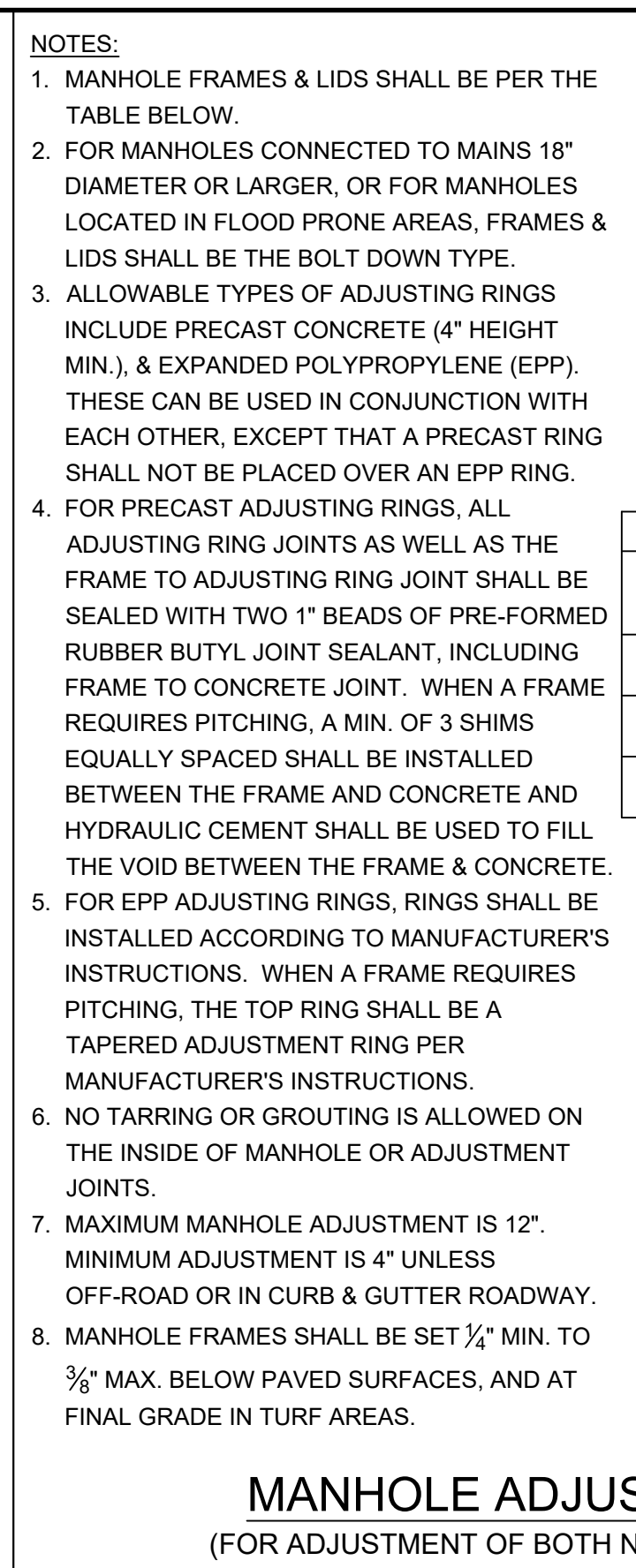


**STANDARD MANHOLE DETAIL**  
(\*MANHOLE ADJUSTMENT DETAIL\* SHALL APPLY)

- NOTES:**
1. THE MAX. DROP FROM THE INVERT OF ANY PIPE TO THE CONCRETE CHANNEL UNDER THAT PIPE SHALL BE 8".
  2. MANHOLES LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY SHALL BE MARKED WITH A STEEL FENCE POST AS DIRECTED.
  3. ALL NEW MANHOLES SHALL BE VACUUM TESTED PER A.S.T.M. C-1244 PRIOR TO ACCEPTANCE.
  4. ALL BARREL JOINTS SHALL BE SEALED WITH 3 1/2" x 3/4" PRE-FORMED RUBBER BUTYL JOINT SEALANT ON THE LOWER SHIPLAP.
  5. ALL BARREL JOINTS SHALL BE SEALED WITH AN EXTERNAL BARREL SEAL CENTERED ON THE JOINT (MAR MAC MACWRAP, OR APPROVED EQUAL)
  6. MANHOLE STRUCTURE SHALL BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE MANHOLE RISER SECTIONS IN ACCORDANCE WITH A.S.T.M. C478-90 OR THE LATEST DESIGNATION.
  7. PRECAST FLAT TOPS ARE NOT APPROVED FOR USE.
  8. SEE 'MANHOLE ADJUSTMENT DETAIL' FOR ADJUSTMENT REQUIREMENTS.
  9. PIPE CONNECTIONS TO NEW MANHOLES SHALL BE MADE BY MEANS OF EITHER RUBBER GASKET SEAL (A-LOK OR APPROVED EQUAL) CONFORMING TO ASTM F-477 CAST INTEGRALLY IN MANHOLE WALL, OR RUBBER GASKET SEAL AND STAINLESS STEEL CLAMP (PSX SERIES SIX OR APPROVED EQUAL) CONFORMING TO ASTM C-923. FOR PIPE CONNECTIONS WITH A DEPTH OF >20 FT., A RUBBER GASKET SEAL (A-LOK OR APPROVED EQUAL) CONFORMING TO ASTM F-477 CAST INTEGRALLY IN MANHOLE WALL SHALL BE USED.
  10. PIPE CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY MEANS OF CORE DRILLING MANHOLE WALL AND INSTALLING RUBBER GASKET SEAL AND STAINLESS STEEL CLAMP (PSX SERIES SIX OR APPROVED EQUAL) CONFORMING TO ASTM C-923.
  11. THE MAXIMUM DISTANCE FROM ANY INLET PIPE INVERT TO THE OUTLET PIPE INVERT SHALL BE 2'. DISTANCES GREATER THAN 2' WILL REQUIRE AN INSIDE DROP CONNECTION PER 'INSIDE DROP CONNECTION DETAIL'.
  12. MANHOLE STEPS SHALL BE NEENAH R-1982-F OR M.A. IND. PS-1 OR APPROVED EQUAL INSTALLED AT 16" CENTERS, AND SHALL BE ORIENTED ABOVE THE OUTLET PIPE UNLESS OTHERWISE SPECIFIED.

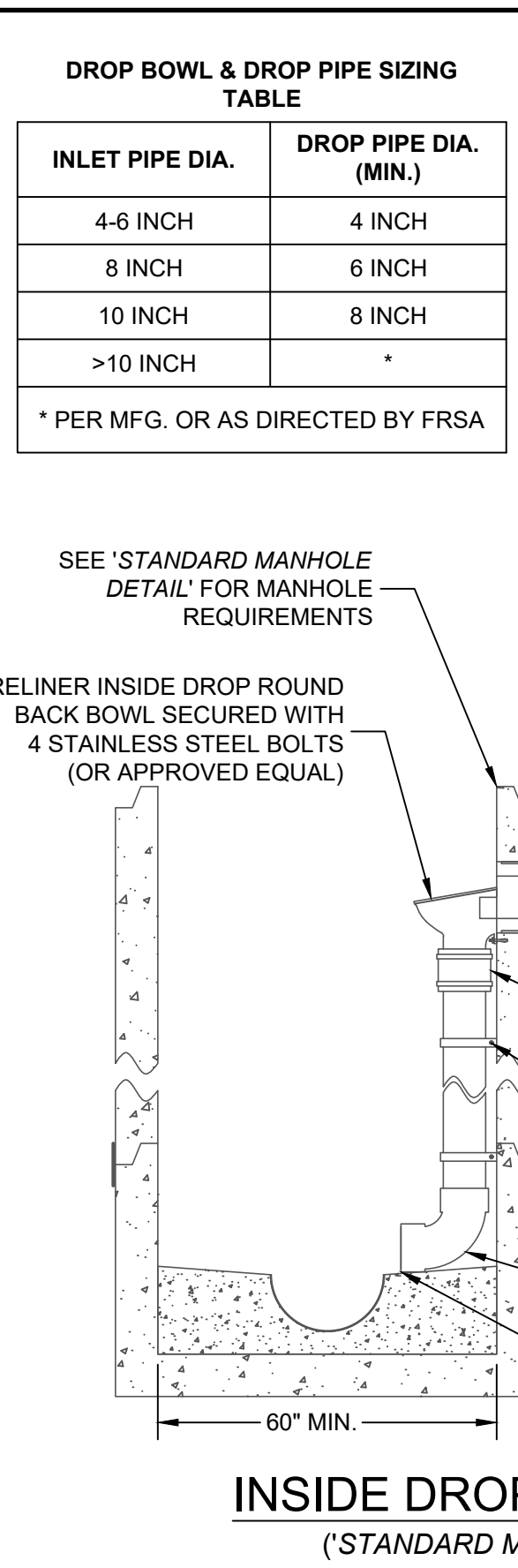


**MANHOLE ADJUSTMENT DETAIL**  
(FOR ADJUSTMENT OF BOTH NEW & EXISTING MANHOLES)

- NOTES:**
1. MANHOLE FRAMES & LIDS SHALL BE PER THE TABLE BELOW.
  2. FOR MANHOLES CONNECTED TO MAINS 18" DIAMETER OR LARGER, OR FOR MANHOLES LOCATED IN FLOOD PRONE AREAS, FRAMES & LIDS SHALL BE THE BOLT DOWN TYPE.
  3. ALLOWABLE TYPES OF ADJUSTING RINGS INCLUDE PRECAST CONCRETE (4" HEIGHT MIN.), & EXPANDED POLYPROPYLENE (EPP). THESE CAN BE USED IN CONJUNCTION WITH EACH OTHER, EXCEPT THAT A PRECAST RING SHALL NOT BE PLACED OVER AN EPP RING.
  4. FOR PRECAST ADJUSTING RINGS, ALL ADJUSTING RING JOINTS AS WELL AS THE FRAME TO ADJUSTING RING JOINT SHALL BE SEALED WITH TWO 1" BEADS OF PRE-FORMED RUBBER BUTYL JOINT SEALANT, INCLUDING FRAME TO CONCRETE JOINT. WHEN A FRAME REQUIRES PITCHING, A MIN. OF 3 SHIMS EQUALLY SPACED SHALL BE INSTALLED BETWEEN THE FRAME AND CONCRETE AND HYDRAULIC CEMENT SHALL BE USED TO FILL THE VOID BETWEEN THE FRAME & CONCRETE.
  5. FOR EPP ADJUSTING RINGS, RINGS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. WHEN A FRAME REQUIRES PITCHING, THE TOP RING SHALL BE A TAPERED ADJUSTMENT RING PER MANUFACTURER'S INSTRUCTIONS.
  6. NO TARRING OR GROUTING IS ALLOWED ON THE INSIDE OF MANHOLE OR ADJUSTMENT JOINTS.
  7. MAXIMUM MANHOLE ADJUSTMENT IS 12". MINIMUM ADJUSTMENT IS 4" UNLESS OFF-ROAD OR IN CURB & GUTTER ROADWAY.
  8. MANHOLE FRAMES SHALL BE SET 1/4" MIN. TO 3/8" MAX. BELOW PAVED SURFACES, AND AT FINAL GRADE IN TURF AREAS.

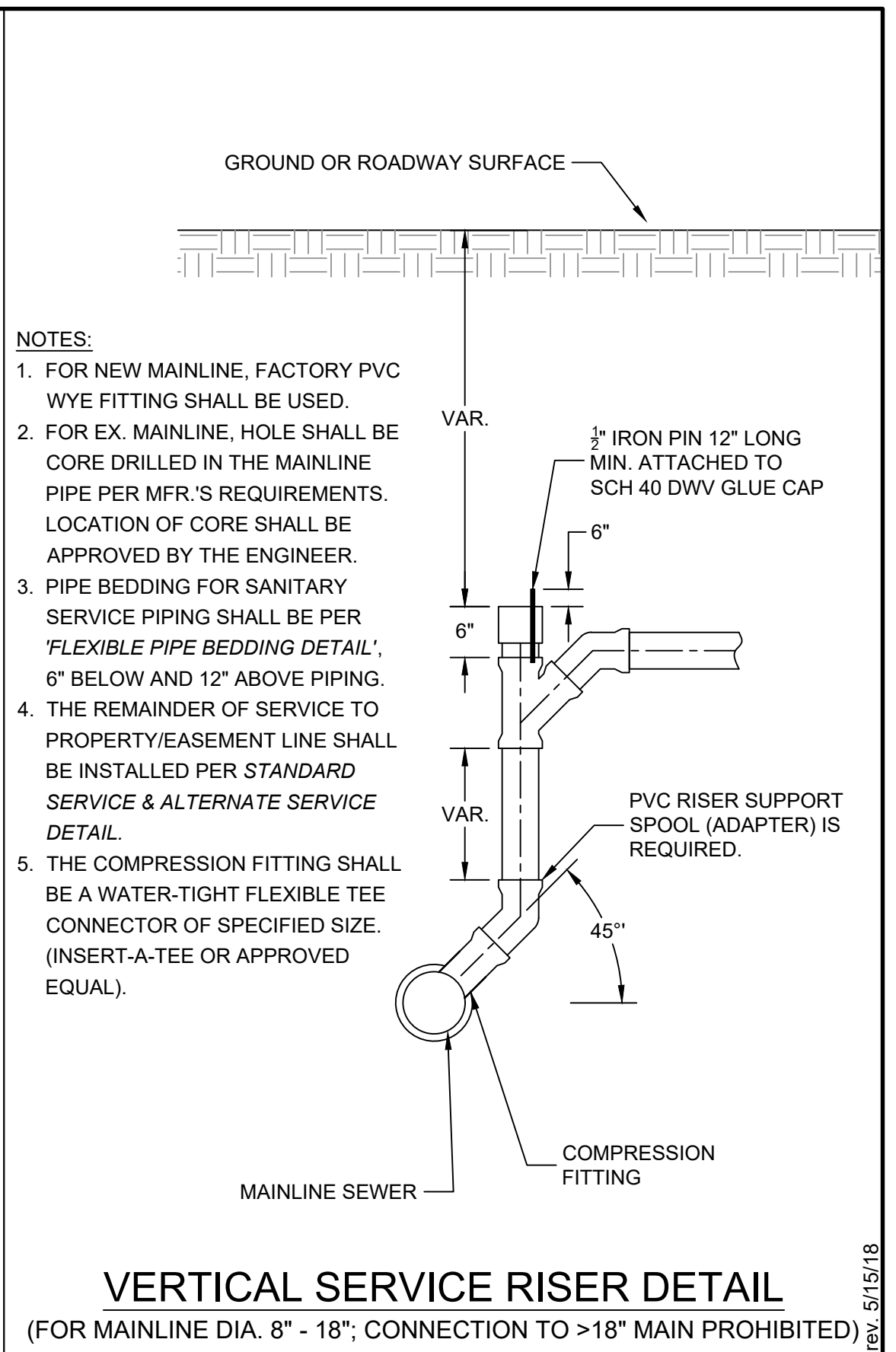
**APPROVED FRAME & LID TABLE**

TYPE	NEENAH FRAME	NEENAH LID	EAST JORDAN FRAME	EAST JORDAN LID
REGULAR	1670-2004	R-1670-0358	00111711	00111732
LOW PROFILE	1670-2008	R-1670-0358	---	---
BOLT DOWN	1915JT08	---	---	---

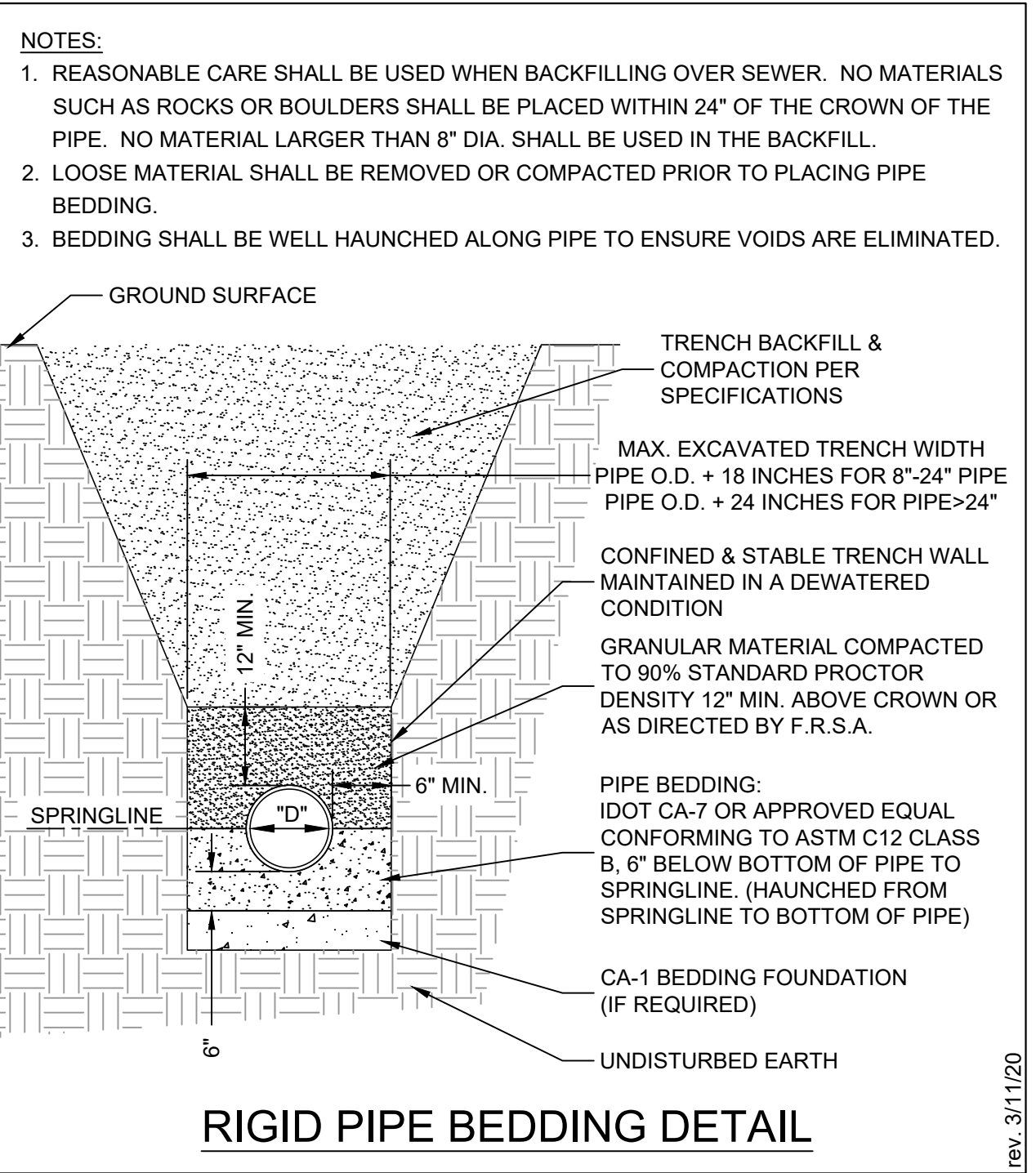


**INSIDE DROP CONNECTION DETAIL**  
(\*STANDARD MANHOLE DETAIL\* SHALL APPLY)

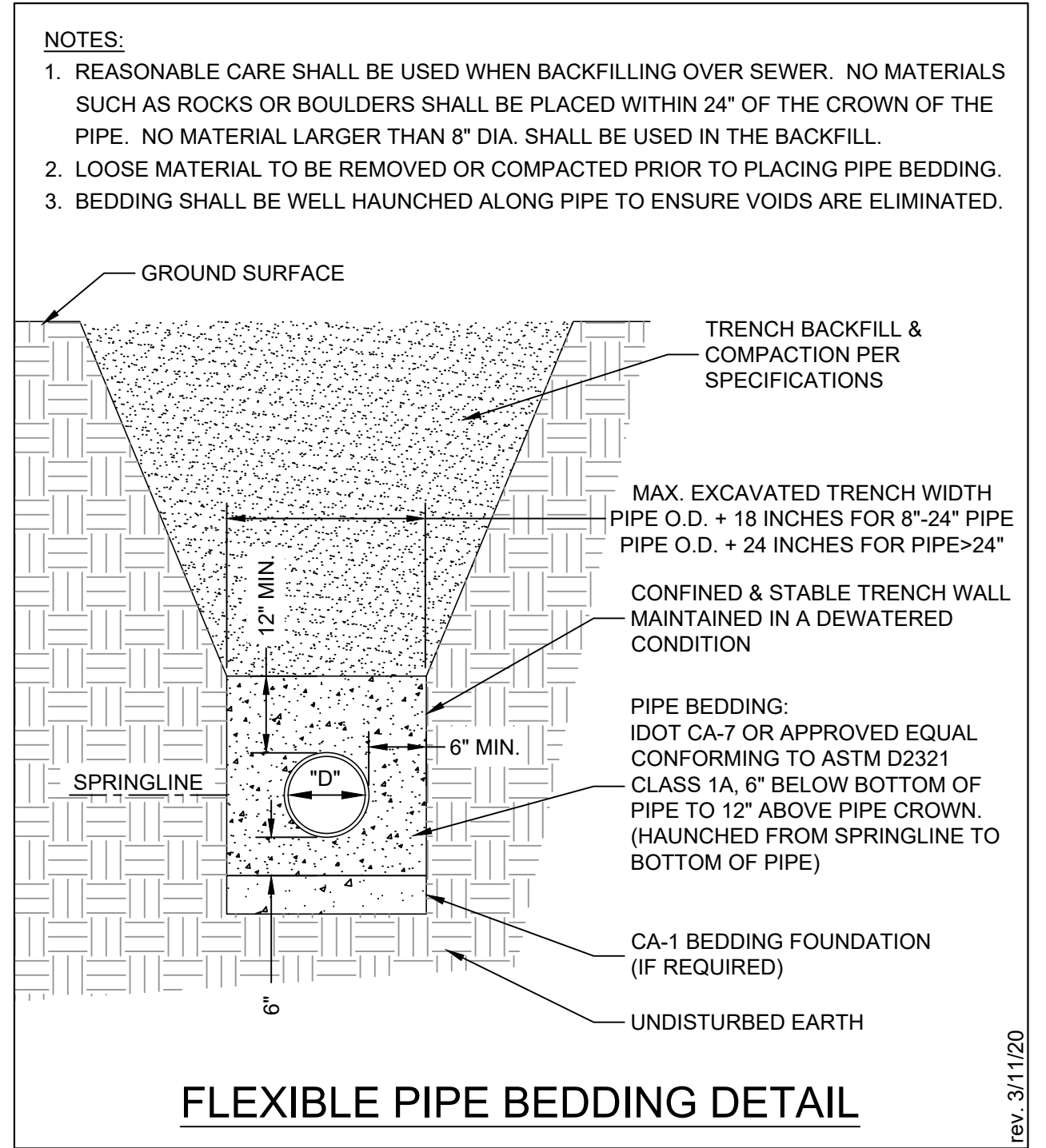
- NOTES:**
1. INSIDE DROP TYPE MANHOLES SHALL BE 5' MIN. INSIDE DIA.
  2. ALL INSIDE DROP CONNECTIONS FOR SERVICES AND COLLECTOR SEWERS SHALL USE THE DROP AS MFG. BY RELINER-DURAN INC., OR EQUAL.
  3. SEE TABLE FOR DROP BOWL AND DROP PIPE SIZES.
  4. ALL INSIDE DROP PIPING SHALL BE PVC SDR35 ASTM-D3034.
  5. ATTACH THE ROUND BACK DROP BOWL AND EACH CLAMPING BRACKET TO THE MANHOLE WALL WITH 3/8" x 1" MIN. STAINLESS STEEL BOLTS AND EPOXY IMPREGNATED LUGS PER MFR.'S RECOMMENDATIONS.
  6. THE DROP BOWL SHALL BE PLACED AT A HEIGHT SO THAT THE FLOW LINE OF THE BOWL IS 2 INCHES BELOW THE INVERT OF THE INCOMING PIPE.
  7. CUT A 1" DEEP BY 3" WIDE "V" NOTCH IN INVERT OF INLET PIPE.
  8. CUT THE TOP HALF OF THE INLET PIPE FLUSH WITH THE INSIDE OF THE MANHOLE WALL.



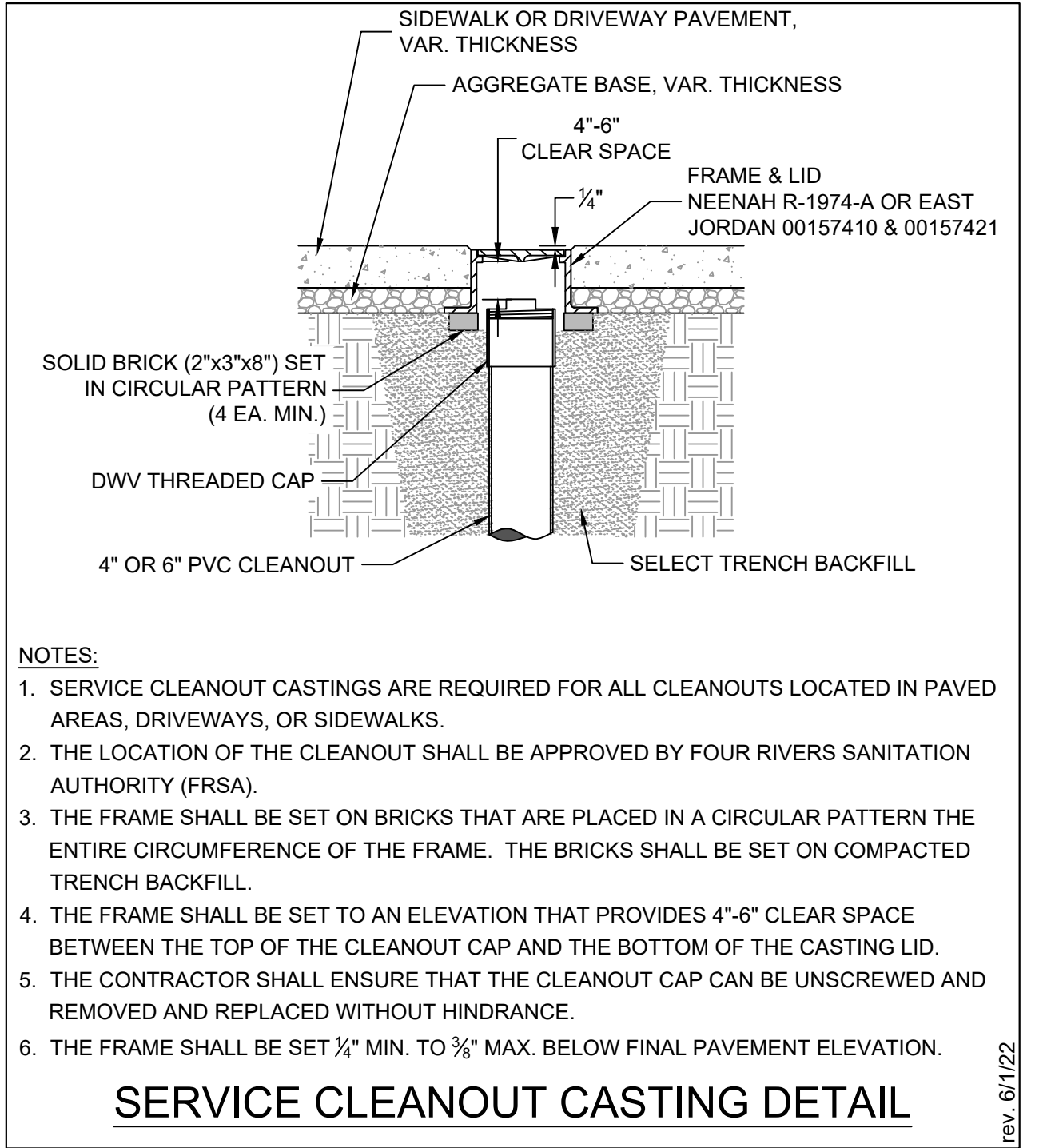
**VERTICAL SERVICE RISER DETAIL**  
(FOR MAINLINE DIA. 8" - 18"; CONNECTION TO >18" MAIN PROHIBITED)



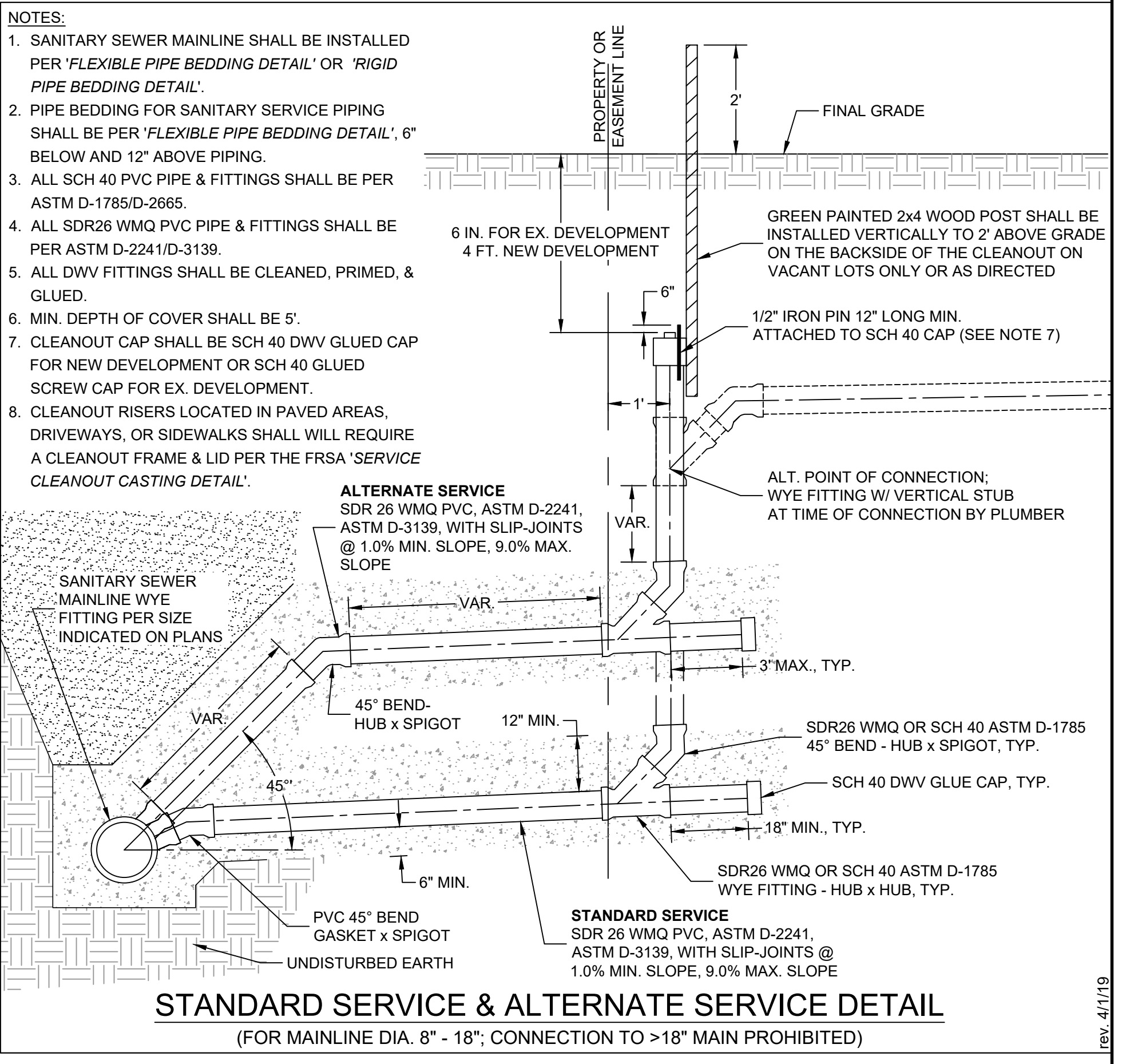
**RIGID PIPE BEDDING DETAIL**



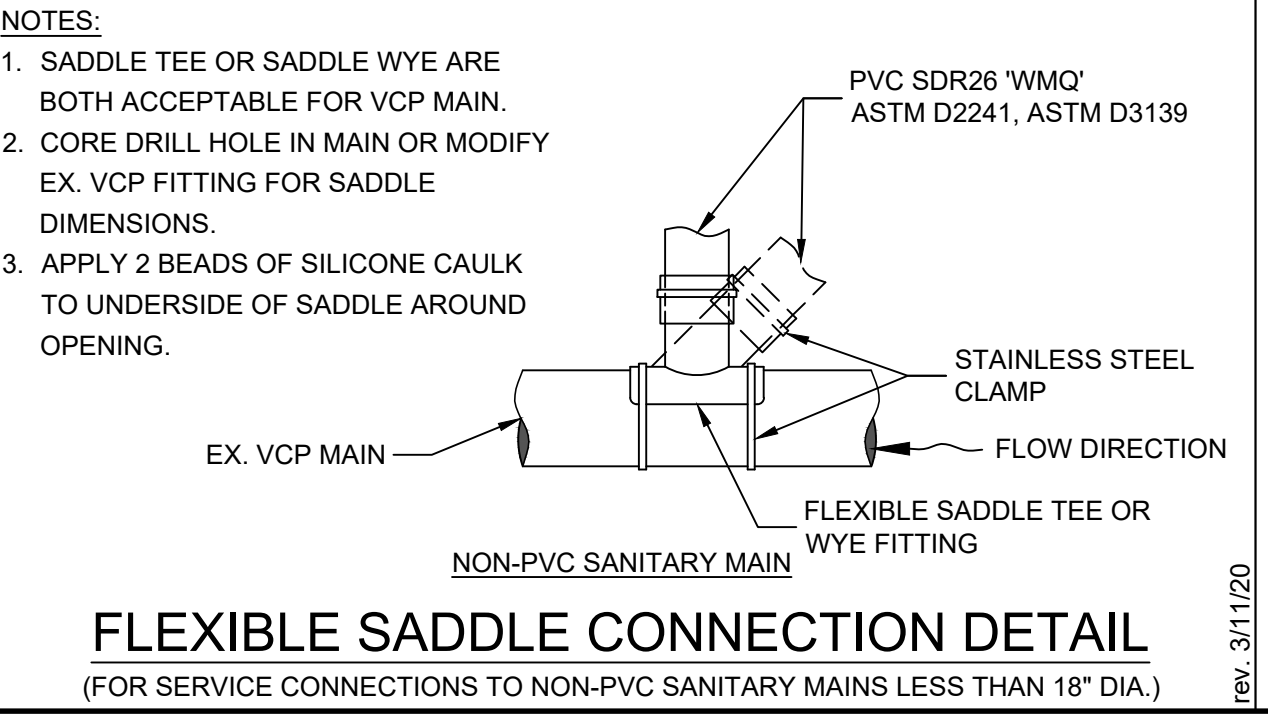
**FLEXIBLE PIPE BEDDING DETAIL**



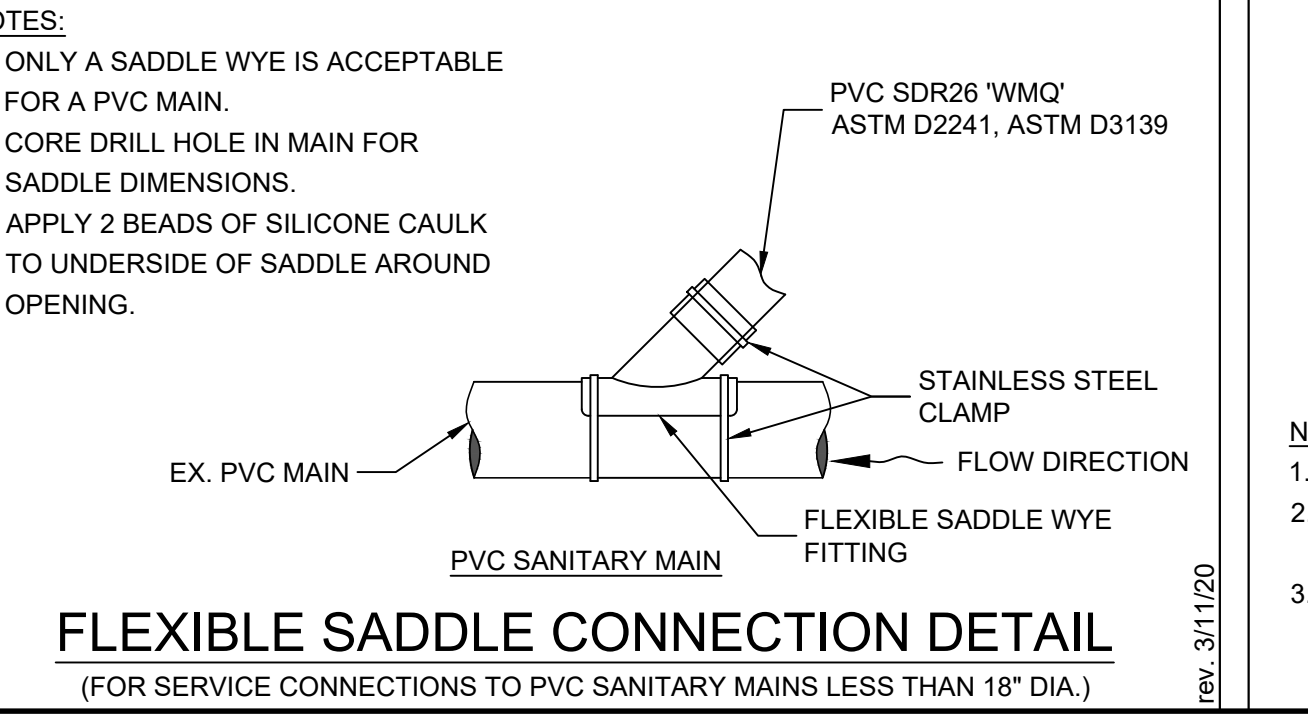
**SERVICE CLEANOUT CASTING DETAIL**



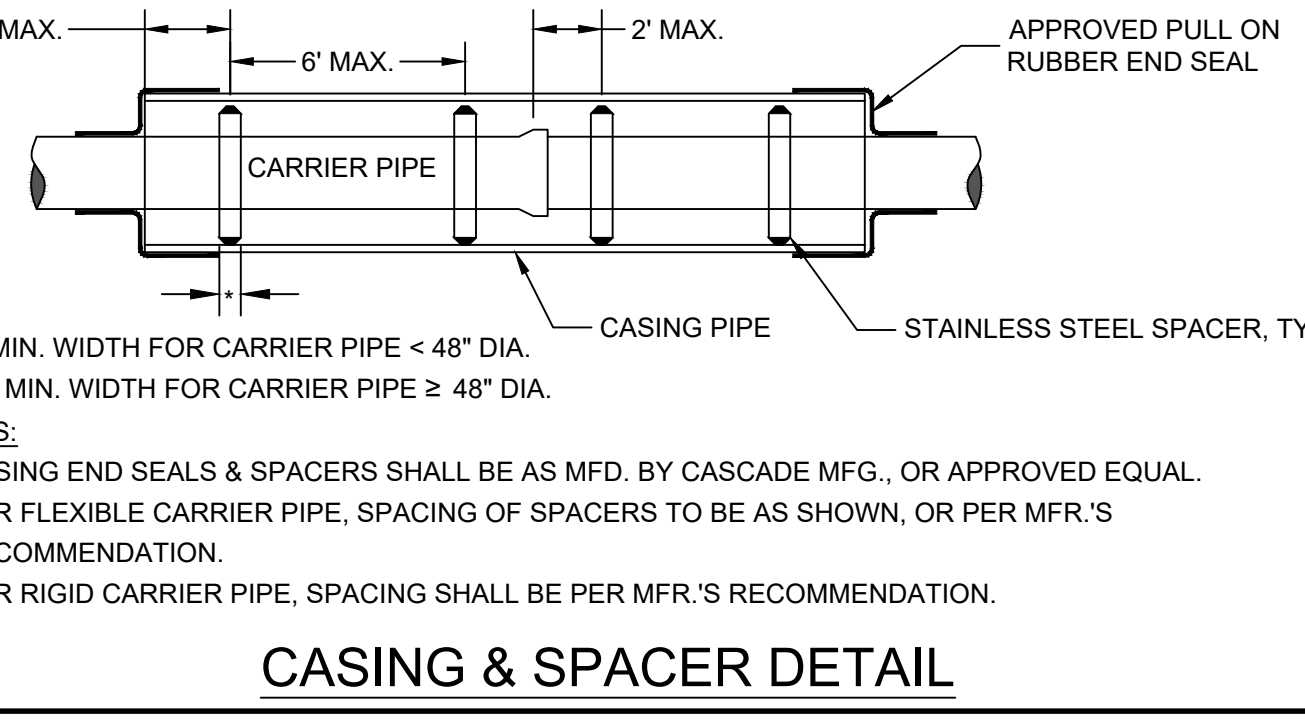
**STANDARD SERVICE & ALTERNATE SERVICE DETAIL**  
(FOR MAINLINE DIA. 8" - 18"; CONNECTION TO >18" MAIN PROHIBITED)



**FLEXIBLE SADDLE CONNECTION DETAIL**  
(FOR SERVICE CONNECTIONS TO NON-PVC SANITARY MAINS LESS THAN 18" DIA.)



**FLEXIBLE SADDLE CONNECTION DETAIL**  
(FOR SERVICE CONNECTIONS TO PVC SANITARY MAINS LESS THAN 18" DIA.)



**CASING & SPACER DETAIL**

**FOUR RIVERS SANITATION AUTHORITY (FRSA) STANDARD DETAIL SHEET**  
(NOT TO SCALE)

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ISSUE 06/01/2022

01/01/2021 Revisions: Manhole Adjustment Detail: Revised notes 1 & 2 with acceptable frames & lids. Modified notes 3, 5, & 7. Added note 8. Revised Rock River Reclamation District to Four Rivers Sanitation Authority. Added Drop Connection Detail: Revised notes 6 & 7. Added note 8. Service Cleanout Casting Detail: Added this detail.