

## Checklist for New Construction

City of Belpre, Ohio • 715 Park Drive • Belpre, Ohio 45714 • Phone: (740) 423-7592

√	Description of Activity	Industrial	Commercial	Residential 1-3 Family	Residential 4+ Family	PUD
	1. Complete Development Application.					
	2. Submittal to Safety-Service Department (Zoning and Planning) at (740) 423-7592. Procedures will be given to owner and/or builder. Submittal requirements discussed.					
	3. Submittal to Safety-Service Department of application for zoning certificate, filing fee, site plan, and construction drawings, if applicable.					
	4. Application must meet all zoning requirements. If not, an application for variance must be filed with the Board of Zoning Appeals (allow 30 days maximum).					
	5. Review by Planning Commission (allow 30 days maximum).					
	6. Submittal of PIF questionnaire and plans to Belpre Municipal Utilities for review and approval of water and sewer installation.					
	7. Submittal of plans to Belpre Volunteer Fire Dept (740) 423-9681 for review and approval.					
	8. Submittal of plans to Ohio EPA, if applicable to your job, for approval (allow 30 days).					
	9. Pay recreation charge to Safety-Service Department on residential construction (\$50 per dwelling unit).					
	10. After all approvals received, a zoning certificate will be issued to owner .					
	11. Obtain building, electric, plumbing, etc., permits from Washington County Building Dept.					
	12. Pay utility tap fees at Utility Cashier's office (740) 423-7592.					
	13. Contact Ohio Utility Protection Service 1-(800) 362-2764 before digging.					
	14. Obtain permit for street/curb cut from Safety-Service Department (740) 423-7592.					
	15. Prior to occupancy of building, submit all final inspections from City and County offices and apply for Certificate of Occupancy from Safety-Service Department (740) 423-7592.					
	16. Apply for permanent utility services (740) 423-7592.					



## City Of Belpre

715 Park Dr, #160  
Belpre, OH 45714  
Ph. (740) 423-7592 Fax (740) 423-4967  
<http://www.cityofbelpre.com>

### Development Application

PROCEDURE/CATEGORY TYPE: \_\_\_\_\_

CPO: \_\_\_\_\_ COMMUNITY PLAN: \_\_\_\_\_

EXISTING LAND USE DISTRICTS: \_\_\_\_\_

ASSESSOR MAP: \_\_\_\_\_ TAX LOT NUMBER(S): \_\_\_\_\_

**NOTE:** Contiguous property under identical ownership will be reviewed as part of this application and may be subject to conditions of approval. List assessor map and tax lot numbers of all contiguous property under identical ownership:

SITE ADDRESS: \_\_\_\_\_

SITE SIZE: \_\_\_\_\_

Date of Pre-app. Conference: \_\_\_\_\_

Staff Member: \_\_\_\_\_

(Please attach copy of Pre-application notes)

EXISTING USE OF SITE: \_\_\_\_\_

PROPOSED DEVELOPMENT ACTION: \_\_\_\_\_

We, the undersigned, hereby authorize the filing of this application and certify that the information contained in this application is complete and correct to the best of our knowledge. This also authorizes the designated Applicant's Representative (if applicable) to act on behalf of the Applicant for the processing of the request.

X  
☐ OWNER ☐ CONTRACT PURCHASER DATE  
Print Name: \_\_\_\_\_

X  
☐ OWNER ☐ CONTRACT PURCHASER DATE  
Print Name: \_\_\_\_\_

PLEASE NOTE:

- ☐ This application must be signed by ALL the owners or ALL the Contract Purchasers of the subject property.
- ☐ If this application is signed by the Contract Purchaser(s), the Contract Purchaser is also certifying that the Contract Vendor has been notified.
- ☐ The Applicant or a Representative should be present at all Public Hearings.
- ☐ No approval will be effective until the appeal period has expired.

CASEFILE #: \_\_\_\_\_  
(to be assigned by county)

### **APPLICANT:**

COMPANY: \_\_\_\_\_

CONTACT: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

FAX: \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_

**APPLICANT'S REPRESENTATIVE:** NOTE: The Applicant's Representative will be the primary contact for the City.

COMPANY: \_\_\_\_\_

CONTACT: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

FAX: \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_

**OWNER(S):** (attach additional sheets if needed)

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

FAX: \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_

### **ALSO NOTIFY:**

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

FAX: \_\_\_\_\_

1. ALL WORK AND MATERIALS FURNISHED SHALL BE IN ACCORDANCE WITH THE PLANS AND THE MOST CURRENT EDITIONS OF THE "STATE OF OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS" AND THE "CITY OF BELPRE ENGINEERING STANDARDS"; SHALL MEET AASHTO M306 STANDARDS; AND SHALL BE MADE IN USA.
2. EXCESS EARTHEN FILL SHALL BE PLACED IN LOW AREAS WITHIN THE ALLOTMENT OR WORK SITE AND SHALL BE PROPERLY LEVELED AND GRADED PER PLANS. PAVEMENT SUBGRADE SHALL BE FINE GRADED AND COMPACTED IN ACCORDANCE WITH ODOT ITEM 203 OF THE SPECIFICATIONS. BACKFILLING BEHIND CURBS SHALL BE PROPERLY LEVELED AND GRADED, PER PLANS, AND SHALL TAKE PLACE AS SOON AS THE 28-DAY CONCRETE STRENGTH HAS BEEN REACHED. PAYMENT FOR CURB BACKFILLING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE TYPE OF PAVEMENT USED.
3. WATER AND SANITARY SERVICES SHALL BE MARKED FOR THEIR LOCATION AT THE RIGHT OF WAY WITH A 4X4 TREATED WOOD POST. PLACE POST AT THE END OF THE LINE AND EXTEND VERTICALLY TO 3' MINIMUM ABOVE THE PROPOSED FINISH GRADE. POSTS SHALL BE MARKED FOR EITHER WATER OR SEWER AND SHALL REMAIN IN PLACE UNTIL SUCH TIME THE BUILDING CONNECTIONS ARE MADE.
4. CLEANING ALL UTILITY PIPING AND STRUCTURES SHALL BE KEPT CLEAN AND FREE OF DEBRIS PRIOR TO AND DURING INSTALLATION. THE CONTRACTOR SHALL PROTECT FLOW LINES AND STRUCTURES FROM DEBRIS THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL FINAL APPROVAL IS GRANTED BY THE CITY OF BELPRE.
5. CLEAN WATER CONNECTIONS TO ANY SANITARY SEWER OR SANITARY APPURTENANCE ARE STRICTLY PROHIBITED.
6. WHERE GROUND COVER IS DISTURBED DURING THE CONSTRUCTION, THE CONTRACTOR SHALL INSTALL ALL NECESSARY EROSION CONTROL AND DRAINAGE CONTROL DEVICES IN ACCORDANCE WITH REGULATIONS OF THE CITY OF BELPRE, WASHINGTON COUNTY SOIL CONSERVATION SERVICE AND THE OHIO EPA. THESE DEVICES SHALL BE ROUTINELY MONITORED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL SATISFACTORY GROUND COVER HAS BEEN RE-ESTABLISHED. NO WORK SHALL BEGIN UNTIL ALL SUCH DEVICES ARE IN PLACE.
7. ALL DEVELOPMENTS INVOLVING UTILITY IMPROVEMENTS SHALL HAVE DETAILED DESIGN DRAWINGS PREPARED AND SEALED BY A REGISTERED, PROFESSIONAL ENGINEER. DRAWINGS SHALL BE SIGNED AND DATED BY THE PREPARING ENGINEER OR WILL NOT BE CONSIDERED VALID. (SUBMIT 4 COPIES)
8. CITY OF BELPRE ENGINEERING STANDARDS CONSTITUTE A MINIMUM DESIGN STANDARD. SPECIFIC PROJECTS MAY INVOLVE SPECIAL CIRCUMSTANCES WHICH REQUIRE MODIFICATION OF STANDARDS AND ADDITIONAL ENGINEERING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ADDITIONAL DESIGN AND FOR OBTAINING APPROVAL OF ANY ENGINEERING STANDARD MODIFICATIONS.
9. SURVEY MONUMENTS SHALL BE FURNISHED AND PLACED WHERE INDICATED ON THE PLANS AND AS A MINIMUM SHALL BE PLACED AS REQUIRED TO DEFINE PROPOSED ROADWAYS USING THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD MONUMENT DETAILS PER ODOT STANDARDS DRAWING RM-1.1.
10. PAVEMENT MARKINGS WHICH ARE DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH CITY OF BELPRE, ODOT, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES REQUIREMENTS. WHEN NOT INCLUDED IN A SPECIFIC PAY ITEM, THE COST FOR RESTORATION OR REPLACEMENT OF PAVEMENT MARKINGS SHALL BE INCLUDED IN THE COST FOR PAVEMENT REPLACEMENT.
11. DOWNSPOUT AND FOOTER DRAINS SHALL OUTLET INTO THE STORM SEWER, OR SHALL DAYLIGHT ONTO THE PROPERTY AND SHALL AT NO TIME BE CONNECTED TO THE ROADWAY UNDERDRAIN SYSTEM, PROTRUDE THROUGH THE CURB OR CONNECT TO THE SANITARY SEWER. DOWNSPOUT DISCHARGE CANNOT SPILL ONTO PUBLIC ROW, SIDEWALKS. DISCHARGE CANNOT CAUSE FLOODING, OR PONDING OF CITY ROW.

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NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.G.P.U.P.S. @ (800) 925-0988



## CITY OF BELPRE

P.O. BOX 160  
715 PARK DRIVE

BELPRE, OHIO 45714

CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

# INDEX ENGINEERING STANDARDS

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

GN-1.0

NO	DATE	REVISION

**GN-GENERAL**

GN-1.0: GENERAL CONDITIONS  
 GN-2.0,2.1: INDEX - ENGINEERING STANDARDS  
 GN-3.0,3.1,3.2 : GENERAL NOTES - WATERLINE  
 GN-4.0 : GENERAL NOTES - SANITARY SEWER  
 GN-5.0,5.1 : GENERAL NOTES -STORM SEWER  
 GN-6.0,6.1,6.2 : GENERAL NOTES - MANHOLES  
 GN-7.0 : GENERAL NOTES - PRESSURE PIPE TESTING  
 GN-8.0,8.1,8.2,8.3 : GENERAL NOTES - SEWER TESTING  
 GN- 9.0 : GENERAL NOTES - SUB-GRADE AND COMPACTION TESTING  
 GN-10.0 : GENERAL NOTES -COST FOR SERVICES  
 GN-11.0 : RIGHT TO CONTRACT, SERVICE, INSTALL  
 GN-12.0 : PROJECT INSPECTION REQUIREMENTS  
 GN-13.0 : CITY ROW PLOT SUBMITTAL  
 GN-14.0 : GENERAL SUMMARY TABLE

**AM- ACCESS MANAGEMENT**

AM-1.0 : DRIVE SPACING  
 AM-2.0 : OPEN

**DD- DIRECTIONAL DRILL SPECS.**

DD-1.0 : GENERAL NOTES  
 DD-2.0 : CAMERA CONFIRMATION OF CITY UTILITIES  
 DD-3.0 : POTHOLE CITY UTILITY IDENTIFICATION  
 DD-4.0 : FILLING OVER CITY INFRASTRUCTURE  
 DD-5.0 : PROOF OF UTILITY DAMAGE

**ER- EROSION CONTROL**

ER-1.0 : GENERAL NOTES- EROSION CONTROL  
 ER-2.0 : STORM-WATER POLLUTION PREVENTION PLAN  
 ER-3.0 : CONSTRUCTION DRIVE MATERIAL  
 ER-4.0, 4.1, 4.2 : LAND GRADING URBAN AREAS

**MS- MISCELLANEOUS**

MS-1.0 : TILE REPAIR  
 MS-2.0 : TRENCH REPAIR DETAIL - CONCRETE  
 MS-3.0 : TRENCH REPAIR DETAIL - ASPHALT: STREETS AND HIGHWAYS  
 MS-4.0 :TRENCH REPAIR DETAIL - ASPHALT: DRIVEWAYS AND PARKING LOTS  
 MS-5.0 : TRENCH REPAIR DETAIL - GRAVEL

**PF-PROJECT FORMS**

PF-1.0: ROW EXCAVATION PERMITS  
 PF-2.0: NOTICE TO PROCEED APPLICATION  
 PF-3.0: PROOF OF INSURANCE  
 PF-4.0: STORM-WATER APPROVAL PERMIT  
 PF-5.0: PROJECT BONDING  
 PF-6.0: LIST OF OFFICIALS  
 PF-7.0: SERVICE DIS-CONNECTION REQUEST  
 PF-8.0: SERVICE CONNECTION REQUEST  
 PF-9.0: DIRECTIONAL DRILL PERMIT  
 PF-10.0: WASTE REMOVAL/ DUMPING DISCLOSURE  
 PF-11.0: PROJECT AS-BUILT SUBMITTAL REQUIRED  
 PF-12.0: CURB CUT PERMIT

**PV- PAVEMENT**

PV- 1.0 : LOCAL STREET DETAIL  
 PV- 2.0 : CONCRETE ENCASEMENT DETAIL  
 PV- 3.0 : SEWER FORCE MAIN AND WATER MAIN ENCASEMENT DETAIL  
 PV- 4.0 : TYPICAL CURB SECTIONS  
 PV- 5.0 : STANDARD DRIVEWAY  
 PV- 6.0 : DRIVEWAY IN CURBSIDE SIDEWALK  
 PV- 7.0 : DRIVEWAY IN SETBACK SIDEWALK  
 PV- 8.0 : MILL AND OVERLAY DETAILS

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 715 PARK DRIVE

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CONNIE HOBLITZELL  
 SAFETY SERVICE DIRECTOR

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 PHONE: 740-423-7592

# INDEX ENGINEERING STANDARDS

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**GN-2.0**

NO	DATE	REVISION

## INDEX - ENGINEERING STANDARDS

### UC- UTILITY IMPROVEMENT CONSTRUCTION

UC-1.0 : PLAN REVIEW  
UC-2.0 : NOTICE TO PROCEED  
UC-3.0 : NOTICE OF INSURANCE  
UC-4.0 : PROJECT BONDING  
UC-5.0 : PROJECT INSPECTION REQUIREMENTS

### SS- SANITARY SEWER

SS-1.0,1.1 : STANDARD MANHOLE DETAIL  
SS-2.0 : SANITARY SEWER OUTSIDE DROP DETAIL  
SS-3.0 : SANITARY SEWER INSIDE DROP DETAIL  
SS-4.0 : SANITARY DOGHOUSE MANHOLE DETAIL  
SS-5.0 : LARGE DIAMETER SANITARY SEWER  
SS-6.0 : TYPICAL SANITARY SERVICE DETAIL  
SS-7.0 : CLEAN OUT DETAIL  
SS-8.0 : SANITARY SEWER TRENCH DETAIL  
SS-9.0 : CONNECTION TO EXISTING MANHOLE  
SS-10.0 : FORCE MAIN DROP CONNECTION TO  
MANHOLE DETAIL  
SS-11.0 : AIR RELEASE VALVE CHAMBER DETAIL  
SS-12.0 : GREASE INTERCEPTOR

### WS- WATER SERVICE

WS-1.0 : WATER SERVICE CONNECTION DETAIL  
WS-2.0 : METER LID RAISING DETAIL  
WS-3.0 : STANDARD INSTALLATION FOR  $\frac{3}{4}$ " AND 1"  
WATER METER SETTINGS  
WS-4.0 : COMMERCIAL METER SETTING 1-1/2" - 2"  
WS-5.0 : COMMERCIAL METER SETTING 3" - 6"

### WL- WATERLINE

WL-1.0: FIRE HYDRANT ASSEMBLY  
WL-2.0: FIRE LINES WITH DOMESTIC SERVICE  
WL-3.0: THRUST BLOCK DETAILS  
WL-4.0: RESTRAINED PIPE JOINT TABLE  
WL-5.0: VALVE SETTING DETAIL  
WL-6.0: WATERLINE TRENCH DETAIL  
WL-7.0: AIR RELEASE VALVE DETAIL  
WL-8.0: POLYETHYLENE ENCASEMENT FOR DUCTILE  
IRON PIPE  
WL-9.0: HEAVY DUTY VALVE BOX  
WL-10.0: CLAY CUTOFF WALL  
WL-11.0: WATER MAIN OFFSETS

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## INDEX ENGINEERING STANDARDS

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MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

GN-2.1

A. TYPE "K" SOFT COPPER TUBE (ASTM B88)

Normal Size (inches)	Minimum Wall Thickness	Safe Working Pressure	O.D.
3/4"	0.065	680	0.875
1"	0.065	680	1.125
1 1/4"	0.065	550	1.375
1 1/2"	0.072	520	1.625
2"	0.083	450	2.125
2 1/2"	0.095	420	2.625
3"	0.109	410	3.125
3 1/2"	0.120	380	3.625
4"	0.134	370	4.125
5"	0.160	360	5.125

B. POLYVINYL CHLORIDE (PVC) PIPE (ASTM D2241, NSF #14) SDR 21, 200 PSI

Minimum Wall Thickness	
3/4" - 0.069	2" - 0.113
1" - 0.063	2 1/2" - 0.137
1 1/4" - 0.079	3" - 0.167
1 1/2" - 0.090	3 1/2" - 0.190

C. PE 3408 CTS WATER SERVICE TUBING - BLACK WITH BLUE STRIPES (ASTM D 2737, NFS #14) SDR 9, 200 PSI

	Size	O.D.	Minimum Wall	Weight Per 100'
200 PSI DR-9	3/4"	0.875	0.0097	10.3
	1"	1.125	0.125	16.8
	1 1/4"	1.375	0.153	24.9
	1 1/2"	1.625	0.181	34.9
	2"	2.125	0.236	59.7

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## GENERAL NOTES: WATERLINES

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

GN-3.0

## GN-3.1

## General Notes

1. Thoroughly clean, flush, and disinfect pipes, tanks, and equipment designed to carry water for domestic consumption.
2. Disinfection shall be done by the addition of suitable amounts of chlorine in the form of liquid chlorine or high test hypochlorite of lime.
3. The disinfectant application shall be in accordance with the appropriate AWWA standard listed below:
  - a. Water mains are under AWWA C651.
  - b. Water storage tanks are under AWWA C652.
5. Perform tests for efficacy of disinfection, and repeat disinfection and tests as needed.
6. Dispose of heavily chlorinated water in accordance with AWWA C651 and AWWA C651 Appendix B, and not to a sanitary sewer or the environment unless dechlorinated sufficiently to not interfere with treatment of sanitary sewage or the environment.

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## GENERAL NOTES: WATERLINE DISINFECTION

CAD FILE:

SHEET:

GN-3.2

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



## 2.1 MATERIALS

**A. Polyvinyl Chloride (PVC) Pipe.** Unless otherwise noted, all sewer pipe and fittings shall conform to ASTM D 3034.

1. The minimum thickness of the barrel of the pipe shall be Dimension Ratio (DR) 35.
2. All pipe spigots shall have a "home" mark to facilitate joint closure.
3. PVC fittings shall be factory made and provided with joints of proper design to connect to the pipe or approved adapters shall be furnished to connect the pipe to the fittings. Adapters shall be provided for connection to pipes of different materials. All joints and fittings shall be formed to provide as nearly as practical a leak free and easily assembled system.
4. Pipe intended to be straight shall have a maximum deviation from straightness of 1/16 inch per lineal foot when measured in accordance with ASTM D 2122.
5. Pipe and fittings may be reviewed by the city prior to installation and all rejected pieces must be completely removed from the project. No repairs of pipe or fittings will be allowed; undamaged lengths of straight pipe may be salvaged by neatly sawing off the damaged portion of the pipe.
6. PVC sewer pipe joints shall be elastomerically gasketed conforming to ASTM D3212 push\_on type.

**B. PVC "Pressure Rated" Pipe.** Sewer pipe and fittings where designated shall be pressure rated polyvinyl chloride meeting the requirements of ASTM D2241.

1. The minimum thickness of the barrel of the pipe shall be SDR 26, Class 160 pressure rating.
2. All pipe spigots shall have "home" mark to facilitate joint closure.
3. Provide green pipe color to represent sanitary sewer installation.
4. Fittings shall be factory made with joints and gaskets as required to properly fit the PVC pipe. PVC fittings shall be I.P.S. Gasketed Drainage (CL160) Series T Fittings as manufactured by Plastic Trends Inc., or equal.
5. Push-on joints shall be designed for connecting pipe and fittings using flexible elastomeric gaskets meeting the requirements of ASTM F477. The joints shall conform to ASTM D3139 push-on type

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GENERAL NOTES:  
SANITARY SEWER

CAD FILE:

SHEET:

GN-4.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

## A. Corrugated PE Sewer

1. Corrugated PE sewer pipe and fittings shall meet the requirements of American Association of State Highway and Transportation Officials (AASHTO) M 294 Type S or AASHTO M252, Type S. This pipe is a full circular, dual-wall cross section, with an outer corrugated pipe wall and a smooth inner liner. Joints shall be watertight, dual gasket, meeting the requirements of ASTM F477 and ASTM D3212.
2. Provide factory-made corrugated PE fittings with approved adapters to connect the pipe to the fittings. Form all joints and fittings to provide as nearly as practicable a leak free and easily assembled system.
3. This pipe shall meet all requirements of nonperforated pipe with the additional requirement of AASHTO Class II perforations.

## B. Concrete Pipe

1. Concrete sewer pipe and fittings shall meet the requirements of American Society for Testing and Materials (ASTM) C 76, "Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe," Wall B, or Wall C.
2. Elliptical cage circumferential reinforcement will not be accepted. Horizontal elliptical concrete sewer pipe shall meet the requirements of ASTM C 507.

**C. Sanitary Sewer Pipe Joints.** Concrete sanitary sewer pipe joints shall be flexible, watertight joints conforming to ASTM C 443, "Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets."

**D. Storm Sewer Pipe Joints.** Concrete sewer pipe joints shall conform to one of the following joints. Furnish evidence of satisfactory performance of the joint to be installed from previous installations.

1. Flexible Joints. Flexible joints shall conform to ASTM C 443. Provide all equipment necessary to conduct the pipe joint tests.
2. Bituminous Pipe Joint Filler.
  - a. Use an approved bituminous plastic cement in sufficient quantity to fill the joint when the pipe has been placed in position.
  - b. After the pipe has been set to its true alignment and grade, remove all surplus material from the inside of the pipe.
  - c. If bell-and-spigot pipe is used, place and properly caulk a gasket of jute in the joint and maintain alignment of the pipe.

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GENERAL NOTES:  
STORM SEWER

CAD FILE:

SHEET:

GN-5.0

DRAWN BY:  
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APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

### 3. Cement Mortar Joints, Bell and Spigot.

- a. Place and distribute a stiff Portland cement mortar mixed in the proportion of one part cement to two parts sand around the lower 1/8 of the circumference of the bell.
- b. In this mortar, bed one or more strands of dry, twisted jute, previously saturated with neat cement mortar, and of a proper length to encircle the pipe and lap ends.
- c. Insert the spigot end of the pipe in the bell, taking care to avoid displacement of the jute or mortar, until the spigot is fully home to the shoulder of the pipe.
- d. Drive the jute into the bell of the pipe around the spigot with suitable yarning iron.
- e. Completely fill the joint with stiff mortar, as specified above, applied with a rubber mitten and pushed into the joint until the socket is completely full.
- f. Furnish the joints with a suitable mortar bevel.
- g. Scrape the interior of each joint clean of all projecting mortar, and use an approved follower or scraper to accomplish this to the satisfaction of the Engineer/Architect.
- h. After the pipe is graded and aligned and the joint is made, no walking on the pipe will be permitted until the backfill has been carefully placed and tamped to 6 inches above the pipe.
- i. Use every precaution to prevent disturbance of the joint after it is completed.

### 4. Precast Joints.

- a. Make precast joints with an approved die-cast, tapered-type joint, which shall be made by fitting the spigot and socket of the pipe with collars of bituminous compound.
- b. The compound shall have a melting point of 240 to 270 degrees Fahrenheit (°F.) and a penetration of 4 to 7 at 77° F.
- c. Die-cast a lining or ring of this jointing material into the socket of the pipe.
- d. Fit the spigot with a collar of the same material die-cast around the end of the pipe, and of such size that, when shoved firmly into the socket portion of the pipe, a tight fit between the socket and the spigot end of the pipe will be made.
- e. All pipe must be dry and clean when the lining and the collar are cast; pour the compound at a heat high enough to produce adhesion to the pipe.
- f. Inspect all asphalted collars before the pipe is laid, and use no pipe if either collar shows any void or unfilled space.
- g. No jute or other caulking material is necessary for this type of joint, and will not be permitted.
- h. Just before the pipe is laid, coat the lining and the collar with a solvent which shall cause the surface to become plastic or tacky, and when the pipes are shoved firmly together, the joint material shall unite and, incidental to diffusion of the solvent, congeal and become one homogeneous body.

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**CITY OF BELPRE**

P.O. BOX 160  
715 PARK DRIVE

BELPRE, OHIO 45714

CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

## GENERAL NOTES: STORM SEWER

CAD FILE:

SHEET:

GN-5.1

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

- A. Sanitary Sewer Manholes.** Provide watertight manholes constructed only of cast\_in\_place concrete or precast concrete sections.
- B. Storm Sewer Manholes.** Provide storm sewer manholes and inlets constructed of cast-in-place concrete, precast concrete, brick, or concrete block.
- C. Concrete.** Provide Class A, 4,000-pound-per-square-inch (psi), 28-day-strength portland cement concrete in the construction of manholes.
- D. Precast Reinforced Concrete Manhole Sections**
1. Manhole sections shall conform to the requirements of American Society for Testing and Materials (ASTM) C 478, except that the minimum wall thickness shall be equal to the requirements of ASTM C 76 Wall B.
  2. Additional Requirements.
    - a. Form joints of the manhole sections entirely of concrete employing a round rubber gasket conforming to ASTM C 443, or Butyl rubber sealant meeting the requirements of ASTM C-990, Section 10.1 as manufactured by Conseal Sealants, Inc. or equal applied at the interior and the exterior meeting faces of the manhole joint. The manhole joint, when assembled, shall be self\_centering and make a uniform watertight joint.
    - b. If provided, make lift holes watertight.
- E. Connections**
1. The sewer pipe to manhole connections on all sanitary sewers shall be flexible and watertight.
    - a. To maintain flexibility in the connection, leave a 1-inch space between the end of the pipe inside the manhole and the concrete channel; fill this space with a waterproof flexible joint filler. The watertight flexible joint filler shall be CS-1500 Rapid Cure Elastomeric Sealant as manufactured by ConSeal, Pro-Stik Butyl Sealant as manufactured by Press-Seal used in conjunction with a skim coat of grout, or equal. The watertight flexible joint filler between the end of the pipe and the concrete channel is to only be installed half way up to the springline of the pipe.

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## GENERAL NOTES: MANHOLES

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

GN-6.0

NO	DATE	REVISION

- b. The watertight connection shall meet the following requirements.
- 1) Any metal or hardware that is used shall be Type 300 series stainless steel.
  - 2) Elastomers must be EPDM or isoprene.
  - 3) Comply with ASTM C 923.
  - 4) Connectors shall be cast into manholes and shall be Z-Lok Connectors as manufactured by A-Lok Products, Inc. or equal.

## F. Manhole Steps

2. Manhole steps shall conform to the requirements of ASTM C 478, American Association of State Highway Transportation Officials (AASHTO) M-199, and as noted on the drawings.
3. Each manhole step shall consist of a 1/2-inch Grade 60 deformed reinforcing bar encapsulated in polypropylene.
  - a. The polypropylene shall conform to ASTM D 4101.
  - b. The reinforcing bar shall conform to ASTM A-615.
4. Do not exceed 24 inches between the top of casting and the first step.

## G. Grade Adjustment

1. Provide precast reinforced concrete manhole sections, if used, in any combination to obtain the desired depth. Final grade adjustment to manhole casting elevation shall be accomplished by the use of precast concrete adjusting rings.
2. Adjusting rings with a maximum combined height not to exceed 10" will be required to be installed on all manholes installed in rigid pavements, gravel or earthen roadways, driveways, and roadway berms and shoulders. Adjusting rings in other areas are not required unless needed to adjust to final grades.

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GENERAL NOTES:  
MANHOLES

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

GN-6.1

NO	DATE	REVISION

3. Joints of the adjusting rings shall be sealed by using a butyl rubber sealant meeting the requirements of ASTM C-990, Section 10.1 as manufactured by Conseal Sealants, Inc. or equal, and when assembled shall make a uniform watertight joint.
4. Precast concrete adjusting rings shall conform to ASTM C 478.

**I. Frames and Covers**

1. Manhole frames and covers shall be gray iron castings of the heavy duty pattern.
2. Covers shall be self sealing gasket lids with a concealed pick hole. Frame seat shall be machined to prevent rocking and rattling.
3. Cast the words "SANITARY SEWER" or "STORM SEWER" as appropriate on all covers.
4. Frame shall be sealed to top adjusting ring with butyl rubber mastic sealant meeting the requirements of ASTM C-990, Section 10.1, as manufactured by Conseal, or equal, and a bed of mortar.
5. Frame shall be anchored to manhole with four 5/8" diameter stainless steel anchor bolts.
6. Provide solid Covers.
7. In areas subject to flooding and where shown on the plans a watertight (WT), heavy-duty, gasket sealed and bolted manhole frame and cover shall be used.

**J. Inside Drop Manhole Connections.** Provide Inside drop manhole connections for sanitary sewers. Inside drop bowl assembly with a Force Line Hood shall be as manufactured by Reliner-Duran, Inc. Drop pipe shall be constructed of SDR 35 PVC unless otherwise noted. Attach and anchor drop bowl/hood assembly and drop pipe with stainless steel anchors and straps.

**K. Mortar**

1. Mortar shall be composed of Portland cement and sand mixed in the proportions of one bag of cement to 2 cubic feet of sand.

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**GENERAL NOTES:  
MANHOLES**

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

GN-6.2

- A. No test section shall be longer than 500 feet without approval.
- B. Leakage Allowances Pressure Mains.** The maximum leakage allowance for all pressure mains shall be 10.49 gallons per inch diameter per mile of pipe per 24 hours.
- C. Test Procedure**
1. Slowly fill each pressure main or process piping section with water to the specified test pressure in a satisfactory manner.
  2. Before applying the specified test pressure, expel all air from the pipe.
  3. Maintain the test water pressure for at least 2 hours.
  4. Determine leakage by measuring the quantity of water added to the main to maintain the specified test pressure.
    - a. Unless noted otherwise, minimum test water pressure shall be the greater of 1.5 times the working pressure or 100 psi.

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NO	DATE	REVISION

# GENERAL NOTES: PRESSURE PIPE TESTING

CAD FILE:

SHEET:

GN-7.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



## 1.1 SANITARY SEWER LEAKAGE TESTING

- A. Test Section.** A sanitary sewer test section shall be from the inlet end of the downstream manhole to the outlet end of the upstream manhole, including all laterals in the sewer.
- B. Leakage Allowance.** The maximum leakage allowance for all sanitary sewers shall be 100 gallons per inch diameter per mile of pipe per 24 hours.
- C. Test Procedure.** Use either an infiltration water test, exfiltration water test, or low-pressure air test for gravity sewers after backfilling is completed.

### 1. Infiltration.

- The infiltration test may be selected when the height of the groundwater table is 2 feet or more above the top of the pipe barrel, including house services, at the highest point of the section.
- Measure the amount of infiltration by means of a weir located in the downstream manhole, and the amount shall not exceed the allowable leakage.
- Securely seal the inlet end of the upstream manhole.
- Maintain the test head for a period of not less than 24 hours before the weir measurement is made.

### 2. Exfiltration.

- When the exfiltration test is selected, close the inlet ends of the upstream and downstream manholes with a watertight bulkhead.
- Fill the sewer along with the upstream manhole with water until the elevation of the water in the upstream manhole is 2 feet higher than the top of the pipe barrel, including house services, in the section being tested, or 2 feet above the existing groundwater in the trench, whichever is the higher elevation.
- Fill and maintain the entire length of section to be tested full of water for a period of approximately 24 hours prior to the start of the test.
- If the water level in the upper manhole has dropped during this 24 hour period, raise the level to the test elevation mark prior to measurement of leakage.
- Determine the exfiltration by measuring the amount of water required to maintain the above stated water elevation for a period of 2 hours from the start of the test.
- The allowable leakage is based on a maximum difference in elevation of 8 feet between the level of water at the upper manhole and the invert of the pipe being tested in the lower manhole.
- If the difference in elevation exceeds 8 feet, increase the allowable leakage 5 percent for each 1 foot in excess of 8 feet.

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## GENERAL NOTES: SEWER TESTING

CAD FILE:

SHEET:

GN-8.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



3. Low-Pressure Air Test. Testing shall meet the requirements of the following standards

Pipe Material	Testing Standard
Concrete Pipe (24 inches and under)	ASTM C 924
Concrete Pipe (over 24 inches)	ASTM C 1103
Clay Pipe	ASTM C 828
Plastic Pipe	ASTM F 1417
All Others	ASTM F 1417

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PHONE: 740-423-7592

NO	DATE	REVISION	GENERAL NOTES: SEWER TESTING				SHEET: GN-8.1
			CAD FILE:				
			DRAWN BY: MRJ	APPRVD BY:	ISSUE DATE:	SCALE: NONE	

**A. Deflection Testing of PVC Sanitary Sewers**

1. Before final acceptance of completed thermoplastic sewer lines, perform a pipe deflection test on all main line sanitary sewers.
2. Measure all lines for vertical ring deflection no sooner than 30 days after completion of backfilling operations, provided sufficient settlement of the backfill has occurred.
3. The maximum limit of vertical deflection shall not exceed 5 percent of the inside diameter of the pipe as presented in Appendix XI of ASTM D-3034, "Standard Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings."
4. Accomplish the test by manually pulling an approved "go, no-go" mandrel with nine arms.
5. Provide all equipment and labor, including mandrel, to perform and conduct the required test.
6. Notify the City at least 48 hours in advance of the anticipated date of the testing for scheduling of personnel needed to monitor the testing operations.
7. In areas where deflections exceed the 5 percent limit, correct the problem area(s) by one of the following procedures at no additional expense to the City:
  - a. Procedure 1. Replace the failed pipe in accordance with the original plans and specifications.
  - b. Procedure 2.
    - 1) Reround the failed section(s) by means of an internal pneumatic vibratory compactor, performed by an approved company providing this service.
    - 2) Submit methods, types of equipment, and qualifications of company to provide service in writing for approval at least 5 working days in advance of performing this procedure.
    - 3) This method may be used only if approved and it is determined that the deflection has not exceeded 10 percent of the base inside diameter of the pipe, by pulling a 9 arm "go, no-go" mandrel having a diameter equal to 90 percent of the base inside diameter of the pipe.
  - c. After completing either Procedure 1 or 2, retest the repaired area(s) for leakage and deflection as specified herein before final acceptance.

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**GENERAL NOTES:  
SEWER TESTING**

CAD FILE:

SHEET:

**GN-8.2**

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

## A. Manhole and Precast Wet Wells Leakage Testing

1. Vacuum-test all sanitary manholes for leaks, instead of the water testing specified above.
2. The vacuum test method shall be in accordance with ASTM C 1244, except as specified otherwise herein.
3. Furnish all equipment and labor required, including necessary piping/hoses, pneumatic plugs, test vacuum equipment (vacuum pump and vacuum plate/head), vacuum gauge, and second timer. The vacuum gauge shall have a maximum range of 0 to 30 inches of mercury (Hg) and the vacuum gauge figure intervals shall be in 1/2-inch increments.
4. Remove all pneumatic plugs after the test.

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## GENERAL NOTES: MANHOLE TESTING

CAD FILE:

SHEET:

GN-8.3

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:

NONE

1. Employ an acceptable testing laboratory to determine the following:
  - a. The moisture density relationship of the material to be compacted in accordance with ASTM D 698.
  - b. The degree of compaction obtained in accordance with ASTM D 1556 or D 2922.
  - c. The strength of structure subgrades.
2. The soils testing laboratory personnel shall be on-site during all placement and compaction activities involving compacted foundation to determine compliance with this specification section.
3. Test every 50 cubic yards or fraction thereof, or at least once per layer for each area of compacted granular material.

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GENERAL NOTES:  
SUBGRADE & COMPACTION  
TESTING

CAD FILE:

SHEET:

GN-9.0

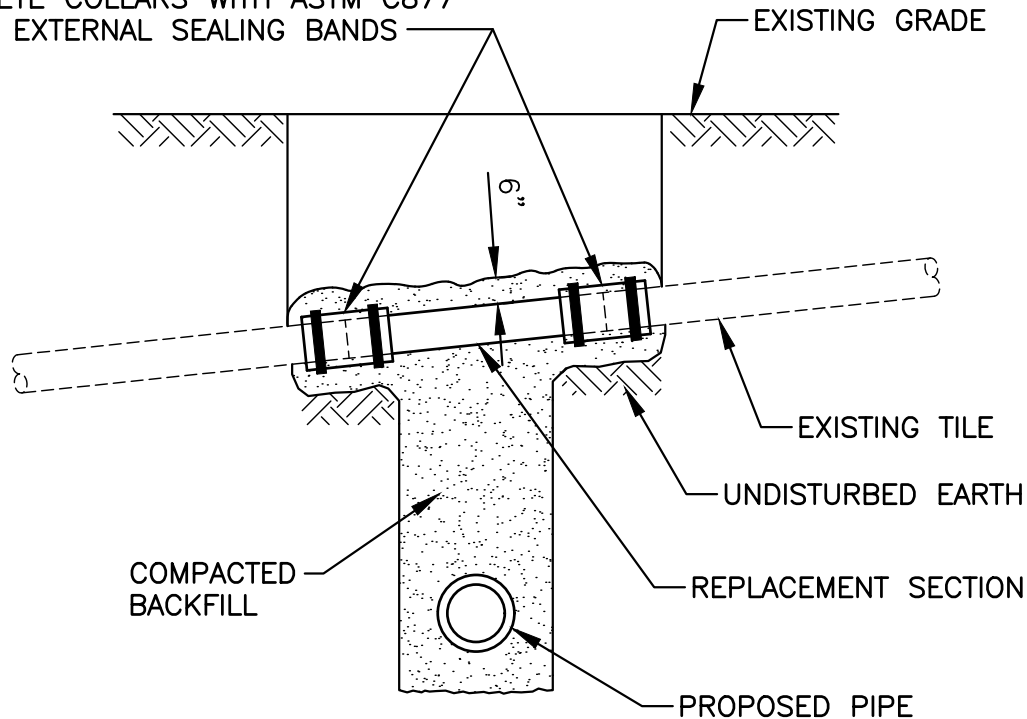
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

FERNCO #1056 SERIES FLEXIBLE  
COUPLINGS (27" DIAMETER STORM  
SEWER OR LESS), OR CLASS "C"  
CONCRETE COLLARS WITH ASTM C877  
TYPE I EXTERNAL SEALING BANDS



**NOTES:**

1. IF THE EXISTING STORM SEWER IS DAMAGED OR REMOVED DURING CONSTRUCTION, IT SHALL BE REPLACED ACROSS THE TRENCH SUCH THAT THE COUPLINGS OR CONCRETE COLLARS ARE SUPPORTED ON UNDISTURBED EARTH. DAMAGED SECTIONS SHALL BE REMOVED BY SAW CUTTING IN NEAT, STRAIGHT LINES.
2. THE REPLACEMENT SECTION SHALL BE ASTM D3034 SDR 35 PVC SEWER PIPE, DUCTILE IRON PIPE OR MATCH EXISTING PIPE MATERIAL AND SHALL BE LAID ON MECHANICALLY COMPACTED BACKFILL MATERIAL.

TILE REPLACEMENT DETAIL

SCALE: NONE

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FAX: 740-423-4967  
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TILE REPAIR

CAD FILE:

SHEET:

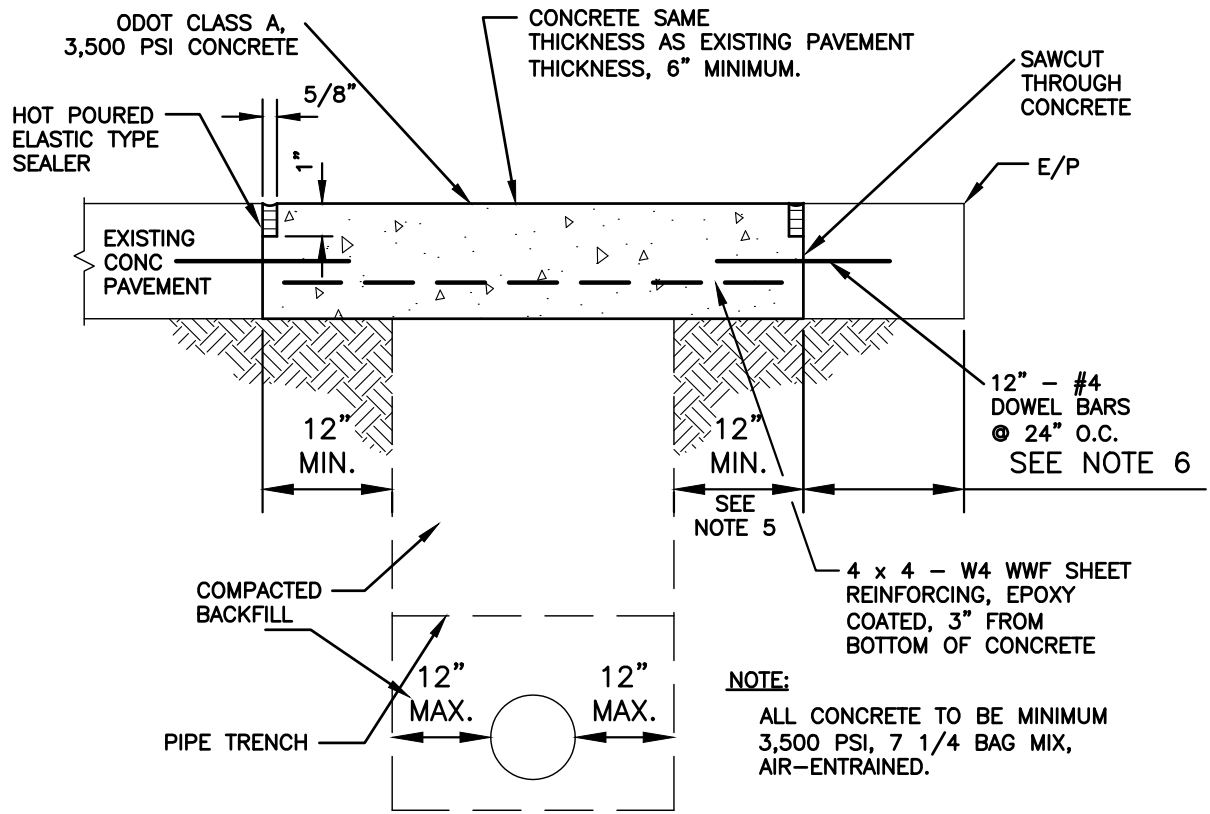
MS-1.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



### CONCRETE TRENCH PAVEMENT RESTORATION

#### NOTES:

1. DECREASE WIDTH OF EXCAVATION 6" ON EACH SIDE OF TRENCH IF A CONTROLLED LOW-STRENGTH (CONTENTITOUS) MATERIAL (CLSM) IS USED AS BACKFILL.
2. FOR REPLACEMENT OF EXISTING CONCRETE REMOVED DURING CONSTRUCTION, IF AN EXISTING CONTROL JOINT IS LOCATED WITHIN 2 FT. OF THE EDGE OF THE PAY LIMITS, THE EXISTING CONCRETE SHALL BE REMOVED AND REPLACED THE ADDITIONAL WIDTH TO THE EXISTING CONTROL JOINT.
3. USE 1/2" DIA., 18" LONG CORROSION RESISTANT DOWELS @ 24" O.C. IF EXISTING CONCRETE STREET IS 6" THICK OR GREATER.
4. SEAL PERIMETER OF CONCRETE AREA REPAIRED WITH AN APPROVED SILICONE SEALANT.
5. EACH EDGE OF CONCRETE SHALL BEAR ON 12" (MIN.) OF UNDISTURBED SOIL. IF DURING EXCAVATION OF TRENCH THE REMOVAL OF LARGE ROCK RESULTS IN A VOID WITHIN THE 12" ZONE, CONTRACTOR SHALL FILL THE VOID WITH COMPACTED GRANULAR BACKFILL AT NO ADDITIONAL COST TO THE OWNER.
6. IF THIS DISTANCE IS LESS THAN 12", THE EDGE OF THE CONCRETE PAVEMENT RESTORATION SHALL BE EXTENDED TO THE EDGE OF THE EXISTING PAVEMENT.
7. FINAL PAVEMENT REPLACEMENT SAW CUTS PRIOR TO PAVEMENT RESTORATION SHALL BE PERPENDICULAR TO SIDES OF DRIVES.

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FAX: 740-423-4967  
PHONE: 740-423-7592

# TRENCH REPAIR DETAIL CONCRETE

CAD FILE:

SHEET:

MS-2.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

CONCRETE SAME THICKNESS  
AS EXISTING PAVEMENT  
THICKNESS, 8" MINIMUM

MATCH THICKNESS OF EXISTING ASPHALT  
WEARING COURSE OVERLAY (1½" MIN.)

SAWCUT THROUGH  
ASPHALT

EXISTING ASPHALT  
PAVEMENT

ODOT CLASS A,  
3,500 PSI CONCRETE

E/P

EXISTING ASPHALT  
BASE

EXISTING  
COMPACTED  
SUB-BASE

SEE NOTE 3 MIN.

COMPACTED  
BACKFILL

12" MIN.

SEE  
NOTE 2

4 x 4 - W4 WWF SHEET  
REINFORCING, EPOXY  
COATED, 3" FROM  
BOTTOM OF CONCRETE

KARNAK #230 - 2%  
NEOASPHALT TACK COAT,  
OR EQUAL

**NOTE:**

ALL CONCRETE TO BE MINIMUM  
3,500 PSI, 7 1/4 BAG MIX,  
AIR-ENTRAINED.

PIPE TRENCH

12" MAX.

12" MAX.

**ASPHALT OVER CONCRETE TRENCH PAVEMENT RESTORATION**

**NOTES:**

1. DECREASE WIDTH OF EXCAVATION 6" ON EACH SIDE OF TRENCH IF A CONTROLLED LOW-STRENGTH (CONTENTITOUS) MATERIAL (CLSM) IS USED AS BACKFILL.
2. EACH EDGE OF CONCRETE SHALL BEAR ON 12" (MIN.) OF UNDISTURBED SOIL. IF DURING EXCAVATION OF TRENCH THE REMOVAL OF LARGE ROCK RESULTS IN A VOID WITHIN THE 12" ZONE, CONTRACTOR SHALL FILL THE VOID WITH COMPACTED GRANULAR BACKFILL AT NO ADDITIONAL COST TO THE OWNER.
3. IF THIS DISTANCE IS LESS THAN 12", THE EDGE OF THE ASPHALT OVER CONCRETE PAVEMENT RESTORATION SHALL BE EXTENDED TO THE EDGE OF THE EXISTING PAVEMENT.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.G.P.U.P.S. @ (800) 925-0988



**CITY OF BELPRE**

P.O. BOX 160  
715 PARK DRIVE

BELPRE, OHIO 45714

CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

NO	DATE	REVISION

**TRENCH REPAIR DETAIL  
ASPHALT STREETS/HIGHWAYS**

CAD FILE:

SHEET:

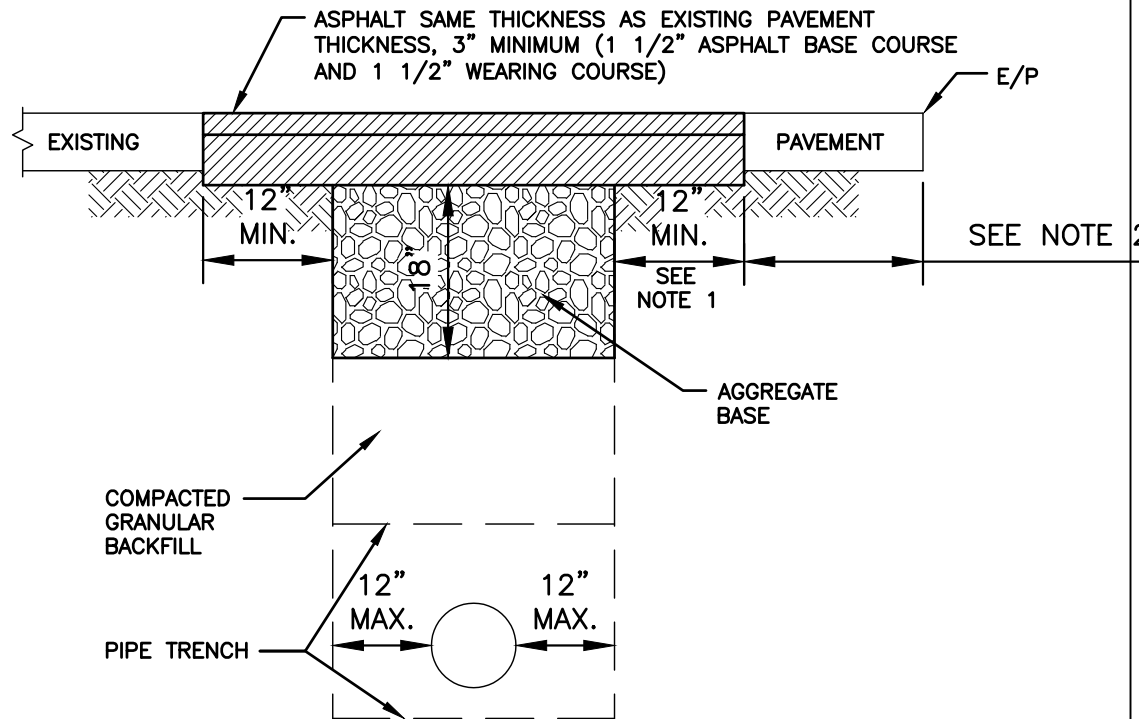
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**MS-3.0**



### ASPHALT TRENCH PAVEMENT RESTORATION

#### NOTES:

1. EACH ASPHALT EDGE SHALL BEAR ON 12" (MIN.) OF UNDISTURBED SOIL. IF DURING EXCAVATION OF TRENCH THE REMOVAL OF LARGE ROCK RESULTS IN A VOID WITHIN THE 12" ZONE, CONTRACTOR SHALL FILL THE VOID WITH COMPACTED GRANULAR BACKFILL.
2. IF THIS DISTANCE IS LESS THAN 12", THE EDGE OF THE ASPHALT PAVEMENT RESTORATION SHALL BE EXTENDED TO THE EDGE OF THE EXISTING PAVEMENT. PAYMENT SHALL BE MADE IN ACCORDANCE WITH THE APPLICABLE PAVEMENT RESTORATION PAY ITEM.
3. FINAL PAVEMENT REPLACEMENT SAW CUTS PRIOR TO PAVEMENT RESTORATION SHALL BE PERPENDICULAR TO SIDES OF DRIVES.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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PHONE: 740-423-7592

## TRENCH REPAIR DETAILS ASPHALT DRIVEWAYS/PARKING

CAD FILE:

SHEET:

MS-4.0

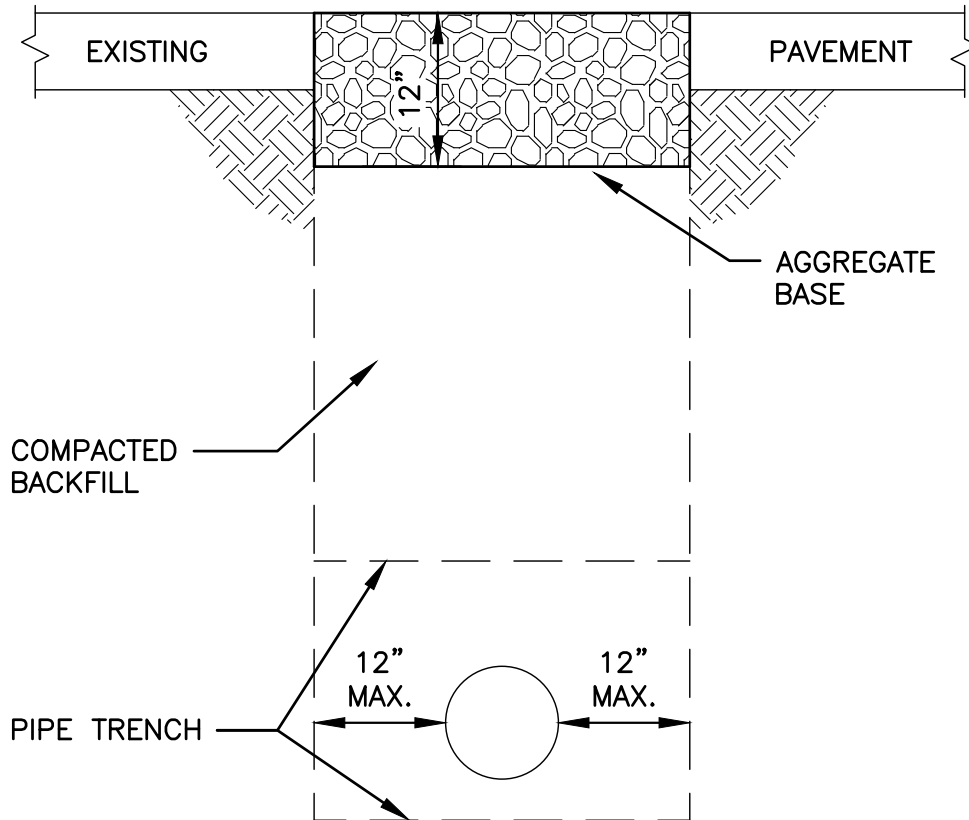
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE





### GRAVEL TRENCH PAVEMENT RESTORATION

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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PHONE: 740-423-7592

CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

## TRENCH REPAIR DETAIL GRAVEL

CAD FILE:

SHEET:

MS-5.0

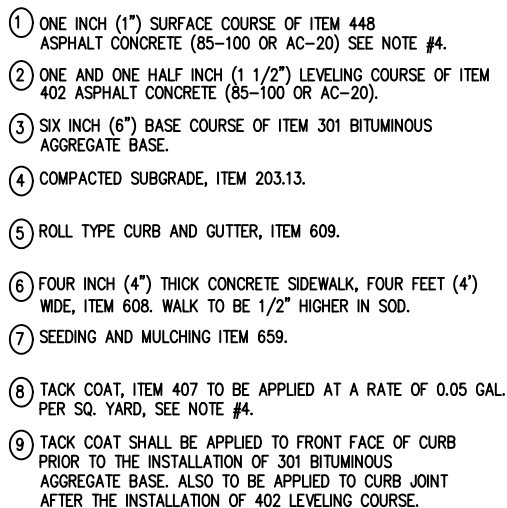
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

NO	DATE	REVISION



- NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.



CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

## LOCAL STREET DETAIL

PV-1.0

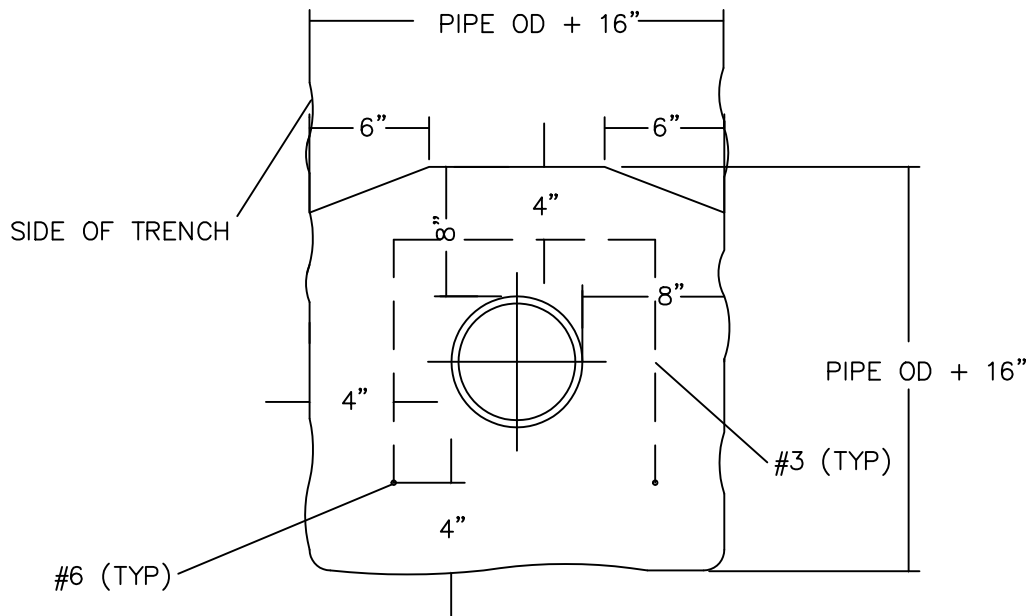
DRAWN BY: MR.J	DATE:
-------------------	-------

APPRVD BY:

ISSUE DATE:

SCALE:

NONE



PIPE SIZE	CY CONC PER LIN FT	LENGTH OF NO 3 BARS	SPACING (FT) BETWEEN NO 3 BARS
6"	0.121	3'-9"	1.64
8"	0.139	4'-3"	1.25
10"	0.157	4'-9"	1.12
12"	0.177	5'-3"	1.02
16"	0.200	6'-3"	0.85
18"	0.247	6'-10"	0.78
20"	0.270	7'-5"	0.72
24"	0.315	8'-6"	0.63
30"	0.540	10'-0"	0.57

## CONCRETE ENCASEMENT

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PHONE: 740-423-7592

NO	DATE	REVISION

## CONCRETE ENCASEMENT DETAIL

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

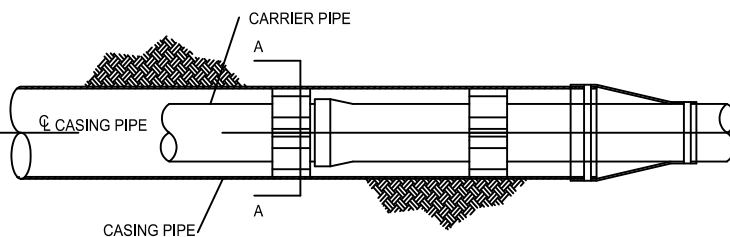
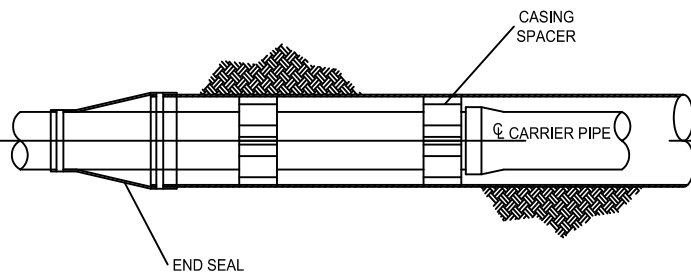
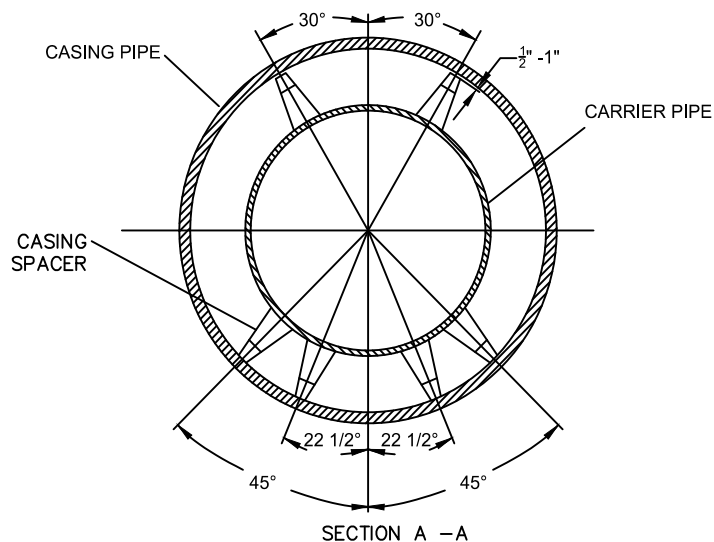
SCALE:  
NONE

PV-2.0

# STANDARD INSTALLATION FOR 3/4" AND 1" WATER METER SETTINGS

## NOTE:

- 1) THE CARRIER PIPE SHALL BE BRACED WITHIN THE CASING PIPE WITH CASING SPACERS THAT PLACE THE CARRIER PIPE IN A "RESTRAINED" POSITION TO PRECLUDE POSSIBLE FLOATATION WHILE PROVIDING 1/2"-1" CLEARANCE BETWEEN THE TOP RUNNERS AND THE CASING PIPE.
- 2) CASING SPACERS SHALL BE INSTALLED WITHIN ONE (1) FOOT OF EACH SIDE OF CARRIER PIPE JOINTS, WITHIN ONE (1) FOOT OF EACH END OF THE CASING PIPE AND ON 6 FOOT CENTERS THEREAFTER.
- 3) THERE SHALL BE TWO (2) RUNNERS ON TOP AND TWO (2) RUNNERS ON BOTTOM OF CASING SPACER FOR CARRIER PIPE DIAMETERS OF 4-12" OR TWO (2) RUNNERS ON TOP AND FOUR (4) RUNNERS ON BOTTOM FOR CARRIER PIPE DIAMETERS OF 14-36".
- 4) AT EACH END OF THE CASING PIPE, THE CARRIER AND CASING PIPE SHALL BE WRAPPED WITH END SEALS.



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## SEWER FORCE MAIN AND WATER MAIN ENCASEMENT DETAIL

CAD FILE:

SHEET:

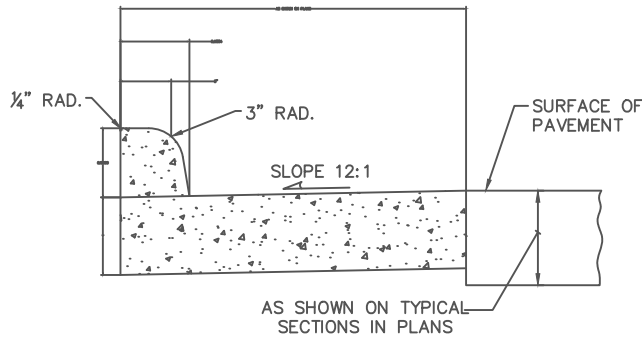
PV-3.0

DRAWN BY:  
MRJ

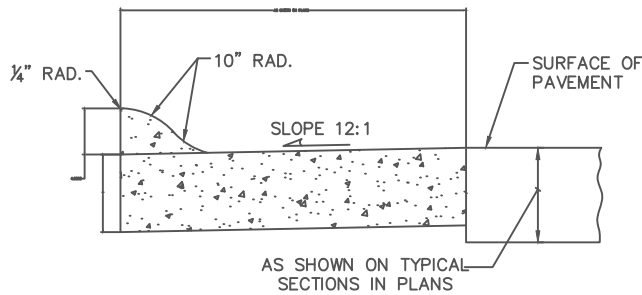
APPRVD BY:

ISSUE DATE:

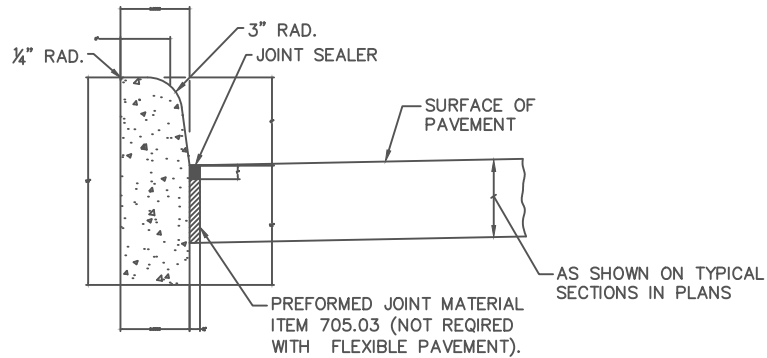
SCALE:  
NONE



MODIFIED ODOT TYPE  
2



MODIFIED ODOT TYPE  
(MOUNTABLE - REQUIRES ENGINEERING & PUBLIC WORKS  
APPROVAL OF LOCATIONS)



MODIFIED ODOT TYPE  
6

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# TYPICAL CURB SECTIONS

CAD FILE:

SHEET:

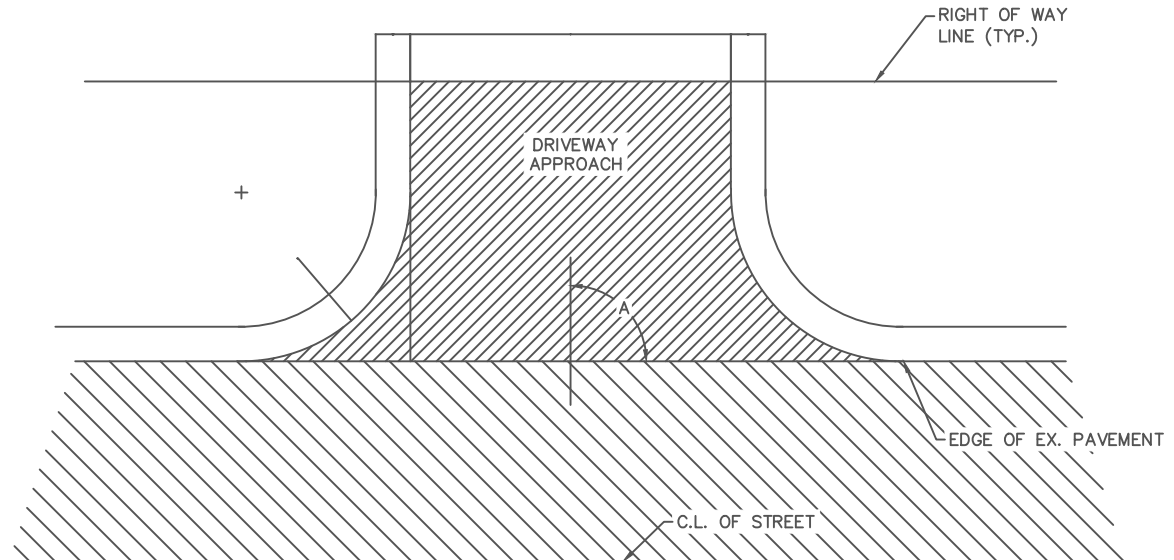
PV-4.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
MIN. WIDTH (W)	10	15	20
MAX. WIDTH (W)	30	40	40
MIN. RADIUS (R)	10	15	25
MAX. RADIUS (R)	25	50	50
MIN. ANGLE OF INTERSECTION (A)	45	45	45

TYPE OF DRIVEWAY	MINIMUM SURFACING REQUIREMENTS	MINIMUM BASE ROCK REQUIREMENTS
CONCRETE	6" OF 3000 PSI PORTLAND CEMENT CONCRETE	2" OF SAND OR 2" OF ¾" CRUSHED ROCK
ASPHALT	3" OF ASPHALTIC CONCRETE PAVEMENT	6" OF 1" CRUSHED AGG BASE ROCK

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CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

**STANDARD DRIVEWAY**

CAD FILE:

SHEET:

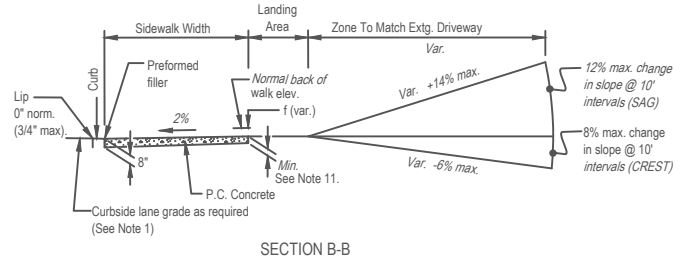
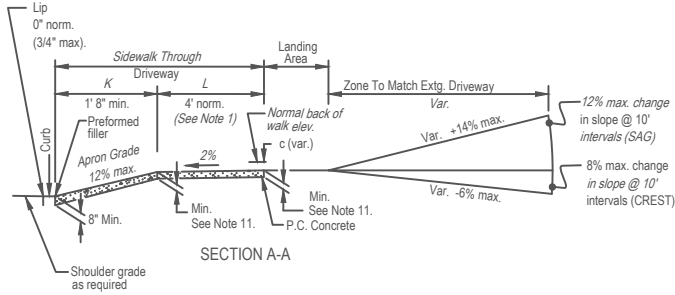
**PV-5.0**

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

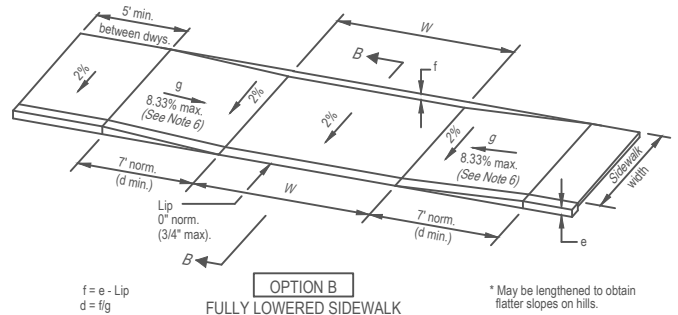
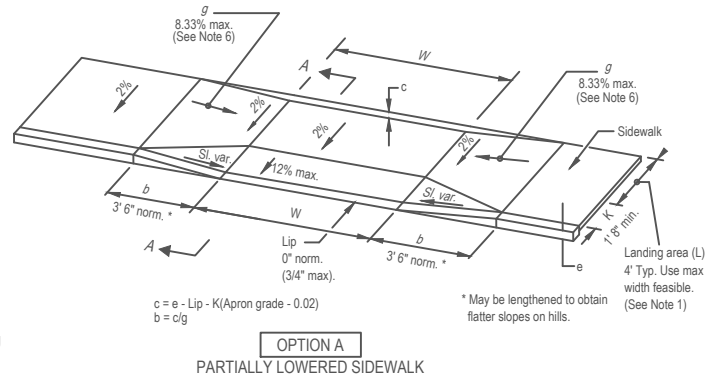


#### GENERAL NOTES:

- 4' sidewalk width with 2% slope required through driveways. 3'-6" minimum width is acceptable where full sidewalk width is less than 6'.
- Where existing driveway is in good condition and meets slope requirements, construct only as much as required for satisfactory connection with new work.
- Check the gutter flow depth at driveway location to assure that the design flood does not overtop the back of sidewalk at driveway. If overtopping occurs place an inlet at upstream side of driveway or perform other approved design mitigation.
- Tooled joints are required at all driveway slope break lines.
- Longitudinal slopes shown are relative to the running slope of the sidewalk.
- At least 10' of driveway behind the sidewalk should be surfaced to prevent tracking of gravel onto the sidewalk.
- All single family residential driveways and sidewalk sections through driveways shall have a nominal thickness of 6" of concrete. All other approaches shall be 8" thick.
- Expansion joints shall be required only when new concrete structures are constructed abutting existing concrete structures unless otherwise directed.
- Saw cut existing pavement a minimum of 24" from face of new curb or gutter.

TYPICAL DRIVEWAY DIMENSIONS (FT.)

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
MIN. WIDTH (W)	10	15	20
MAX. WIDTH (W)	30	40	40
MIN. RADIUS (R)	10	15	25
MAX. RADIUS (R)	25	50	50
MIN. ANGLE OF INTERSECTION (A)	45	45	45



NOTE: Dimensions b, c, d & f are nominal. Construct driveways to meet required slopes.

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SAFETY SERVICE DIRECTOR

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PHONE: 740-423-7592

## DRIVEWAY IN CURBSIDE SIDEWALK

CAD FILE:

SHEET:

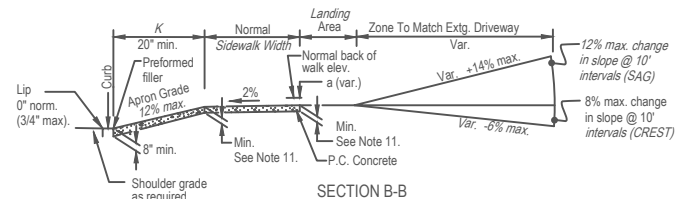
PV-6.0

DRAWN BY:  
MRJ

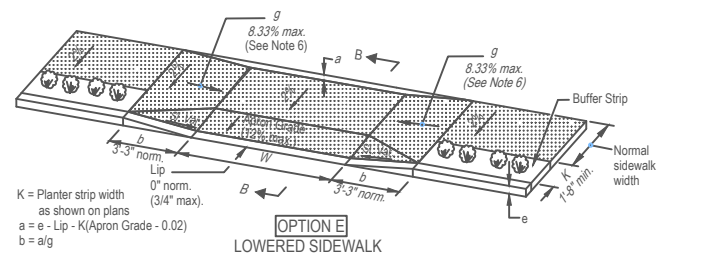
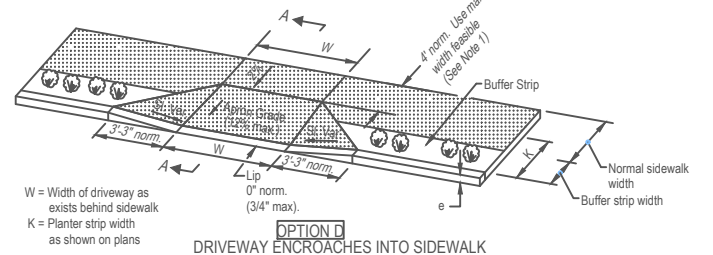
APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



## SECTION B-B

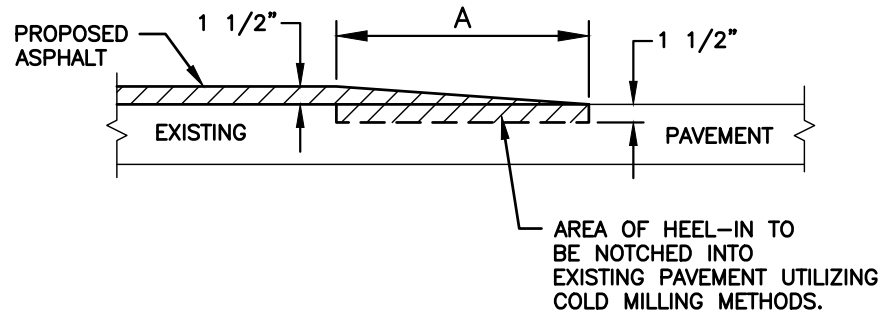


	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
MIN. WIDTH (W)	10	15	20
MAX. WIDTH (W)	30	40	40
MIN. RADIUS (R)	10	15	25
MAX. RADIUS (R)	25	50	50
MIN. ANGLE OF INTERSECTION (A)	45	45	45

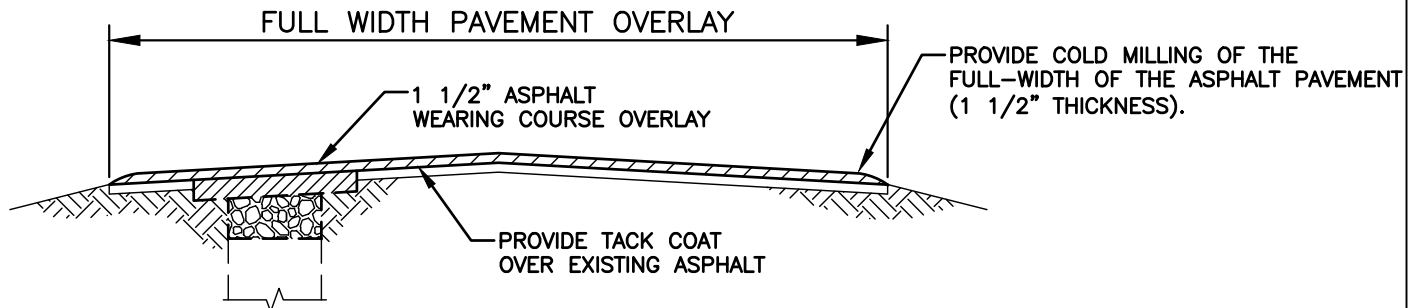
NO	DATE	REVISION



POSTED SPEED LIMIT	DIMENSION A
25 MPH	12'
30 TO 35 MPH	14'
40 TO 45 MPH	16'
50 TO 55 MPH	18'



**RESURFACING HEEL-IN DETAIL**  
NOT TO SCALE



**PAVEMENT RESTORATION**  
**1 1/2" ASPHALT OVERLAY**  
NOT TO SCALE

**NOTES:**

- OVERLAY SHALL BE PLACED UTILIZING A PAVING MACHINE APPROVED BY ODOT.
- IF EXISTING PAVEMENT IS STRIPED, REPLACE STRIPING IN ACCORDANCE WITH THE REQUIREMENTS OF THE ODOT.
- IF COLD MILLING OF THE CONCRETE PLACED IN THE PAVEMENT RESTORATION ITEMS IS NECESSARY, SUCH CONCRETE SHALL HAVE CURED AT LEAST 28 DAYS PRIOR TO COLD MILLING.
- REMOVE TOPSOIL, ALL LOOSE AND FOREIGN MATERIALS, AND PLACE BASE MATERIAL WHEN SUBGRADE IS FREE OF RUTS AND STANDING WATER. ASPHALT CONCRETE BASE SHALL MEET THE SPECIFICATIONS OF ODOT ITEM 307. MIX SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. A TACK COAT SHALL BE IN ACCORDANCE WITH ODOT ITEM 408.
- COLD MILLING AND RESULTANT OVERLAY SHALL HAVE A THICKNESS OF 1-1/2".

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PHONE: 740-423-7592

# MILL AND OVERLAY DETAILS

CAD FILE:

SHEET:

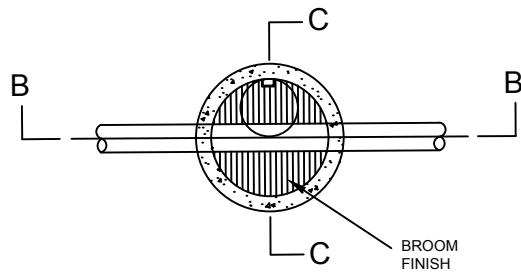
PV-8.0

DRAWN BY:  
MRJ

APPRVD BY:

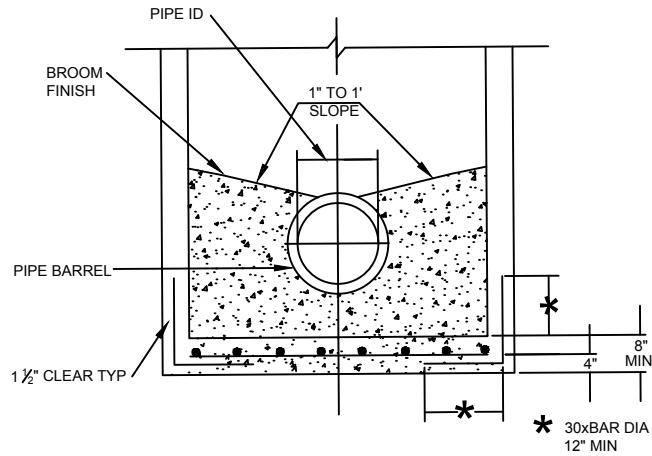
ISSUE DATE:

SCALE:  
NONE



**SECTION A - A**

M.H. DEPTH	SLAB & DOWELL RESTEEL SQ. IN./FT. E.W.
0'-10'	0.17
11'-20'	0.22
21'-30'	0.27
31'-40'	0.32



**SECTION C - C**

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

## SANITARY STANDARD MANHOLE

CAD FILE:

SHEET:

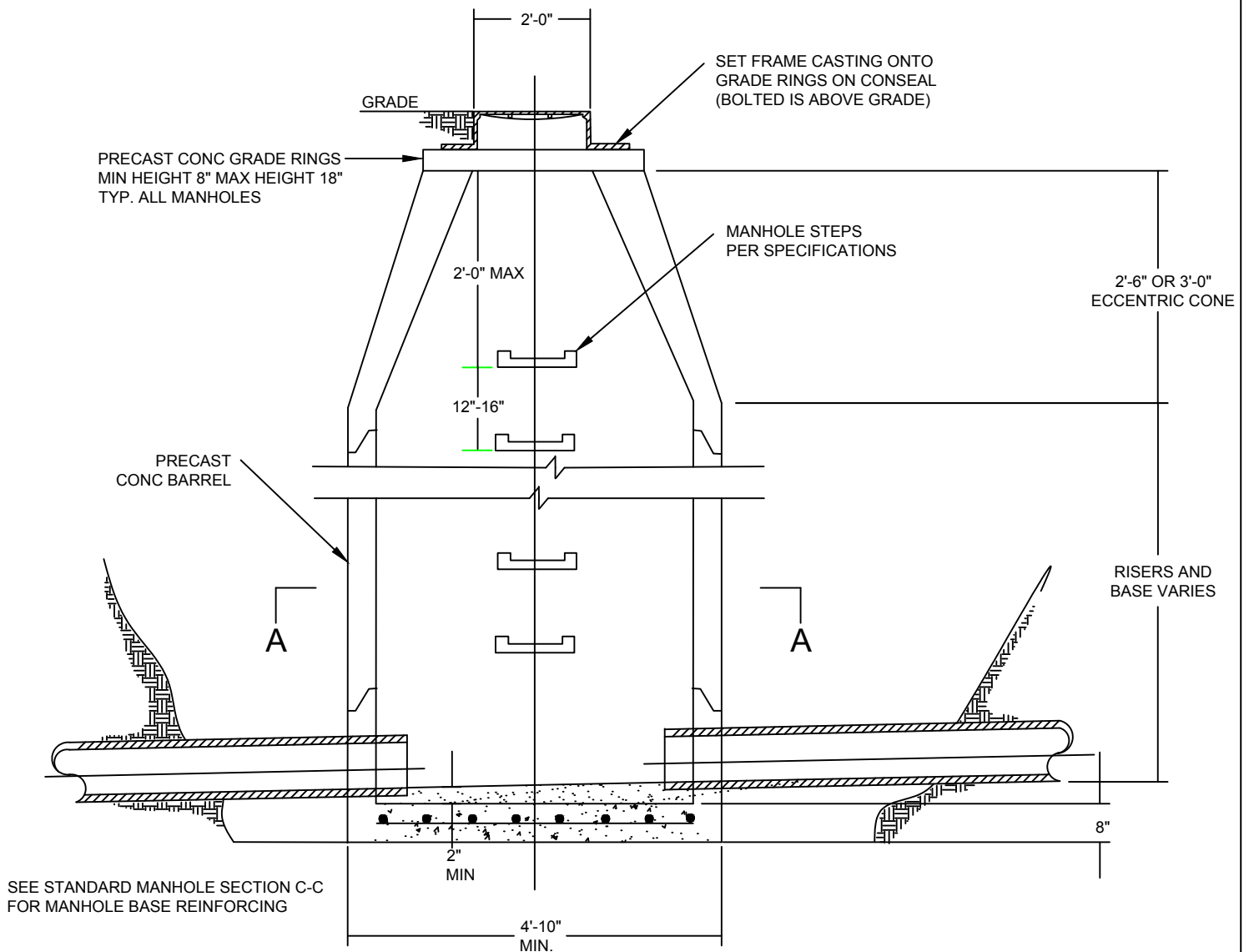
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**SS-1.0**



## SECTION B - B

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

NO	DATE	REVISION

## SANITARY STANDARD MANHOLE

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

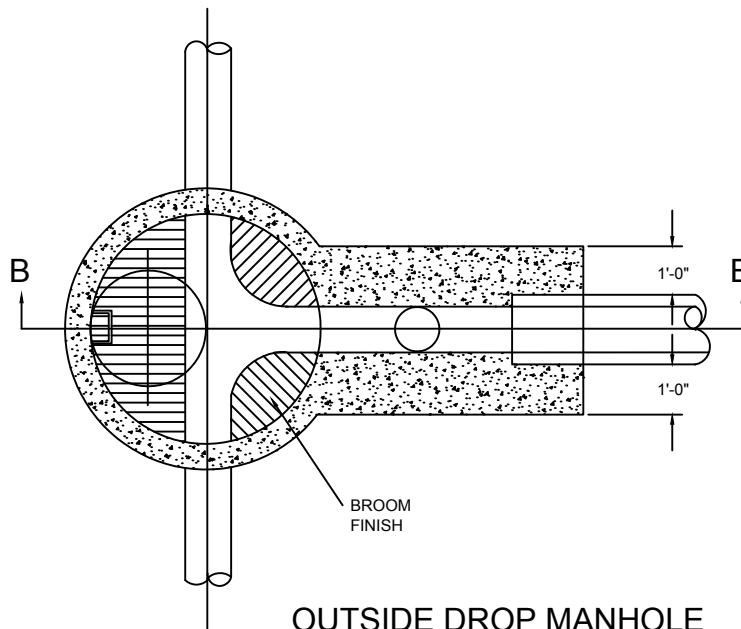
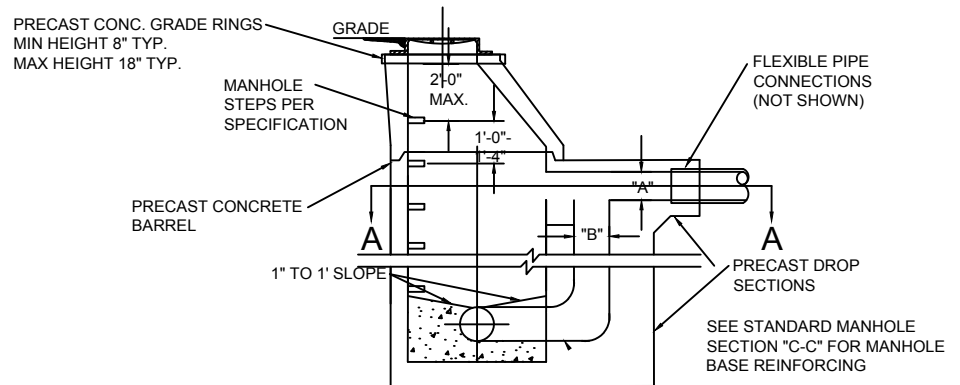
ISSUE DATE:

SCALE:  
NONE

**SS-1.1**

TABLE OF DIMENSIONS		
"A"		"B"
6"		6"
8"		6"
10"		6"
12"		8"
15"		8"
18"		10"
21"		10"
24"		12"
27"		15"
30"		18"

DROP MANHOLES SHALL BE USED WHEN THE DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE INLET AND THE OUTLET PIPE EXCEEDS 2.0 FEET



**OUTSIDE DROP MANHOLE  
SECTION "A-A"**

**OUTSIDE DROP MANHOLE  
SECTION "B-B"**

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SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

## SANITARY DROP MANHOLE

CAD FILE:

SHEET:

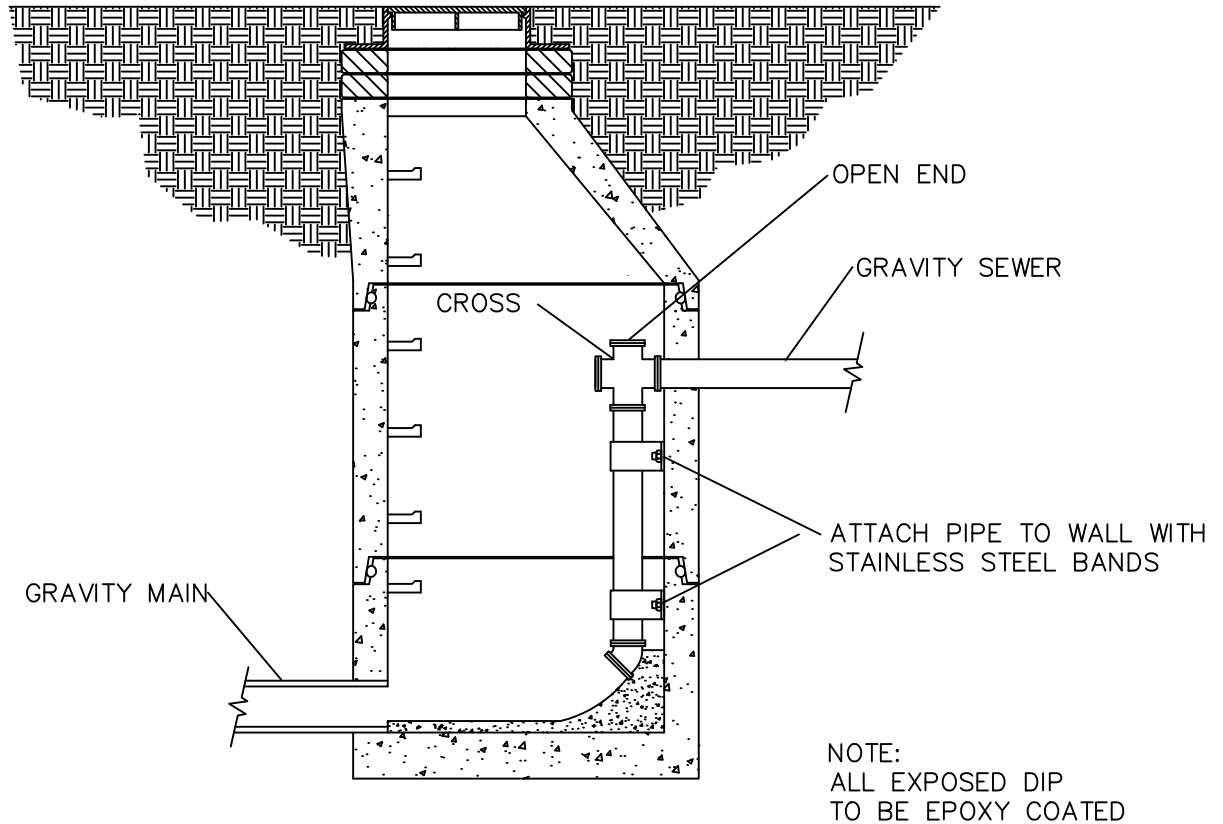
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**SS-2.0**



NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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**CITY OF BELPRE**

P.O. BOX 160  
715 PARK DRIVE

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# SANITARY SEWER INSIDE DROP DETAIL

CAD FILE:

SHEET:

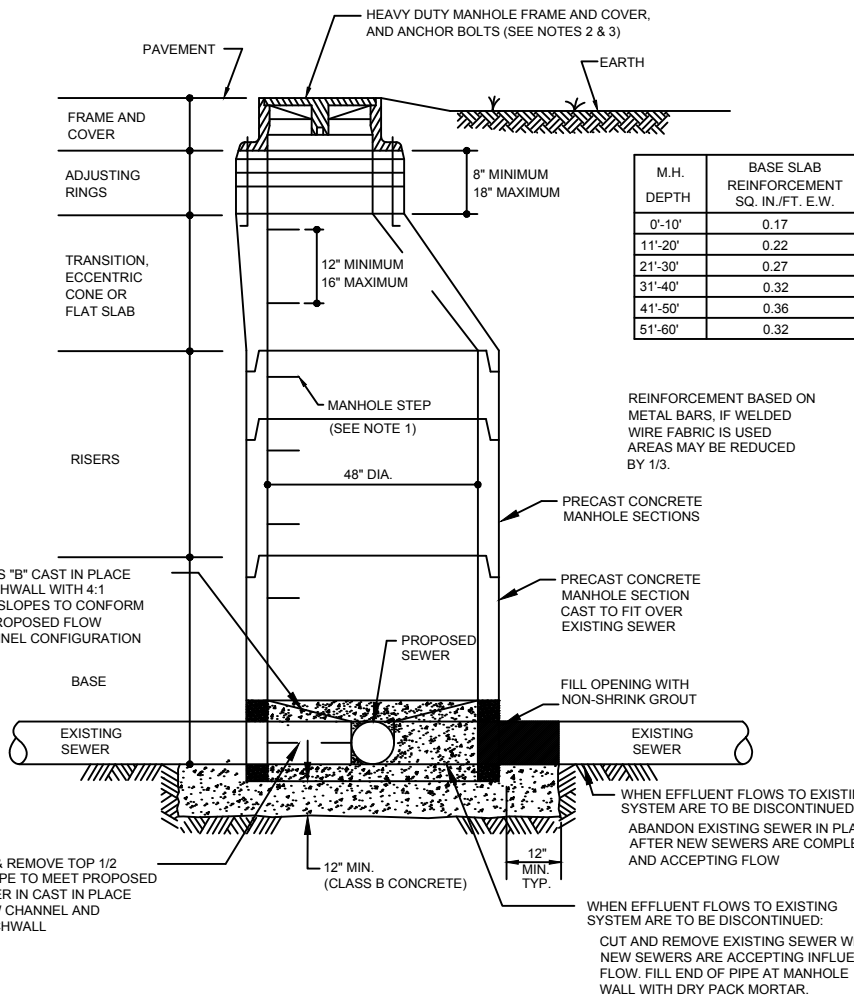
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

SS-3.0



M.H. DEPTH	BASE SLAB REINFORCEMENT SQ. IN./FT. E.W.
0'-10"	0.17
11'-20"	0.22
21'-30"	0.27
31'-40"	0.32
41'-50"	0.36
51'-60"	0.32

- NOTES:
1. MANHOLE STEPS SHALL BE CAST IN PLACE REINFORCED POLYPROPYLENE PLASTIC "AMERICAN STEP COMPANY" ML-10 OR "M.A. INDUSTRIES" PS1-PF FOR ALL MANHOLES.
  2. MANHOLES DESIGNATED WITH A (V) ON THE PLANS SHALL HAVE VENTED CASTINGS WITH A MINIMUM OF (6) 3/4" Ø DRILLED VENT HOLES. VENTED MANHOLE CASTINGS SHALL BE "NEENAH" R-1915-S1 OR EQUAL. ALL OTHER MANHOLE CASTINGS SHALL BE: BOLTED, GASKETED, WATERTIGHT "NEENAH" R-1915-S1 OR EQUAL. PROVIDE (4) 1" BOLT HOLES IN FRAME FOR MOUNTING TO CONCRETE MANHOLE.
  3. T.C.'S LOCATED IN LAWN, MOWED OR PAVED AREAS SHALL BE AT EXISTING GRADE. THE T.C. ELEVATIONS SHOWN ON THE PLANS ARE APPROXIMATE.
  4. 8" MINIMUM (18" MAX.) HEIGHT OF ADJUSTING RINGS WILL BE REQUIRED TO BE INSTALLED ON ALL MANHOLES INSTALLED IN RIGID PAVEMENTS, GRAVEL OR EARTHEN ROADWAYS, DRIVEWAYS, AND ROADWAY BERMS AND SHOULDERS. ADJUSTING RINGS IN OTHER AREA ARE NOT REQUIRED UNLESS NEEDED TO ADJUST TO FINAL GRADES.

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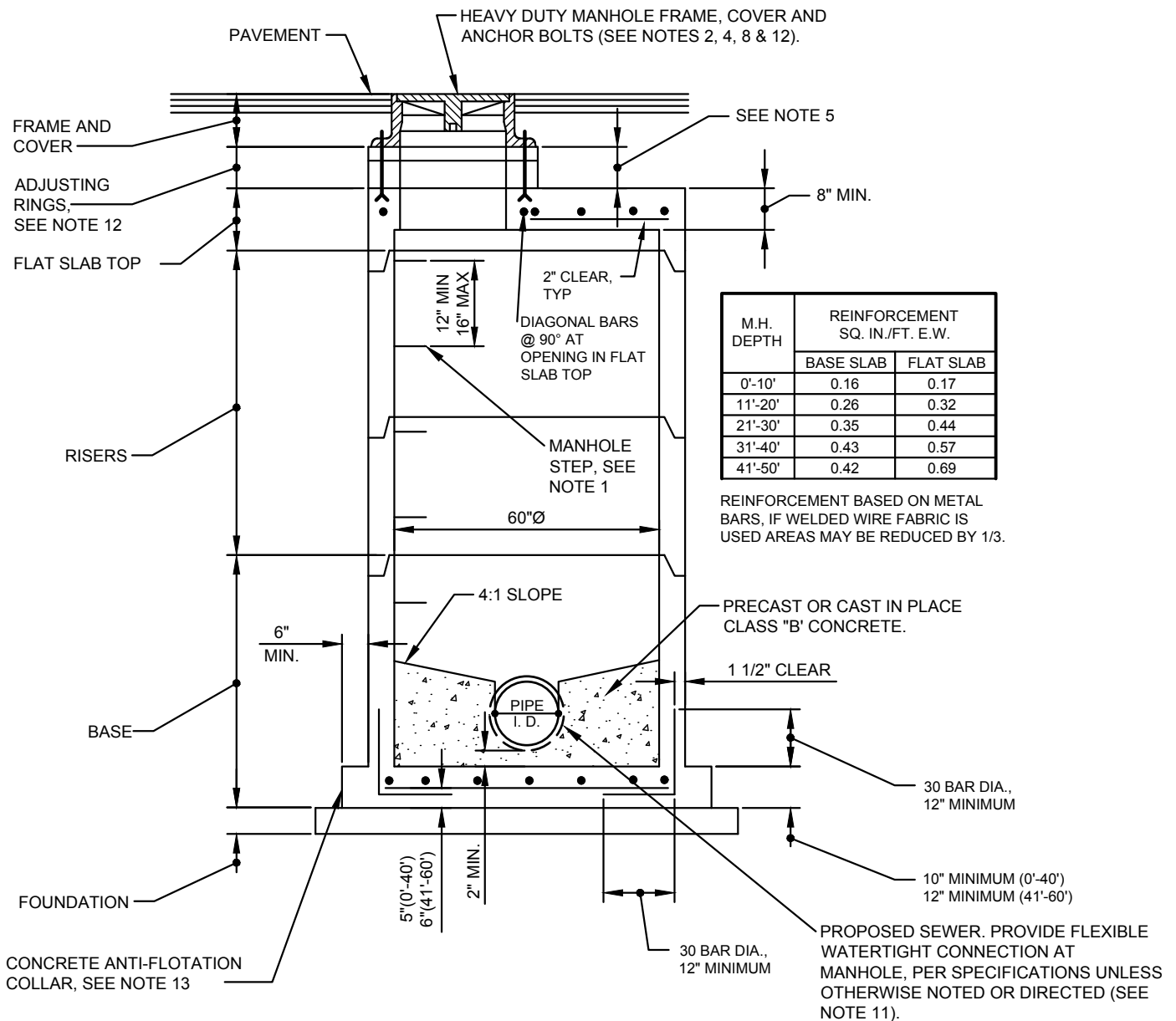
## SANITARY DOGHOUSE MANHOLE

CAD FILE:

SHEET:

SS-4.0

DRAWN BY: MRJ  
APPRVD BY:  
ISSUE DATE:  
SCALE: NONE



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NO	DATE	REVISION

## LARGE DIAMETER SANITARY MANHOLE

CAD FILE:

SHEET:

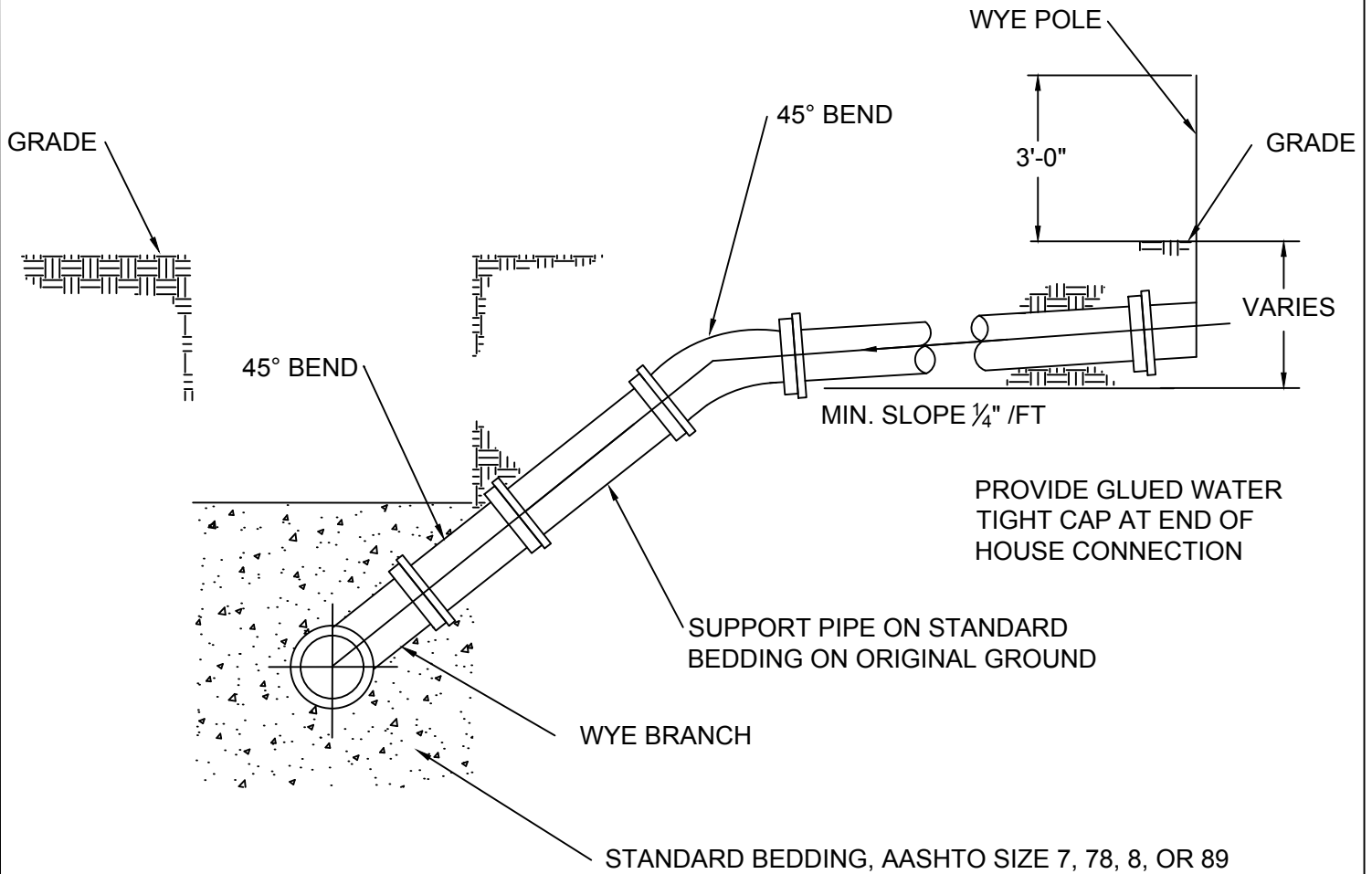
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

SS-5.0



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## TYPICAL SANITARY SERVICE DETAIL

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

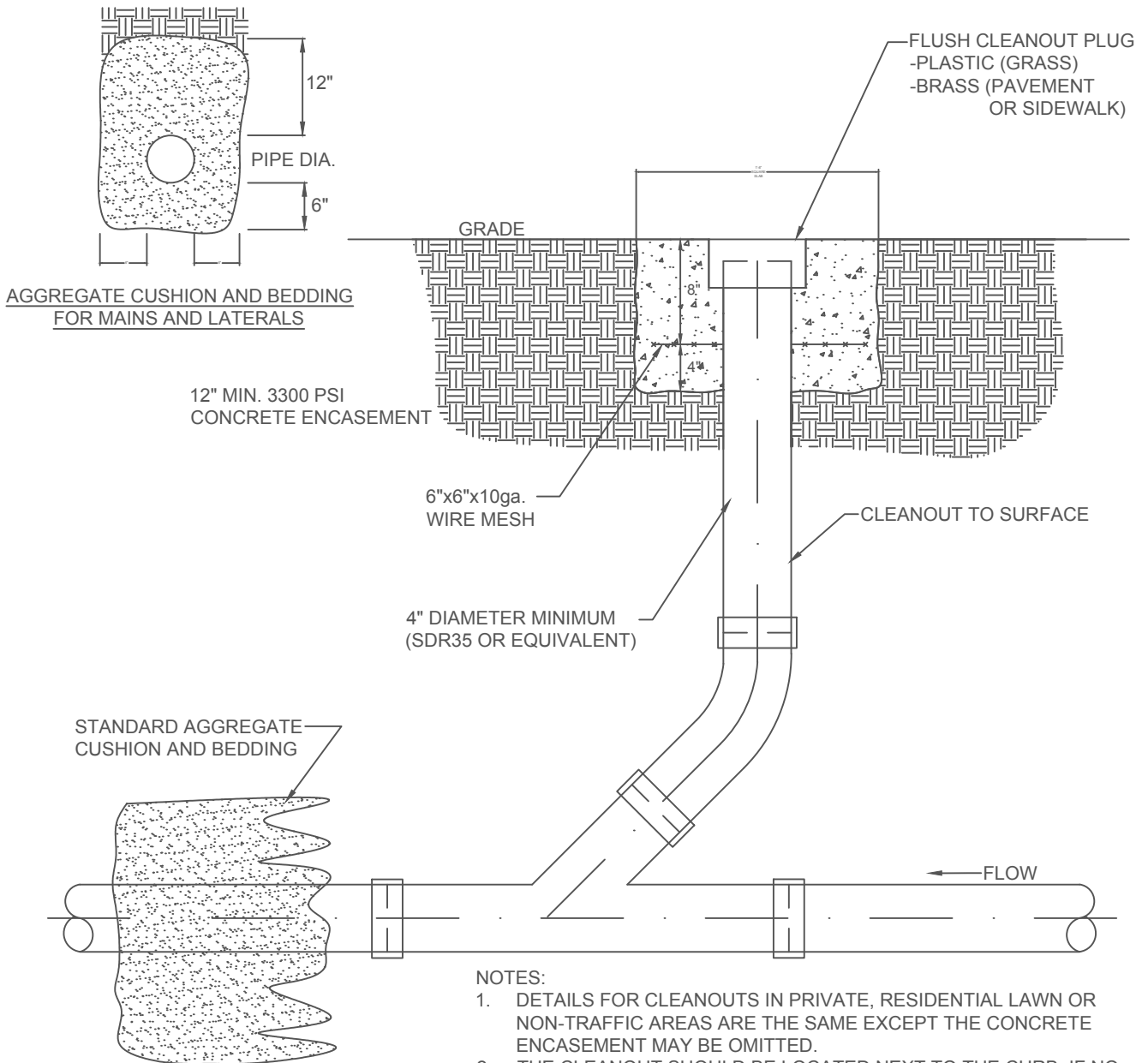
APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

SS-6.0





**NOTES:**

1. DETAILS FOR CLEANOUTS IN PRIVATE, RESIDENTIAL LAWN OR NON-TRAFFIC AREAS ARE THE SAME EXCEPT THE CONCRETE ENCASEMENT MAY BE OMITTED.
2. THE CLEANOUT SHOULD BE LOCATED NEXT TO THE CURB, IF NO CURB IS PRESENT NEAR THE SIDE OF THE ROAD, OR PRIOR TO THE LATERAL CONNECTING TO THE SEWER MAIN.
3. ALL WORK AND CONNECTIONS MUST BE INSPECTED BY A REPRESENTATIVE OF THE CITY PRIOR TO COVERING.

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**CLEANOUT DETAIL**

CAD FILE:

SHEET:

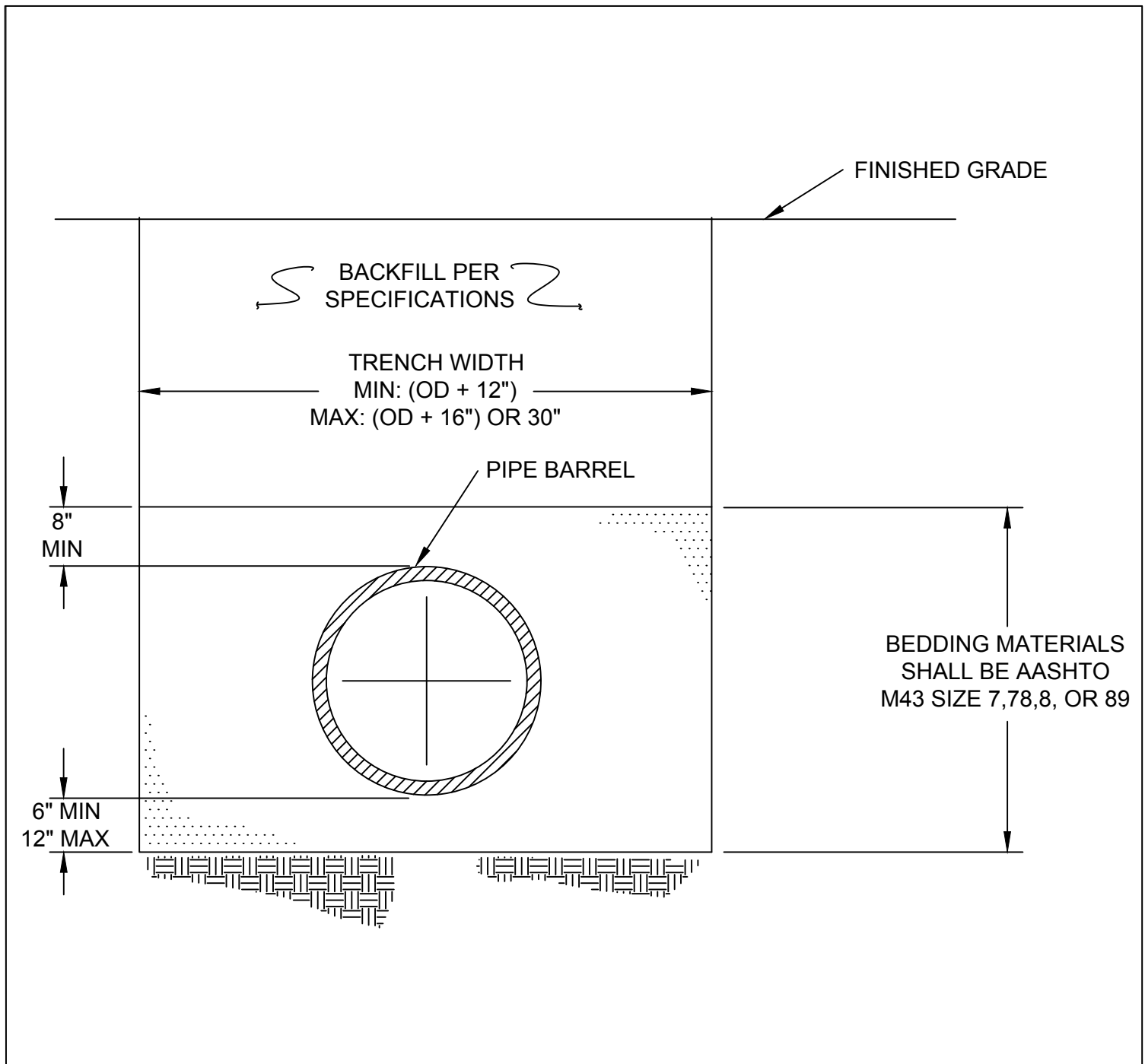
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**SS-7.0**



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NO	DATE	REVISION

## SANITARY SEWER TRENCH DETAILS

CAD FILE:

SHEET:

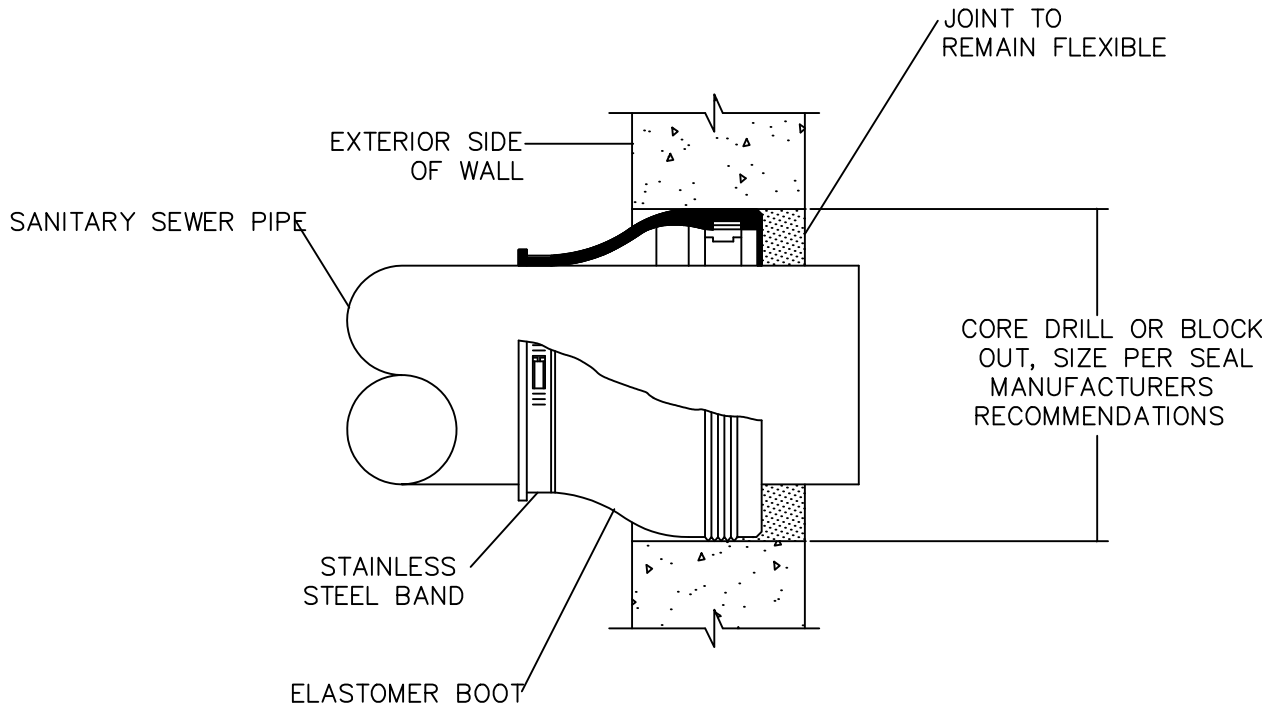
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**SS-8.0**



**NOTES:**

WALL PENETRATIONS SHALL BE LOCATED WITHIN A RISER SECTION AND NOT A WALL JOINT

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NO	DATE	REVISION

# CONNECTION TO EXISTING MANHOLE

CAD FILE:

SHEET:

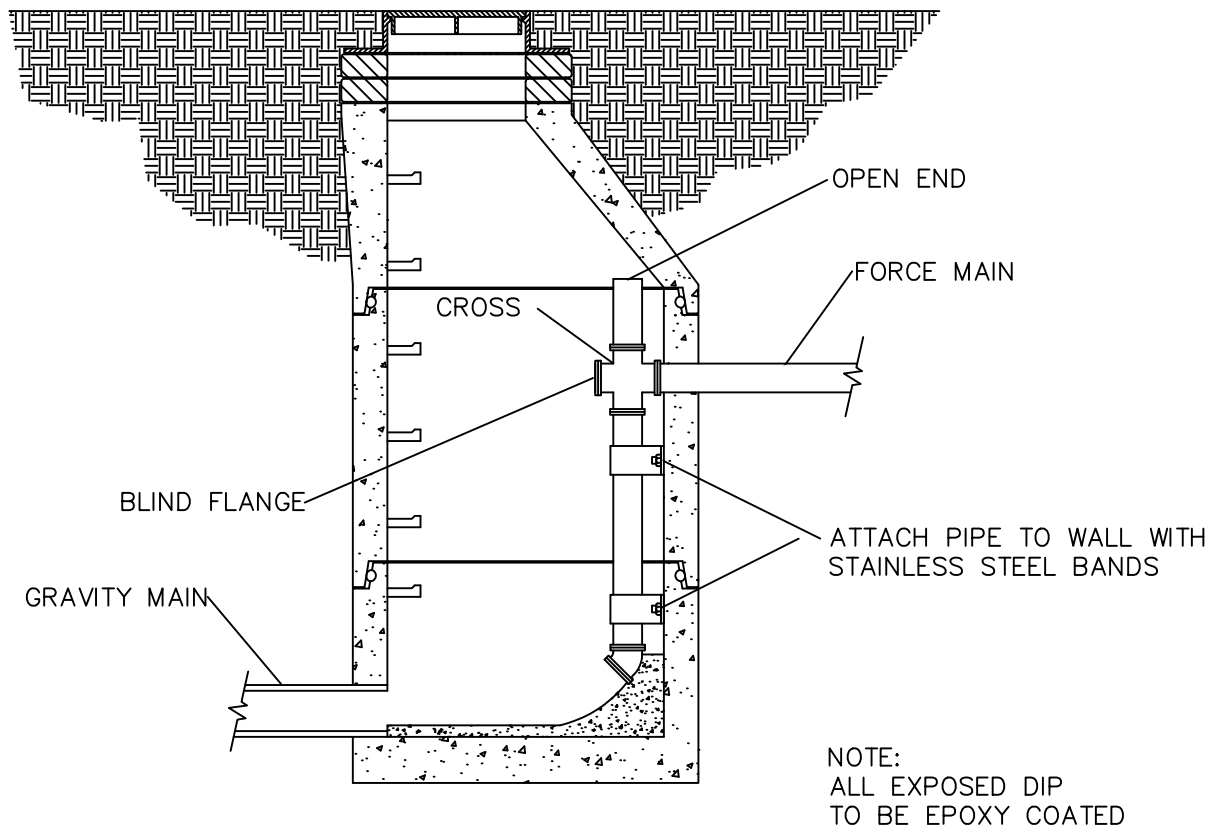
SS-9.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



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## FORCE MAIN DROP CONNECTION TO MANHOLE DETAIL

CAD FILE:

SHEET:

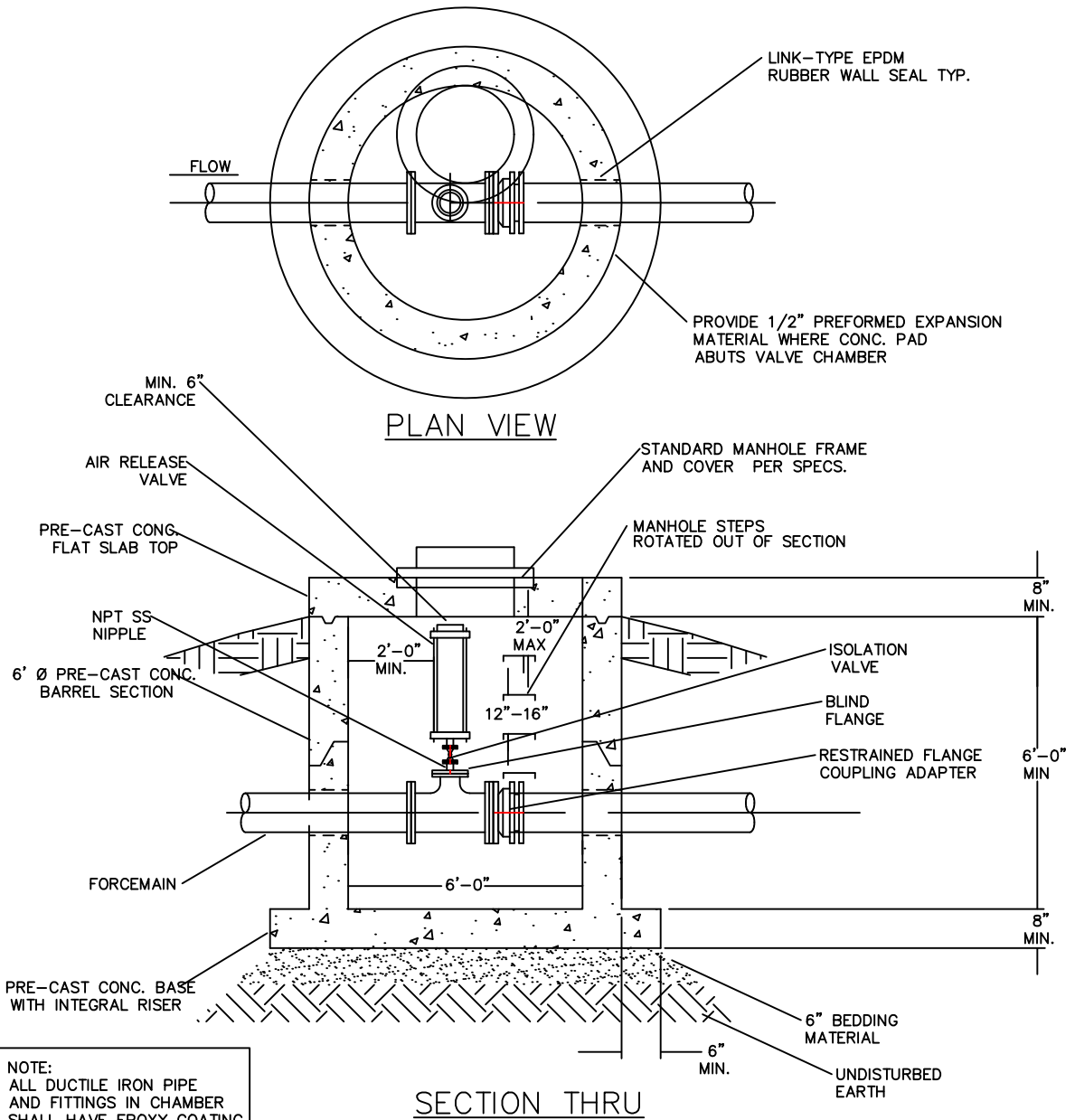
SS-10.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



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# AIR RELEASE VALVE CHAMBER DETAIL

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

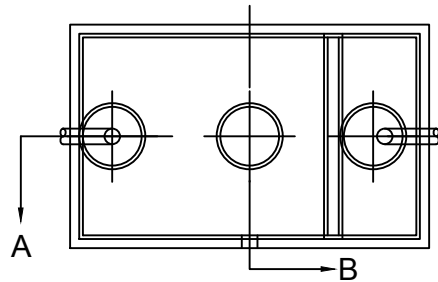
APPRVD BY:

ISSUE DATE:

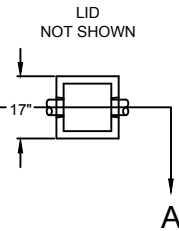
SCALE:  
NONE

SS-11.0

NO	DATE	REVISION

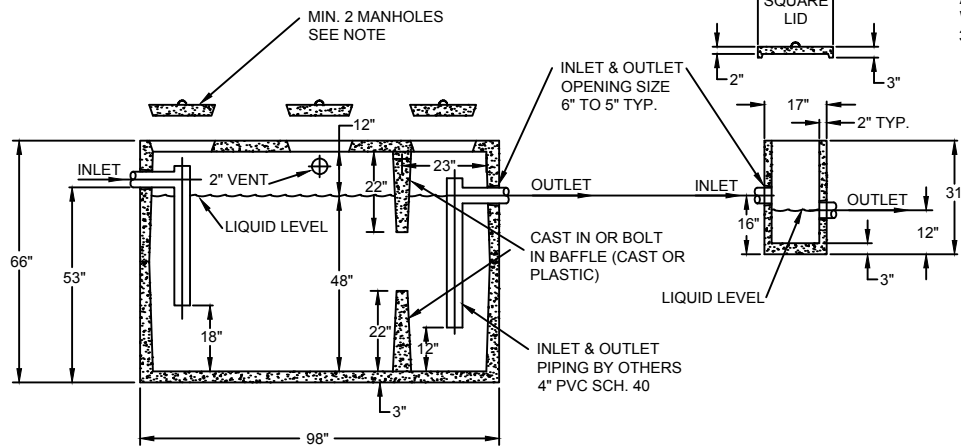


**PLAN VIEW**

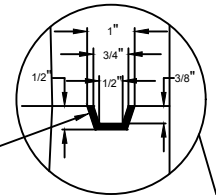


**INSPECTION BOX  
(OPTIONAL)**

NOTE:  
ACCESS MANHOLES WITH A MINIMUM DIAMETER OF 24" SHALL BE PROVIDED OVER EACH GREASE INTERCEPTOR CHAMBER. THE ACCESS MANHOLE SHALL EXTEND AT LEAST TO FINISHED GRADE AND BE DESIGNED AND MAINTAINED TO PREVENT WATER INFLOW OR INFILTRATION. THE MANHOLES SHALL HAVE READILY REMOVABLE COVERS TO FACILITATE INSPECTION, GREASE REMOVAL, AND WASTEWATER SAMPLING ACTIVITIES.

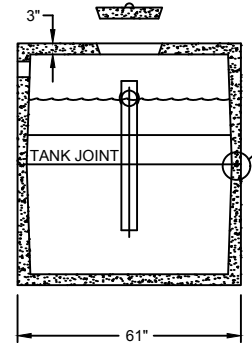


**SECTION A-A**



**JOINT DETAIL**

ASTM D-65 OR CONSEAL  
WORKABILITY TEMP  
30 TO 300 DEGREES F.



**SECTION B-B**

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**CITY OF BELPRE**

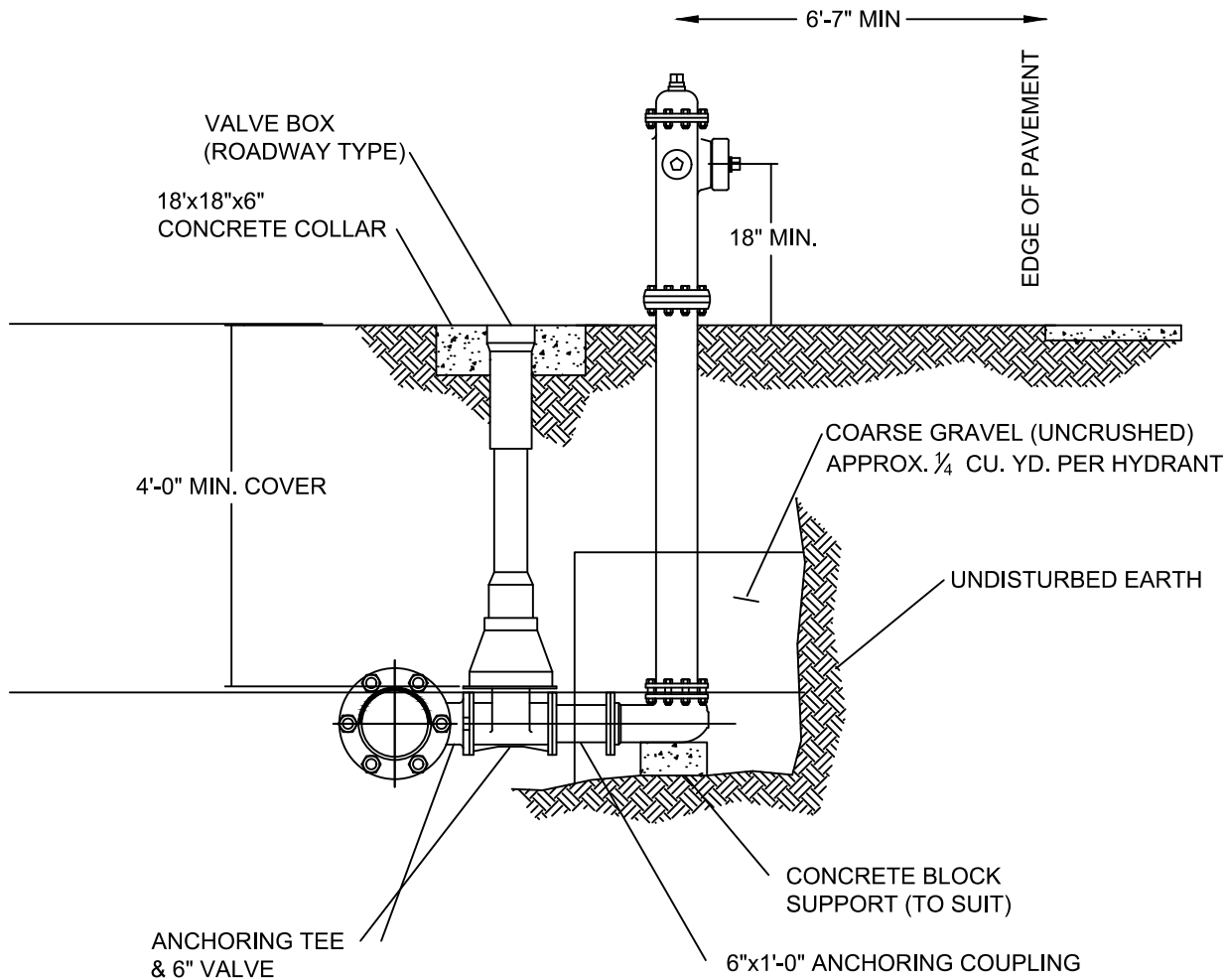
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BELPRE, OHIO 45714

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PHONE: 740-423-7592

NO	DATE	REVISION

<p><b>GREASE INTERCEPTOR</b></p>					SHEET:	
					SS-12.0	
CAD FILE:						
DRAWN BY:	APPRVD BY:	ISSUE DATE:	SCALE:			
MRJ			NONE			



NOTES:

- 1.) VERIFY LOCATION OF F.H. RELATIVE TO WATER MAIN ON PLANS.
- 2.) CHECK STREET DETAILS FOR RELATIONSHIP BETWEEN MAIN, STREET AND F.H.

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NO	DATE	REVISION

**TYPICAL FIRE HYDRANT  
INSTALLATION**

CAD FILE:

SHEET:

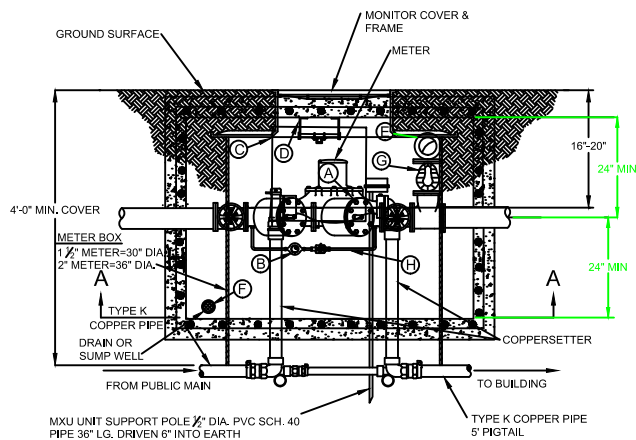
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

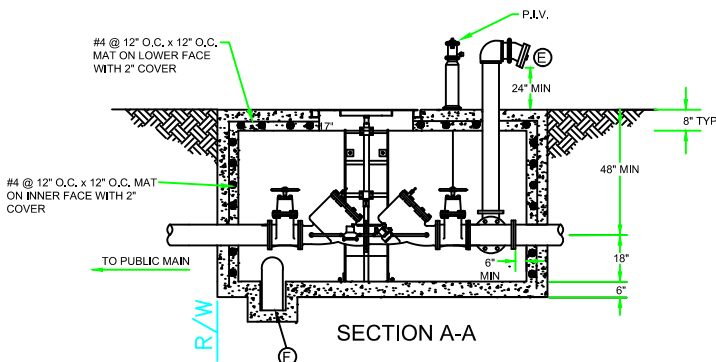
**WL-1.0**



PLAN

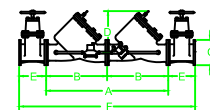
NOTE: SIDES SHALL BE DOWLED TO TOP AND BOTTOM WITH REINFORCING STEEL

- A) FIRE SERVICE BACKFLOW PREVENTION DEVICE: WATTS #709-DCDA, WATTS #774-DCDA, AMES #3000 DCDA, OR EQUAL.
- B) BY-PASS METER (3/4" OR 1" PURCHASED FROM CITY OF BELPRE). NOTE: BY-PASS LINE REQUIRES A BACKFLOW DEVICE SIMILAR TO THE WATTS #709.
- C) LID: BILCO MODEL #J-4AL, OR HALLIDAY MODEL #W1S3636, OR APPROVED EQUAL.
- D) ALUMINUM LADDER: OSHA APPROVED HALLIDAY SERIES L-18 WITH SERIES L-1E SAFETY POST, OR APPROVED EQUAL.
- E) 5" LOCKING STORTZ ON 30" ELBOW TURNED DOWN SECURED SIGN INDICATING "FIRE DEPT. CONNECTION" (FDC) WITH ADDRESS IT PROTECTS FIXED TO THE FDC FACING STREET.
- F) SUMP PUMP (REQUIRED IF GRAVITY DRAIN IS NOT POSSIBLE), EXTEND DISCHARGE PIPING AWAY FROM TOP OF VAULT.
- G) CHECK VALVE WITH AUTOMATIC BALL DRIP.
- H) CONTRACTOR/ PLUMBER TO VERIFY LAYING LENGTH OF BACKFLOW DEVICE, VALVES, METERS ETC.



SECTION A-A

WATTS #709 DCDA



SIZE	A	B	C	D	E	F
3"	24	12	7.5	7	8	40
4"	34	17	9	9.5	9	52
6"	41.5	20.75	11	14.5	10.5	82.5
8"	52	26	13	18.5	11.5	75
10"	64	32	16	21.5	13	90

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PHONE: 740-423-7592

## FIRE LINES WITH DOMESTIC SERVICE

CAD FILE:

SHEET:

DRAWN BY:

APPRVD BY:

ISSUE DATE:

SCALE:

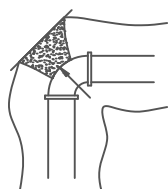
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WL-2.0

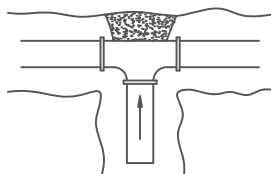


**NOTES:**

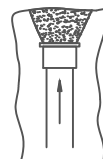
1. BLOCKING OF TYPICAL HORIZONTAL BEND WILL INCLUDE ALL BENDS 11 1/4 (1/32) TO 90 (1/4).
2. BLOCK TEE AS SHOWN IN THE EVENT THAT ONE SIDE OF THE MAIN IS PLUGGED. 2 THRUST BLOCKS WILL BE REQUIRED.
3. BLOCKING OF PLUG IS TO INCLUDE PLYBOARD BETWEEN THE PLUG AND THE CONCRETE.
4. BLOCKING OF CROSS WITH 2 PLUGS IS AS SHOWN. WITH ONLY ONE PLUG, PROCEED SAME AS TEE.
5. INSTALL CONCRETE ANCHOR AS SHOWN IF SIZE IS REDUCED BY 2 PIPE SIZES.
6. ALL VERTICAL BENDS TO BE BLOCKED AS SHOWN.
7. ALL HYDRANTS TO BE BLOCKED AS SHOWN. KEEP CONCRETE AWAY FROM WEEP HOLES.
8. THE END AREA OF CONCRETE THRUST BLOCKS SHALL BE SUBMITTED WITH SOIL BEARING CHARACTERISTICS TO THE ENGINEER FOR APPROVAL.



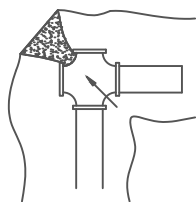
TYPICAL HORIZONTAL BEND  
NOTE NO. 1



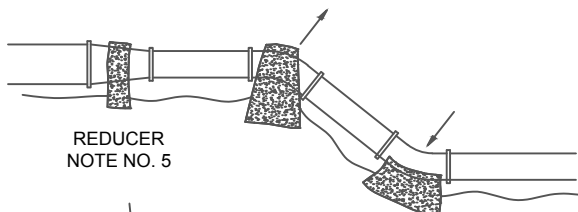
TEE AND WYE  
NOTE NO. 2



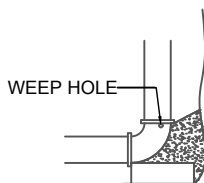
DEAD END OR PLUG  
NOTE NO. 3



CROSS  
NOTE NO. 4



REDUCER  
NOTE NO. 5



HYDRANT  
NOTE NO. 7

TYPICAL VERTICAL BENDS  
NOTE NO. 6

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NO	DATE	REVISION

## TYPICAL CONCRETE THRUST BLOCKING

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**WL-3.0**

TABLE 1				
HORIZONTAL BENDS AND ELBOWS				
LENGTH OF RESTRAINED JOINT PIPE (FEET)				
NOMINAL PIPE DIAMETER	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4	14	6	3	2
6	20	9	4	2
8	26	11	6	3
10	30	13	7	4
12	36	15	8	4
16	47	20	10	5
20	57	24	12	6
24	66	28	13	7
30	79	33	16	8
36	91	38	19	9

TABLE 2	
TEES AND WYES	
NOMINAL PIPE DIAMETER OF BRANCH PIPE (INCHES)	RESTRAINED LENGTH ALONG BRANCH PIPE (FEET)
4	11
6	21
8	32
10	48
12	65
16	97
20	128
24	156
30	196
36	233

TABLE 3		
REDUCERS		
NOMINAL PIPE DIAMETER		RESTRAINED LENGTH ALONG PIPE (FEET)
LARGE END	SMALL END	
6	4	33
8	6	35
10	4	81
10	6	61
10	8	34
12	4	103
12	6	86
12	8	63
12	10	35
16	12	65
20	16	66
24	20	66
30	24	94
36	30	95

TABLE 4	
DEAD ENDS	
NOMINAL PIPE DIAMETER	RESTRAINED LENGTH ALONG PIPE (FEET)
4	45
6	63
8	83
10	100
12	118
16	153
20	187
24	220
30	267
36	313

**NOTES (ALL TABLES):**

- FITTINGS SHALL BE RESTRAINED JOINT UNLESS OTHERWISE NOTED.
- ALL PIPE SHALL BE RESTRAINED IN ACCORDANCE WITH THESE TABLES OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER.
- WHERE TWO (2) OR MORE FITTINGS ARE TOGETHER, RESTRAIN JOINTS IN ACCORDANCE WITH FITTING WHICH YIELDS GREATEST LENGTH OF RESTRAINED PIPE.
- RESTRAINT TABLES APPLY TO TEST PRESSURES OF 150 PSI OR LESS.
- FOR PIPE ENCASED IN POLYETHYLENE, INCREASE THE GIVEN VALUES BY A FACTOR OF 1.5.
- LENGTH OF RESTRAINED PIPE INDICATED IN TABLES 1 & 4 SHALL BE THE LENGTH OF PIPE ON EACH SIDE OF FITTING OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER.
- LENGTH OF RESTRAINED PIPE INDICATED IN TABLE 2 SHALL BE THE LENGTH OF PIPE ALONG BRANCH OF PIPE ONLY OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER. PIPE ON BOTH SIDES OF BRANCH SHALL HAVE A MINIMUM LAYING LENGTH OF 10 FEET.
- LENGTH OF RESTRAINED PIPE INDICATED IN TABLE 3 SHALL BE THE LENGTH OF PIPE ON LARGE END ONLY OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER.

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## CITY OF BELPRE

P.O. BOX 160  
715 PARK DRIVE  
BELPRE, OHIO 45714

CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

NO	DATE	REVISION

## RESTRAINED PIPE JOINT DETAIL

CAD FILE:

SHEET:

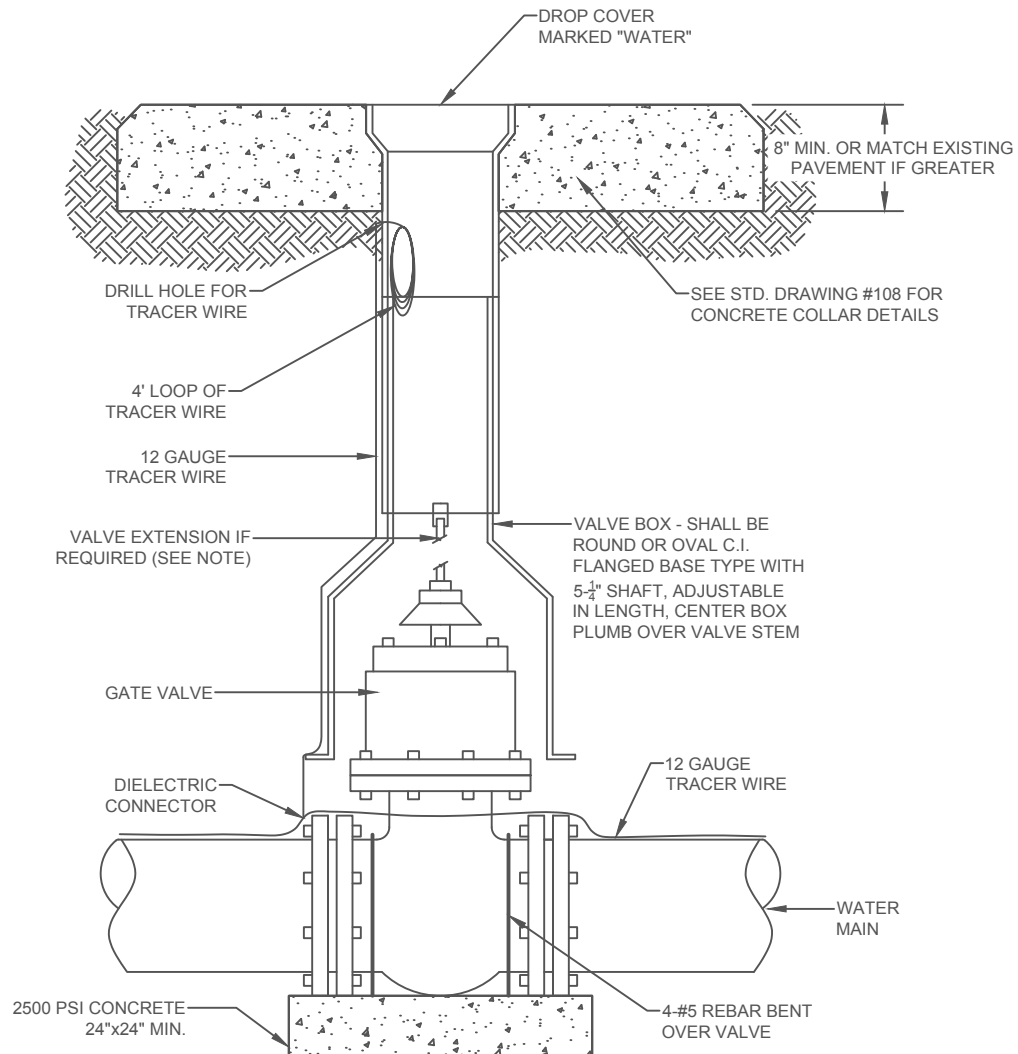
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**WL-4.0**



**GATE VALVE NOTES:**

1. STEM EXTENSIONS: PROVIDE TO BRING OPERATING NUT TO BETWEEN 30 AND 48 INCHES OF FINISHED GRADE IF VALVE-OPERATING NUT IS GREATER THAN 48 INCHES DEEP
2. USE FOR WATERLINE UP TO 14 INCHES DIAMETER
3. CONFORMANCE AWWA C509 FOR RESILIENT SEATED VALVES.
4. PRESSURE CLASS 250.
5. JOINTS: MECHANICAL JOINT WITH GRIP RING RESISTANT.
6. OPERATION: NON-RISING STEM, 2" SQUARE OPERATING NUT AND OPEN COUNTER CLOCKWISE.
7. APPROVED MANUFACTURERS:
  - A. AMERICAN FLOW CONTROL
  - B. WATEROUS
  - C. CLOW

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CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

**M.J. VALVE & VALVE BOX DETAIL**

CAD FILE:

SHEET:

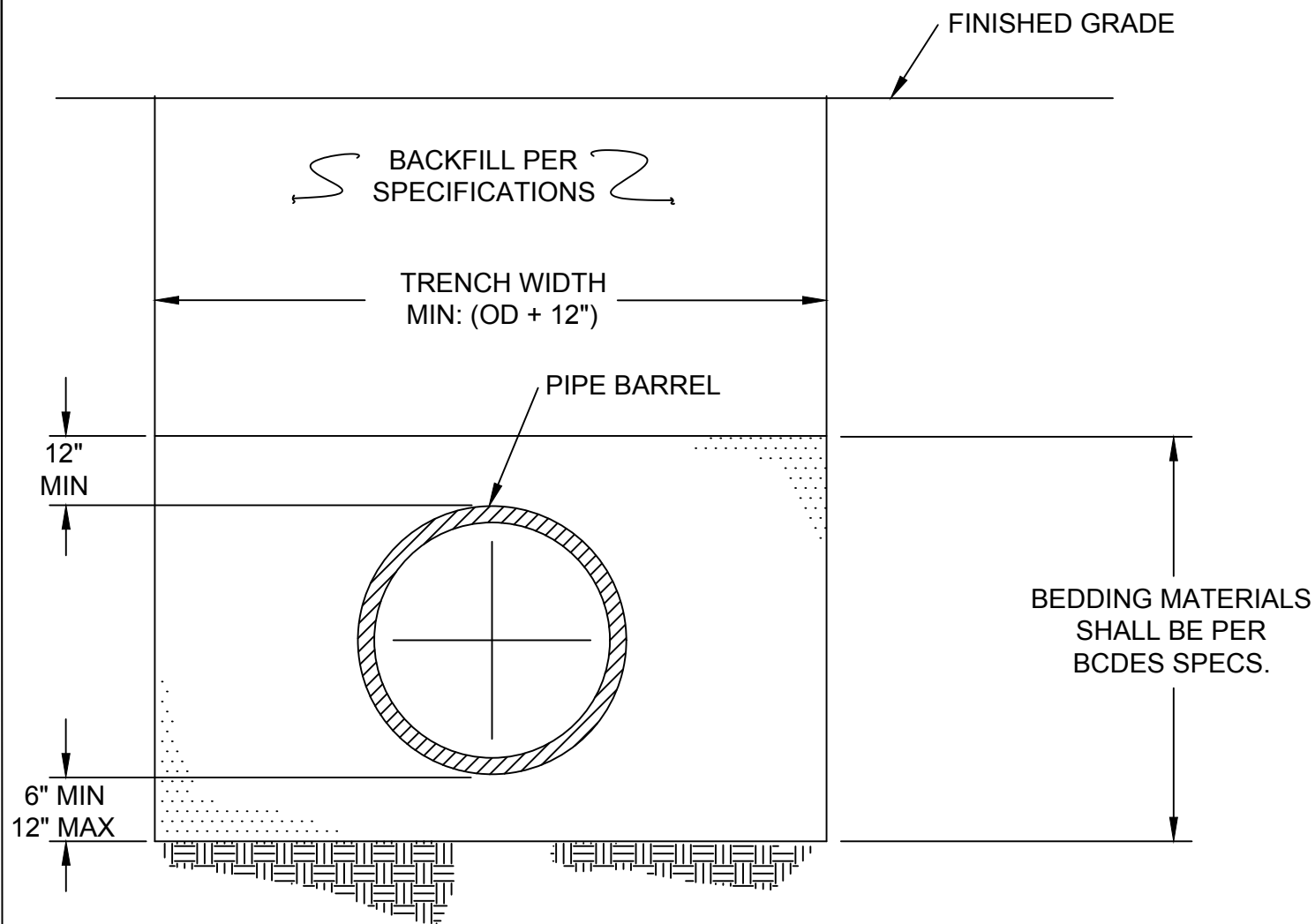
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**WL-5.0**



**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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NO	DATE	REVISION

## WATERLINE TRENCH DETAIL

CAD FILE:

SHEET:

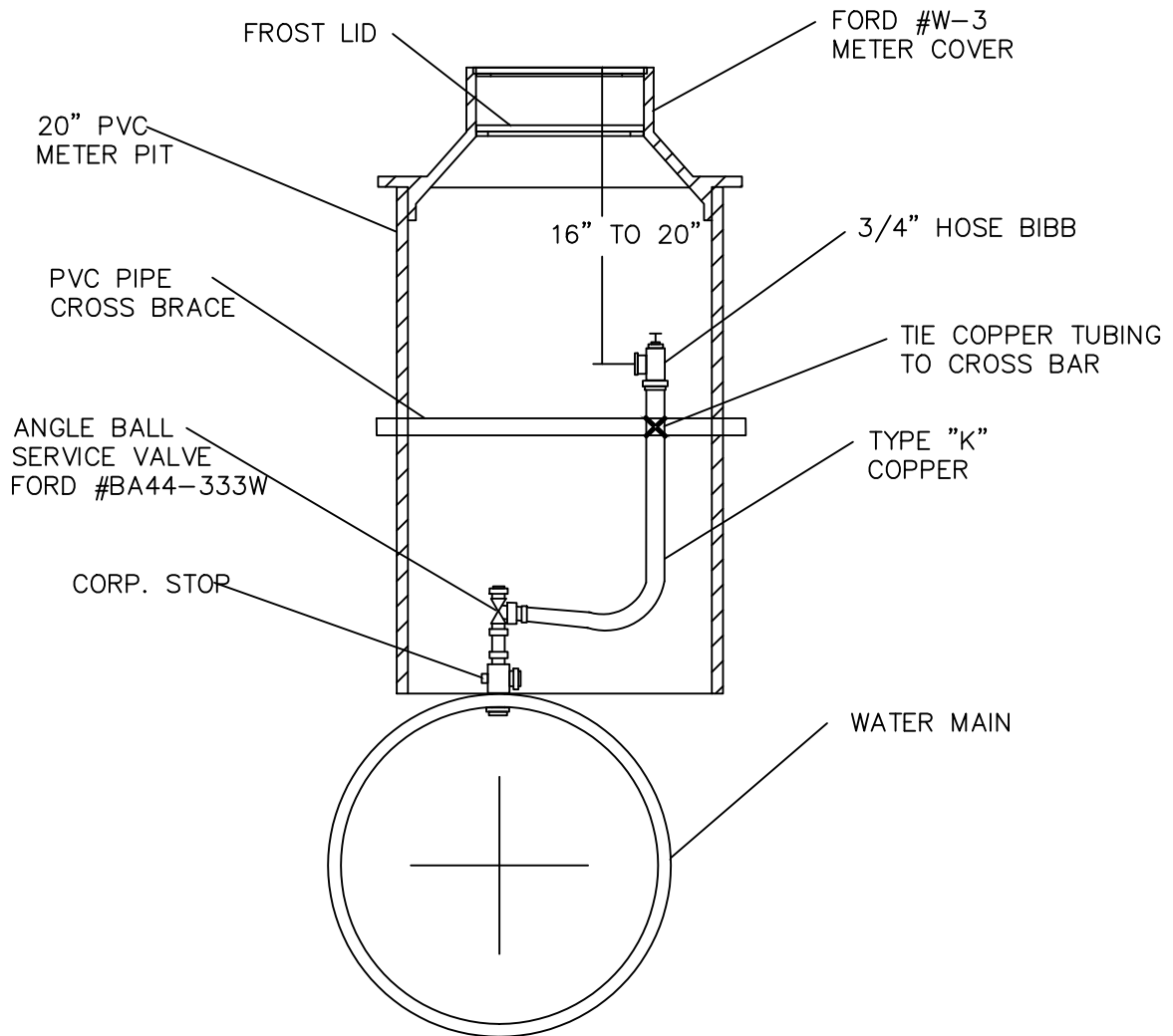
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**WL-6.0**



**NOTE:**

- 1) PIPE LESS THAN OR EQUAL TO 12"Ø  
MUST USE 3/4" CORP. STOP, ANGLE BALL VALVE  
AND SERVICE PIPE.
- 2) PIPE GREATER THAN 12"Ø TO USE  
1" CORP. STOP, ANGLE BALL VALVE  
AND SERVICE PIPE.

## MANUAL AIR RELEASE VALVE

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CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

## AIR RELEASE VALVE DETAIL

CAD FILE:

SHEET:

WL-7.0

DRAWN BY:  
MRJ

APPRVD BY:

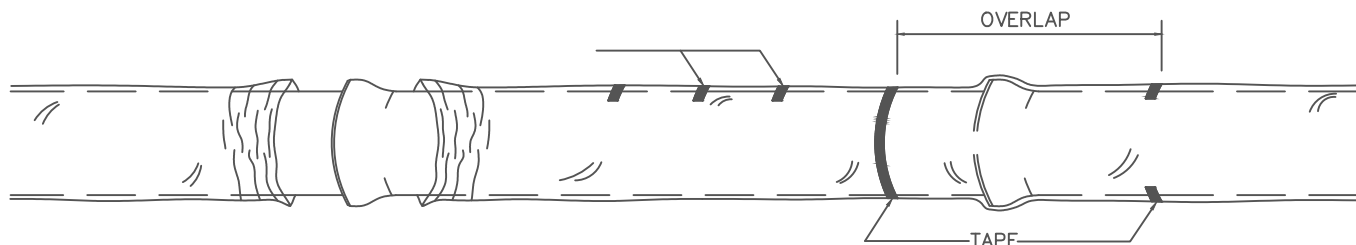
ISSUE DATE:

SCALE:  
NONE

NO	DATE	REVISION

MATERIAL SPECIFICATIONS PER  
AWWA C-105 LINEAR LOW-DENSITY  
POLYETHYLENE FILM WITH MIN. 8  
MIL. THICKNESS, MADE FROM VIRGIN  
POLYETHYLENE ONLY.

TUBE SIZE REQUIRED												
PIPE DIAMETER	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"	42"
MIN. FLAT TUBE WIDTH (INCHES)	14	14	16	20	24	27	34	41	54	67	81	81



**THE FOLLOWING METHOD ILLUSTRATES THE PROCEDURE FOR APPLYING POLYETHYLENE:**

CUT POLYETHYLENE TUBE TO LENGTH APPROXIMATELY TWO FEET LONGER THAN THE LENGTH OF THE PIPE SECTION, SLIP THE TUBE AROUND THE PIPE, CENTERING IT TO PROVIDE A ONE-FOOT OVERLAP ON EACH ADJACENT PIPE SECTION, AND BUNCHING IT ACCORDION FASHION LENGTHWISE UNTIL IT CLEARS THE PIPE END.

LOWER THE PIPE INTO THE TRENCH AND MAKE THE PIPE JOINT WITH THE PRECEDING SECTION OF PIPE. A SHALLOW BELL HOLE MUST BE MADE AT THE JOINTS TO FACILITATE INSTALLATION OF THE POLYETHYLENE TUBE.

AFTER ASSEMBLING THE PIPE JOINT, MAKE THE OVERLAP OF THE POLYETHYLENE TUBE, PULL THE BUNCHED POLYETHYLENE FROM THE PRECEDING LENGTH OF PIPE, SLIP IT OVER THE END OF THE NEW LENGTH OF PIPE AND SECURE IT IN PLACE. THEN SLIP THE END OF THE POLYETHYLENE FROM THE NEW PIPE SECTION OVER THE END OF THE PRECEDING LENGTH OF PIPE, SECURE THE OVERLAP IN PLACE, TAKE UP THE SLACK WIDTH TO MAKE IT SNUG, BUT NOT TOO TIGHT, FIT ALONG THIS BARREL OF PIPE, SECURING THE FOLD AT QUARTER POINTS.

REPAIR ANY RIPS, PUNCTURES, OR OTHER DAMAGE TO THE POLYETHYLENE WITH ADHESIVE TAPE OR WITH SHORT LENGTH OF THE POLYETHYLENE TUBE CUT OPEN, WRAPPED AROUND THE PIPE, AND SECURED IN PLACE. PROCEED WITH INSTALLATION OF THE NEXT SECTION OF PIPE IN THE SAME MANNER.

**PIPE-SHAPED APPURTENANCES**

BENDS, REDUCERS, OFFSETS AND OTHER PIPE-SHAPED APPURTENANCES SHALL BE COVERED IN THE SAME MANNER AS THE PIPE.

**JUNCTIONS BETWEEN WRAPPED AND UNWRAPPED PIPE**

WHERE POLYETHYLENE WRAPPED PIPE JOINS A PIPE WHICH IS NOT WRAPPED, EXTEND THE POLYETHYLENE TUBE TO COVER THE UNWRAPPED PIPE A DISTANCE OF AT LEAST TWO FEET. SECURE THE END WITH CIRCUMFERENTIAL TURNS OF TAPE.

**ODD-SHAPED APPURTENANCES**

VALVES, TEES, CROSSES AND OTHER ODD-SHAPED PIECES WHICH CANNOT BE WRAPPED PRACTICALLY IN A TUBE SHALL BE WRAPPED WITH A FLAT SHEET OR SPLIT LENGTH OF POLYETHYLENE TUBE. THE SHEET SHALL BE PASSED UNDER THE THE APPURTENANCE AND BROUGHT UP AROUND THE BODY. SEAMS SHALL BE MADE BY BRINGING THE EDGES TOGETHER, FOLDING OVER TWICE, AND TAPING DOWN. SLACK WIDTH AND OVERLAPS AT JOINTS SHALL BE HANDLED AS DESCRIBED ABOVE. TAPE POLYETHYLENE SECURELY IN PLACE AT VALVE STEM AND OTHER PENETRATIONS.

**BACKFILL FOR POLYETHYLENE WRAPPED PIPE**

BACKFILL MATERIAL SHALL BE THE SAME AS SPECIFIED FOR PIPE WITHOUT POLYETHYLENE WRAPPING. SPECIAL CARE SHOULD BE TAKEN TO PREVENT DAMAGE TO THE POLYETHYLENE WRAPPING WHEN PLACING BACKFILL. BACKFILL MATERIAL SHOULD BE FREE OF CINDERS, REFUGE, BOULDERS, ROCKS, STONES OR OTHER MATERIAL THAT COULD DAMAGE POLYETHYLENE.

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**CITY OF BELPRE**

P.O. BOX 160  
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BELPRE, OHIO 45714

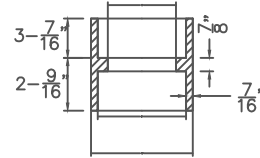
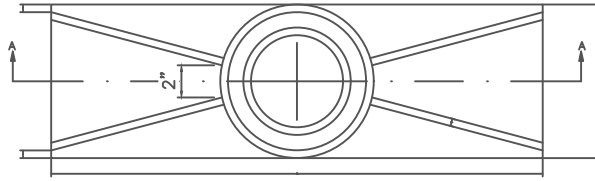
CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

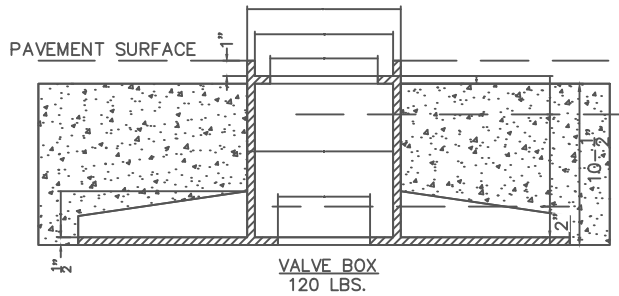
NO	DATE	REVISION	POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE				SHEET: WL-8.0	
			CAD FILE:					
			DRAWN BY: MRJ	APPRVD BY:	ISSUE DATE:	SCALE: NONE		

NOTE:  
AVERAGE WEIGHTS TO THE  
NEAREST EVEN LB.  
CALCULATED USING 0.26  
LB/CU. IN.

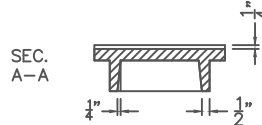
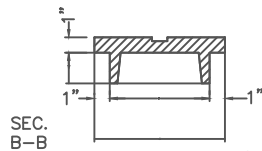
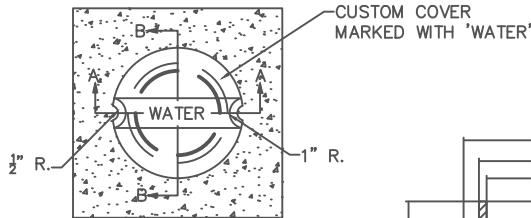
NOTE:  
NO MORE THAN ONE VALVE  
STEM SLEEVE PERMITTED PER  
VALVE SETTING.



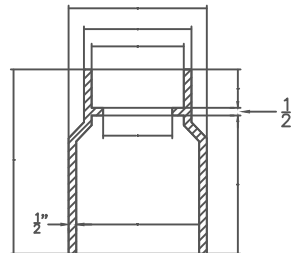
VALVE STEM  
SLEEVE  
14 LBS.



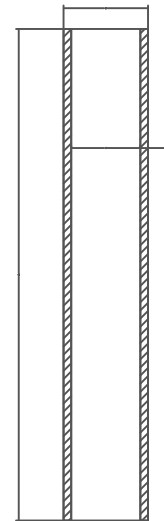
VALVE BOX  
120 LBS.



VALVE BOX LID  
17 LBS.



VALVE BOX  
BASE  
41 LBS.



VALVE STEM  
65 LBS.  
( or 5" C.I.  
Pipe-ASA022 )

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CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

NO	DATE	REVISION

HEAVY DUTY VALVE BOX

CAD FILE:

SHEET:

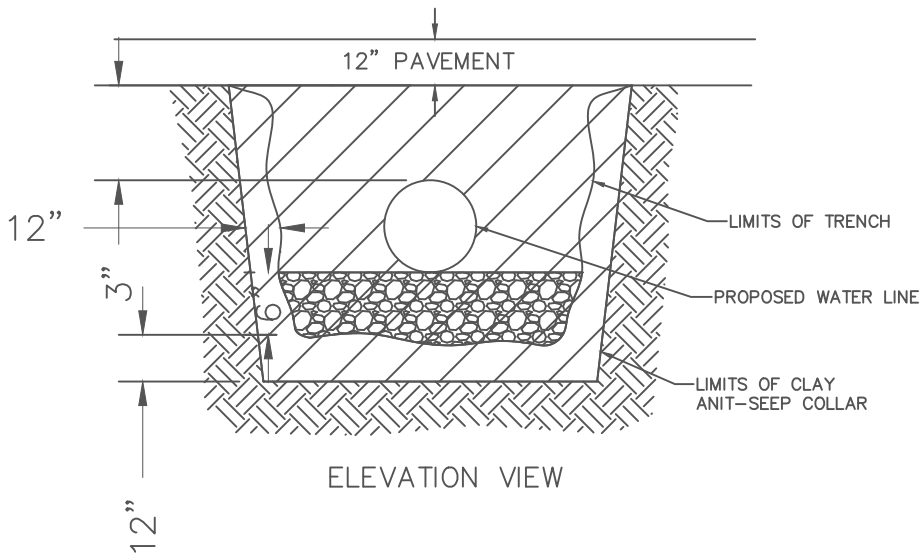
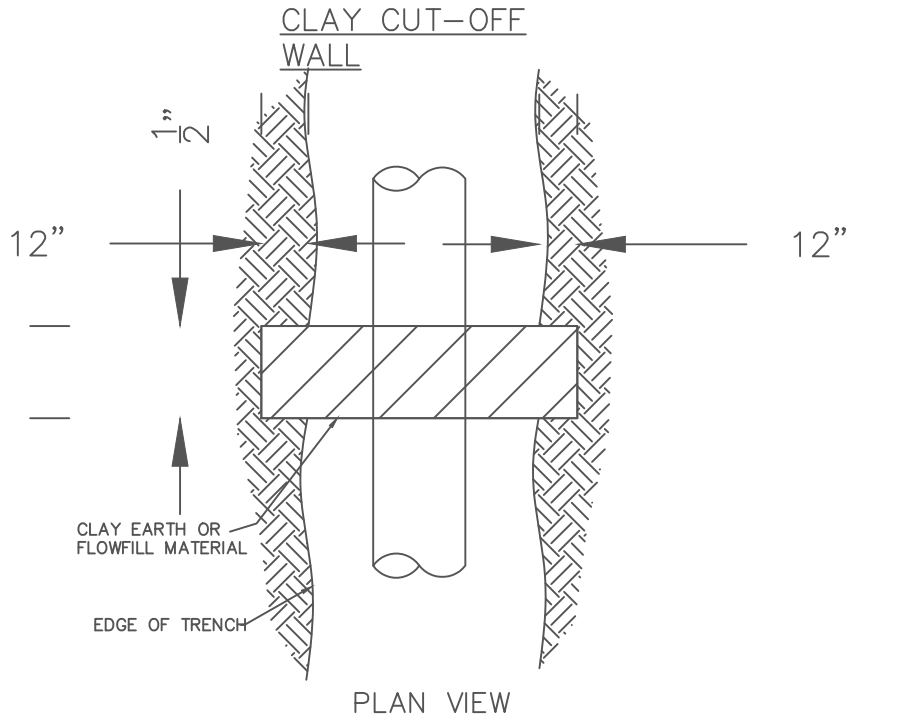
WL-9.0

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE



CLAY CUT-OFF WALL NOTES:  
 1. CLAY WALL EXTENDS A MINIMUM OF 12" INTO UNDISTURBED SOIL ON EACH SIDE AND ON BOTTOM OF TRENCH.  
 2. APPROVED FLOW-FILL MATERIAL MAY BE USED INSTEAD OF CLAY MATERIAL.

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PHONE: 740-423-7592

CLAY CUTOFF WALL

CAD FILE:

SHEET:

WL-10.0

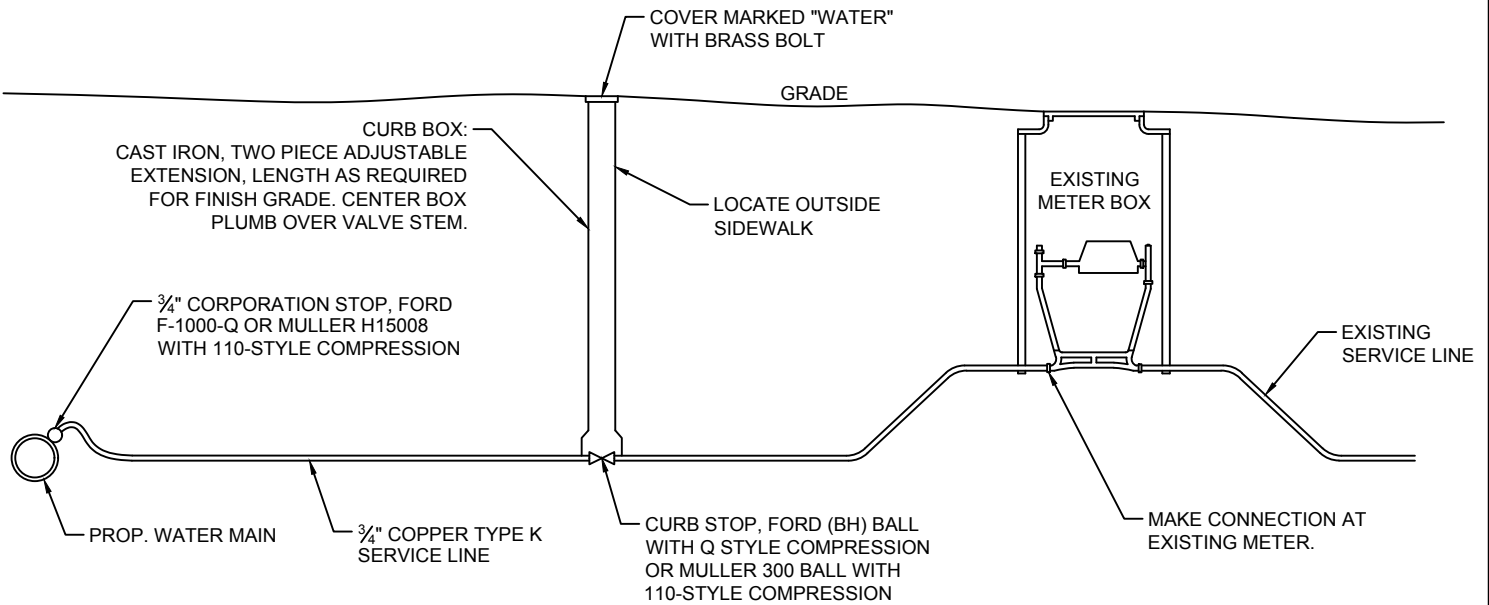
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE





## WATER METER PIT DETAIL

IF THE EXISTING SANITARY SEWER IS EXPOSED DURING WATERLINE CONSTRUCTION, CONCRETE COLLARS SHALL BE CONSTRUCTED AROUND THE SEWER LINE ACROSS THE WATERLINE TRENCH SUCH THAT THE CONCRETE COLLARS ARE SUPPORTED ON UNDISTURBED EARTH. OR, THE SANITARY LINE MAY BE ENCASED IN AWWA C-900 PIPE. ENCASING OF THE SEWER SHALL BE COORDINATED WITH THE CITY OF BELPRE. IF WATERLINE CROSSES NEAR A SEWER JOINT, ENCASE THE JOINT WITH LOW STRENGTH MORTAR (LSM 50). IF THE EXISTING SEWER IS DAMAGED OR REMOVED DURING CONSTRUCTION, IT SHALL BE REPLACED ACROSS THE WATERLINE TRENCH SUCH THAT THE CONCRETE COLLARS ARE SUPPORTED ON UNDISTURBED EARTH.

THE CONCRETE COLLAR SHALL BE FORMED AT A JOINT WITH THE EXISTING SEWER.

THE REPLACEMENT SECTION SHALL BE SOLID WALL PVC PIPE CONFORMING TO ASTM D 3034 OR GALVANIZED, BITUMINOUS COATED STEEL PIPE CONFORMING TO AASHTO M190, TYPE A AND SHALL BE LAID IN A MECHANICALLY COMPACTED GRANULAR BACKFILL MATERIAL.

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SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

## WATER SERVICE CONNECTION DETAIL

CAD FILE:

SHEET:

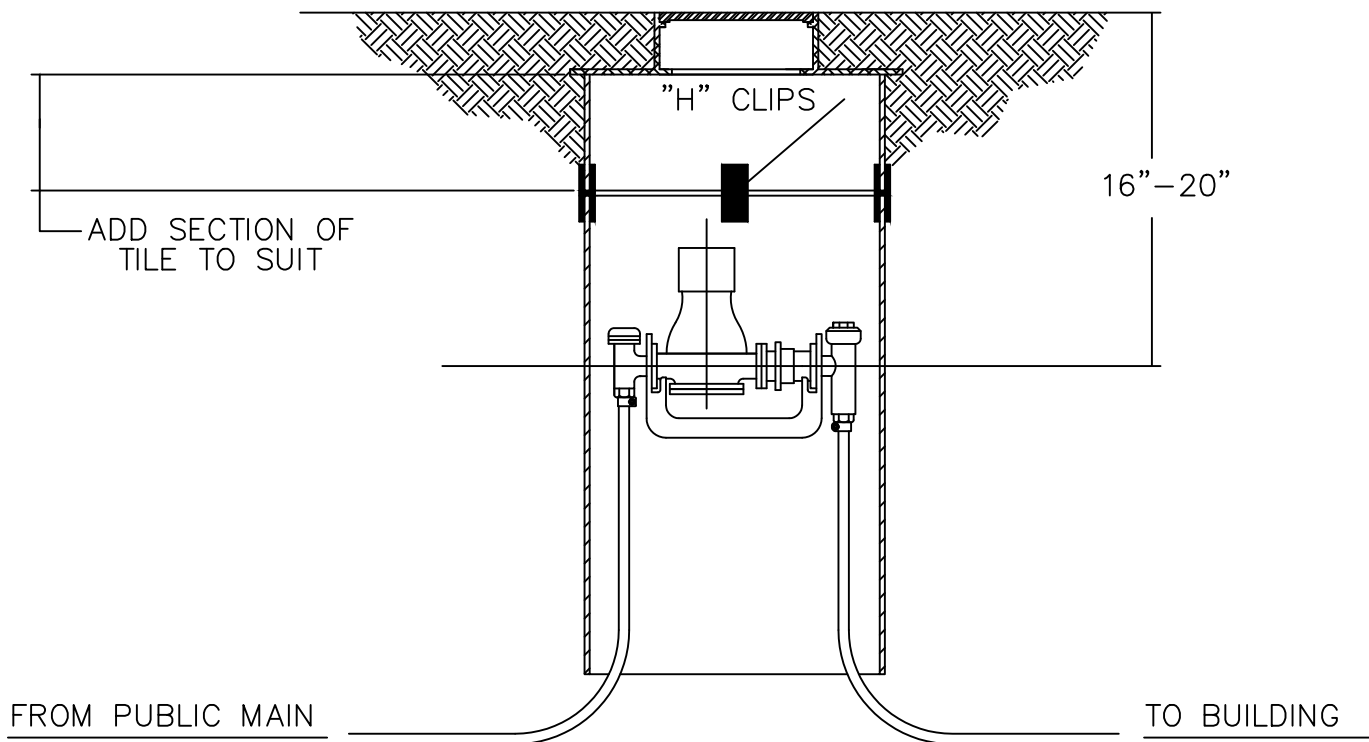
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

WS-1.0



## METER LID RAISING DETAIL

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SAFETY SERVICE DIRECTOR

FAX: 740-423-4967  
PHONE: 740-423-7592

NO	DATE	REVISION

## METER LID RAISING DETAIL

CAD FILE:

SHEET:

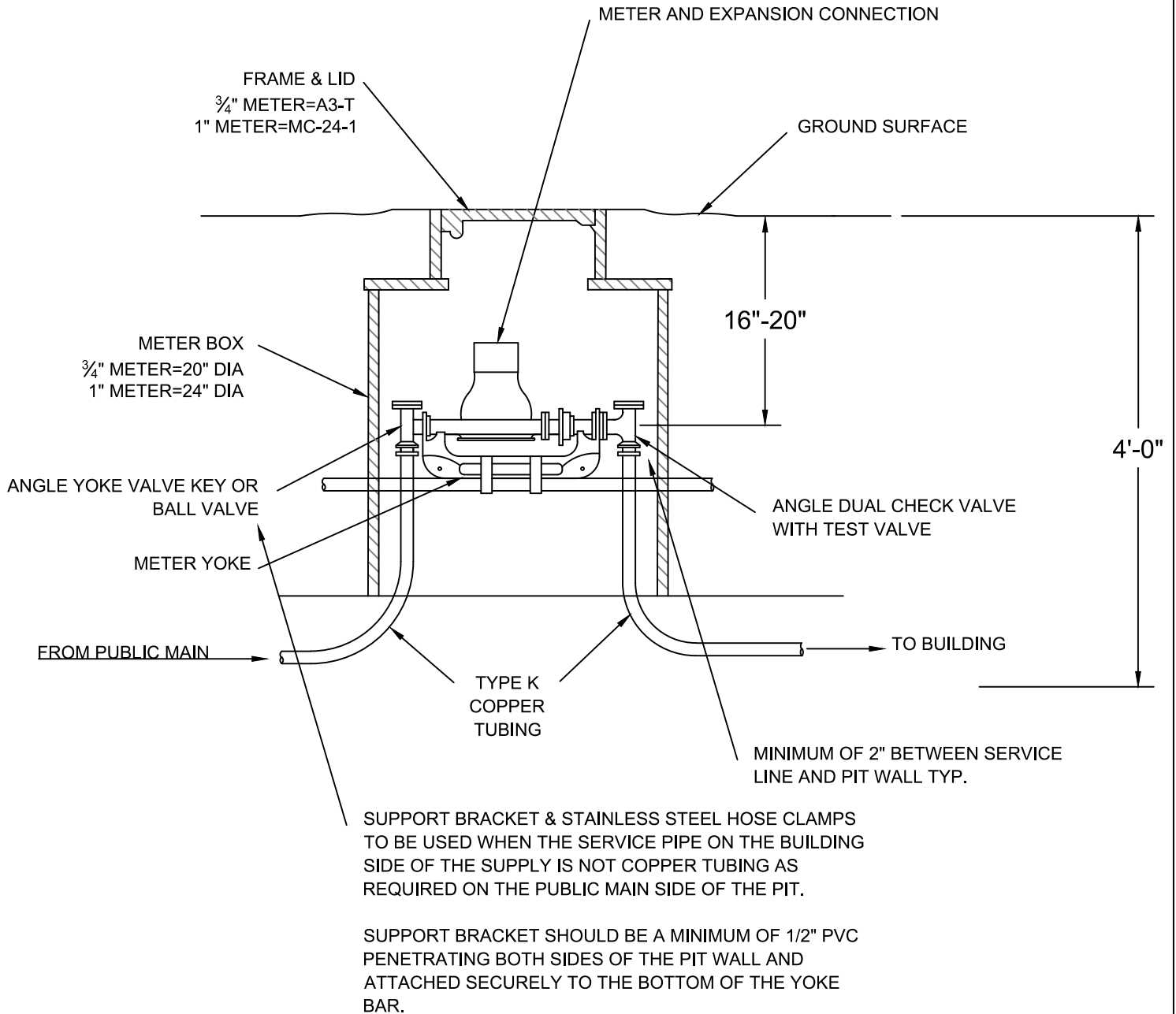
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

WS-2.0



NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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PHONE: 740-423-7592

CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

## STANDARD INSTALLATION FOR 3/4" AND 1" WATER METER SETTINGS

CAD FILE:

SHEET:

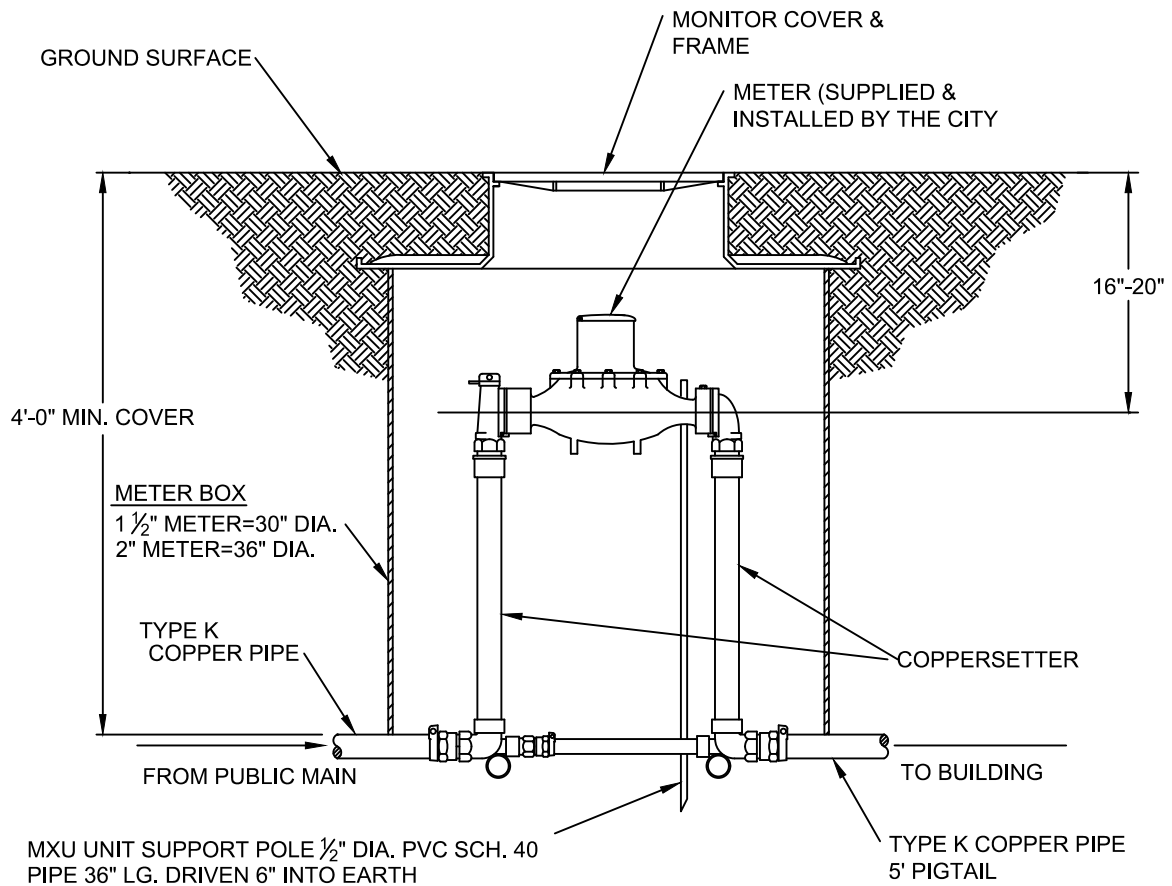
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

**WS-3.0**



NOTE:  
1) FOR METERS 3" AND LARGER, REFER TO THE STD.  
INSTALLATION FOR 3" AND LARGER WATER METERS.

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PHONE: 740-423-7592

CONNIE HOBLITZELL  
SAFETY SERVICE DIRECTOR

## COMMERCIAL METER SETTING 1-1/2" - 2"

CAD FILE:

SHEET:

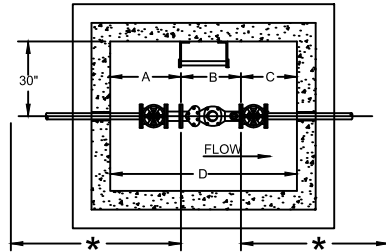
DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

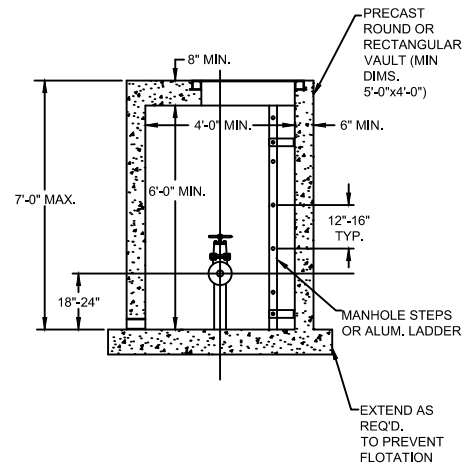
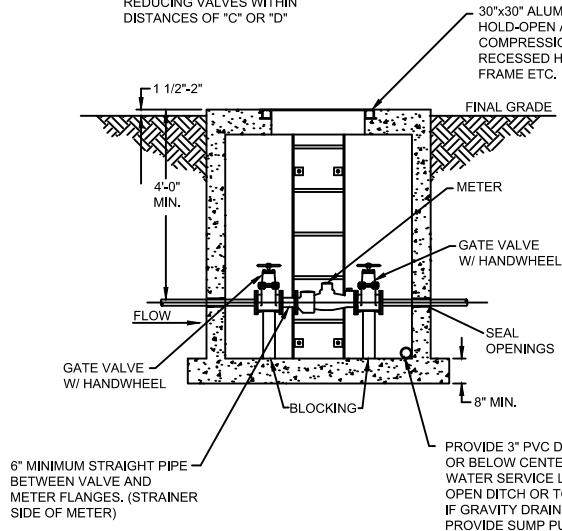
SCALE:  
NONE

**WS-4.0**



NOTE:  
METER VAULTS DESIGNED FOR  
1) DOMESTIC USE ONLY 8" AND LARGER  
MUST BE APPROVED BY THE DIRECTOR  
OF BCWS.

NOTE:  
NO ELBOWS, BENDS, REDUCERS,  
BACKFLOW DEVICES OR PRESSURE  
REDUCING VALVES WITHIN  
DISTANCES OF "C" OR "D"



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## COMMERCIAL METER SETTING

### 3" - 6"

CAD FILE:

SHEET:

DRAWN BY:  
MRJ

APPRVD BY:

ISSUE DATE:

SCALE:  
NONE

WS-5.0