

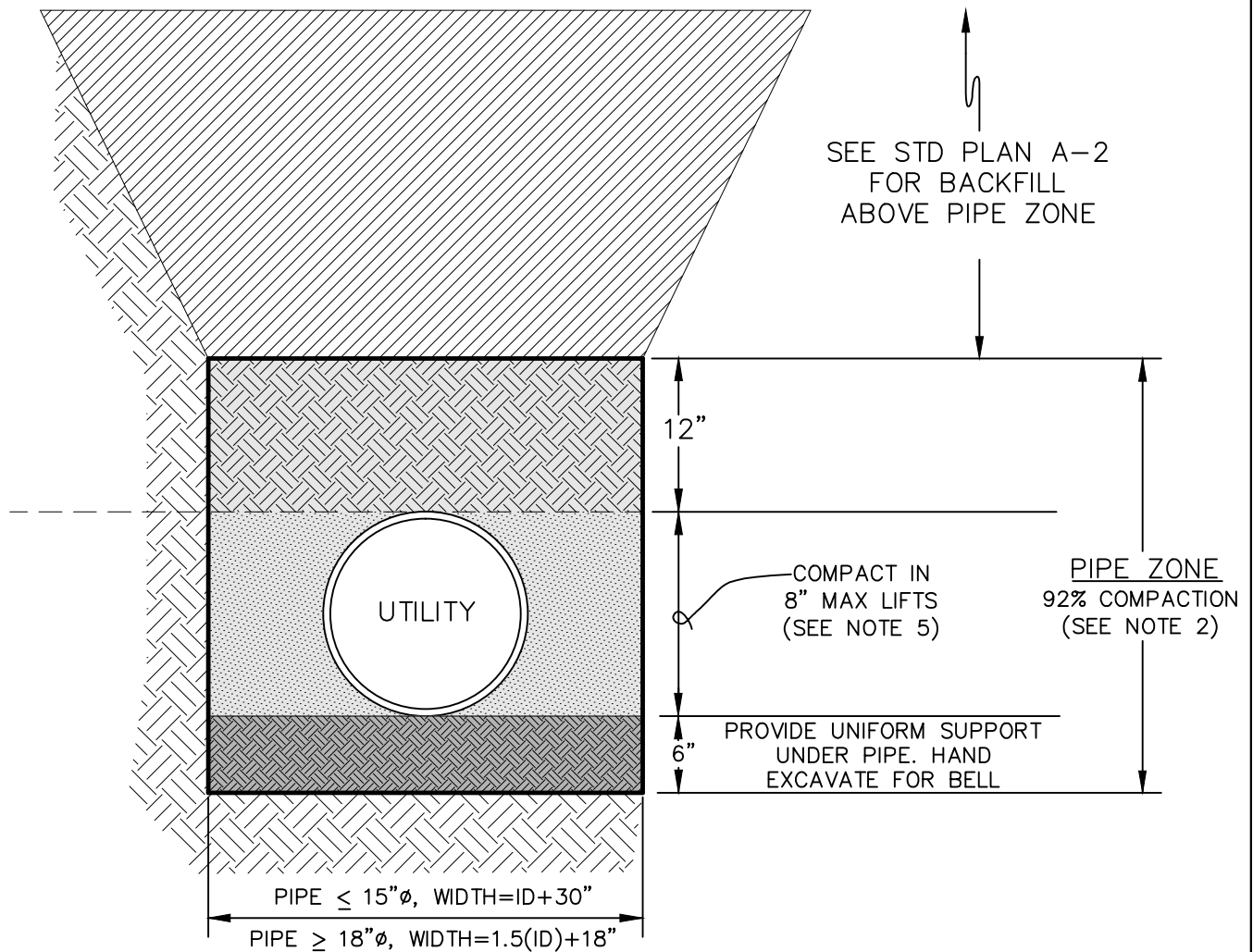
TABLE OF CONTENTS

CITY OF SPOKANE STANDARD PLANS – SECTION A

B-101B = Revised Standard Plan
***W-108A = New Standard Plan
#A-1 = Renumbered Standard Plan

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A-1	Utility Trench Backfill – Pipe Zone (previously B-18C)	2/17
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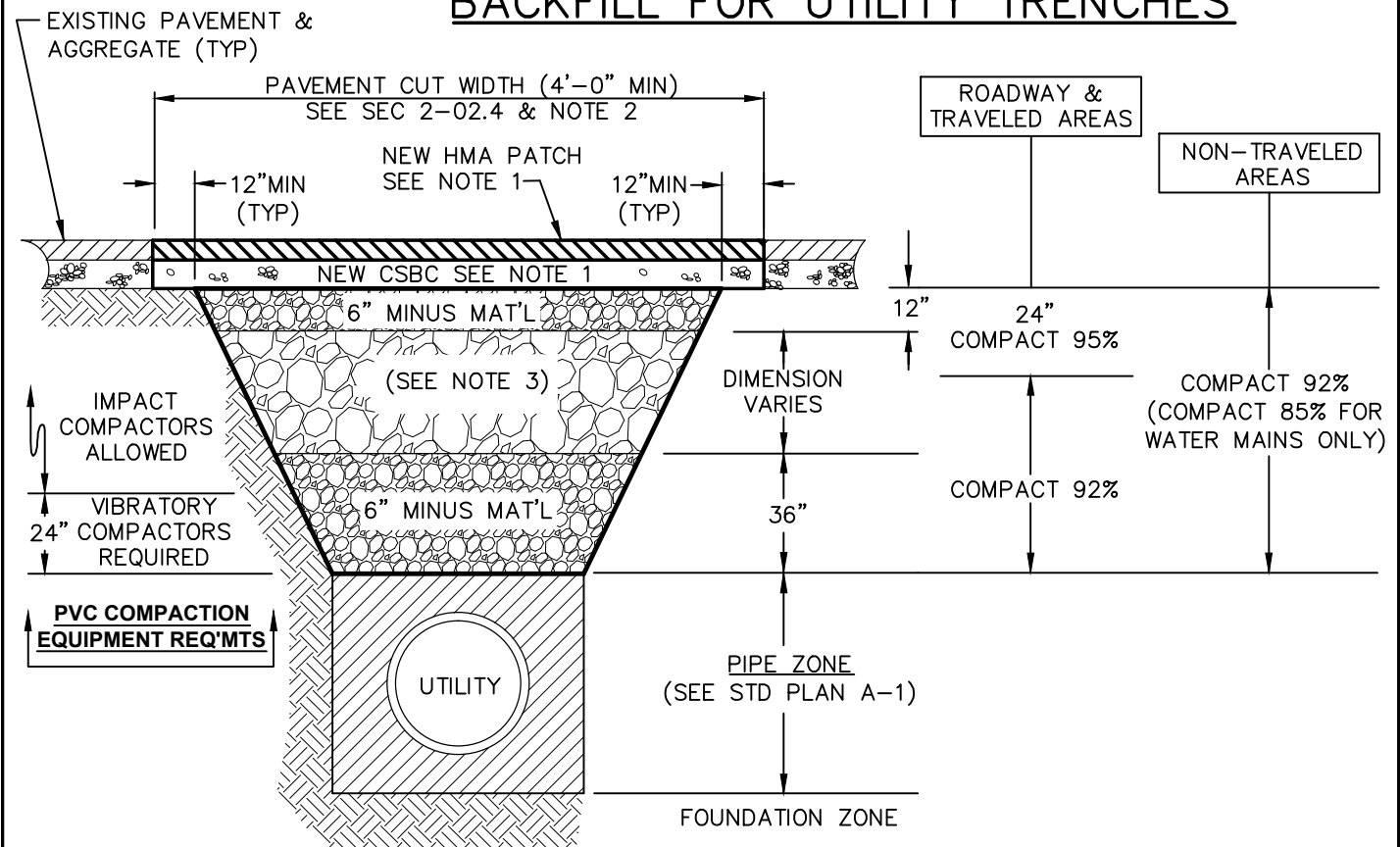


NOTES:

1. ALL MATERIAL IN PIPE ZONE INCLUDING 6" BENEATH THE PIPE SHALL CONFORM TO SEC 9-03.12(3) FOR SAND OR NATIVE MATERIAL EXCEPT AS FOLLOWS:
 - a) IF ROCK OR GROUND WATER IS PRESENT, PIPE ZONE MATERIAL SHALL BE CSTC PER SEC 9-03.9(3).
 - b) FOR RIGID SEWERS, PIPE ZONE MATERIAL ABOVE THE SPRING LINE MAY EITHER BE PER SEC 9-03.12(3), SAND OR NATIVE, OR 9-03.14(1), GRAVEL BORROW, EXCEPT THAT MAX MATERIAL SIZE SHALL BE 1-IN PER 1-FT OF PIPE DIAMETER UP TO A 2" MAX.
2. COMPACTION METHODS IN PIPE ZONE SHALL BE PER SECTION 7-09.3(9).
3. REFER TO 7-08.3(1)C FOR ADDITIONAL REQUIREMENTS.
4. WHERE TRENCH EXCAVATION IS PAID SEPARATELY, PAYMENT LIMITS SHALL BE PER SEC 2-09.4.
5. BEDDING TO BE INSTALLED PER SECTION 7-09.3(9). A LIFT LAYER UP TO A MAXIMUM OF 18 INCHES MAY BE APPROVED BY THE ENGINEER.

<p>APPROVED BY</p> <p><i>[Signature]</i></p> <p>ENGINEERING OPERATIONS MANAGER KYLE TWOHIG</p> <p><i>[Signature]</i></p> <p>CITY ENGINEER DANIEL ALBERT BULLER, P.E.</p>	<p>ADOPTED: 02/1986</p> <p>REVISED: 02/2017</p> <p>SUPERSEDES: 09/2010</p> <p>CHECKED BY: JAG</p> <p>SCALE: NTS</p> <p>DWG/REV. BY: SRM/MLD</p>	<p>UTILITY TRENCH BACKFILL</p> <p>PIPE ZONE</p> <p>ENGINEERING SERVICES</p> <p>CITY OF SPOKANE, WASHINGTON</p> <p>STANDARD PLAN No. A-1</p>
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BACKFILL FOR UTILITY TRENCHES

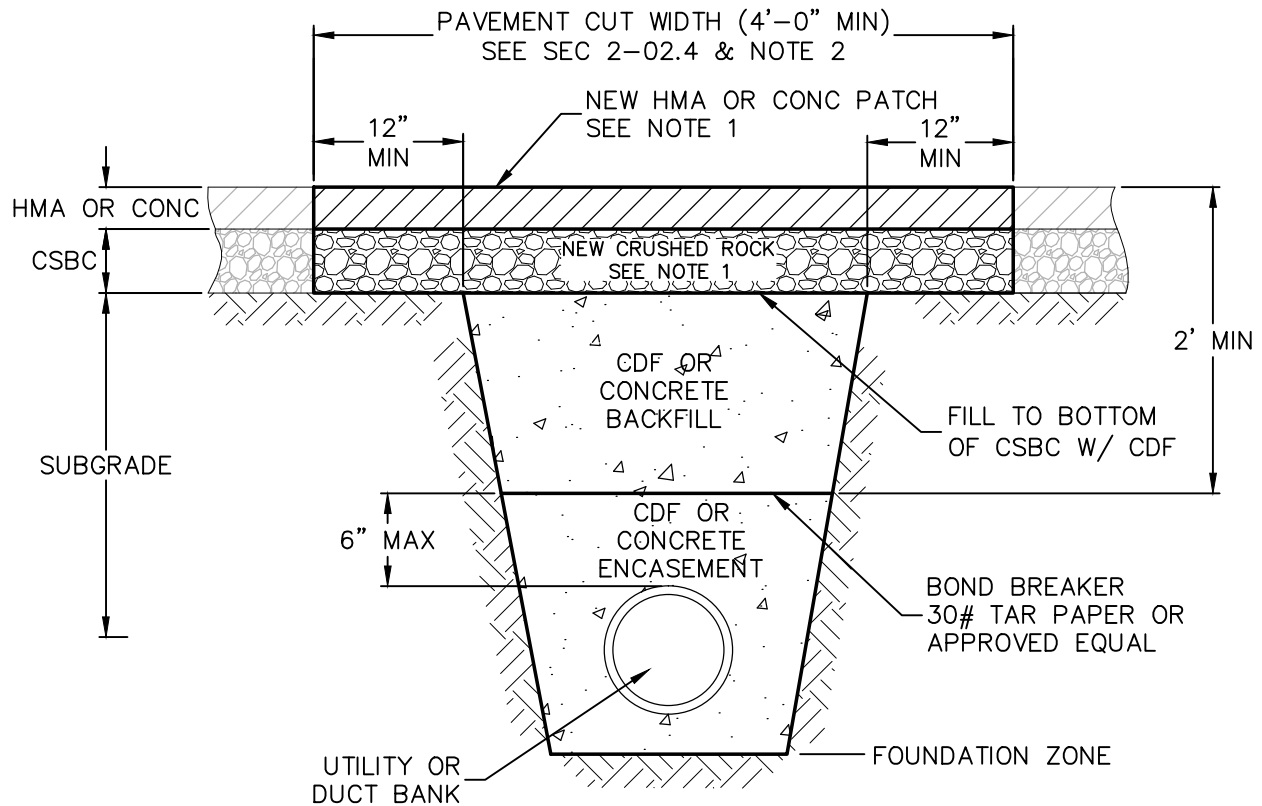


NOTES:

1. REPLACE HOT MIX ASPHALT (HMA) PAVEMENT & CRUSHED BASE PER STD PLANS W-108 & W-109.
2. SEE CITY OF SPOKANE (COS) PAVEMENT CUT POLICY IN THE COS DESIGN STDS, APPENDIX 'F' FOR ADD'NL REQ'MTS.
3. WATER LINES REQUIRE 6" MINUS MAT'L FOR THE ENTIRE BACKFILL. 12" MINUS MAT'L MAY BE USED FOR OTHER UTILITIES.
4. COMPACTION ABOVE THE PIPE ZONE SHALL BE MEASURED PER SEC 2-03.3(14)D. FOR ROADWAY & TRAVELED AREAS COMPACT TOP 2-FT IN 4" MAX LIFTS. COMPACT BELOW TOP 2-FT TO TOP OF PIPE ZONE IN 8" MAX LIFTS. FOR NON-TRAVELED AREAS COMPACT IN 8" MAX. LIFTS. ENGINEER MAY WAIVER THE 92% COMPACTION TO A LESSER VALUE FOR GRASS SWALES OR OTHER PLANTING AREAS.
5. FOR DEVIATION FROM LIFT THICKNESS, SEE SEC 7-08.3(3) FOR SEWER/STORM & SEC 7-09.3(11) FOR WATER UTILITIES.
6. TRENCH EXCAVATION MATERIALS SHALL BE USED FOR BACKFILL IF MATERIALS MEET GRADUATION REQ'MTS ABOVE. IMPORTED BACKFILL SHALL MEET THE REQ'MTS OF SEC 9-03.14(1), GRAVEL BORROW.
7. CONTROLLED DENSITY FILL (CDF) PER SEC 2-09.3(1)E, MAY BE USED IN LIEU OF NATIVE BACKFILL WHERE IT IS NOT PRACTICAL TO COMPACT BACKFILL TO THE REQ'D DENSITY. SUCH USE SHALL BE PRE-APPROVED BY THE ENGINEER. SEE STD PLAN A-3 FOR CDF BACKFILL REQ'MTS.

APPROVED BY DIRECTOR, ENGINEERING SERVICES P. MIKE TAYLOR, P.E.		ADOPTED: 2/1990 REVISED: 09/2010 SUPERSEDES: 01/2008 CHECKED BY: JAG SCALE: NTS DWG/REV. BY: SRM/MBM		UTILITY TRENCH BACKFILL ABOVE PIPE ZONE	
PRINCIPAL ENGINEER, DESIGN GARY S. NELSON, P.E.		SPOKANE 		ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON	
				STANDARD PLAN No. A-2	

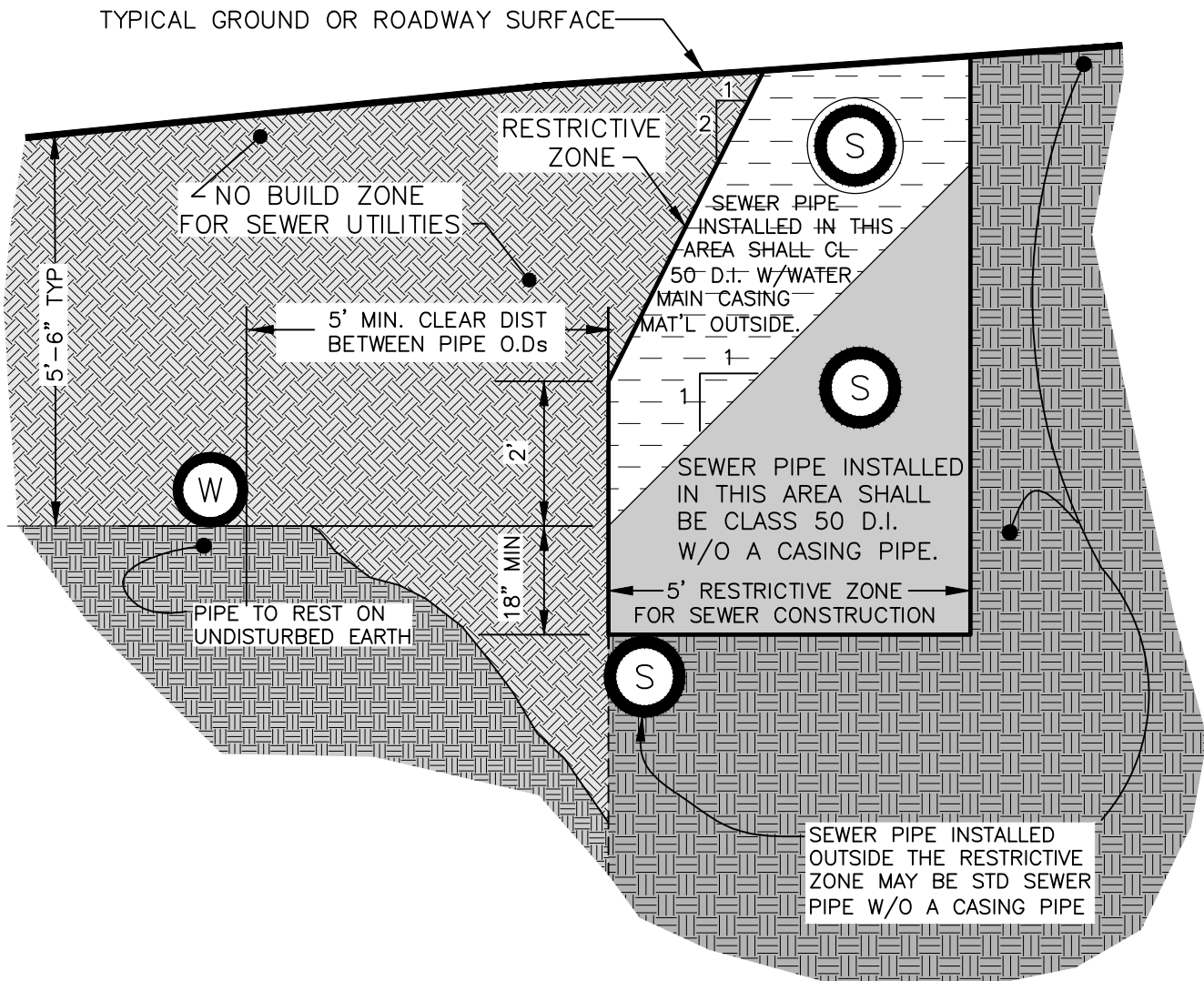
CDF BACKFILL FOR UTILITY TRENCHES



NOTES:

1. REPLACE HOT MIX ASPHALT (HMA) OR CONCRETE PAVEMENT PER CITY STANDARD PLANS W-102, W-108, & W-109.
2. SEE CITY OF SPOKANE (COS) PAVEMENT CUT POLICY IN THE COS DESIGN STANDARDS, APPENDIX 'F' FOR ADDITIONAL REQUIREMENTS.
3. BEDDING MATERIAL PER SEC 7-08.3(1)C MAY BE USED AS AN ALTERNATIVE TO CDF & CAPPED W/ CDF TO SERVE AS A LOCATION MARKER FOR THE UTILITY.
4. 30# TAR PAPER SHALL BE PLACED THE FULL LENGTH AND WIDTH OF A UTILITY TRENCH WHEN THE UTILITY IS ENCASED IN CDF OR CONCRETE AND THE REMAINDER OF THE TRENCH IS BACKFILLED WITH CDF OR CONCRETE.

<p>APPROVED BY</p> <p><i>[Signature]</i></p> <p>ENGINEERING OPERATIONS MANAGER KYLE TWOHIG</p> <p><i>[Signature]</i></p> <p>CITY ENGINEER DANIEL ALBERT BULLER, P.E.</p>	<p>ADOPTED: 04/2004</p> <p>REVISED: 01/2017</p> <p>SUPERSEDES: 04/2012</p> <p>CHECKED BY: JAG</p> <p>SCALE: NTS</p> <p>DWG/REV. BY: TSS/MLD</p>	<p>UTILITY TRENCH BACKFILL REQUIREMENTS USING CDF OR CONCRETE</p> <p>ENGINEERING SERVICES</p> <p>CITY OF SPOKANE, WASHINGTON</p> <p>STANDARD PLAN No. A-3</p>
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NOTES APPLY TO GRAVITY &
PRESSURE SEWER MAINS INSTALLED
W/IN THE RESTRICTIVE ZONE

1. SEWER MAINS 24" DIA & LARGER MAY REQUIRE MORE STRINGENT CONSTRUCTION STANDARDS.
2. SEWER MATERIALS & JOINTS SHALL MEET WATER MAIN STANDARDS.
3. SEWER MAINS SHALL BE INSTALLED & TESTED IN ACCORDANCE W/ SEC. 7-17.
4. THE RESTRICTIVE ZONE IS SYMMETRICAL ABOUT THE WATER LINE.

APPROVED BY
[Signature]
DIRECTOR, ENGINEERING SERVICES
TOM L. ARNOLD, P.E.
[Signature]
PRINCIPAL ENGINEER, DESIGN
GARY S. NELSON, P.E.

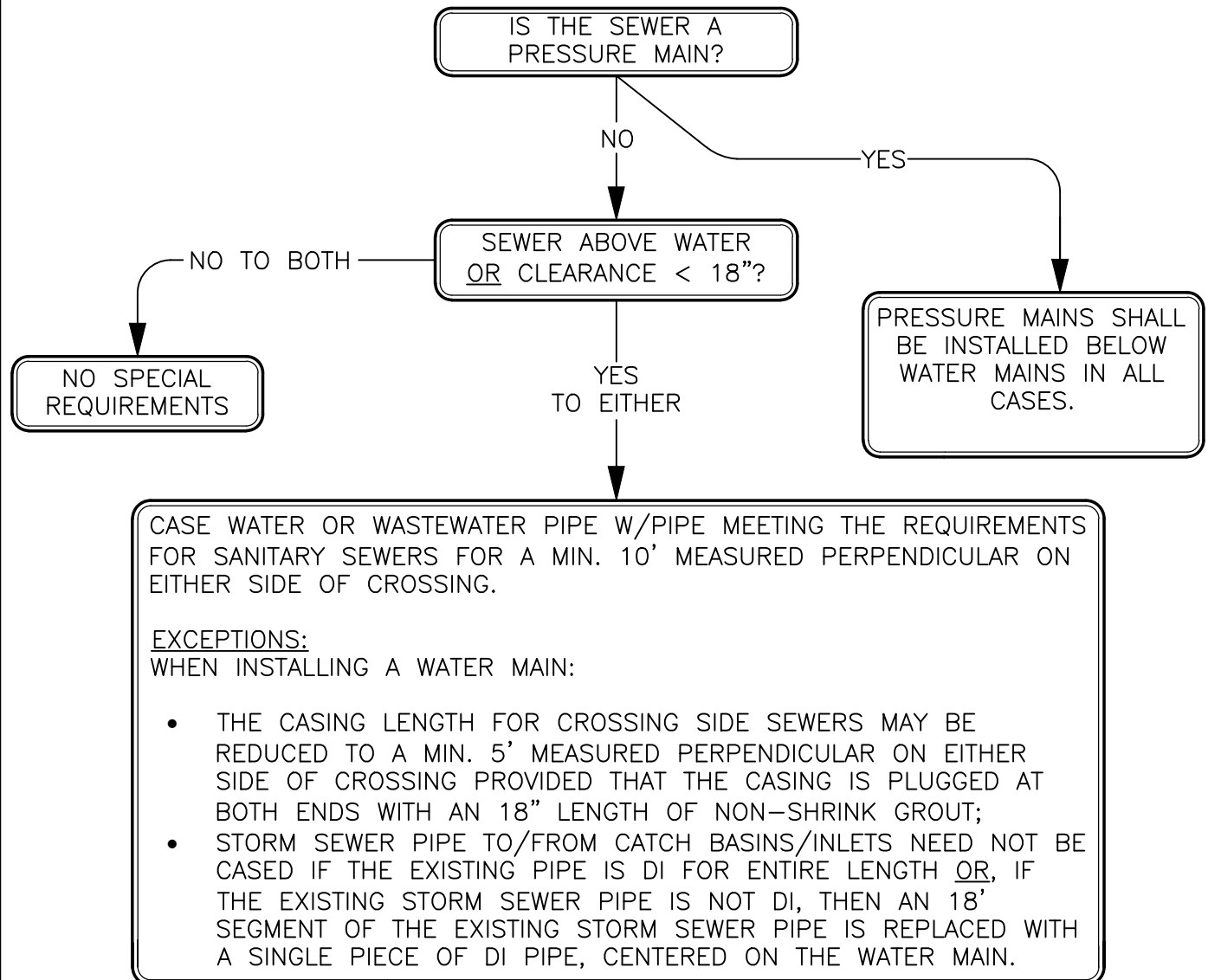
ADOPTED: 3/1992
REVISED: 05/2007
SUPERSEDES: 12/1998
CHECKED BY: JAG
SCALE: NTS
DWG/REV. BY: REP/RLB

**SEWER UTILITY
LOCATION & CONSTRUCTION REQUIREMENTS**

ENGINEERING SERVICES
CITY OF SPOKANE, WASHINGTON




STANDARD
PLAN No.
A-4

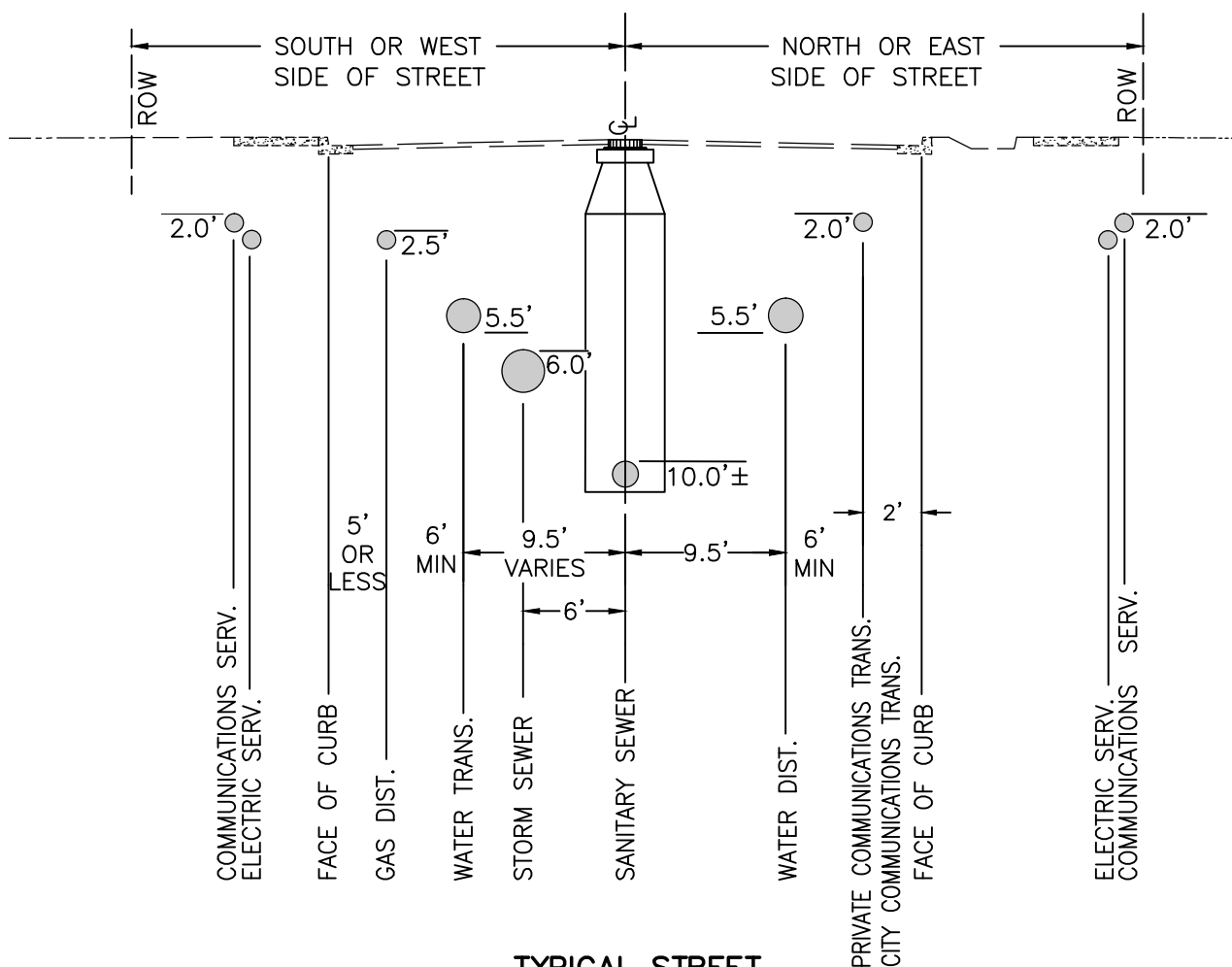
WATER/SEWER CROSSINGS



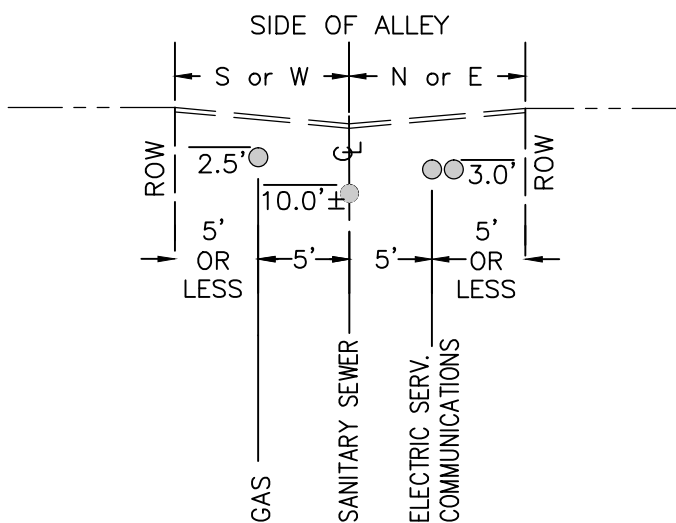
NOTES:

1. CROSSING WATER/SEWER LINES OR THEIR CASINGS SHALL HAVE A 6" MIN VERTICAL SEPARATION.
2. FLOW CHART APPLIES TO BOTH EXISTING & NEW SERVICES & MAINS.
3. DISTANCES GIVEN ABOVE ARE MEASURED FROM OUTSIDE OF PIPES OR OTHER CASINGS.
4. DESIGNER/INSTALLER SHALL MAKE ALL REASONABLE ATTEMPTS TO MEET THE FOLLOWING:
 - SEWER BENEATH WATER BY AT LEAST 18"
 - CROSSINGS AS CLOSE TO 90° AS POSSIBLE

APPROVED BY  DIRECTOR, ENGINEERING SERVICES P. MIKE TAYLOR, P.E.		ADOPTED: 3/92 REVISED: 01/2009 SUPERSEDES: 01/2008 CHECKED BY: JAG SCALE: NTS DWG/REV. BY: MDH/TSS		WATER AND SEWER CROSSINGS	
 PRINCIPAL ENGINEER, DESIGN GARY S. NELSON, P.E.				ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON	
				STANDARD PLAN No. A-5	



TYPICAL STREET



TYPICAL ALLEY

NOTES:

1. LOCATIONS ARE STANDARD FOR UNDERGROUND INSTALLATIONS & VARIATION SHALL REQUIRE PRE-APPROVAL BY THE CITY ENGINEER.
2. ALL LOCATIONS & DEPTHS OF EXISTING UTILITIES SHALL BE VERIFIED BY RESPECTIVE OWNERS PRIOR TO NEW INSTALLATIONS.

CALL BEFORE YOU DIG 456-8000

APPROVED BY

 ENGINEERING OPERATIONS MANAGER KYLE TWOHIG

 CITY ENGINEER DANIEL ALBERT BULLER, P.E.

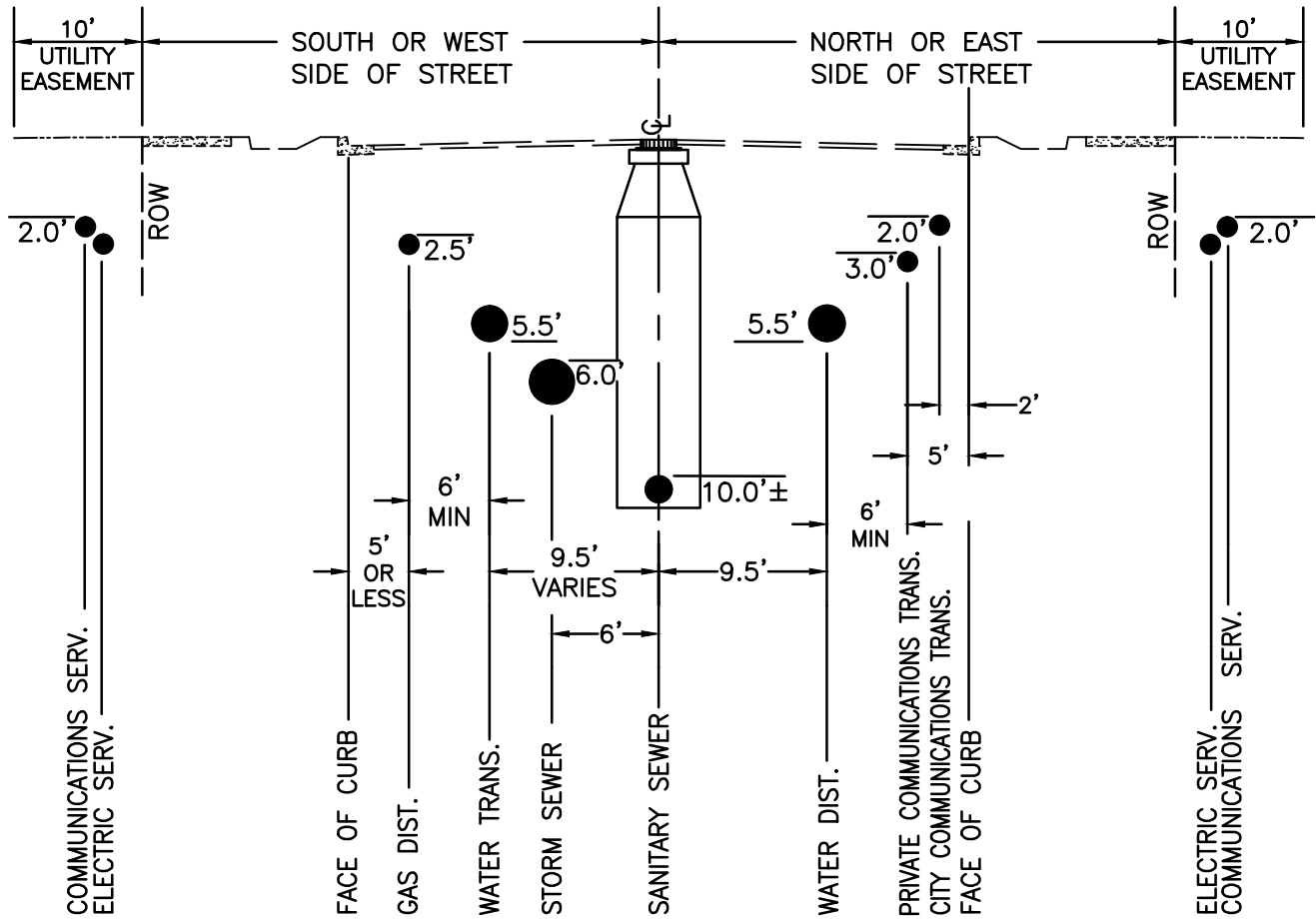
ADOPTED: 02/1986
 REVISED: 11/2018
 SUPERSEDES: W-109A, 12/98
 CHECKED BY: JAG
 NTS
 DWG/REV. BY: JHM

**UNDERGROUND UTILITY LOCATION
FOR EXISTING STREETS**

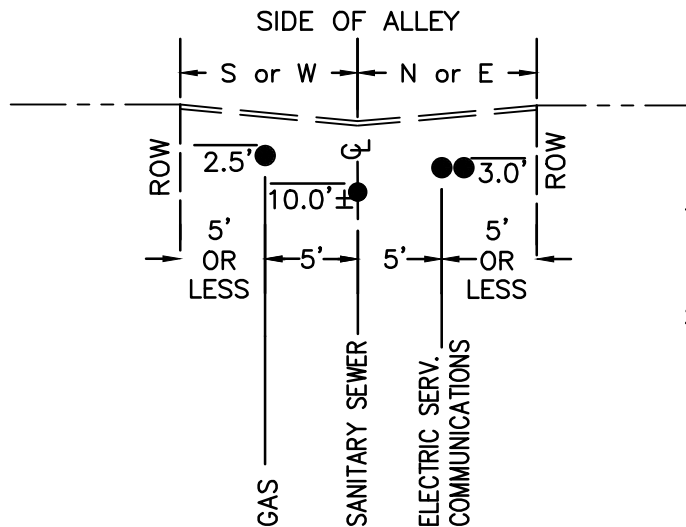


ENGINEERING SERVICES
CITY OF SPOKANE, WASHINGTON

STANDARD
PLAN No.
A-6



TYPICAL STREET



TYPICAL ALLEY

NOTES:

1. LOCATIONS ARE STANDARD FOR UNDERGROUND INSTALLATIONS & VARIATION SHALL REQUIRE PRE-APPROVAL BY THE CITY ENGINEER.
2. ALL LOCATIONS & DEPTHS OF EXISTING UTILITIES SHALL BE VERIFIED BY RESPECTIVE OWNERS PRIOR TO NEW INSTALLATIONS.

CALL BEFORE YOU DIG 456-8000

APPROVED BY

 ENGINEERING OPERATIONS MANAGER KYLE TWOHIG

 CITY ENGINEER DANIEL ALBERT BULLER, P.E.

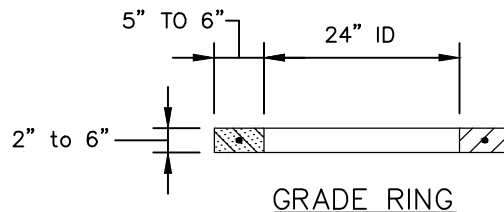
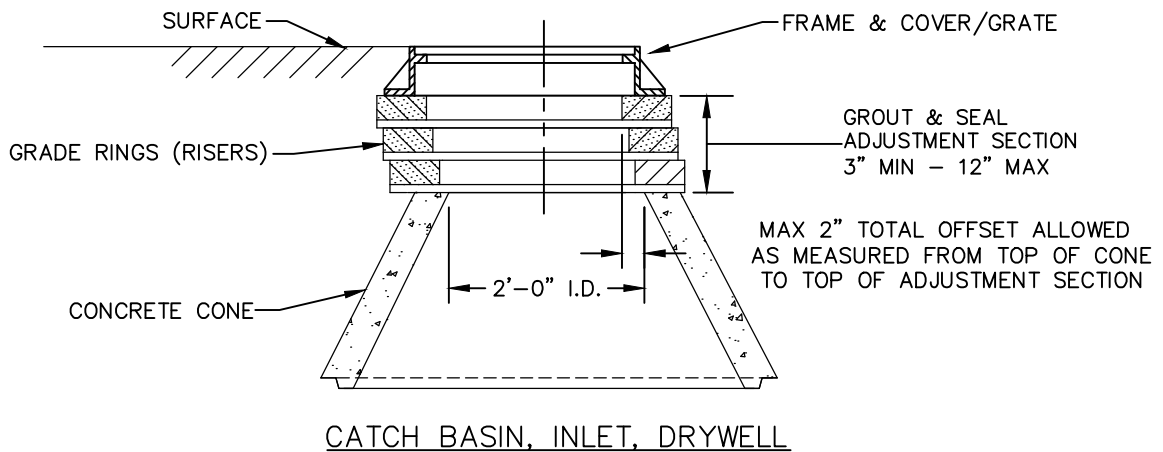
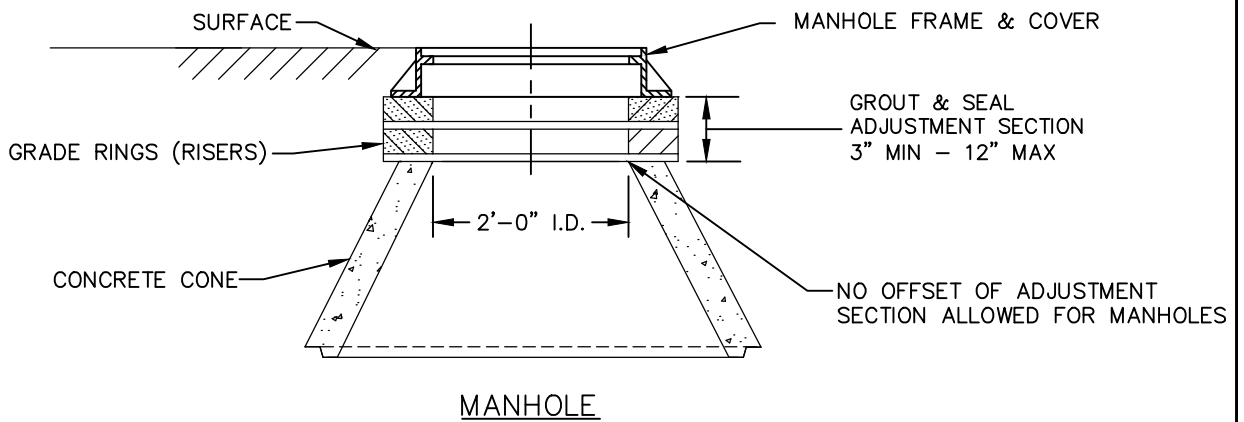
ADOPTED: 05/2007
 REVISED: 11/2018
 SUPERSEDES:
 CHECKED BY: JAG
 SCALE: NTS
 DWG/REV. BY: RLB/JHM

**UNDERGROUND UTILITY LOCATION
FOR NEW DEVELOPMENTS**



ENGINEERING SERVICES
CITY OF SPOKANE, WASHINGTON

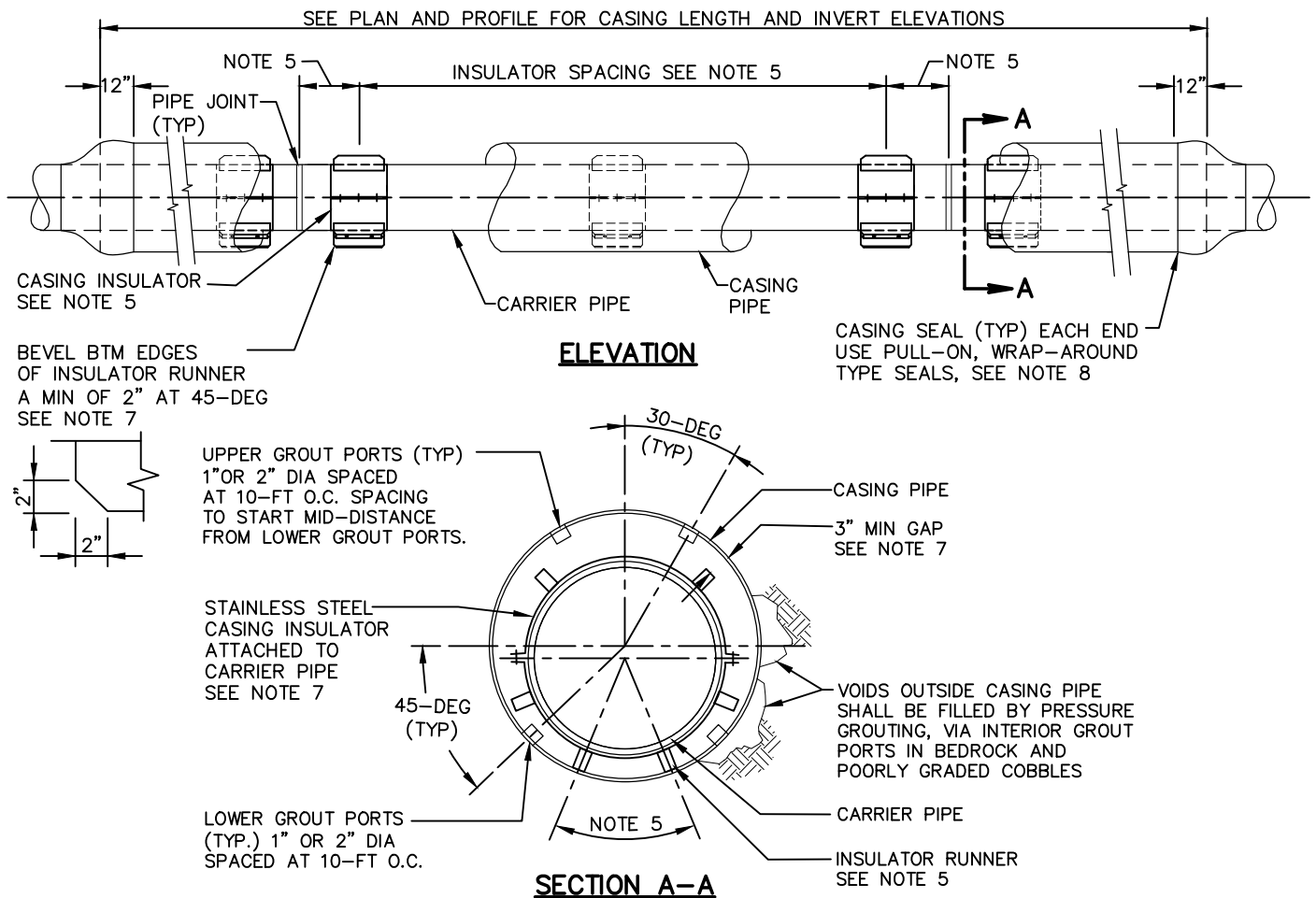
STANDARD
PLAN No.
A-7



NOTES:

1. ADJUSTMENT SECTION SHALL BE CONSTRUCTED WITH PRE-FABRICATED REINFORCED CONCRETE GRADE RINGS (RISERS) CONFORMING TO ASTM C478 AND SHALL BE GROUTED IN PLACE.
2. GRADE RINGS SHALL BE A CONTINUOUS LOOP OF REINFORCED CONCRETE AND SHALL BE FLAT. GRADE RINGS SHALL BE A UNIFORM DIMENSION THROUGHOUT ITS CROSS SECTION.
3. GRADE RINGS REINFORCEMENT SHALL BE A MINIMUM OF ONE FULL HOOP OF STEEL REINFORCING OF MINIMUM YIELD STRESS $F_y = 40$ KSI.
4. IN ADDITION TO THE GRADE RINGS, IF NECESSARY FOR PROPER FINAL ADJUSTMENT HEIGHT OF LESS THAN 2", WEDGES OF PRE-FABRICATED CERAMIC OR CONCRETE BRICK AS APPROVED BY THE ENGINEER MAY BE USED AND SHALL BE GROUTED IN PLACE.
5. ADJUSTMENT SECTION SHALL BE SEALED PER SECTION 7-05.

<p>APPROVED BY</p> <div style="text-align: center;"> <p>KYLE TWOHIG</p> </div> <p>ENGINEERING OPERATIONS MANAGER</p>	<p>ADOPTED: 1/2017</p> <p>REVISED: _____</p> <p>SUPERSEDES: _____</p> <p>CHECKED BY: WRP</p> <p>SCALE: NTS</p> <p>REVISED BY: EWS</p>	<p>ADJUSTMENT SECTION</p> <p>GRADE RINGS (RISERS)</p>
<p>CITY ENGINEER</p> <div style="text-align: center;"> <p>DANIEL ALBERT BULLER, P.E.</p> </div>	<p>ENGINEERING SERVICES</p> <p>CITY OF SPOKANE, WASHINGTON</p>	<p>STANDARD PLAN No.</p> <p>A-8</p>



STEEL CASING DETAIL

NOTES:

- CASING SHALL BE SMOOTH STEEL PIPE MANUFACTURED TO ASTM A-53, TYPE 'E', GRADE 'B' FOR NPS UP TO 26-INCH DIA & ASTM A-252, GRADE '2' FOR NPS GREATER THAN 26-INCH DIA, THAT CONFORMS TO AWWA C-200 QUALITY CONTROL PROCEDURES & HAVE A MIN YIELD OF 35 KSI.
- CARRIER PIPE SHALL BE INSTALLED PER MANUFACTURER'S REQ'MTS & CITY OF SPOKANE CONTRACT PROVISIONS.
- ALL STEEL CASING JOINT WELDS SHALL MEET AWWA C206 WELDS AND OBSTRUCTIONS ON INTERIOR OF CASING BOTTOM THIRD (RADIALLY) SHALL BE GROUND SMOOTH.
- CARRIER PIPE SHALL BE PRESSURE TESTED PER CITY OF SPOKANE CONTRACT PROVISIONS PRIOR TO SEALING ENDS OF CASING PIPE.
- PER-FABRICATED CASING INSULATORS SHALL BE POSITIONED & SPACED PER MANUFACTURER'S REQ'MTS & CASING/CARRIER PIPE APPLICATION. INSULATOR SPACING SHALL NOT EXCEED 8-FT O.C. NOR BE LOCATED MORE THAN 1'-6" FROM CARRIER PIPE JOINTS. CASING INSULATORS SHALL BE PRE-APPROVED BY THE ENGINEER PRIOR TO PLAN APPROVAL OR INSTALLATION. THE CONTRACTOR SHALL COORDINATE W/ THE INSULATOR MANUFACTURER SO THAT THE INSULATOR RUNNER POSITIONS AROUND THE OUTER CIRCUMFERENCE OF THE CARRIER PIPE DO NOT INTERFERE W/THE GROUT PORT POSITIONS AROUND THE INT'R CIRCUMFERENCE OF THE CASING PIPE AND NOT OCCUPY THE 5:00 THROUGH 7:00 POSITION RADIALLY CARRIER PIPE >18" DIAMETER SHALL HAVE A MINIMUM OF 6 RUNNERS
- USE OF ROLLER TYPE CASING INSULATOR/SPACERS SHALL BE USED IF REQUESTED BY THE ENGINEER ON CASING LENGTHS >600 LF.
- INSULATOR RUNNER HEIGHT SHALL EXTEND BEYOND THE O.D. OF THE CARRIER PIPE'S BELL OR JOINT A MIN OF 1". RUNNER LENGTH SHALL EXCEED RUNNER HEIGHT BY A 2:1 MIN RATIO. RUNNER WIDTH SHALL BE EQUAL TO OR GREATER THAN RUNNER HEIGHT. MIN CLEARANCE SHALL BE 3" BETWEEN RUNNERS NEAR TOP OF CARRIER PIPE & INSIDE DIA OF CASING PIPE. CASING INSULATORS SHALL HAVE STAINLESS STEEL (SS) ATTACHMENT BANDS CONNECTED TO THE CARRIER PIPE VIA (SS) BOLTS/NUTS. CORKSCREW OF CARRIER PIPE/SPACERS SHALL BE CORRECTED SO THAT DESIGNED NUMBER OF SPACERS SUPPORT PIPE RADIALLY.
- CASING PIPE SHALL BE SEALED AT BOTH ENDS W/ A STD 'PULL-ON' OR 'WRAP-AROUND' SYNTHETIC RUBBER CASING SEAL. SECURE CASING SEAL W/ STAINLESS STEEL BANDS. CASING SEALS SHALL BE PRE-APPROVED BY THE ENGINEER PRIOR TO PLAN APPROVAL OR INSTALLATION.
- ALSO SEE UNION PACIFIC, BNSF OR WSDOT FOR ADDITIONAL REQUIREMENTS FOR RAILROAD AND HIGHWAY UNDERCROSSINGS.

APPROVED BY



ENGINEERING SERVICES DIRECTOR KYLE TWOHIG

CITY ENGINEER DAN BULLER, P.E.

ADOPTED: _____

REVISED: 07/2020

SUPERSEDES: 05/2007

CHECKED BY: JAG

SCALE: NTS

DWG/REV. BY: TSS/MDH

CASING/CARRIER PIPE DETAILS



ENGINEERING SERVICES
CITY OF SPOKANE, WASHINGTON

STANDARD
PLAN No.
A-9

NOTES:

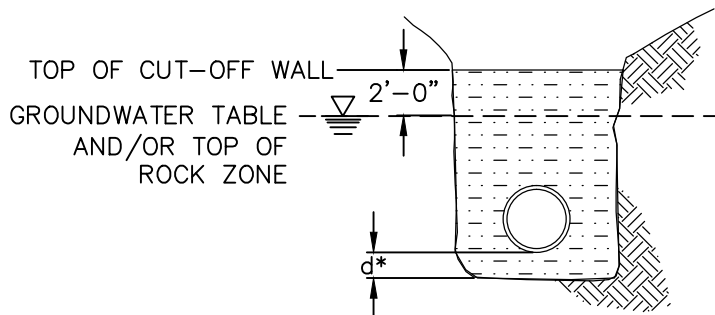
1. CUT-OFF WALLS PLACED WITHIN THE CITY R-O-W SHALL BE CONSTRUCTED USING MACHINE EXCAVATABLE CDF AS DESCRIBED IN SECTION 2-09.3(1)E. PIPE SHALL BE WRAPPED WITH 6 MIL PLASTIC.

2. CUT-OFF WALLS NOT PLACED WITHIN THE CITY R-O-W MAY BE CONSTRUCTED USING CLAY OR A BENTONITE PEA GRAVEL SLURRY.

3. CUT-OFF WALL SHALL BE WRAPPED WITH WOVEN GEOTEXTILE FABRIC FOR SEPARATION, SEE SEC 9-33. OVERLAP ALL FABRIC JOINTS 1'-6" MIN.

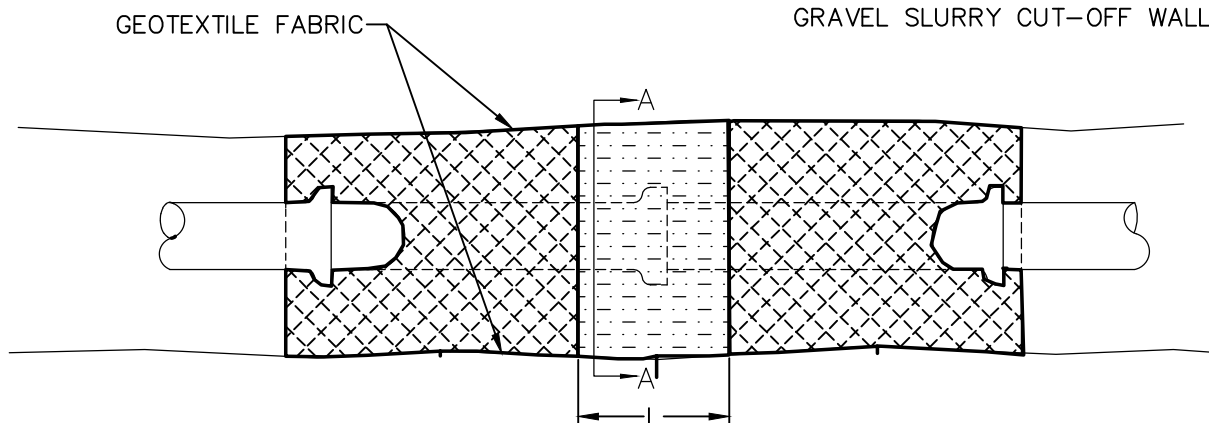
4. CUT-OFF WALL SHALL BE FULL WIDTH OF TRENCH.

5. $L = 3'$ FOR CDF CUT-OFF WALL
 $L = 6'$ FOR CLAY OR BENTONITE PEA GRAVEL SLURRY CUT-OFF WALL

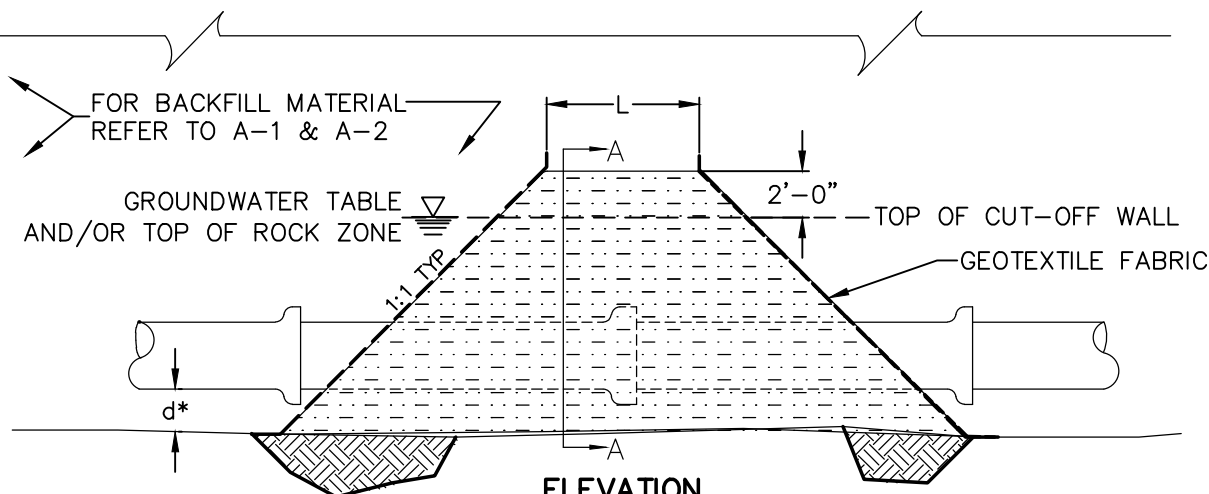


SECTION A-A

*d = 6" ON ROCK FOUNDATION
 4" ON OTHER MATERIALS



PLAN



ELEVATION

APPROVED BY

ENGINEERING OPERATIONS MANAGER KYLE TWOHIG
 CITY ENGINEER DANIEL ALBERT BULLER, P.E.

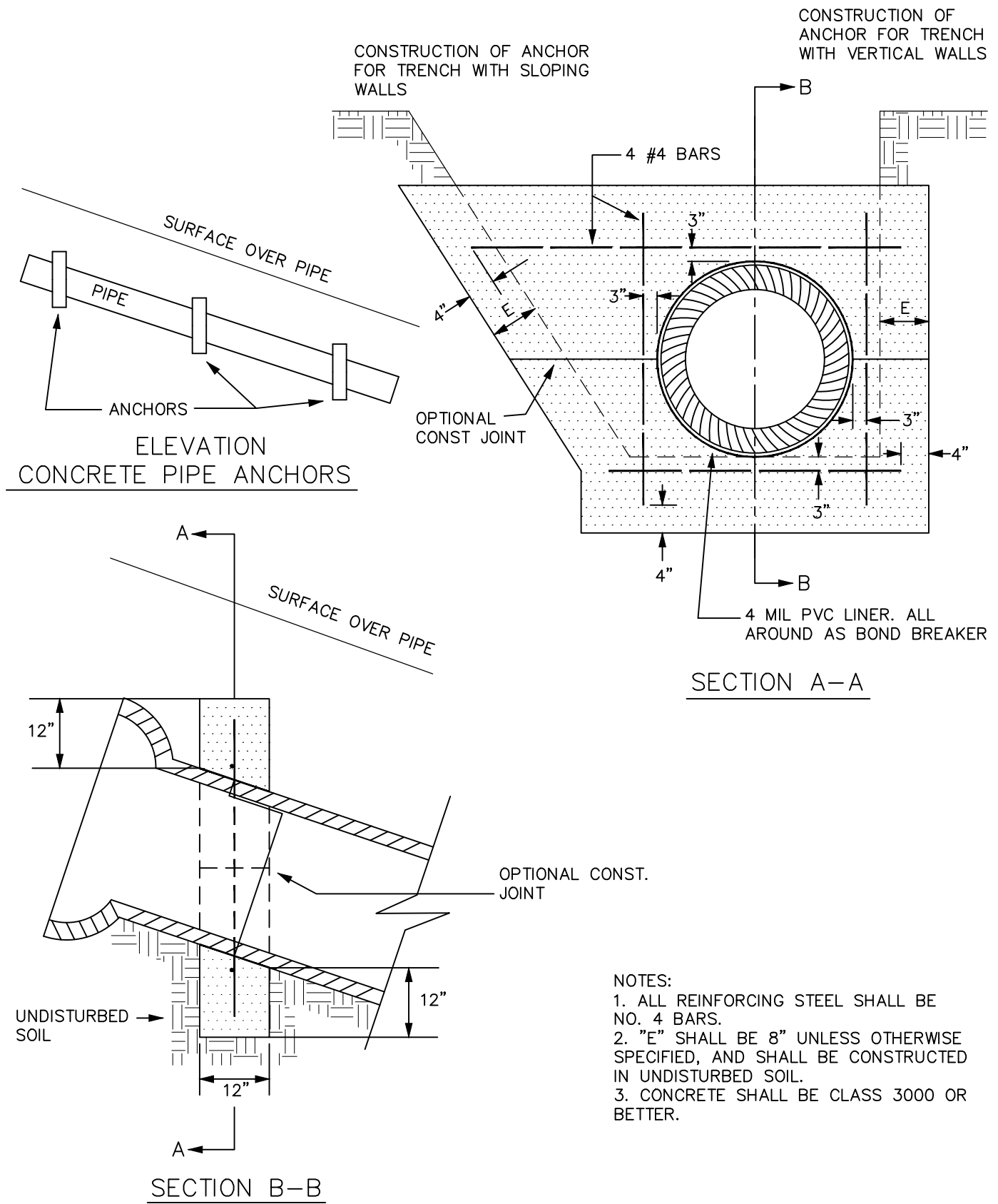
ADOPTED: 12/1993
 REVISED: 01/2017
 SUPERSEDES: 12/1993
 CHECKED BY: JAG
 SCALE: NTS
 DWG/REV. BY: MLD

CUT-OFF WALL



ENGINEERING SERVICES
 CITY OF SPOKANE, WASHINGTON

STANDARD
 PLAN No.
A-10



APPROVED BY

CITY ENGR. *[Signature]*
SUPV. DES. ENGR. *[Signature]*

SCALE NONE
ADOPTED 6/92

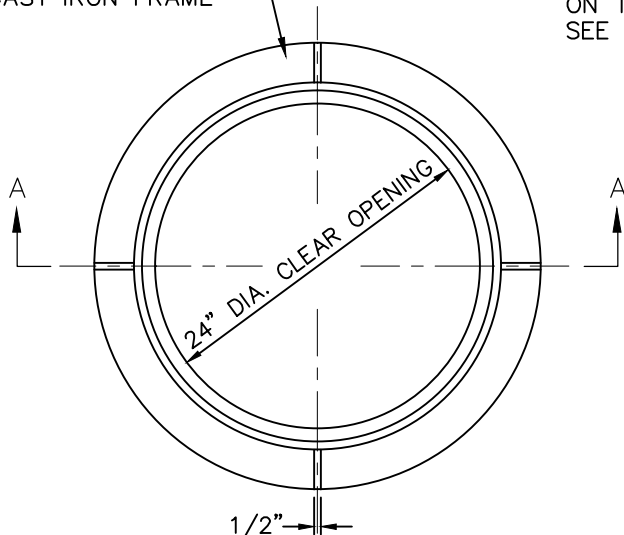
REVISED _____
SUPERSEDES _____

PIPE ANCHOR

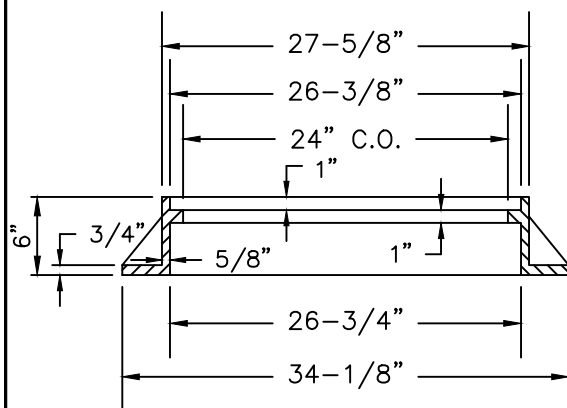
DEPT. OF PUBLIC WORKS
ENGR. DIVISION SPOKANE, WA

STANDARD
PLAN No.
A-11

ASTM A-48, CL. 30B
CAST IRON FRAME

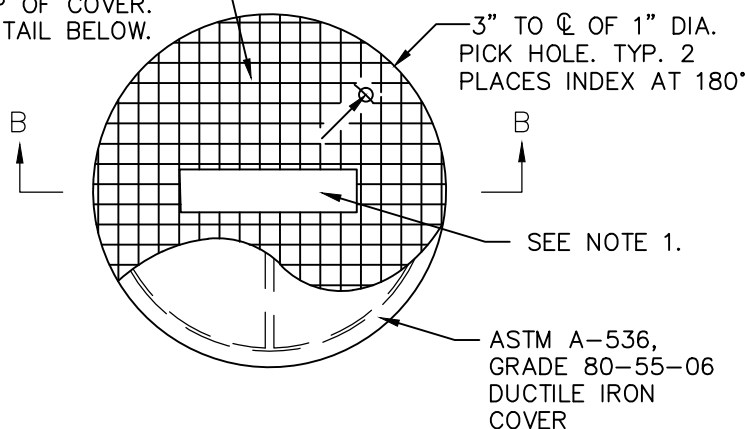


CAST IRON FRAME
MIN. WEIGHT 168 LBS.

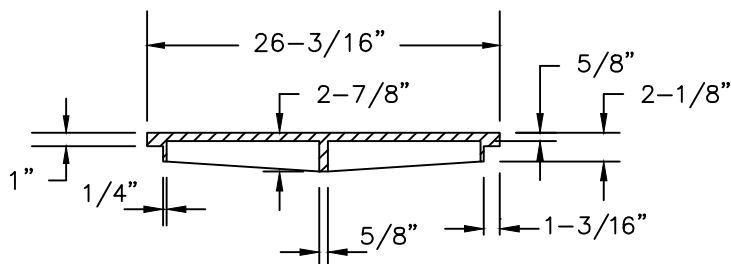


SECTION A-A

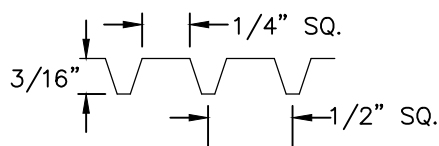
NON-SKID PATTERN
TO BE CAST INTEGRAL
ON TOP OF COVER.
SEE DETAIL BELOW.



DUCTILE IRON COVER
MIN. WEIGHT 118 LBS.



SECTION B-B



COVER SKID DESIGN DETAIL

NOTES:

1. THE APPROPRIATE WORD "SEWER", "STORM", OR "WATER" SHALL BE EMBOSSED ON EACH MANHOLE COVER WITH 3/16" RAISED LETTERS.
2. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT W/ ANY COVER POSITION.

APPROVED BY

[Signature]
DIRECTOR, ENGINEERING SERVICES
TOM L. ARNOLD, P.E.

[Signature]
PRINCIPAL ENGINEER, DESIGN
GARY S. NELSON, P.E.

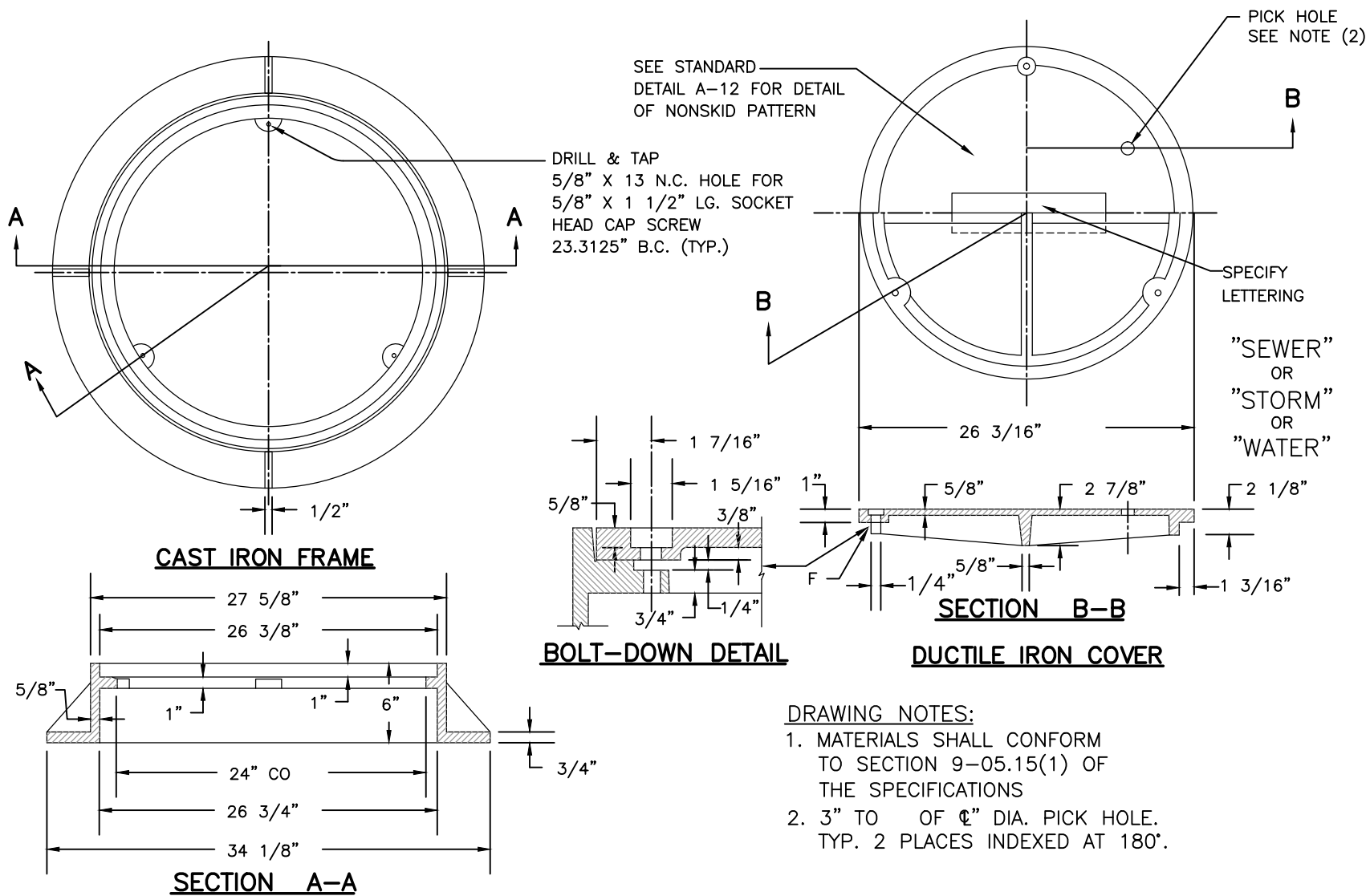
ADOPTED: 2/1990
REVISED: 05/2007
SUPERSEDES: 6/1995
CHECKED BY: JAG
SCALE: NTS
DWG/REV. BY: RLB




MANHOLE FRAME AND COVER



ENGINEERING SERVICES
CITY OF SPOKANE, WASHINGTON

STANDARD
PLAN No.
A-12



<p>APPROVED BY</p>  <p>ENGINEERING SERVICES DIRECTOR KYLE TWOHIG</p>  <p>CITY ENGINEER DAN BULLER, P.E.</p>	<p>ADOPTED: _____</p> <p>REVISED: 10/2019</p> <p>SUPERSEDES: 06/1995</p> <p>CHECKED BY: DAB</p> <p>SCALE: NTS</p> <p>DWG/REV. BY: MLD</p>	<p>MANHOLE FRAME AND COVER 3-POINT BOLT DOWN</p> <p> ENGINEERING SERVICES CITY OF SPOKANE, WASHINGTON</p> <p>STANDARD PLAN No. A-13</p>
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