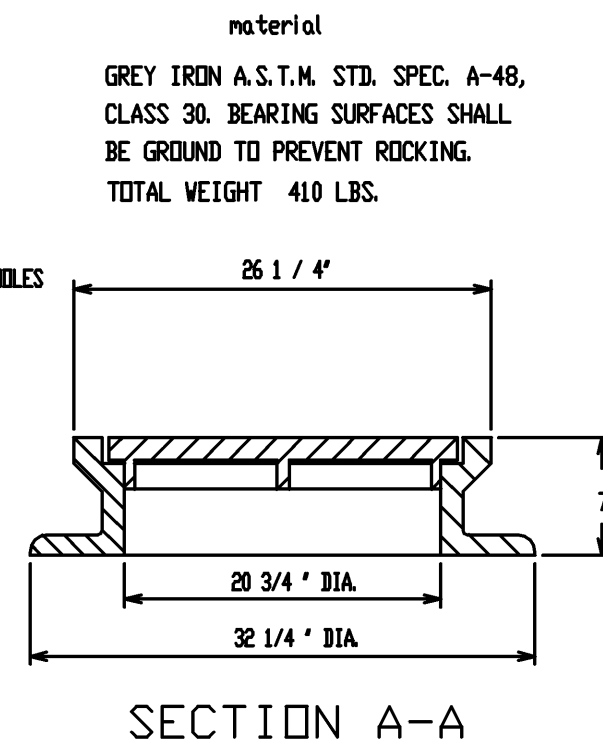
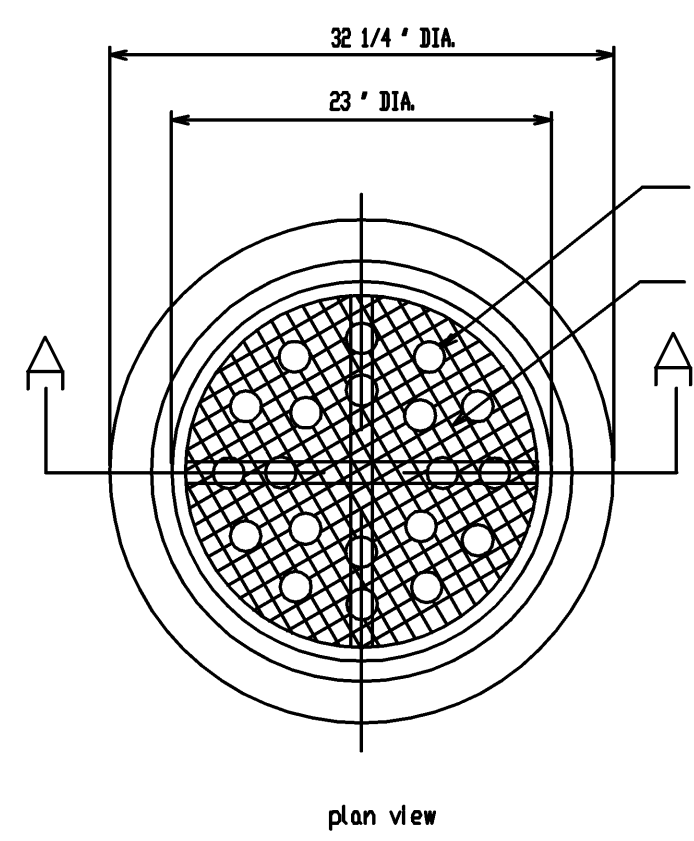
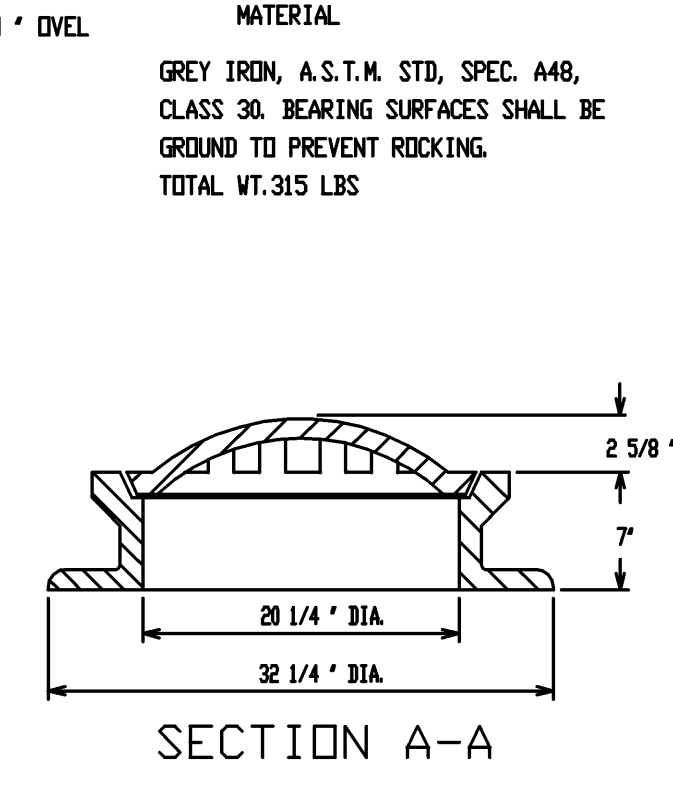
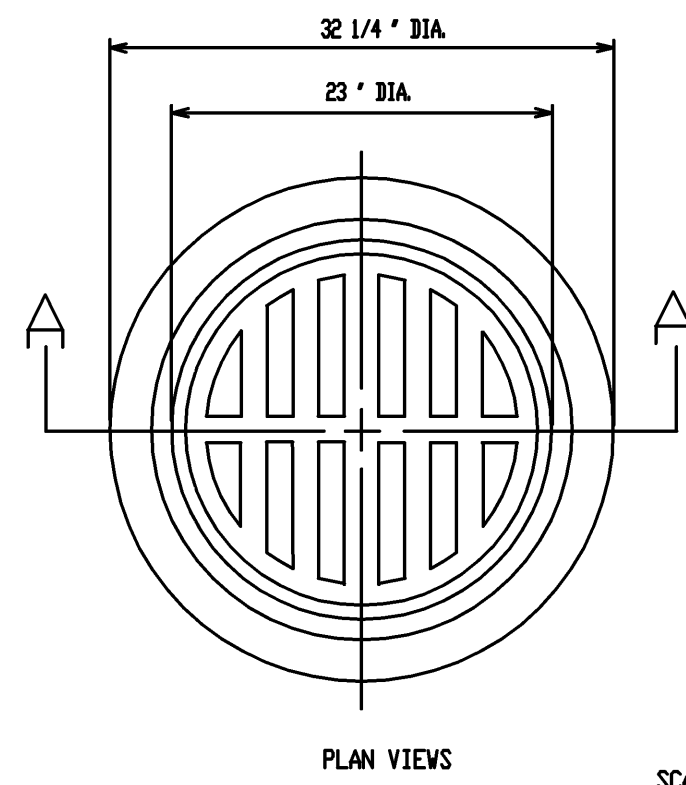


A SOLID COVER SHALL BE PROVIDED IN LIEU OF THE PERFORATED COVER SHOWN, WHEN THE COVER IS LOCATED WITHIN THE SIDE WALK AREA.



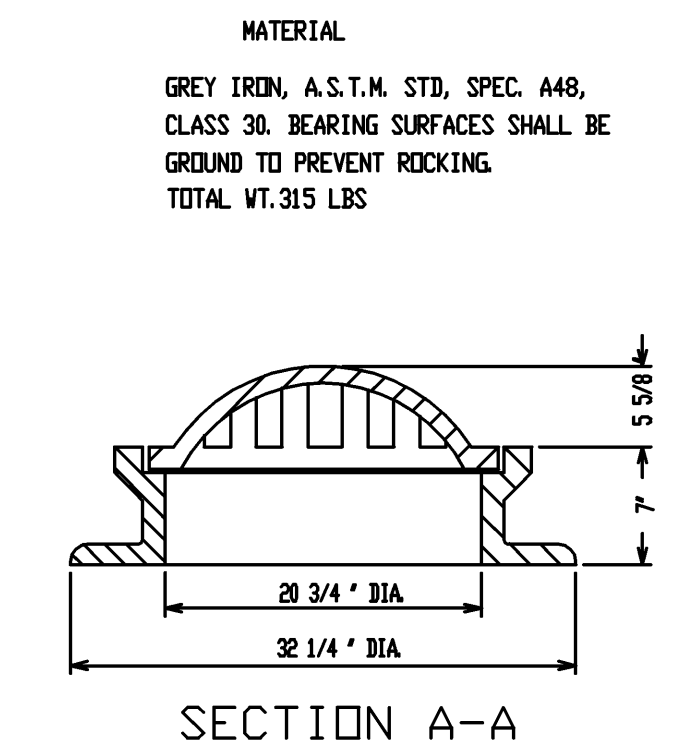
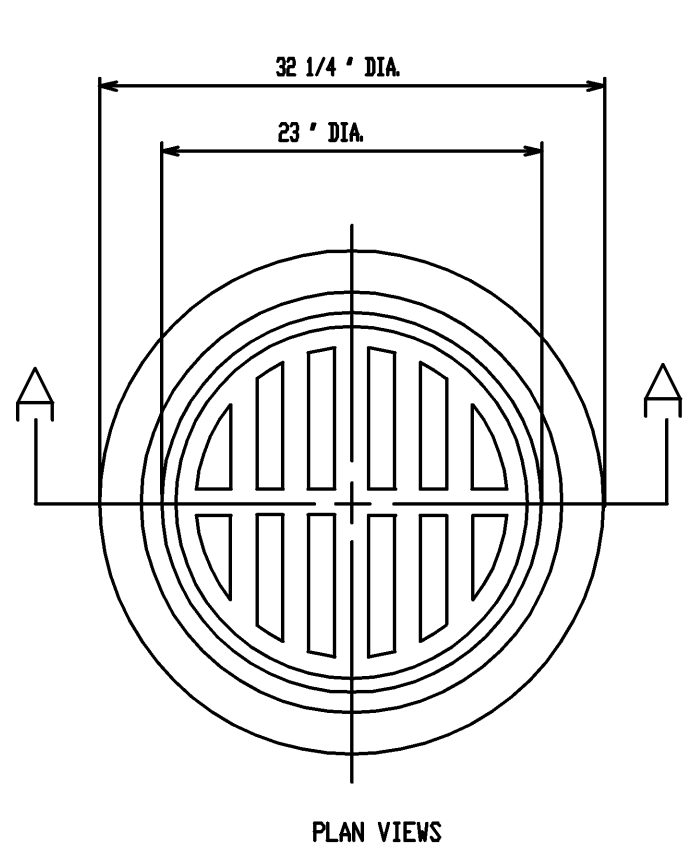
E.J.I.W. NO. 1010 FRAME WITH TYPE "B" COVER  
SCALE 1" = 1'-0" **FRAME & COVER "A"**

A SOLID COVER SHALL BE PROVIDED IN LIEU OF THE TYPE "N" DVEL GRATE SHOWN, WHEN THE COVER IS LOCATED WITHIN A SIDEWALK AREA. TYPICALLY USED IN LAWN AREA.

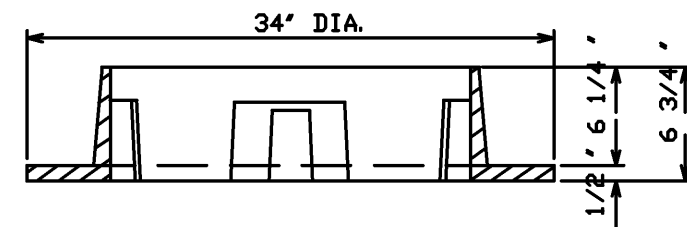


E.J.I.W. NO. 1010 FRAME WITH TYPE "N" GRATE  
SCALE 1" = 1'-0" **FRAME & COVER "B"**

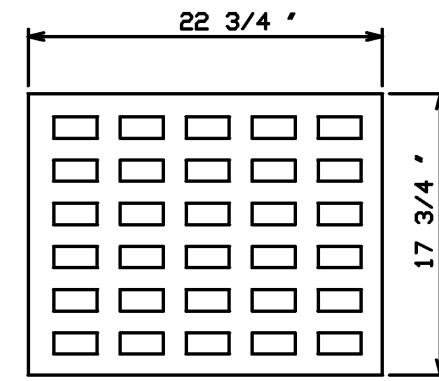
TYPICALLY USED IN DITCH AREAS.



E.J.I.W. NO. 1010 FRAME WITH TYPE "D" GRATE  
SCALE 1" = 1'-0" **FRAME & COVER "C"**

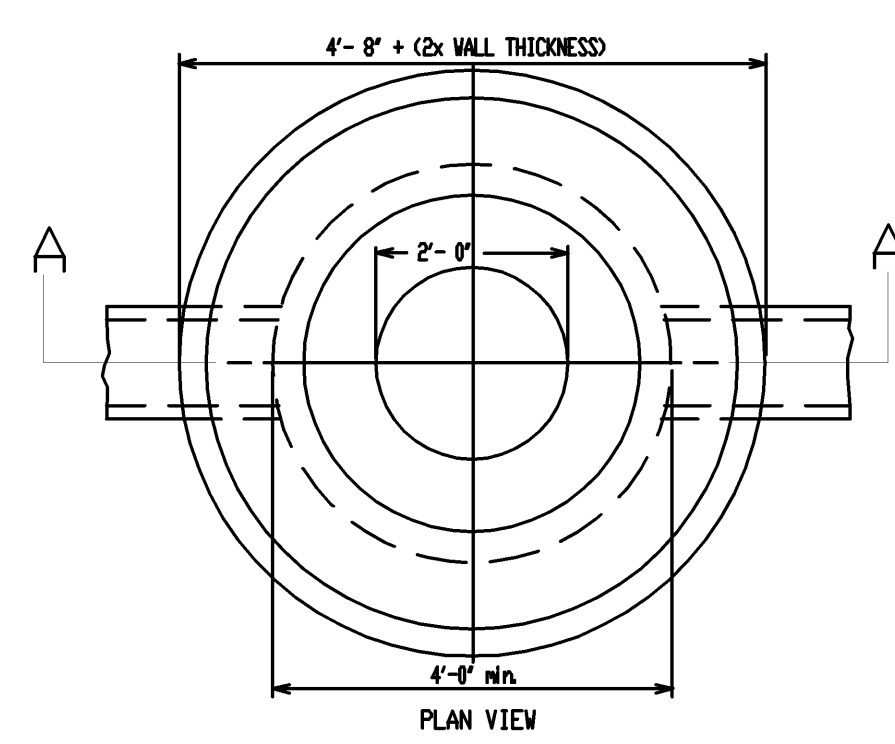


MATERIAL  
GREY IRON, A.S.T.M. STD. SPEC. A48, CLASS 30. BEARING SURFACES SHALL BE GROUNDED TO PREVENT ROCKING.  
TOTAL WEIGHT 315 LBS.



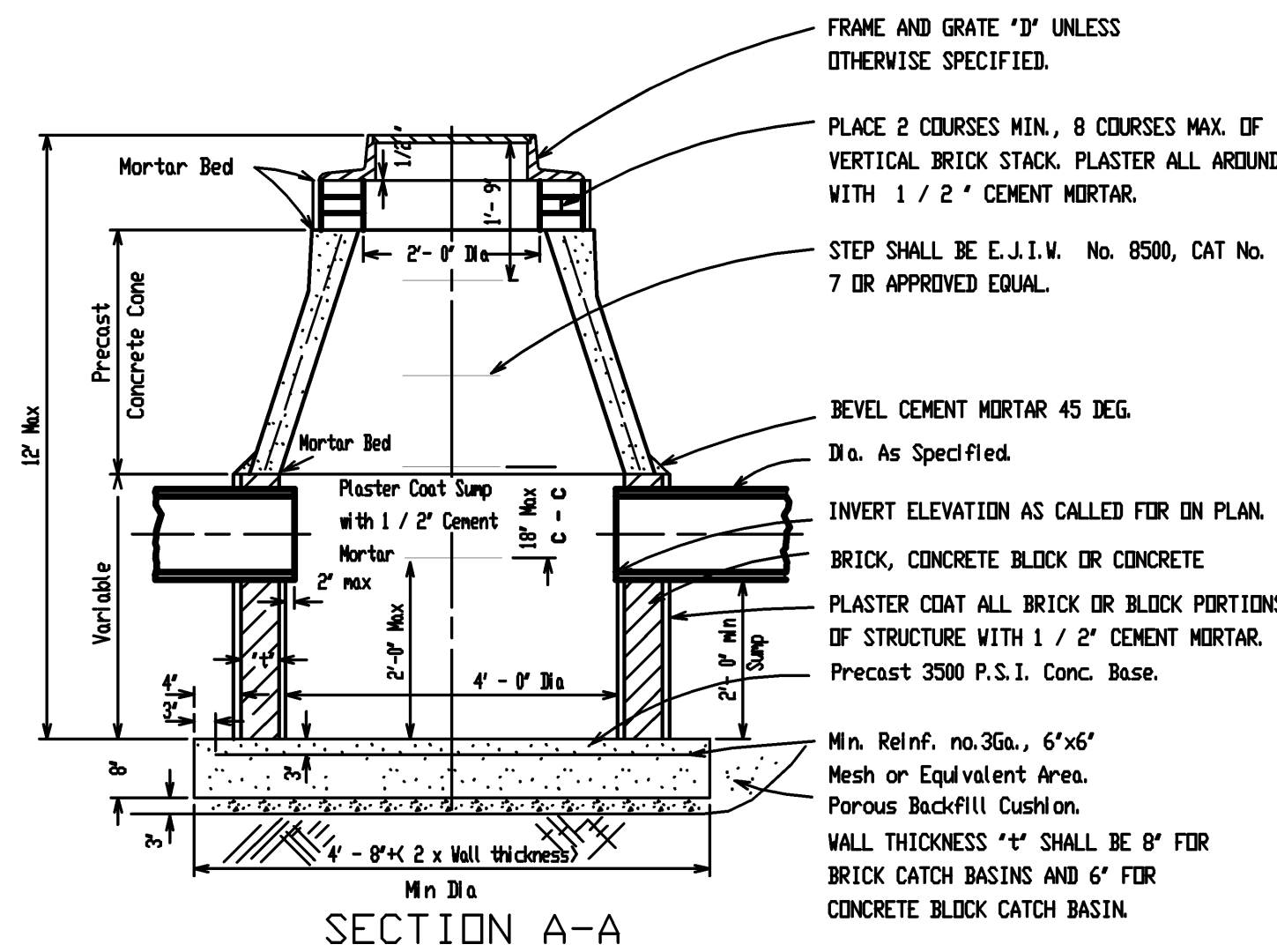
PLAN OF GRATE  
Series 5000 MI Cover  
Trout Logo Grate  
DUMP NO WASTE!

E.J.I.W. NO. 5080  
SCALE 1" = 1'-0" **FRAME & GRATE "D"**



NOTE:  
ALL VERTICAL HOLES IN CONCRETE BLOCK STRUCTURE WALLS SHALL BE COMPLETELY FILLED WITH MORTAR. ALL VERTICAL WALL JOINTS SHALL BE CEMENT POINTED.

BLOCK WALL CONSTRUCTION WILL BE ALLOWED ONLY WHEN AUTHORIZED BY THE ENGINEER.

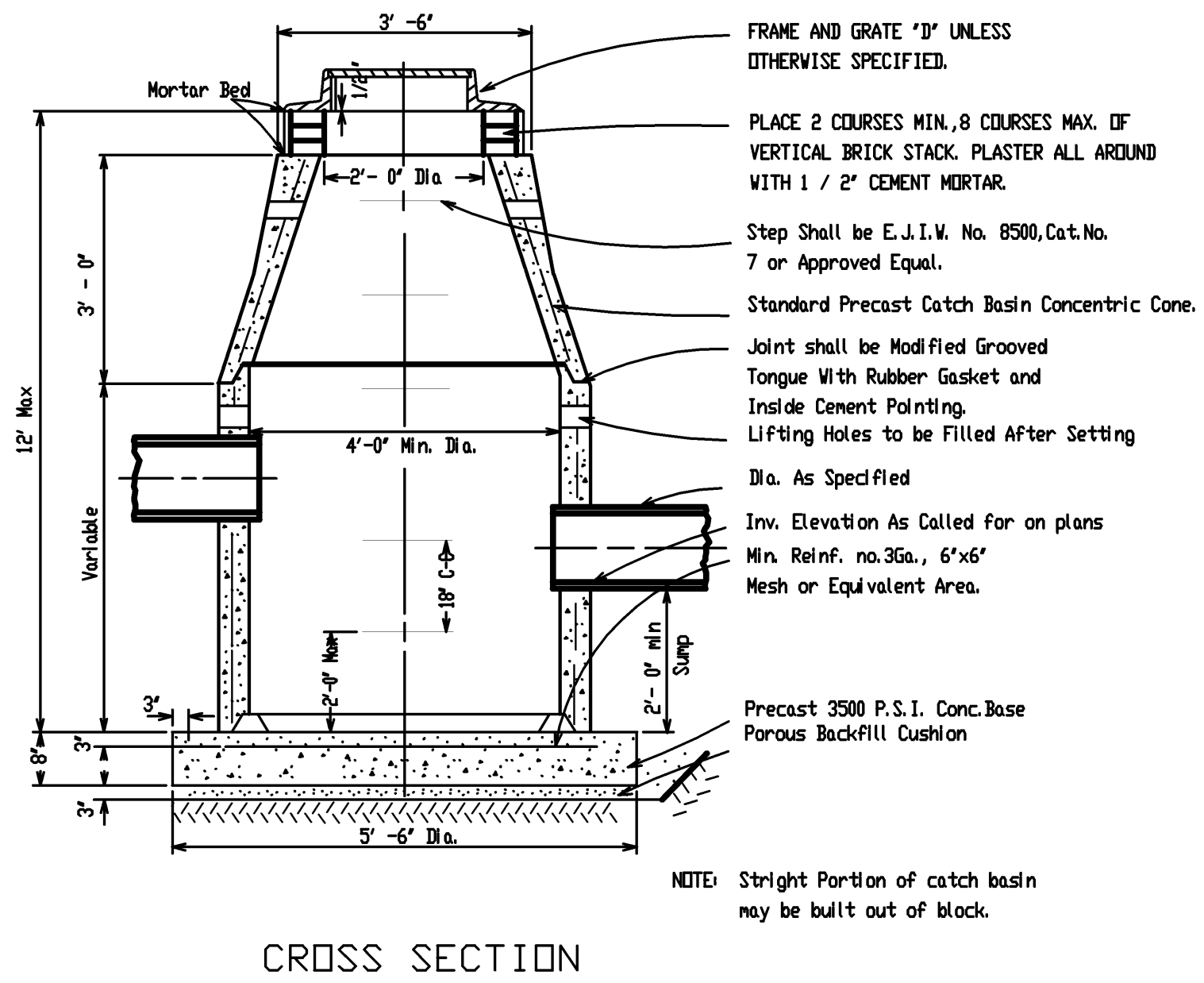


FRAME AND GRATE "D" UNLESS OTHERWISE SPECIFIED.  
PLACE 2 COURSES MIN., 8 COURSES MAX. OF VERTICAL BRICK STACK, PLASTER ALL AROUND WITH 1 / 2" CEMENT MORTAR.  
STEP SHALL BE E.J.I.W. No. 8500, CAT. No. 7 OR APPROVED EQUAL.  
BEVEL CEMENT MORTAR 45 DEG. Dia. As Specified.  
INVERT ELEVATION AS CALLED FOR ON PLAN.  
BRICK, CONCRETE BLOCK OR CONCRETE  
PLASTER COAT ALL BRICK OR BLOCK PORTIONS OF STRUCTURE WITH 1 / 2" CEMENT MORTAR.  
Precast 3500 P.S.I. Conc. Base.  
Min. Reinf. no.3Ga., 6"x6" Mesh or Equivalent Area.  
Porous Backfill Cushion.  
WALL THICKNESS "t" SHALL BE 8" FOR BRICK CATCH BASINS AND 6" FOR CONCRETE BLOCK CATCH BASIN.

SCALE 1 / 2" = 1'-0" **CATCH BASIN "A"**

NOTE:

No Opening Shall Be Made In Precast Units Which Would Leave Less Than 24" of Undisturbed Precast Pipe or Void Remains More Than 30% of the Circumference Along Any Horizontal Plane. If Those Requirement Cannot be Followed, the catch basin Shall Be Built Of Brick Or Block When Approved, To a Minimum of 8" Above Such Openings.



FRAME AND GRATE "D" UNLESS OTHERWISE SPECIFIED.  
PLACE 2 COURSES MIN., 8 COURSES MAX. OF VERTICAL BRICK STACK, PLASTER ALL AROUND WITH 1 / 2" CEMENT MORTAR.  
Step Shall be E.J.I.W. No. 8500, Cat.No. 7 or Approved Equal.  
Standard Precast Catch Basin Concentric Cone.  
Joint shall be Modified Grooved Tongue With Rubber Gasket and Inside Cement Pointing.  
Lifting Holes to be Filled After Setting  
Dia. As Specified  
Inv. Elevation As Called for on plans  
Min. Reinf. no.3Ga., 6"x6" Mesh or Equivalent Area.  
Precast 3500 P.S.I. Conc. Base  
Porous Backfill Cushion

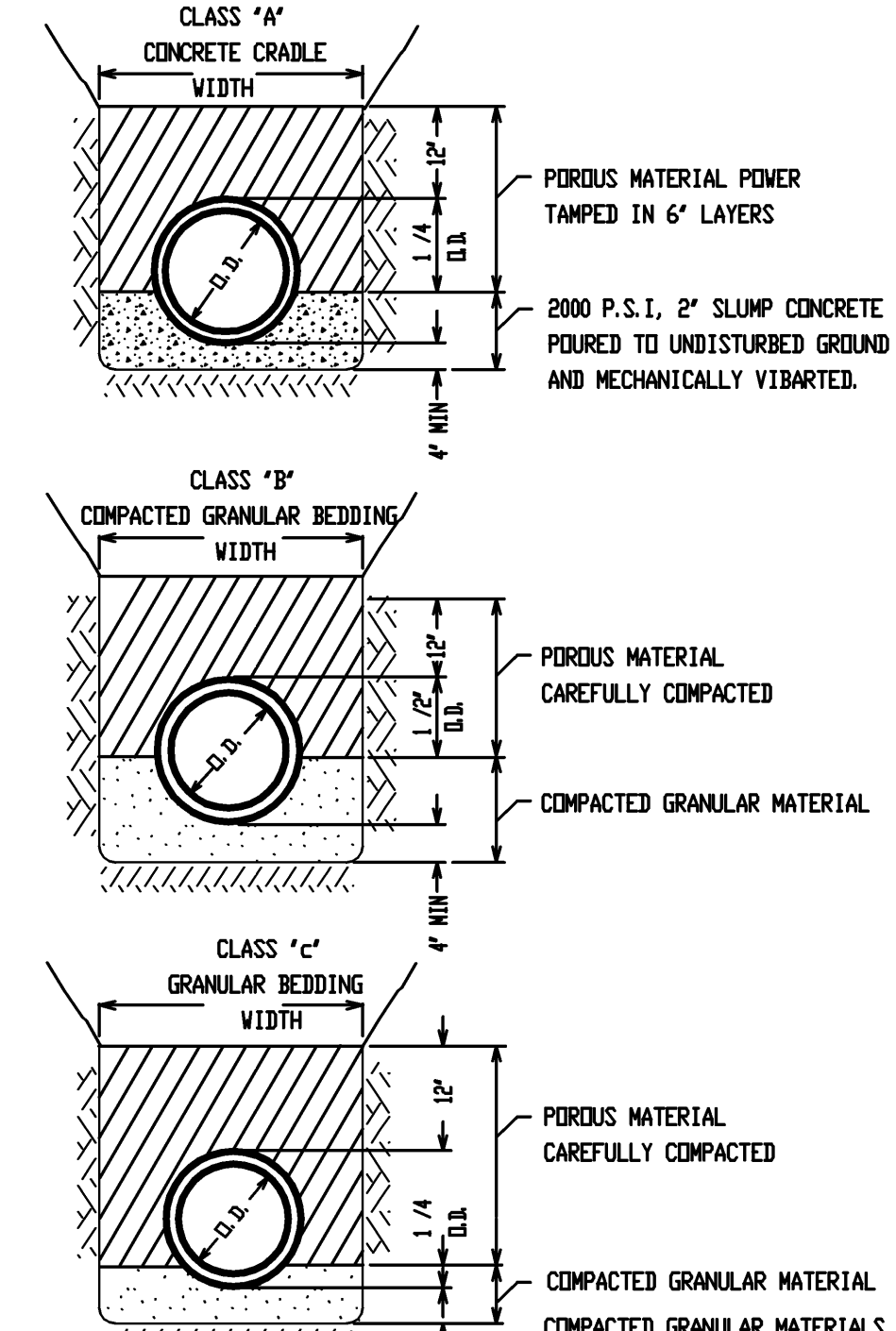
NOTE: Straight Portion of catch basin may be built out of block.

**CROSS SECTION**

Scale 1 / 2" = 1' **CATCH BASIN "B"**

NOTE:

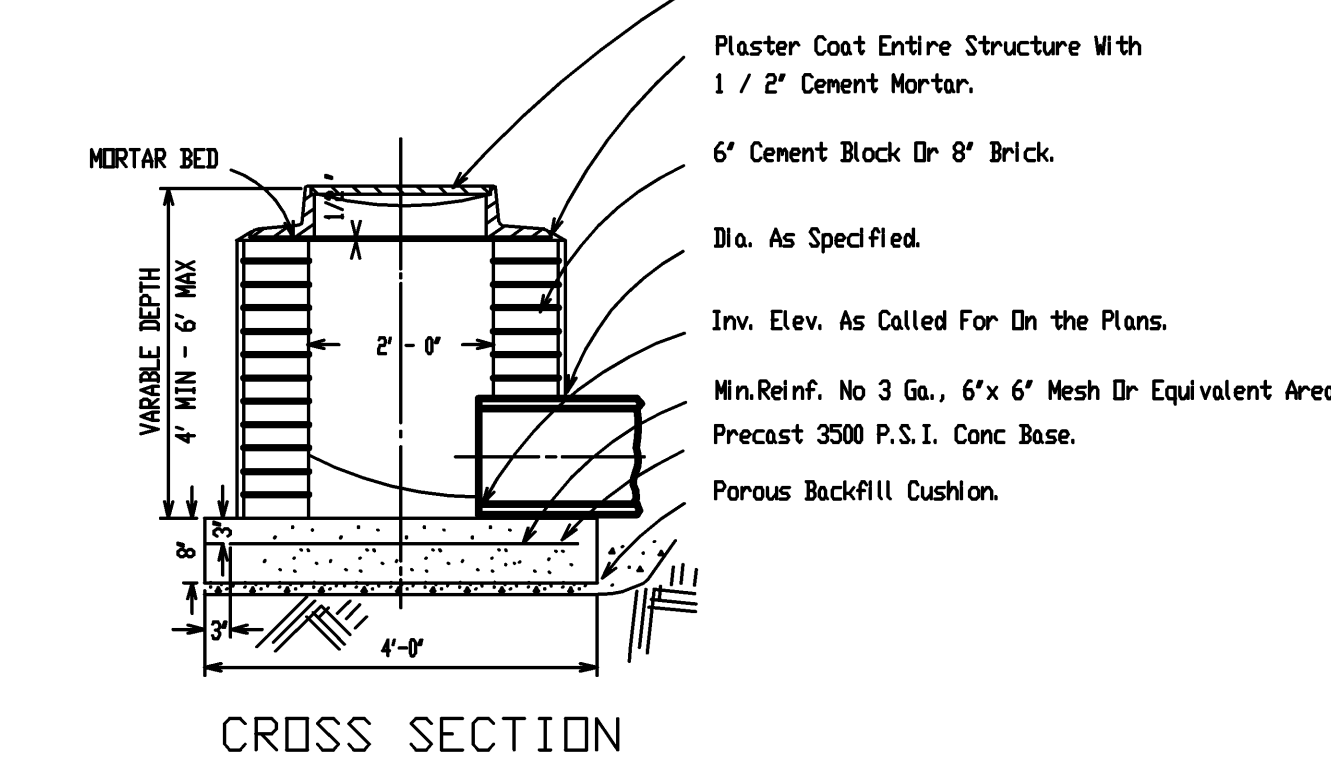
WHERE EXCAVATION OCCURS UNDER OR WITHIN 3' OF AN EXISTING OR PROPOSED ROAD SURFACE PAVEMENT, CURBS, DRIVEWAY OR SIDEWALK, ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS ENTITLED "CITY OF LIVONIA" REQUIREMENTS FOR TRENCH BACKFILL WHERE A SEWER, WATER MAIN OR OTHER UTILITY WILL BE CONSTRUCTED IN A STREET OR HIGHWAY UNDER THE JURISDICTION OF THE CITY.



PIPE DIA.	MAXIMUM TRENCH WIDTH
UP TO 30"	O.D. + 16"
36" - 48"	O.D. + 2"
54" & UP	O.D. + 3"

**PIPE BEDDING METHOD**

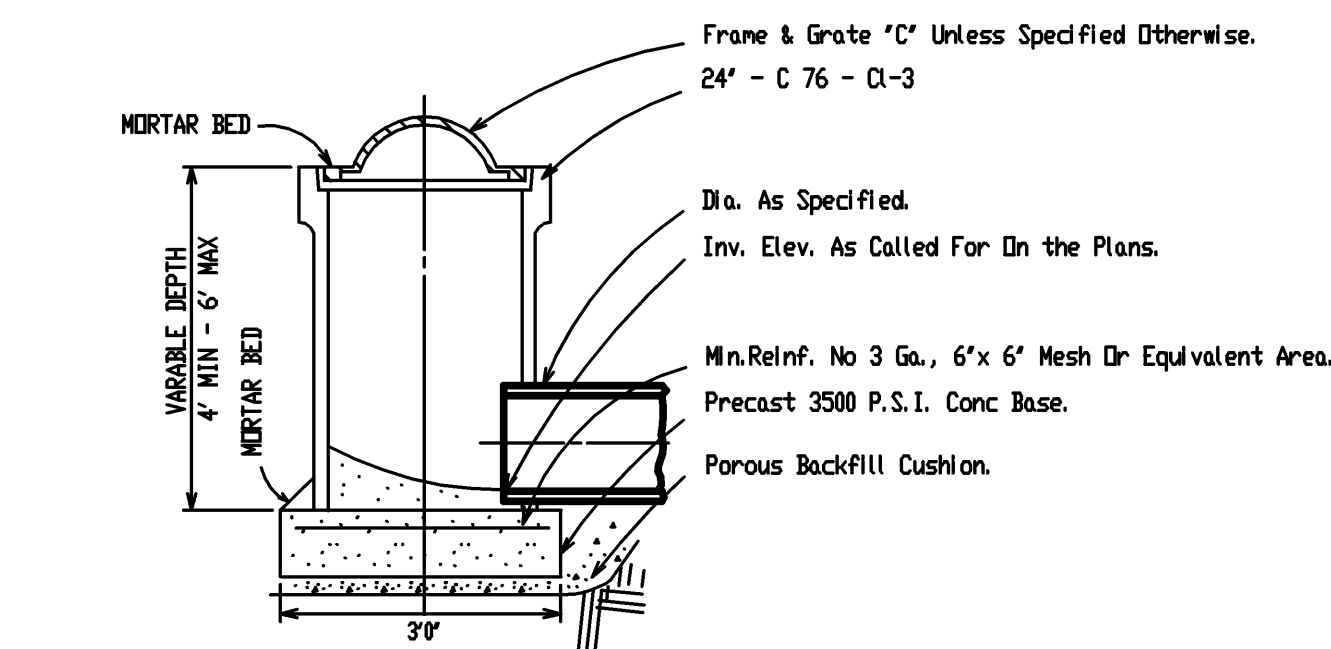
NOTE:  
STANDARD INLETS "A" AND "B" SHALL BE USED ONLY WHEN OUTLETTING TO A STRUCTURE HAVING A SUMP OR WHEN OUTLETTING TO A DITCH



FRAME & GRATE "D" UNLESS SPECIFIED OTHERWISE.  
Plaster Coat Entire Structure With 1 / 2" Cement Mortar.  
6" Cement Block Or 8" Brick.  
Dia. As Specified.  
Inv. Elev. As Called For On the Plans.  
Min.Reinf. No 3 Ga., 6"x 6" Mesh Or Equivalent Area  
Precast 3500 P.S.I. Conc. Base.  
Porous Backfill Cushion.

**CROSS SECTION**

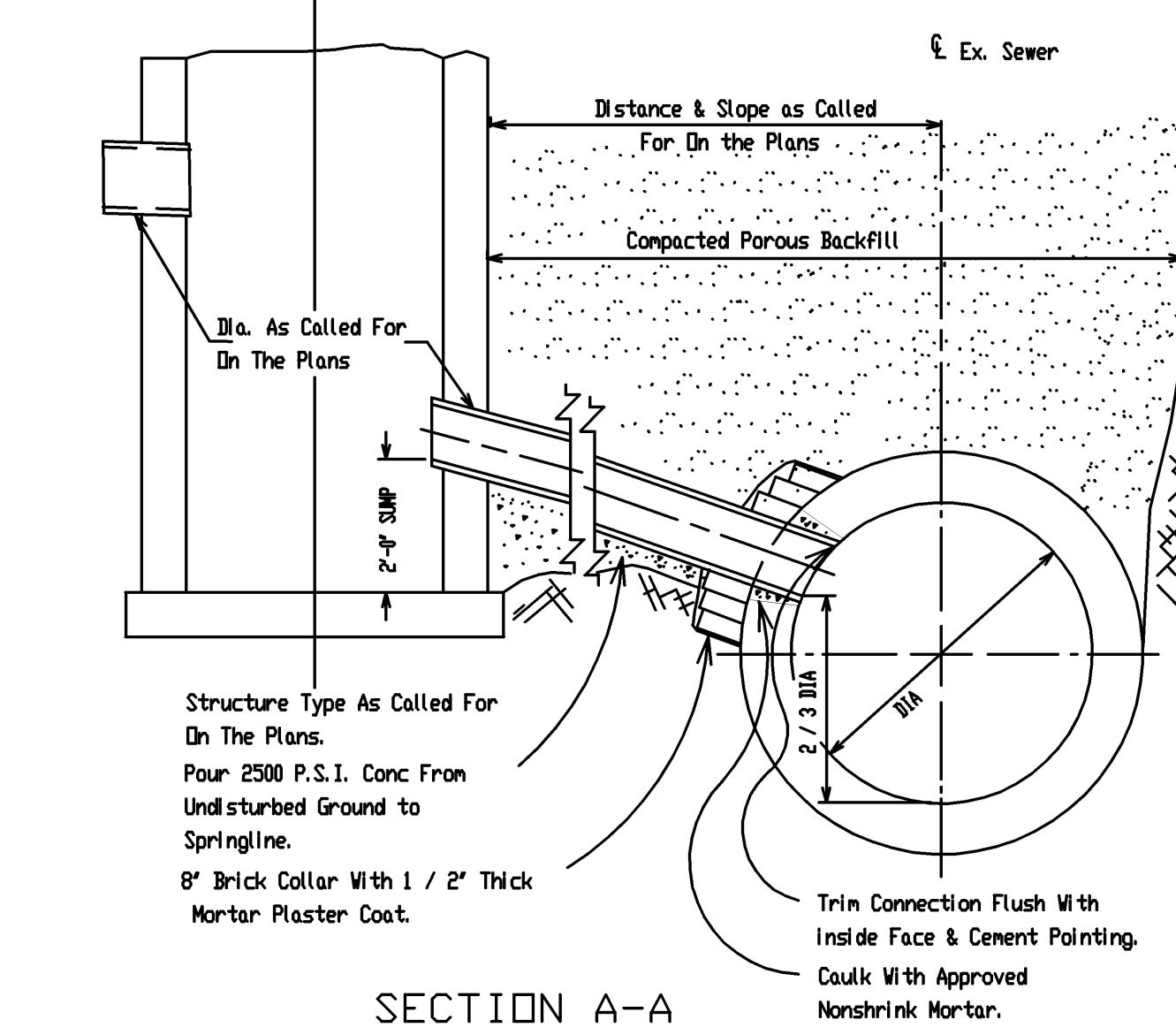
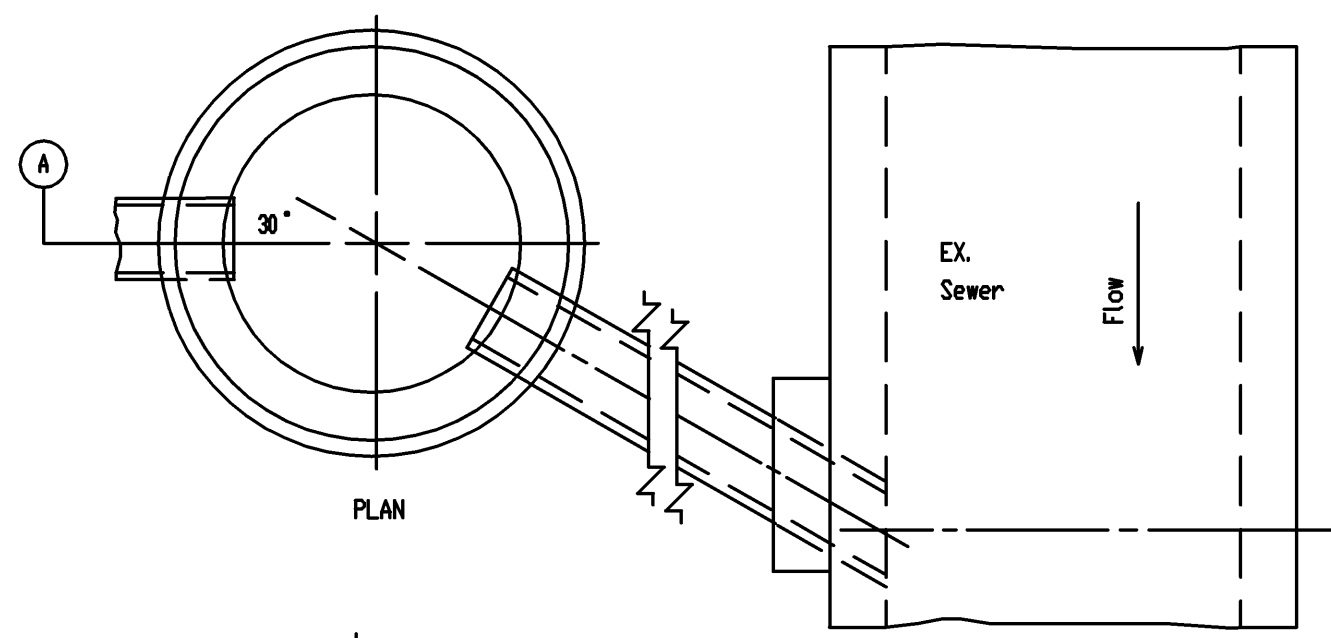
Scale 1 / 2" = 1' **STANDARD INLET "A"**



Frame & Grate "C" Unless Specified Otherwise.  
24" - C 76 - C1-3  
Dia. As Specified.  
Inv. Elev. As Called For On the Plans.  
Min.Reinf. No 3 Ga., 6"x 6" Mesh Or Equivalent Area.  
Precast 3500 P.S.I. Conc. Base.  
Porous Backfill Cushion.

**CROSS SECTION**

Scale 1 / 2" = 1' **STANDARD INLET "B"**

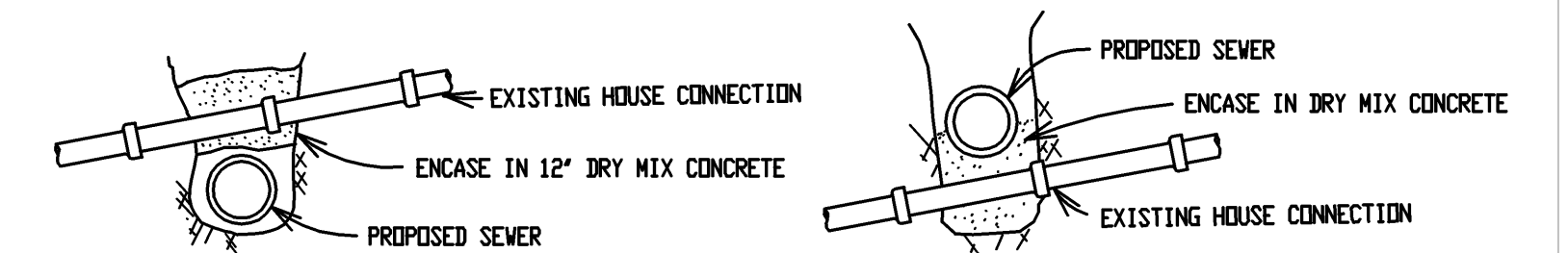


Structure Type As Called For On The Plans.  
Pour 2500 P.S.I. Conc From Undisturbed Ground to Springline.  
8" Brick Collar With 1 / 2" Thick Mortar Plaster Coat.  
Trin Connection Flush With Inside Face & Cement Pointing. Caulk With Approved Nonshrink Mortar.

**SECTION A-A**

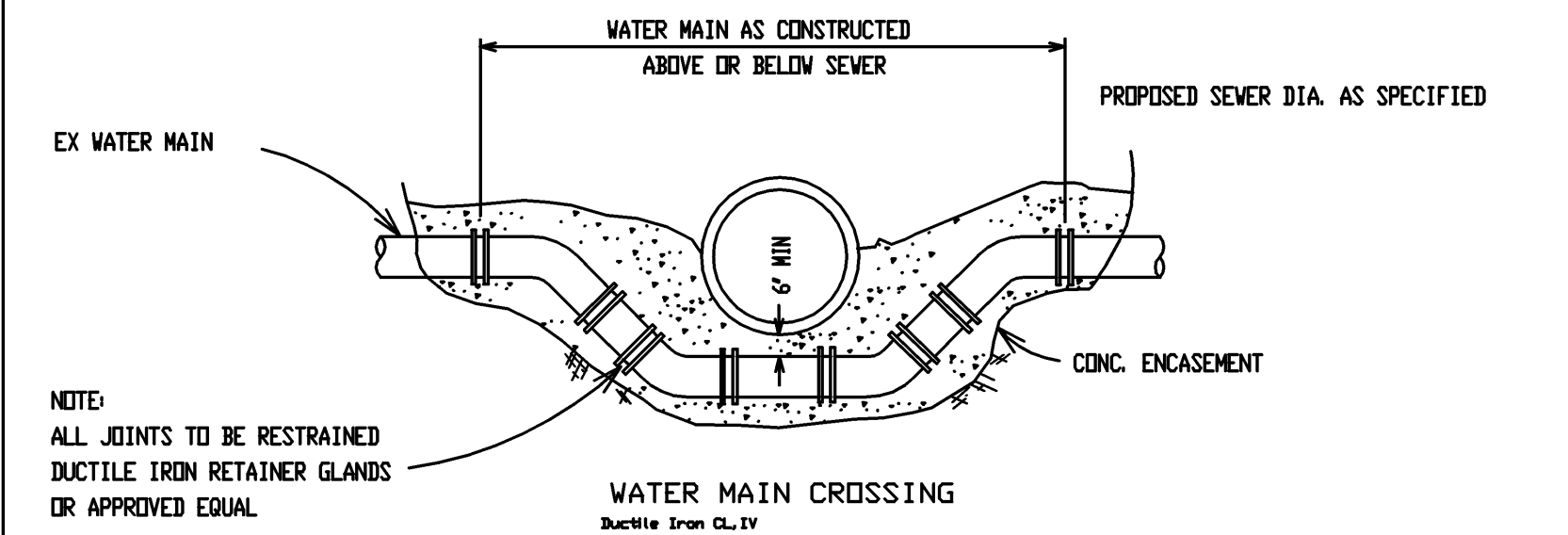
Scale 3 / 8" = 1'

**SPECIAL CONNECTIONS TO EXISTING SEWERS**



**SEWER CROSSING UNDER HOUSE CONNECTION**

**SEWER CROSSING OVER HOUSE CONNECTION**



NOTE:  
ALL JOINTS TO BE RESTRAINED DUCTILE IRON RETAINER GLANDS OR APPROVED EQUAL

**WATER MAIN CROSSING**

**UTILITY CROSSINGS**

LIVONIA, MICHIGAN  
DEPARTMENT OF ENGINEERING

**STORM SEWER DETAILS AND APPURTENANCES**

DATE	ADDITIONS and REVISIONS
7-10-80	"TRENCH BEDDING AND BACKFILL METHODS" CHANGED TO PIPE BEDDING METHOD.
3-28-88	FRAME & COVER "C" REVISED. J.p.h.
1-11-90	FRAME & COVER "C" REVISED.
10-28-02	M1 Trout Logo R.G.

DESIGNED BY _____	CONSTRUCTED _____
DRAWN BY _____	DATE OF PLAN _____
CHECKED BY _____	SCALE _____
APPROVED BY _____	SHEET _____ OF _____ SHEETS FILE _____