

SECTION

#4 REBAR @ 6" CTRS. EA. WAY @ MIDDLE OF DEVELOPED BASE

NOTES:

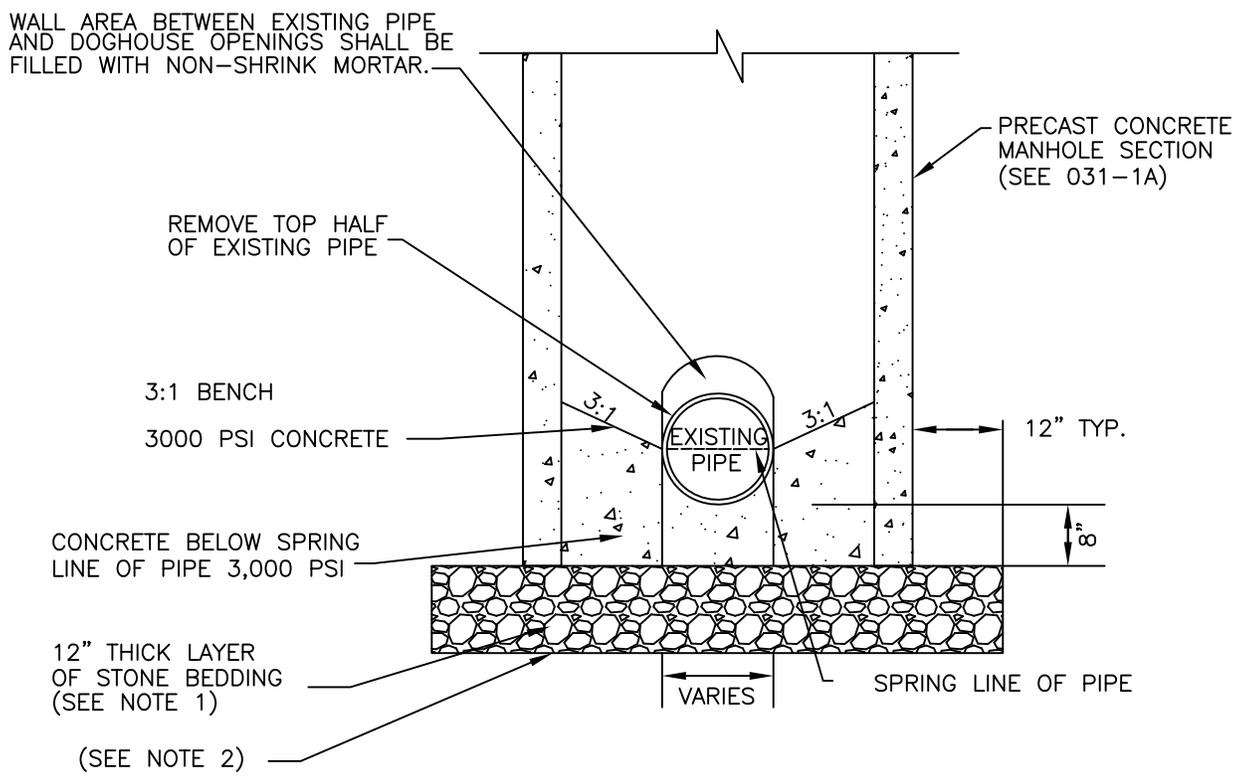
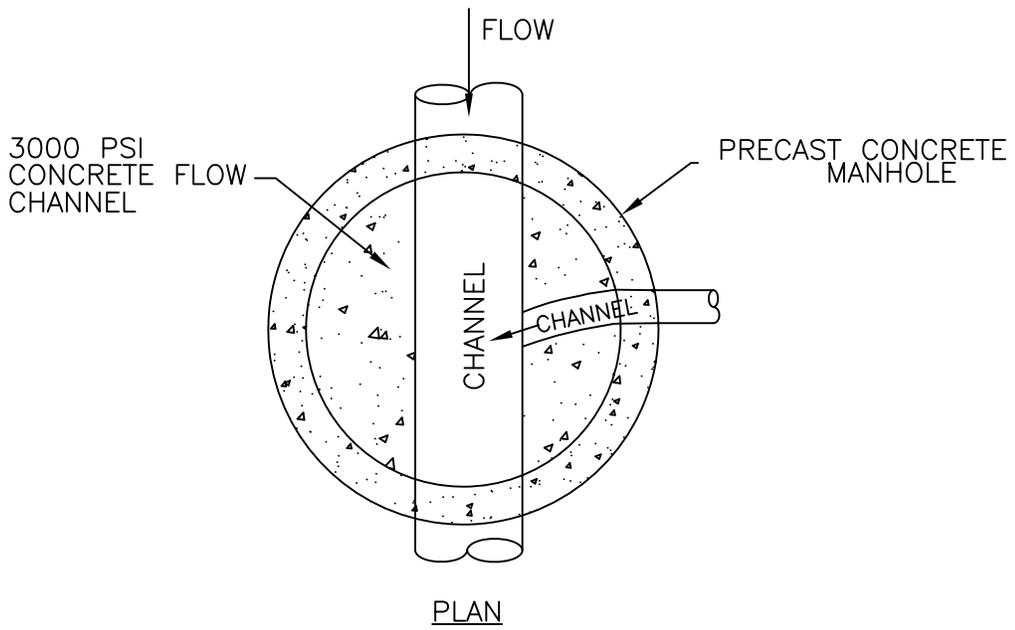
1. PRECAST CONCRETE MANHOLE SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
2. BASES NOT BUILT MONOLITHIC WITH BOTTOM SECTION MAY BE POURED OF MINIMUM 3,000 PSI CONCRETE, HOWEVER THE REQUIREMENTS AND STANDARDS FOR CONCRETE AS DEFINED IN SPECIFICATION 2000 SHALL STILL APPLY.
3. MANHOLE MAY BE TRANSITIONED TO 4' DIA., 8' ABOVE F.L. OF OUTFALL FOR 5' & 6' MANHOLES.
4. WATERPROOFING WILL BE REQUIRED ON THE EXTERIOR SURFACE OF MANHOLE STRUCTURES FROM BASE TO MANHOLE RINGS. PRECAST MANHOLES WILL BE SHOP COATED. THE WATERPROOF COATING SHALL BE KOPPERS COMPANY, INC. BITUMASTIC NO. 50 OR TNE MEC COMPANY, INC. ASPHALT BASE FOUNDATION COAT AND SHALL CONSIST OF TWO COATS WET THICKNESS OF 22-26 MILS WITH A COMBINED DRY THICKNESS OF 31 MILS.
5. THE COMPRESSIVE STRENGTH OF CONCRETE USED IN THE CONSTRUCTION OR PRECAST REINFORCED CONCRETE MANHOLES SHALL NOT BE LESS THAN 4000 PSI.
6. ONLY ECCENTRIC MANHOLE CONES WILL BE ALLOWED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
7. ADDITIONAL BASE THICKNESS FOR MANHOLES GREATER THAN 20' DEEP SHALL BE APPROVED BY THE CITY ENGINEER WITH SUBMITTAL OR APPROPRIATE CALCULATIONS
8. ALL MANHOLE JOINTS SHALL BE SEALED WITH AN EXTERNAL RUBBER, INFI-SHIELD GATOR WRAP AS MANUFACTURED BY SEALING SYSTEMS, INC., OR APPROVED EQUAL.



CITY OF LIBERTY, MO
DEPARTMENT OF PUBLIC WORKS

STANDARD PRECAST MANHOLE
DETAIL

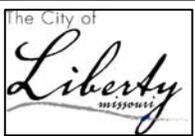
D31-1A
(REV. 04-2023)



TYPICAL CROSS SECTION

1. STONE BEDDING SHALL CONFORM TO SECTIONS 3012 AND 3016.
2. IF MANHOLE EXCAVATION BOTTOM IS IN UNSUITABLE MATERIAL, SUITABLE FILL MATERIAL AND MIRAFI 140N OR APPROVED EQUAL FILTER FABRIC WILL BE REQUIRED PRIOR TO PLACEMENT OF BEDDING.

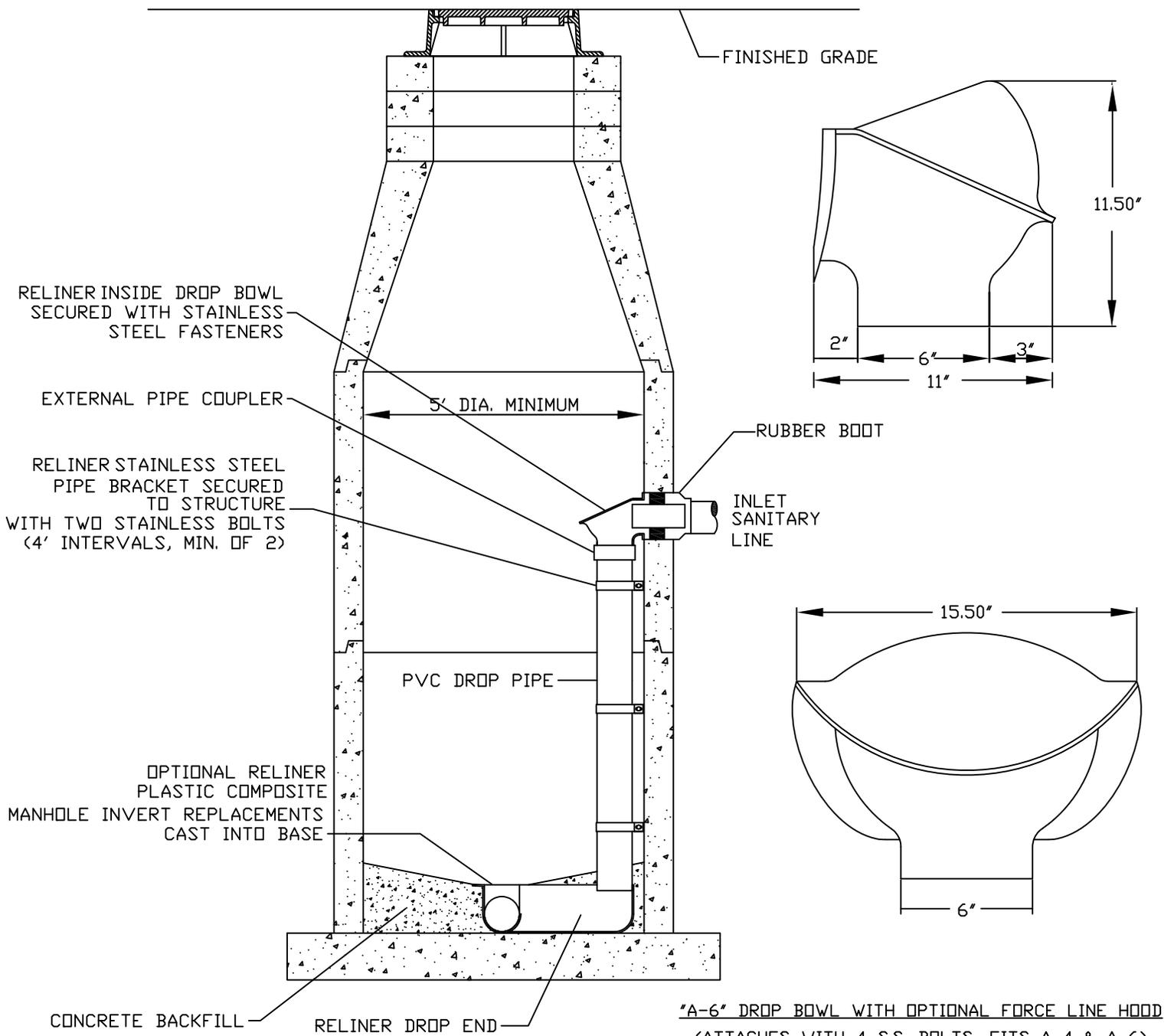
REV 2016



CITY OF LIBERTY, MO
DEPARTMENT OF
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SANITARY SEWER
DOGHOUSE MANHOLE
DETAIL

D31-1B



1. FOR ALL DIMENSIONS NOT SHOWN, SEE STANDARD MANHOLE DETAIL.
2. WATERPROOFING WILL BE REQUIRED ON THE EXTERIOR SURFACE OF MANHOLE STRUCTURES FROM BASE TO MANHOLE RINGS. PRECAST MANHOLES WILL BE SHOP COATED. THE WATERPROOF COATING SHALL BE KOPPERS COMPANY, INC. BITUMASTIC NO. 50 OR TNE MEC CO., INC. ASHALT BASE FOUNDATION COAT AND SHALL CONSIST OF TWO COATS WET THICKNESS OF 22-26 MILS WITH A COMBINED DRY THICKNESS OF 31 MILS.
3. ALL MANHOLE JOINTS SHALL BE SEALED WITH AN EXTERNAL RUBBER SLEEVE, INFI-SHIELD GATOR WRAP AS MANUFACTURED BY SEALING SYSTEMS INC., OR APPROVED EQUAL.

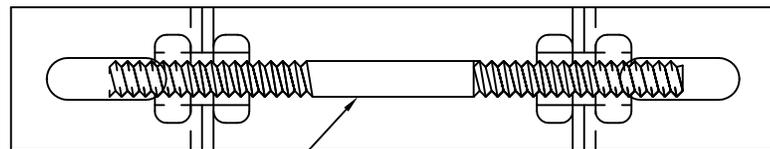
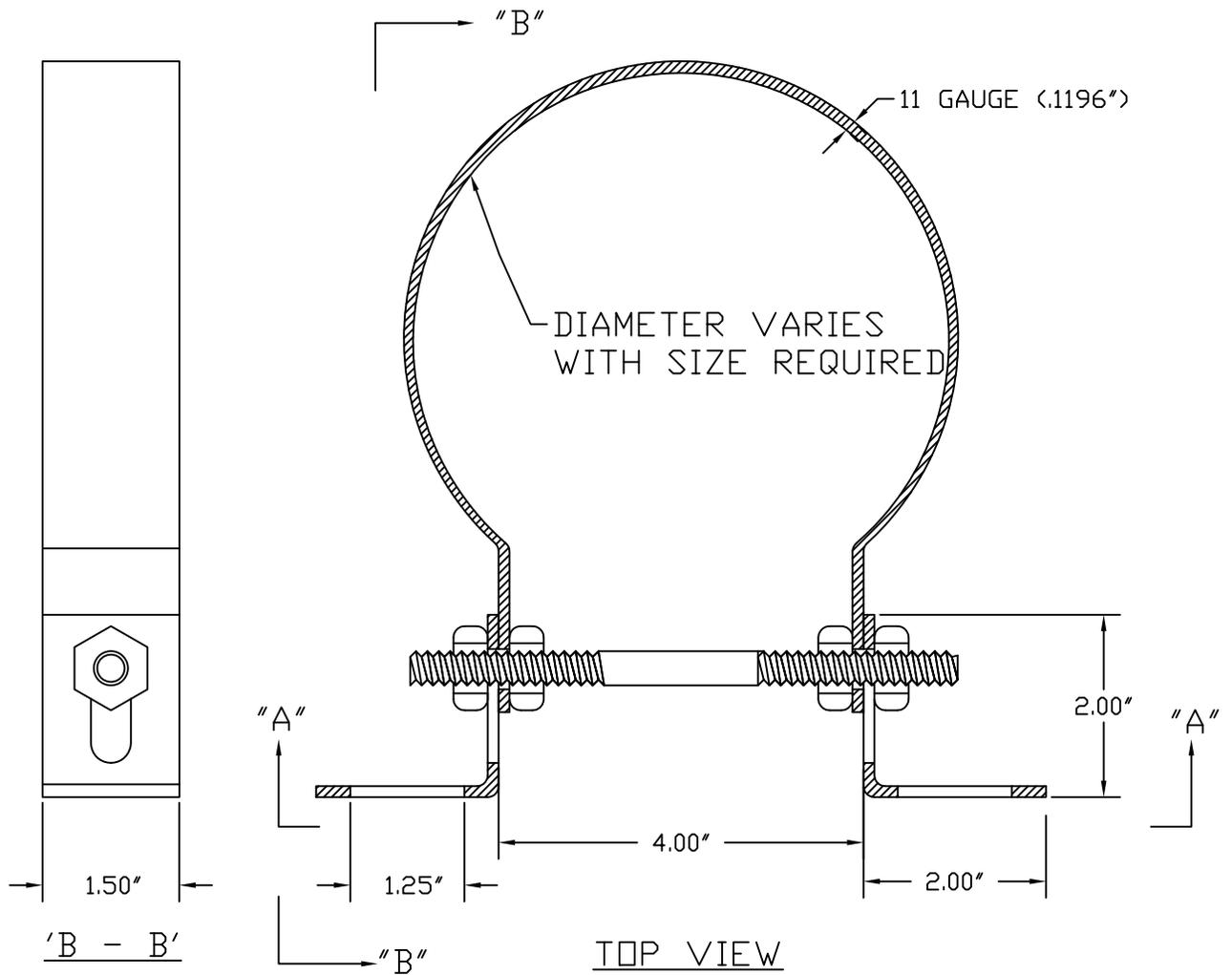
REV 2009



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INSIDE
DROP
MANHOLE
DETAILS

D31-2A



3/8" DIAMETER STAINLESS
STEEL PINCH BOLT

SPECIFICATIONS:

- 1) CLAMP AND BRACKETS IS TYPE 304 STAINLESS STEEL, 11 GAUGE (.1196").
 - 2) 3/8" Ø PINCH BOLT AND NUTS IS TYPE 18-8 STAINLESS STEEL.
 - 3) WIDE RANGE OF SIZES FOR SDR35, SCH40, C100-C900 STOCKED FOR 4" - 30"
- OTHER SIZES AVAILABLE.

'A - A'

REV 2009

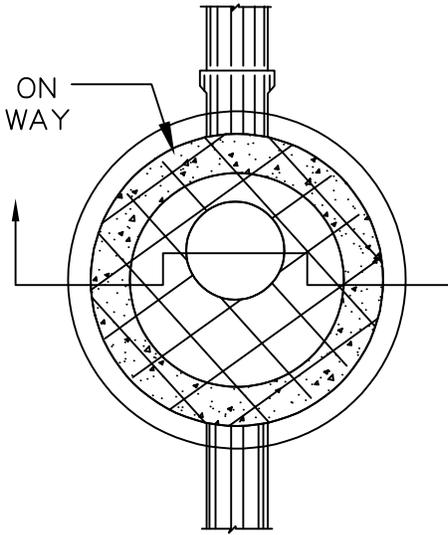


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STAINLESS STEEL
ADJUSTABLE
CLAMPING
BRACKETS

D31-2B

#5 BARS AT 6" ON CENTERS EACH WAY



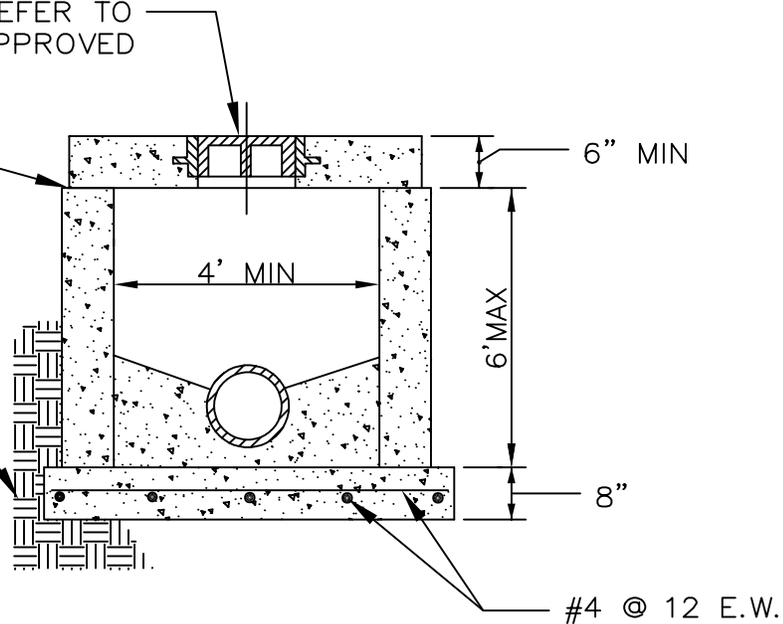
USE OF A STANDARD LID AND RING SHALL BE ALLOWED WHERE GRADE PERMITS (SEE SPECIFICATIONS FOR APPROVED TYPES.)

PLAN

CAST IN MAN-HOLE TOP. REFER TO SPECIFICATION 3000 FOR APPROVED RING AND COVER TYPES.

GASKET SHALL BE KENT-SEAL #2 MIN 2-1" DIA OR 1-2" DIA BEAD, OR APPROVED EQUAL

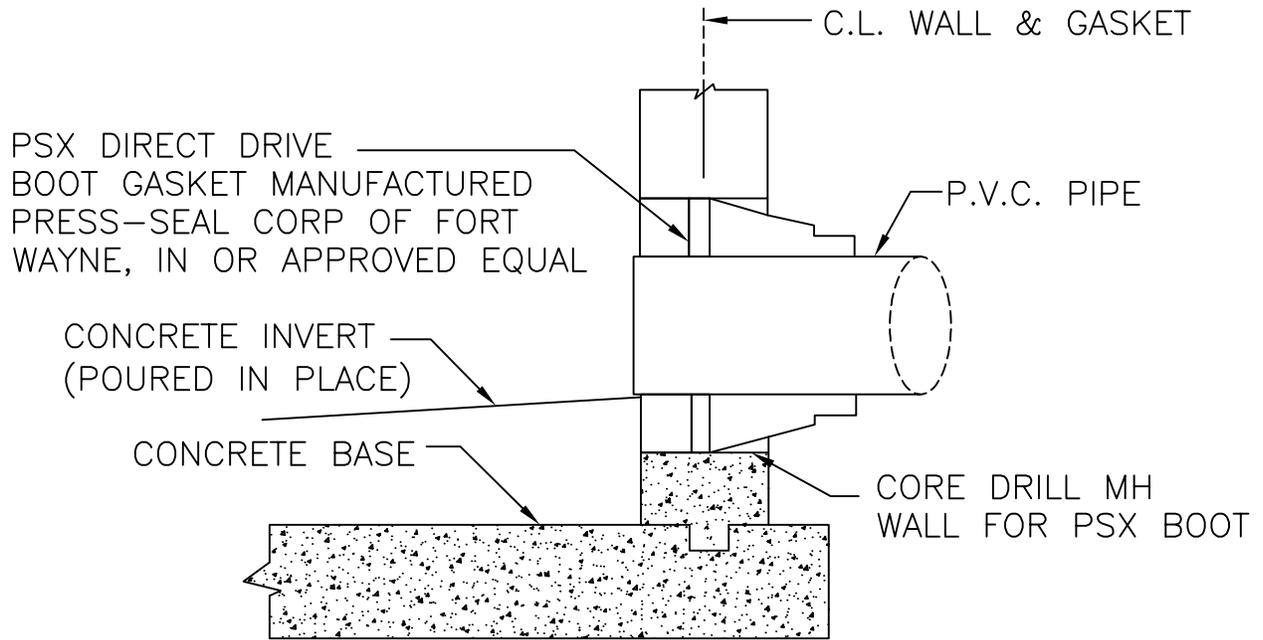
COMPACTED EARTH



SECTION

NOTES:

1. FOR ALL DIMENSIONS NOT SHOWN, SEE STANDARD MANHOLE DETAIL D31-1A.
2. WATERPROOFING WILL BE REQUIRED ON THE EXTERIOR SURFACE OF MANHOLE STRUCTURES FROM BASE TO MANHOLE RINGS. PRECAST MANHOLES WILL BE SHOP COATED. THE WATERPROOF COATING SHALL BE KOPPERS COMPANY, INC. BITUMASTIC NO. 50 OR TNEMEC COMPANY, INC. ASPHALT BASE FOUNDATION COAT AND SHALL CONSIST OF TWO COATS WET THICKNESS OF 22-26 MILS WITH A COMBINED DRY THICKNESS OF 31 MILS.
3. ALL MANHOLE JOINTS SHALL BE SEALED WITH AN EXTERNAL RUBBER, INFI-SHIELD GATOR WRAP AS MANUFACTURED BY SEALING SYSTEMS, INC., OR APPROVED EQUAL.
4. WHERE SHALLOW MANHOLES ARE ELEVATED (RAISED ABOVE GRADE) A FLAT TOP MANHOLE SLAB SHALL BE USED. SLAB IS TO HAVE #5 BARS @ 6" O.C FOR REINFORCING. SLAB IS TO BE A MINIMUM OF 6" THICK. SLAB OUTER DIAMETER SHALL MATCH OUTER DIAMETER OF THE PRIMARY MANHOLE BARREL. SLAB OPENING FOR MANHOLE COVER/LID SHALL BE CENTERED WITHIN THE SLAB.



NOTES:

1. ALL PIPE CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE-DRILLED.

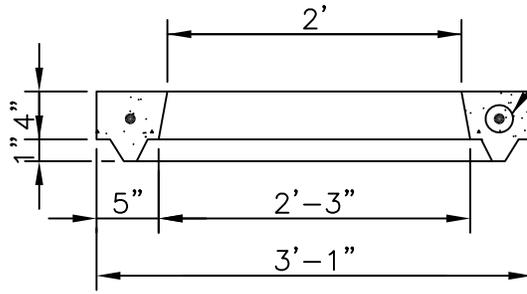
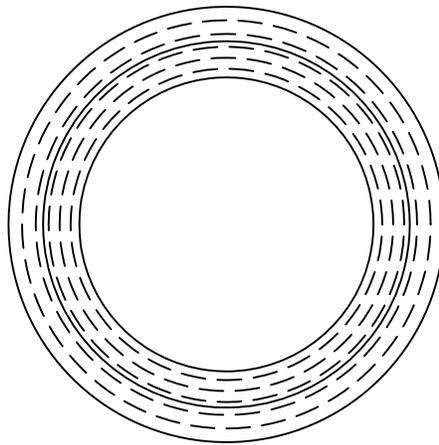
REV 2017



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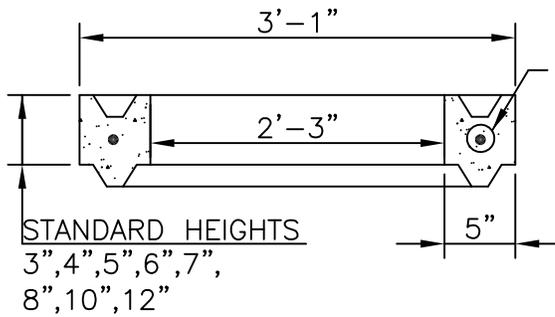
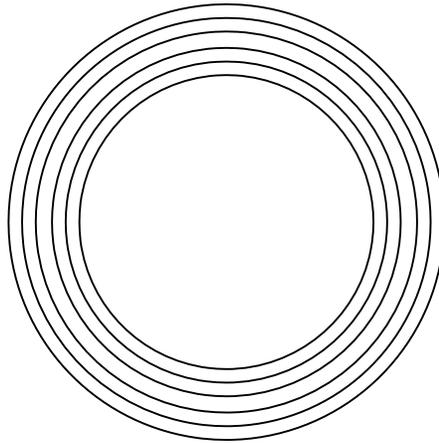
MANHOLE
 CONNECTIONS
 W/PVC SEWER PIPE

D31-4



#4 WIRE
CENTERED

**REDUCER
GRADE RING**
WEIGHT: 165 LB.



#4 WIRE
CENTERED

GRADE RING
WEIGHT: 41 LB./V IN.

STANDARD HEIGHTS
3", 4", 5", 6", 7",
8", 10", 12"

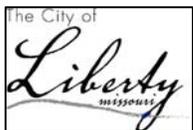
NOTES:

GRADE RINGS SHALL MEET REQUIREMENTS OF
ASTM DESIGNATION C-478-80 STANDARD
SPECIFICATION FOR PRECAST REINFORCED
CONCRETE MANHOLE SECTIONS.

CONCRETE: 4000 P.S.I.

REINFORCEMENT: #4 WIRE, ASTMA-82

REV 2009



CITY OF LIBERTY, MO
DEPARTMENT OF
PUBLIC WORKS

GRADE RINGS

D31-5