



Pawtucket

**WATER SUPPLY BOARD**

ENGINEERING DEPARTMENT  
85 BRANCH ST, PAWTUCKET RI

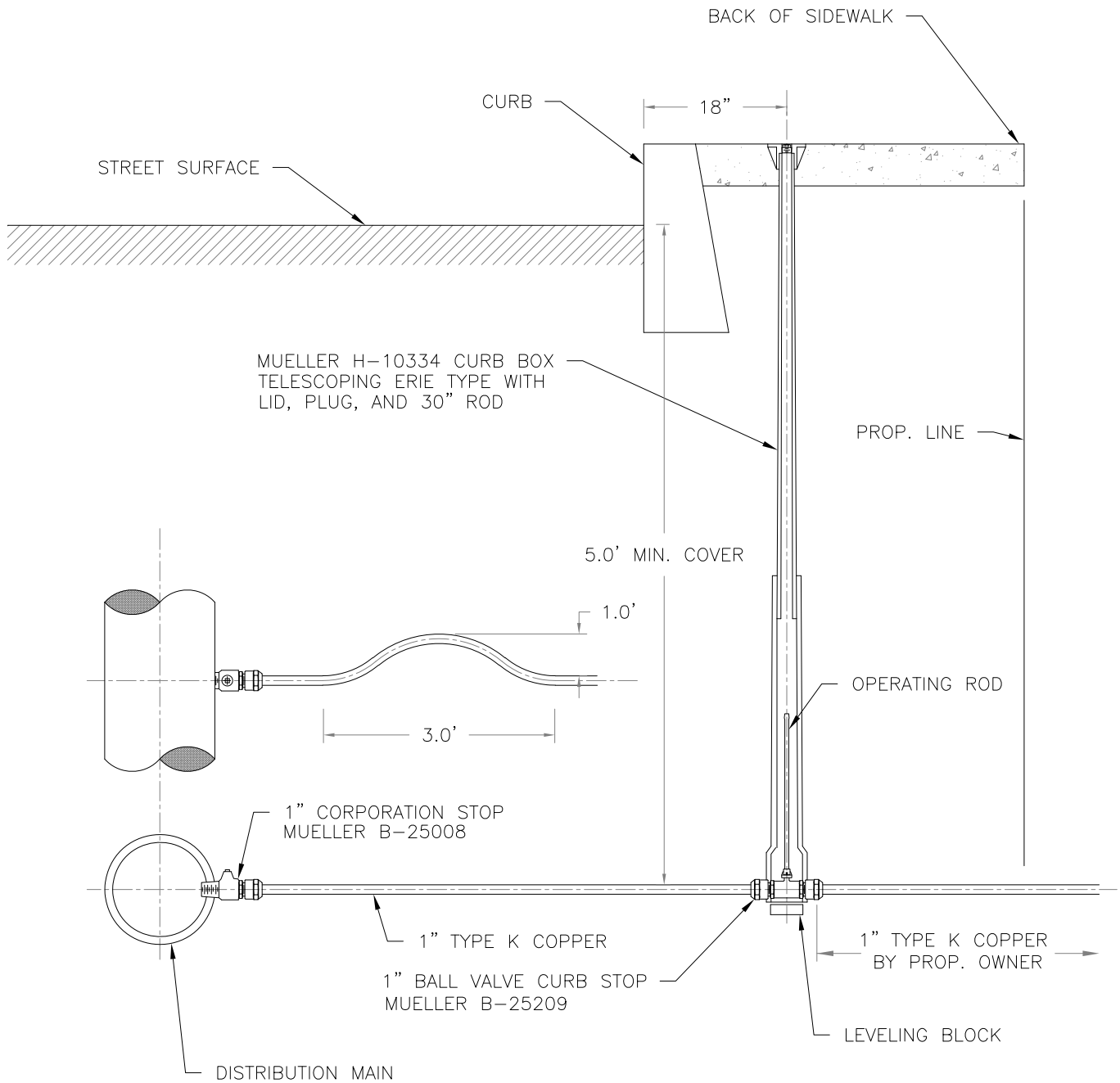
# Standard Construction Details

February 2020

# Pawtucket Water Supply Board Engineering Department

## Standard Details

Standard Number	Description	Revision Date
1.01	New 1" Service Installation	Feb. 2020
1.02	1" Service Replacement	Feb. 2020
1.03	New 2" Service Installation	Feb. 2020
1.04	2" Service Replacement	Feb. 2020
1.05	Water / Sewer Separation Detail - Parallel Placement	Dec. 2013
1.06	Water / Sewer Separation Detail - At Crossing	Jan. 2012
2.01	Typical Meter Installation	Jun. 2017
3.01	Gate Valve Installation	Feb. 2006
3.02	Gate Valve Replacement	Aug. 2013
3.03	Butterfly Valve Installation	Feb. 2006
3.04	Butterfly Valve Replacement	Aug. 2013
3.05	1" Blowoff Installation	Feb. 2006
3.06	2" Blowoff Installation	May 2006
3.07	1" Air Release Installation	May 2006
4.01	Fire Hydrant Installation	Aug. 2013
4.02	Fire Hydrant Replacement	Feb. 2006
5.01	Main Connection at Intersection (Cross)	Feb. 2006
5.02	Main Connection at Intersection (Tee)	Feb. 2006
5.03	Main Connection at Intersection (Offset)	Feb. 2006
5.04	Restraints at Fittings	May 2006
6.01	Typical Trench Detail	Jan. 2014
6.02	Pavement Replacement	Jan. 2011
6.03	Pavement Replacement - RIDOT Concrete Road base	Feb. 2013
7.01	Signing and Barricades	Feb. 2006
8.01	Typical "Temporary By-Pass Piping" Installation	Jan. 2014
8.02	Temporary Water Service Connection At Hydrant	Jan. 2011
9.01	New Chain Link Fence w/ Barb Wire Installation	Mar. 2006
9.02	New Chain Link Fence Installation	Apr. 2017



**Pawtucket**  
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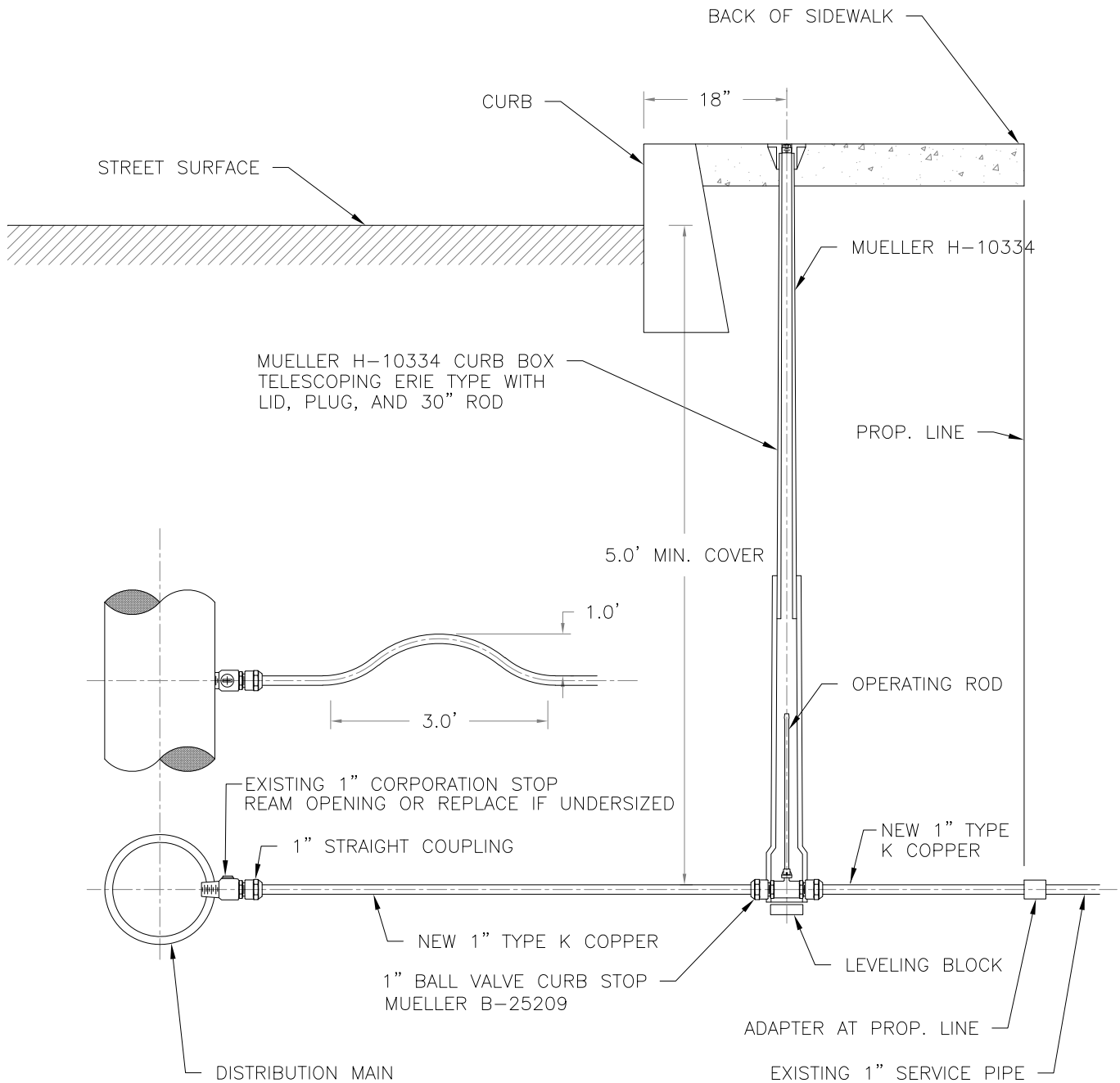
PAWTUCKET WATER SUPPLY BOARD

NEW 1" SERVICE INSTALLATION

REVISION DATE:  
FEB. 2020

NOT TO SCALE

STD. NO.  
**1.01**



**Pawtucket**  
WATER SUPPLY BOARD



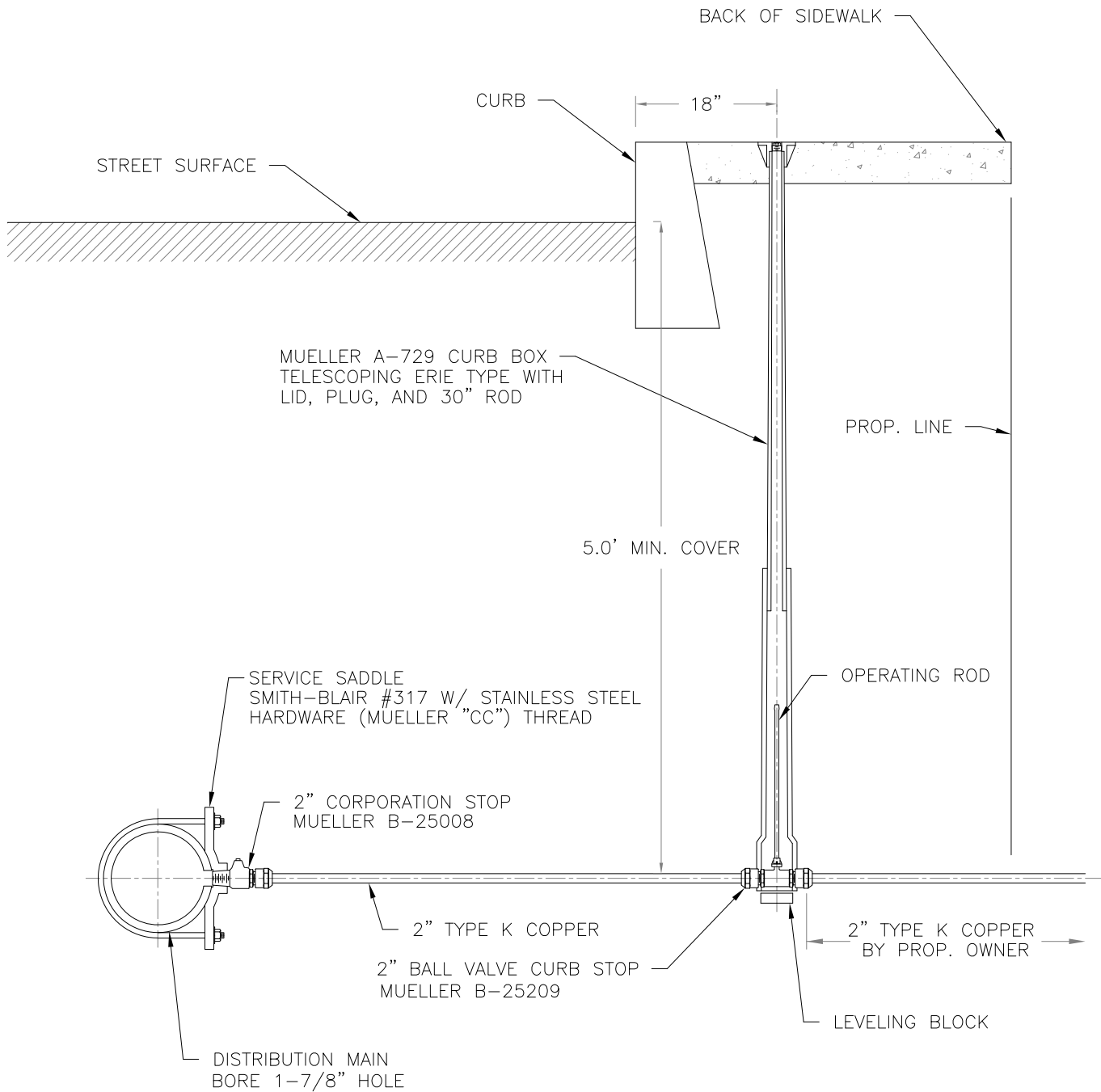
**PAWTUCKET WATER SUPPLY BOARD**

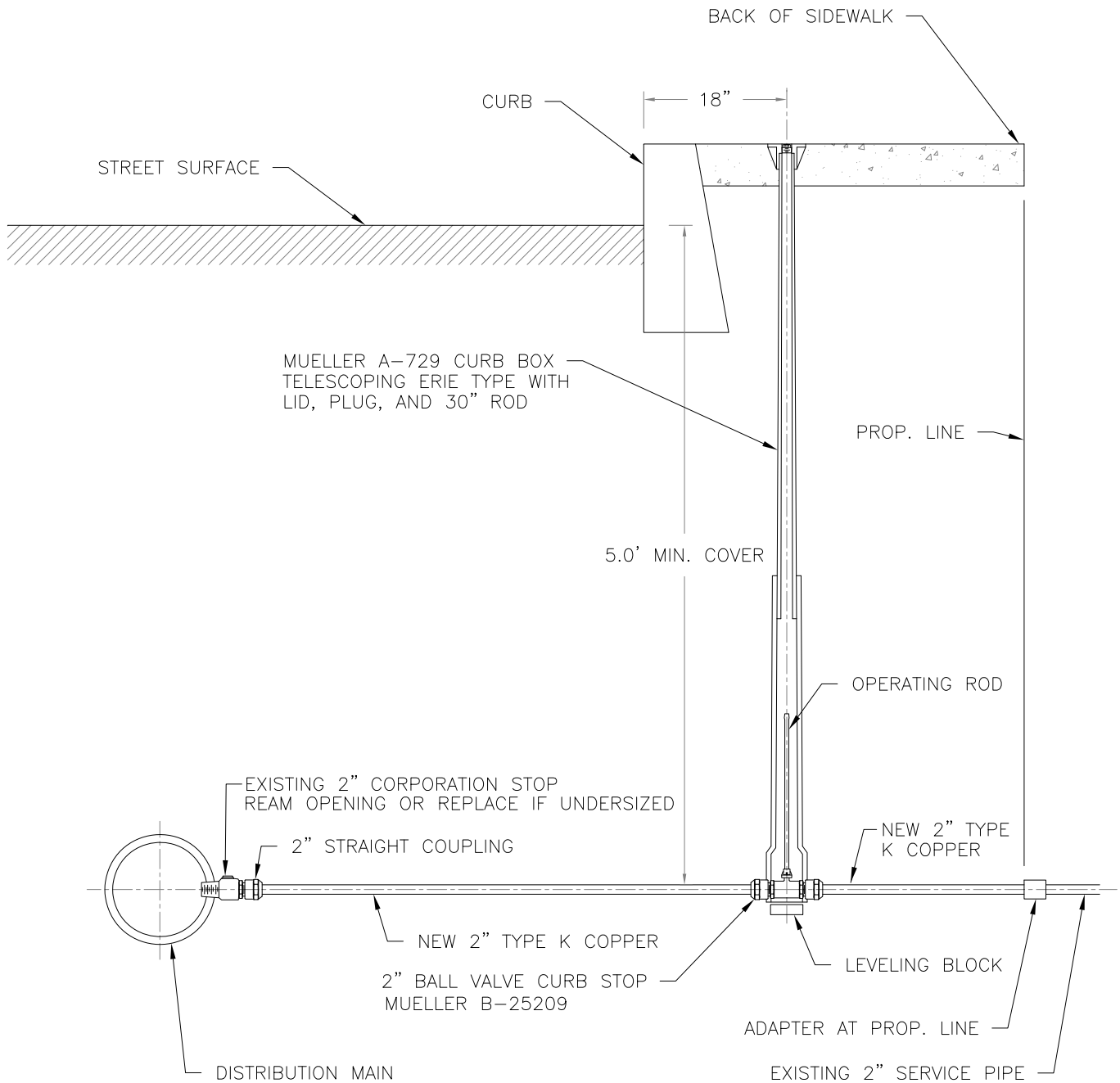
**1" SERVICE REPLACEMENT**

REVISION DATE:  
FEB. 2020

NOT TO SCALE

STD. NO.  
**1.02**





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WATER SUPPLY BOARD



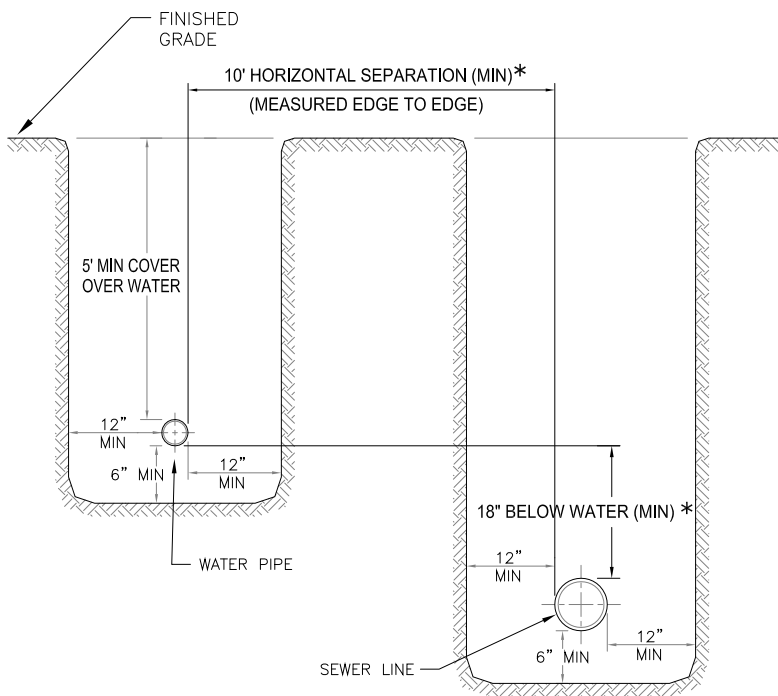
PAWTUCKET WATER SUPPLY BOARD

## 2" SERVICE REPLACEMENT

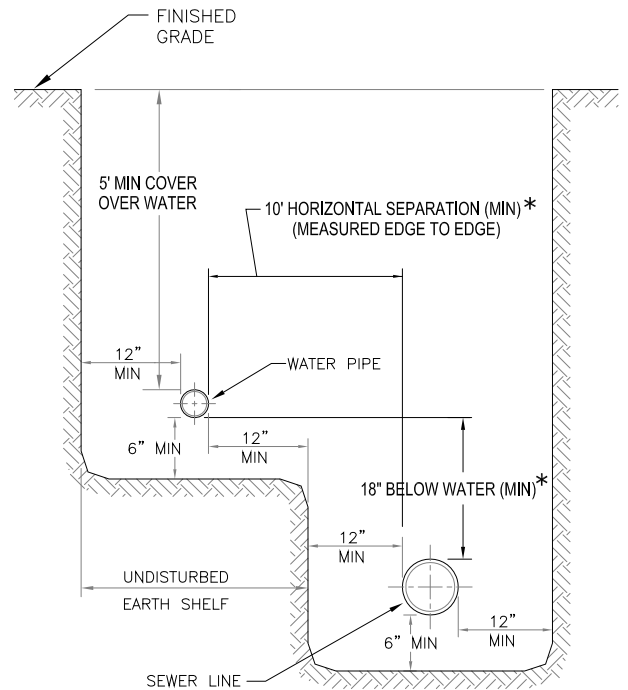
REVISION DATE:  
FEB. 2020

NOT TO SCALE

STD. NO.  
**1.04**



SEPARATE TRENCHES ( PREFERRED )



SAME TRENCH WITH UNDISTURBED EARTH SHELF

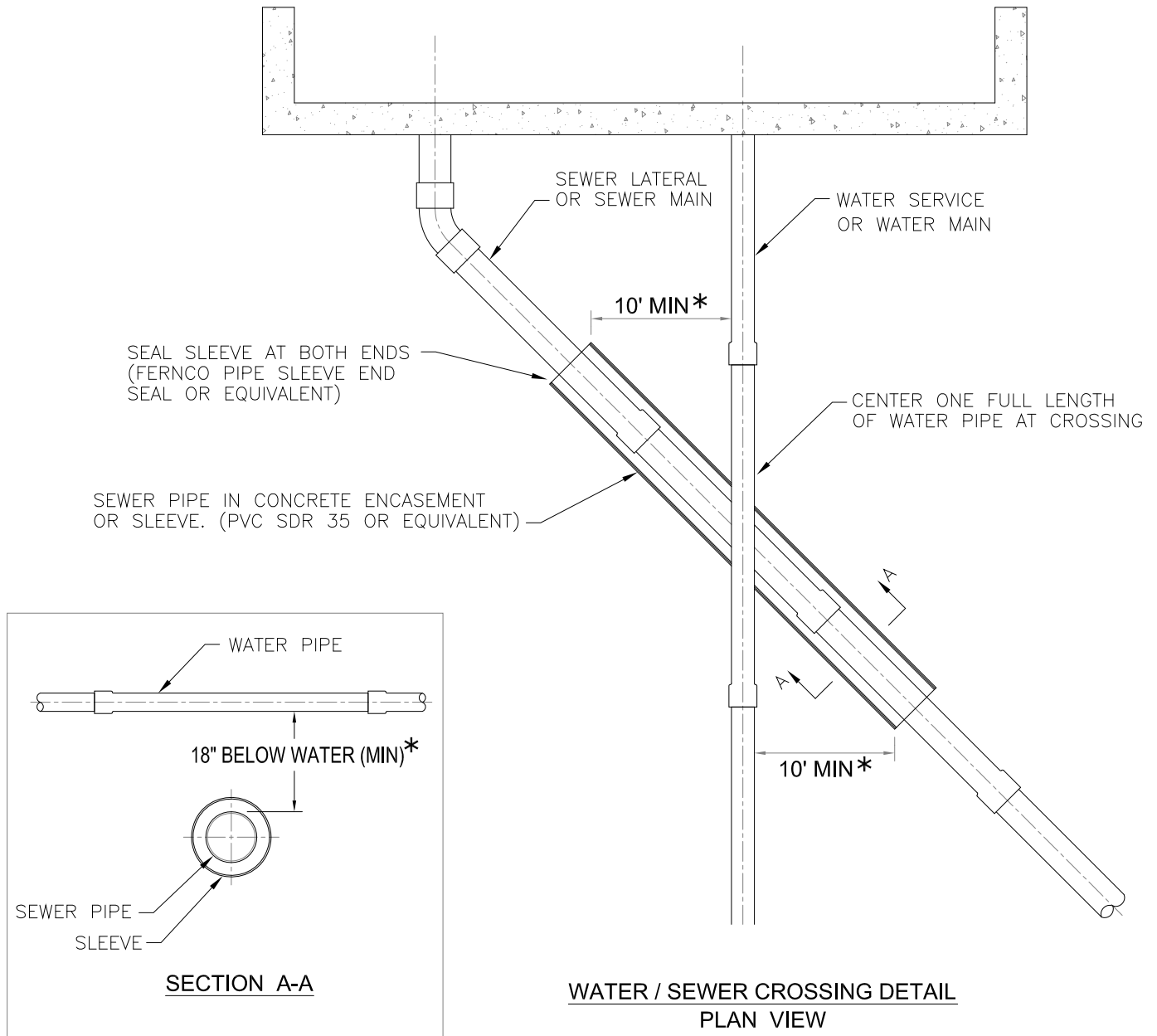
\* NO MINIMUM VERTICAL SEPARATION IS REQUIRED PROVIDED A 10 FOOT HORIZONTAL SEPARATION IS MAINTAINED BETWEEN WATER PIPE AND SEWER LINE.

WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, A DEVIATION MAY BE GRANTED ON A CASE BY CASE BASIS. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER LINE CLOSER TO THE WATER PIPE PROVIDED THAT THE SEWER LINE AND WATER PIPE ARE LAID IN SEPARATE TRENCHES (OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER LINE) AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER LINE SHALL BE AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER PIPE.

IF BOTH THE 10 FOOT MINIMUM HORIZONTAL AND 18 INCH MINIMUM VERTICAL SEPARATION CANNOT BE MAINTAINED, ONE OF THE FOLLOWING OPTIONS MUST BE USED FOR A DISTANCE THAT WILL PROVIDE THE REQUIRED 10 FOOT HORIZONTAL OR 18 INCH VERTICAL SEPARATION:

OPTION A: CONSTRUCT SEWER LINE USING AWWA APPROVED WATER MAIN PIPE AND PRESSURE TEST TO 150psi.

OPTION B: ENCASE SEWER LINE IN CONCRETE (MIN. 6 INCHES THICK) OR SLEEVE. (SEE PWSB STD. DETAIL 1.06 FOR SLEEVE DETAIL)



\* IF THE 18 INCH MINIMUM VERTICAL SEPARATION CANNOT BE MAINTAINED, ONE OF THE FOLLOWING OPTIONS MUST BE USED FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PARALLEL TO THE WATER PIPE:

OPTION A: CONSTRUCT SEWER USING AWWA APPROVED WATER MAIN PIPE AND PRESSURE TEST TO 150psi.

OPTION B: ENCASE SEWER PIPE IN CONCRETE (MIN. 6 INCHES THICK) OR SLEEVE.

**Pawtucket**  
WATER SUPPLY BOARD



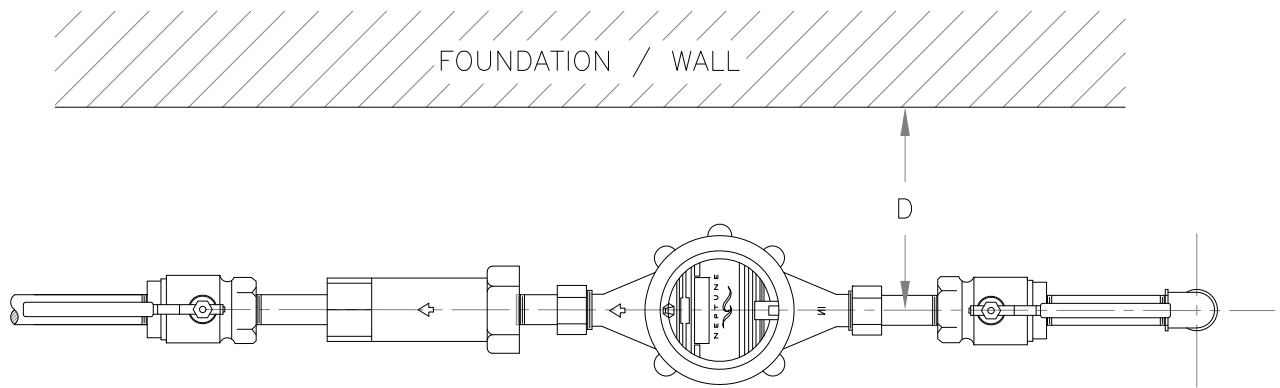
**PAWTUCKET WATER SUPPLY BOARD**  
**WATER AND SEWER SEPARATION DETAIL**  
**AT CROSSING**

REVISION DATE:  
JAN. 2012

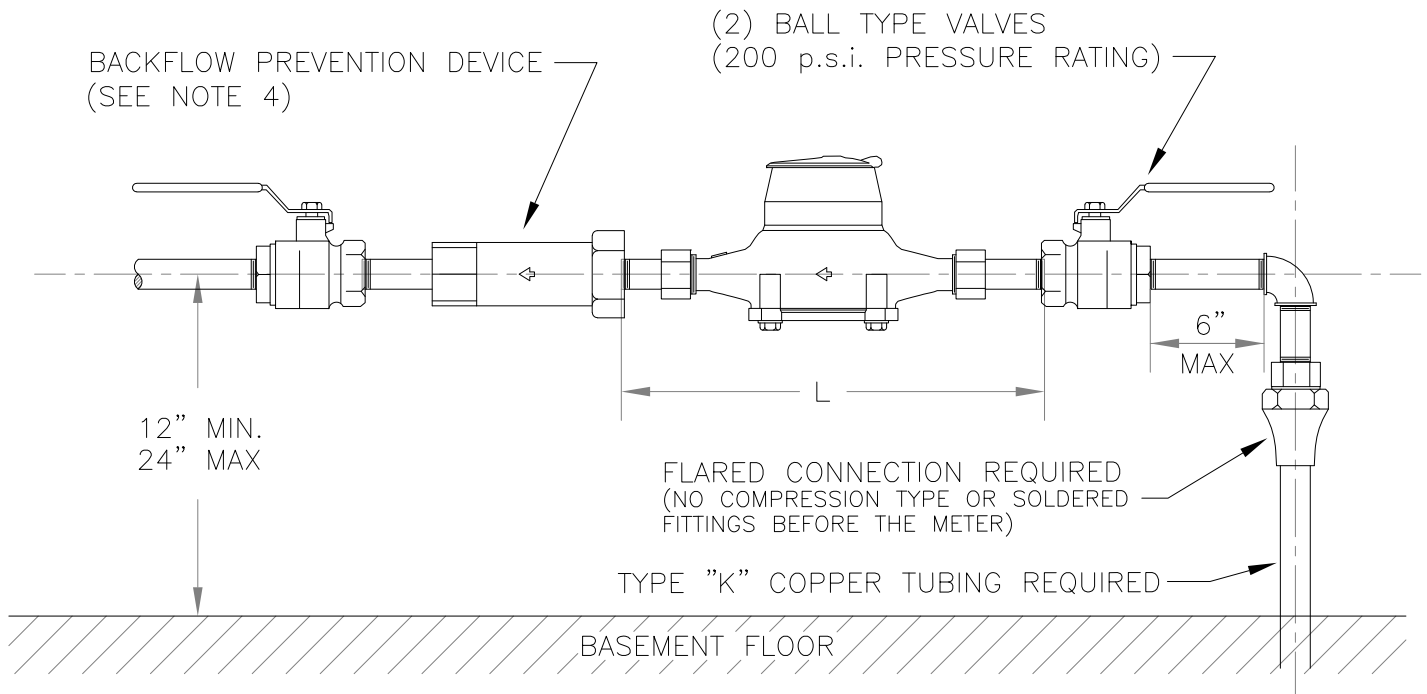
NOT TO SCALE

STD. NO.  
**1.06**





METER INSTALLATION — TOP VIEW



METER INSTALLATION — SIDE VIEW

NOTES:

1. THE METER SHALL BE LOCATED AS NEAR AS POSSIBLE TO THE POINT AT WHICH THE SERVICE ENTERS THE BUILDING.
2. THE METER SHALL BE INSTALLED HORIZONTALLY.
3. METERS INSTALLED INSIDE BUILDINGS SHALL NOT BE INSTALLED IN PITS.
4. INDIVIDUAL RESIDENCES (RESTRICTED TO 3-UNIT RESIDENCES OR LESS) REQUIRE A RESIDENTIAL DUAL CHECK VALVE; ALL OTHER WATER SERVICES REQUIRE A PWSB APPROVED TESTABLE BACKFLOW PREVENTION DEVICE IN ACCORDANCE WITH SECTION 10 OF THE PWSB RULES & REGULATIONS. ALL MODELS OF BACKFLOW PREVENTION DEVICES ARE REQUIRED TO BE LEAD FREE.

METER SIZE	L	D
5/8"	12 1/2"	12"
3/4"	14 1/4"	12"
1"	16 1/4"	12"
1 1/2" (FLANGED END)	13"	18"
2" (FLANGED END)	17"	18"

**Pawtucket**  
WATER SUPPLY BOARD



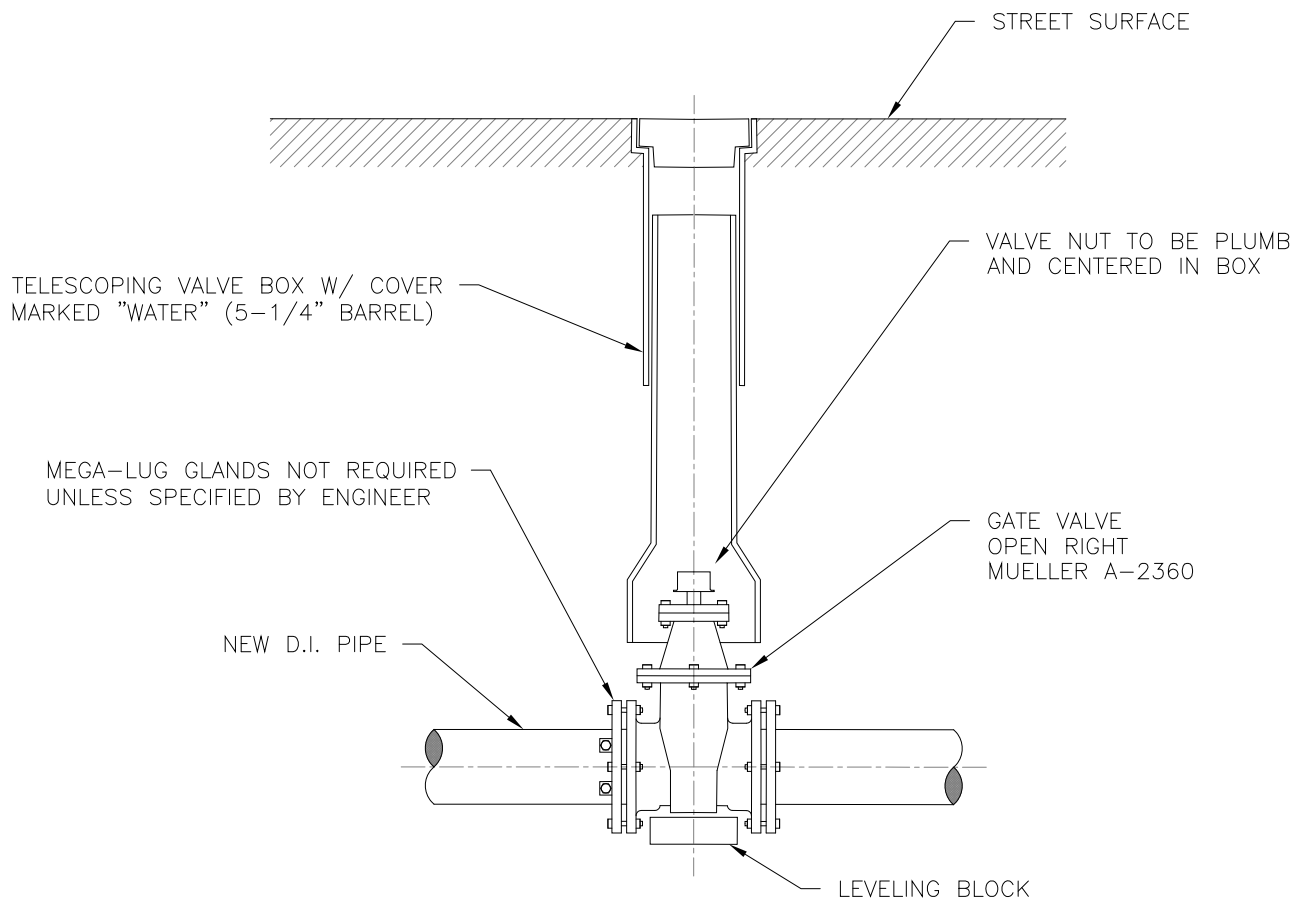
**PAWTUCKET WATER SUPPLY BOARD**

**TYPICAL METER INSTALLATION**

REVISION DATE:  
JUNE 2017

NOT TO SCALE

STD. NO.  
**2.01**



**Pawtucket**  
WATER SUPPLY BOARD



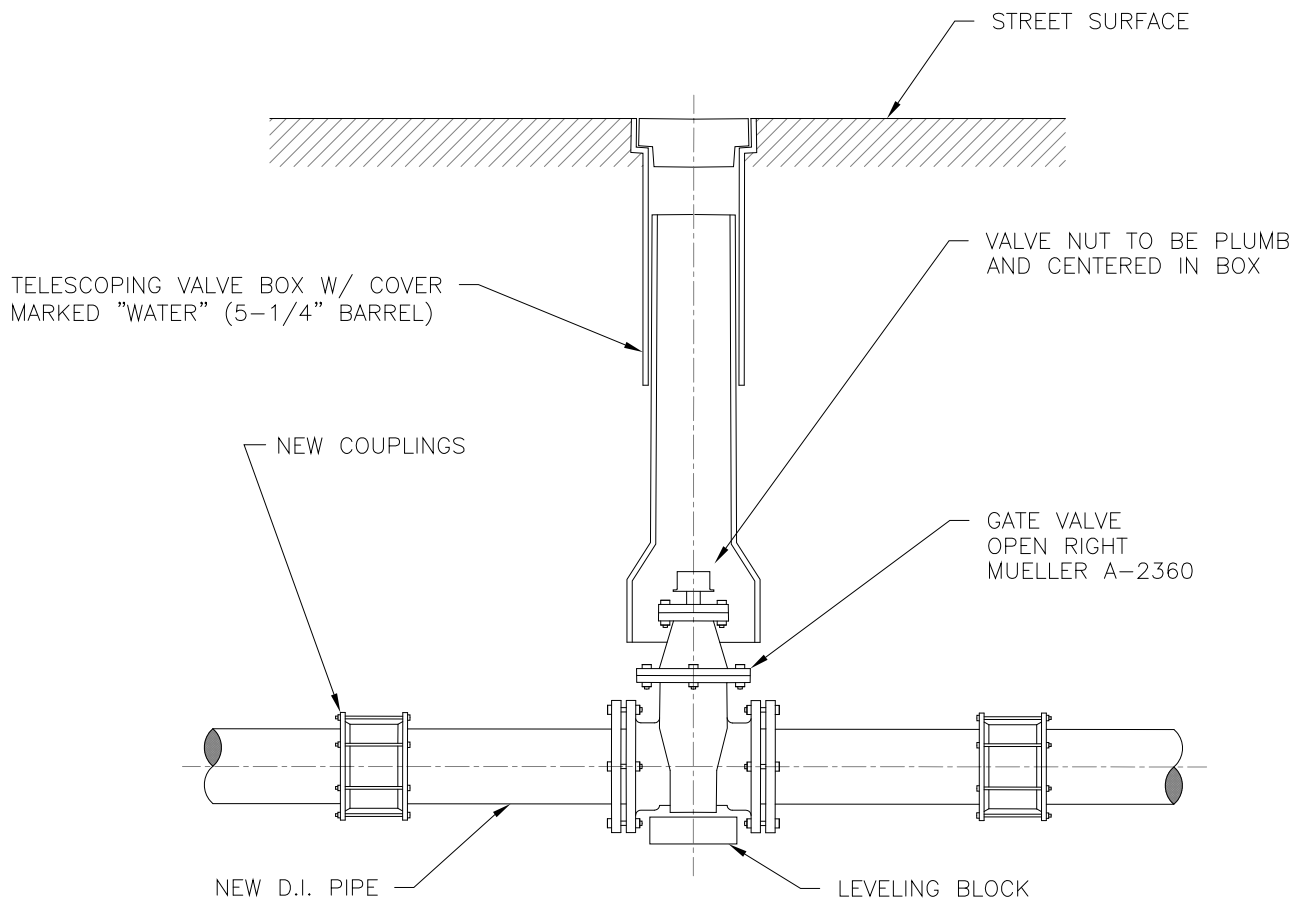
PAWTUCKET WATER SUPPLY BOARD

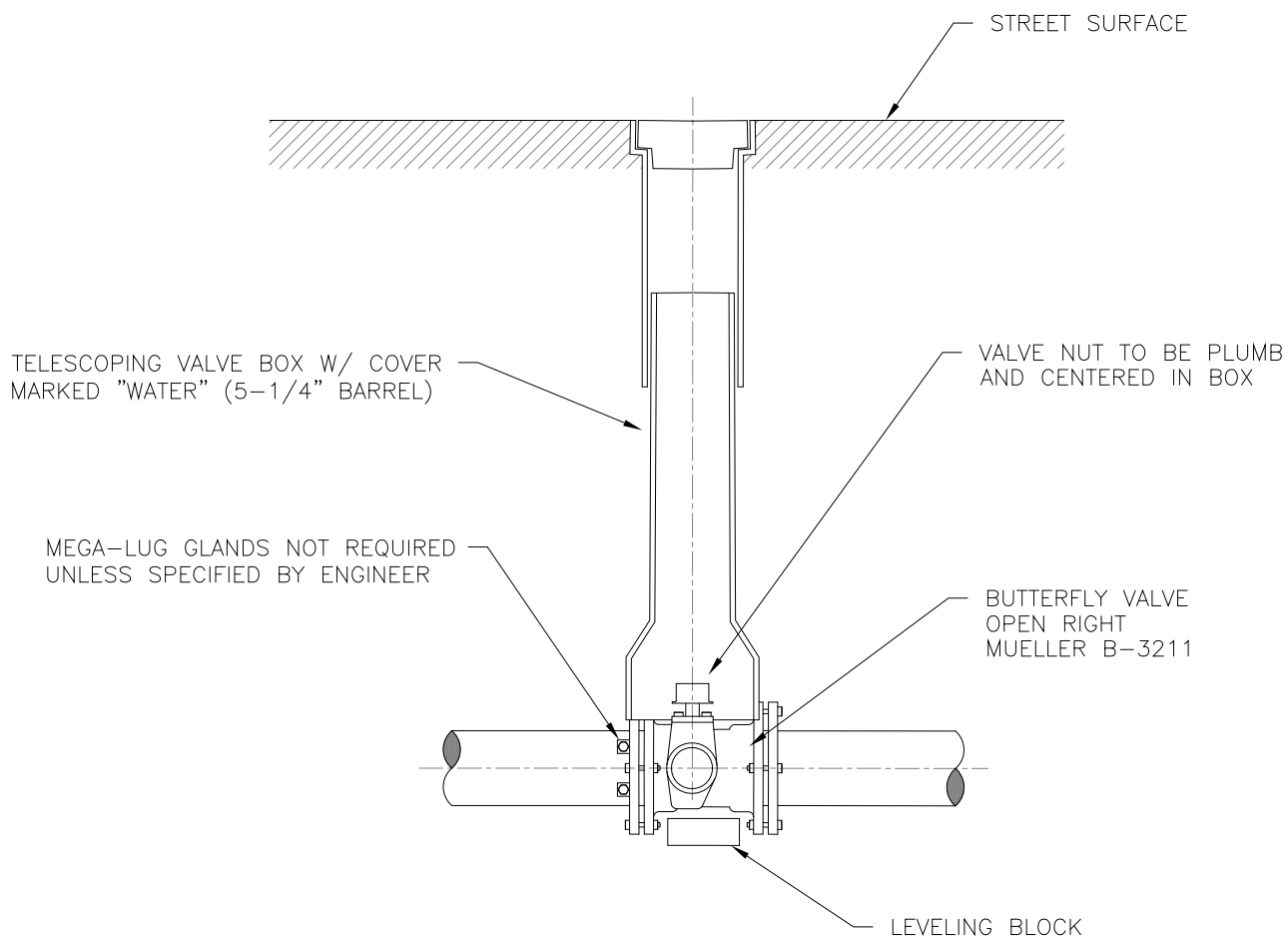
## GATE VALVE INSTALLATION

REVISION DATE:  
FEB. 2006

NOT TO SCALE

STD. NO.  
**3.01**





**Pawtucket**  
WATER SUPPLY BOARD



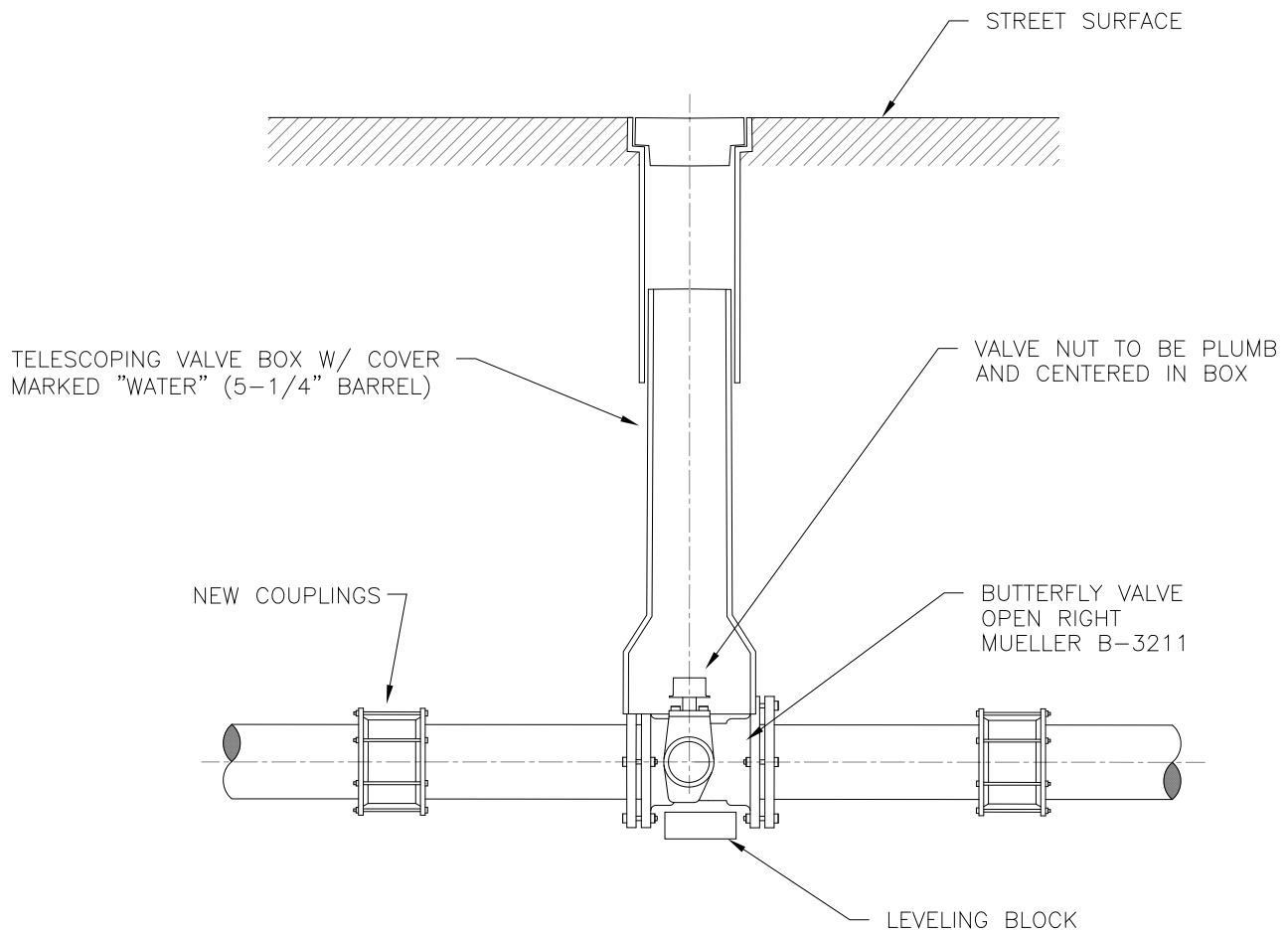
PAWTUCKET WATER SUPPLY BOARD

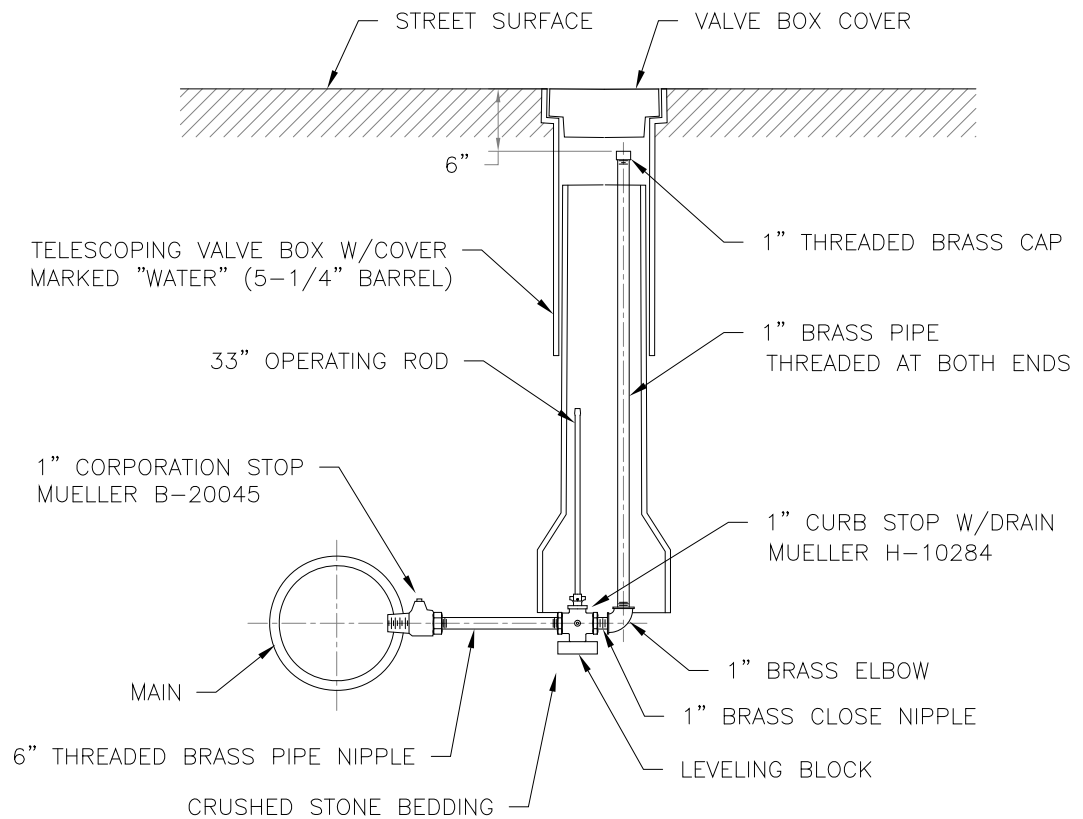
## BUTTERFLY VALVE INSTALLATION

REVISION DATE:  
FEB. 2006

NOT TO SCALE

STD. NO.  
**3.03**





**Pawtucket**  
WATER SUPPLY BOARD



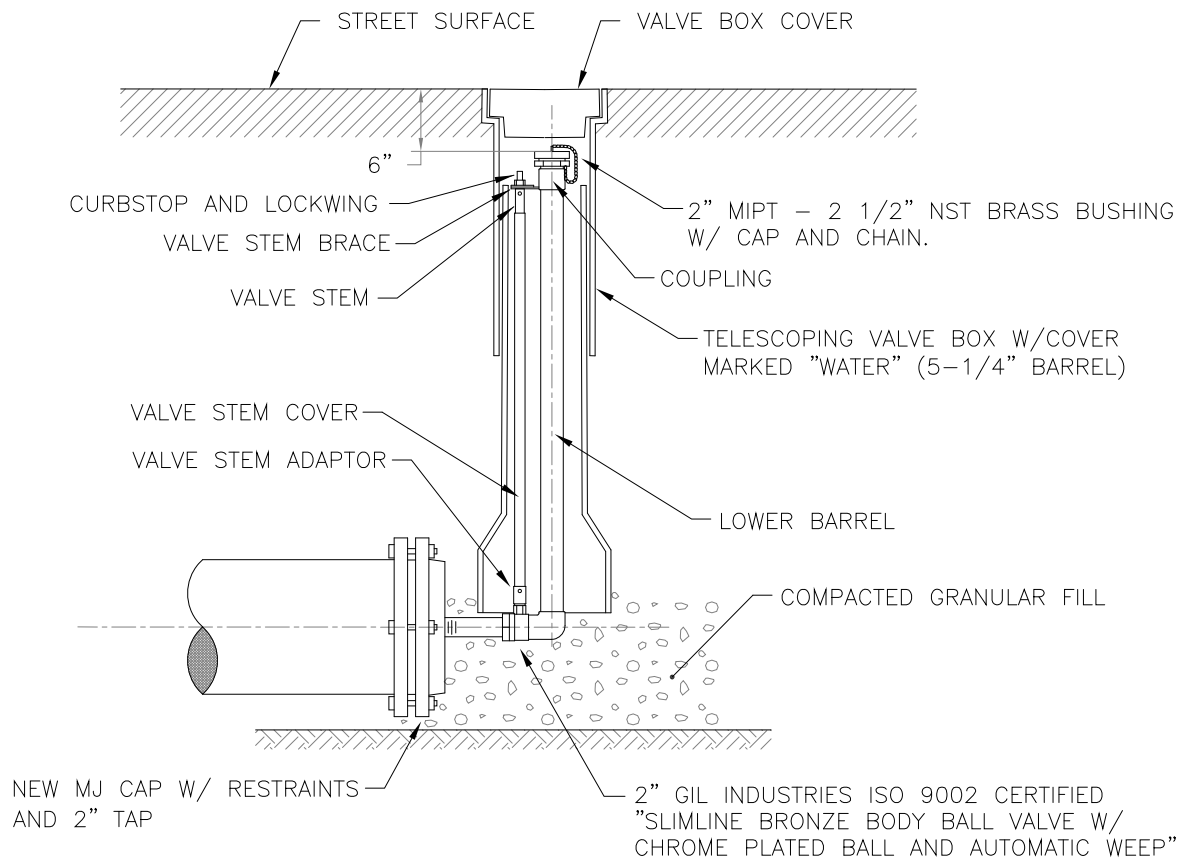
PAWTUCKET WATER SUPPLY BOARD

## 1" BLOWOFF INSTALLATION

REVISION DATE:  
FEB. 2006

NOT TO SCALE

STD. NO.  
**3.05**



**Pawtucket**  
WATER SUPPLY BOARD



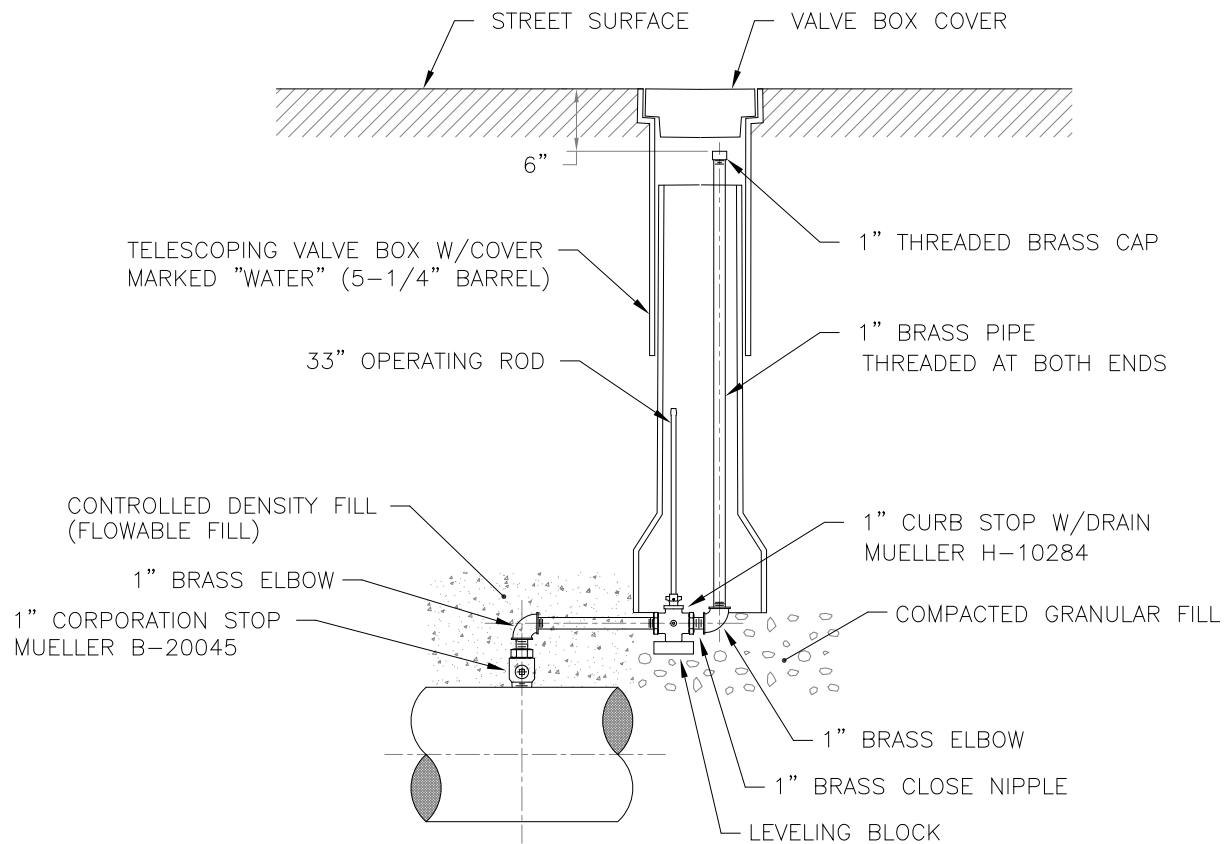
PAWTUCKET WATER SUPPLY BOARD

## 2" BLOWOFF INSTALLATION

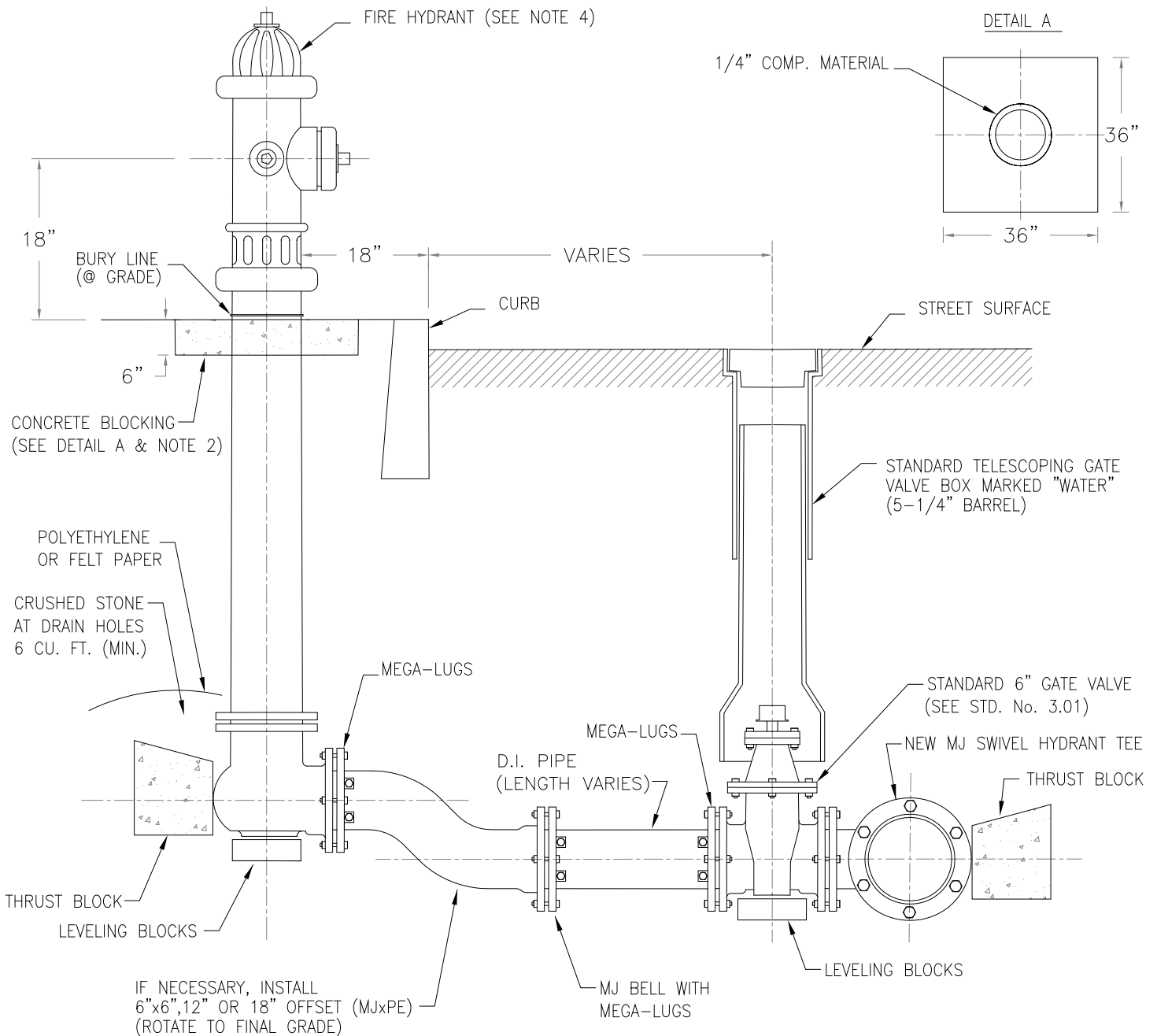
REVISION DATE:  
MAY 2006

NOT TO SCALE

STD. NO.  
**3.06**

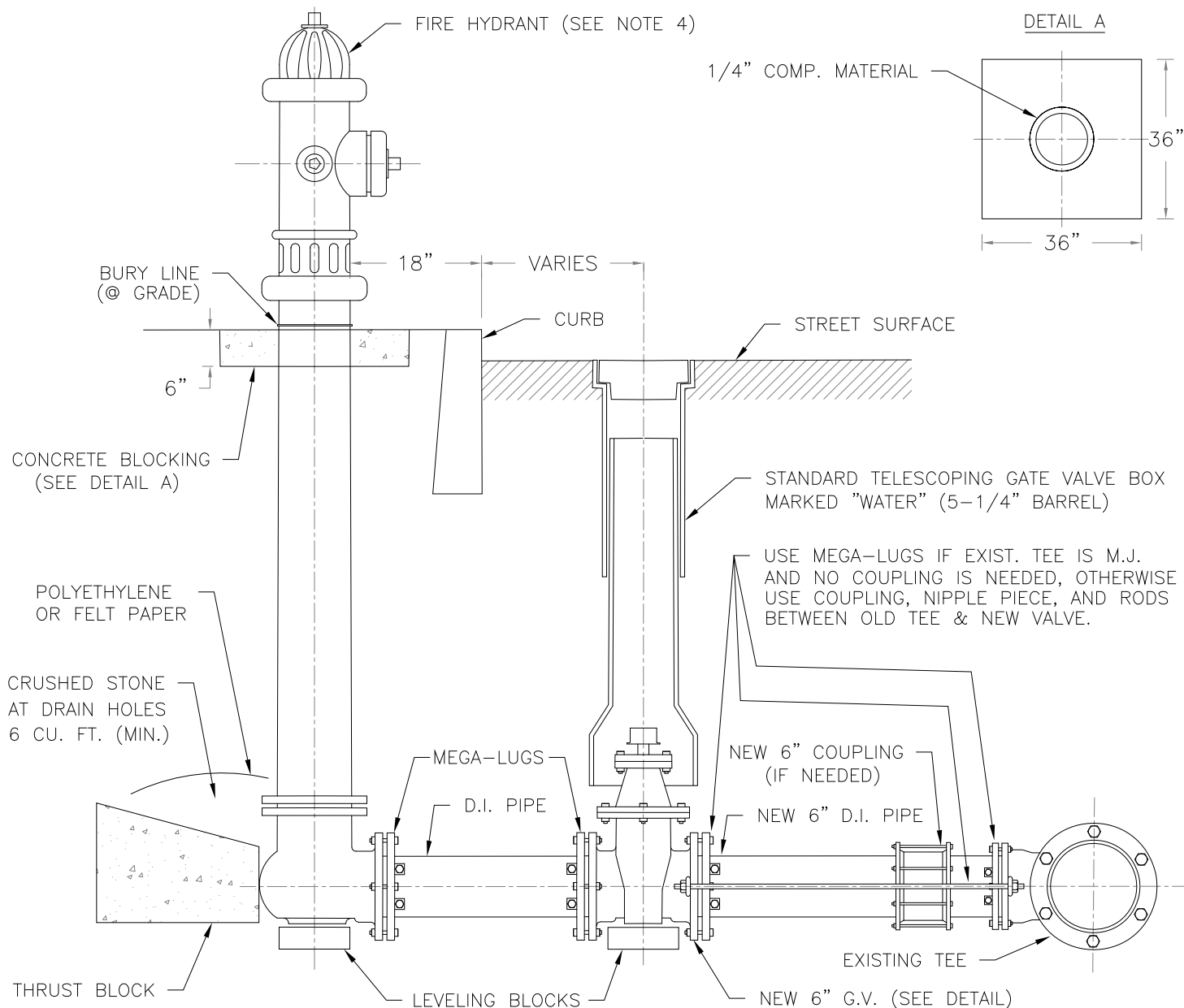






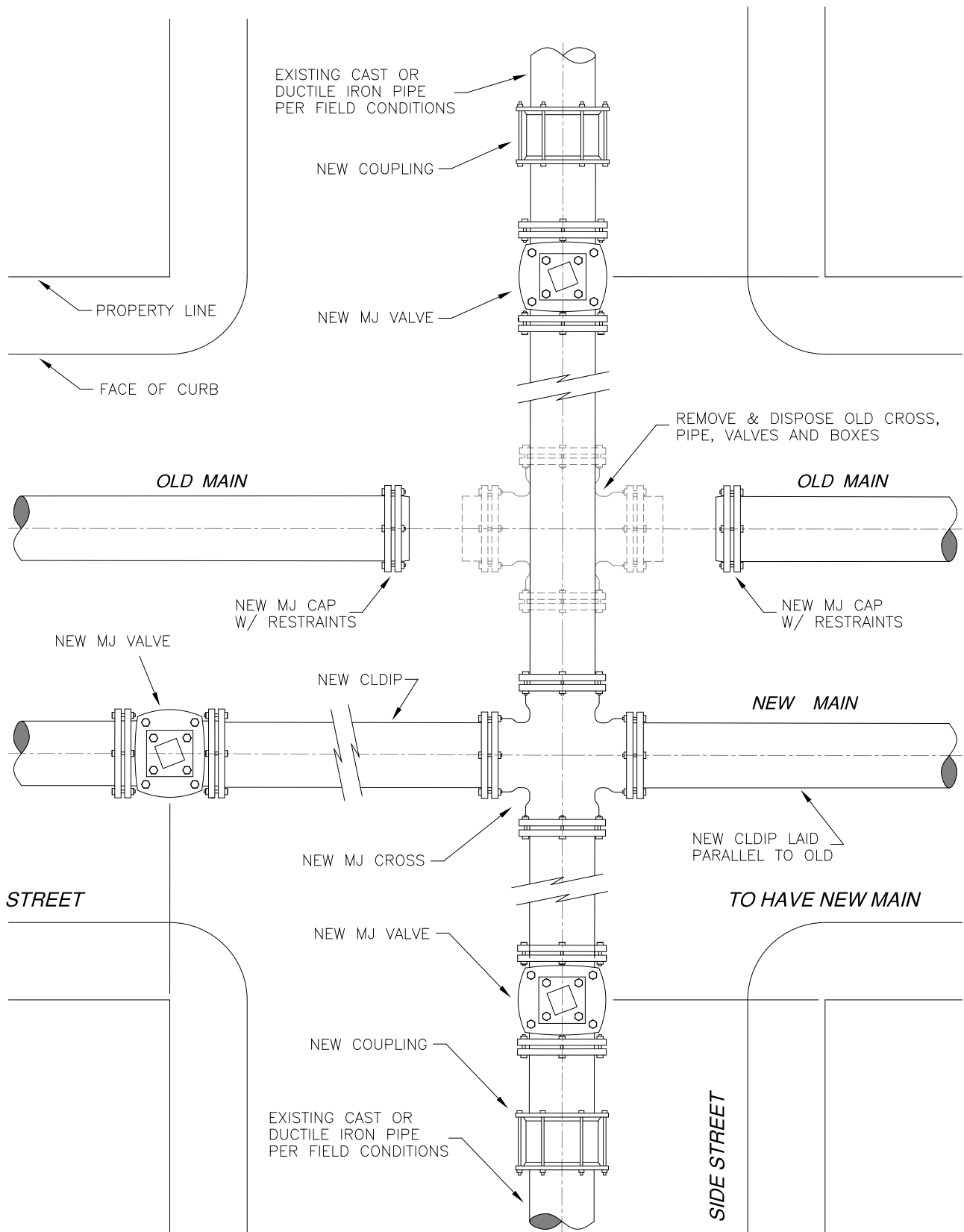
#### NOTES:

1. HYDRANT MUST BE BURIED TO PROPER DEPTH (BURY LINE ) TO ALLOW SUFFICIENT CLEARANCE TO BOLT/UNBOLT THE UPPER BARREL AND SAFETY FLANGES.
2. WHERE UPPER RESTRAINT BY SIDEWALK IS NOT PROVIDED, INSTALL CONCRETE BLOCKING ON HYDRANT BARREL AS SHOWN.
3. USE BOTH MEGA-LUG RESTRAINT GLANDS AND THRUST BLOCKS. THRUST BLOCKING SHALL HAVE A MINIMUM OF 3 SQUARE FEET AGAINST UNDISTURBED EARTH.
4. HYDRANT TO BE MUELLER A-423 SUPER CENTURION, MJ SHOE, 5-1/4" MAIN VALVE, 4-1/2" PUMPER & (2) 2-1/2" HOSE NOZZLES, OPEN LEFT, COLOR TO BE CHROME YELLOW, BURY TO BE MEASURED IN FIELD.



NOTES:

1. HYDRANT MUST BE BURIED TO PROPER DEPTH (BURY LINE ) TO ALLOW SUFFICIENT CLEARANCE TO BOLT/UNBOLT THE UPPER BARREL AND SAFETY FLANGES. IF NEEDED, INSTALL PWSB SUPPLIED EXTENSION.
2. WHERE UPPER RESTRAINT BY SIDEWALK IS NOT PROVIDED, INSTALL CONCRETE BLOCKING ON HYDRANT BARREL AS SHOWN.
3. USE BOTH MEGA-LUG RESTRAINT GLANDS AND THRUST BLOCKS. THRUST BLOCKING SHALL HAVE A MINIMUM OF 3 SQUARE FEET AGAINST UNDISTURBED EARTH.
4. HYDRANT TO BE MUELLER A-423 SUPER CENTURION, MJ SHOE, 5-1/4" MAIN VALVE, 4-1/2" PUMPER & (2) 2-1/2" HOSE NOZZLES, OPEN LEFT, COLOR TO BE CHROME YELLOW, BURY TO BE MEASURED IN FIELD.



**Pawtucket**  
WATER SUPPLY BOARD

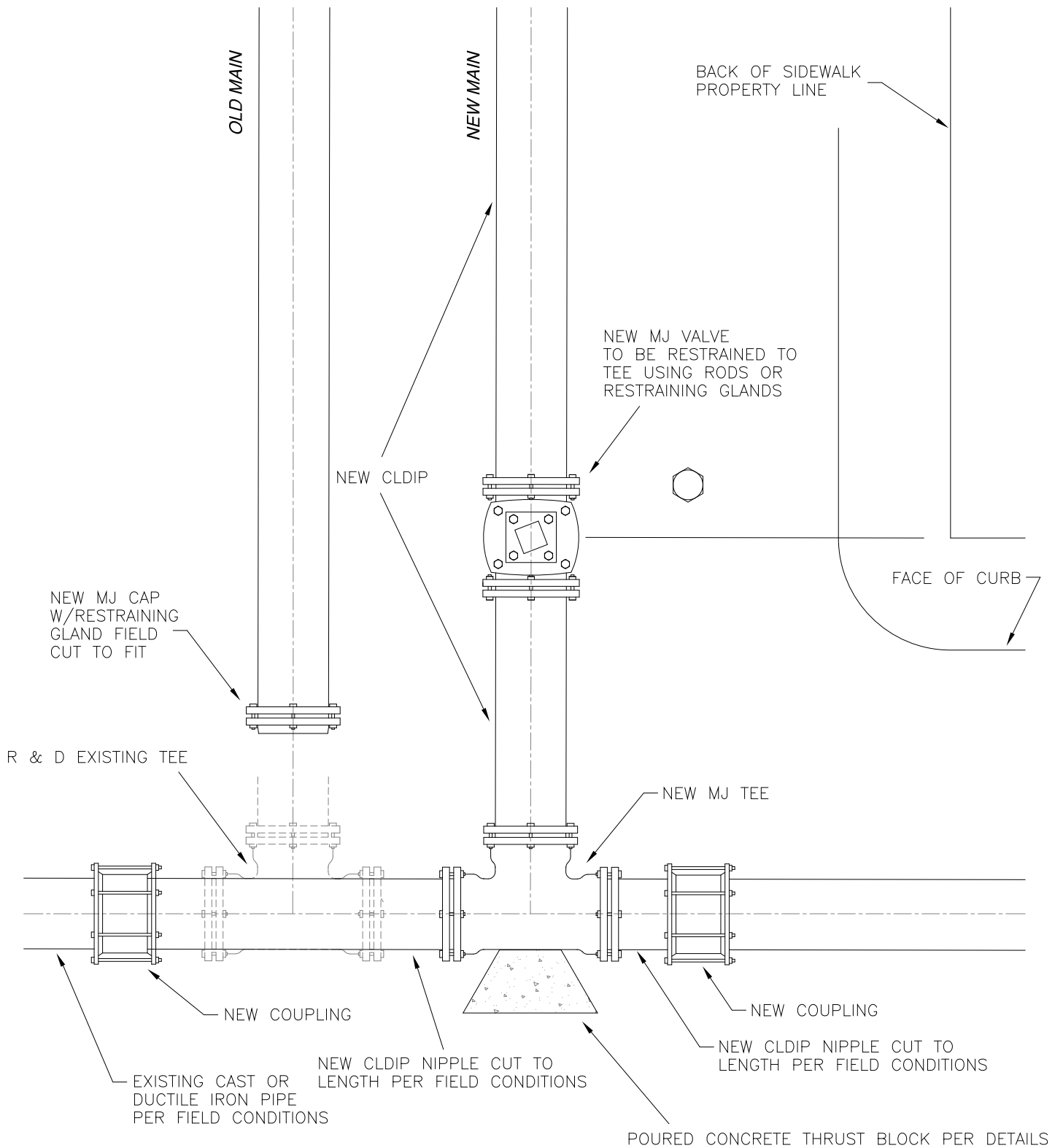


**PAWTUCKET WATER SUPPLY BOARD**  
**MAIN CONNECTION AT INTERSECTION**  
**(CROSS)**

REVISION DATE:  
FEB. 2006

NOT TO SCALE

STD. NO.  
**5.01**



**Pawtucket**  
WATER SUPPLY BOARD

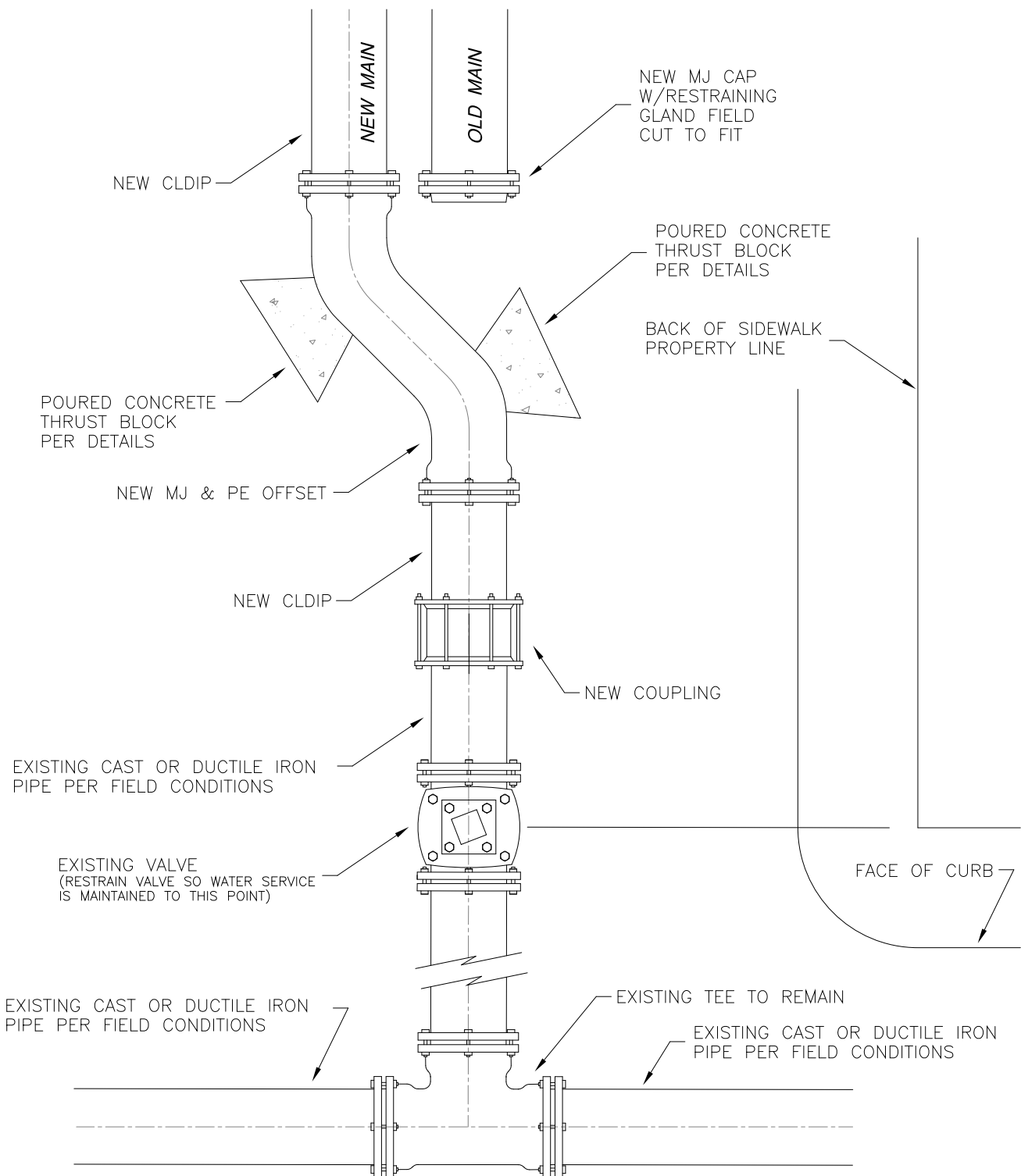


**PAWTUCKET WATER SUPPLY BOARD**  
**MAIN CONNECTION AT INTERSECTION**  
**(CUT-IN TEE)**

REVISION DATE:  
FEB. 2006

NOT TO SCALE

STD. NO.  
**5.02**



**Pawtucket**  
WATER SUPPLY BOARD

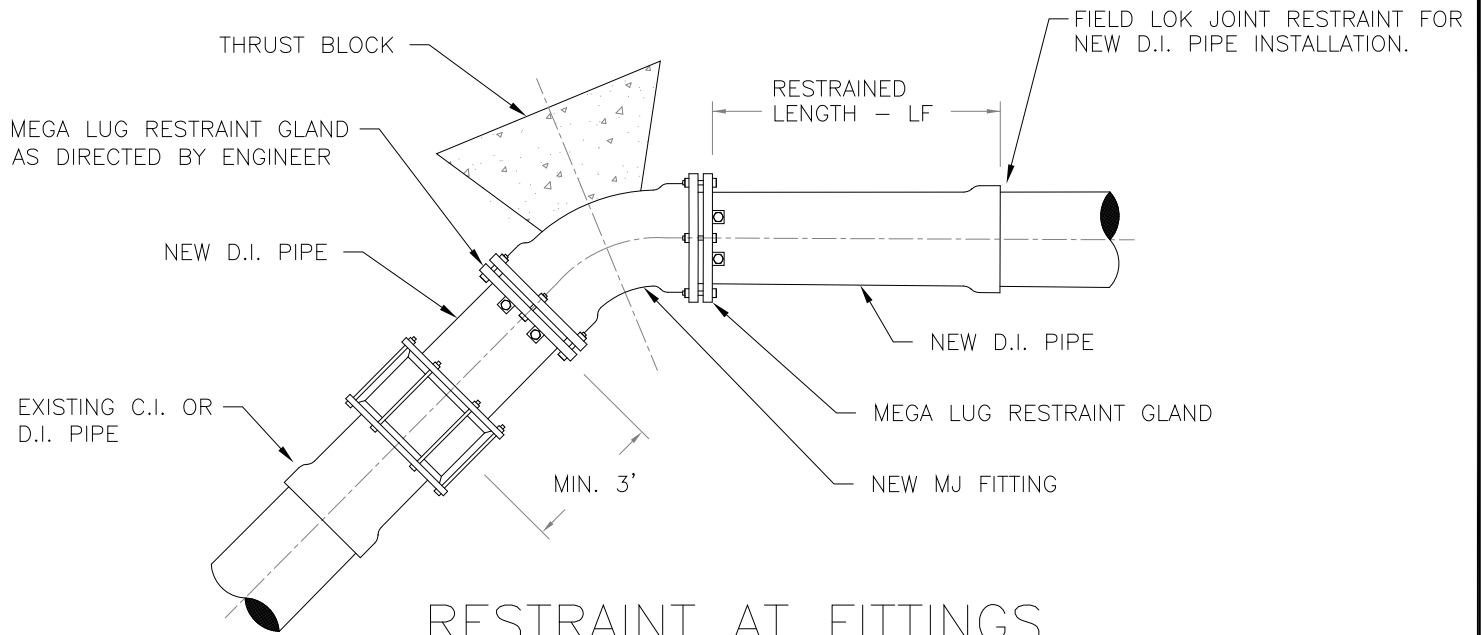


**PAWTUCKET WATER SUPPLY BOARD**  
**MAIN CONNECTION AT INTERSECTION**  
**(OFFSET)**

REVISION DATE:  
FEB. 2006

NOT TO SCALE

STD. NO.  
**5.03**



## RESTRAINT AT FITTINGS

MINIMUM SURFACE AREA OF CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH - IN S.F. (SQUARE FEET)

MINIMUM RESTRAINED LENGTH OF PIPE ON EITHER SIDE OF FITTING - IN L.F. (LINEAR FEET)

PIPE SIZE	PLUG		TEE		90° BEND		45° BEND		22½° BEND		11¼° BEND	
	SF	LF	SF	LF	SF	LF	SF	LF	SF	LF	SF	LF
6"	2.8	37	2.8	32	4.0	18	2.1	7	1.1	4	1.0	2
8"	4.8	48	4.8	43	6.8	23	3.7	10	1.9	5	1.0	2
10"	7.3	58	7.3	53	10.3	28	5.6	12	2.8	6	1.4	3
12"	10.3	69	10.3	63	14.5	33	7.9	14	4.0	6	2.0	3
16"	17.8	89	17.8	83	25.2	42	13.6	17	7.0	8	3.5	4
20"	27.5	108	27.5	102	38.9	51	21.0	21	10.7	10	5.4	5
24"	39.2	127	39.2	121	55.4	59	30.0	25	15.3	12	7.7	6

1. ALL CONCRETE TO BE CLASS B (AE)
2. THE "SF" VALUES IN THE ABOVE TABLE ARE BASED ON 3000 p.s.f. SOIL BEARING CAPACITY, 150 p.s.i. TEST PRESSURE AND A 1.5 FACTOR OF SAFETY.
3. THE "LF" VALUES IN THE ABOVE TABLE ARE BASED ON A TYPE 3 LAYING CONDITIONS, A SAND SILT SOIL DESIGNATION, A 5 FOOT RUN LENGTH, 150 P.S.I. TEST PRESSURE AND A 1.5 FACTOR OF SAFETY AS USED IN THE "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" COMPUTER PROGRAM BY THE DUCTILE IRON PIPE RESEARCH ASSOCIATION.
4. IF SOIL CONDITIONS OR EXCAVATION LIMITS ENCOUNTERED DURING CONSTRUCTION MAKE IT UNFEASIBLE TO PLACE THRUST BLOCKS AGAINST UNDISTURBED EARTH OF THE PROPER BEARING CAPACITY, THE CONTRACTOR SHALL DESIGN AND PLACE SPECIAL REACTION BLOCKS OF SUFFICIENT WEIGHT TO RESIST FULL THRUST UNDER ALL CONDITIONS. THE DESIGN SHALL BE SUBJECT TO PWSB APPROVAL.
5. MINIMUM SURFACE AREAS SHALL BE INCREASED BY 50% IF DEEMED NECESSARY BY THE ENGINEER.
6. A MECHANICAL JOINT RESTRAINT SYSTEM MUST BE USED FOR VERTICAL BENDS.
7. AT THE DISCRETION OF THE ENGINEER, A JOINT RESTRAINT SYSTEM MAY BE SUBSTITUTED FOR OR USED IN COMBINATION WITH PROPER THRUST BLOCKING.
8. A 48 HR. CURING PERIOD MUST BE GIVEN BEFORE FULL LINE PRESSURE CAN BE APPLIED TO NEW CONCRETE THRUST BLOCKS.
9. ANCHOR BLOCK DESIGN FOR PIPE LARGER THAN 24" SHALL BE REVIEWED ON AN INDIVIDUAL BASIS BY THE PWSB.

**Pawtucket**  
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**PAWTUCKET WATER SUPPLY BOARD**

## RESTRAINT AT FITTINGS

REVISION DATE:  
MAY 2006

NOT TO SCALE

STD. NO.  
**5.04**

LOAM & SEED IN EXIST.  
GRASSED AREAS

SAWCUT PAVEMENT EDGE

PAVEMENT PAYMENT LIMIT

BITUMINOUS PAVEMENT

12" PROCESSED GRAVEL

6"

4"

PAYMENT LINE FOR  
TRENCH ROCK EXC.

3'-0" MIN.

5'-0" MINIMUM COVER

SELECTED BACKFILL  
COMPACTED IN 12" LIFTS

COMPACTED GRAVEL OR  
SUITABLE MATERIAL

12" MIN.

UNDISTURBED EARTH

NEW WATER MAIN

EARTH  
TRENCH

ROCK  
TRENCH

COMPACTED GRAVEL

6" MIN. CUSHION TO ROCK SURFACE

NOTE: SUITABLE BACKFILL SHALL BE SELECTED FROM  
EXCAVATED MATERIALS AND IS SUBJECT TO THE APPROVAL  
OF THE PWSB ENGINEER.

**Pawtucket**  
WATER SUPPLY BOARD



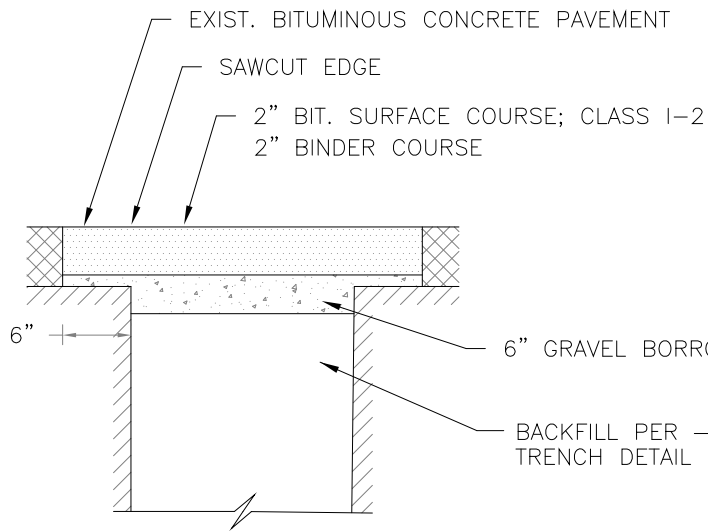
PAWTUCKET WATER SUPPLY BOARD

## TYPICAL TRENCH DETAIL

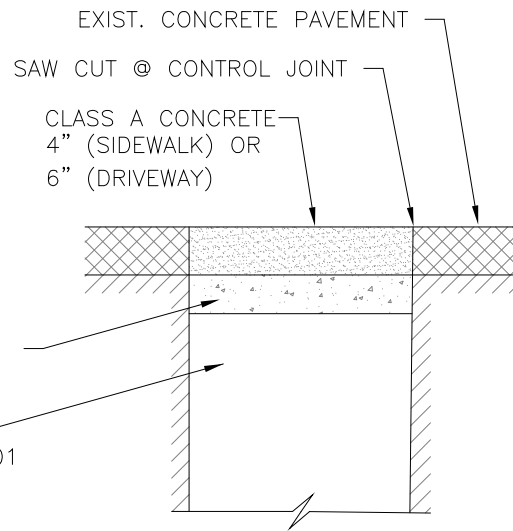
REVISION DATE:  
MAY 2006

NOT TO SCALE

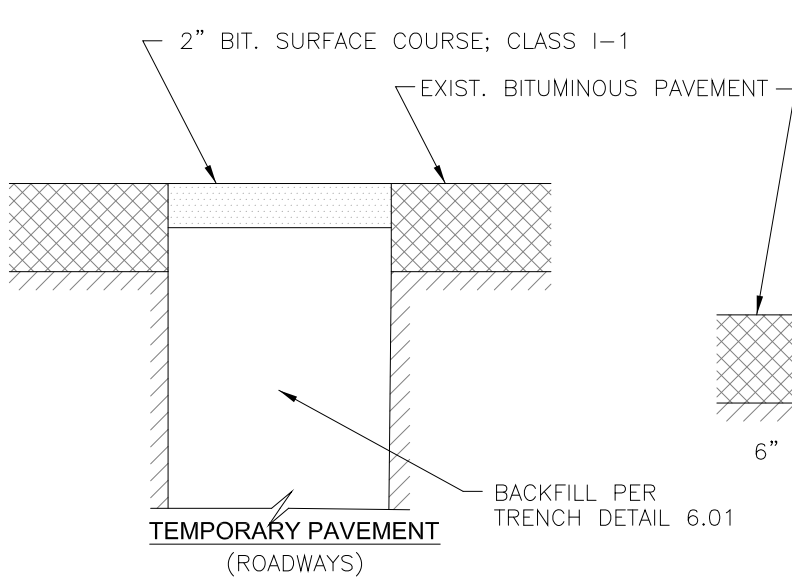
STD. NO.  
**6.01**



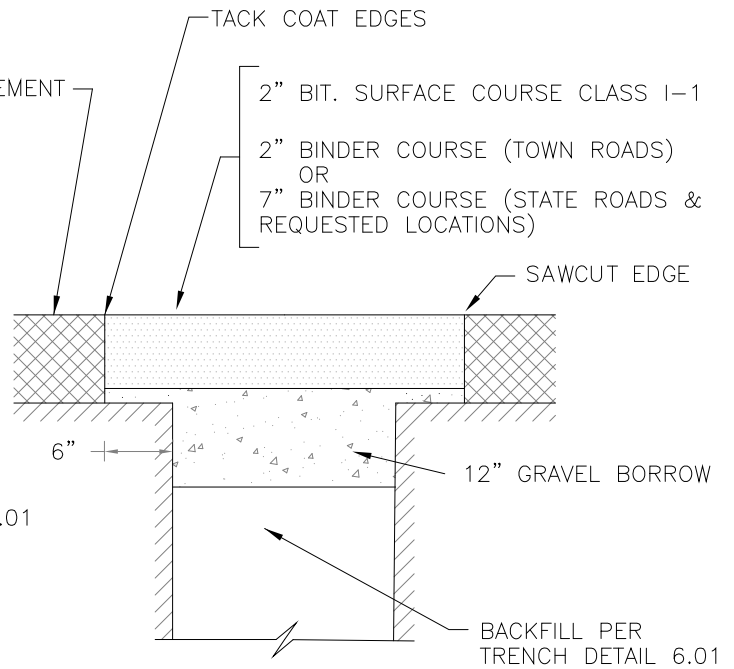
**PERMANENT PAVEMENT**  
(BIT. DRIVEWAYS & SIDEWALKS)



**PERMANENT PAVEMENT**  
(CONC. DRIVEWAYS & SIDEWALKS)



**TEMPORARY PAVEMENT**  
(ROADWAYS)

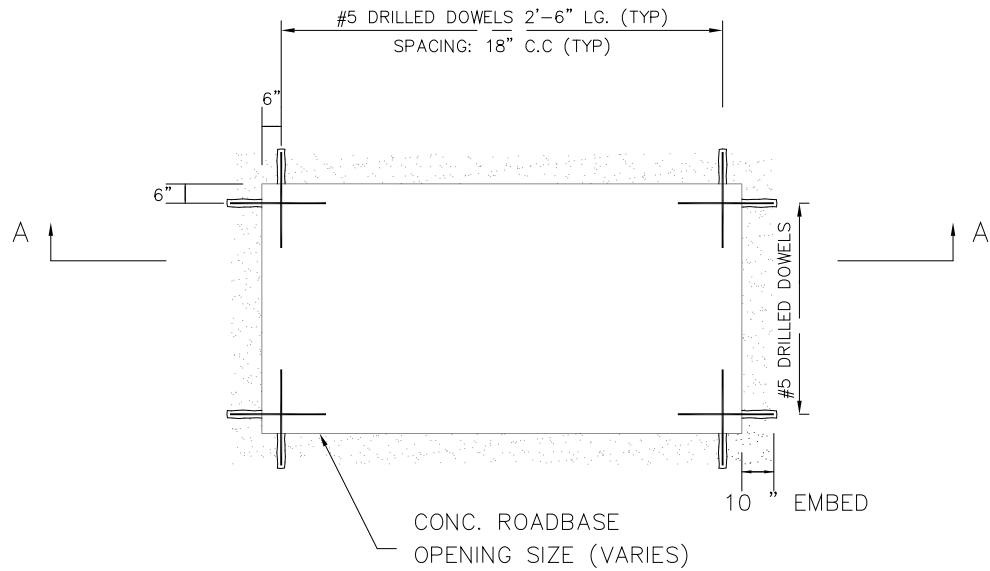


**PERMANENT PAVEMENT**  
(ROADWAYS)

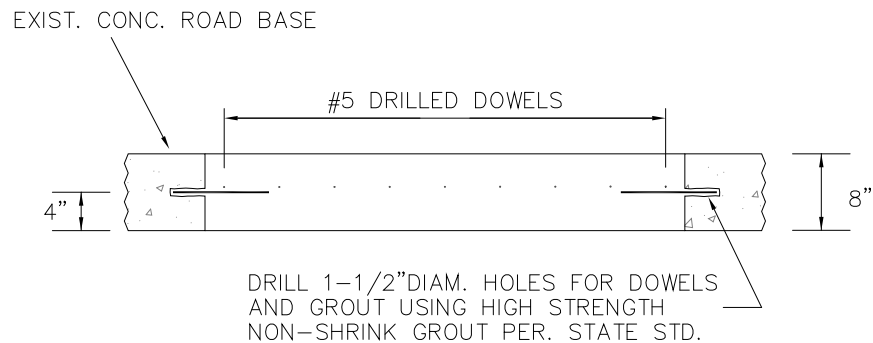
**NOTES:**

1. FOR TEMPORARY AND PERMANENT PATCHING IN STATE ROADS, THE CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE RIDOT.
2. THE CONTRACTOR IS REQUIRED TO OBTAIN AND MEET THE REQUIREMENTS OF ANY AND ALL PERMITS FROM THE STATE, CITY OR TOWN THAT THE WORK WILL BE PERFORMED IN.



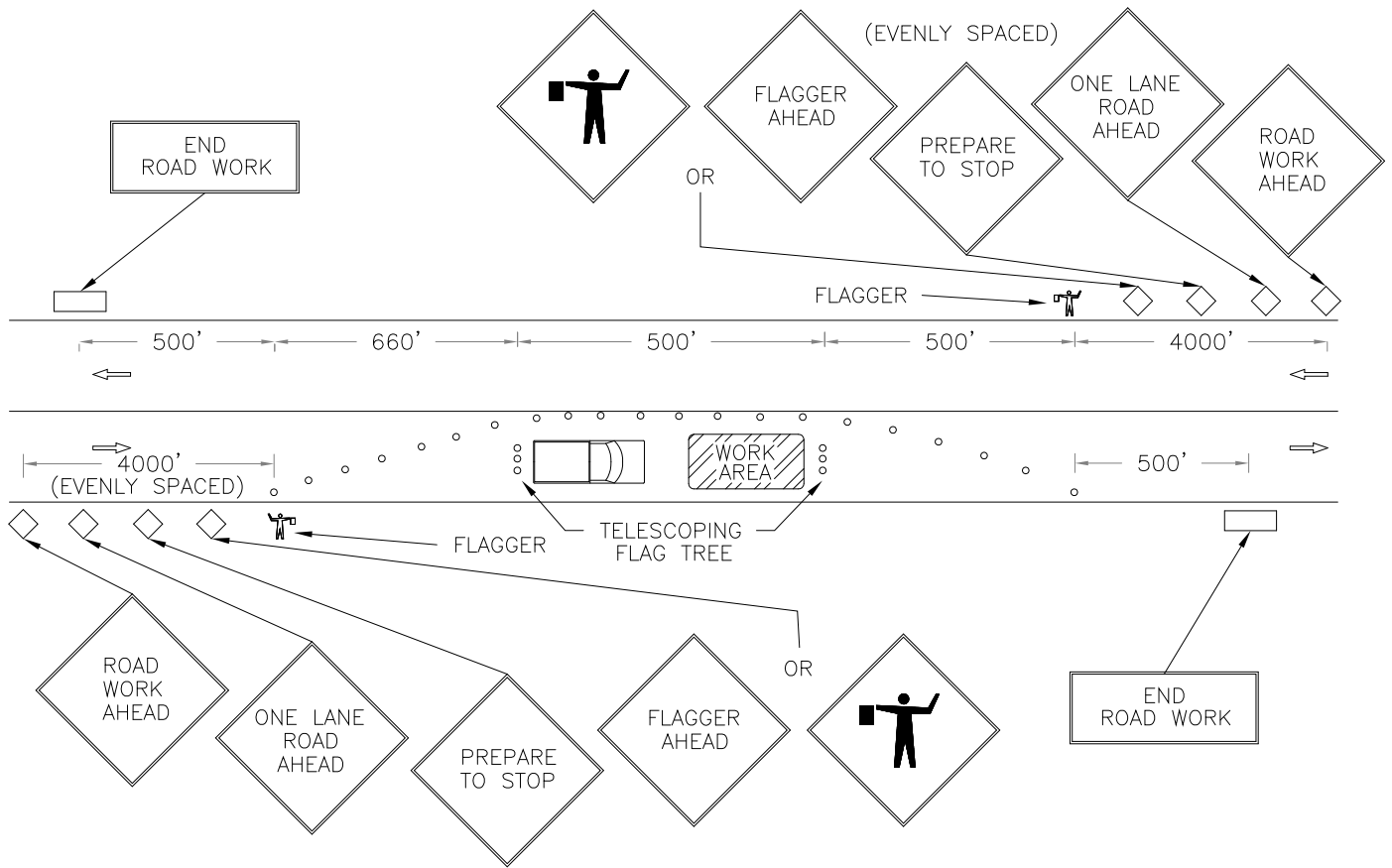


CONC. ROADBASE REPAIR  
PLAN VIEW  
(NTS)

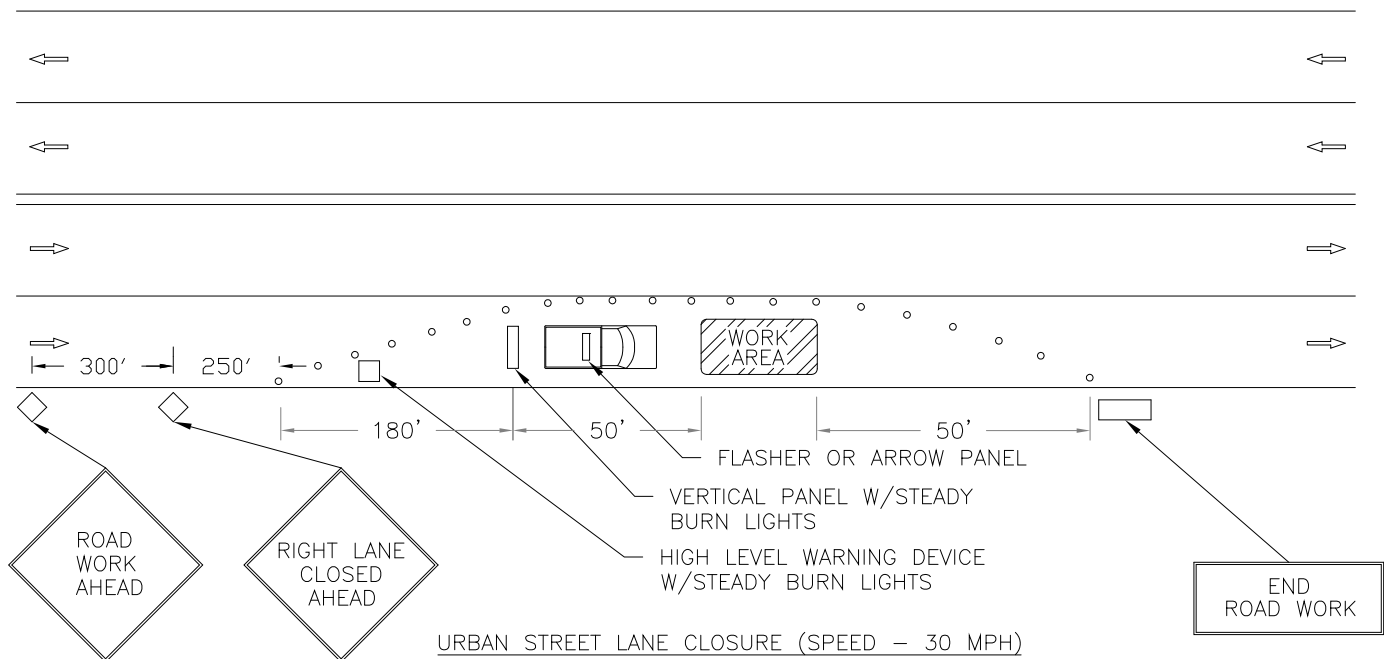


SECTION A-A  
(NTS)

- NOTES:
1. THE CLASS OF CONCRETE TO BE USED SHALL BE IN ACCORDANCE WITH SECTION 601.01.1, TABLE 1 TITLED "PORTLAND CEMENT CONCRETE" OF THE STATE STANDARD SPECIFICATIONS.
  2. MATCH EXISTING BITUMINOUS (CLASS I-1)
  3. ALL WORK TO MEET REQUIREMENTS OF THE STATE STANDARD SPECIFICATIONS.



RURAL TWO-LANE HIGHWAY — ALTERNATING ONE-WAY OPERATION



URBAN STREET LANE CLOSURE (SPEED - 30 MPH)

**Pawtucket**  
WATER SUPPLY BOARD



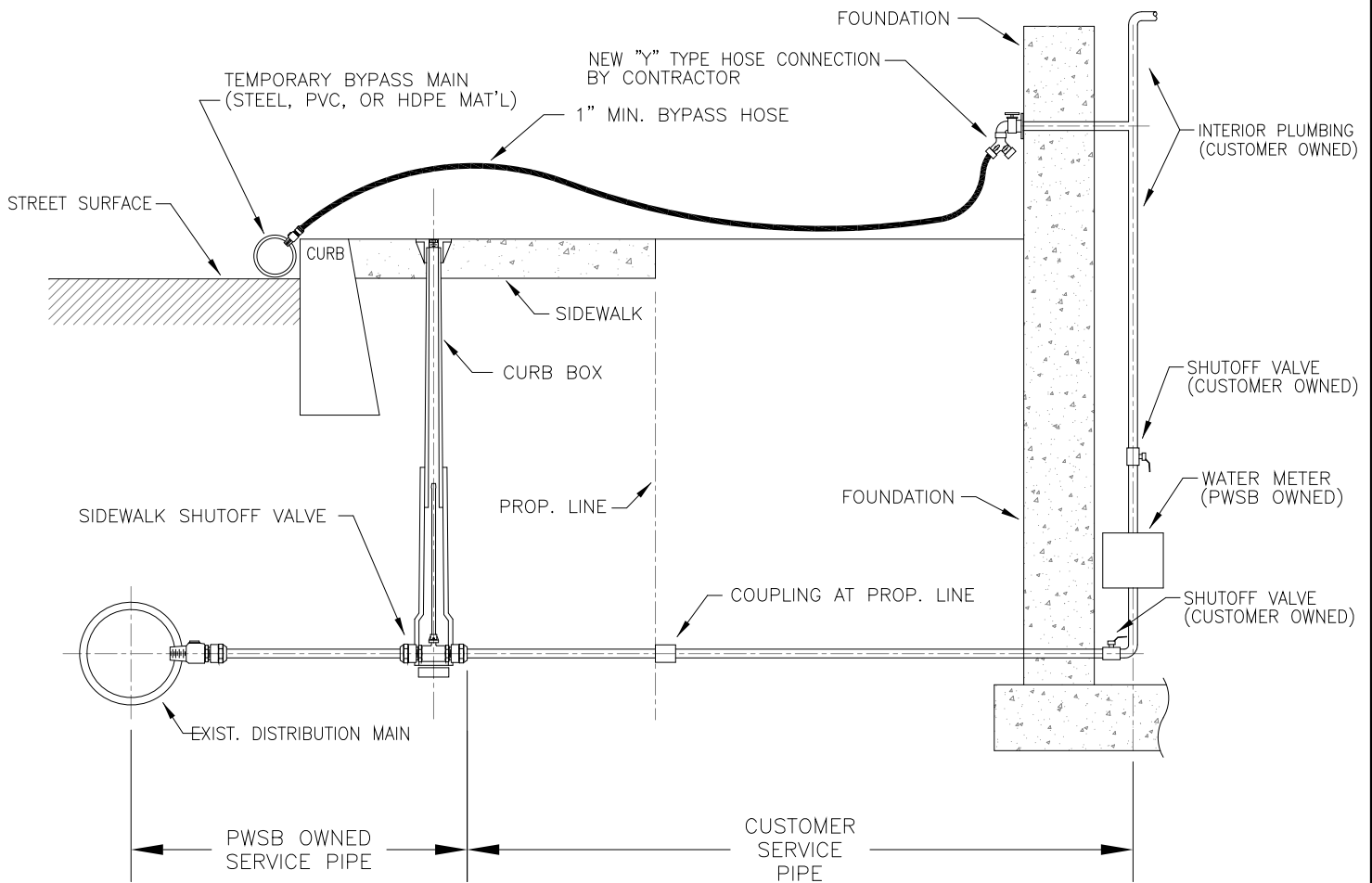
**PAWTUCKET WATER SUPPLY BOARD**

**SIGNING AND BARRICADES**

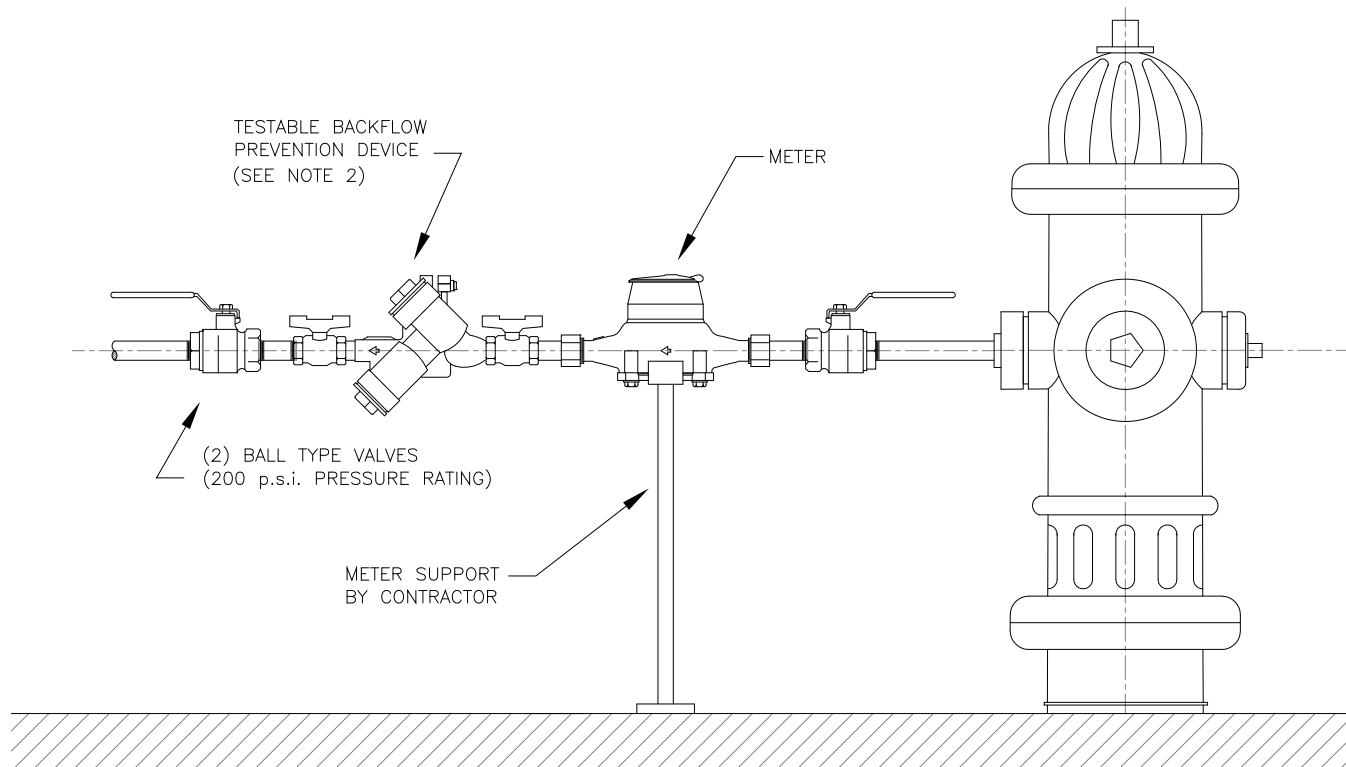
REVISION DATE:  
FEB. 2006

NOT TO SCALE

STD. NO.  
**7.01**



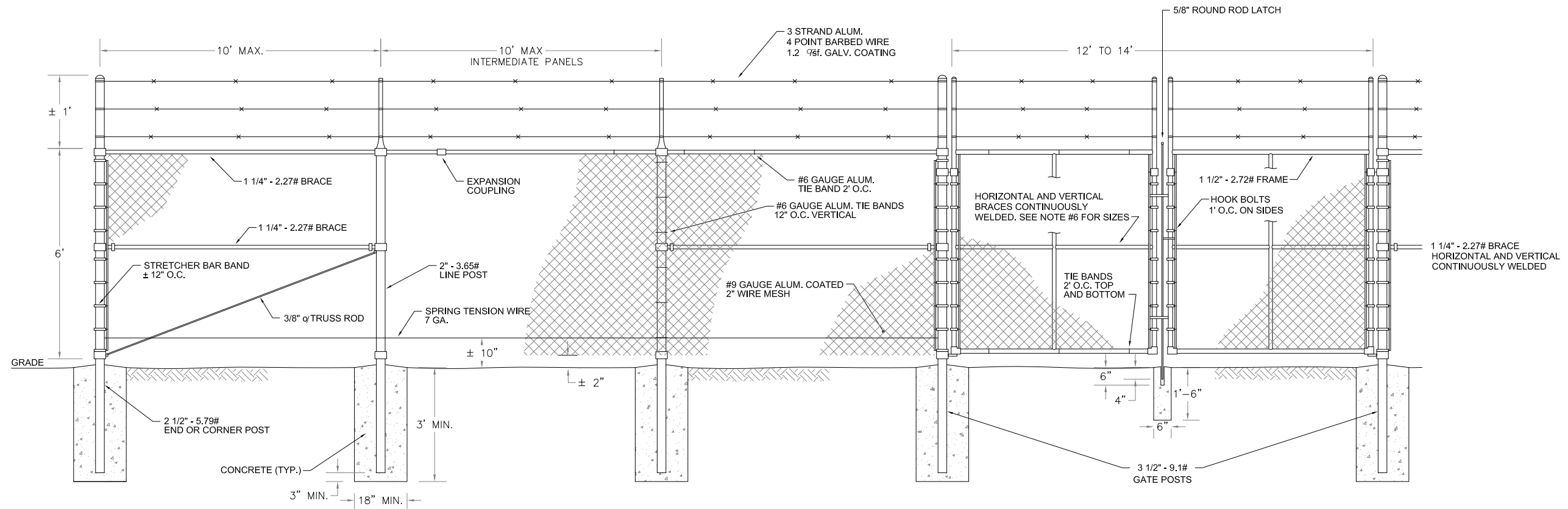
1. TEMPORARY BYPASS PIPING & SERVICE MATERIAL SHALL BE APPROVED BY THE PWSB PRIOR TO INSTALLATION AND SHALL BE NSF-61 AND/OR FDA APPROVED FOR CONTACT WITH DRINKING WATER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE PWSB SPECIFICATIONS FOR "TEMPORARY BYPASS PIPING AND SERVICES" LATEST REVISION.
2. PRIOR TO INSTALLATION, CONTRACTOR SHALL SUBMIT 2 COPIES OF BYPASS LAYOUT PLAN TO THE PWSB FOR REVIEW & APPROVAL.
3. TEMPORARY BYPASS MAIN SHALL REQUIRE A MINIMUM OF TWO "FEED" CONNECTIONS TO EXISTING ACTIVE HYDRANTS OR MAINS, IF POSSIBLE.
4. TEMPORARY REMOVAL OF WATER METERS SHALL BE PERFORMED BY PWSB METER DEPARTMENT PERSONNEL ONLY.



TEMPORARY METER INSTALLATION – ELEVATION VIEW

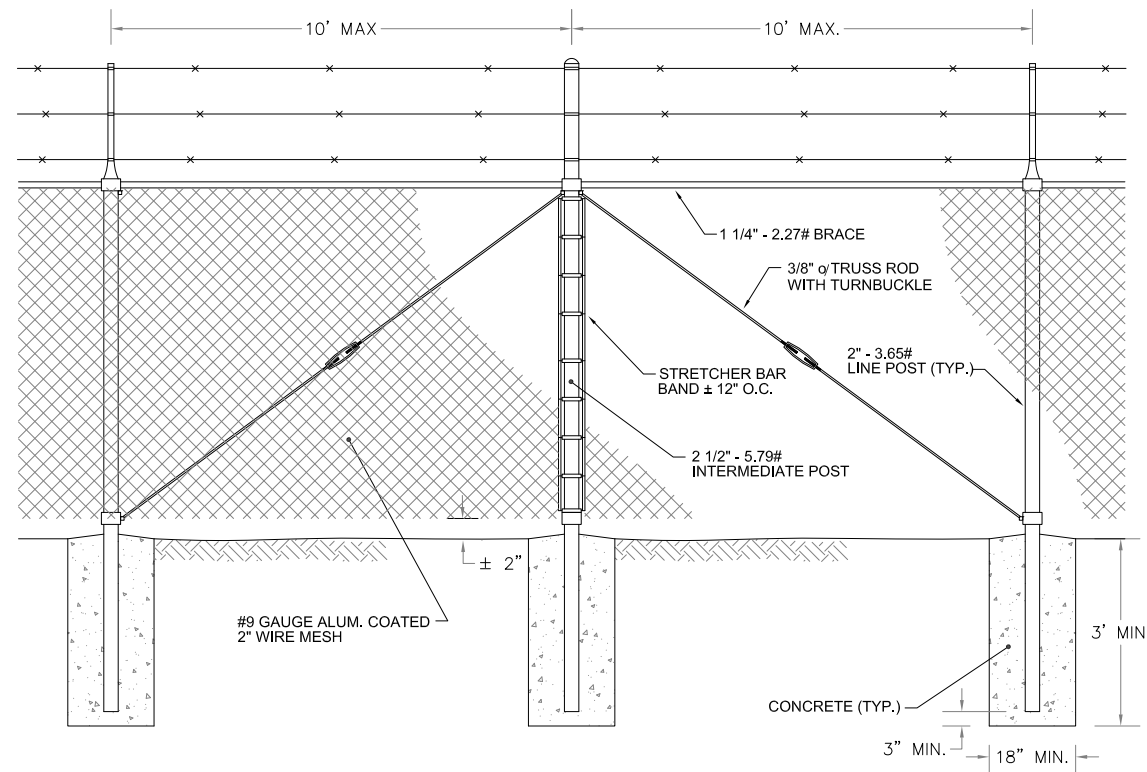
NOTES

1. THE METER SHALL BE INSTALLED HORIZONTALLY.
2. TEMPORARY WATER SERVICE CONNECTIONS REQUIRE A PWSB APPROVED TESTABLE BACKFLOW PREVENTION DEVICE. ALL IN ACCORDANCE WITH SECTION 10 OF THE PWSB REGULATIONS, LATEST REVISION.
3. CONTRACTOR MUST NOTIFY THE PWSB METER DEPARTMENT WHEN THE METER INSTALLATION IS COMPLETE.



**ELEVATION WITH DOUBLE GATE**

NOT TO SCALE



**ELEVATION AT INTERMEDIATE POST**

NOT TO SCALE

**NOTES**

1. FENCE SHALL BE IN ACCORDANCE WITH SECTION 902 OF THE R.I. STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.
2. ALL PIPES REFER TO SCHEDULE 40 NORMAL PIPE SIZES.
3. ALL FENCE POSTS SHALL BE PROVIDED WITH GALVANIZED CAST STEEL OR MALLEABLE IRON POST TOPS.
4. FENCE FABRIC SHALL HAVE TWISTED BARBED SELVAGES IN THE TOP AND BOTTOM EDGES.
5. WHERE LEDGE IS ENCOUNTERED AT FENCE POST FOOTINGS, POSTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 902.03.2 OF THE STANDARD SPECIFICATIONS.
6. FOR 12' GATE, 1 1/4\" - 2.27# BRACE IS TO BE USED FOR VERTICAL AND HORIZONTAL BRACING AND FOR 14' GATE, 1 1/2\" - 2.72# BRACE IS TO BE USED FOR VERTICAL AND HORIZONTAL BRACING.
7. SPRING TENSION WIRE - NO.7 GA. - CORRUGATED HEAVILY GALV. (1.6 OZ.)

**Pawtucket**  
WATER SUPPLY BOARD

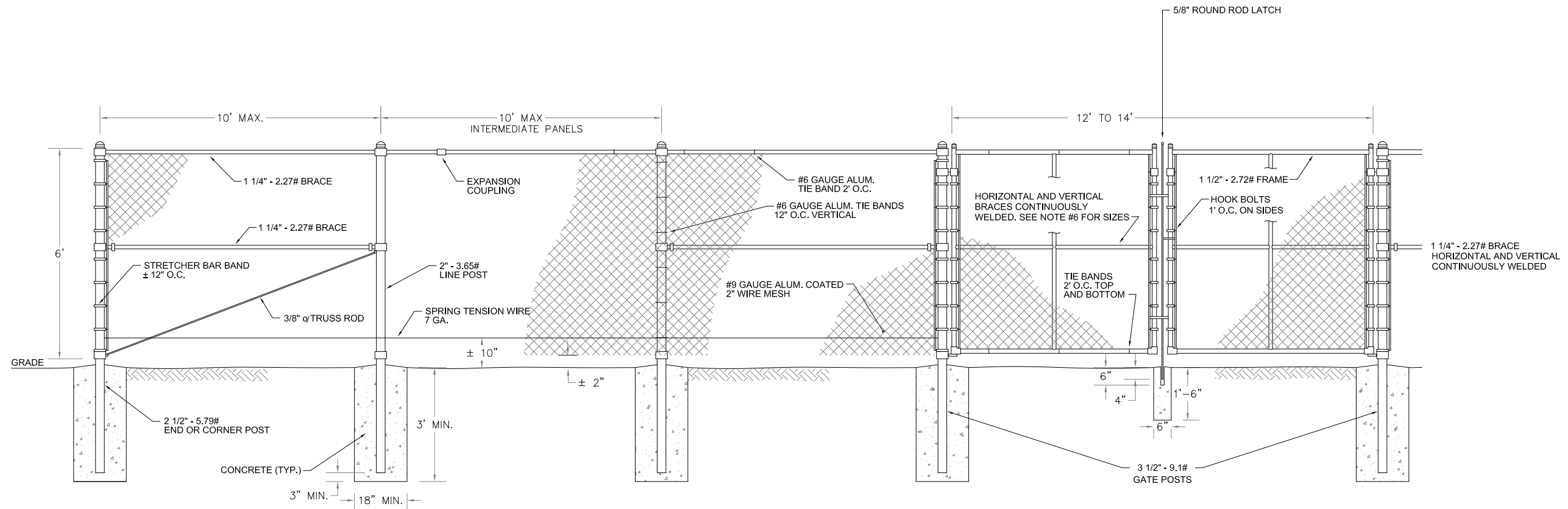


**PAWTUCKET WATER SUPPLY BOARD**  
**NEW CHAIN LINK FENCE WITH BARBED WIRE**  
**INSTALLATION**

REVISION DATE:  
MAR 2006

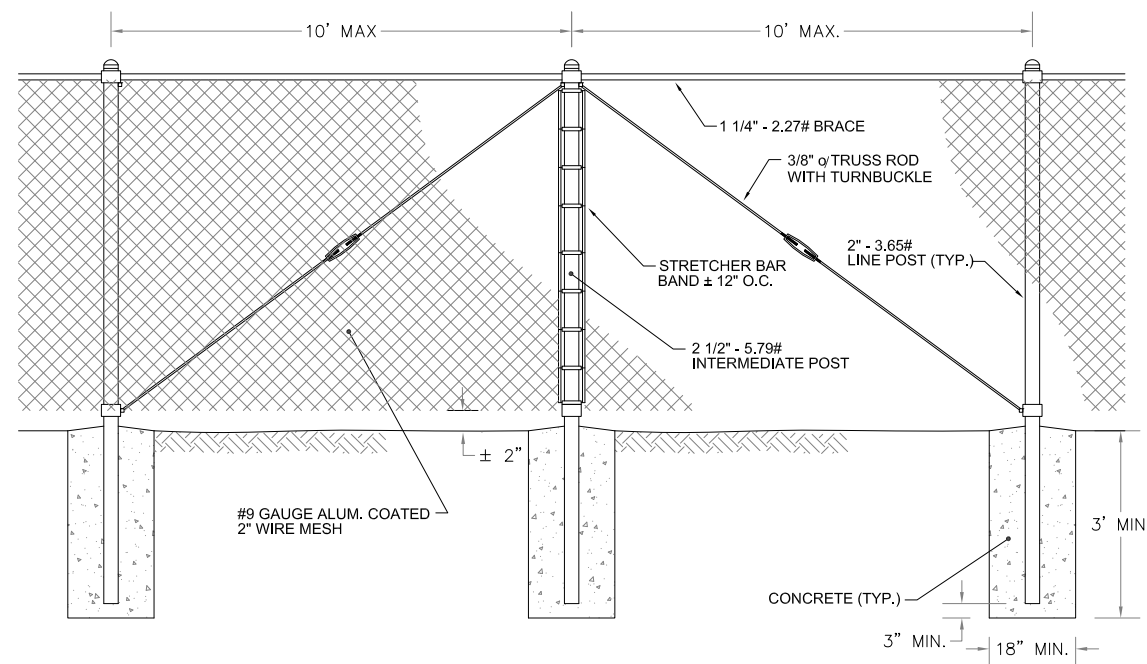
NOT TO SCALE

STD. NO.  
**9.01**



**ELEVATION WITH DOUBLE GATE**

NOT TO SCALE



**ELEVATION AT INTERMEDIATE POST**

NOT TO SCALE

**NOTES**

1. FENCE SHALL BE IN ACCORDANCE WITH SECTION 902 OF THE R.I. STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.
2. ALL PIPES REFER TO SCHEDULE 40 NORMAL PIPE SIZES.
3. ALL FENCE POSTS SHALL BE PROVIDED WITH GALVANIZED CAST STEEL OR MALLEABLE IRON POST TOPS.
4. FENCE FABRIC SHALL HAVE TWISTED BARBED SELVAGES IN THE TOP AND BOTTOM EDGES.
5. WHERE LEDGE IS ENCOUNTERED AT FENCE POST FOOTINGS, POSTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 902.03.2 OF THE STANDARD SPECIFICATIONS.
6. FOR 12' GATE, 1 1/4\" - 2.27# BRACE IS TO BE USED FOR VERTICAL AND HORIZONTAL BRACING AND FOR 14' GATE, 1 1/2\" - 2.72# BRACE IS TO BE USED FOR VERTICAL AND HORIZONTAL BRACING.
7. SPRING TENSION WIRE - NO.7 GA. - CORRUGATED HEAVILY GALV. (1.6 OZ.)

**Pawtucket**  
WATER SUPPLY BOARD



**PAWTUCKET WATER SUPPLY BOARD**

**NEW CHAIN LINK FENCE INSTALLATION**

REVISION DATE:  
APRIL 2017

NOT TO SCALE

STD. NO.  
**9.02**