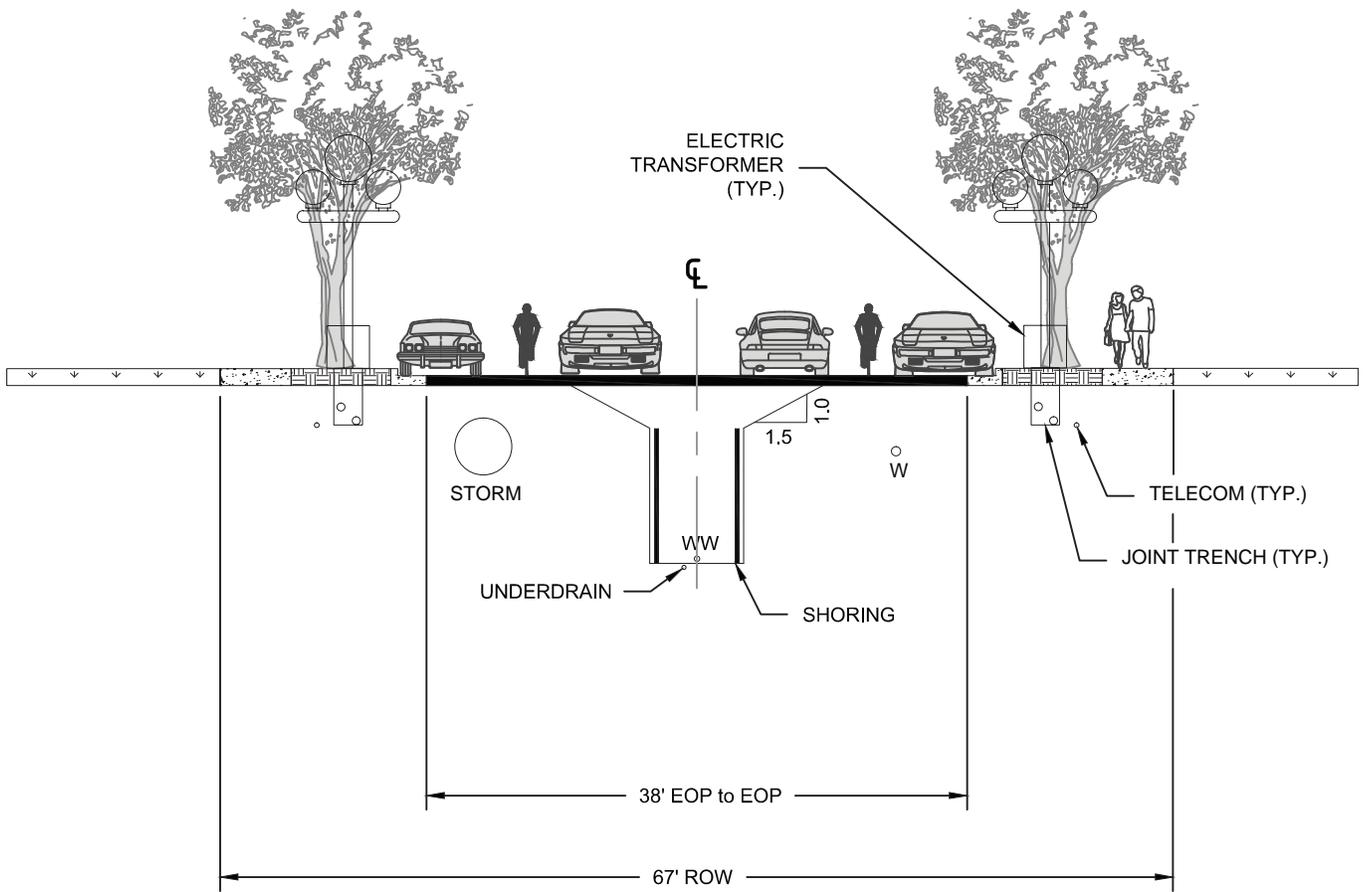
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**NOTES:**

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2. THE WASTEWATER MAIN SHALL BE INSTALLED IN THE CENTER OF PAVEMENT AS DEPICTED ABOVE, WITH A MAXIMUM COVER OF 20 FT OVER THE PIPE.
3. IF STORM SEWER IS LOCATED LESS THAN 10 FT FROM THE WASTEWATER MAIN OUTSIDE DIAMETER TO OUTSIDE DIAMETER, THE MATERIAL OF THE STORM SEWER WILL BE EVALUATED ON A CASE BY CASE BASIS. REVIEWS WILL BE CONDUCTED BY CITY ENGINEERING AND COLORADO SPRINGS UTILITIES.



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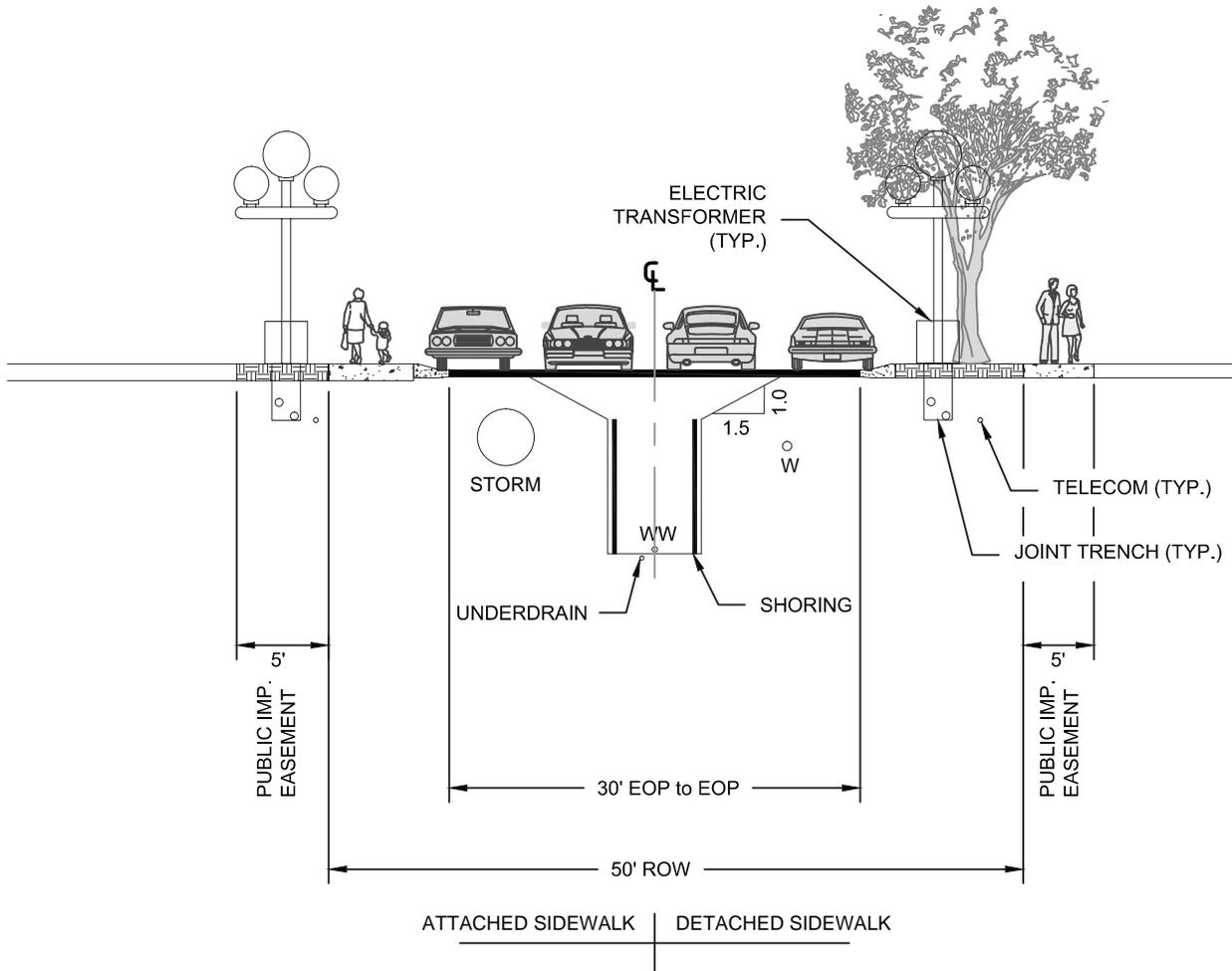
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**MINOR COLLECTOR  
WITH PARKING**

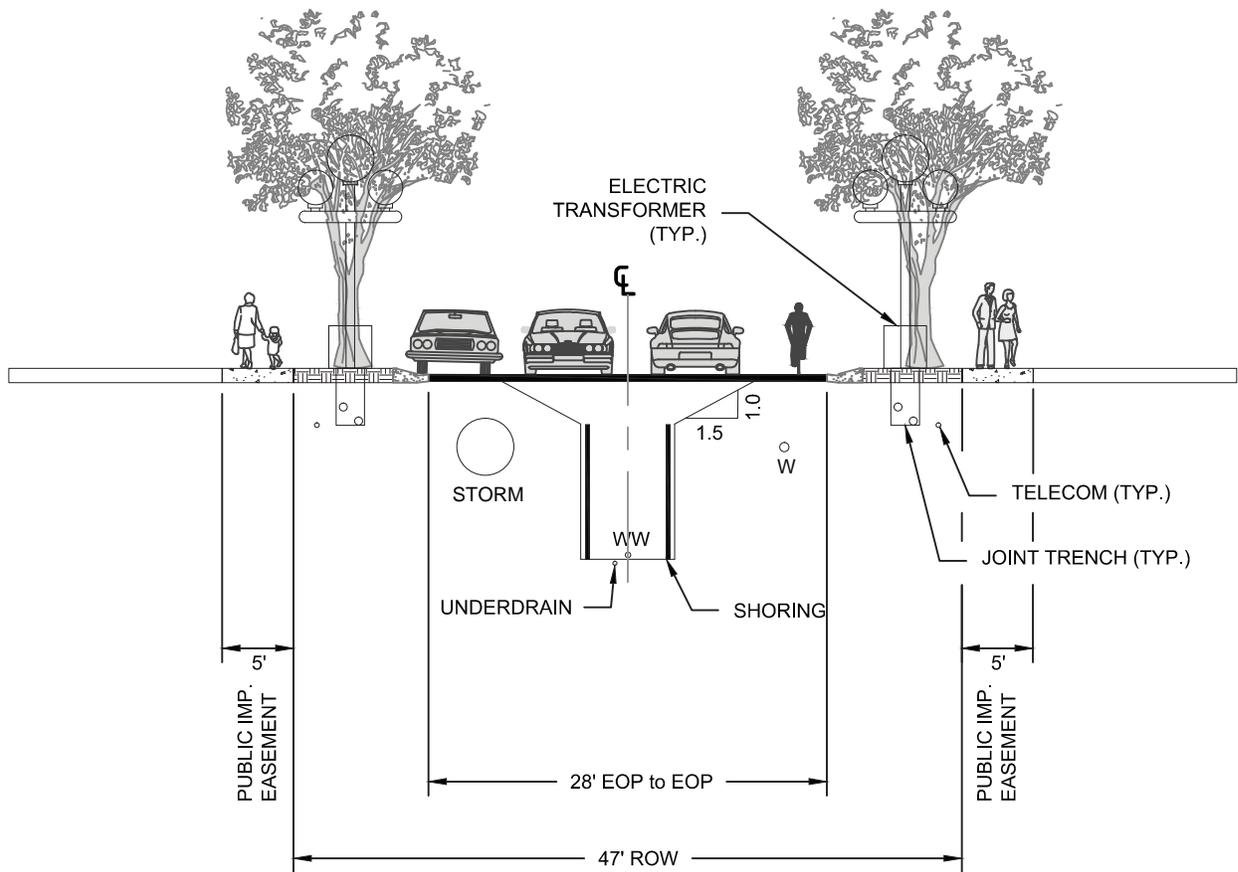
**A3-6**

DATED 03/2014



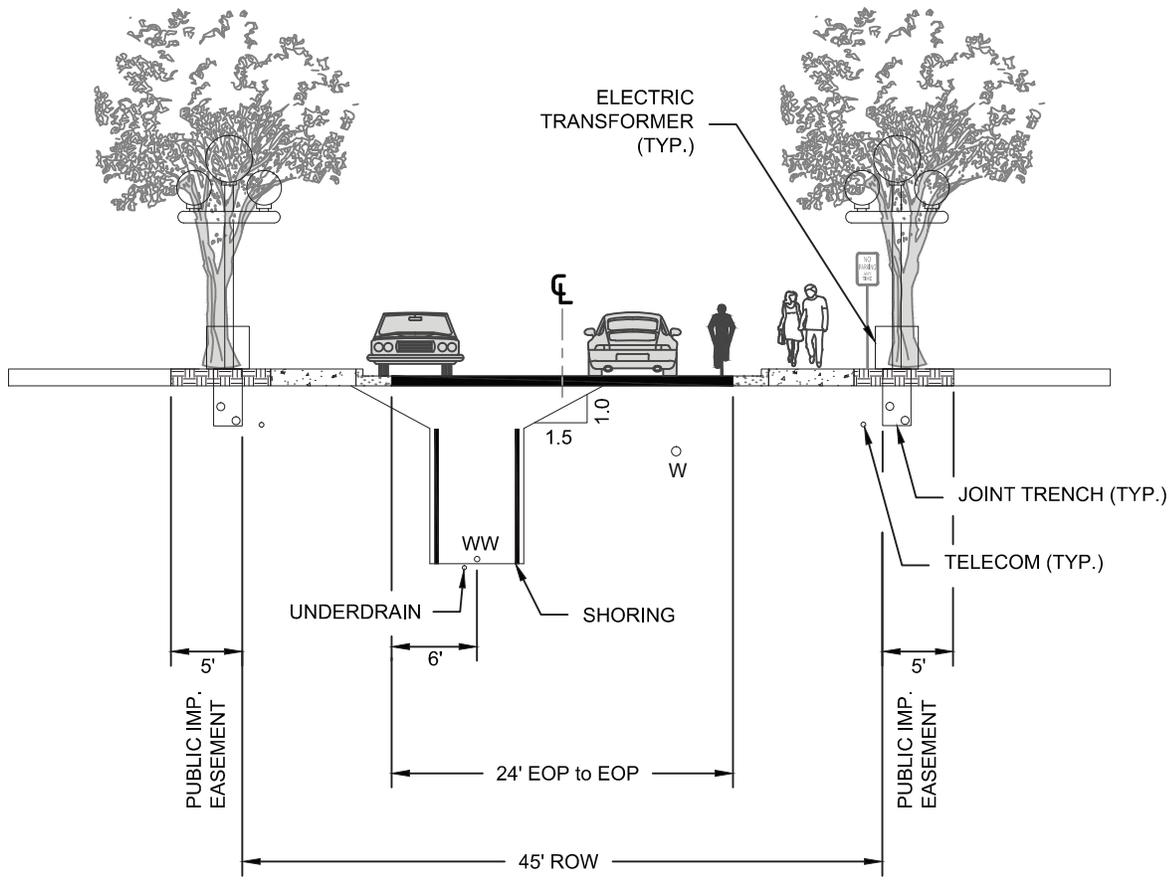
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2. THE WASTEWATER MAIN SHALL BE INSTALLED IN THE CENTER OF PAVEMENT AS DEPICTED ABOVE, WITH A MAXIMUM COVER OF 20 FT OVER THE PIPE.
3. ATTACHED AND DETACHED SIDEWALK ARE SHOWN VISUALLY ON OPPOSITE SIDES OF THE STREET. THE CURB TYPE AND THE LOCATION OF THE SIDEWALK HAS NO IMPACT ON THE LOCATION OF THE WET UTILITY MAINS.
4. IF THE STORM SEWER IS LOCATED LESS THAN 10 FT FROM THE WASTEWATER MAIN OUTSIDE DIAMETER TO OUTSIDE DIAMETER, THE MATERIAL OF THE STORM SEWER WILL BE EVALUATED ON A CASE BY CASE BASIS. REVIEWS WILL BE CONDUCTED BY CITY ENGINEERING AND COLORADO SPRINGS UTILITIES.



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3. THE STORM SEWER LOCATION WILL BE EVALUATED ON A CASE BY CASE BASIS BY CITY ENGINEERING AND COLORADO SPRINGS UTILITIES.