

GUIDELINES AND POLICIES

- DETAIL DRAWINGS -

Version 1, April 1, 2008
Revised: June 18, 2008

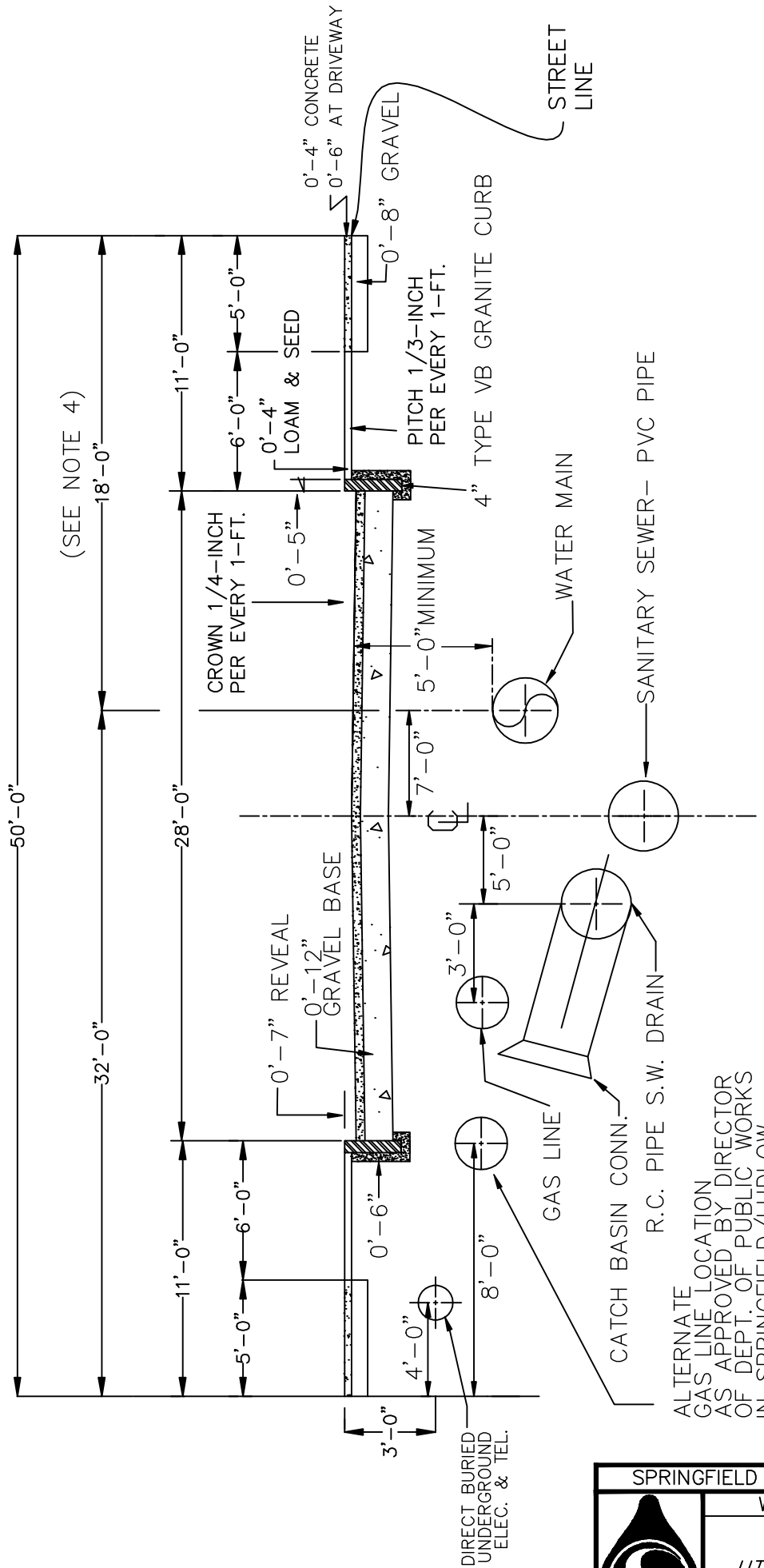


Springfield Water and Sewer Commission


P.O. Box 995
Springfield, MA 01101-0995

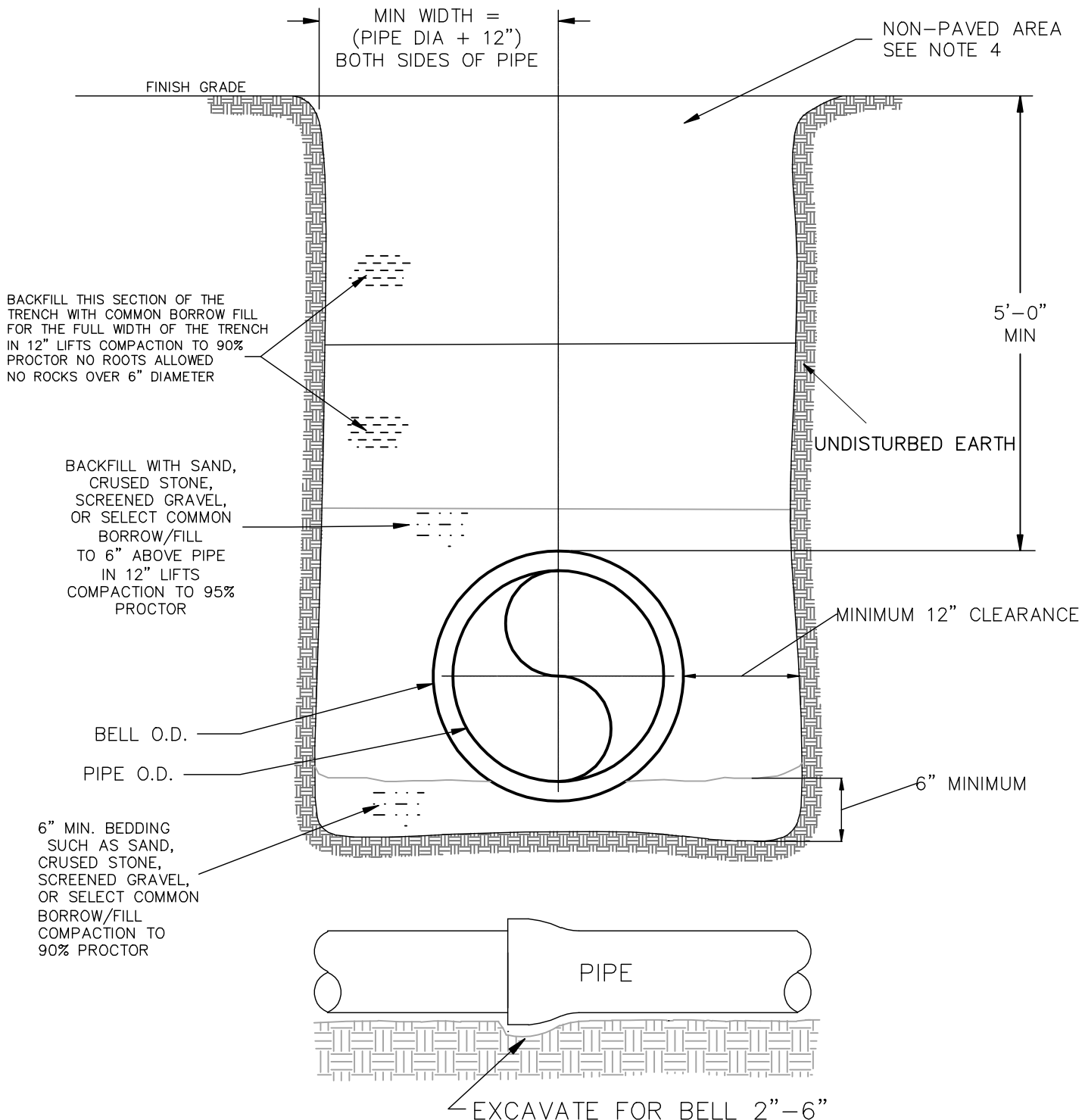
Daniel Rodriguez, Chairman
William E. Leonard, Commissioner
Carmen E. Serrano-Gerena, Commissioner

(W-01.0) UTILITY SEPERATION DETAIL
(W-02.0) NON-PAVED AREA TRENCH DETAIL
(W-02.1) TRENCH BACKFILLING-METHOD 1 FOR LUDLOW ROADWAYS
(W-02.2) TRENCH BACKFILLING-METHOD 2 FOR LUDLOW ROADWAYS
(W-02.3) TRENCH BACKFILLING-METHOD 1 FOR ARTERIAL STREETS IN SPRINGFIELD
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(W-06.3) CUTTING-INTO EXISTING WATER MAIN WITH BELL FACING VALVE
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(W-06.5) CUTTING-INTO EXISTING WATER MAIN WITH NO BELL FOUND
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(W-06.7) SOCKET CLAMP DETAIL
(W-06.8) THREADED ROD DETAIL AND CONNECTION TO MJ DETAIL
(W-07.0) STANDARD FIRE HYDRANT ASSEMBLY
(W-07.1) ALTERNATE 1 FIRE HYDRANT ASSEMBLY
(W-07.2) ALTERNATE 2 FIRE HYDRANT ASSEMBLY
(W-07.3) RELOCATION OF FIRE HYDRANT ASSEMBLY (STRAIGHT BACK)
(W-08.0) VALVE BOX
(W-09.0) DUCTILE IRON TAPPING SLEEVE
(W-09.1) STAINLESS STEEL TAPPING SLEEVE
(W-10.0) FLUSHING DEVICE
(W-11.0) NEW WATER SERVICE
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(W-12.0) TYPICAL SERVICE BOX DETAIL IN PAVED AREAS
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(W-13.0) 4-8 INCH METERPIT PIPING
(W-13.1) 4-8 INCH METER INSTALLATION
(W-13.2) METER PIT FOR 4-INCH WATER SERVICE PIPE
(W-13.3) METER PIT FOR 6-INCH WATER SERVICE PIPE
(W-13.4) METER PIT FOR 8-INCH WATER SERVICE PIPE
(W-13.5) METER PIT FOR 10 AND 12-INCH WATER SERVICE PIPE
(W-14.0) THRUST BLOCK BEHIND FITTING
(W-14.1) THRUST BLOCKS
(S-01.0) TRENCH DETAIL FOR SEWER PIPES
(S-02.0) PRECAST CONCRETE SEWER MANHOLE
(S-02.1) PRECAST CONCRETE SEWER PIPE CONNECTIONS
(S-02.2) END OF SEWER MAIN
(S-02.3) EXTERIOR DROP MANHOLE
(S-02.4) INTERIOR DROP MANHOLE
(S-02.5) 32 X 8 INCH FRAME & COVER
(S-02.6) 24 X 6 INCH FRAME & COVER
(S-03.0) UTILITY CROSSING DETAIL
(S-04.0) EXISTING SEWER MAIN TO BUILDING CONNECTION
(S-04.1) NEW SEWER MAIN TO BUILDING CONNECTION
(S-04.2) CLEAN OUT WITH SWEEP
(S-04.3) SEWER SERVICE CONNECTION WITH CHIMNEY GREATER THAN 12 FT DEEP
(S-04.4) BUILDING CONNECTION TO SEWER MAIN WITH CONFLICTS
(S-05.0) BUILDING AND MAINLINE SEWER REPAIR
(S-06.0) WETWELL AND VALVE VAULT PRECAST



- NOTES:**
1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
 2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
 3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
 4. ON 50-FOOT WIDE STREETS WATER MAINS SHALL BE INSTALLED 18- FEET FROM THE NORTH OR EAST STREET LINE, ALL OTHER WIDTHS REQUIRE ENGINEERING & TECHNICAL SERVICES APPROVAL.

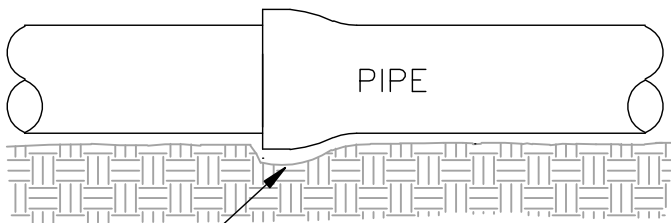
 SPRINGFIELD WATER AND SEWER COMMISSION	
WATER DETAIL W-01.0	REV. DATE 4/1/08 MAB
<i>UTILITY SEPERATION DETAIL</i>	
SCALE: NTS	



BACKFILL THIS SECTION OF THE TRENCH WITH COMMON BORROW FILL FOR THE FULL WIDTH OF THE TRENCH IN 12\"/>

BACKFILL WITH SAND, CRUSED STONE, SCREENED GRAVEL, OR SELECT COMMON BORROW/FILL TO 6\"/>

6\"/>



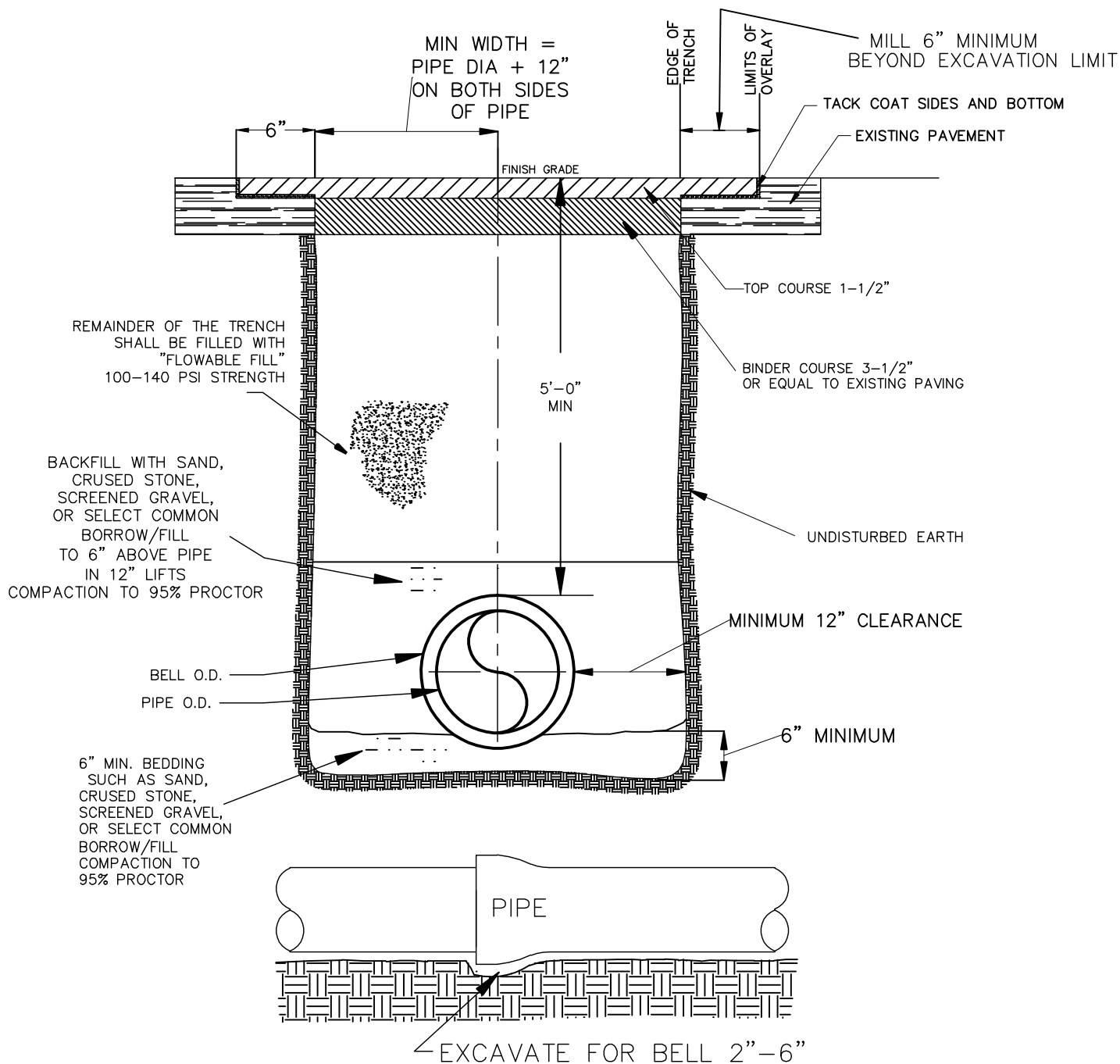
EXCAVATE FOR BELL 2\"/>

	EXISTING PAVEMENT		EXCAVATED AND REPLACED WITH BINDER COURSE
	STRUCTURAL GRAVEL		FLOWABLE FILL
	BEDDING SAND		COMMON BORROW
	MILLED AND REPLACED WITH TOP COURSE		TACK COAT
	UNDISTURBED EARTH		

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3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. REQUIREMENTS FOR SUBBASE AND BASE MATERIAL TYPE ARE TO BE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING LOCAL JURISDICTION IN PAVED AREAS.
5. REQUIREMENTS FOR GRAVEL, LOAM AND/OR SEED ARE TO BE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING LOCAL JURISDICTION IN NON-PAVED AREAS.
6. FOR LOCATION OF WATER MAINS SEE DTAIL (W-01.0).

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-02.0	REV. DATE
	<u>NON-PAVED AREA</u>	4/1/08 MAB
	<u>TRENCH DETAIL</u>	
	SCALE: NTS	

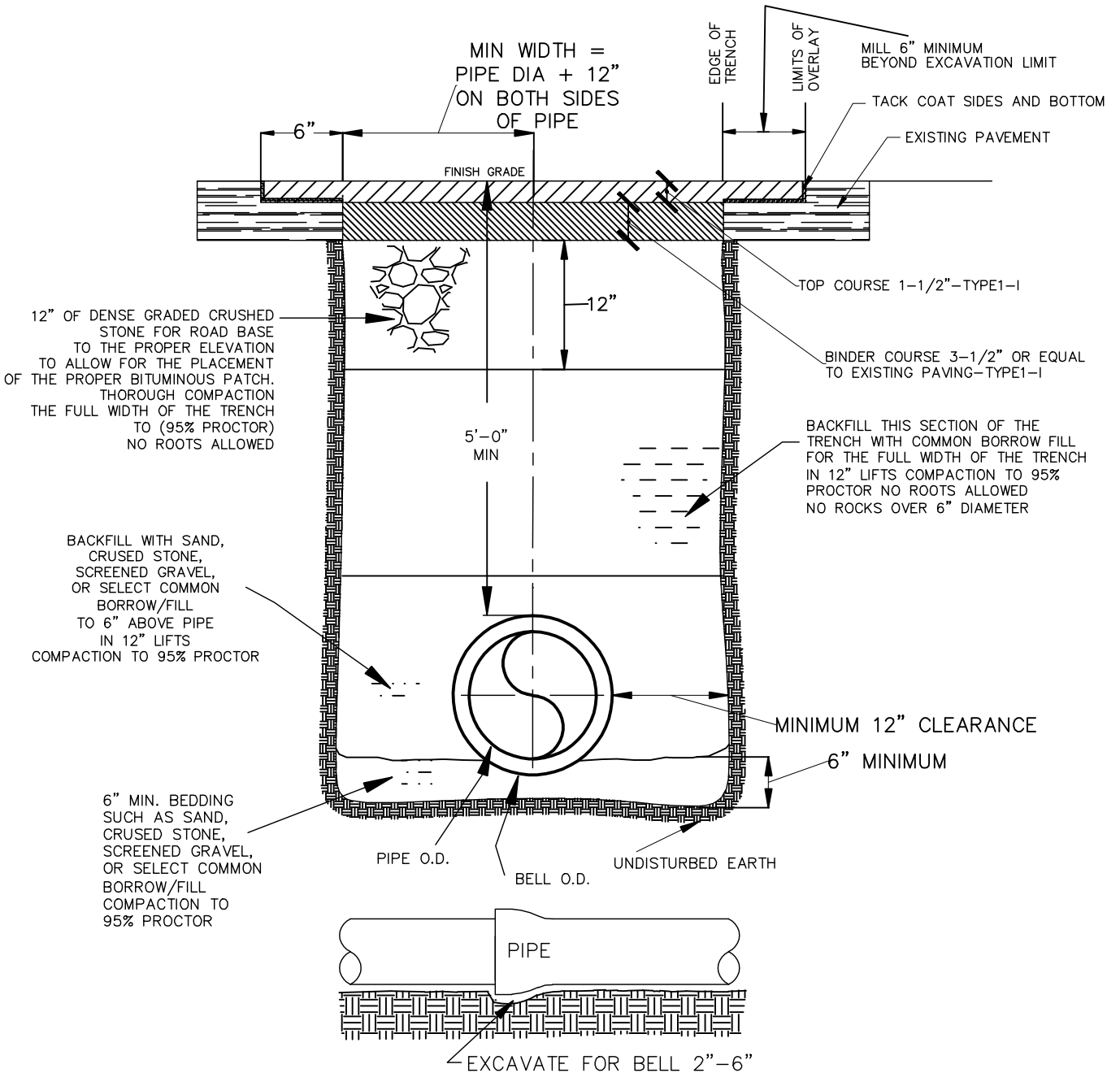


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6. REQUIREMENTS FOR GRAVEL, LOAM AND/OR SEED ARE TO BE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING LOCAL JURISDICTION IN NON-PAVED AREAS.
7. REPLACE WITH SAME DEPTH OF ASPHALT OR MINIMUM 5-INCHES.
8. ALL MATERIALS USED TO MEET MASS. STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
9. SAW CUT EDGE OF UTILITY PATCH IF NO MILLING IS REQUIRED.
10. MILL TO REMOVE TOP COURSE.
11. LEAVE 12-INCH MINIMUM LIP BETWEEN EDGE OF TOP AND EDGE OF BINDER COURSE.
12. AFTER TRENCH WORK IS COMPLETED, FILL AROUND PIPE TO BOTTOM WITH GRADED GRAVEL FILL AND COMPACT IN 6-INCH LIFTS.
13. REPLACE LAYERS OF BINDER AND DEEP BASE.
14. TACK AREA OF MILLING 1 GALLON PER 25 SQUARE YARDS.
15. REPLACE TOP COURSE.
16. SEAL EDGES OF UTILITY PATCH WITH HOT POURED RUBERIZED ASPHALT SEALANT.

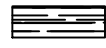
	EXISTING PAVEMENT		EXCAVATED AND REPLACED WITH BINDER COURSE
	STRUCTURAL GRAVEL		FLOWABLE FILL
	BEDDING SAND		COMMON BORROW
	MILLED AND REPLACED WITH TOP COURSE		TACK COAT
	UNDISTURBED EARTH		

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-02.1	REV. DATE
	<i>TRENCH BACKFILLING-METHOD 1</i>	4/1/08 MAB
	<i>FOR LUDLOW ROADWAYS</i>	
	SCALE: NTS	



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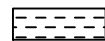
EXISTING PAVEMENT



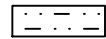
EXCAVATED AND REPLACED WITH BINDER COURSE



DENSE GRADED CRUSHED STONE



COMMON BORROW



BEDDING SAND



TACK COAT



MILLED AND REPLACED WITH TOP COURSE



UNDISTURBED EARTH

SPRINGFIELD WATER AND SEWER COMMISSION

WATER DETAIL W-02.2

REV. DATE

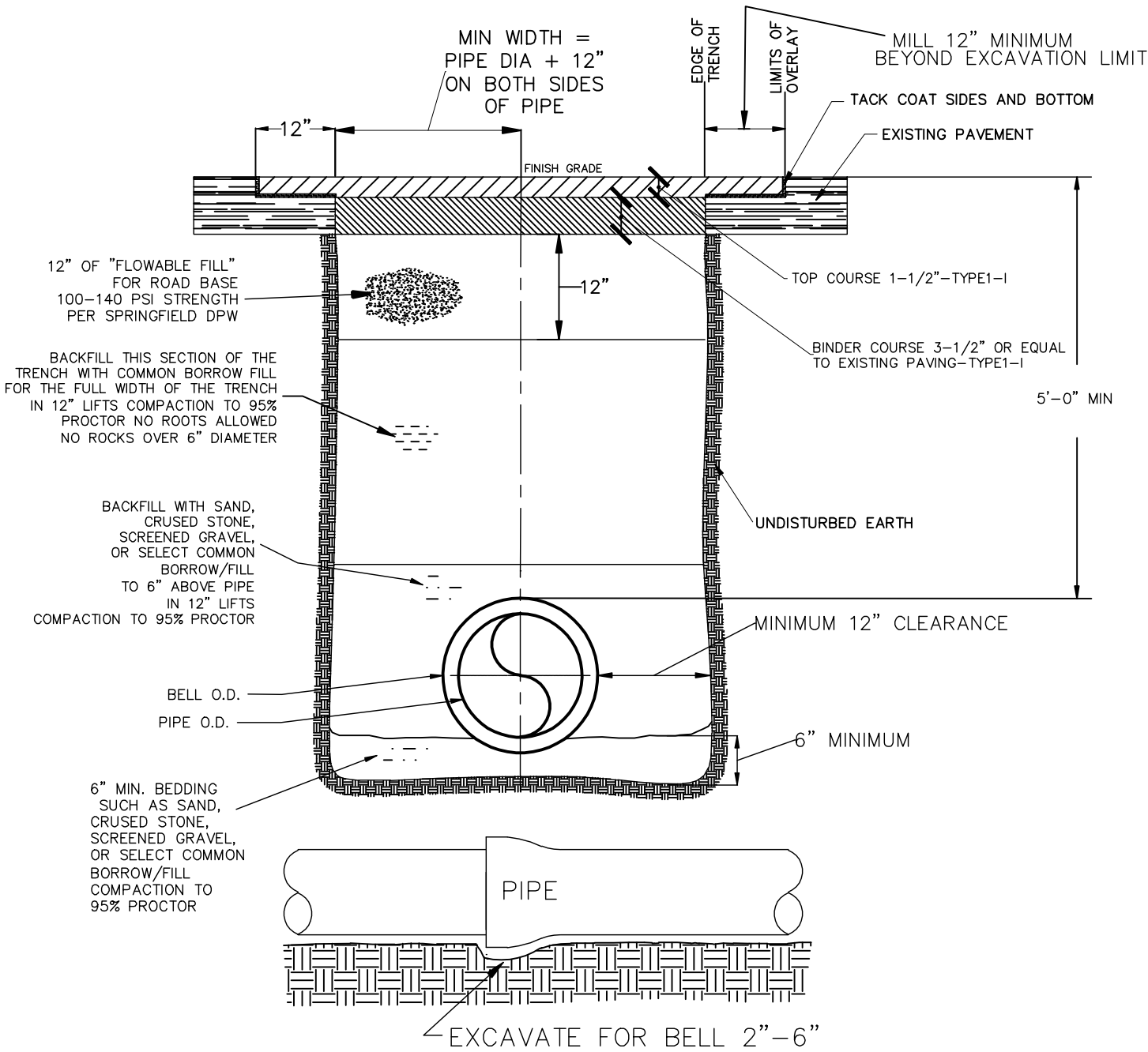
4/1/08 MAB

TRENCH BACKFILLING—METHOD 2
FOR LUDLOW ROADWAYS

6/18/08 MAB

SCALE: NTS



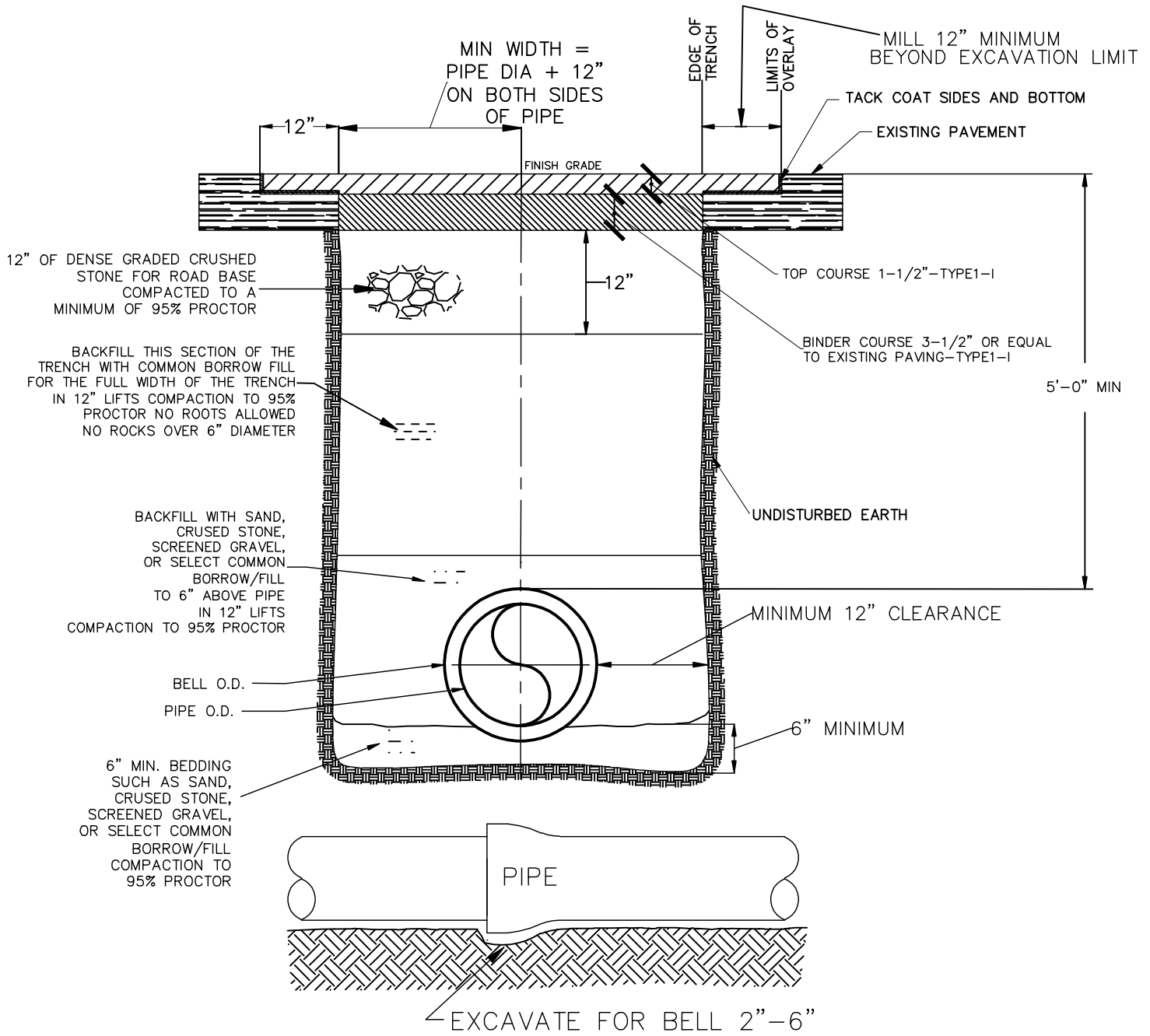


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	MILLED AND REPLACED WITH TOP COURSE		COMMON BORROW
	UNDISTURBED EARTH		TACK COAT

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-02.3	REV. DATE
	<i>TRENCH BACKFILLING—METHOD</i>	4/1/08 MAB
	<i>FOR ARTERIAL STREETS</i>	6/18/08 MAB
	<i>IN SPRINGFIELD</i>	
SCALE: NTS		

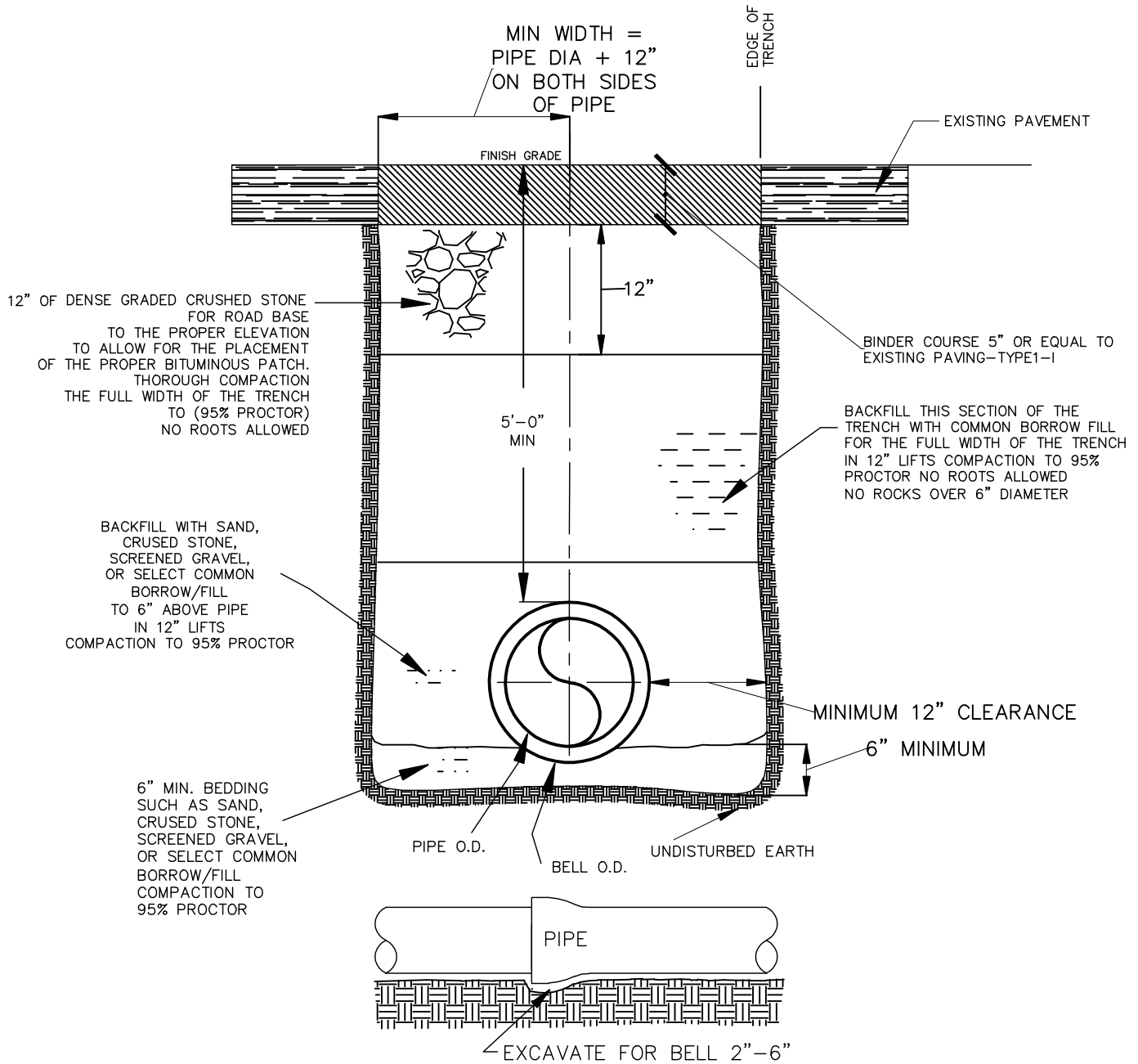


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	EXISTING PAVEMENT		EXCAVATED AND REPLACED WITH BINDER COURSE
	DENSE GRADED CRUSHED STONE		COMMON BORROW
	BEDDING SAND		TACK COAT
	MILLED AND REPLACED WITH TOP COURSE		UNDISTURBED EARTH

SPRINGFIELD WATER AND SEWER COMMISSION					
	WATER DETAIL W-02.4				
	<i>TRENCH BACKFILLING—METHOD FOR RESIDENTIAL STREETS IN SPRINGFIELD</i>				
	SCALE: NTS				
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REV. DATE					
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6/18/08 MAB					

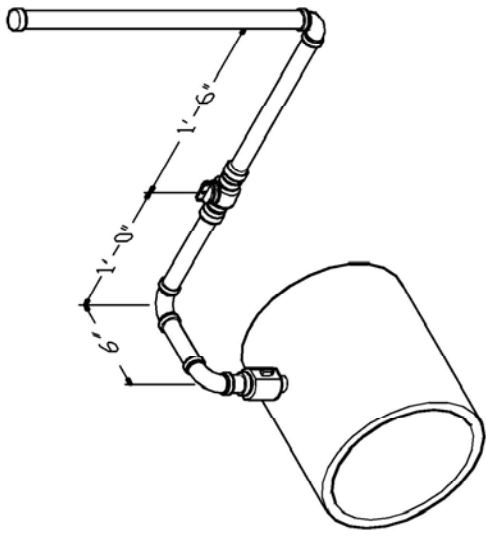


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	DENSE GRADED CRUSHED STONE		COMMON BORROW
	BEDDING SAND		UNDISTURBED EARTH

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-02.5	REV. DATE
	<u>TEMPORARY TRENCH BACKFILLING-METHOD FOR ALL STREETS IN SPRINGFIELD & LUDLOW ACCEPT SPRINGFIELD ARTERIALS</u>	
		6/18/08 MAB
	SCALE: NTS	



DETAIL A

PAVED SURFACE LINE

LOAD-BEARING BUFFALO BOX
(SEE NOTE 4 FOR BOX POSITIONING)

1" or 2" BRASS CAP W/
FEMALE I.P. THREAD
(SEE NOTE 2)

THREADS TO BE
WRAPPED W/ TEFLON
TAPE

6" GATE VALVE BOX
USING JUST THE TOP SECTION
(SEE NOTE 4)

1" or 2" BRASS
BLOW-OFF PIPE WITH
MALE I.P. THREADS
ON BOTH ENDS

1" OR 2" BALL VALVE CURB STOP
WITH FEMALE I.P. THREADS ON BOTH
ENDS W/ STOP-&-WASTE FEATURE (SEE NOTE 1)

1" OR 2" BRASS BLOW-OFF PIPE W/ MALE
I.P. THREADS ON BOTH ENDS

TWO 1" OR 2" BRASS 90° ELBOWS W/ FEMALE
I.P. THREADS ON BOTH ENDS W/ 2"
BRASS BLOW-OFF PIPE W/ MALE I.P.
THREADS ON BOTH ENDS
(SEE DETAIL A AND NOTE 3)

1" OR 2" TAPERED INLET BALL
CORPORATION W/ FEMALE
I.P. THREADS ON THE
OUTLET & TEE HEAD ADAPTER


1 CU. FT. 1 1/2" Ø
ROCK OR EQUAL

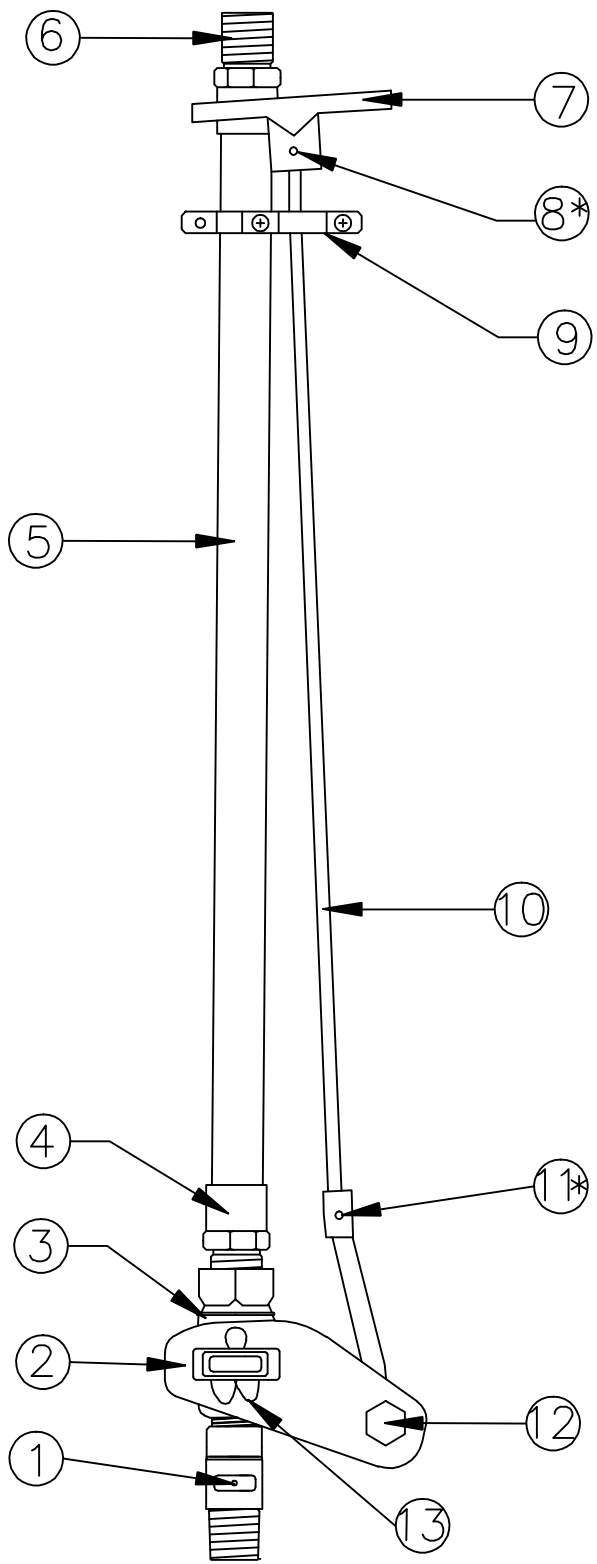
STANDARD BRICK
4" x 2-2/3" x 8"

MAIN

TAPPING NOTES:
FOR 1"=USE DIRECT TAPPING
FOR 2"=MUST USE SWSC SADDLE

- NOTES:**
1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
 2. INSTALL STOP-&-WASTE W/ DRAIN HOLE ON THE DOWNSTREAM SIDE (AWAY FROM WATER MAIN).
 3. CAP IS TO BE INSTALLED HAND TIGHT.
 4. SWING ELBOWS ALLOW FOR PIPE MOVEMENT.
 5. VALVE BOX AND BUFFALO BOX ARE TO BE SET TO GRADE IN PAVEMENT AND BURIED 6" BELOW GRADE IN UNPAVED ROADS. RISER PIPE TO BE SET 2" BELOW VALVE BOX TOP IN UNPAVED ROADS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-03.0	REV. DATE
	<u>STANDARD AIR VALVE ASSEMBLY DETAIL</u>	4/1/08 MAB
SCALE: NTS		

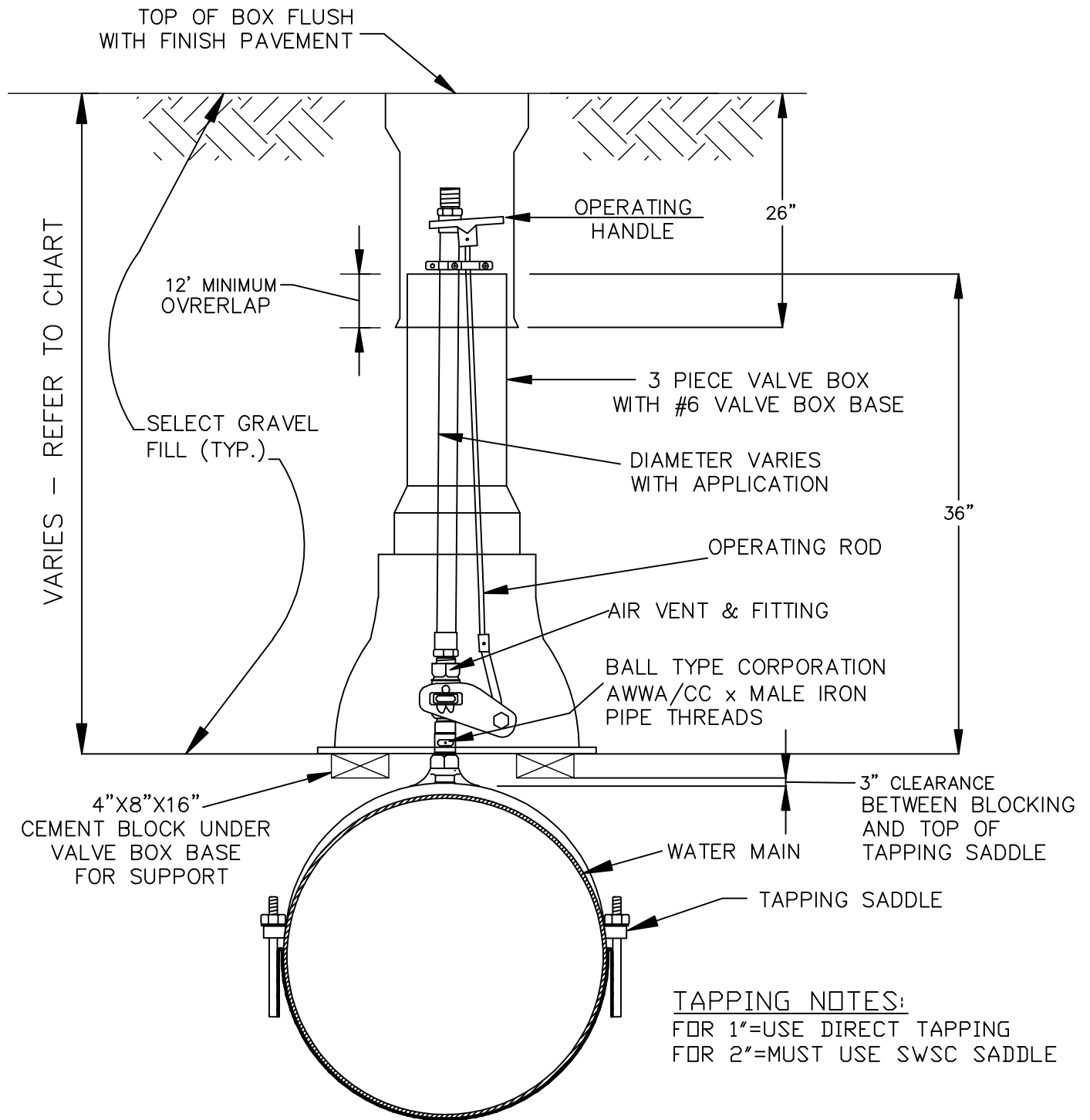


NO.	DESCRIPTION
1	BALL TYPE COPORATION: USE (Mueller B25008) OR APPROVED EQUAL. AWWA/CC X Male Iron Pipe (IP) Threads
2	LOWER OPERATING LEVER: Cast or Stamped Brass to Spec.
3	BALL TYPE CURB STOP: FOR 1" AIR VALVE: USE (FORD B11-444SW) OR APPROVED EQUAL. FOR 2" AIR VALVE: USE (FORD B11-777SW) OR APPROVED EQUAL. Female Iron Pipe (IP) Threads Both Ends and Stop and Waste on the Riser Side of Stop.
4	LOWER MALE ADAPTER: Copper (Domestic)
5	RISER: Copper Type L (Domestic)
6	UPPER MALE ADAPTER: Copper (Domestic)
7	T-HANDLE: Cast Brass
8*	OPERATING ROD T-HANDLE SECUREMENT: Stainless Steel Roll Pin
9	ROD TO RISER CONNECTION: Split Ring (By Size of Riser), Attached to 1/2" Split Ring by Coated 3/8"-16 x 1 1/4" Set Screw and Stainless Steel 3/8" Spacer Nut
10	OPERATING ROD: Brass Round (CDA 360, ASTM B-16)
11*	LOWER MECHANISM SECUREMENT: Stainless Steel Roll Pin
12	3/8" x 1/2" STAINLESS STEEL BOLT: With Nylock Safety Nut
13	LOWER LEVEL TO VALVE COTTER PIN: Marine Type Brass

NOTE:
* - VISUALLY OBSTRUCTED

*USE OF THIS DEVICE REQUIRES
APPROVAL BY THE SWSC PRIOR
TO INSTALLATION

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-03.1	REV. DATE
	<i>AIR VALVE</i>	4/1/08 MAB
	<i>ONE PIECE ASSEMBLY DETAIL</i>	
	SCALE: NTS	



TAPPING NOTES:
 FOR 1"=USE DIRECT TAPPING
 FOR 2"=MUST USE SWSC SADDLE

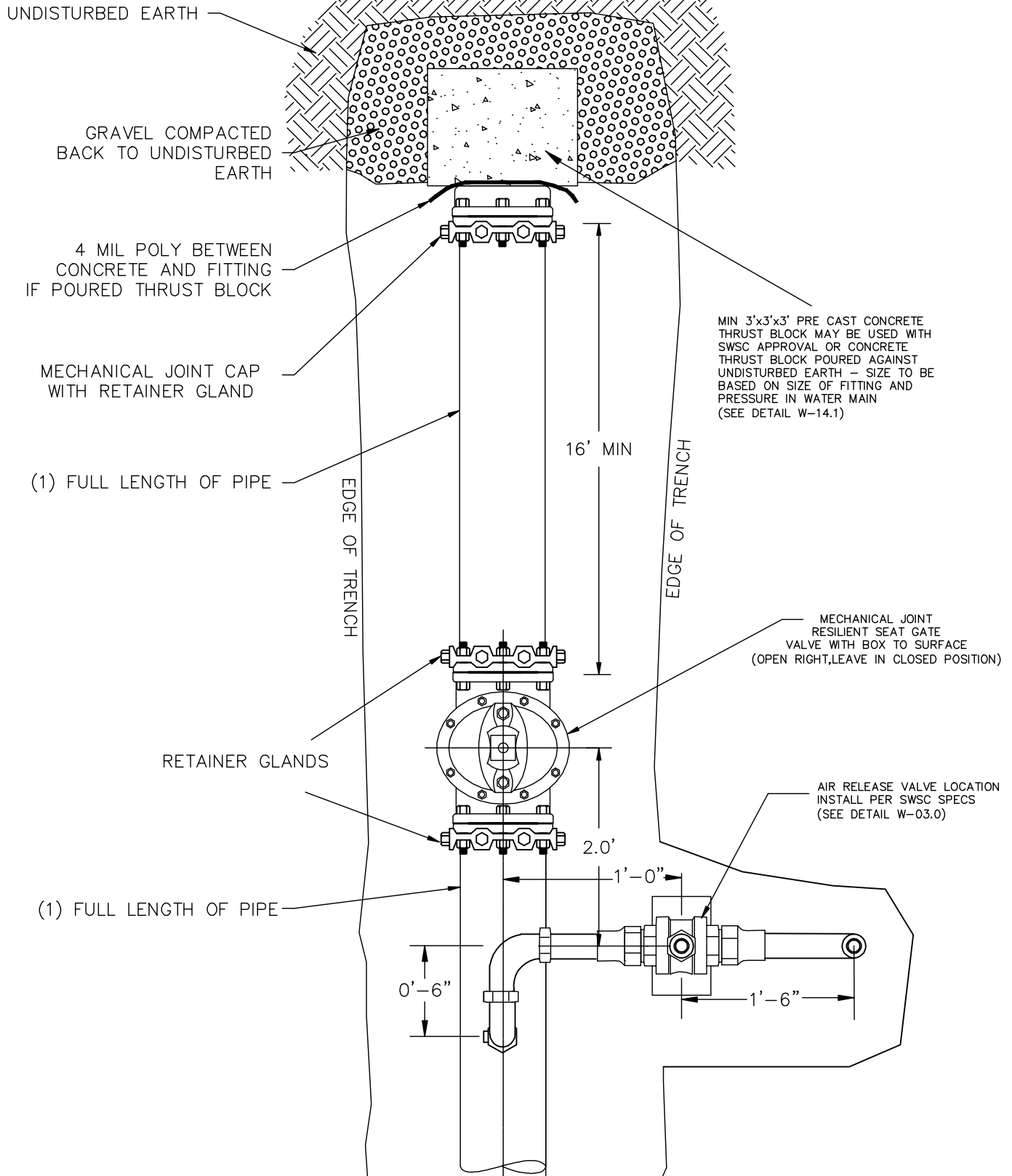
*USE OF THIS DEVICE REQUIRES APPROVAL BY THE SWSC PRIOR TO INSTALLATION

VALVE DIAMETER	PIPE LENGTH	REQUIRED COVER
1"	30"	4.0'
1"	36"	4.5'
1"	42"	5.0'
2"	30"	4.0'
2"	36"	4.5'
2"	42"	5.0'
CUSTOM	CUSTOM	AS REQUIRED BY ENGINEER

NOTES:


1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND OLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

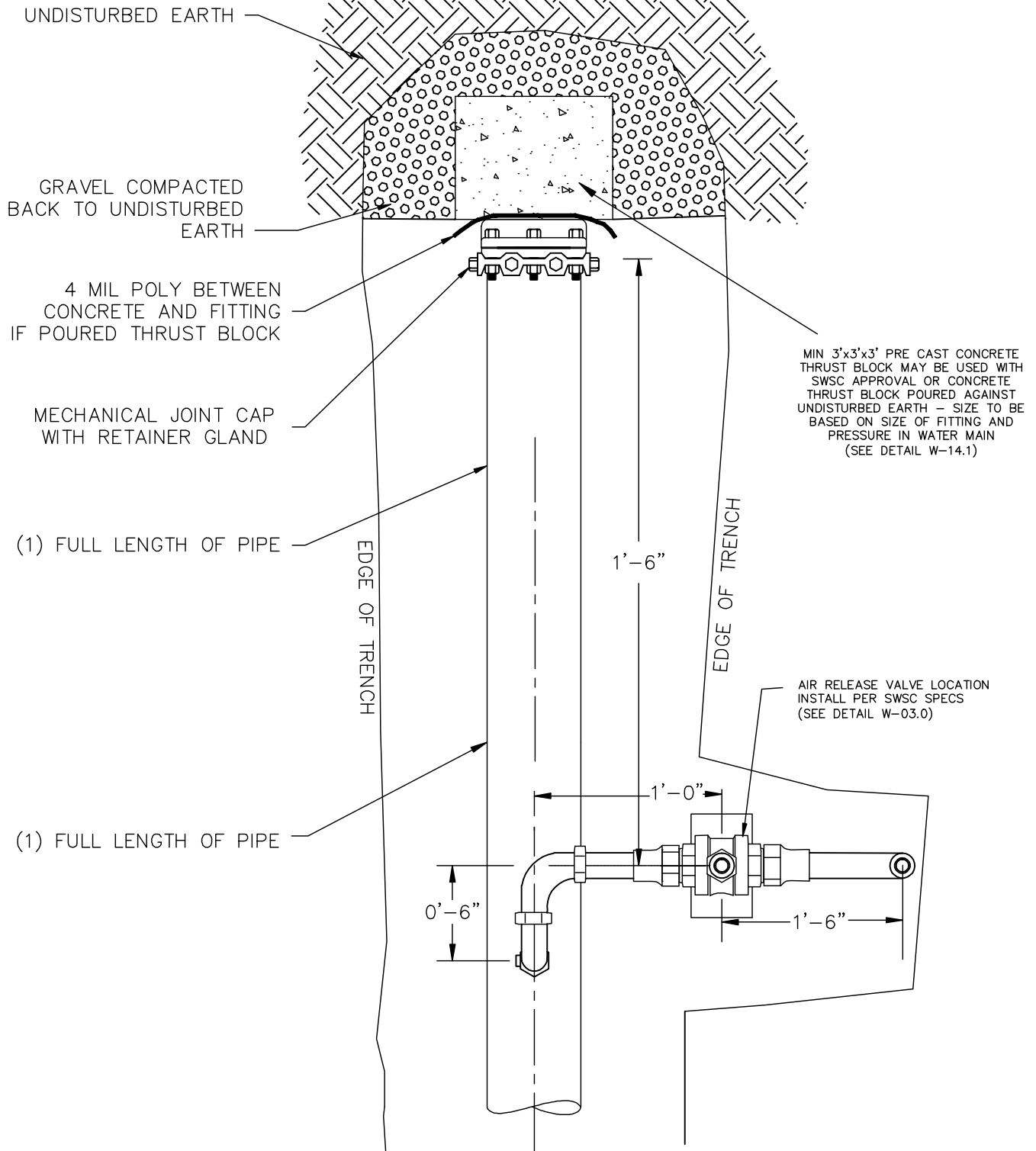
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-03.2	REV. DATE
	<i>AIR VALVE</i>	4/1/08 MAB
	<i>ONE PIECE ASSEMBLY DETAIL</i>	
	SCALE: NTS	



NOTES:


1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

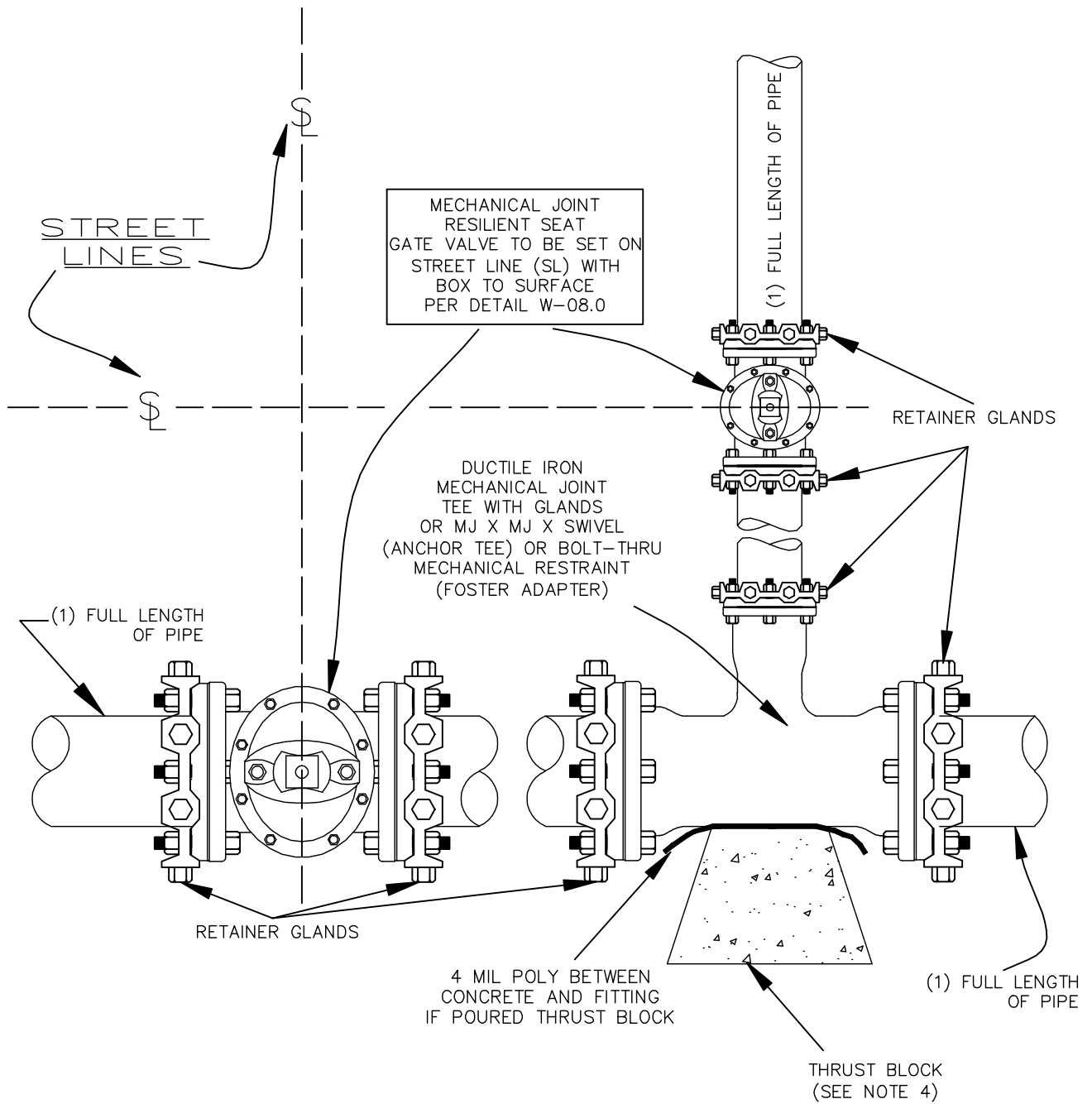
SPRINGFIELD WATER AND SEWER COMMISSION	
	WATER DETAIL W-04.0
	<i>END OF MAIN</i>
	SCALE: NTS
	REV. DATE 4/1/08 MAB



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

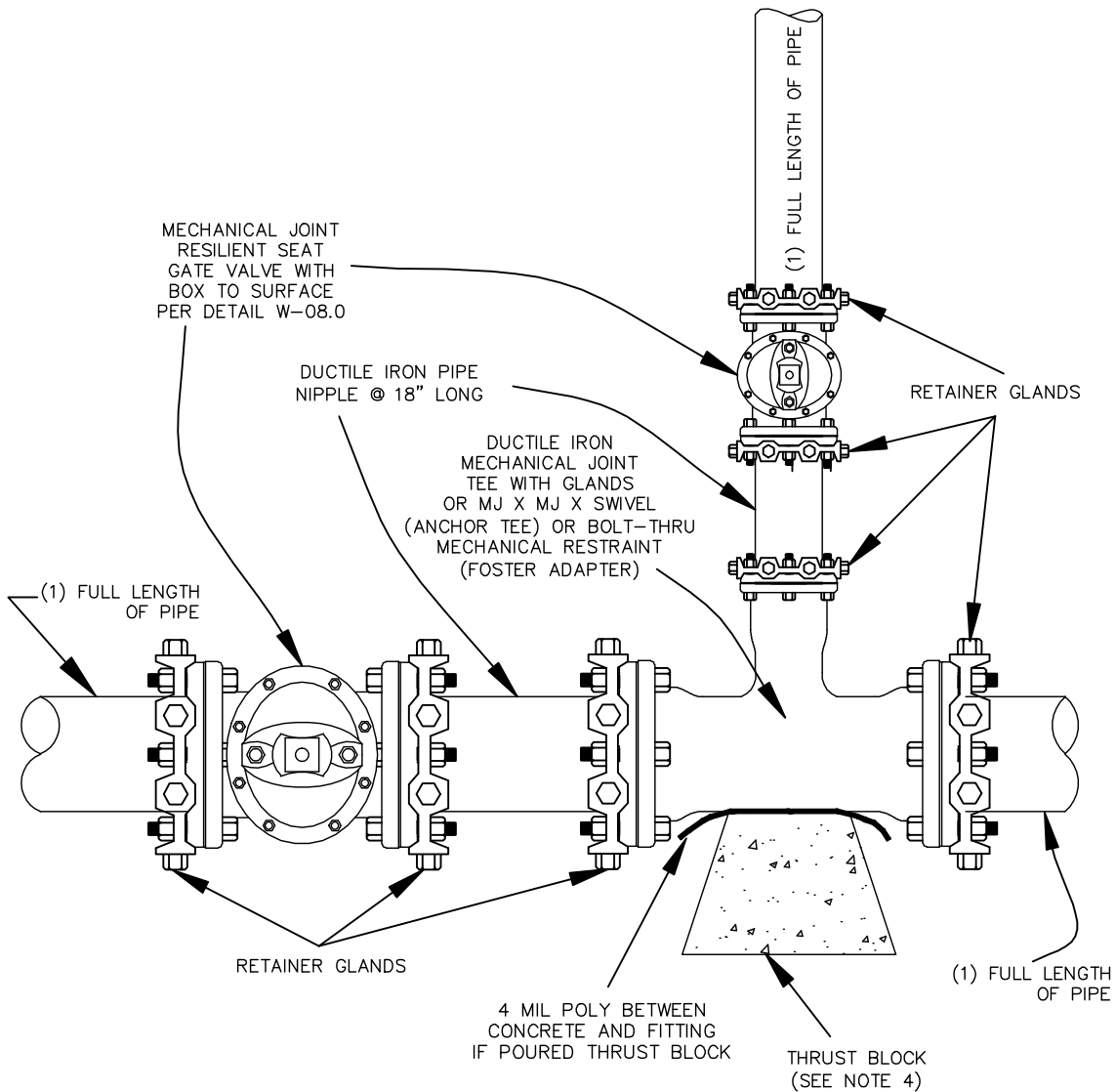
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-04.1	REV. DATE
	<i>END OF MAIN DETAIL</i>	4/1/08 MAB
SCALE: NTS		



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH SWSC APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN SEE DETAIL (W-14.1).
5. THE MECHANICAL JOINTS OF THE PIPES BETWEEN THE VALVES AND THE FITTINGS SHALL BE RESTRAINED VIA RETAINER GLANDS. IF MORE THAN ONE SECTION IS USED, RETAINER GLAND RESTRAINTS SHALL BE USED AT ALL CONNECTIONS. (SEE DETAIL ABOVE).
6. FOR RESTRAINT METHODS OTHER THAN RETAINER GLAND SEE DETAILS (W-06.1 THRU W-06.6).


SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-05.0	REV. DATE
	<i>STANDARD TEE INSTALLATION</i>	4/1/08 MAB
	SCALE: NTS	

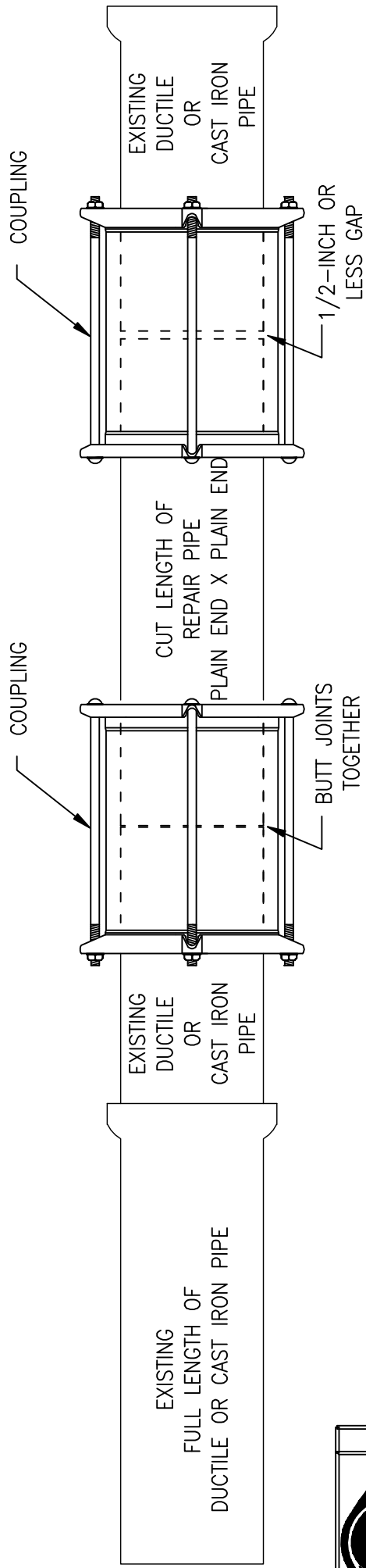


NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH SWSC APPROVAL OR CONCRETE THRUST BLOCK Poured AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN SEE DETAIL (W-14.1).
5. THE MECHANICAL JOINTS OF THE PIPES BETWEEN THE VALVES AND THE FITTINGS SHALL BE RESTRAINED VIA RETAINER GLANDS. IF MORE THAN ONE SECTION IS USED, RETAINER GLAND RESTRAINTS SHALL BE USED AT ALL CONNECTIONS. (SEE DETAIL ABOVE).
6. FOR RESTRAINT METHODS OTHER THAN RETAINER GLAND SEE DETAILS (W-06.1 THRU W-06.6).


**THIS DETAIL MUST
BE APPROVED FOR
USE BY THE
S.W.S.C BEFORE IT
CAN BE INSTALLED**

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-05.1	REV. DATE
	<i>ALTERNATE 1</i>	4/1/08 MAB
	<i>TEE INSTALLATION</i>	
	SCALE: NTS	



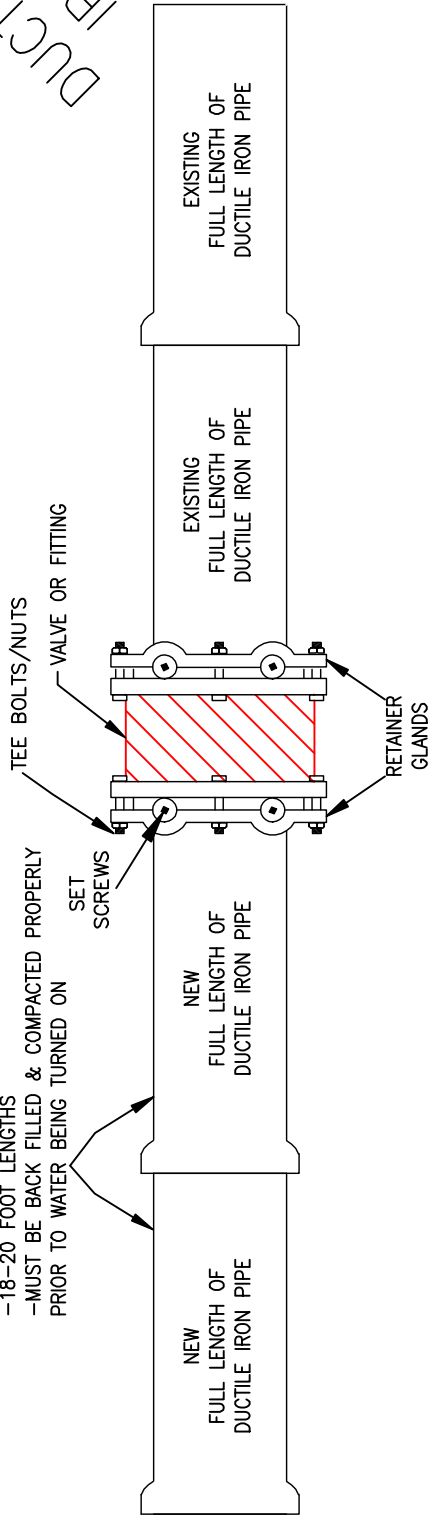
NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. THESE METHODS SHALL BE USED UNLESS OTHERWISE APPROVED BY ENGINEERING AND TECHNICAL SERVICES DEPARTMENT.
5. WHEN REPAIRING NEAR A VALVE OR A FITTING USE AN APPROVED METHOD OR CALL ENGINEERING AND TECHNICAL SERVICES (ET&S).

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-06.0	REV. DATE
	REPAIR TO EXISTING WATER MAINS	4/1/08 MAB
SCALE: NTS		

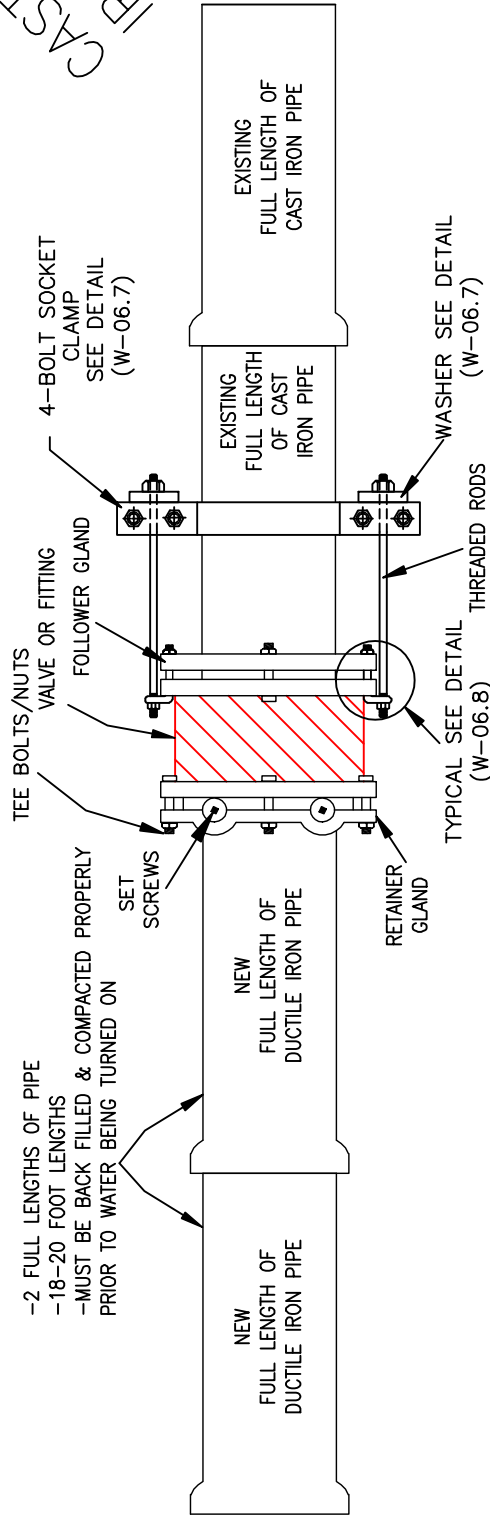
DUCTILE
IRON

-2 FULL LENGTHS OF PIPE
-18-20 FOOT LENGTHS
-MUST BE BACK FILLED & COMPACTED PROPERLY
PRIOR TO WATER BEING TURNED ON



CAST
IRON

-2 FULL LENGTHS OF PIPE
-18-20 FOOT LENGTHS
-MUST BE BACK FILLED & COMPACTED PROPERLY
PRIOR TO WATER BEING TURNED ON



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I IN MAIN.
3. THREADED RODS ARE TO BE FABRICATED FROM 4140 B-7 ALLOY STEEL.
4. STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
5. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I EACH.
6. RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
7. ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

SPRINGFIELD WATER AND SEWER COMMISSION

WATER DETAIL W-06.1

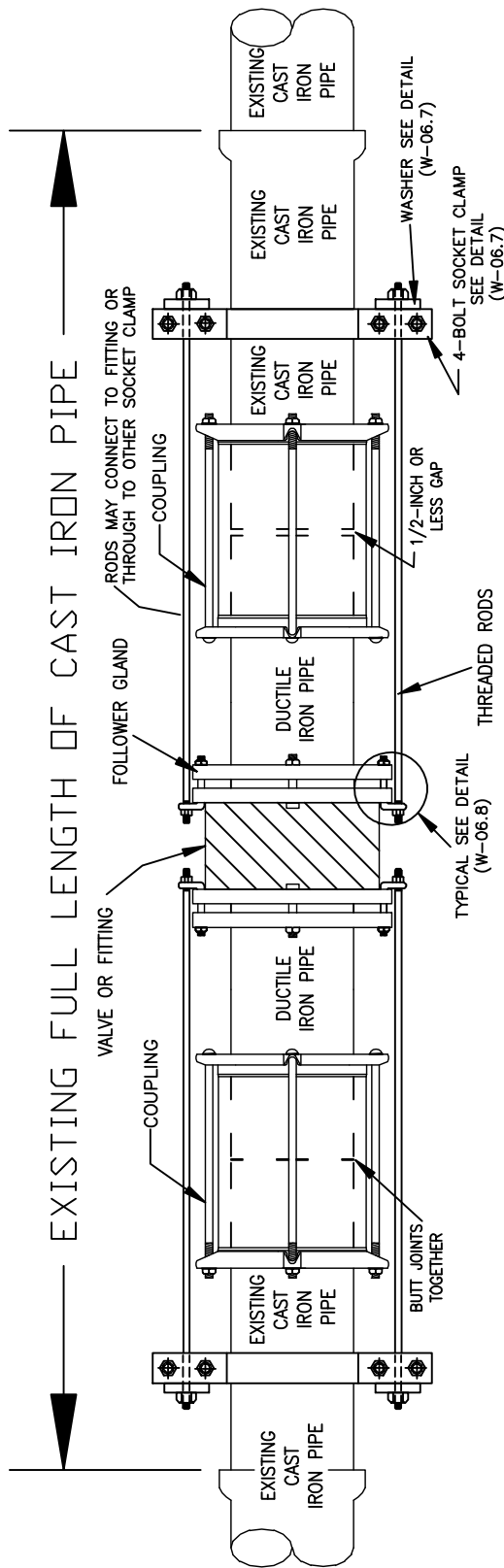
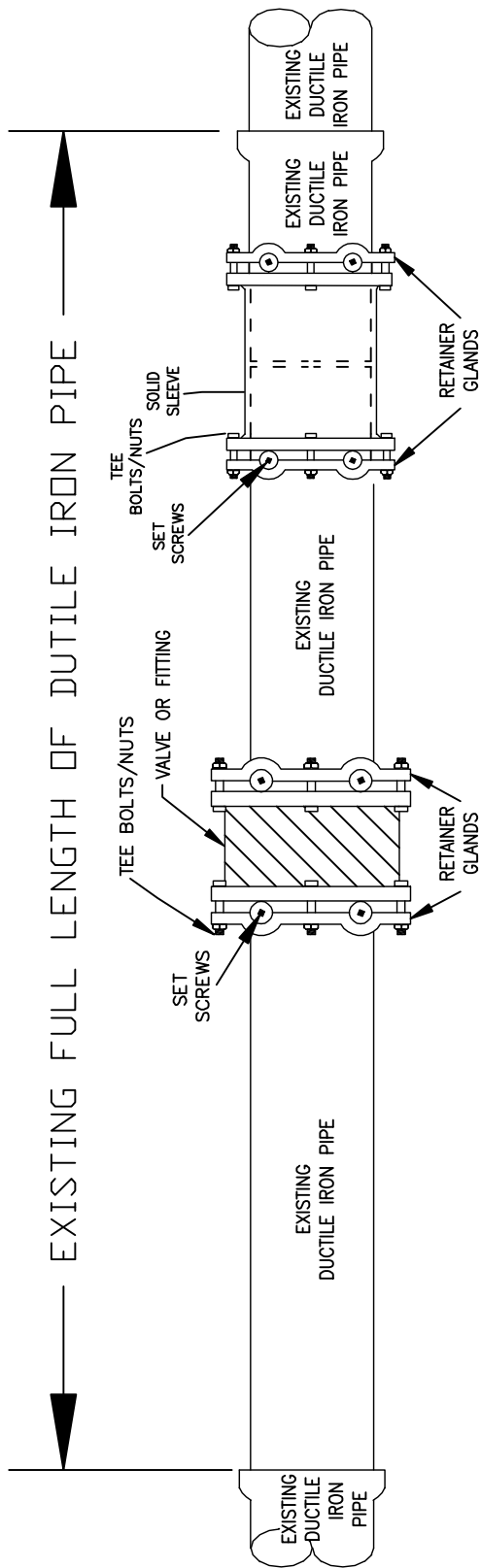
REV. DATE



INSTALL VALVE OR FITTING
AT A DEAD END
OF A WATER MAIN

4/1/08 MAB

SCALE: NTS



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
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4. STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
5. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I. EACH.
6. RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
7. ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

SPRINGFIELD WATER AND SEWER COMMISSION

WATER DETAIL W-06.2

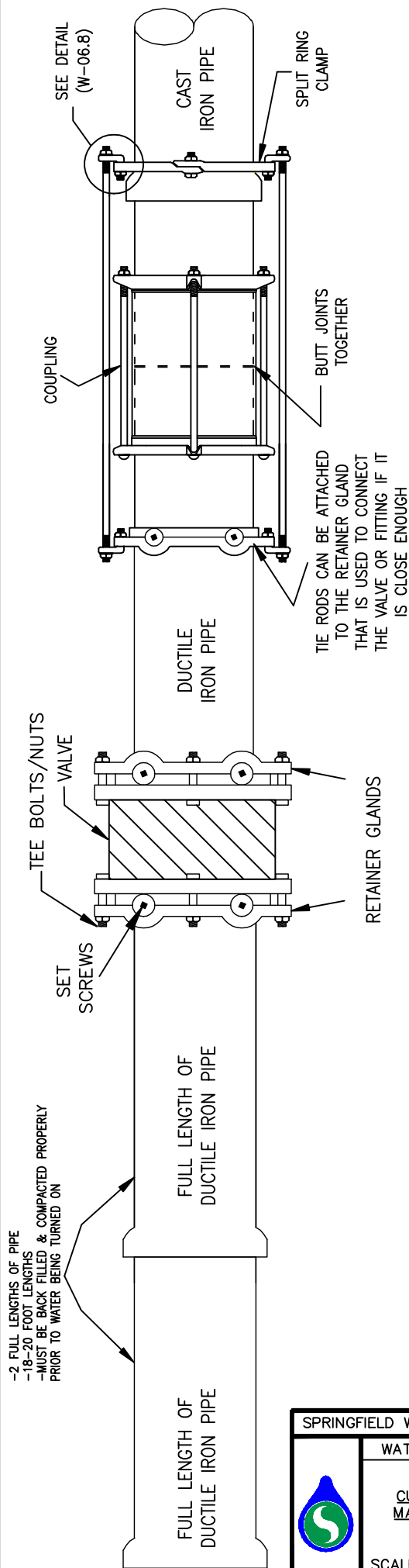
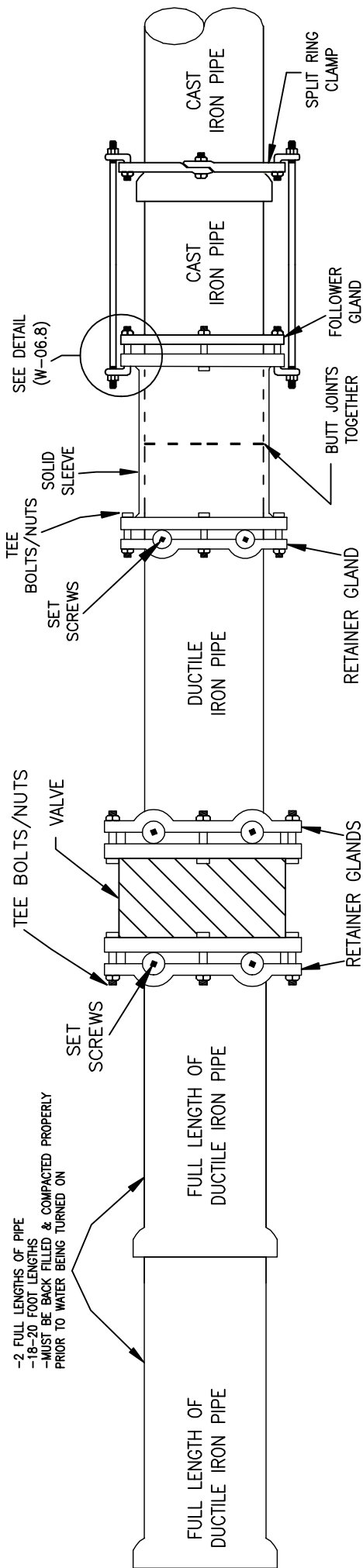
REV. DATE

4/1/08 MAB




CUTTING-INTO EXISTING
WATER MAIN TO REPLACE
VALVE OR FITTING

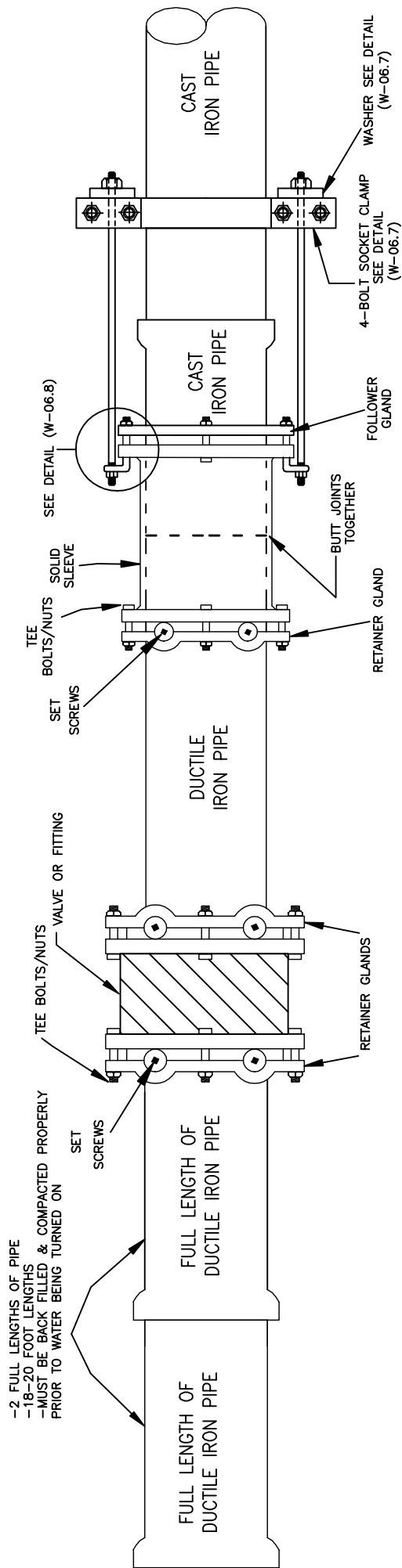
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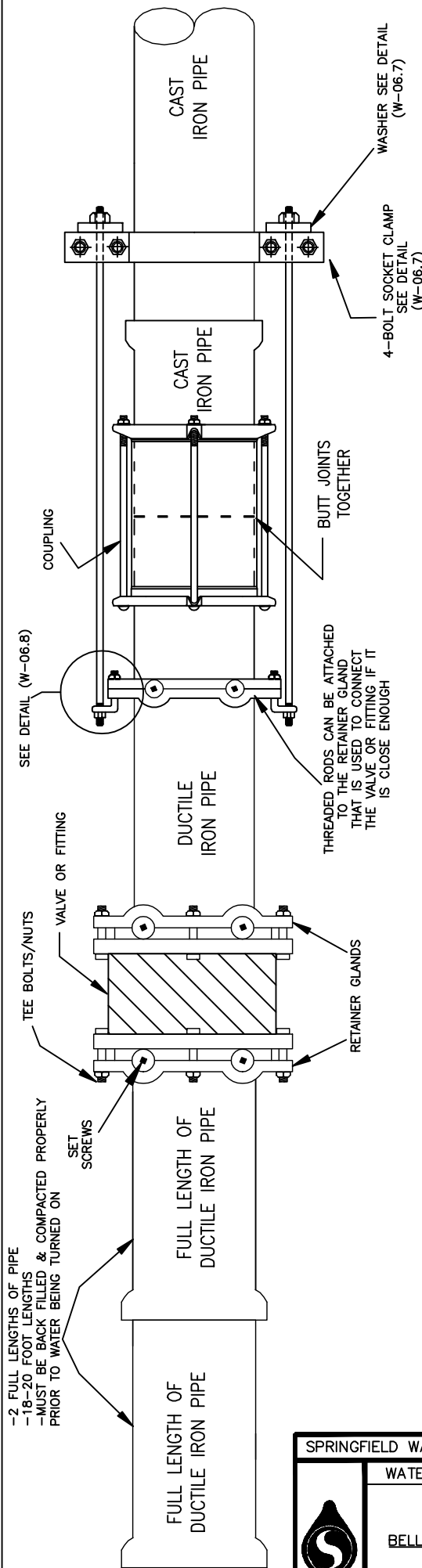
NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
3. THREADED RODS ARE TO BE FABRICATED FROM 4140 B-7 ALLOY STEEL.
4. STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
5. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I. EACH.
6. RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
7. ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-06.3	REV. DATE
	CUTTING INTO EXISTING WATER MAIN WITH BELL FACING VALVE	
SCALE: NTS		




-2 FULL LENGTHS OF PIPE
 -18-20 FOOT LENGTHS
 -MUST BE BACK FILLED & COMPACTED PROPERLY
 PRIOR TO WATER BEING TURNED ON

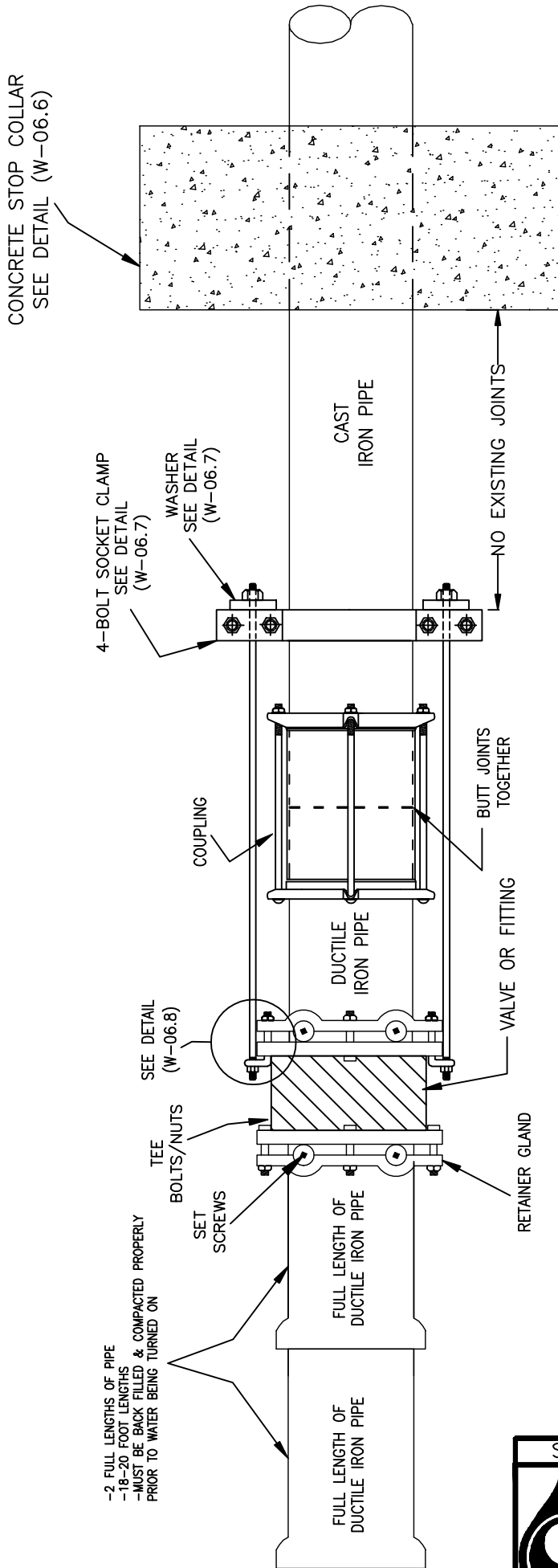


-2 FULL LENGTHS OF PIPE
 -18-20 FOOT LENGTHS
 -MUST BE BACK FILLED & COMPACTED PROPERLY
 PRIOR TO WATER BEING TURNED ON

NOTES:


1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
3. THREADED RODS ARE TO BE FABRICATED FROM 4140 B-7 ALLOY STEEL.
4. STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
5. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I. EACH.
6. RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
7. ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-06.4	REV. DATE
	CUTTING-INTO EXISTING WATER MAIN WITH BELL FACING AWAY FROM VALVE	
SCALE: NTS		

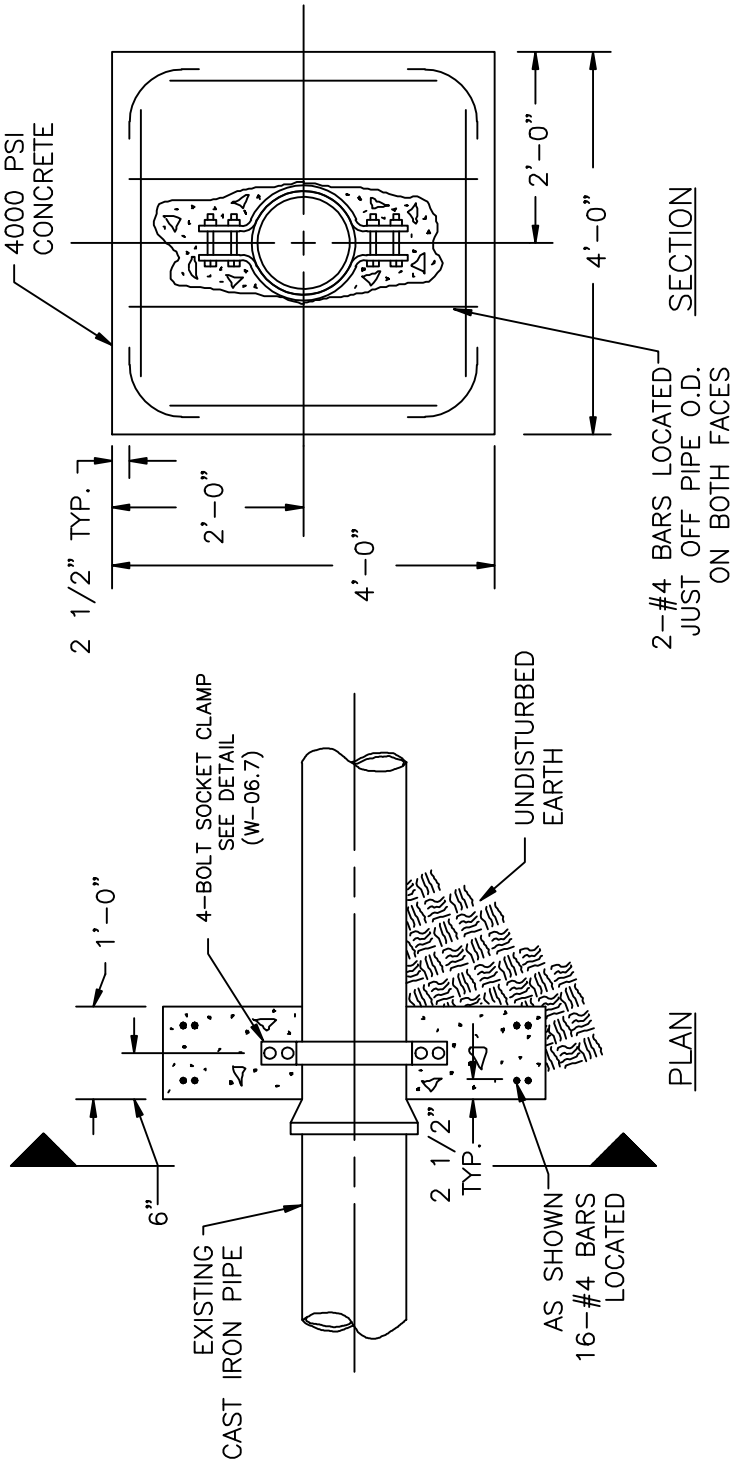


NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
3. THREADED RODS ARE TO BE FABRICATED FROM 4140 B-7 ALLOY STEEL.
4. STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
5. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I. EACH.
6. RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
7. ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-06.5	REV. DATE
	<u>CUTTING-INTO EXISTING WATER MAIN WITH NO BELL FOUND</u>	4/1/08 MAB
SCALE: NTS		

CONCRETE THRUST COLLAR




SPECIAL NOTE:

1. IN LIEU OF CONCRETE STOP COLLAR THE CONTRACTOR MAY MECHANICALLY RESTRAIN (BY APPROVED METHOD) THREE (3) FULL PIPE LENGTHS FROM PROPOSED LOCATION OF STOP COLLAR.

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
3. THREADED RODS ARE TO BE FABRICATED FROM 4140 B-7 ALLOY STEEL.
4. STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
5. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I. EACH.
6. RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
7. ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-06.6	REV. DATE
	<u>CONCRETE THRUST COLLAR</u>	4/1/08 MAB
SCALE: NTS		

SOCKET CLAMP DATA CHART

Nominal Pipe Size (inches)	Max Hydrostatic Test Pressure (in P.S.I.)	Force (1) on Clamp (in lbs.)	Clamp (2 & 3) Inside Diameter (in inches)	Length of Clamp (2 & 3) (in inches)	Width of Clamp (2 & 3) (in inches)	Thickness of Clamp (2 & 3) (inches)	Bolt Size	Thickness of Clamp Washer (4) (inches)	Size of CI Clamp Washer (4) (in inches)	Thickness of Steel Clamp Washer (4) (inches)	Size of Steel Clamp Washer (4) (in inches)	Nominal Threaded Rod (7) Diameter (inches)	Number of Nominal Threaded Rod (7)	Associated Hardware
4	250	4550	5	14 5/8	2	1/2	5/8 x 3 1/2	5/8	3 dia or 3 x 3	1/2	3 dia or 3 x 3	3/4	1	notes 2, 5, 6, 8, & 9
6	250	9340	7 1/8	16 7/8	2	1/2	5/8 x 3 1/2	5/8	3 dia or 3 x 3	1/2	3 dia or 3 x 3	3/4	1	notes 2, 5, 6, 8, & 9
8	250	16080	9 5/16	19 1/8	2 1/2	5/8	5/8 x 3 3/4	5/8	3 dia or 3 x 3	1/2	3 dia or 3 x 3	3/4	1	notes 2, 5, 6, 8, & 9
10	250	24180	11 1/2	21 3/8	2 1/2	5/8	5/8 x 3 3/4	5/8	3 dia or 3 x 3	1/2	3 dia or 3 x 3	3/4	1	notes 2, 5, 6, 8, & 9
12	250	34230	13 1/2	25 1/8	3	5/8	7/8 x 4 1/2	3/4	3-1/2 dia or 3-1/2 x 3-1/2	1/2	3 dia or 3 x 3	1	1	notes 2, 5, 6, 8, & 9
16	115	27760	17 7/8	31 3/8	4	3/4	1 x 4 1/2	1	4 dia or 4 x 4	1/2	3-1/2 dia or 3-1/2 x 3-1/2	1	2	notes 2, 5, 6, 8, & 9
1 At Max Hydrostatic Test Pressure														
2 All Socket Clamps and associated hardware shall meet the requirements of National Fire Protection Association 24														
3 Socket Clamps shall be as provided by PHD Manufacturing, Inc. Figure 590, Anvil Company, Figure 595, Cooper B-Line, Figure B3134, Carpenter and Patterson, Figure 158D B, or the equal product of another manufacturer														
4 Socket Clamps Washers shall be as provided by PHD Manufacturing, Inc. Figure 595, Anvil Company, Figure 594, Cooper B-Line, Figure B3134W, Carpenter and Patterson, Figure 258, or the equal product of another manufacturer														
5 Bent Eye Bolts shall be constructed of high strength low alloy steel, per ASTM A588, grade B, Unified National Coarse (UNC) rolled thread.														
6 Bent Eye Bolts shall be as provided by PHD Manufacturing, Inc. - Figure 598B, Star National Products - Figures 3/4" SST747 or 3/4" SST757, Dresser Piping Specialties, Inc. - Style 442, or the equal product of another manufacturer.														
7 Threaded Rods shall be constructed of 4140-alloy steel, per ASTM A193, grade B7, Unified National Coarse (UNC) rolled thread														
8 Washers for bent eye bolts shall be cadmium plated and constructed of case hardened C1006 steel, grade 2, Rockwell hardness B55														
9 Heavy hex nuts shall be constructed of medium carbon steel, ASTM A194, grade 2H, and Unified National Coarse (UNC) thread.														



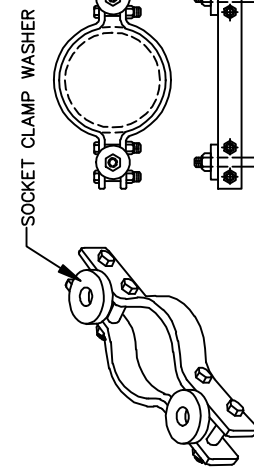
SPRINGFIELD WATER AND SEWER COMMISSION

WATER DETAIL W-06.7

SOCKET CLAMP DETAIL

SCALE: NTS

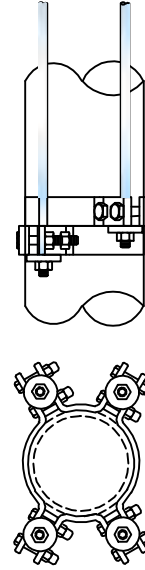
REV. DATE
4/1/08 MAB



TYPICAL SINGLE 4-BOLT SOCKET CLAMP

ALL 4 BOLTS ON SOCKET CLAMP MUST BE TIGHTENED WITH A TORQUE WRENCH.
5/8" DIAMETER BOLTS = 65 FOOT-LBS
3/4" DIAMETER BOLTS = 75 FOOT-LBS

AFTER FINAL ASSEMBLY ALL THE NUTS CONNECTED TO THE THREADED RODS MUST BE HAND TIGHTENED PLUS AN ADDITIONAL 1/2 TURN TO BE PROPERLY INSTALLED.

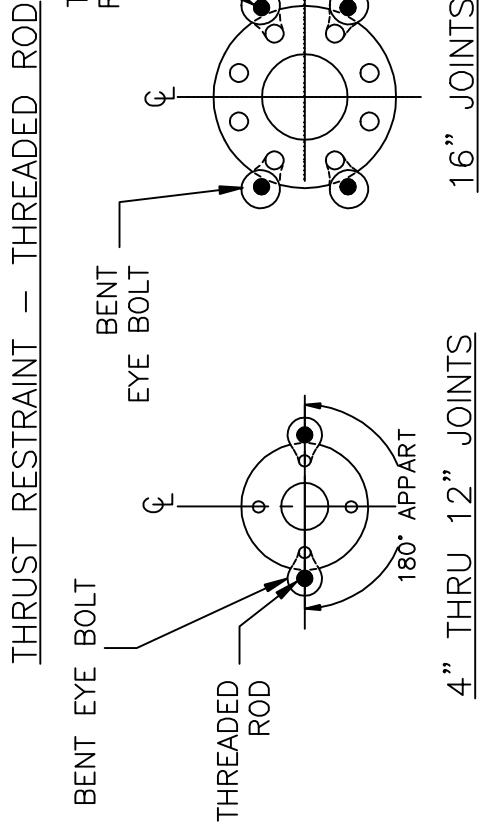
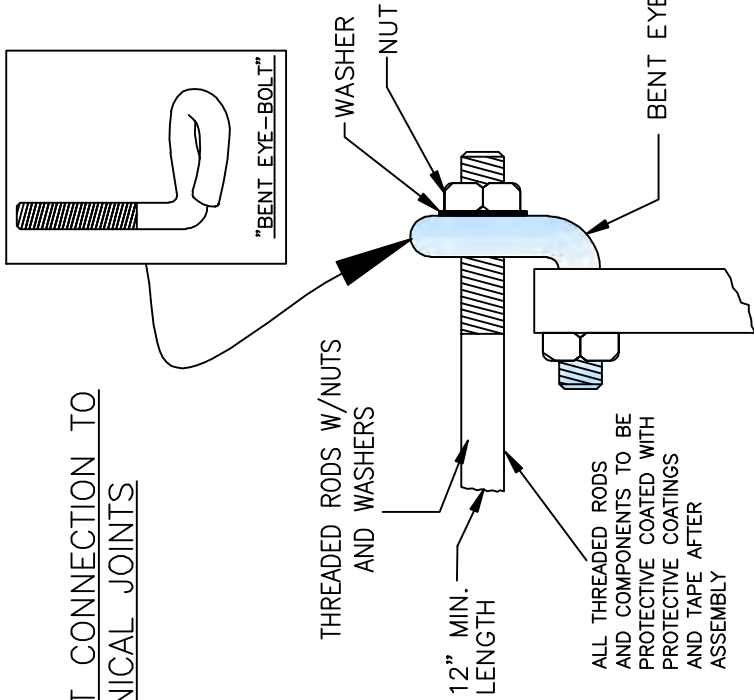


TYPICAL TWO 4-BOLT SOCKET CLAMP INSTALLATION

NOTES:

- ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
- NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
- THREADED RODS ARE TO BE FABRICATED FROM 4140 B-7 ALLOY STEEL.
- STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
- EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I. EACH.
- RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
- ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

BENT EYE BOLT CONNECTION TO MECHANICAL JOINTS




PIPE SIZE	No. THREADED RODS*
4" THRU 10"	2 - 3/4"φ
12"	2 - 1"φ
16"	4 - 1"φ
GREATER THAN 16"	APPROVAL BY ET&S

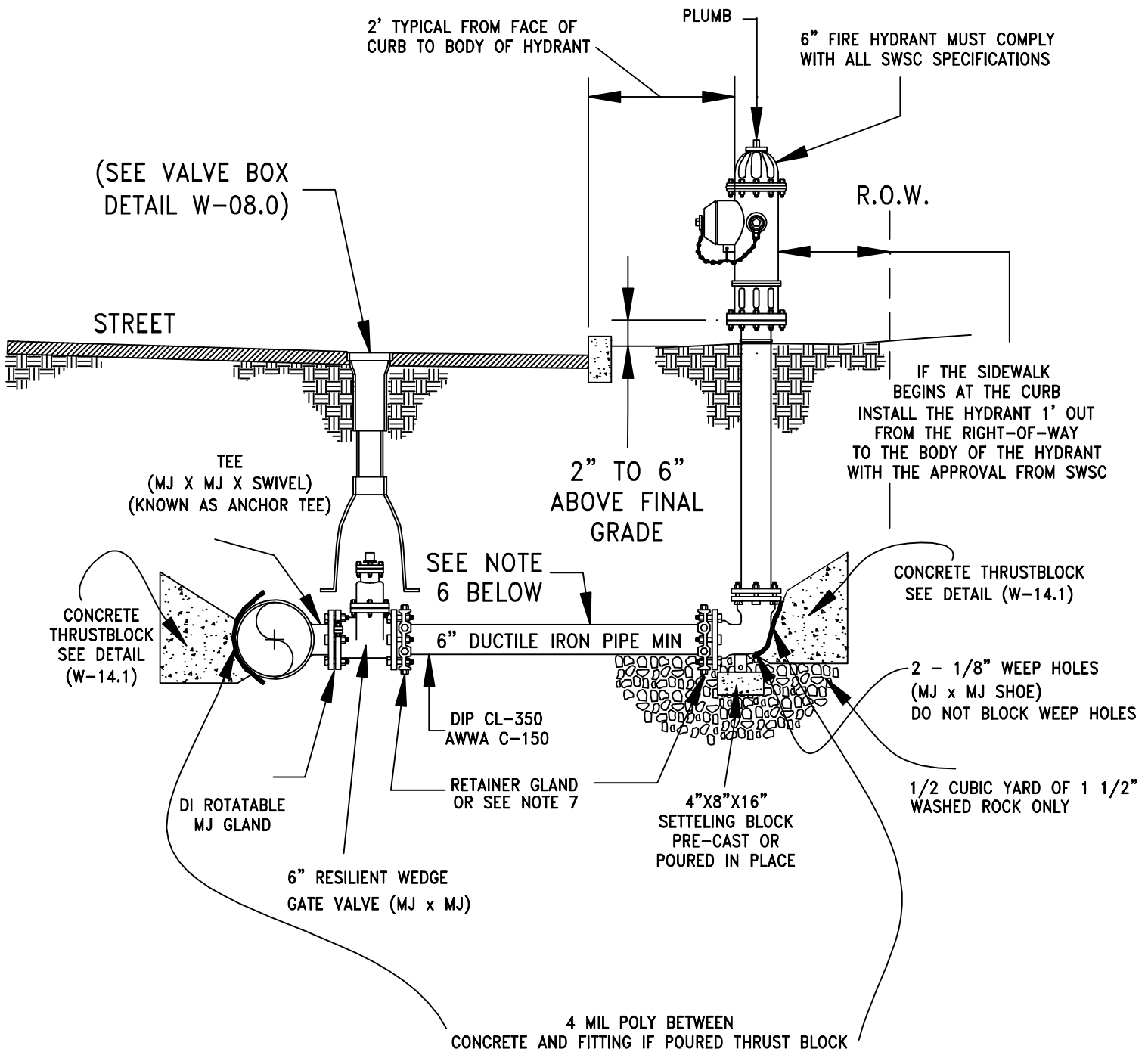
*STANDARD LENGTHS ARE 3', 6' & 12' COUPLINGS MAY BE USED FOR LONGER LENGTHS.

SEE SOCKET CLAMP DATA CHART DETAIL (W-06.7) FOR HARDWARE, MATERIAL, MANUFACTURERS AND BOLT TIGHTENING REQUIREMENTS

NOTES:


1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. NUMBER OF THREADED RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
3. THREADED RODS ARE TO BE FABRICATED FROM 4140 B-7 ALLOY STEEL.
4. STEEL THREADED RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 105,000 P.S.I.
5. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50,000 P.S.I. EACH.
6. RESTRAINT FOR 20 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY ENGINEERING & TECHNICAL SERVICES (ET&S).
7. ALL COMPONENTS TO BE PROTECTIVE COATED WITH PROTECTIVE COATINGS AND TAPE.

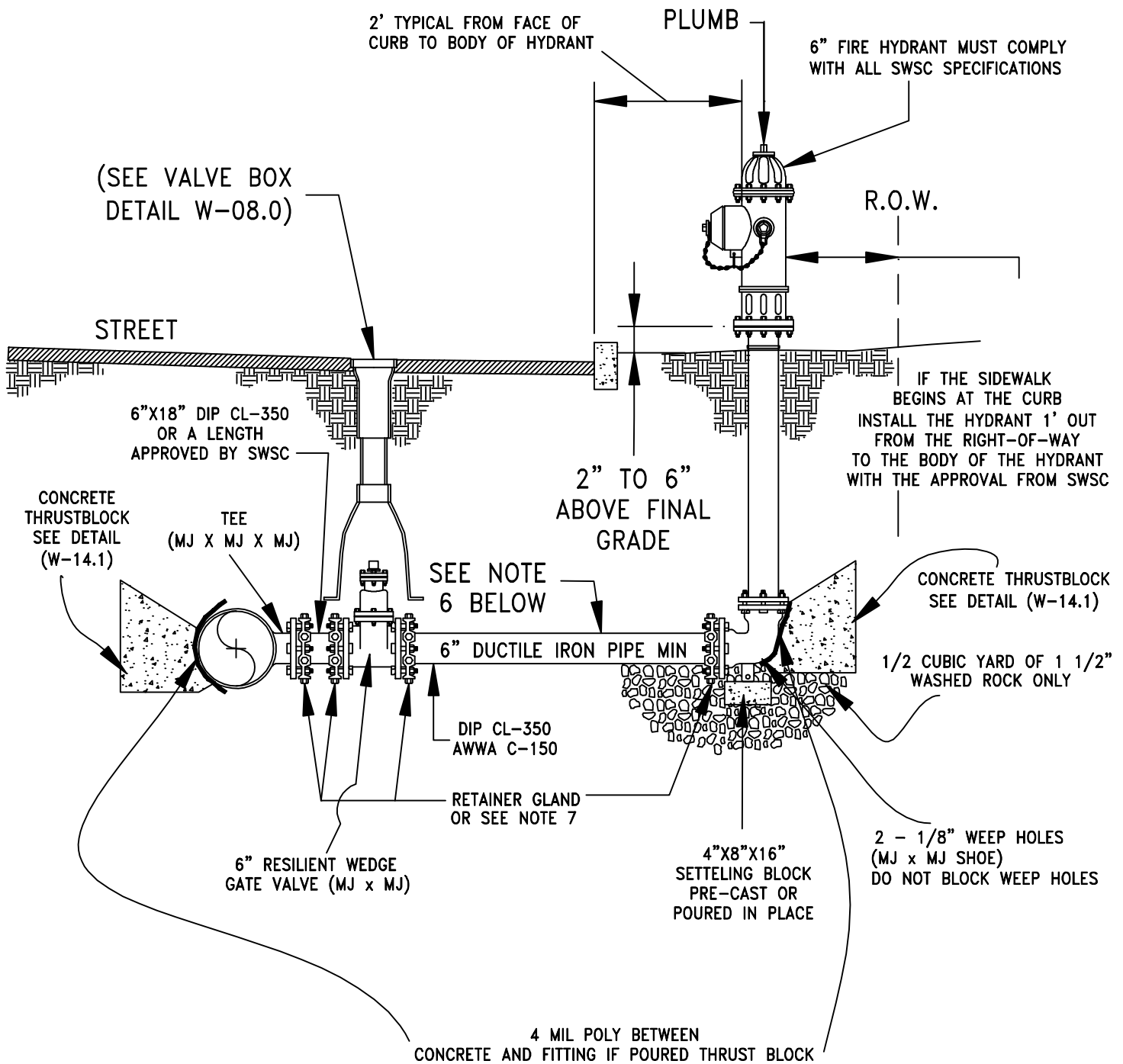
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-06.8	REV. DATE
	THREADED ROD DETAIL CONNECTION TO MJ DETAIL	4/1/08 MAB
SCALE: NTS		



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. ALL FIRE HYDRANTS SHALL BE INSTALLED PLUMB & LOCATED ACCORDING TO PROJECT PLANS.
5. NO TAPS SHALL BE ALLOWED BETWEEN THE HYDRANT & THE VALVE.
6. THE MECHANICAL JOINTS OF THE FIRE HYDRANT ASSEMBLY SHALL BE RESTRAINED VIA RETAINER GLAND. IF MORE THAN ONE SECTION IS USED, RETAINER GLAND RESTRAINTS SHALL BE USED AT ALL CONNECTIONS.
7. FOR RESTRAINT METHODS OTHER THAN RETAINER GLAND SEE DETAILS (W-06.1 THRU W-06.6).


SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-07.0	REV. DATE
	<i>STANDARD</i>	4/1/08 MAB
	<i>FIRE HYDRANT ASSEMBLY</i>	
	SCALE: NTS	

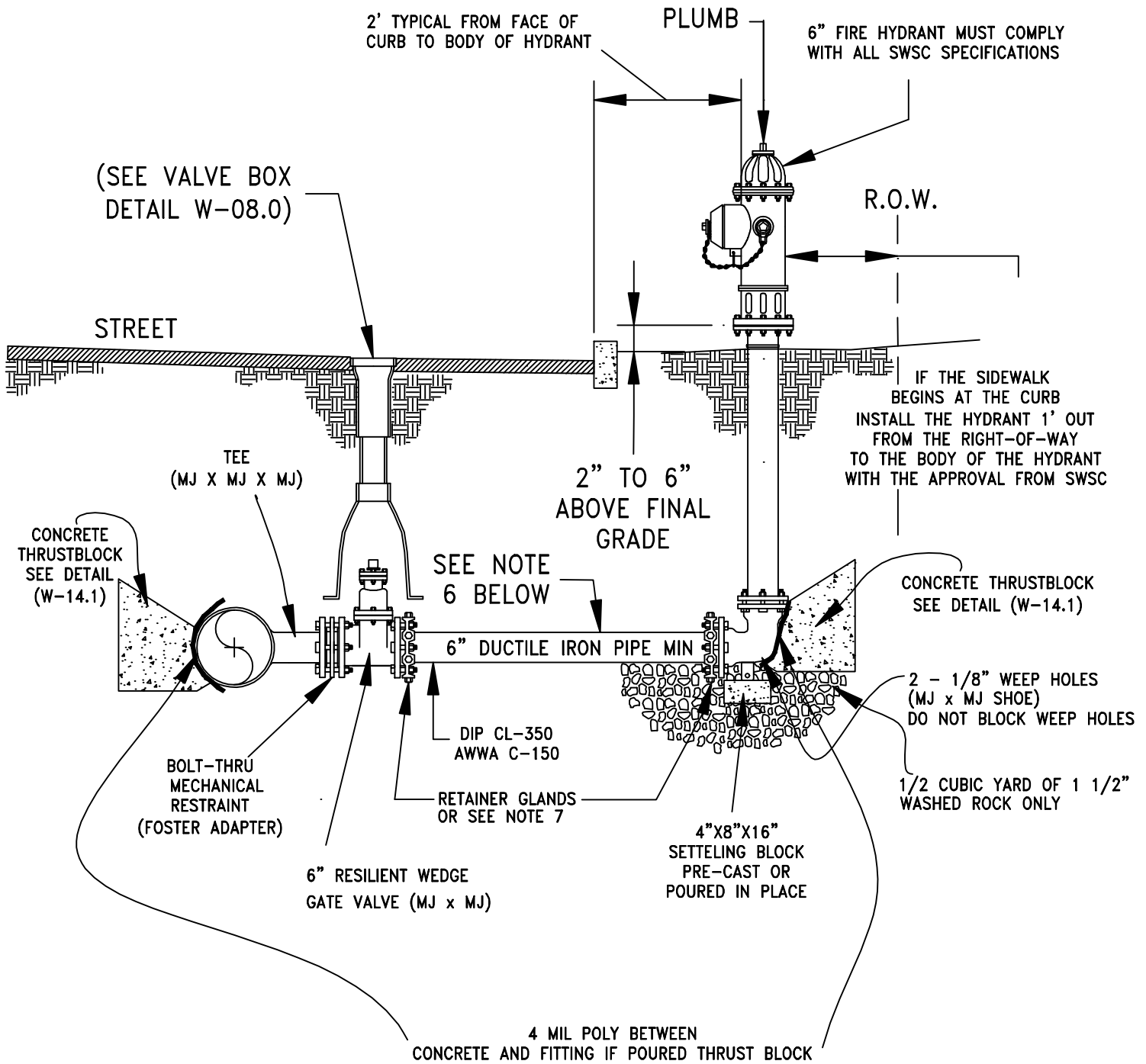


NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. ALL FIRE HYDRANTS SHALL BE INSTALLED PLUMB & LOCATED ACCORDING TO PROJECT PLANS.
5. NO TAPS SHALL BE ALLOWED BETWEEN THE HYDRANT & THE VALVE.
6. THE MECHANICAL JOINTS OF THE FIRE HYDRANT ASSEMBLY SHALL BE RESTRAINED VIA RETAINER GLAND. IF MORE THAN ONE SECTION IS USED, RETAINER GLAND RESTRAINTS SHALL BE USED AT ALL CONNECTIONS.
7. FOR RESTRAINT METHODS OTHER THAN RETAINER GLAND SEE DETAILS (W-06.1 THRU W-06.6).

**THIS DETAIL MUST
BE APPROVED FOR
USE BY THE
S.W.S.C BEFORE IT
CAN BE INSTALLED**

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-07.1	REV. DATE
	<i>ALTERNATE 1</i>	4/1/08 MAB
	<i>FIRE HYDRANT ASSEMBLY</i>	
	SCALE: NTS	



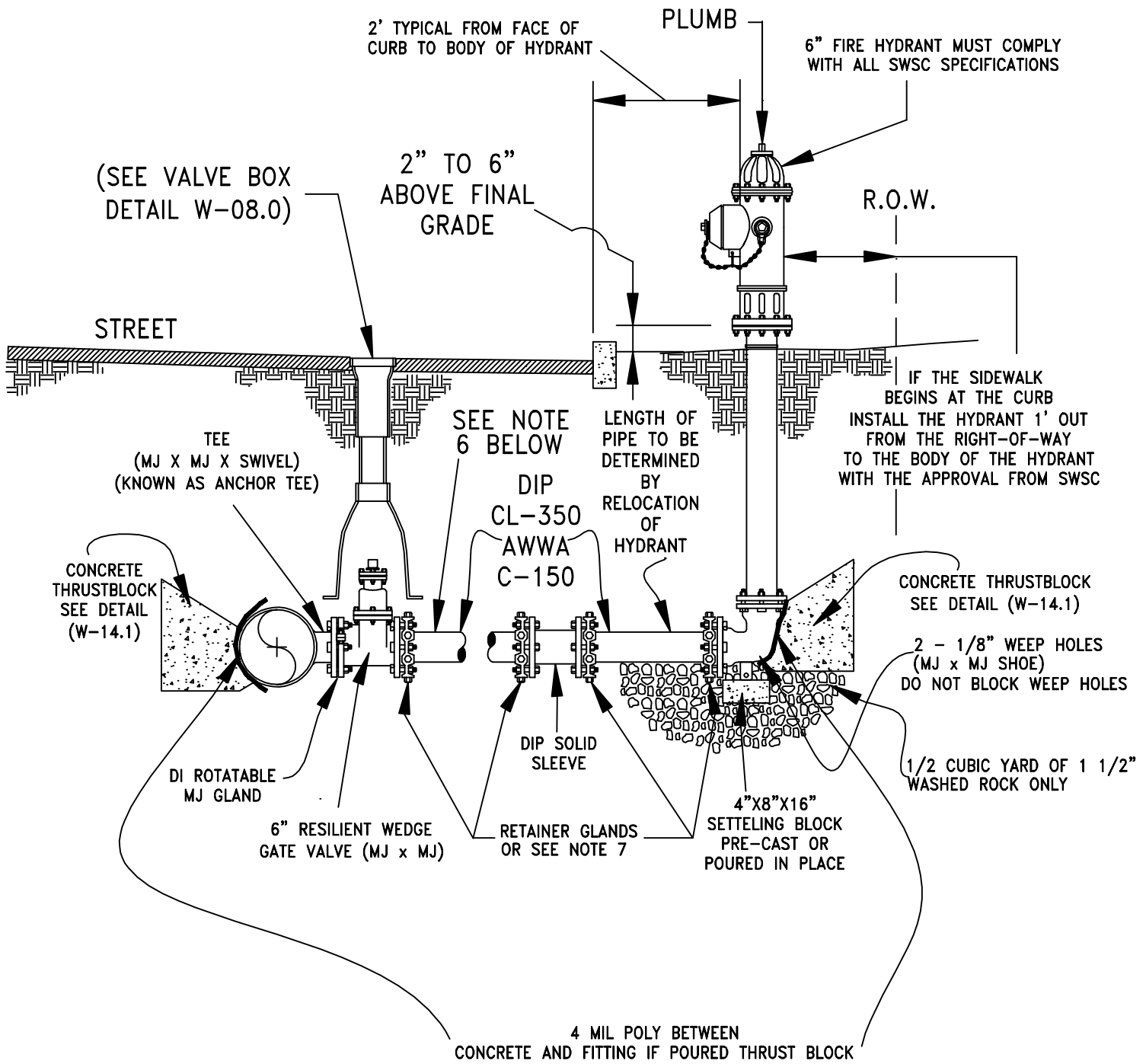
THIS DETAIL MUST BE APPROVED FOR USE BY THE S.W.S.C BEFORE IT CAN BE INSTALLED

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. ALL FIRE HYDRANTS SHALL BE INSTALLED PLUMB & LOCATED ACCORDING TO PROJECT PLANS.
5. NO TAPS SHALL BE ALLOWED BETWEEN THE HYDRANT & THE VALVE.
6. THE MECHANICAL JOINTS OF THE FIRE HYDRANT ASSEMBLY SHALL BE RESTRAINED VIA RETAINER GLAND. IF MORE THAN ONE SECTION IS USED, RETAINER GLAND RESTRAINTS SHALL BE USED AT ALL CONNECTIONS.
7. FOR RESTRAINT METHODS OTHER THAN RETAINER GLAND SEE DETAILS (W-06.1 THRU W-06.6).


SPRINGFIELD WATER AND SEWER COMMISSION	
WATER DETAIL W-07.2	REV. DATE
<i>ALTERNATE 2</i> <i>FIRE HYDRANT ASSEMBLY</i>	4/1/08 MAB
SCALE: NTS	

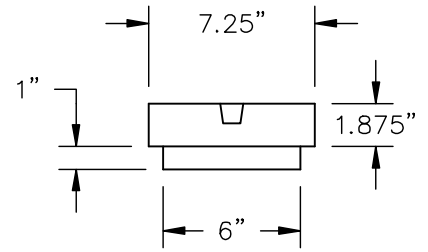
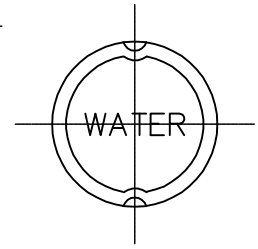
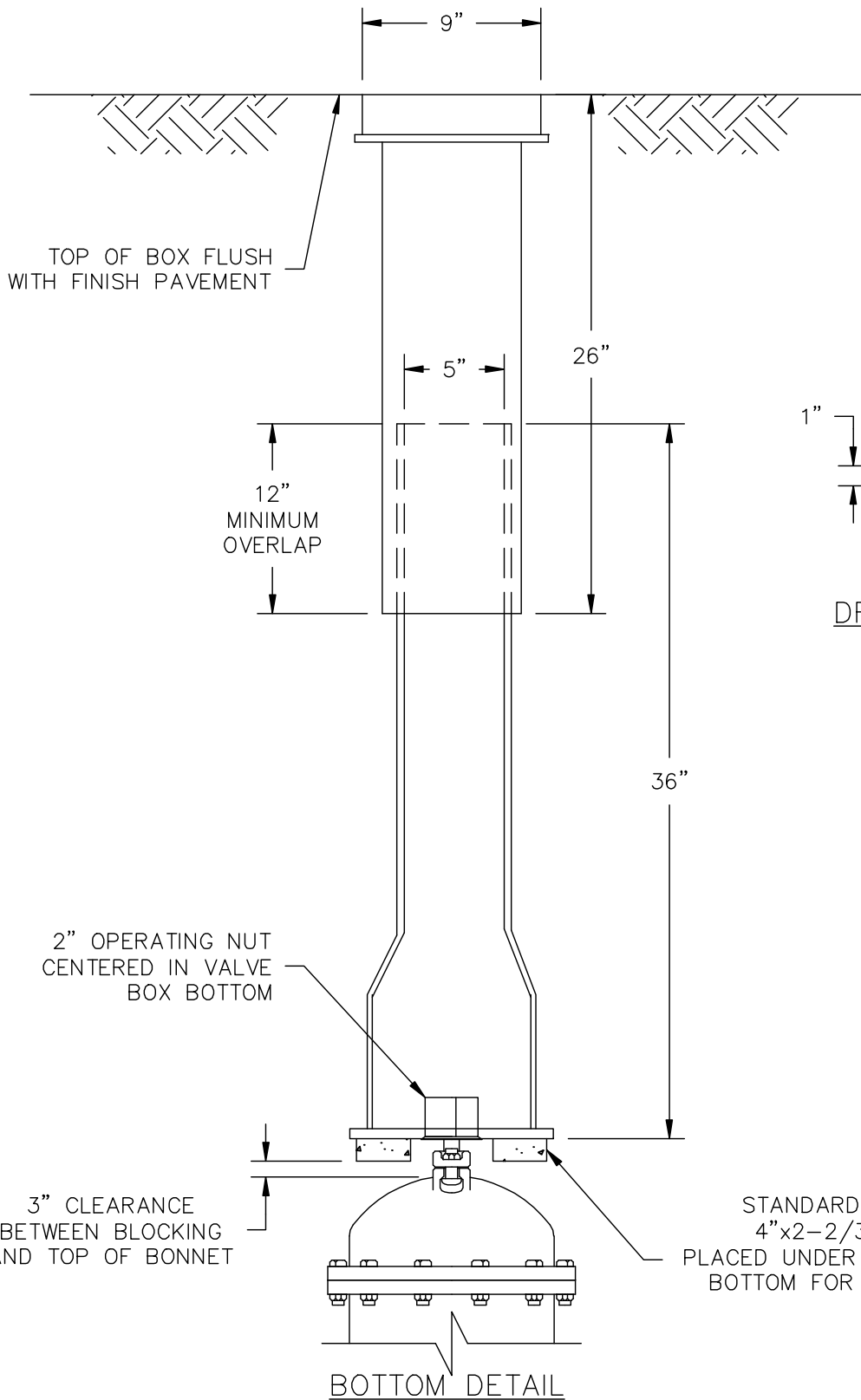




NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. ALL FIRE HYDRANTS SHALL BE INSTALLED PLUMB & LOCATED ACCORDING TO PROJECT PLANS.
5. NO TAPS SHALL BE ALLOWED BETWEEN THE HYDRANT & THE VALVE.
6. THE MECHANICAL JOINTS OF THE FIRE HYDRANT ASSEMBLY SHALL BE RESTRAINED VIA RETAINER GLAND. IF MORE THAN ONE SECTION IS USED, RETAINER GLAND RESTRAINTS SHALL BE USED AT ALL CONNECTIONS.
7. FOR RESTRAINT METHODS OTHER THAN RETAINER GLAND SEE DETAILS (W-06.1 THRU W-06.6).

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-07.3	REV. DATE
	<i>RELOCATION OF FIRE HYDRANT ASSEMBLY (STRAIGHT BACK)</i>	
	SCALE: NTS	
	4/1/08 MAB	



DROP STYLE COVER

NOTE: COVER MUST BE MARKED "WATER"

2" OPERATING NUT
CENTERED IN VALVE
BOX BOTTOM

3" CLEARANCE
BETWEEN BLOCKING
AND TOP OF BONNET

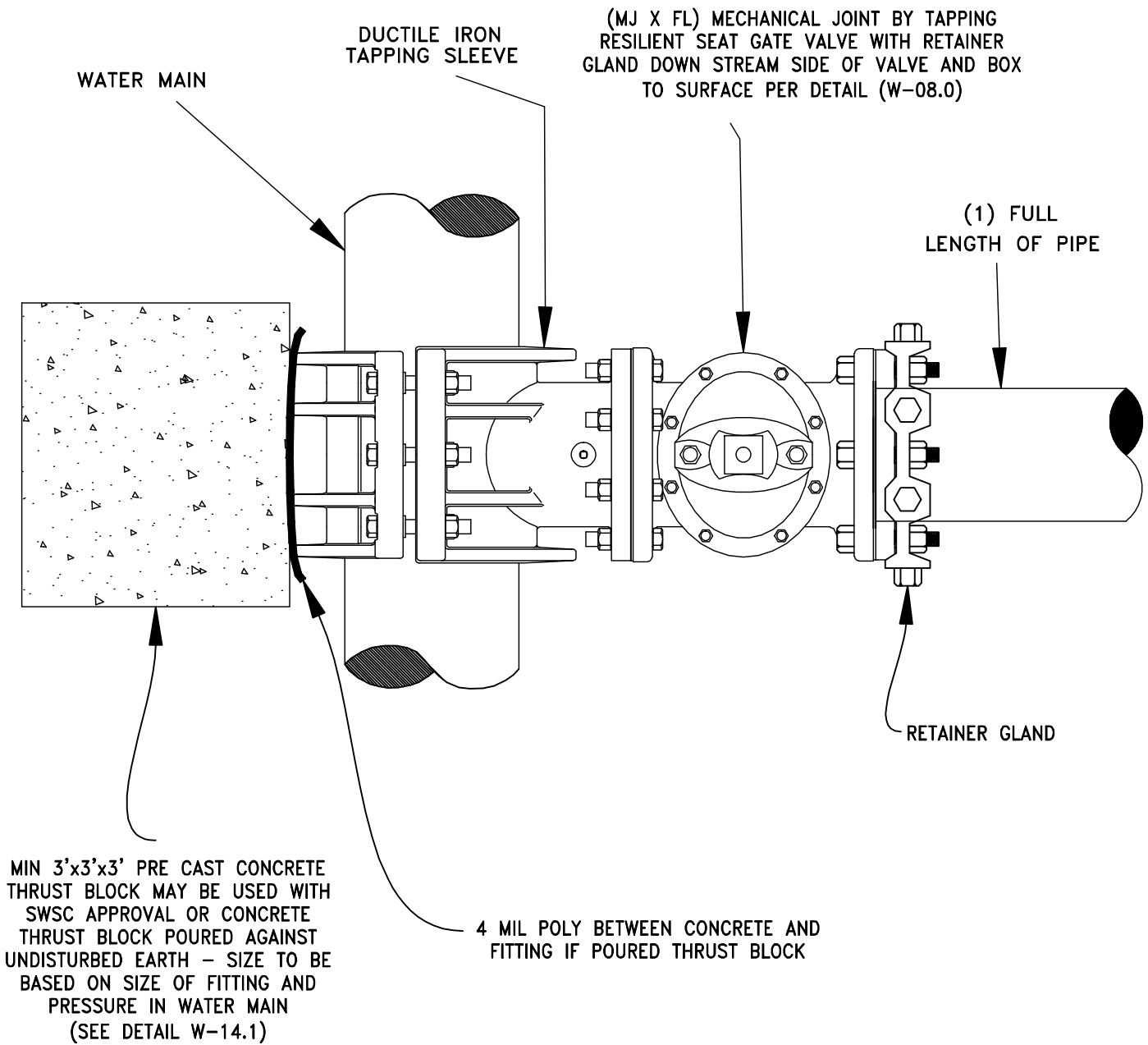
STANDARD BRICK
4"x2-2/3"x16"
PLACED UNDER VALVE BOX
BOTTOM FOR SUPPORT

BOTTOM DETAIL

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

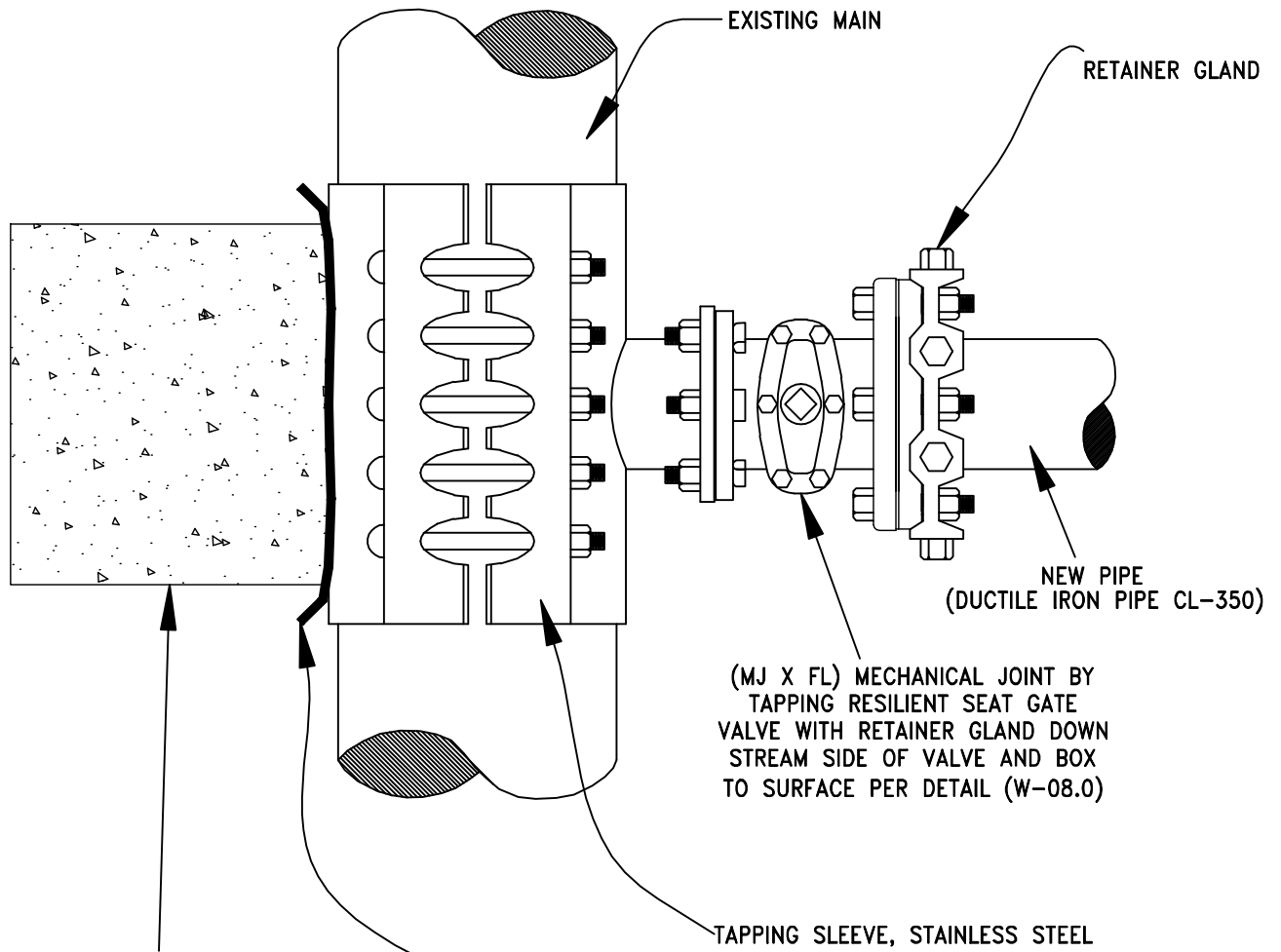
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-08.0	REV. DATE
	<u>VALVE BOX</u>	4/1/08 MAB
SCALE: NTS		



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-09.0	REV. DATE
	<i>DUCTILE IRON TAPPING SLEEVE</i>	4/1/08 MAB
	SCALE: NTS	



MIN 3'x3'x3' PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH SWSC APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN (SEE DETAIL W-14.1)

4 MIL POLY BETWEEN CONCRETE AND FITTING IF POURED THRUST BLOCK

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-09.1	REV. DATE
	<i>STAINLESS STEEL</i>	4/1/08 MAB
	<i>TAPPING SLEEVE</i>	
	SCALE: NTS	

3/4" OR 2" BRASS
STRAIGHT BALL VALVE WITH
FNPT INLET X FNPT OUTLET
& STRAIGHT LEVER HANDLE

CHROME SPIGOT
WITH NO THREADS

3/4" OR 2" BRASS NIP

3/4"

1/2"

WATTS 3/4" or 2"
CHECK VALVE

* TEFLON TAPE
ALL THREADS

12" MIN.


36" MAX.

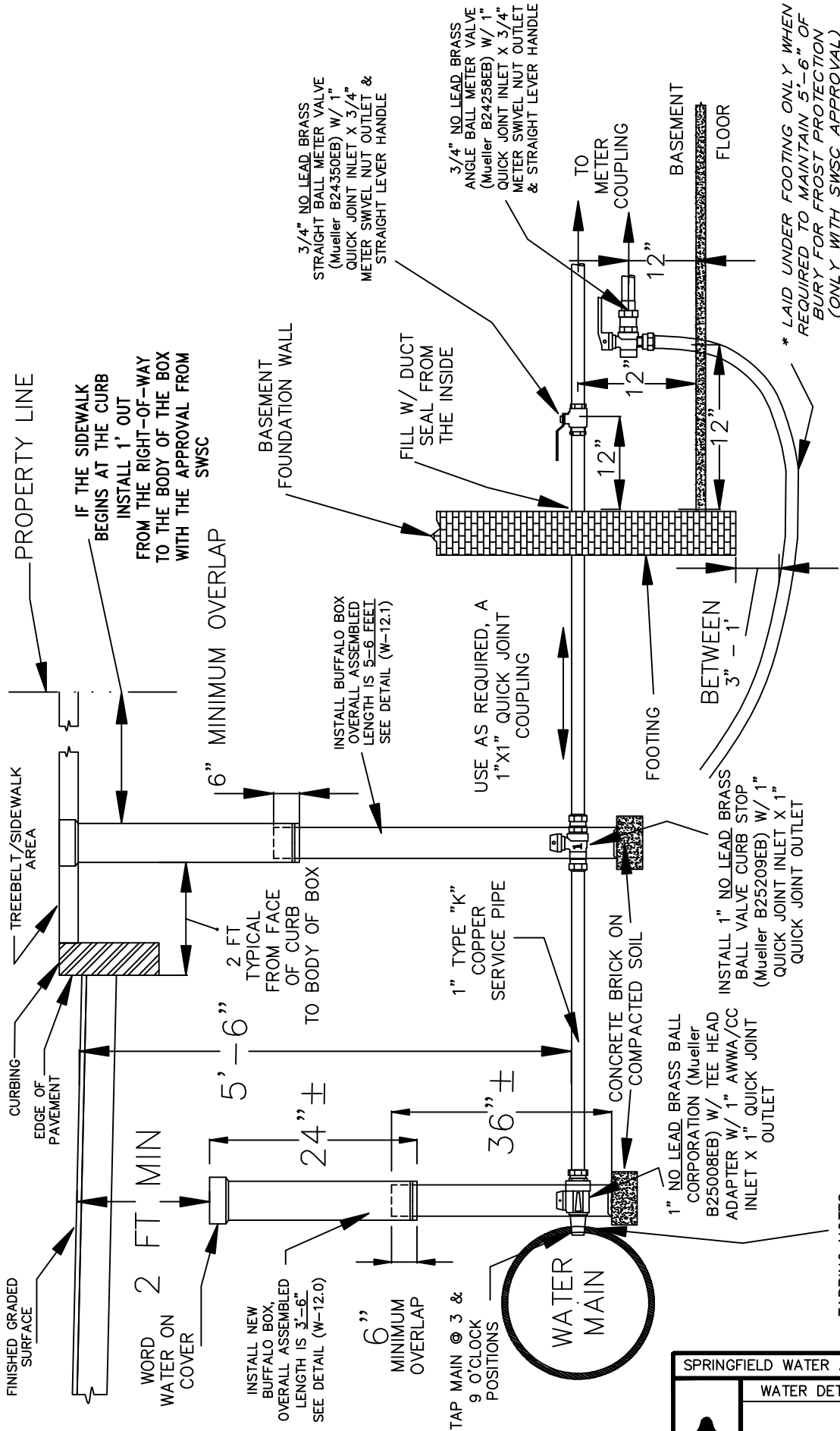
1"x 2" BRASS CTS
QUICK JOINT
INLET X 1"x 2"
MNPT OUTLET

1" OR 2"
COPPER TUBING
OR
BRASS PIPE

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-10.0	REV. DATE
	<p><i>FLUSHING DEVICE</i></p>	4/1/08 MAB
		6/18/08 MAB
SCALE: NTS		



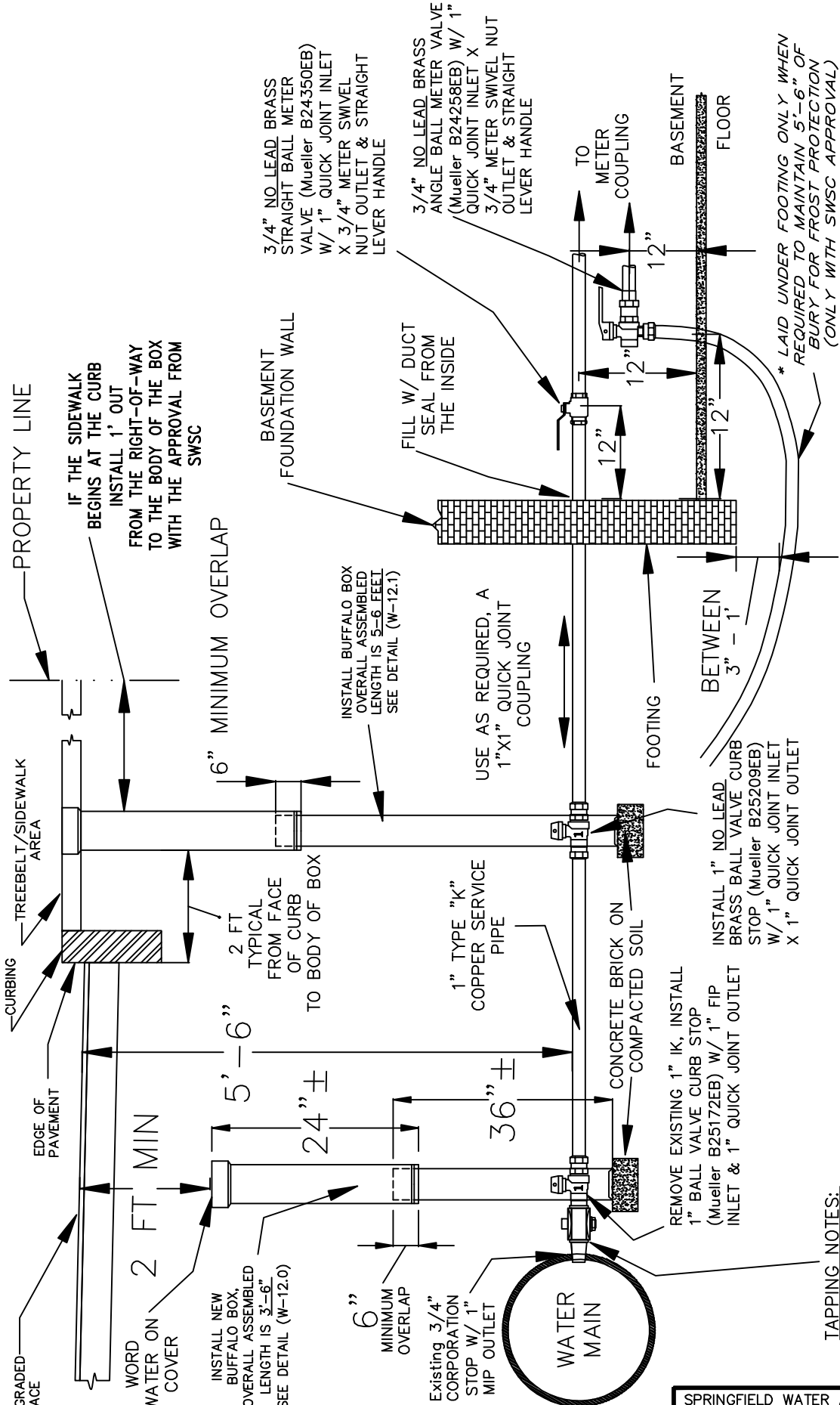
TAPPING NOTES:

FOR 1"=USE DIRECT TAPPING
FOR 1 -1/2" and 2"=MUST USE SWSC SADDLE

NOTES:

1. **ALL BRASS MUST BE LEAD FREE.** ALL MUELLER PART NUMBERS REFERENCED IN THIS DRAWING MAY BE USED, FOR ADDITIONAL APPROVED MANUFACTURERS SEE THE SWSC MATERIAL SPECIFICATIONS.
2. TAPS DONE BY SWSC.
3. BLOCKING UNDER ALL FITTINGS
4. ALL PIPE OR AWWA/CC THREADED JOINTS TO BE SEALED WITH TEFLON JOINT SEAL TAPE (PTFE). QUICK TYPE COMPRESSION JOINTS ARE NOT SEALED WITH TEFLON TAPE.
5. 3/4" COPPER TUBING SHALL NOT BE USED. ALL SERVICES SHALL BE 1" OR LARGER COPPER TUBING.
6. THE CORPORATION AT THE WATER MAIN IS FOR EMERGENCY USE AND THE BOX WILL BE BURIED 2-FEET BELOW FINISHED GRADE.
7. A SECOND OPERATIONAL CURB STOP SHALL BE INSTALLED IN THE TREEBELT. THE ARCH PATTERN BOX WILL BE SET AT FINISHED GRADE.
8. BOTH CURB BOXES WILL BE MEASURED FOR LOCATION TIES. A MINIMUM OF (3) TIES FOR EACH BOX.

SPRINGFIELD WATER AND SEWER COMMISSION	
WATER DETAIL W-11.0	REV. DATE
NEW WATER SERVICE	4/1/08 MAB
SCALE: NTS	




NOTES:

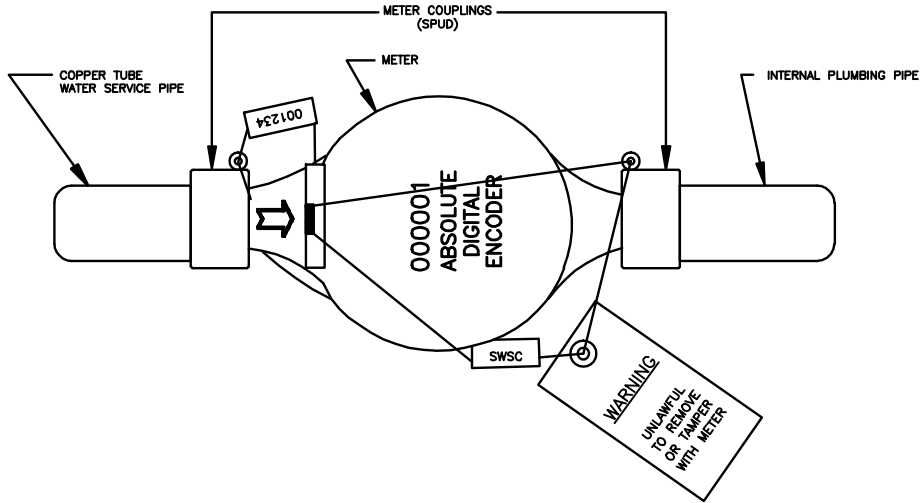
1. **ALL BRASS MUST BE LEAD FREE.** ALL MUELLER PART NUMBERS REFERENCED IN THIS DRAWING MAY BE USED, FOR ADDITIONAL APPROVED MANUFACTURERS SEE THE SWSC SPECIFICATIONS.
2. TAPS DONE BY SWSC.
3. BLOCKING UNDER ALL FITTINGS
4. ALL PIPE OR AWWACQ THREADED JOINTS TO BE SEALED WITH TEFLON PIPE JOINT SEAL TAPE (PTFE). QUICK TYPE COMPRESSION JOINTS ARE NOT SEALED WITH TEFLON TAPE.
5. 3/4" COPPER TUBING SHALL NOT BE USED. ALL SERVICES SHALL BE 1" OR LARGER COPPER TUBING.
6. THE CORPORATION AT THE WATER MAIN IS FOR EMERGENCY USE AND THE BOX WILL BE BURIED 2-FEET BELOW FINISHED GRADE.
7. A SECOND OPERATIONAL CURB STOP SHALL BE INSTALLED IN THE TREEBELT. THE ARCH PATTERN BOX WILL BE SET AT FINISHED GRADE.
8. BOTH CURB BOXES WILL BE MEASURED FOR LOCATION TIES. A MINIMUM OF (3) TIES FOR EACH BOX.

TAPPING NOTES:

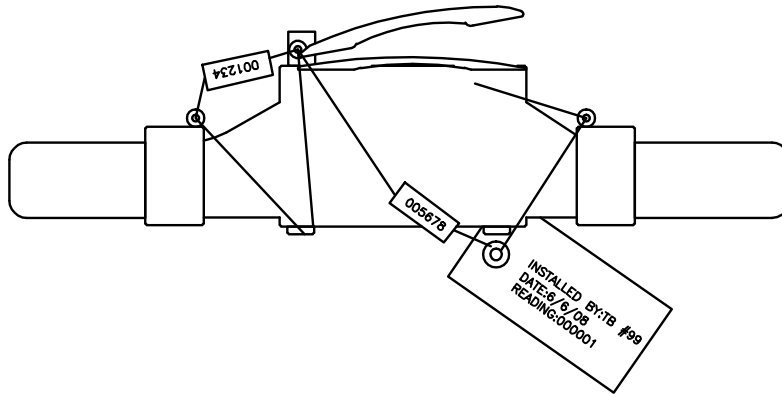
FOR 1"=USE DIRECT TAPPING
FOR 1-1/2" and 2"=MUST USE SWSC SADDLE

		
SPRINGFIELD WATER AND SEWER COMMISSION		WATER DETAIL W-11.1
REPLACEMENT WATER SERVICE		REV. DATE 4/1/08 MAB
SCALE: NTS		

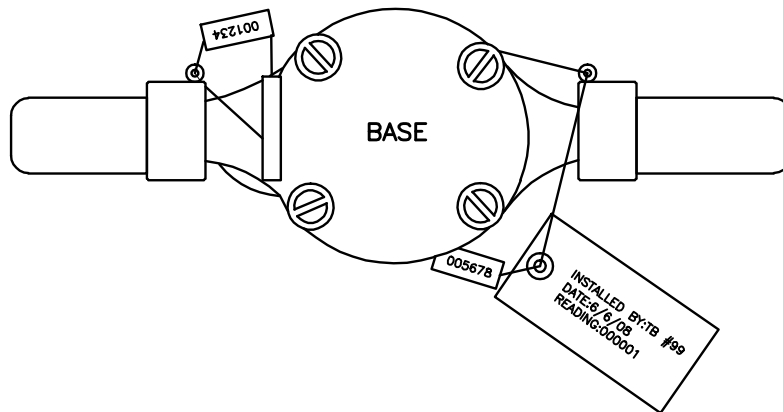
"TOP VIEW"



"SIDE VIEW"




"BOTTOM VIEW"



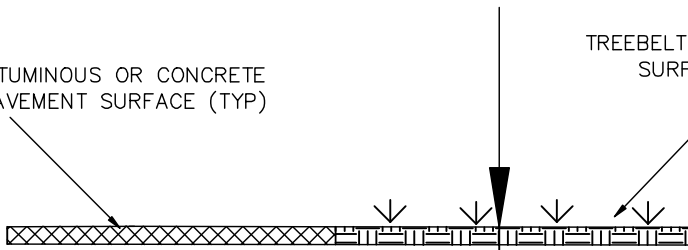
NOTES:

- METERS SHALL BE SEALED BY COMMISSION INSTALLERS & METER READERS ONLY.**

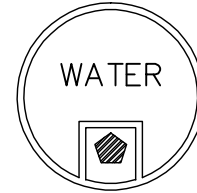
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-11.2	REV. DATE
	<u>WATER METER SEALING DETAIL</u>	
	SCALE: NTS	
	6/18/08 MAB	

BITUMINOUS OR CONCRETE PAVEMENT SURFACE (TYP)

TREEBELT OR NON-PAVED SURFACES (TYP)



24" BELOW GRADE



SERVICE BOX COVER
WITH BRASS PENTAGON HEAD NUT
AND THE WORD "WATER" CAST INTO COVER

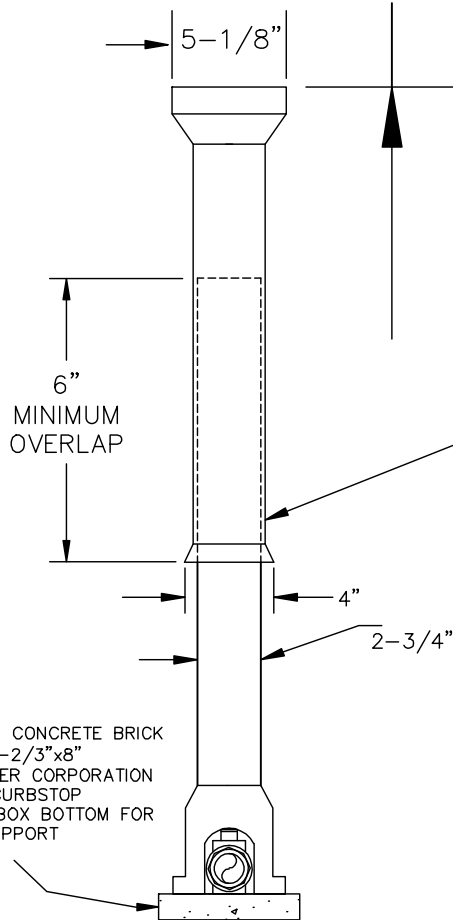
STANDARD SERVICE BOX SEE SWSC TECHNICAL SPECIFICATIONS

THE ARCH PATTERN BASE SHALL ACCOMMODATE 3/4 TO 2-INCH BALL TYPE CORPORATIONS AND BALL TYPE CURB STOPS.

A.) FOR 1-INCH BALL TYPE CORPORATIONS AND BALL TYPE CURB STOPS THE ARCH SHALL BE AT LEAST 5-INCHES TALL WITH A 3-INCH BY 3-INCH ARCH & CENTERED OVER 1-INCH BALL TYPE CORPORATION.

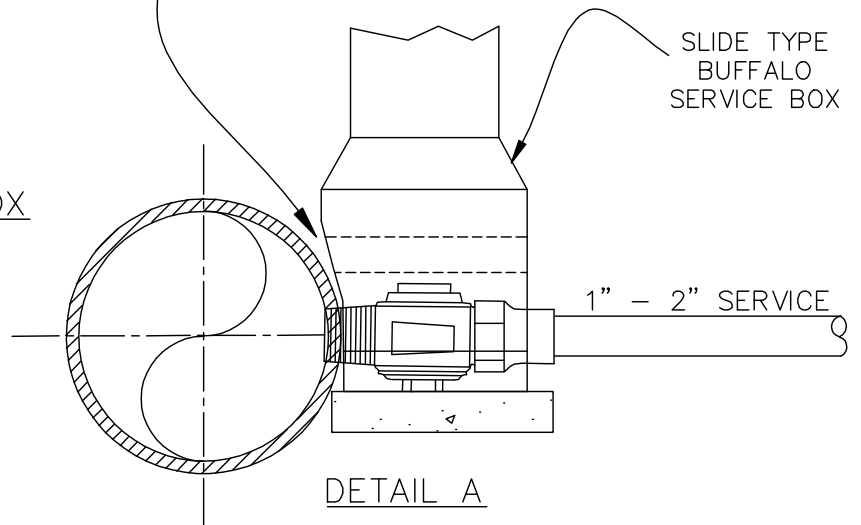
B.) FOR 1-1/2-INCH TO 2-INCH BALL TYPE CORPORATIONS AND BALL TYPE CURB STOPS THE ARCH SHALL BE AT LEAST 7-INCHES TALL WITH A 4-INCH BY 4-INCH ARCH.

APPROXIMATELY 1/2" TO BE REMOVED FROM SIDE OF BASE CLOSEST TO WATER MAIN IN ORDER TO CONFIRM THE BASE IS OVER THE 1-1/2"-2" BALL TYPE CURB STOPS (SEE DETAIL A).



(1) STANDARD CONCRETE BRICK
 4"x2-2/3"x8"
 PLACED UNDER CORPORATION
 OR CURBSTOP
 AND VALVE BOX BOTTOM FOR
 SUPPORT

SLIDE TYPE
BUFFALO SERVICE BOX

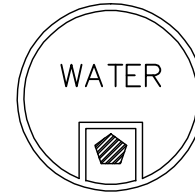
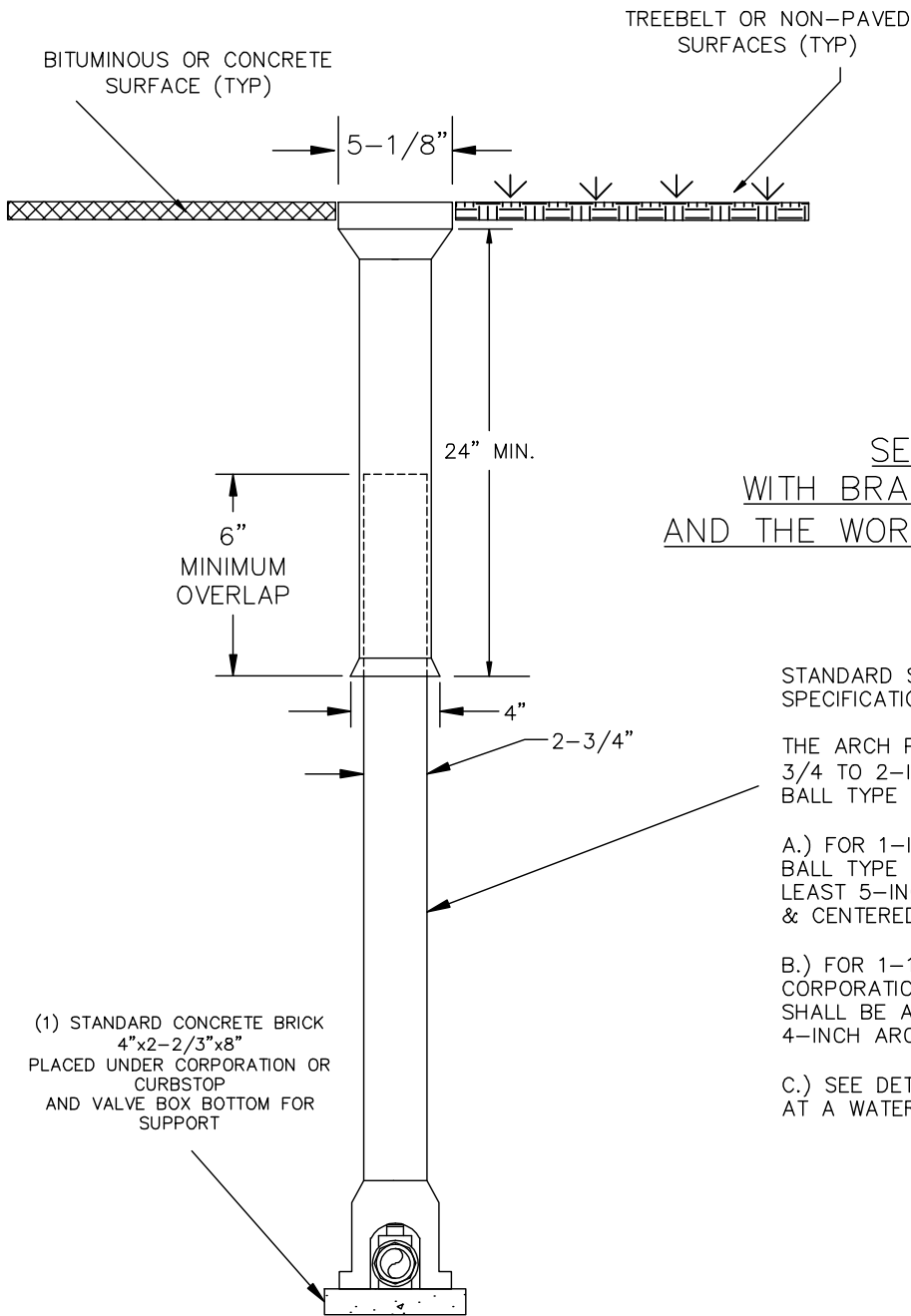


DETAIL A

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-12.0	REV. DATE
	<i>TYPICAL SERVICE BOX DETAIL</i>	4/1/08 MAB
	<i>IN PAVED AREAS</i>	
	SCALE: NTS	



SERVICE BOX COVER
WITH BRASS PENTAGON HEAD NUT
AND THE WORD "WATER" CAST INTO COVER

STANDARD SERVICE BOX SEE SWSC TECHNICAL SPECIFICATIONS

THE ARCH PATTERN BASE SHALL ACCOMMODATE 3/4 TO 2-INCH BALL TYPE CORPORATIONS AND BALL TYPE CURB STOPS.

A.) FOR 1-INCH BALL TYPE CORPORATIONS AND BALL TYPE CURB STOPS THE ARCH SHALL BE AT LEAST 5-INCHES TALL WITH A 3-INCH BY 3-INCH ARCH & CENTERED OVER 1-INCH BALL TYPE CORPORATION.

B.) FOR 1-1/2-INCH TO 2-INCH BALL TYPE CORPORATIONS AND BALL TYPE CURB STOPS THE ARCH SHALL BE AT LEAST 7-INCHES TALL WITH A 4-INCH BY 4-INCH ARCH.

C.) SEE DETAIL (W-12.0) IF THIS INSTALLATION IS USED AT A WATER MAIN.

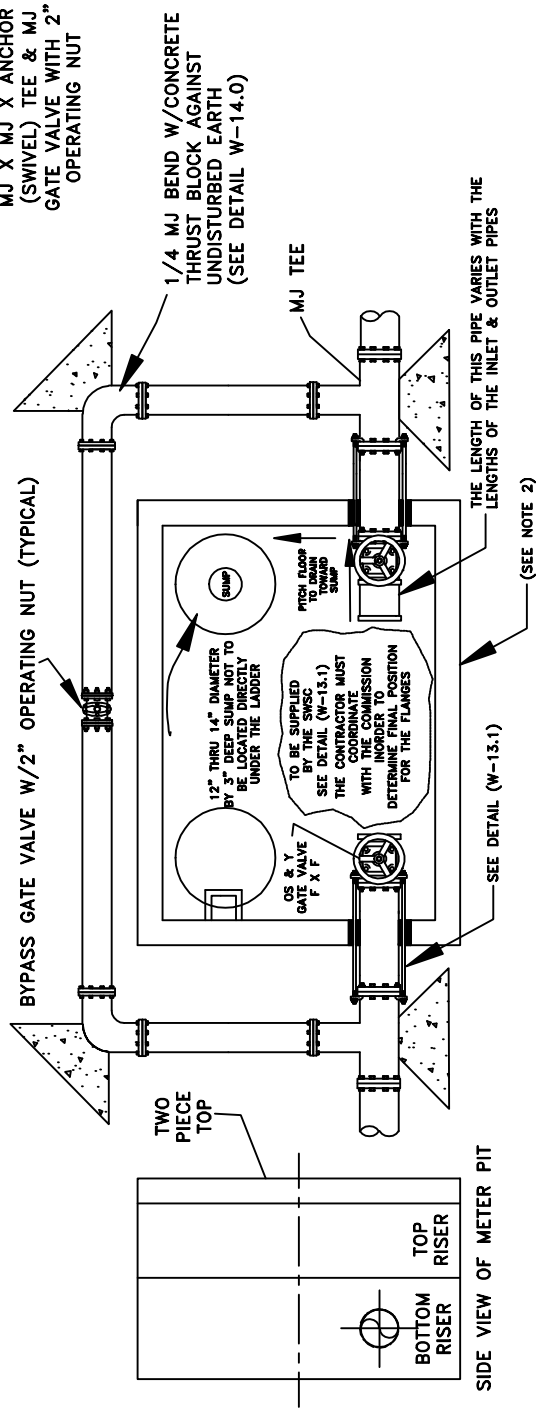
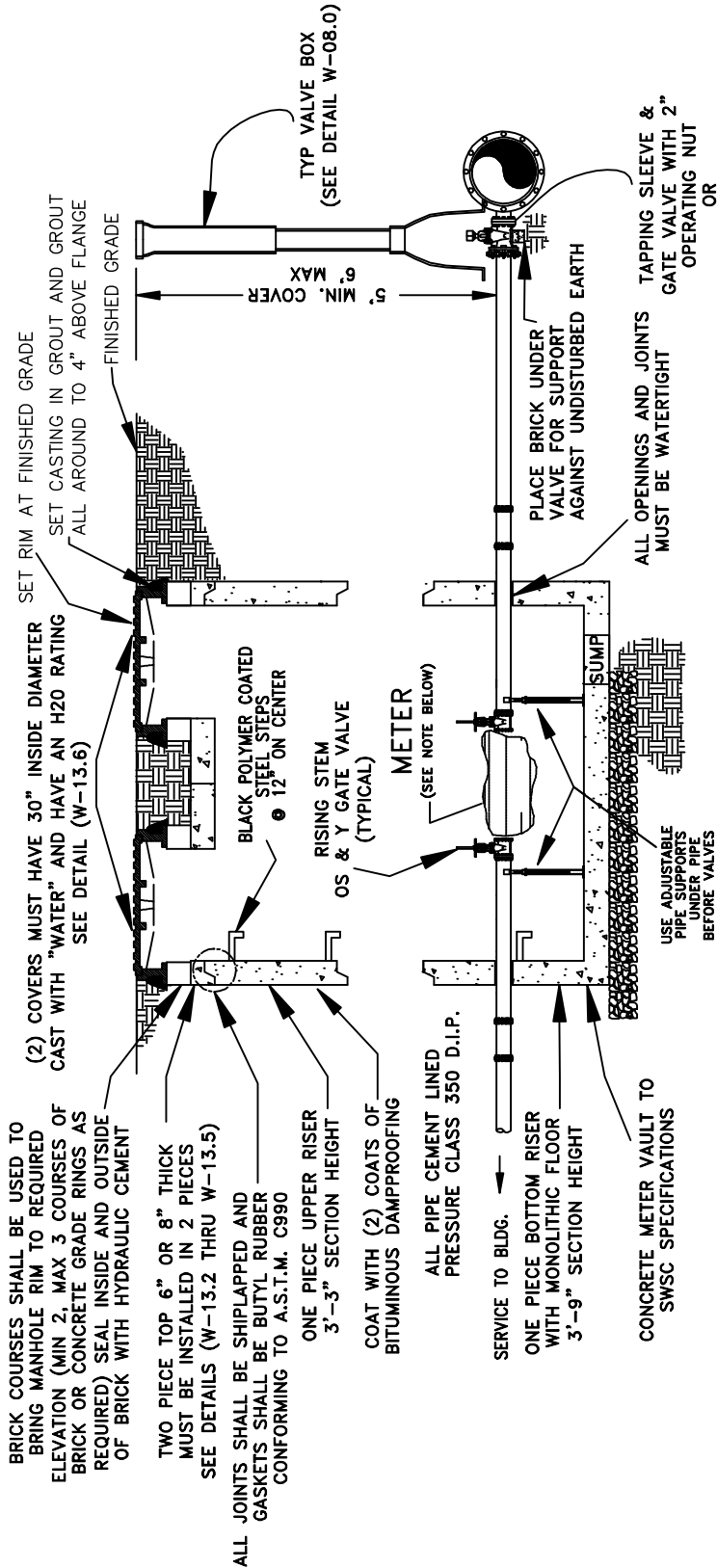
(1) STANDARD CONCRETE BRICK
 4"x2-2/3"x8"
 PLACED UNDER CORPORATION OR
 CURBSTOP
 AND VALVE BOX BOTTOM FOR
 SUPPORT

SLIDE TYPE
BUFFALO SERVICE BOX


NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES WILL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

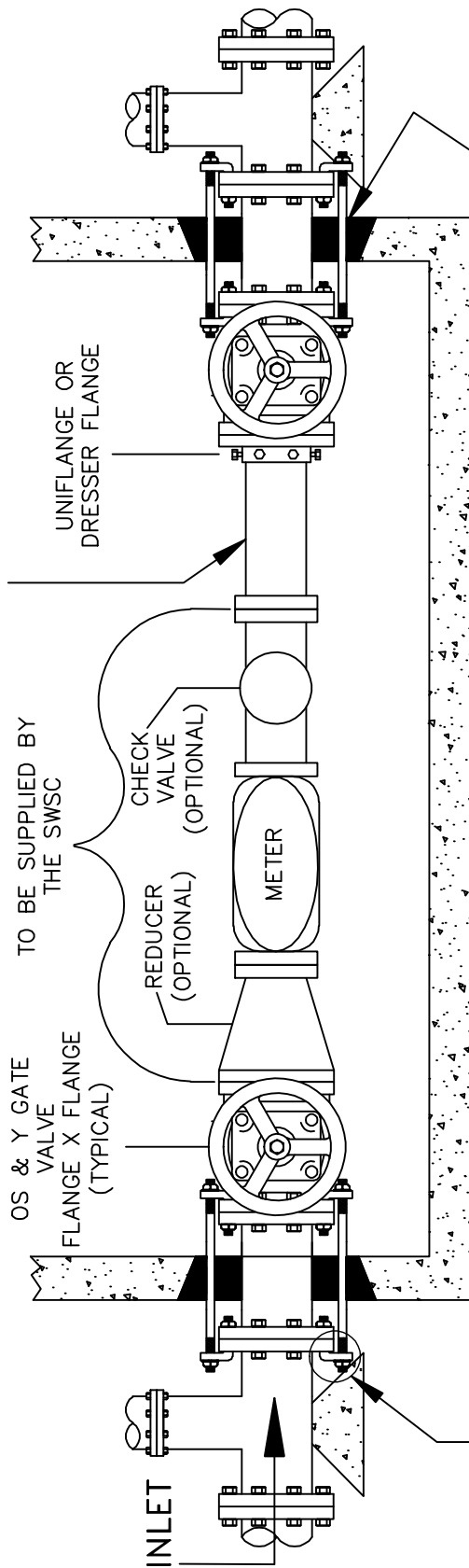
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-12.1	REV. DATE
	<u>TYPICAL SERVICE BOX DETAIL</u>	4/1/08 MAB
	<u>IN NON-PAVED AREAS</u>	
	SCALE: NTS	



- NOTES:
1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
 2. VAULT TOP, WALLS & FLOOR THICKNESS SHALL BE IN ACCORDANCE WITH DETAILS (W-13.2 THRU W-13.5).
 3. FLANGES THAT CONNECT METER MUST BE SUPPLIED BY THE CONTRACTOR.
 4. ALL VALVES IN THE VAULT MUST HAVE HAND WHEELS. BYPASS VALVES MUST LOCKABLE OR CHAINABLE.
 5. BYPASS PIPE CAN RUN ON OUTSIDE OF THE VAULT WITH A SHUT OFF VALVE.
 6. ALL JOINTS TO BE RETAINER GLANDS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-13.0	REV. DATE
	4-8 INCH METER PIT PIPING	4/1/08 MAB
SCALE: NTS		

FLANGE X PLAIN END STUB
 (THE LENGTH OF THIS PIPE VARIES WITH THE LENGTHS OF THE INLET & OUTLET PIPES & SHALL BE CUT TO FIT)



FORMED OPENING
 POURED OR HAND PACKED NON-SHRINK GROUT.
 (HALLEMITE, WATERPLUG, EMBECO OR APPROVED EQUAL)

- NOTES:
1. ALL MATERIALS WILL CONFORM TO SWSC SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
 2. THE CONE REDUCER (OPTIONAL), 8" METER AND CHECK VALVE (OPTIONAL) WILL BE SUPPLIED BY THE SWSC. ALL OTHER ITEMS WILL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
 3. EACH OS&Y THAT'S BOLTED TO THE INLET FLANGE AND THE OUTLET FLANGE MUST BE RODDED BACK TO THE TEE AND SECURED FROM ANY MOVEMENT.
 4. EACH EXTERIOR BEND AND TEE MUST HAVE THRUST BLOCKS.
 5. THE INLET AND OUTLET OPENINGS ARE TO BE SEALED AND WATER TIGHT AND FLUSH WITH THE INTERIOR AND EXTERIOR WALLS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-13.1	REV. DATE
	4-8 INCH METER INSTALLATION	4/1/08 MAB
SCALE: NTS		

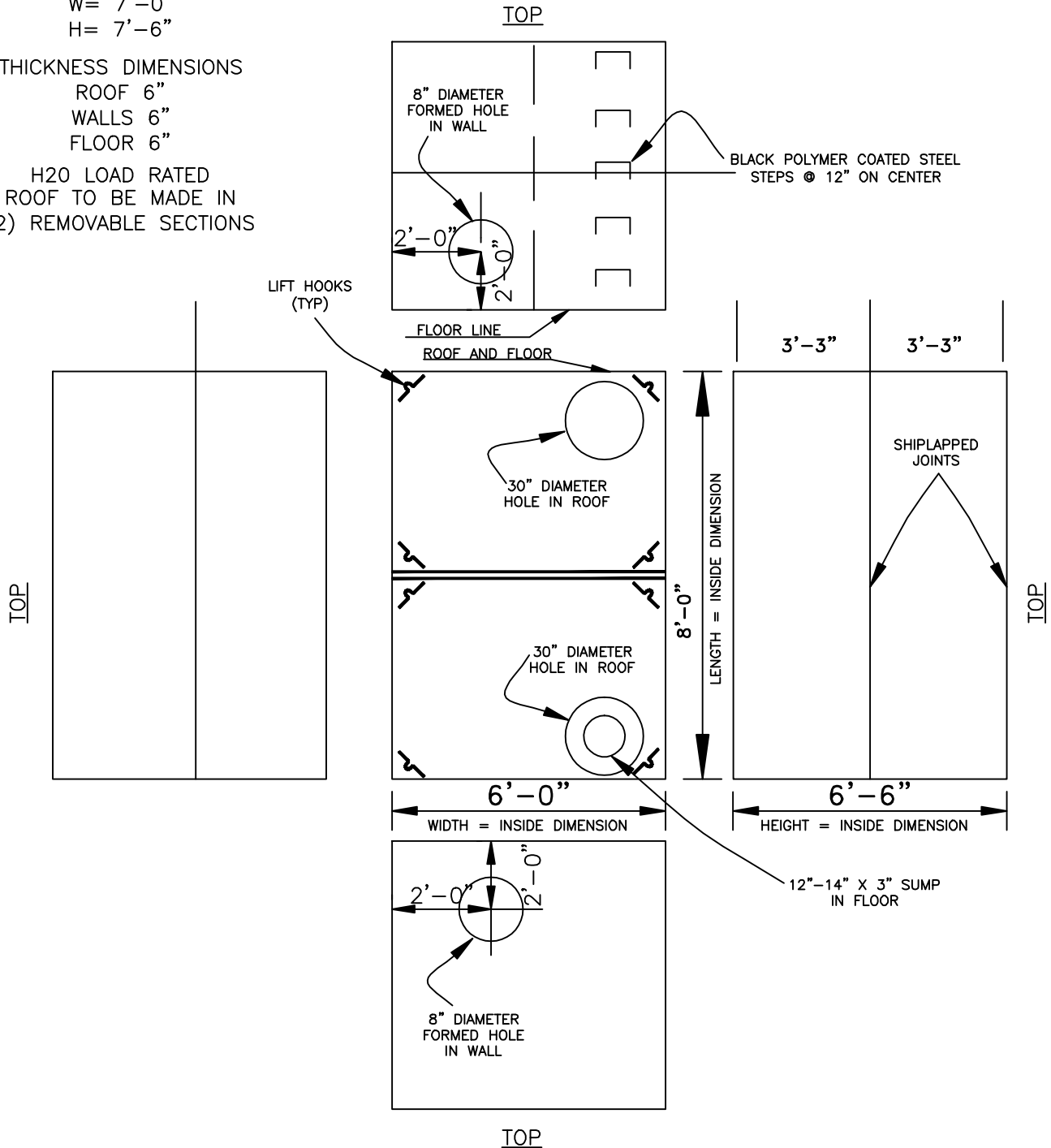
OUTSIDE DIMENSIONS

L= 9'-0"
 W= 7'-0"
 H= 7'-6"

THICKNESS DIMENSIONS


ROOF 6"
 WALLS 6"
 FLOOR 6"

H20 LOAD RATED
 ROOF TO BE MADE IN
 (2) REMOVABLE SECTIONS



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. VAULT TOP, WALLS & FLOOR THICKNESS SHALL BE IN ACCORDANCE WITH DETAILS (W-13.2 - W-13.5).
3. FORMED HOLES SHALL BE TAPPED TOWARD THE INSIDE OF VAULT.
4. ALL JOINTS SHALL BE SHIPLAPPED AND GASKETS SHALL BE BUTYL RUBBER CONFORMING TO A.S.T.M. C990.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-13.2	REV. DATE
	<i>METER PIT FOR 4-INCH WATER SERVICE PIPE</i>	
	SCALE: NTS	
	4/1/08 MAB	

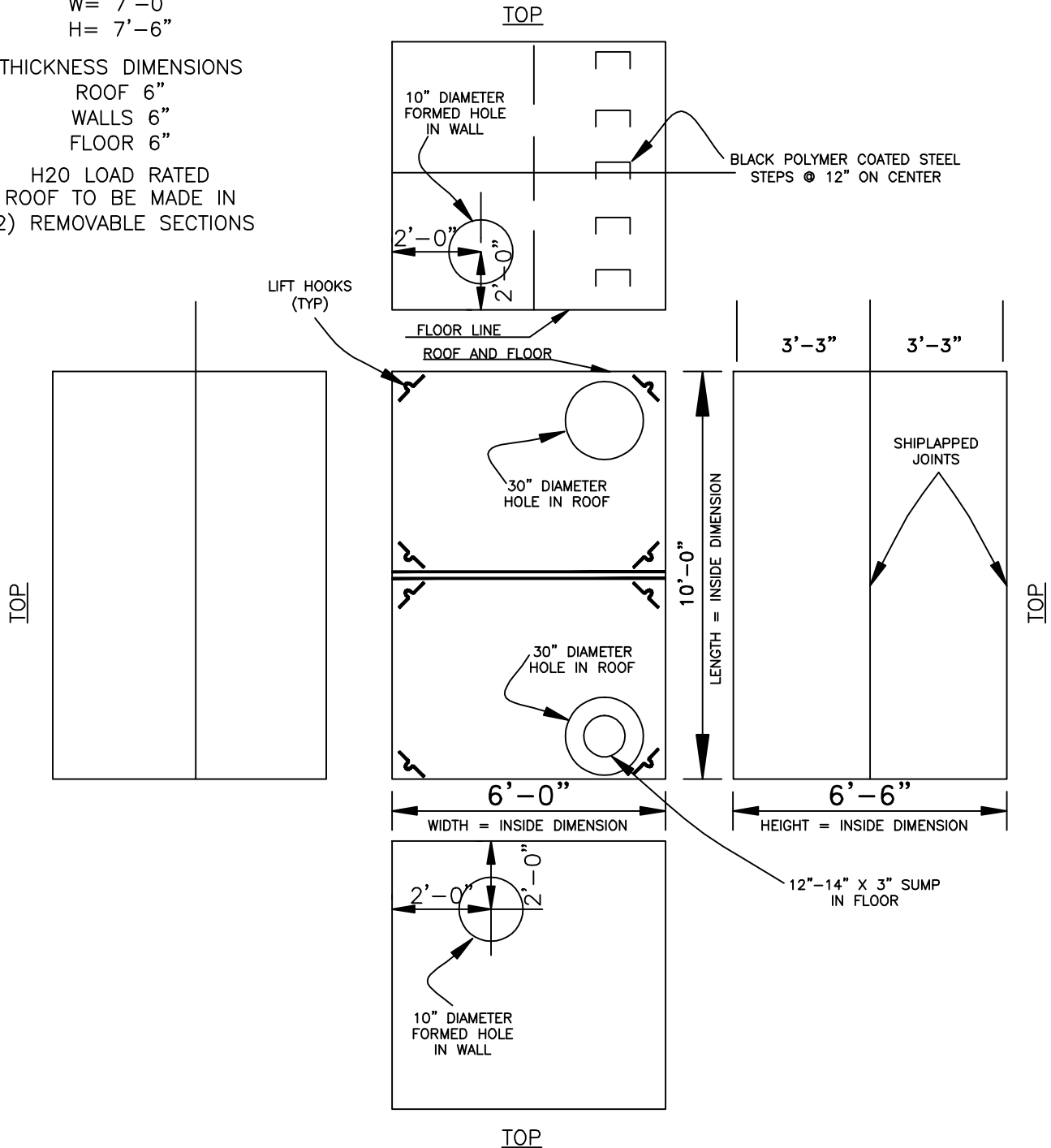
OUTSIDE DIMENSIONS

L= 11'-0"
 W= 7'-0"
 H= 7'-6"

THICKNESS DIMENSIONS


ROOF 6"
 WALLS 6"
 FLOOR 6"

H20 LOAD RATED
 ROOF TO BE MADE IN
 (2) REMOVABLE SECTIONS



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. VAULT TOP, WALLS & FLOOR THICKNESS SHALL BE IN ACCORDANCE WITH DETAILS (W-13.2 - W-13.5).
3. FORMED HOLES SHALL BE TAPPED TOWARD THE INSIDE OF VAULT.
4. ALL JOINTS SHALL BE SHIPLAPPED AND GASKETS SHALL BE BUTYL RUBBER CONFORMING TO A.S.T.M. C990.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-13.3	REV. DATE
	<i>METER PIT FOR 6-INCH WATER SERVICE PIPE</i>	
	SCALE: NTS	
	4/1/08 MAB	

OUTSIDE DIMENSIONS

L= 11'-0"

W= 7'-0"

H= 7'-6"

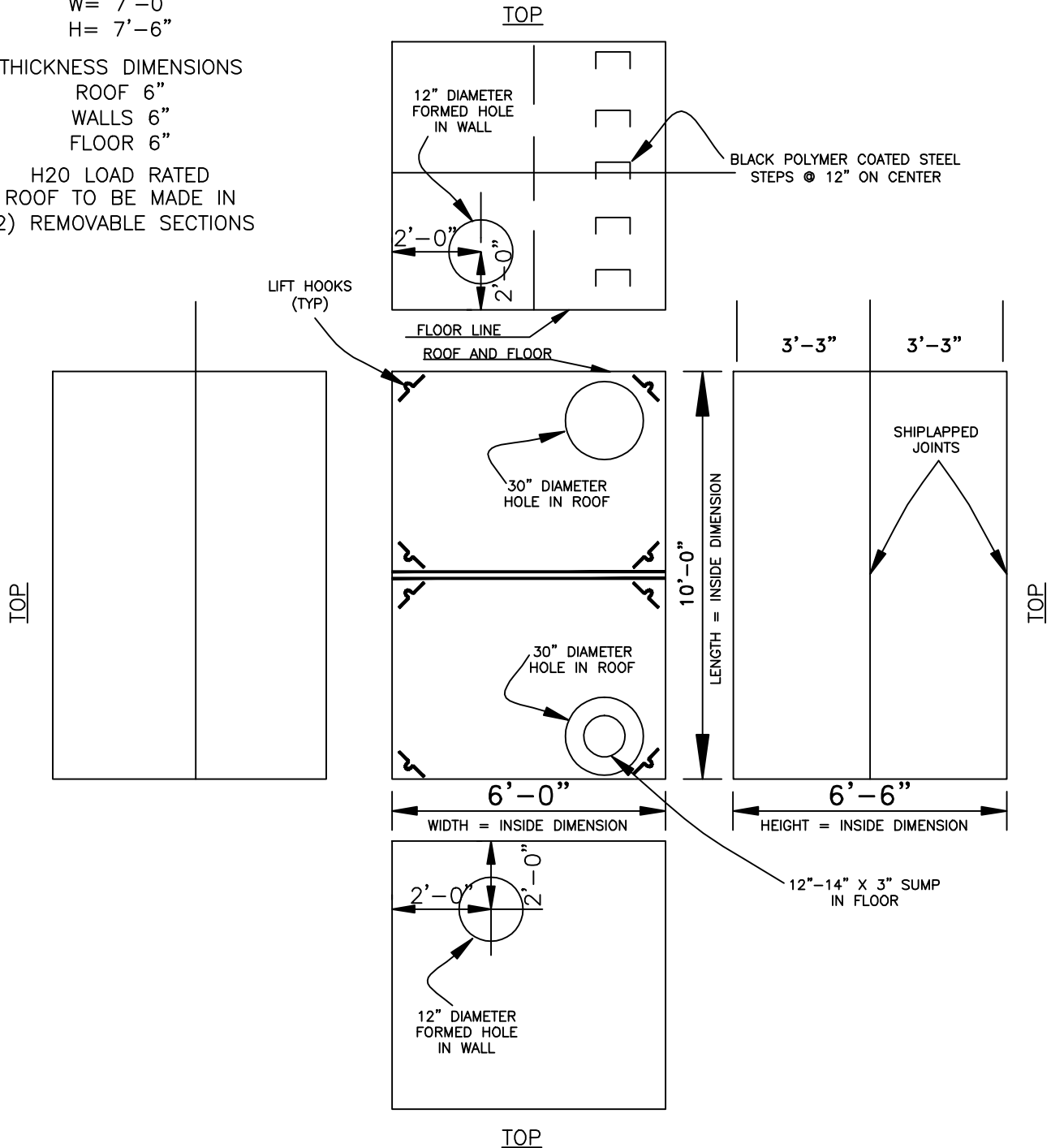
THICKNESS DIMENSIONS

ROOF 6"

WALLS 6"


FLOOR 6"

H2O LOAD RATED
ROOF TO BE MADE IN
(2) REMOVABLE SECTIONS



NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. VAULT TOP, WALLS & FLOOR THICKNESS SHALL BE IN ACCORDANCE WITH DETAILS (W-13.2 - W-13.5).
3. FORMED HOLES SHALL BE TAPERED TOWARD THE INSIDE OF VAULT.
4. ALL JOINTS SHALL BE SHIPLAPPED AND GASKETS SHALL BE BUTYL RUBBER CONFORMING TO A.S.T.M. C990.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-13.4	REV. DATE
	<i>METER PIT FOR 8-INCH WATER SERVICE PIPE</i>	
	SCALE: NTS	
	4/1/08 MAB	

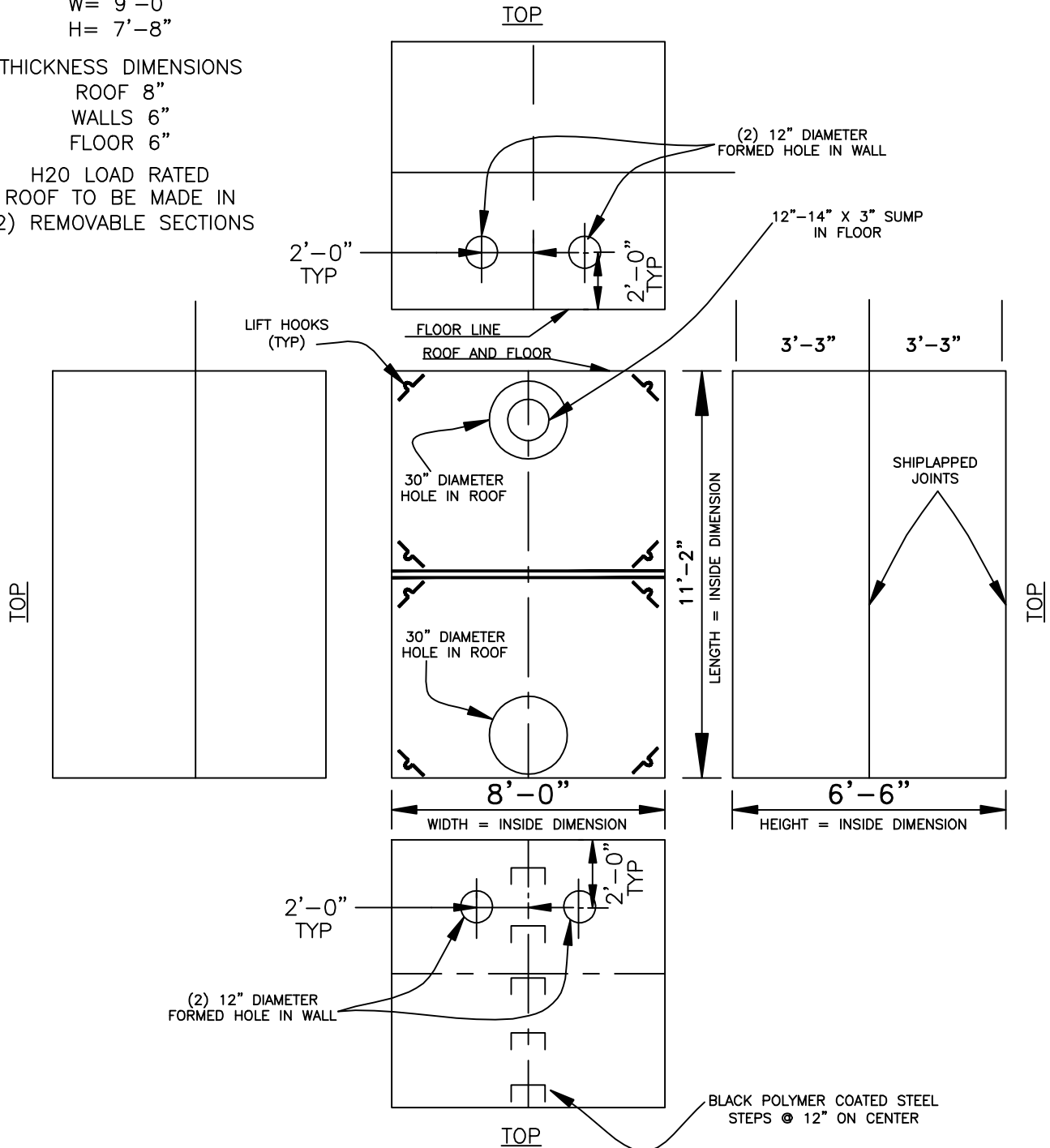
OUTSIDE DIMENSIONS

L = 12'-2"
 W = 9'-0"
 H = 7'-8"

THICKNESS DIMENSIONS


ROOF 8"
 WALLS 6"
 FLOOR 6"

H20 LOAD RATED
 ROOF TO BE MADE IN
 (2) REMOVABLE SECTIONS

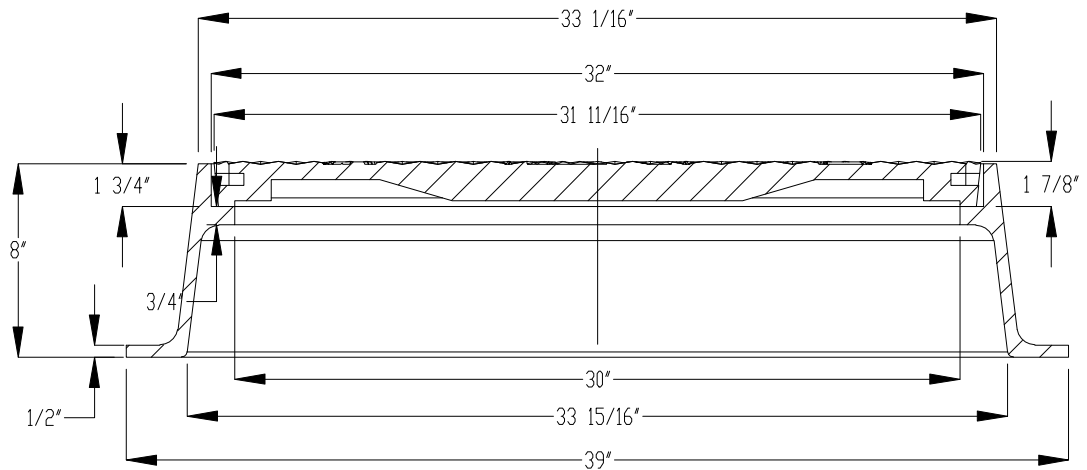
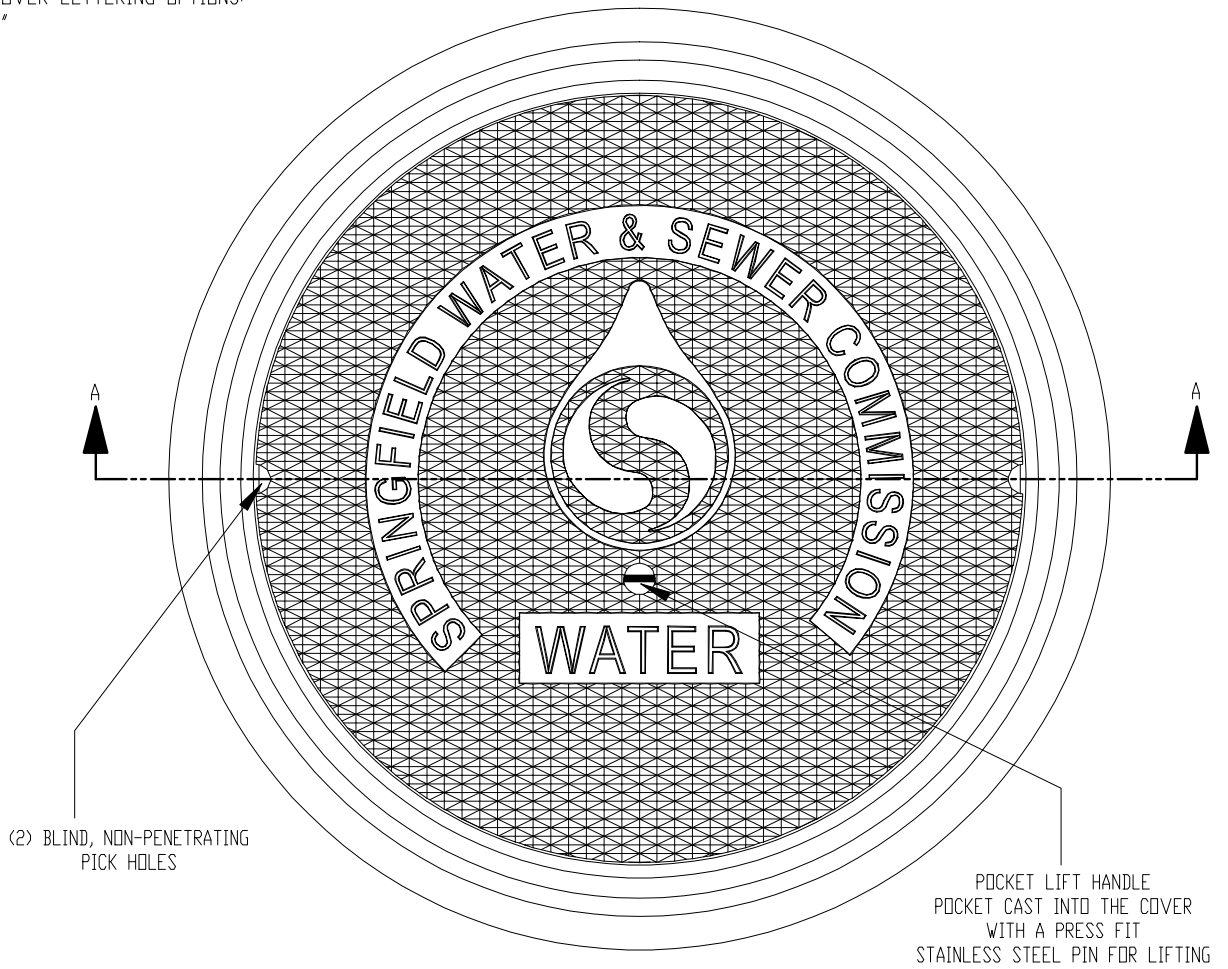


NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. VAULT TOP, WALLS & FLOOR THICKNESS SHALL BE IN ACCORDANCE WITH DETAILS (W-13.2 - W-13.5).
3. FORMED HOLES SHALL BE TAPERED TOWARD THE INSIDE OF VAULT.
4. ALL JOINTS SHALL BE SHIPLAPPED AND GASKETS SHALL BE BUTYL RUBBER CONFORMING TO A.S.T.M. C990.

SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-13.5	REV. DATE
	<i>METER PIT FOR 10 & 12-INCH WATER SERVICE PIPE</i>	
	SCALE: NTS	
	4/1/08 MAB	

STANDARD DIAMOND PATTERN WITH CUSTOM
 LOGO COVER LETTERING OPTIONS:
 "WATER"



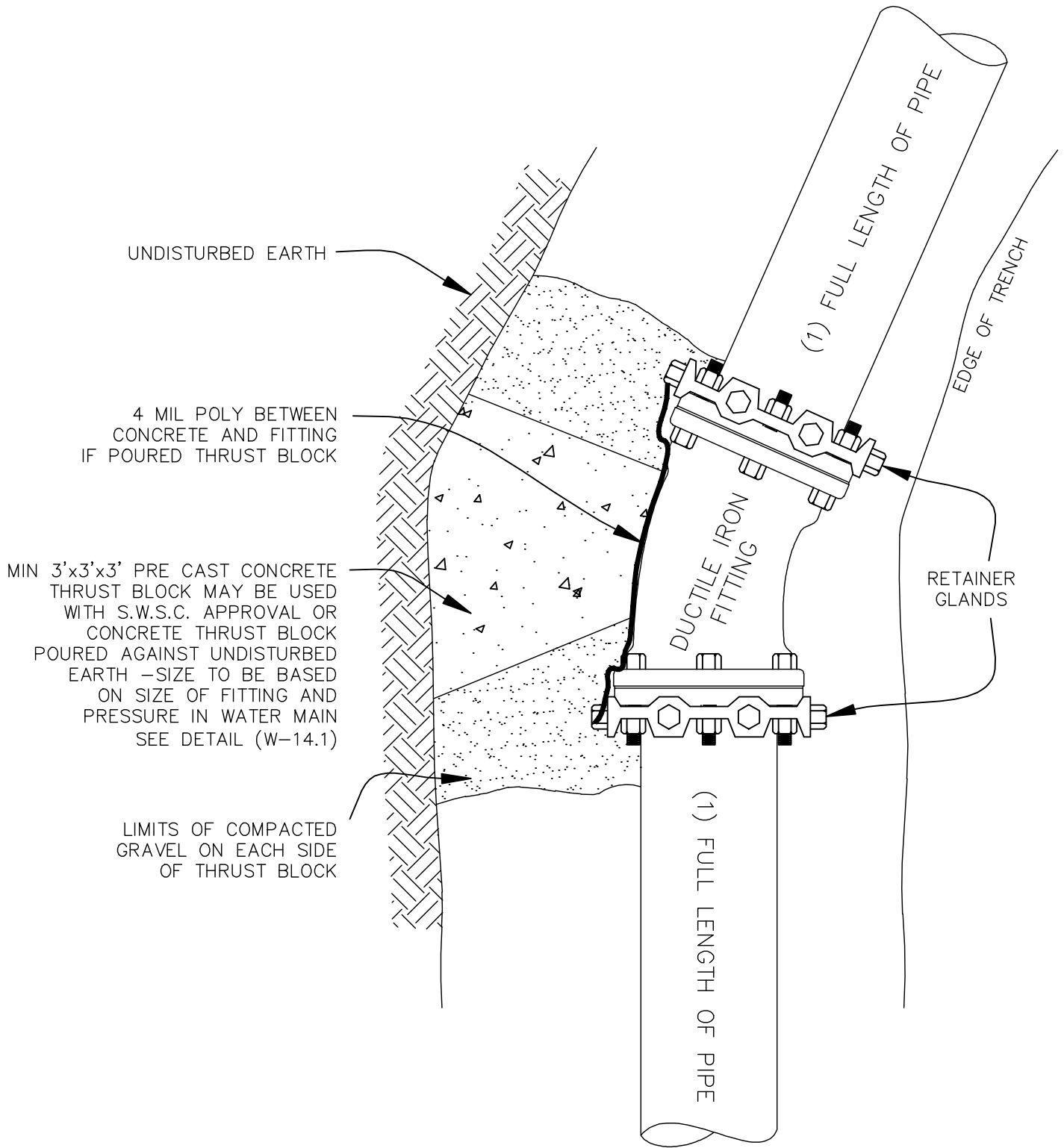
SECTION A-A

BACK OF COVER TO READ:
 "NAME OF MANUFACTURER"
 "COUNTRY OF ORIGIN"
 "TENSILE STRENGTH CLASS PER ASTM"
 "MM/DD/YY"

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. FRAME & COVER SHALL BE MADE FROM ASTM A48 CLASS 35B GRAY CAST IRON.

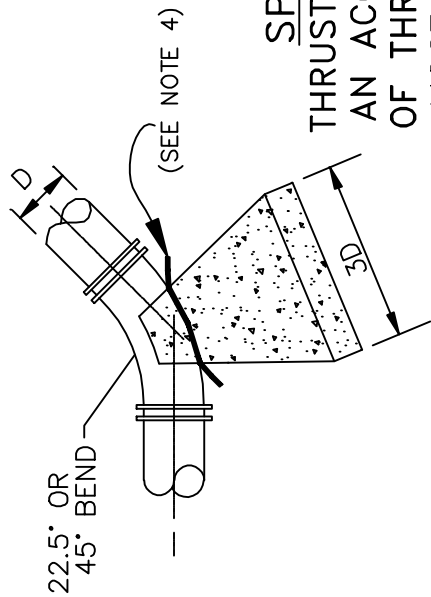
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-13.6	REV. DATE
	<u>32" X 8" WATER</u>	4/1/08 MAB
	<u>FRAME & COVER</u>	
	SCALE: NTS	



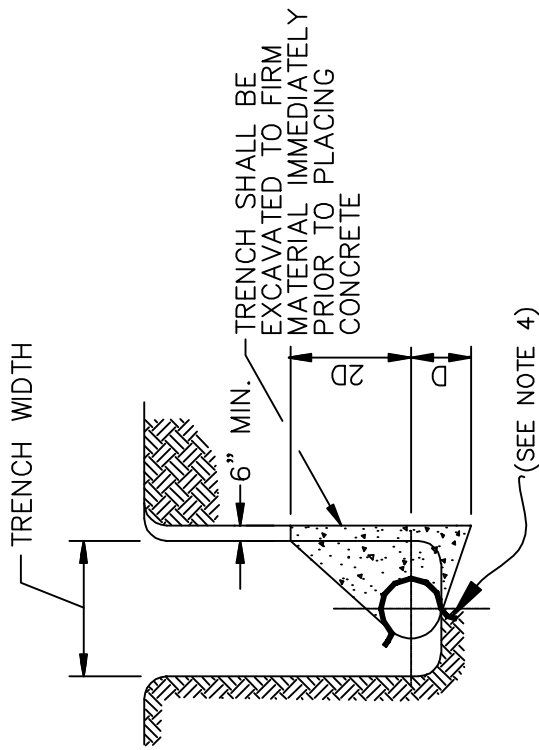
NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.

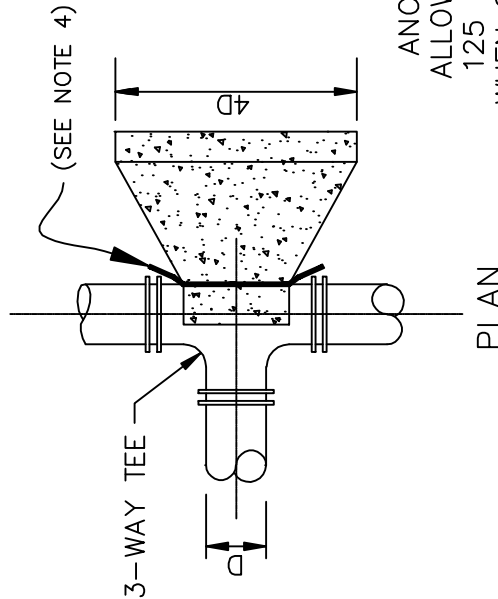
SPRINGFIELD WATER AND SEWER COMMISSION		
	WATER DETAIL W-14.0	REV. DATE
	<i>THRUST BLOCK BEHIND FITTINGS</i>	4/1/08 MAB
SCALE: NTS		



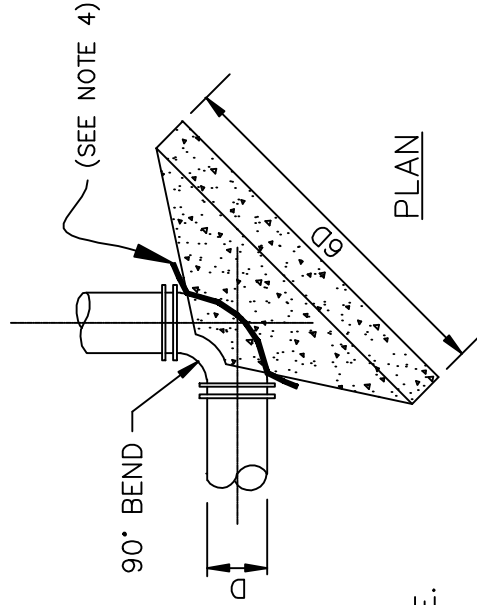
SPECIAL NOTE:
 THRUST BLOCKS ARE NOT AN ACCEPTABLE METHOD OF THRUST RESTRAINT IN MOST SITUATIONS, AND WILL ONLY BE PERMITTED IN SPECIAL CASES.



SECTION



PLAN




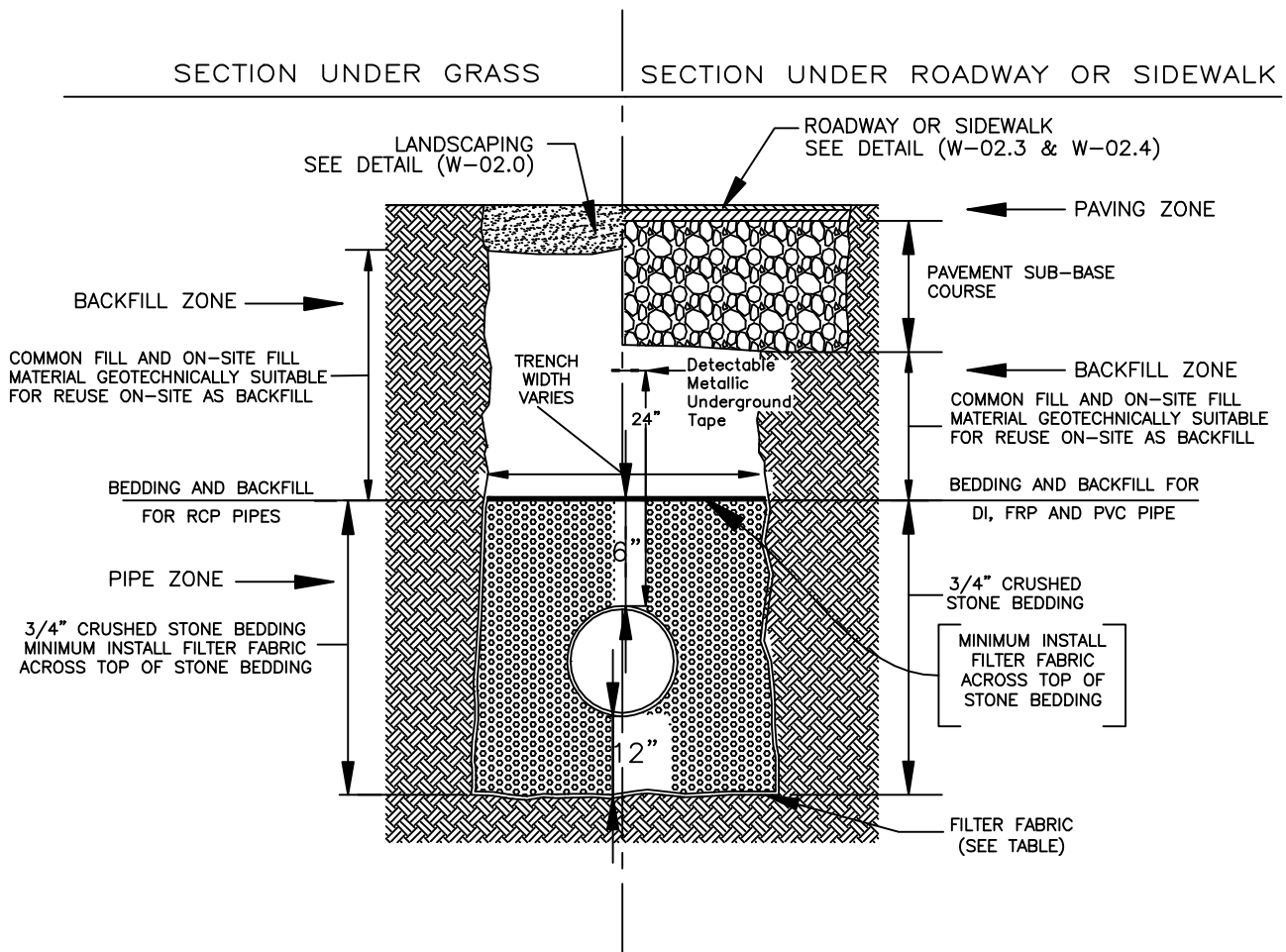
PLAN

ANCHORS BASED ON MAXIMUM ALLOWABLE WATER PRESSURE OF 125 PSI SHOULD ONLY BE USED WHEN SOIL CONDITIONS ARE STABLE.

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE DETAIL W-02.0, W-02.1, W-02.2, W-02.3 OR W-02.4 FOR TRENCH DETAILS.
4. 4 MIL POLY BETWEEN CONCRETE AND FITTING IF POURED THRUST BLOCK.

		SPRINGFIELD WATER AND SEWER COMMISSION WATER DETAIL W-14.1 <i>THRUST BLOCKS</i> SCALE: NTS	REV. DATE 4/1/08 MAB
--	--	---	-------------------------




TOTAL STONE BEDDING WRAP
FILTER FABRIC REQUIREMENT

	SOIL TYPE	
	SILT OR CLAY	GRANULAR SOIL
ABOVE GROUND WATER	FILTER FABRIC NOT REQUIRED	FILTER FABRIC NOT REQUIRED
BELOW GROUND WATER	FILTER FABRIC REQUIRED	FILTER FABRIC NOT REQUIRED
2' OVERLAP MINIMUM OF FILTER FABRIC AT TOP OF BEDDING		

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. ALL SERVICE LINES SHALL BE PVC SDR-35 AND MUST BE A MINIMUM OF 6" DIAMETER, NO EXCEPTIONS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-01.0	REV. DATE
	TRENCH DETAIL FOR SEWER PIPES	4/1/08 MAB
SCALE: NTS		

ELEVATION

MANHOLE FRAME AND COVER
SEE FRAME & COVER DETAIL (S-02.5)

SET RIM AT FINISHED GRADE

SET CASTING IN GROUT AND
GROUT ALL AROUND TO 4"
ABOVE FLANGE

BRICK COURSES SHALL BE USED TO BRING
MANHOLE RIM TO REQUIRED ELEVATION (MIN 2,
MAX 3 COURSES OF BRICK OR CONCRETE
GRADE RINGS AS REQUIRED) SEAL INSIDE AND
OUTSIDE OF BRICK WITH HYDRAULIC CEMENT

8" (MIN)

FINISHED GRADE

COAT WITH (2) COATS
OF BITUMINOUS
DAMP-PROOFING

STANDARD PRECAST ECCENTRIC OR
CONCENTRIC CONE SECTION OR
FLAT TOP (AS REQUIRED) NO
BARREL BLOCK ALLOWED

2'-0" MIN.
4'-0" MAX.

2'-6"

TOUNGE & GROOVE GASKET SHALL BE
O-RING RUBBER GASKET
CONFORMING TO A.S.T.M. C443

BELL & SPIGOT GASKET SHALL BE
BUTYL RUBBER GASKET JOINTS
CONFORMING TO A.S.T.M. C990

MANHOLE DIAMETER	SIDE WALL MIN. THICKNESS	BOTTOM SLAB MIN. THICKNESS	MAX PIPE DIAMETER * ALLOWED	
			RCP	DI/PVC
4'	5"	6"	18"	24"
5'	6"	8"	30"	36"
6'	7"	8"	36"	48"

* PIPE DIAMETER MAY VARY DEPENDING ON NUMBER OF PENETRATIONS.

POLYPROPYLENE COATED STEEL
MANHOLE STEPS 12" O.C.

STANDARD BARREL
SECTION COMBINATIONS
OF 1', 2', 3' OR 4'
LENGTHS AS NEEDED

SEE TABLE 1

8" MIN.

16" MAX

SHELF ELEVATION SAME AS
CROWN OF HIGHEST PIPE

SEE PIPE CONNECTION
DETAIL (S-02.1)

PIPE

12" MINIMUM OF
3/4" CRUSHED STONE

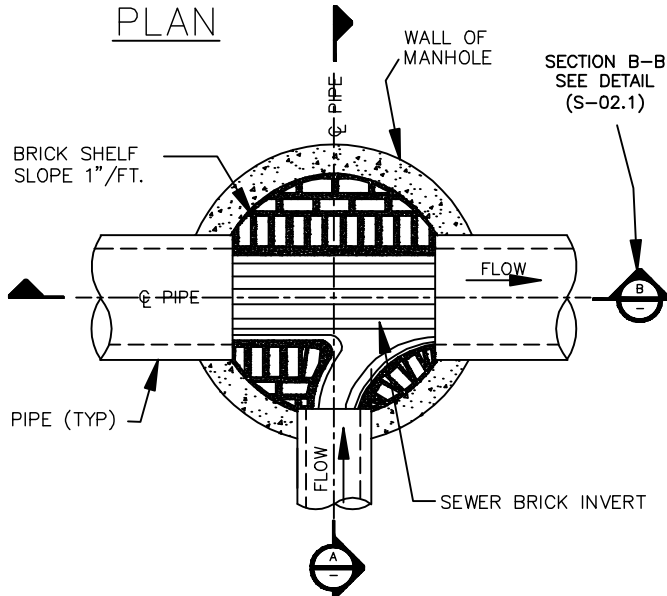
FOR FILTER FABRIC USE
REQUIREMENTS, SEE TRENCH DETAIL
FOR SEWER PIPES DETAIL (S-01.0)

BRICK OR
CONCRETE FILL

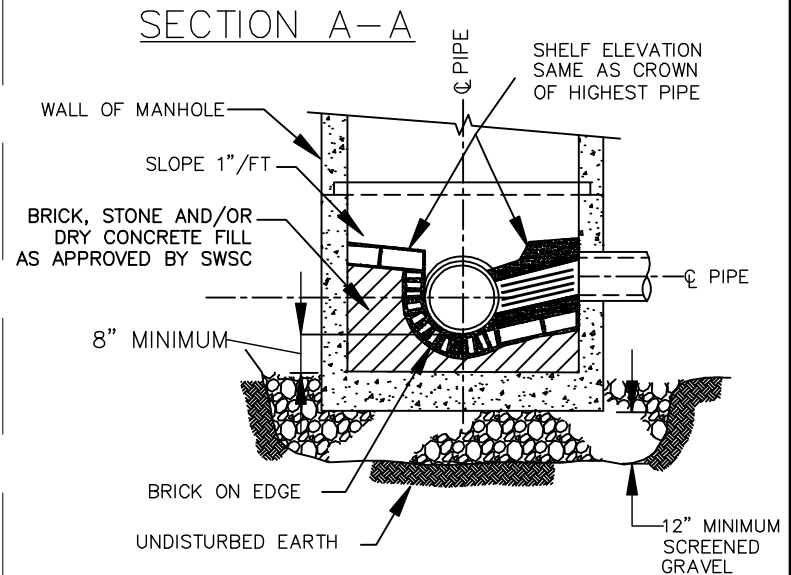
6" MINIMUM

UNDISTURBED
EARTH

PLAN



SECTION A-A



NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. REINFORCED CONCRETE MANHOLE SECTIONS CONFORMING TO A.S.T.M.C478.
5. DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHTO H-20 LOADING.
6. PRE-CAST CONCRETE SHALL BE 5,000 PSI @ 28 DAYS.
7. ALL BRICK SHALL BE HARD NON-POROUS CLAY.
8. ADMIXTURES, AIR & PLASTICIZERS PER ASTM C233-82.
9. REINFORCING PER ASTM A615 FOR WIRE FABRIC.
10. DESIGN LOADING PER AASHTO HS20-44, ACI 318-83; ASTM C478-82, C890-82, C913-71.

SPRINGFIELD WATER AND SEWER COMMISSION

SEWER DETAIL S-02.0

REV. DATE

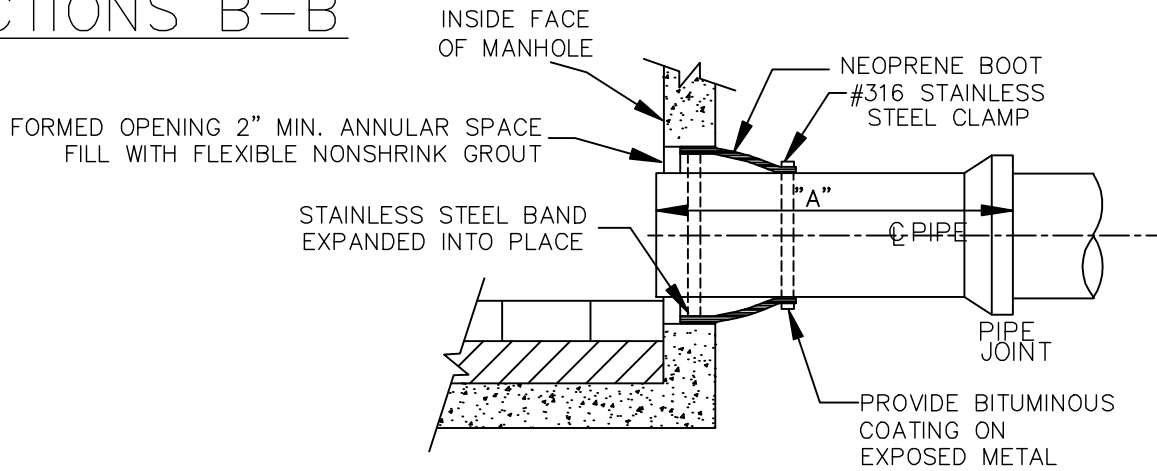
4/1/08 MAB

PRE-CAST CONCRETE
SEWER MANHOLE

SCALE: NTS

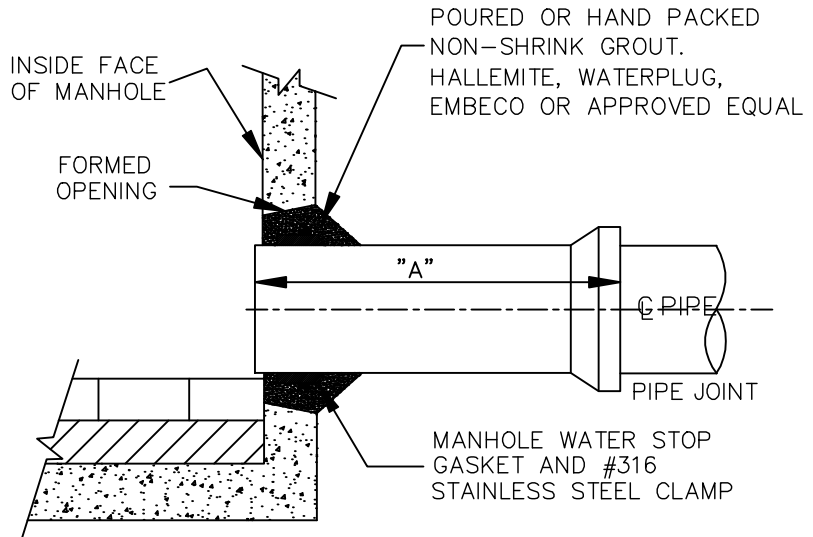


SECTIONS B-B



FLEXIBLE MANHOLE SEAL

MAXIMUM STUB LENGTH		
PIPE MATERIAL	"A"	"A"
	(MAX.)	(MIN.)
RC	4'-0"	2'-0"
PVC	3'-3"	2'-0"
DI	4'-6"	2'-0"




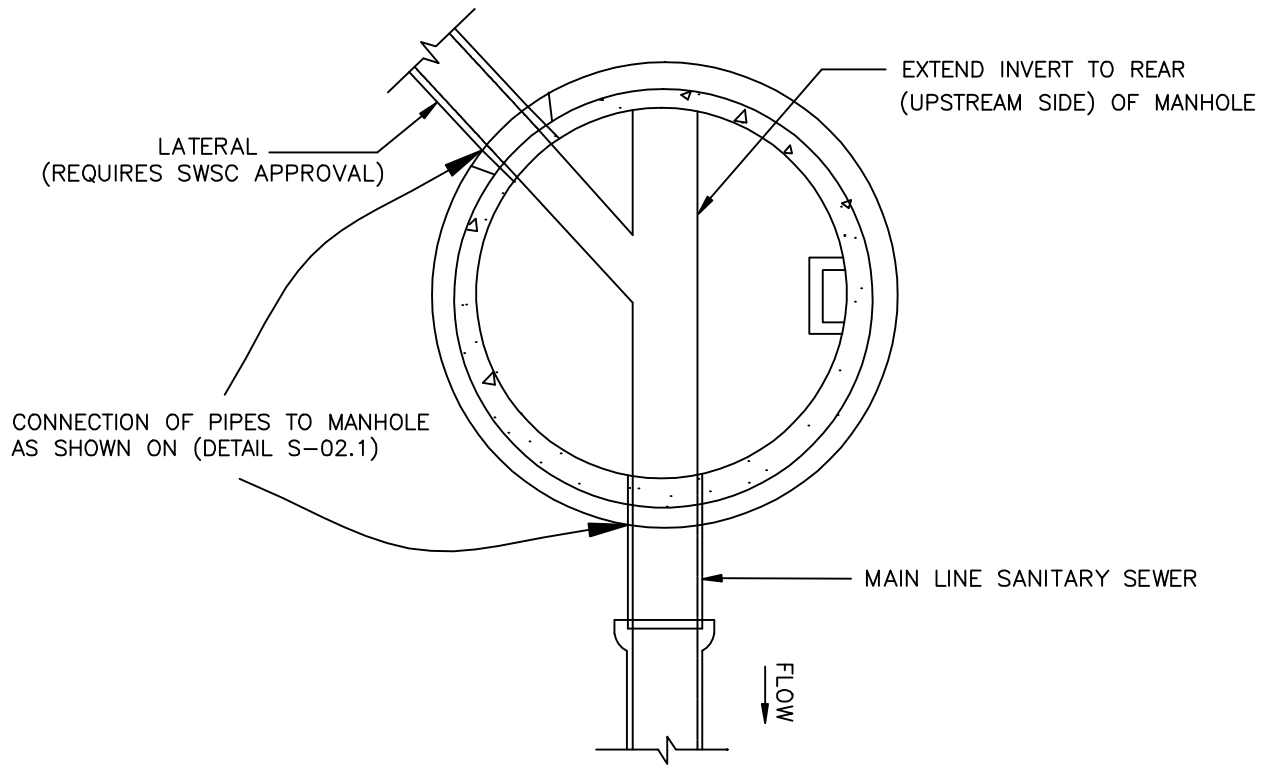
HYDRAULIC CEMENT SEAL*

*THIS METHOD REQUIRES SWSC APPROVAL

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND MATERIAL SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. REINFORCED CONCRETE MANHOLE SECTIONS CONFORMING TO A.S.T.M.C478.
5. DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHTO H-20 LOADING.
6. PRE-CAST CONCRETE SHALL BE 5,000 PSI @ 28 DAYS.
7. ALL BRICK SHALL BE HARD NON-POROUS CLAY.
8. ADMIXTURES, AIR & PLASTICIZERS PER ASTM C233-82.
9. REINFORCING PER ASTM A615 FOR WIRE FABRIC.
10. DESIGN LOADING PER AASHTO HS20-44, ACI 318-83; ASTM C478-82, C890-82, C913-71.


SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-02.1	REV. DATE
	PRE-CAST CONCRETE SEWER PIPE CONNECTIONS	4/1/08 MAB
	SCALE: NTS	



END MANHOLE

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND MATERIAL SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. ALL SERVICE LINES SHALL BE PVC SDR-35 AND MUST BE A MINIMUM OF 6" DIAMETER, NO EXCEPTIONS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-02.2	REV. DATE
	<u>END OF SEWER MAIN</u>	4/1/08 MAB
SCALE: NTS		

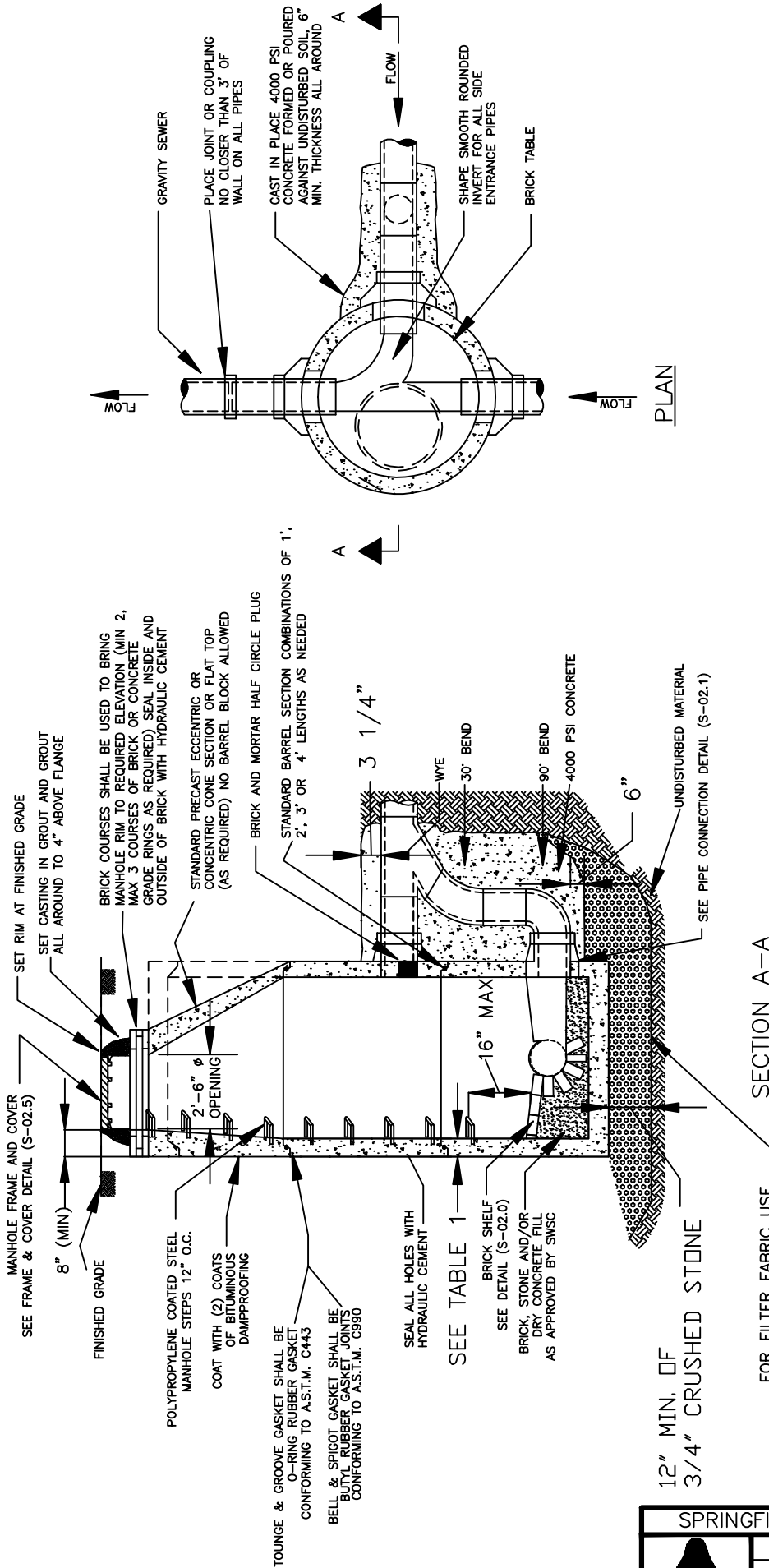



TABLE 1

MANHOLE DIAMETER	SIDE WALL MIN. THICKNESS	BOTTOM SLAB MIN. THICKNESS	MAX PIPE DIAMETER * ALLOWED DI/PVC RCP
4'	5"	6"	18"
5'	6"	8"	30"
6'	7"	8"	36"
			48"

* PIPE DIAMETER MAY VARY DEPENDING ON NUMBER OF PENETRATIONS.

- NOTES:
1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
 2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
 3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
 4. REINFORCED CONCRETE MANHOLE SECTIONS CONFORMING TO A.S.T.M.C478.
 5. DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHTO H-20 LOADING.
 6. PRE-CAST CONCRETE SHALL BE 5,000 PSI @ 28 DAYS.
 7. ALL BRICK SHALL BE HARD NON-POROUS CLAY.
 8. ADMIXTURES, AIR & PLASTICIZERS PER ASTM C233-82.
 9. REINFORCING PER ASTM A615 FOR WIRE FABRIC.
 10. DESIGN LOADING PER AASHTO HS20-44, ACI 318-83; ASTM C478-82, C890-82, C913-71.

		SPRINGFIELD WATER AND SEWER COMMISSION	
SEWER DETAIL S-02.3		REV. DATE	
<i>EXTERIOR DROP MANHOLE</i>		1/1/08 MAB	
SCALE: NTS			

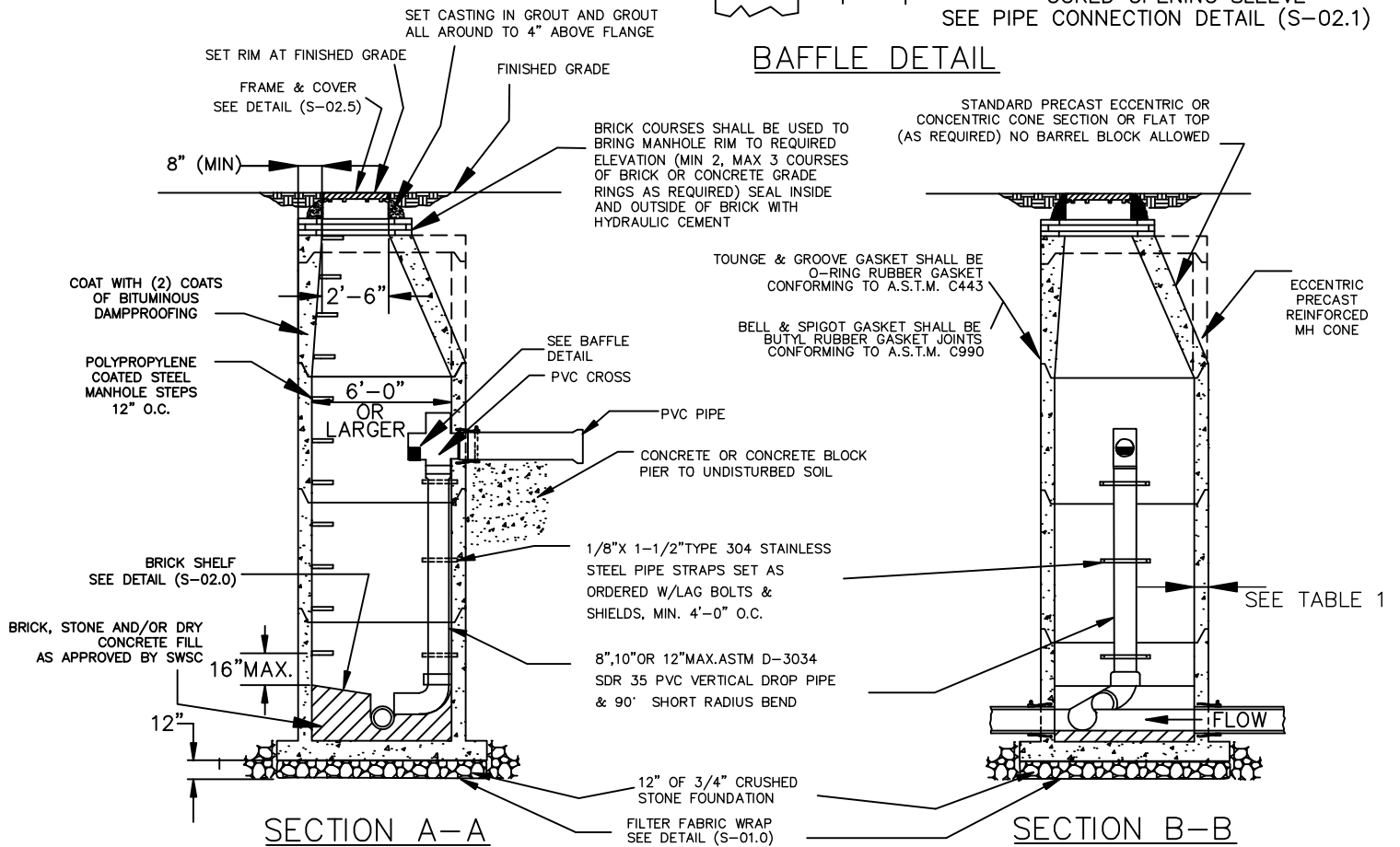
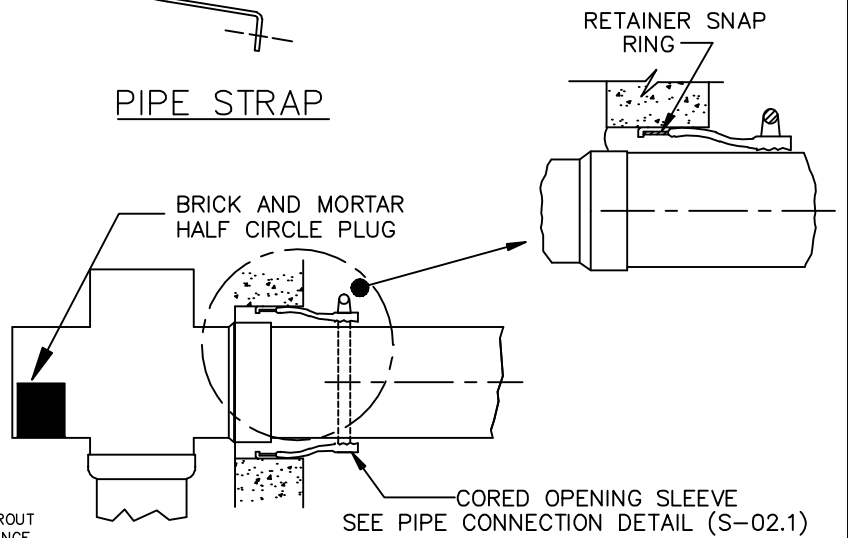
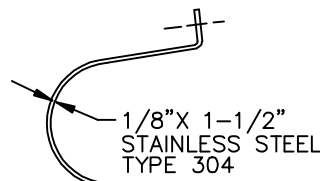
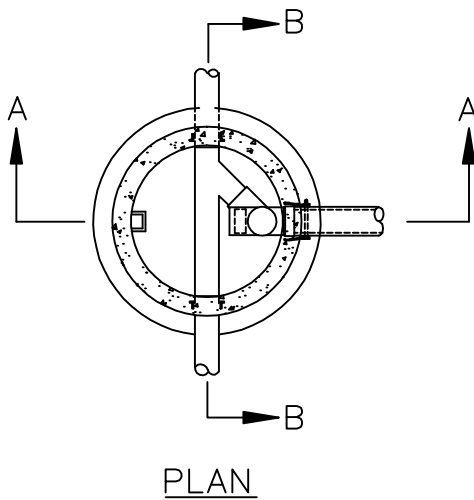



TABLE 1

MANHOLE DIAMETER	SIDE WALL MIN. THICKNESS	BOTTOM SLAB MIN. THICKNESS	MAX PIPE DIAMETER * ALLOWED	
			RCP	DI/PVC
6'	7"	8"	18"	24"
6'	7"	8"	30"	36"
6'	7"	8"	36"	48"

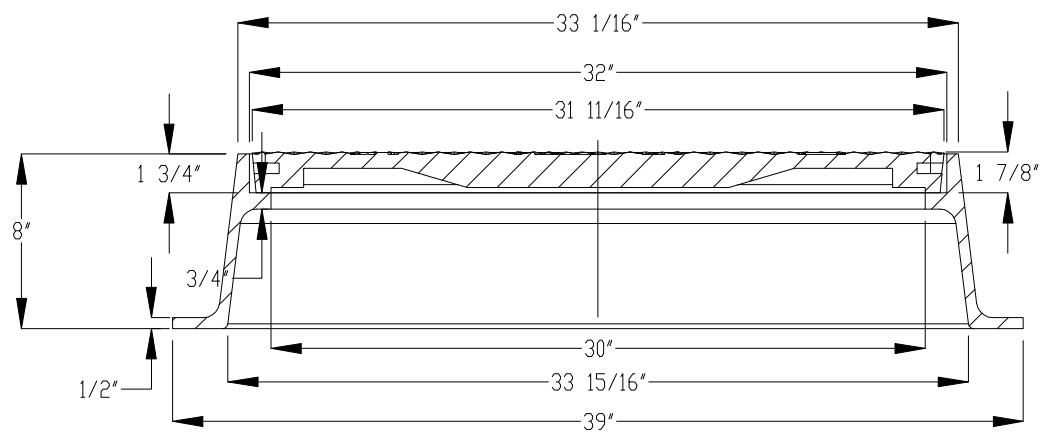
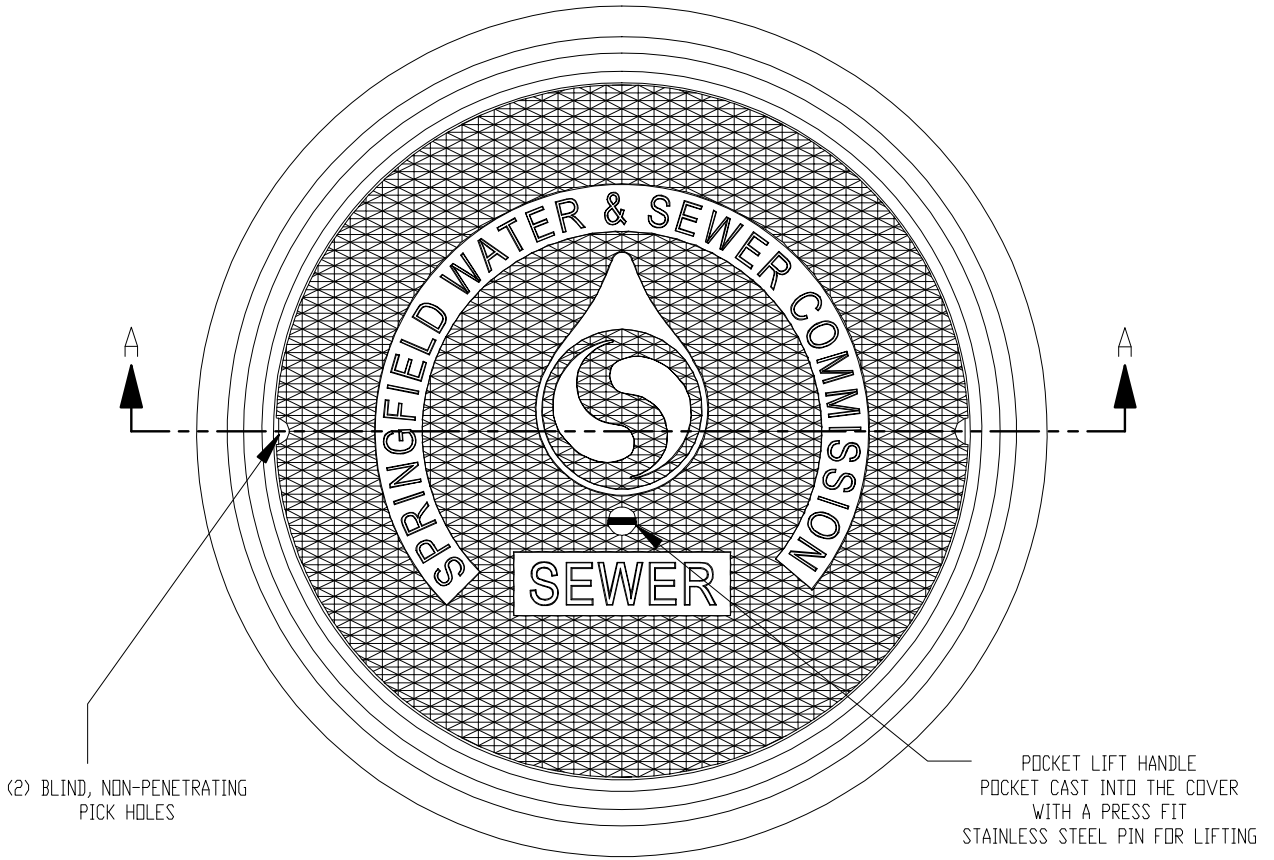
* PIPE DIAMETER MAY VARY
DEPENDING ON NUMBER OF PENETRATIONS.

NOTES:

- ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
- ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
- IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
- REINFORCED CONCRETE MANHOLE SECTIONS CONFORMING TO A.S.T.M. C478.
- DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHTO H-20 LOADING.
- PRE-CAST CONCRETE SHALL BE 5,000 PSI @ 28 DAYS.
- ALL BRICK SHALL BE HARD NON-POROUS CLAY.
- ADMIXTURES, AIR & PLASTICIZERS PER ASTM C233-82.
- REINFORCING PER ASTM A615 FOR WIRE FABRIC.
- DESIGN LOADING PER AASHTO HS20-44, ACI 318-83; ASTM C478-82, C890-82, C913-71.

		SPRINGFIELD WATER AND SEWER COMMISSION	
SEWER DETAIL S-02.4		REV. DATE	
<i>INTERIOR DROP MANHOLE</i>		4/1/08 MAB	
SCALE: NTS		6/18/08 MAB	

STANDARD DIAMOND PATTERN WITH CUSTOM
 LOGO COVER LETTERING OPTIONS:
 "SEWER"



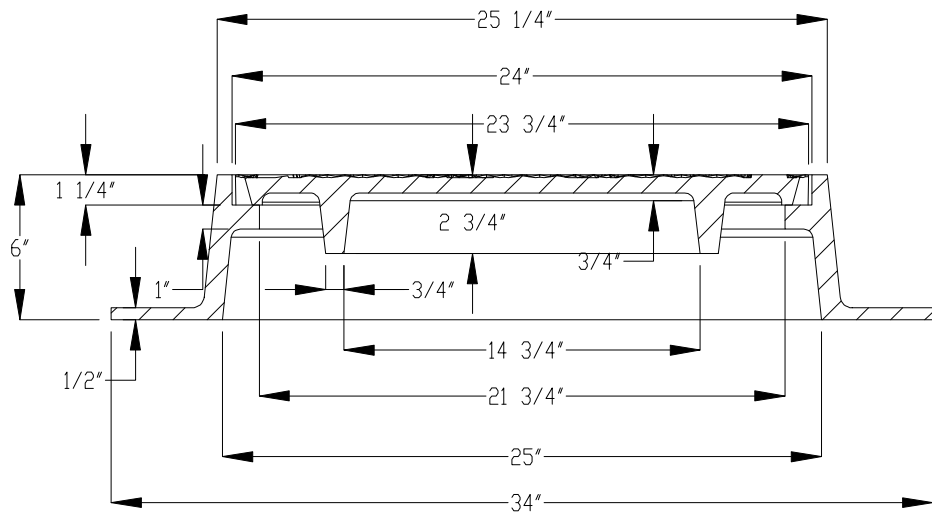
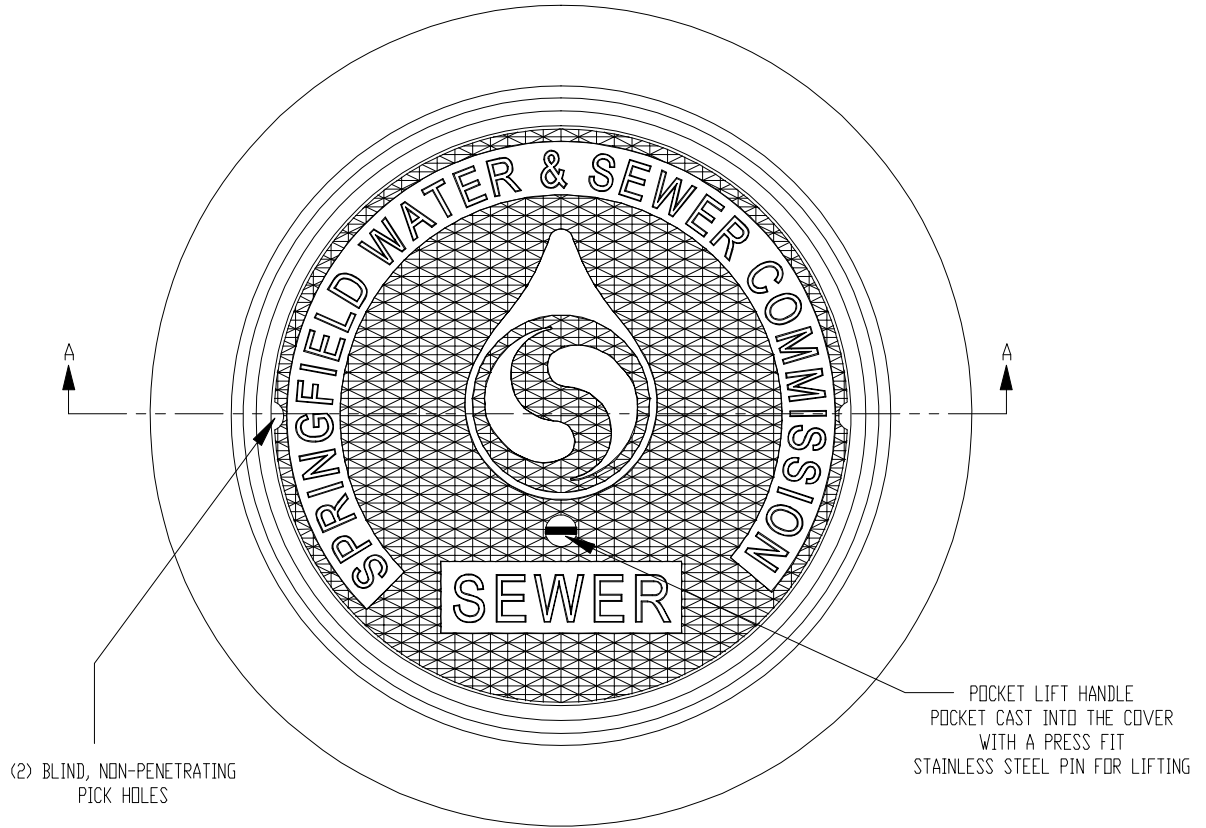
SECTION A-A

BACK OF COVER TO READ:
 "NAME OF MANUFACTURER"
 "COUNTRY OF ORIGIN"
 "TENSILE STRENGTH CLASS PER ASTM"
 "MM/DD/YY"

- NOTES:**
1. ALL MATERIALS WILL CONFORM TO SWSC SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
 2. FRAME & COVER SHALL BE MADE FROM ASTM A48 CLASS 35B GRAY CAST IRON.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-02.5	REV. DATE
	<i>32" X 8" SEWER FRAME & COVER</i>	4/1/08 MAB
	SCALE: NTS	

STANDARD DIAMOND PATTERN WITH CUSTOM
 LOGO COVER LETTERING OPTIONS:
 "SEWER"



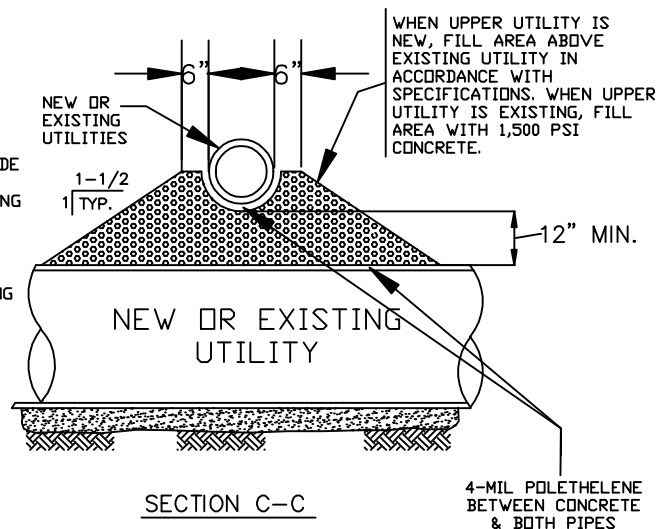
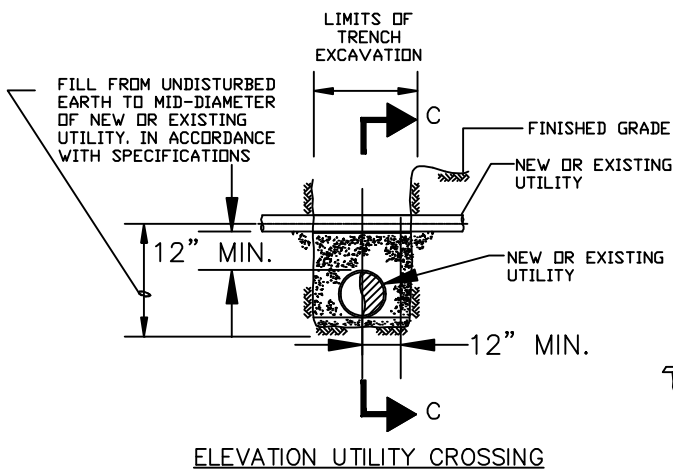
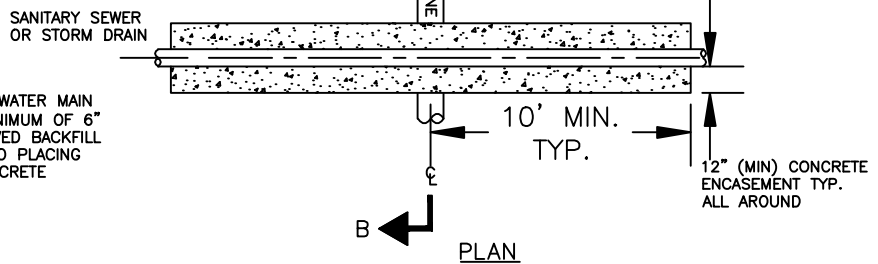
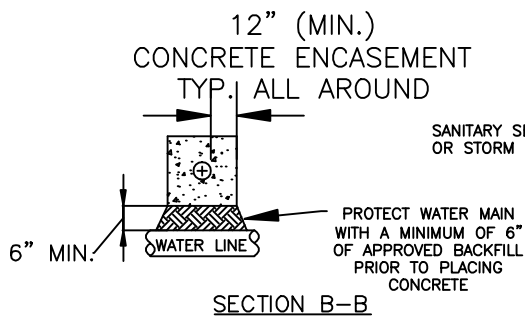
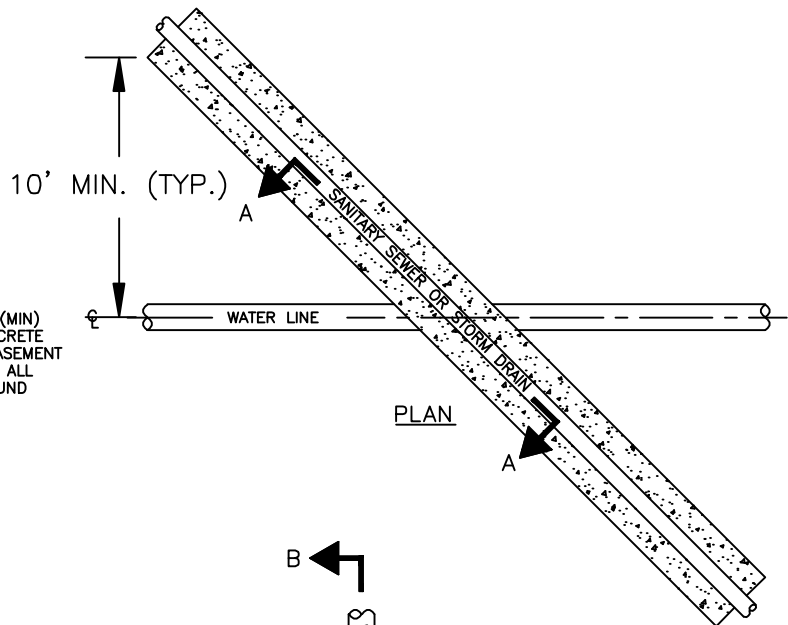
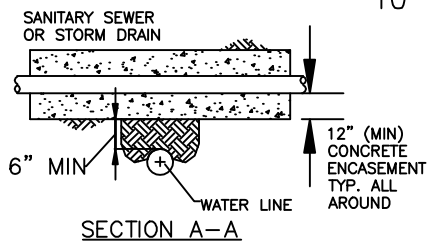
SECTION A-A

BACK OF COVER TO READ:
 "NAME OF MANUFACTURER"
 "COUNTRY OF ORIGIN"
 "TENSILE STRENGTH CLASS PER ASTM"
 "MM/DD/YY"

NOTES:

1. ALL MATERIALS WILL CONFORM TO SWSC SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
2. FRAME & COVER SHALL BE MADE FROM ASTM A48 CLASS 35B GRAY CAST IRON.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-02.6	REV. DATE
	<i>24" X 6" SEWER FRAME & COVER</i>	4/1/08 MAB
	SCALE: NTS	

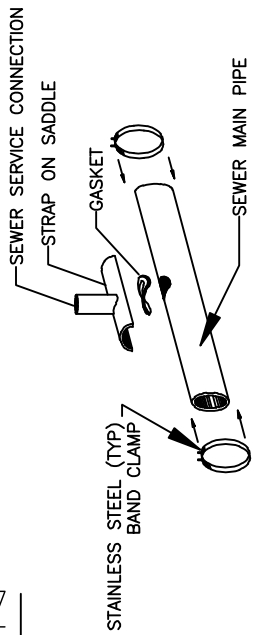
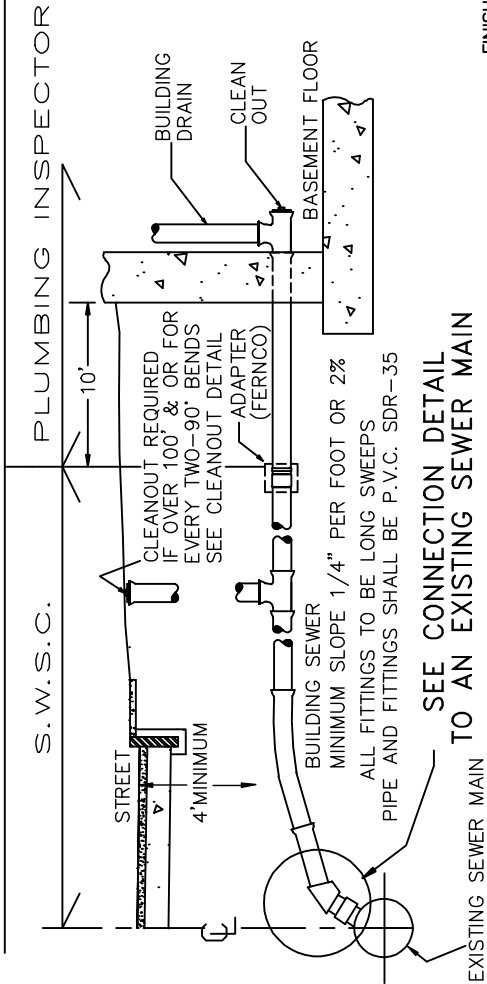


NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. IF DEPTH OF COVER ABOVE CONCRETE ENCASEMENT IS GREATER THAN 5'-0" REINFORCEMENT STEEL SHALL BE USED.

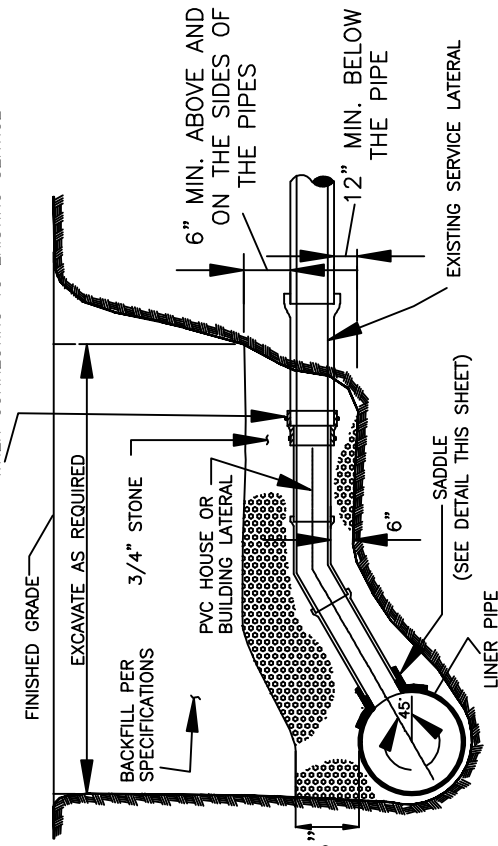
SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-03.0	REV. DATE
		4/1/08 MAB
	UTILITY CROSSING DETAIL	6/18/08 MAB
	SCALE: NTS	

INSPECTION JURISDICTION



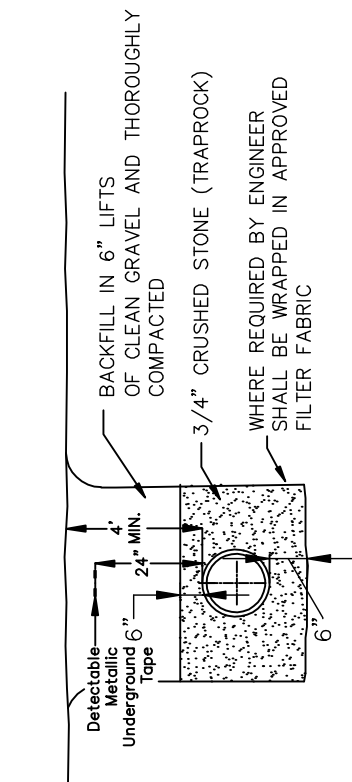
LATERAL STRAP-ON SADDLE

FLEXIBLE RUBBER ADAPTER (FERNCO OR APPROVED EQUAL)
WHEN CONNECTING TO EXISTING SERVICE



CONNECTION TO AN EXISTING SEWER

BUILDING SEWER



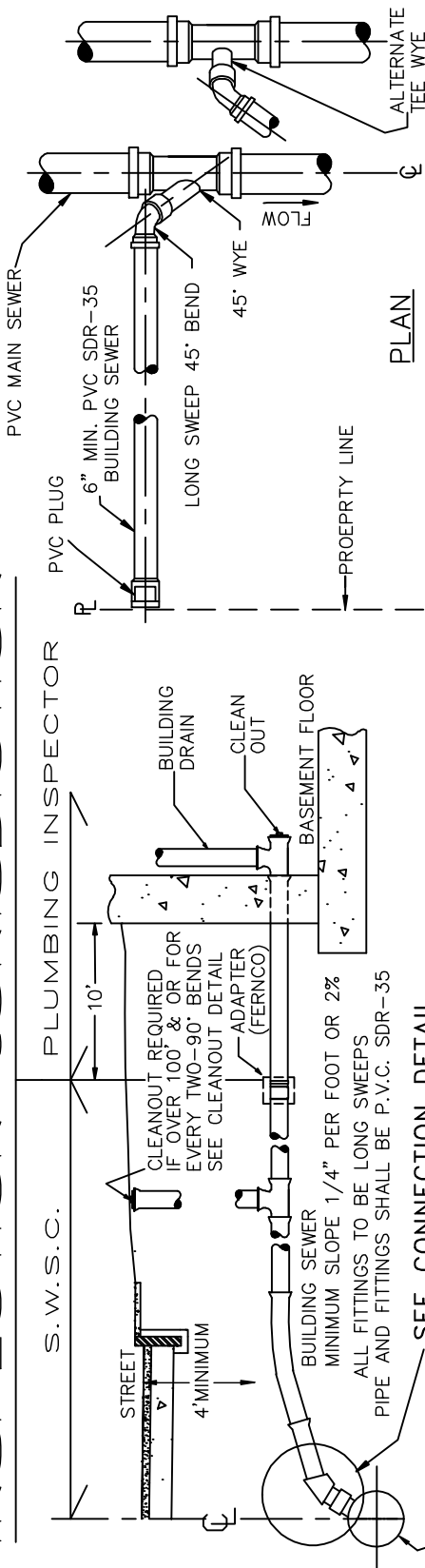
TRENCH CROSS-SECTION

NOTES:

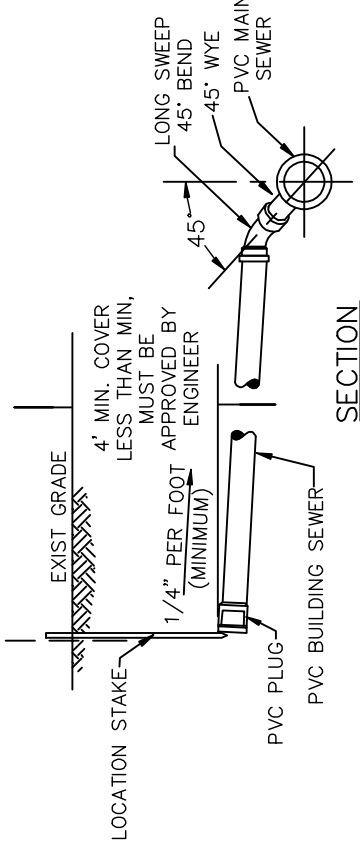
1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. ALL SERVICE LINES SHALL BE PVC SDR-35 AND MUST BE A MINIMUM OF 6" DIAMETER, NO EXCEPTIONS.

	SPRINGFIELD WATER AND SEWER COMMISSION	
	SEWER DETAIL S-04.0	REV. DATE
<i>EXISTING SEWER MAIN TO BUILDING CONNECTION</i>		4/1/08 MAB
SCALE: NTS		

INSPECTION JURISDICTION



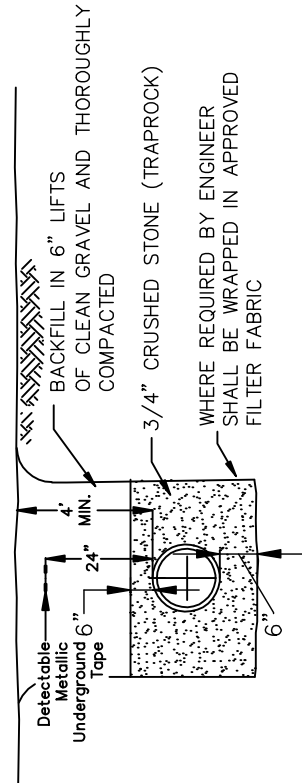
PLAN



SECTION

CONNECTION TO A NEW SEWER MAIN

BUILDING SEWER



TRENCH CROSS-SECTION

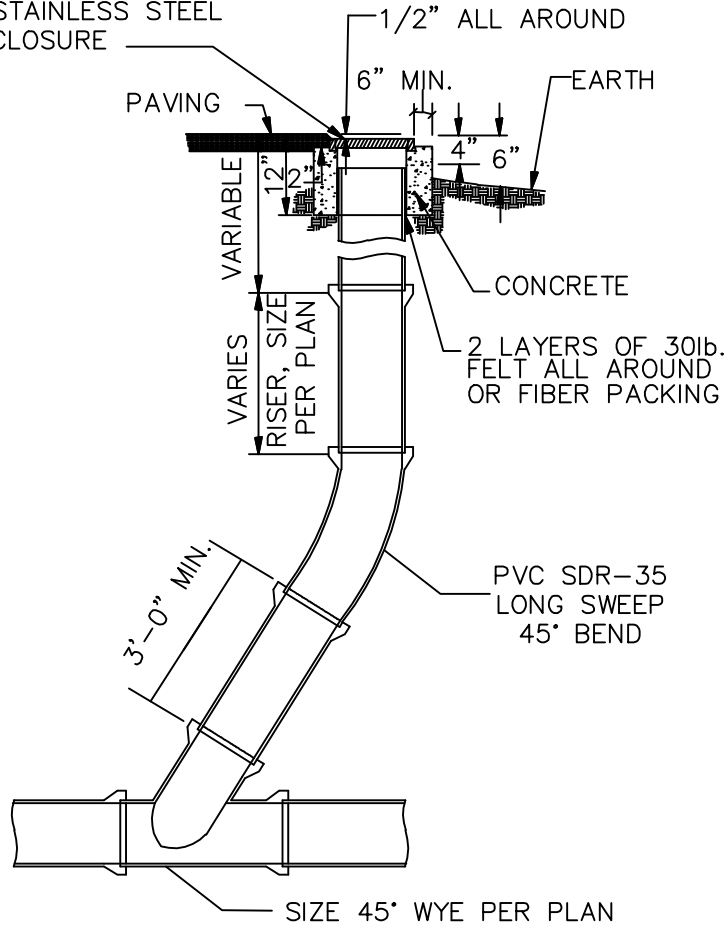
- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
 2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
 3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
 4. ALL SERVICE LINES SHALL BE PVC SDR-35 AND MUST BE A MINIMUM OF 6" DIAMETER, NO EXCEPTIONS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-04.1	REV. DATE
	<u>NEW SEWER MAIN</u>	
	<u>TO BUILDING CONNECTION</u>	
	SCALE: NTS	
		4/1/08 MAB

DETAIL FOR CLEANOUTS
IN PAVED SURFACES

DETAIL FOR CLEAN OUTS
IN EASEMENTS

"NEENAH" R-7506 SERIES OR EQUAL
FLOOR BOX FRAME AND LID,
OR EQUAL WITH STAINLESS STEEL
CAP SCREW LID CLOSURE

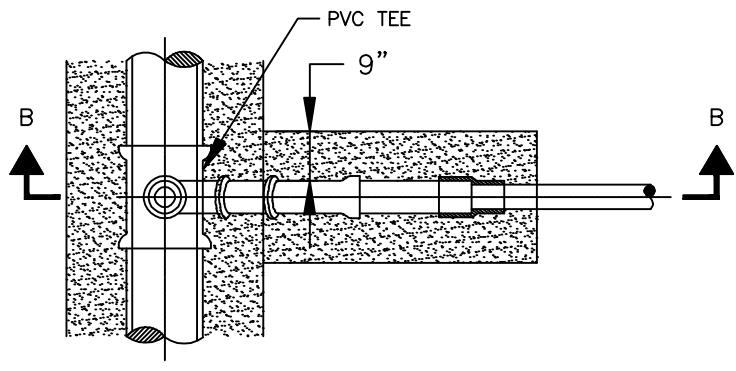


* REQUIRED -FOR ALL SERVICES OVER 100' AND/OR FOR EVERY 2 BENDS

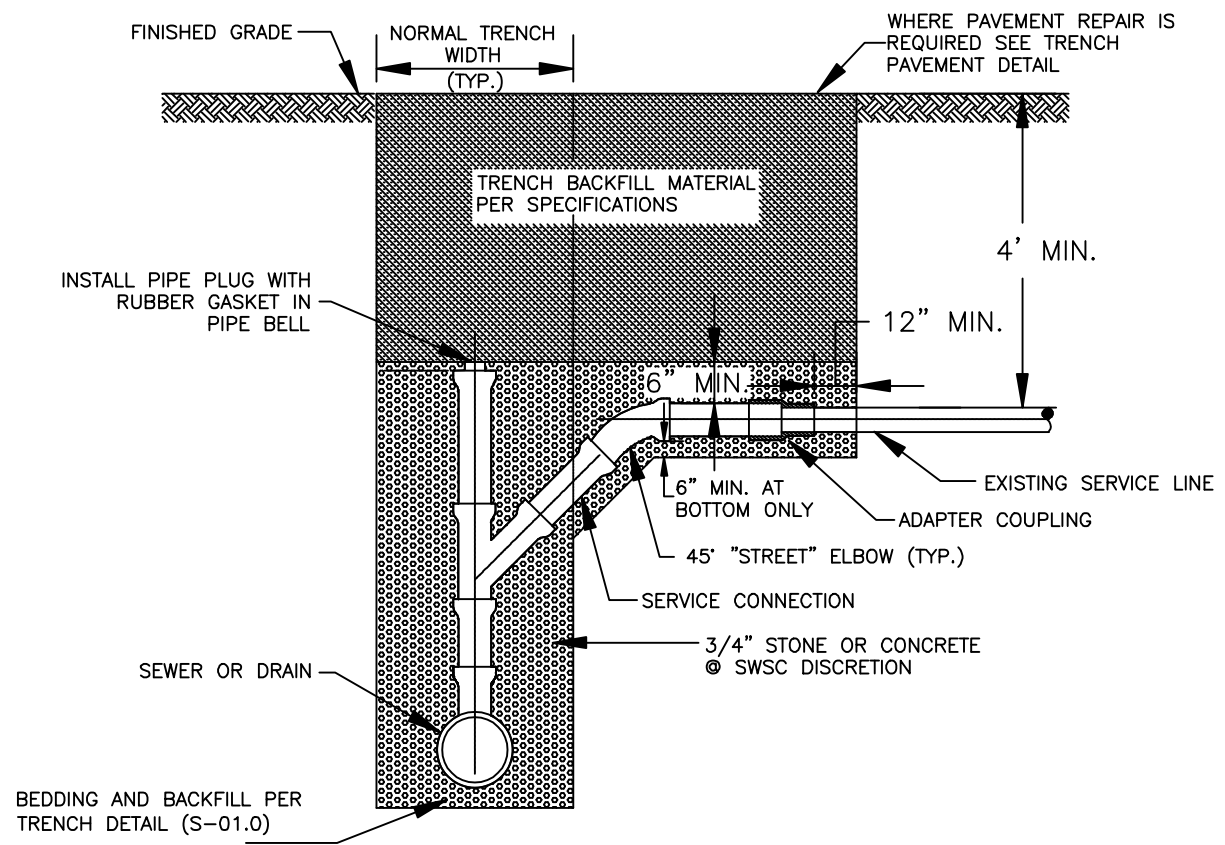
NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. ALL SERVICE LINES SHALL BE PVC SDR-35 AND MUST BE A MINIMUM OF 6" DIAMETER, NO EXCEPTIONS.
5. CLEAN OUT PIPE DIAMETER SHALL BE THE SAME AS THE SEWER LINE AT THE WYE.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-04.2	REV. DATE 4/1/08 MAB
	<u>CLEAN OUT WITH SWEEP</u>	
	SCALE: NTS	



PLAN



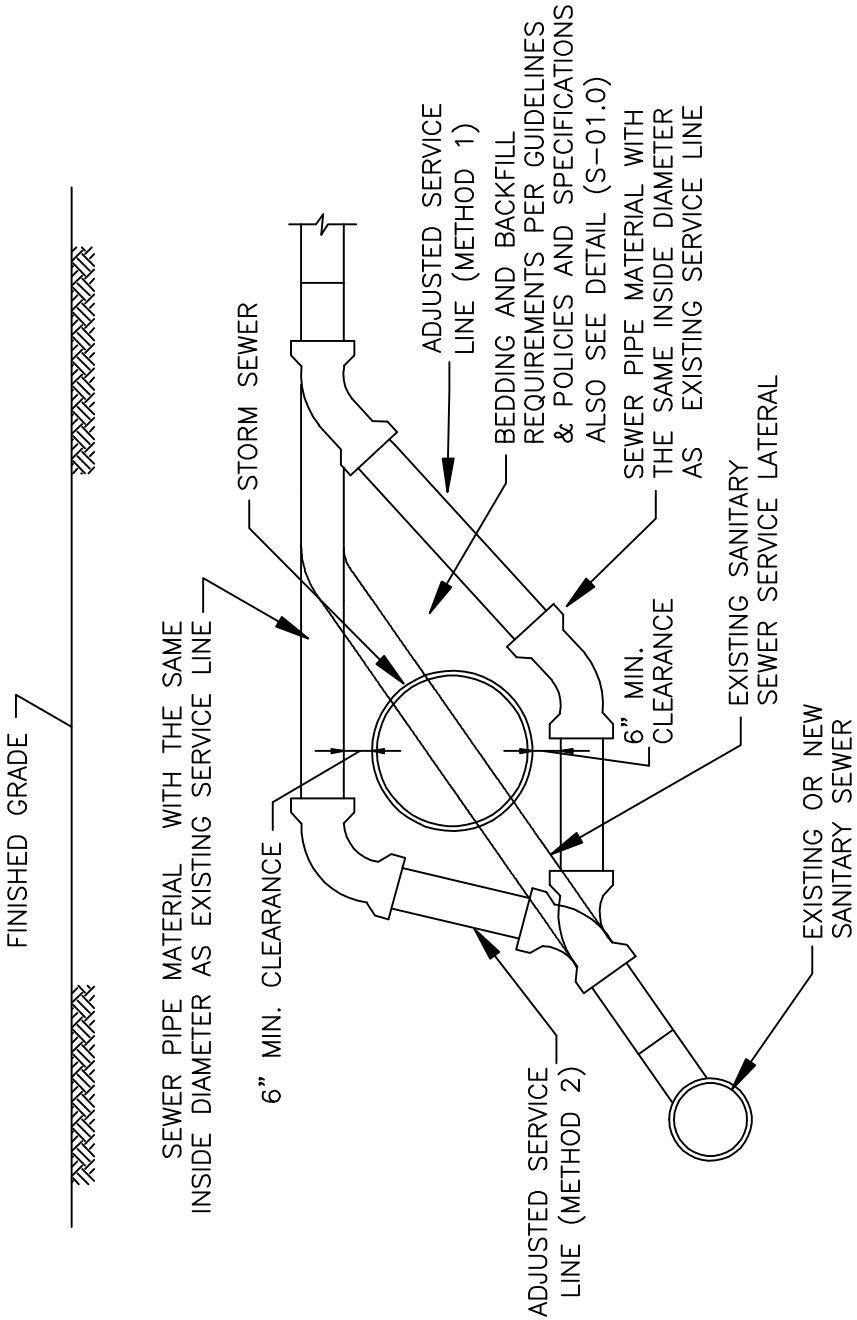
SECTION B-B

SEWER OR DRAIN SERVICE CONNECTION WITH CHIMNEY GREATER THAN 12' DEEP

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND MATERIAL SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. ALL SERVICE LINES SHALL BE PVC SDR-35 AND MUST BE A MINIMUM OF 6" DIAMETER, NO EXCEPTIONS.
5. CLEAN OUT PIPE DIAMETER SHALL BE THE SAME AS THE SEWER LINE AT THE WYE.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-04.3	REV. DATE
	<i>SEWER SERVICE CONNECTION WITH CHIMNEY >12' DEEP</i>	
	SCALE: NTS	
	4/1/08 MAB	



SEWER PIPE MATERIAL WITH THE SAME INSIDE DIAMETER AS EXISTING SERVICE LINE

6" MIN. CLEARANCE

STORM SEWER

ADJUSTED SERVICE LINE (METHOD 1)

BEDDING AND BACKFILL REQUIREMENTS PER GUIDELINES & POLICIES AND SPECIFICATIONS ALSO SEE DETAIL (S-01.0)

SEWER PIPE MATERIAL WITH THE SAME INSIDE DIAMETER AS EXISTING SERVICE LINE


6" MIN. CLEARANCE

EXISTING SANITARY SEWER SERVICE LATERAL

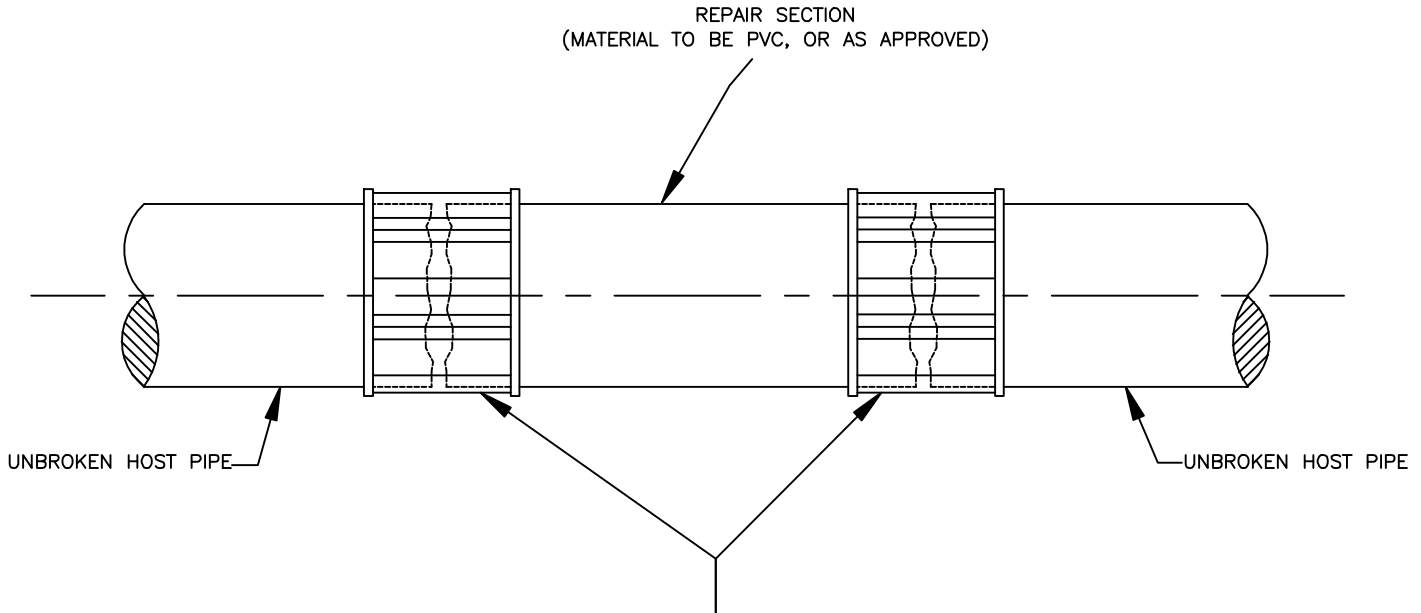
EXISTING OR NEW SANITARY SEWER

ADJUSTED SERVICE LINE (METHOD 2)

- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND MATERIAL SPECIFICATIONS.
 2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
 3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
 4. ALL SERVICE LINES SHALL BE PVC SDR-35 AND MUST BE A MINIMUM OF 6" DIAMETER, NO EXCEPTIONS.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-04.4	REV. DATE
	BUILDING CONNECTION TO SEWER MAIN WITH CONFLICTS	4/1/08 MAB
	SCALE: NTS	


TYPICAL REPAIR

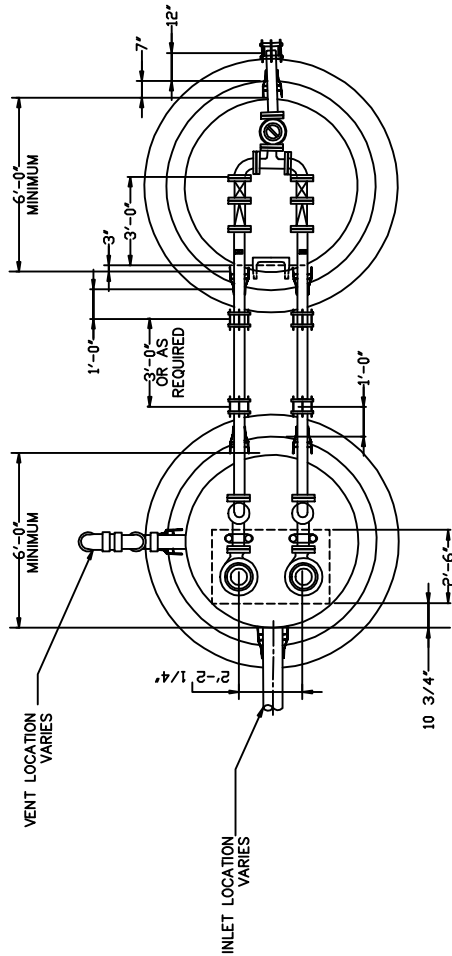


PVC SLIP COUPLINGS, RUBBER COUPLINGS (FERNCO OR APPROVED EQUAL)
 BRICK OR EGG SHAPED SEWER REPAIR MAY HAVE ADDITIONAL REQUIREMENTS BY SWSC

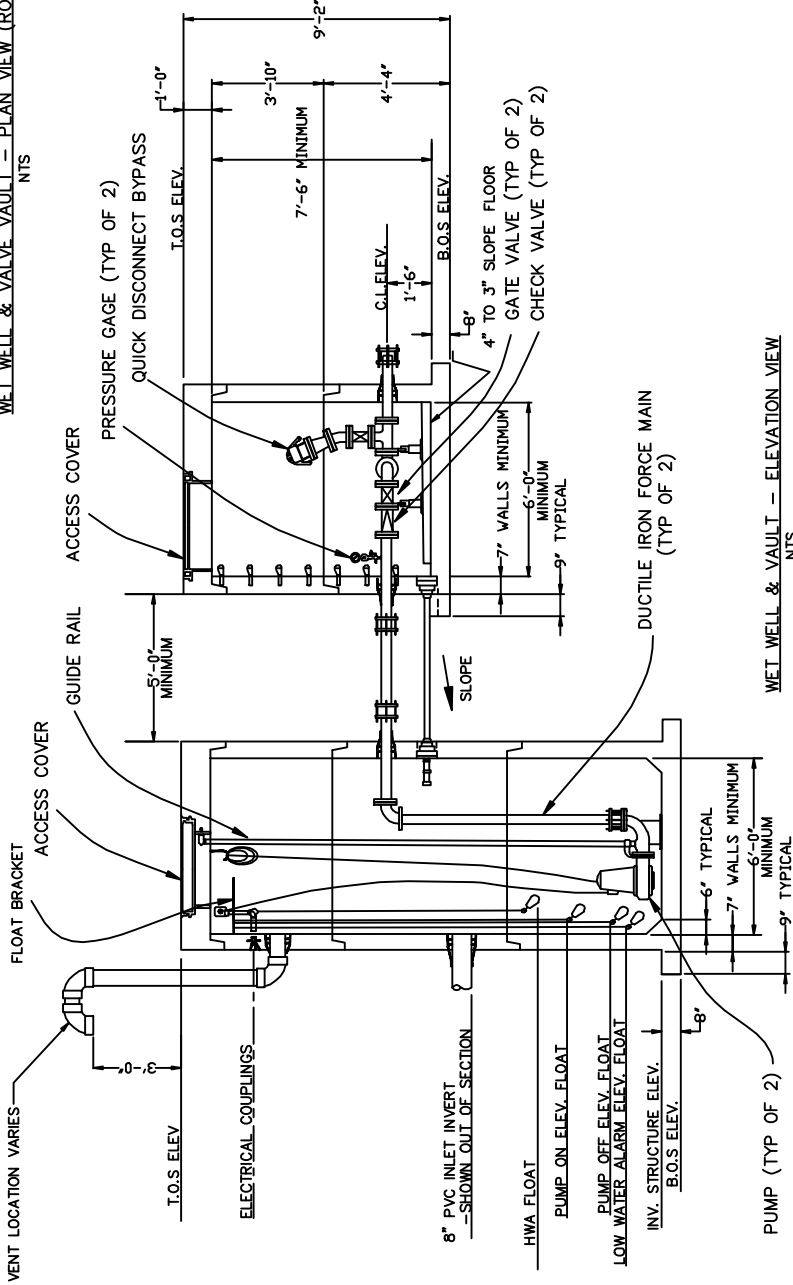
NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.
4. SEWER REPAIR SECTION MATERIAL SHALL BE THE SAME MATERIAL AS THE HOST PIPE, OR AS APPROVED BY SWSC.
5. REPAIR SECTION SHALL BE SIZED TO BUTT AGAINST THE HOST PIPES.

SPRINGFIELD WATER AND SEWER COMMISSION		
	SEWER DETAIL S-05.0	REV. DATE
	<i>BUILDING AND MAINLINE</i>	4/1/08 MAB
	<i>SEWER REPAIR</i>	
	SCALE: NTS	




WET WELL & VALVE VAULT - PLAN VIEW (ROOF REMOVED)
NTS



WET WELL & VALVE VAULT - ELEVATION VIEW
NTS

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES & POLICIES AND MATERIAL SPECIFICATIONS.
2. ALL SEWER MAIN PIPE SHOULD HAVE A MINIMUM DEPTH OF 4' FROM TOP OF PIPE TO FINISH GRADE.
3. IF 4' OF COVER IS NOT POSSIBLE PIPE SHALL BE INSULATED.

		SPRINGFIELD WATER AND SEWER COMMISSION	
SEWER DETAIL S-06.0		REV. DATE	
<i>WETWELL & VALVE VAULT</i> <i>PRECAST</i>		4/1/08 MAB	
SCALE: NTS			