Montevallo
Water and Sewer Board

Standard Sanitary Sewer Specifications

February 12, 2020
ALL PRIOR ISSUES ARE VOID

Prepared By InSite Engineering, LLC
in conjunction with the Montevallo Water and Sewer Board
for the Protection of Public Safety, Health, and welfare for the Citizens of Montevallo

1. GENERAL

This specification covers design and construction of new gravity sewer mains, force mains, laterals, and pumping stations on the Sanitary Sewer System of the Montevallo Water and Sewer Board ("the Board").

The Board may designate any of its responsibility or authority listed herein to its General Manager, its Engineer, or others deemed to be in the best interest of the Board.

Scope:

a. All labor, material, equipment, work and testing required for a complete and functional system shall be furnished by the developer or entity installing the improvements.
b. Gravity sewer service will only be made available to structures with a finished floor a minimum of 2' above the crown of the sewer main at the point of connection.
c. Sewer service design shall be in accordance with Ten States Standards unless otherwise noted.
d. Sanitary sewer design flows shall be based on 100 gpcd, at a 3.0 peak factor.
e. Sanitary sewer force mains shall be sized to maintain a minimum velocity of 2 feet per second.
f. Grease traps shall be sized in accordance with the Plumbing & Drainage Institute Standard PDI-G101 for all commercial and multi-family projects. Under-sink grease traps are not allowed.
g. All work on the sewer system must be performed by a licensed contractor.
h. All final subdivision plats must include a signature block indicating acceptance by the Board.
i. Sewer connection permits will not be issued until the Board has approved all sewer construction.
j. All materials must be submitted to the Board for approval prior to beginning work.
k. All proposed new developments must include capped sewers.
l. All raw sewage entering the sewer system must meet the Board's pretreatment regulations, including SID permits for industrial applications.
m. All work to be performed off of public right of way must be submitted to the Board for review and approval prior to submission to other agencies for permitting.
n. The "Developer Sewer Agreement" must be executed prior to beginning construction.

Quality Assurance:

a. All improvements will have a 1-year warranty beginning from the date of recording of the final plat.

b. All items will be maintained for the first year at the developer's expense. In the event of a failure or break a repair must be made by the developer within a 24 hour period or such repairs will be made and billed to the developer. At the end of that stated year, acceptance of the mains and items within the right of way will be assumed by the Board except for pumping stations. In the event of a problem the one year warranty will restart from the date of repair.
c. Pumping stations must have final inspection at the end of a one-year warranty period. At this time either a final correction list or an acceptance letter will be issued. The developer will retain responsibility for maintenance and upkeep of the pumping station until all corrections are made. If a major problem exists during this period a repair will be made and billed to the developer.
d. Plan changes will not be allowed without written approval from the Board and the Design Engineer. Failure to comply with this will result in suspension of the project.
e. If during construction of the project, the site or project conditions reveal conflicts or harm to existing utilities either by vicinity or by destruction during construction, the developer must repair or relocate the existing utility at the developer's expense. Failure to do this in a timely manner will result in suspension of the project or rejection of final acceptance of the project until the item is corrected. If a major break occurs and the developer does not correct immediately, a repair will be made and billed to the developer.

Plans:

All plans must be submitted on 24 x 36 inch sheets and must include the following:

- North arrow
- Graphic Scale and Noted Scale
- 1" = 50' minimum
- Manhole Count Listed
- Footage of Pipe by Size Listed
- Plan View with line numbers, manhole numbers, delta angles, Alabama State Plane West Northing and Easting Coordinates, lateral location and stations, Connection Location, Streets and Road Names, Etc.
- All appropriate manhole, backfill, lateral, etc details.
- All current Standard Details of the Board.
- Profile Sheets showing existing and proposed grades, with manhole locations and numbers accompanied by top of rim elevation, invert in and out elevations, line grade, line type, sizes, and crossings of existing utilities.
- All other appropriate information concerning the installation, connection, and development of the sanitary sewer system for proper review and approval.
- All pumping station plans shall be accompanied by the appropriate number of sheets to cover all site, grading, erosion control, mechanical, and electrical plans to allow for proper review and approval.

- Minimum grades for 8" pipe will be 0.50%, minimum grade for 10" pipe will be 0.40%. All other pipe sizes and grades must be pre-approved by the Board.
- No drops over two feet are allowed inside a manhole.
- No grades over 12% are allowed without written approval from the Board.
- A benchmark shall be located and shown on each sheet.
- Easements shall be a minimum of 20 feet wide or wide enough to access by OSHA standards, which ever is greater.
- Sewer shall not run under curbs or sidewalks.
- 90° connections or greater only are allowed.
- High traffic commercial areas are required to be ductile iron for mains and laterals.
- Service laterals for residential units will be 4" minimum.
- Service laterals for commercial units will be 6" minimum.
- During construction, plugs must be installed at the right of way. (twist or caps accepted but must pass air test)
- A green witness post must be clearly placed at the termination point of the lateral and a 1 inch by 1 inch "S" must be scribed in the curb at the location where the lateral crosses the curb.

2. MATERIALS

a. **PIPE**

i. Gravity Sewers

1. Ductile Iron Pipe shall meet the requirements of AWWA C151, pressure class 350 minimum, for gravity sewer pipe. Ductile Iron Pipe shall be installed when crossing under storm drains and when the depth to the top of pipe is less than 3 feet or over 12 feet.
2. PVC pipe shall be SDR 26 heavy wall sewer pipe meeting the requirements of ASTM D3034 for 4" to 15" gravity pipe and ASTM F679 for 18" and 21" gravity pipe. Sanitary sewer locator tape shall be buried above all PVC pipe.
3. Sewer Laterals
   i. From the main to the property line shall be the same material as the main.
   ii. From the property line to the structure may be Ductile Iron Pipe (class 350 minimum), Schedule 40 solid PVC pipe, or SDR 26 as approved by the Board.
   iii. Laterals shall be connected to the main using mechanical joint fittings. The use of couplings is not allowed.
4. All gravity sewer pipe, regardless of material, shall be green in color or have a minimum 4" wide green stripe painted along the top of the pipe after installation.

ii. Force Main Sewers

1. Ductile Iron Pipe shall meet the requirements of AWWA C151, pressure class 350 minimum, for force main installations.
2. PVC pipe shall not be used for force mains.
3. All force main pipe, regardless of material, shall be green in color or have a minimum 4" wide green stripe painted along the top of the pipe after installation.

iii. All ductile iron pipe shall be cement lined in accordance with AWWA C104.

iv. Gaskets for ductile iron pipe shall meet the requirements of AWWA C111 for rubber gaskets. Gaskets for PVC pipe shall be ASTM F477 elastomeric seals.

v. D.I. Pipe shall be manufactured by U.S. Pipe and Foundry, American Cast Iron Pipe Company, McWane Ductile, or Griffin Pipe Company only. Pipe from other manufacturers will not be accepted.

b. **FITTINGS**

i. Fittings on PVC or Ductile Iron force main piping shall be restrained joints as follows:
   1. Compact Ductile Iron in accordance with ANSI/AWWA C153/A21.53 with Mega-Lug type retainer glands with twist-off nuts.
   2. Joint restraint may be provided using Lok-Ring or equivalent pipe joints.
   3. Transition gaskets shall be used with pressure class PVC pipe to Ductile transitions.

ii. Fittings shall not be used on gravity sewer piping. All changes in direction on gravity piping shall occur at a manhole.

c. **ENCASEMENT**

i. Polyethylene encasement for ductile iron pipe shall meet the requirements of ANSI/AWWA C105/A21.5 and shall be used around natural gas mains or where corrosive soils exist.

ii. Steel casing pipe shall be ASTM A252, Grade 2, with a minimum of three (3) casing spacers per joint and end seals. Steel casing is required at all bores, road and major driveway crossings, inaccessible areas, and other areas required by regulatory authorities.

d. **VALVES**

i. All valves installed in force mains shall be AWWA C515 resilient-sealed gate valves with ductile iron body and bonnet, bronze or 304SS stems, non-rising stems, and 2" square operating nut.

ii. Valve boxes shall comply with AWWA M44 for cast-iron valve boxes with adjustable extension and 5" diameter barrel. The use of PVC valve boxes and/or extensions is prohibited.

e. **MANHOLES**
   i. All manholes shall be normal traffic precast reinforced concrete in accordance with ASTM C478, 48" minimum diameter, with provision for ASTM C 443 rubber gasketed joints.
   ii. All manholes shall be furnished with precast concrete inverts.
   iii. All manholes shall be furnished with monolithic base section (6" minimum floor slab thickness), concentric cones, manhole steps, and Kor-N-Seal pipe connectors.
   iv. All manhole frames and covers shall be East Jordan Iron Works Model V-1480-1 or John Bouchard & Sons Model 1190 lettered "SANITARY SEWER" or approved equivalent. "SEWER" or "STORM SEWER" will not be accepted for lettering on sanitary sewer manholes.
   v. External Manhole Sealing Sleeve to prevent inflow and infiltration shall be as manufactured by Sealing Systems, Inc. or approved equivalent.
   vi. Rings and covers must have plastic or rubber non-flood inserts installed on every manhole.

f. **MISCELLANEOUS**
   i. Memphis Tees are not allowed.
   ii. Kor-N-Seal Boots are required at all new pipe to manhole connections.
   iii. All houses shall have back water valves installed inside an access box in an appropriate manner as to protect the entire home and to allow for home owner access.
   iv. All grout must be non-shrink hydraulic cement. Mortar or concrete will not be accepted and if found to be used will result in rejection of sewer system.
   v. Low pressure or single grinder pump systems are not allowed. However in the event one is required due to an uncontrollable situation a Grinder Pumping Station agreement between the property owner and the Board must be executed prior to installation.
   vi. Asphalt cutting and repair must be permitted prior to construction and must be repaired to meet the governing authority's standards.

3. INSTALLATION

a. **PIPE**
   i. Ductile iron force main and gravity sewer pipe shall be installed in accordance with AWWA C600.
   ii. PVC gravity sewer pipe shall be installed in accordance with ASTM D2321.
   iii. Sewer lines shall be installed with a minimum 18" vertical and 60" horizontal separation from potable water lines.
   iv. All gravity sewer pipe shall be bedded in a minimum of 6" of ALDOT #8910 stone.

v. All gravity sewer pipe shall be backfilled to 12" minimum above the pipe with ALDOT #8910 stone.
vi. All trenches under paving shall be backfilled completely with ALDOT #8910 stone for main lines and with 100% fines for service lines.
vii. The maximum allowable slope on gravity sewer piping is 12%.
viii. All gravity sewer piping on slopes over 10% will have concrete restraint collars on 50 foot centers with the first collar located at the face of the downstream manhole.
ix. All sewer service taps MUST be made in front of the lot they serve. Service lines may not cross adjacent properties.
x. Stub outs on gravity sewer mains are not allowed. All gravity sewer mains must terminate in a manhole.

b. **FITTINGS**
i. Restrained joint ductile iron fittings shall be installed at all changes in direction on force main piping in accordance with AWWA C600.
ii. Concrete thrust blocks are required at all fittings.

c. **POLYETHYLENE ENCASEMENT**
i. Install polyethylene encasement in accordance with ASTM A674 or AWWA C105.

d. **VALVES**
i. Install resilient seat gate valves with stem pointing up in accordance with AWWA C600.
ii. Install force main isolation valves every 1500 linear feet. Install three valves at all tees on force mains.
iii. Cast iron valve boxes and extensions are required at all valves and shall be installed true and plumb, with top of box blush with grade. PVC Valve box extensions are not allowed.
iv. Valve box lids must be labeled "Sanitary Sewer".
v. Air relief valves shall be installed at locations as directed by the Board and will be installed in a bottomless 72" manhole cone section with a rim and cover and a minimum of 3 foot of #57 stone from under the pipe to the bottom of the shut off valve.

e. **MANHOLES**
i. Install precast concrete manhole sections with gaskets in accordance with ASTM C891.
ii. Set tops of frames and covers flush with final grade in pavement areas and 3" above finished grade in unpaved areas unless specifically noted otherwise.
iii. Set tops of frames and covers a minimum of 1 foot above the 100 year flood elevation in flood prone areas.

iv. Use precast concrete grade rings for final adjustment. Seal between precast concrete grade rings with silicone or butyl. The use of brick and mortar for final grade adjustment is prohibited.
v. Manholes shall not be less than three feet deep from rim to invert.
vi. Manholes shall not be over 300 feet apart.
vii. Manholes shall have a minimum of 0.2 feet drop through each manhole.
viii. Bolt down frame and covers are required in flood hazard areas as directed by the Board.
ix. Manholes over 12 feet deep will be required to be 60" minimum diameter and special design.
vi. Memphis Tee's are not allowed.
vii. New connections to existing manholes shall be plugged until the Final Plat is signed and the new sewer installation is approved to be put into service.

f. **MISCELLANEOUS ACCESSORIES**
i. Exterior Manhole Sealing Sleeve-Install sleeves at all manhole joints and at the frame and cover connection to the grade rings after manhole and all grade rings are set. Follow manufacturer's written installation instructions.
ii. Rubber coated steps shall be installed in alignment in all manholes and wet wells from the top to 12" from the bottom.

4. TESTING

a. All new sewer force mains shall be pressure tested at a minimum of 2 times the anticipated working pressure or 150 psi, whichever is greater, for a minimum duration of 6 hours. Pressure charts shall be provided to the Board prior to acceptance.
b. All new sewer force mains shall be leak tested in accordance with AWWA C600 for ductile iron or AWWA C605 for PVC.
c. All new gravity mains shall be air tested according to UNI-B-6 at 5psi for 5 minutes on a maximum test section length of 500 feet.
d. All manholes shall be vacuum tested according to ASTM C1244 (the time to drop from a vacuum of 10" of mercury to 9" must not be less than 2.5 seconds per vertical foot on 48" manholes). Vacuum tests shall be performed after the binder course of asphalt has been installed.
e. All new gravity mains and manholes shall be television inspected (TVI) and a video of the inspection submitted to the Board.
f. All tests shall be delivered to the Board a minimum of 5 working days prior to requesting approval and shall be accompanied by the as-built survey drawings.
g. The Board reserves the right to require additional testing if a line or installation is deemed questionable.
h. All lines, manholes, etc. must be flushed and vacuumed prior to testing. All material and water must be discarded. No flushing should be washed into an existing sanitary sewer system.

5. INSPECTION

a. ALL SEWER MAINS MUST BE VISUALLY INSPECTED BY THE BOARD PRIOR TO BACKFILLING. ANY MAINS NOT INSPECTED PRIOR TO BACKFILL WILL NOT BE ACCEPTED.
b. A representative of the Board must be present when the cap on all service stub-outs is removed. At submerged stub-outs, the water level in the excavation must be lowered and held below the elevation of the cap until the cap is removed and the pipe is extended above the water level. Any caps removed without a representative of the Board present will result in rejection of the connection.

6. PUMPING STATIONS AND TREATMENT FACILITIES

a. Wet wells shall be pre-cast or cast in place concrete.
b. Precast concrete wetwells shall include External Manhole Sealing Sleeve to prevent inflow and infiltration shall be as manufactured by Sealing Systems, Inc. or approved equivalent.
c. Submersible pumps shall be, non-clogging Flygt, Fairbanks-Morse or pre-approved equivalent.
d. Provisions for backup/bypass pumping shall be integrated into all pumping station designs. A 6-inch suction and a 4-inch discharge Bauer style quick-connect shall be provided. Caps shall have 1/8-inch diameter hole drilled in each for ventilation.
e. A 6 inch steel vent with insect screen shall accompany all pumping stations.
f. A Standard TVSS shall be supplied with all pumping stations and shall be capable of protecting the control panel, SCADA panel, plug, and all other electrical components.
g. All new pumping stations shall include a Mission Communications SCADA panel compatible with the Board's existing system. Points to be monitored shall include pump status, pump alarm, pump fail to run, wet well level, and high level alarm.
h. All sites shall be a minimum of 40 feet x 40 feet.
i. All sites shall have a 6 foot privacy fence with concrete under the fence to 6 inches outside to eliminate weed growth, one entry gate with privacy slats, and a double hung twelve foot gate with privacy slats. Board will furnish fence material requirements for each specific pumping station.
j. All sites shall be covered with asphalt (6:2:1) or a 6-inch reinforced concrete slab.
k. All sites shall have a paved access road with a minimum of (6:2:1) or 6 inches of reinforced concrete.
l. The control panel shall meet the Board's requirements and be stainless steel. The control panel shall be installed facing away from the wet well hatch.
m. The control panel shall include a manual generator transfer switch and a generator receptacle. The receptacle type shall be coordinated with the Board.
n. The level controller shall be FOGRod and shall have a float back up system.
o. All stations having motors 15 horse power and over should be equipped with Toshiba VFDs or pre-approved equal.

p. A stainless steel junction box will be located above the wet well at a height of between 24 and 36 inches for all connections between the control panel and the wet well wiring. The junction box shall be installed facing away from the wet well hatch.
q. All wet well piping and valve box piping shall be ductile iron.
r. All wet well hardware shall be stainless steel.
s. A 110-Volt plug is required at all pumping stations sites. Plug may be installed inside the control panel.
t. A 1" water service and yard hydrant is required at all pumping station sites.
u. Additional Specifications for Pumping Stations and Treatment Facilities will be furnished on a case-by-case basis and will vary for each particular situation.
v. All pumping station sites shall have a 30-foot common area fully around the perimeter and should be incorporated into the subdivision design. The common area should be dense planted buffer zone (NO Pines).
w. If a pumping station, new or upgrade, meets any of the following, a trailer mounted or skid mounted backup pump, brand to match existing types, must be supplied with pumping station: Pump must include a quiet pack, battery charger, and block heater.
    1. Pumping Station Servers More Than 75 Homes or 80, 000 Gallons Per Day.
    2. Pumping Station Serves More than one development.
    3. Pumping Station is within 250 feet of Stream, Creek, or Wetland.
    4. Pumping Station is within an area that in the event of an overflow would cause a direct public health hazard.
x. All pumping stations will have 230V 3-phase power supplied. (Use of the VFD to convert from single phase is not allowed)
y. All wet wells shall have accessible steps or an aluminum ladder from bottom to the top.
z. All pumping stations shall be accompanied by a full set of seals and o-rings, impeller, for each pump, one spare float switch, one spare relay, and two spare pilot lights.
aa. A pre-inspection must be performed by the Board prior to live power being supplied to the pumping station.
bb. Control Panel shall have two sets of laminated schematics for electrical layout.
cc. Control Panel will have cooling fan and block heater.

7. AS-BUILTS

As-builts must be furnished to the Board prior to the Board signing the final plat. The following items must be present on the as-builts:

a. Plan View with manhole location, line numbers, manhole numbers, lot numbers, northing and easting (State Plane Coordinates), rim elevation, curbs, roadway, easements and widths. Lateral locations and stations, location elevation, northing, easting of a permanent benchmark on the site, street and road names, etc.
b. Profile View of lines with manholes numbers, invert elevations, pipe size, pipe type, pipe grade, and lengths, finished grade profile, etc.

c. Plan View and Profile View must be submitted in paper form with test results for review and comment a minimum of 5 day prior to requesting signature on the plat. After approval from the Board, a mylar of each plan view and profile view, along with CADD layout of the lots with sewer and easements of the overall plan view shall be submitted stamped and sealed by the surveyor who performed the as-built survey.

8. FEES

a. All fees for individual houses or commercial lots will be collected on an individual basis prior to issuance of a building permit.
b. In new subdivisions, all fees for all lots on the final plat will be collected prior to the Board signing the Preliminary Plat.
c. Connection fees for individual lots will be collected on an individual basis prior to issuance of a building permit.
d. All fees paid remain with the parcel for which they were paid and are non-transferable to other parcels or properties on the Board's system.

9. OTHER

The Board reserves the right to modify, change, or amend these specifications on a regular basis.

The Board also reserves the right to reject, decline, or turn down any construction, materials, submittals, inspections, test, etc., if found to be out of compliance with the intent of these specifications.

ADOPTED THIS 12th DAY OF FEBRUARY, 2020, BY THE MONTEVALLO WATER AND SEWER BOARD.

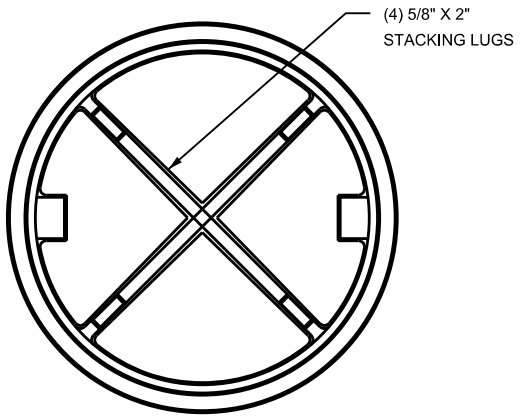
BY: Roger Wheeler
Chairman of the Board

DETAIL NUMBER	SHEET TITLE

SEWER DETAIL

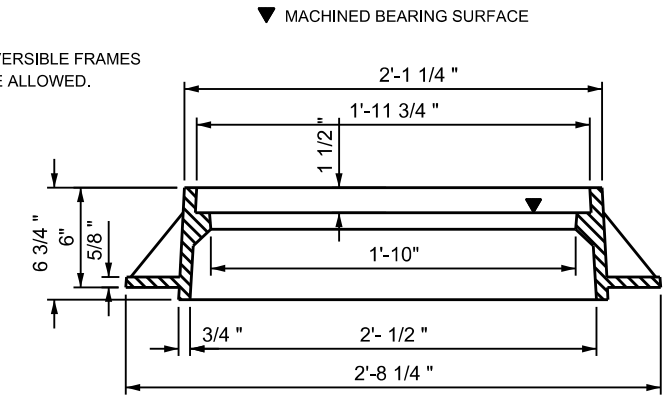
SEWER DETAIL SHEET INDEX

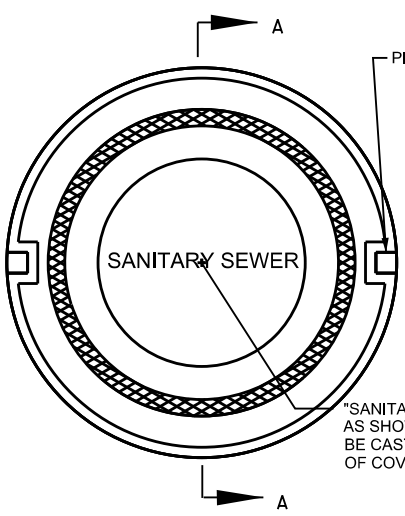
CITY OF MONTEVALLO WATER & SEWER



COVER BACK

NOTE:
NO REVERSIBLE FRAMES
WILL BE ALLOWED.





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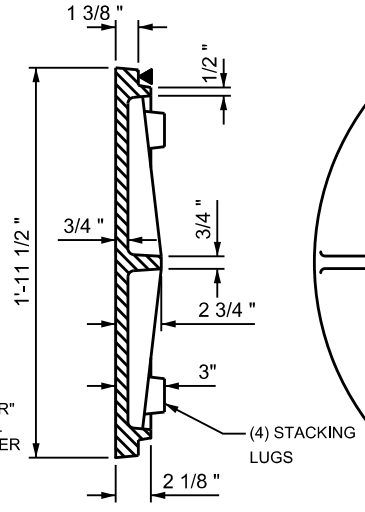
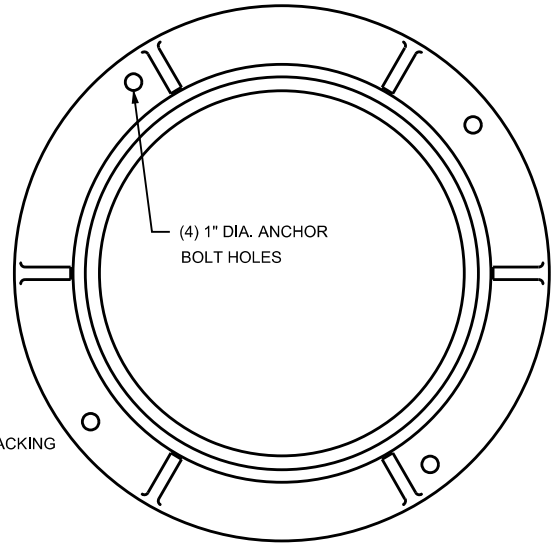


SECTION A-A



FRAME

ESTIMATED WEIGHTS

FRAME	174 LBS.
COVER	124 LBS.

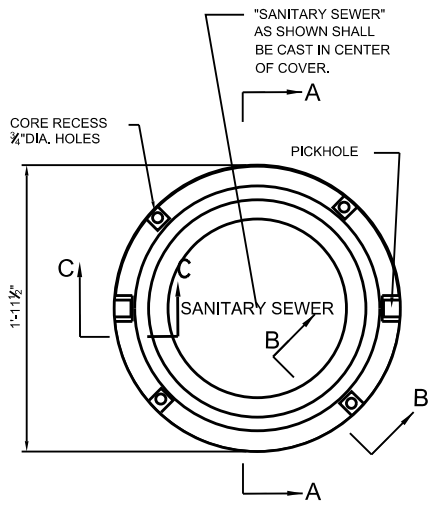
STANDARD: V1480-1 VULCAN OR BOUCHARD & SONS EQUIVALENT

SEWER
DETAIL No.
1

STANDARD MANHOLE FRAME & COVER

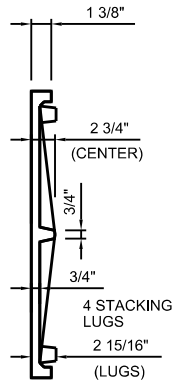
SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER

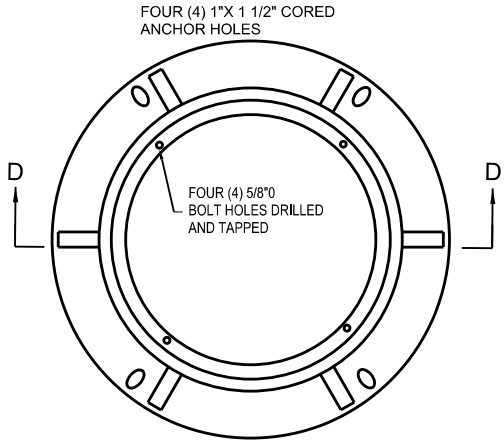


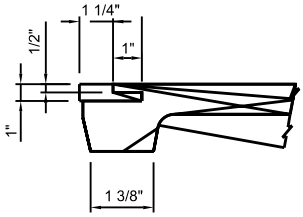
COVER

N.T.S.



SECTION A-A

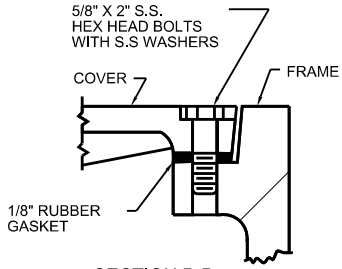




SECTION C-C

PICKHOLE DETAIL

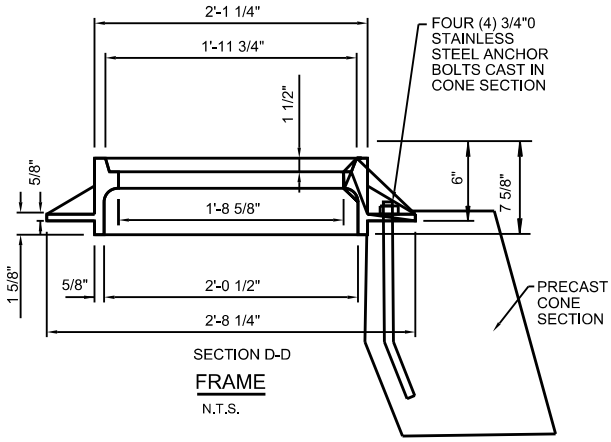
N.T.S.



SECTION B-B

WATERTIGHT DETAIL

N.T.S.



SECTION D-D

FRAME

N.T.S.

ESTIMATED WEIGHTS

FRAME	200 LBS.
COVER	105 LBS.

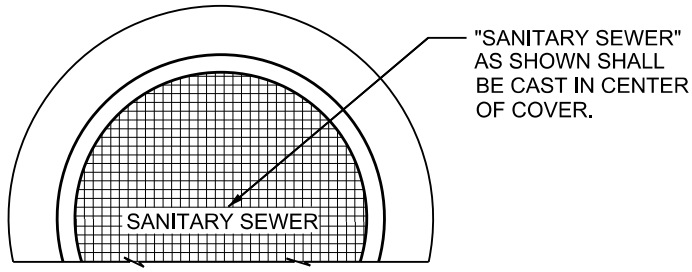
STANDARD: V1480-1 VULCAN OR BOUCHARD & SONS EQUIVALENT

SEWER DETAIL No. 2

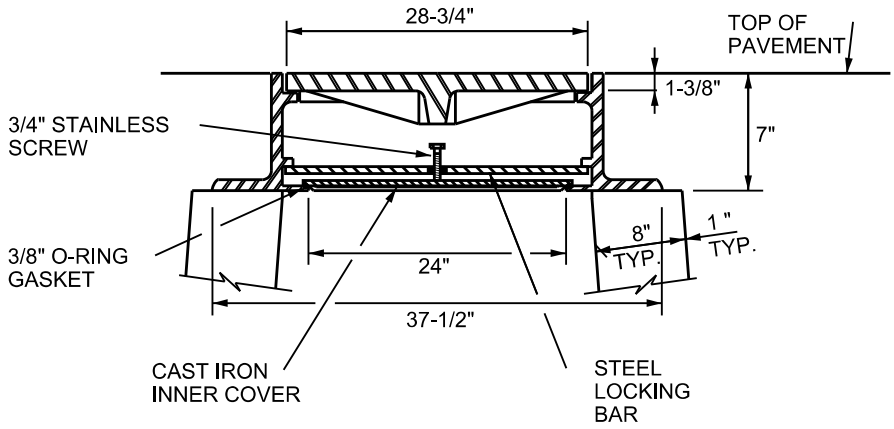
BOLT DOWN MANHOLE FRAME & COVER

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



HALF PLAN



SECTION

NOTES:

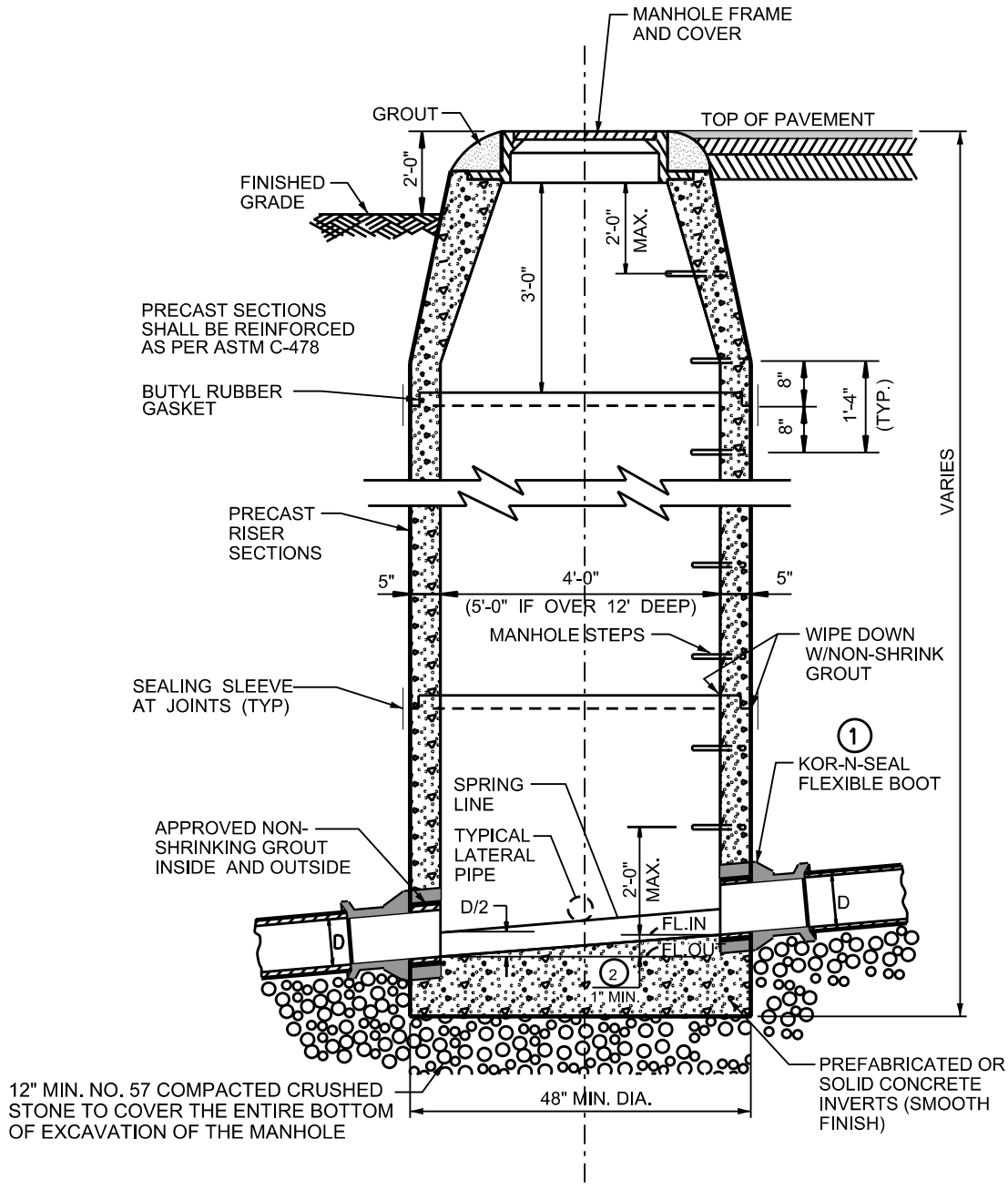
1. USE VULCAN FOUNDRY INC. #V-2150-3 OR APPROVED EQUAL.
2. APPROXIMATE WEIGHT OF FRAME AND COVER 575 LBS.

SEWER
DETAIL No.
3

WATERTIGHT MANHOLE FRAME AND COVER

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



NOTES:

1. ALL MANHOLES WITH PIPE ENTERING WITH DIAMETER OF 18" D.I.P. OR LESS SHALL BE SUPPLIED WITH KOR-N-SEAL FLEXIBLE BOOTS OF APPROVED EQUAL.
2. WHERE THE DIFFERENCE IN THE INVERT ELEVATION IS >6" A STANDARD LENGTH OF DUCTILE IRON PIPE SHALL BE INSTALLED TO BRIDGE THE FILL AREA BETWEEN THE MANHOLE AND THE UNDISTURBED PIPE TRENCH.
3. ALL MANHOLES MUST BE PRECAST.
4. EXTERIOR MANHOLE SEALING SLEEVE REQUIRED AT ALL JOINTS.

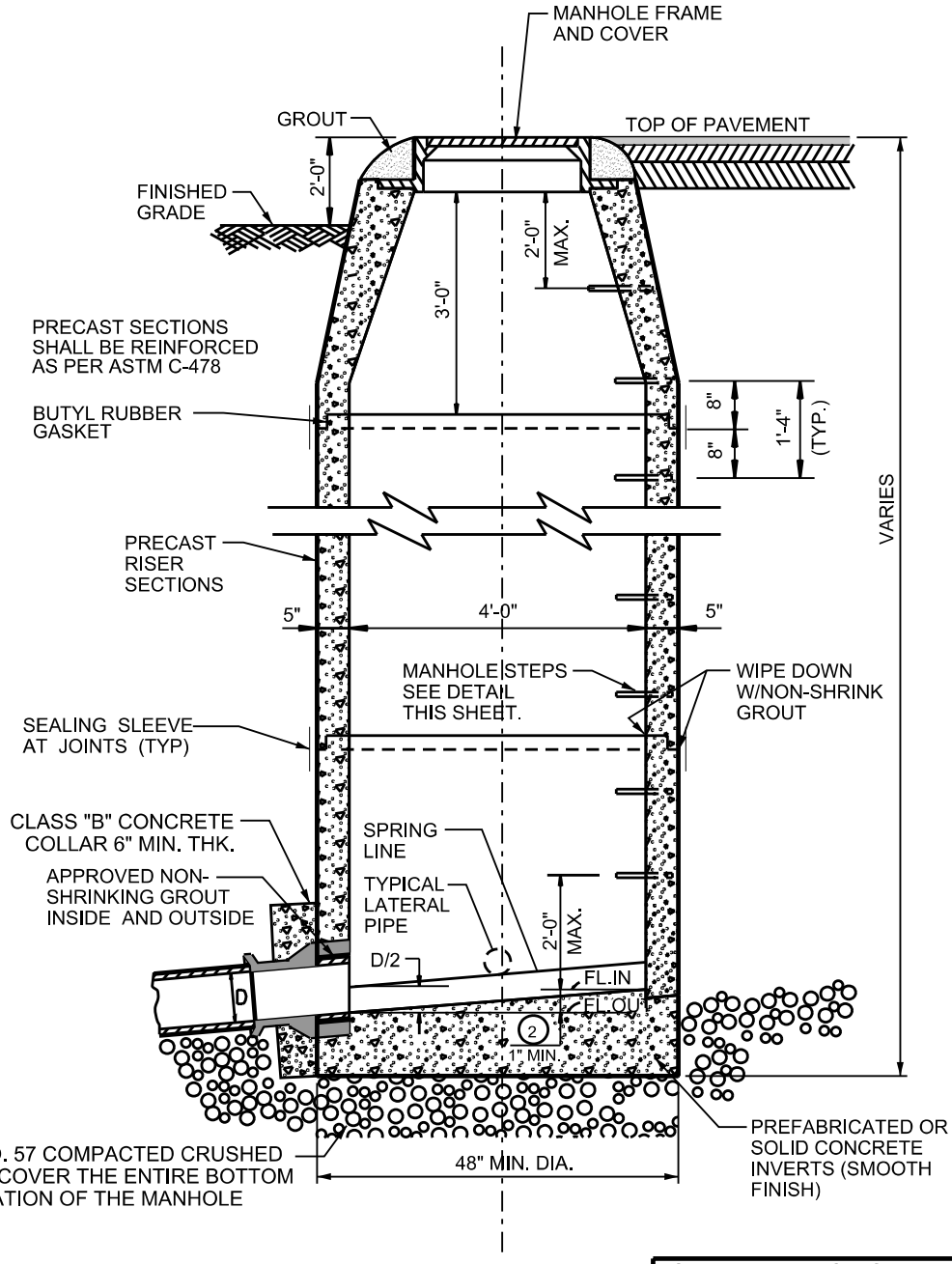
SEWER DETAIL No.

4

STANDARD PRECAST MANHOLE

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



PRECAST TERMINAL MANHOLE

NOTE: ALL MANHOLES WITH 18" PIPE OR LESS SHALL BE SUPPLIED WITH KOR-N-SEAL FLEXIBLE BOOTS OR APPROVED EQUAL

NOTES:

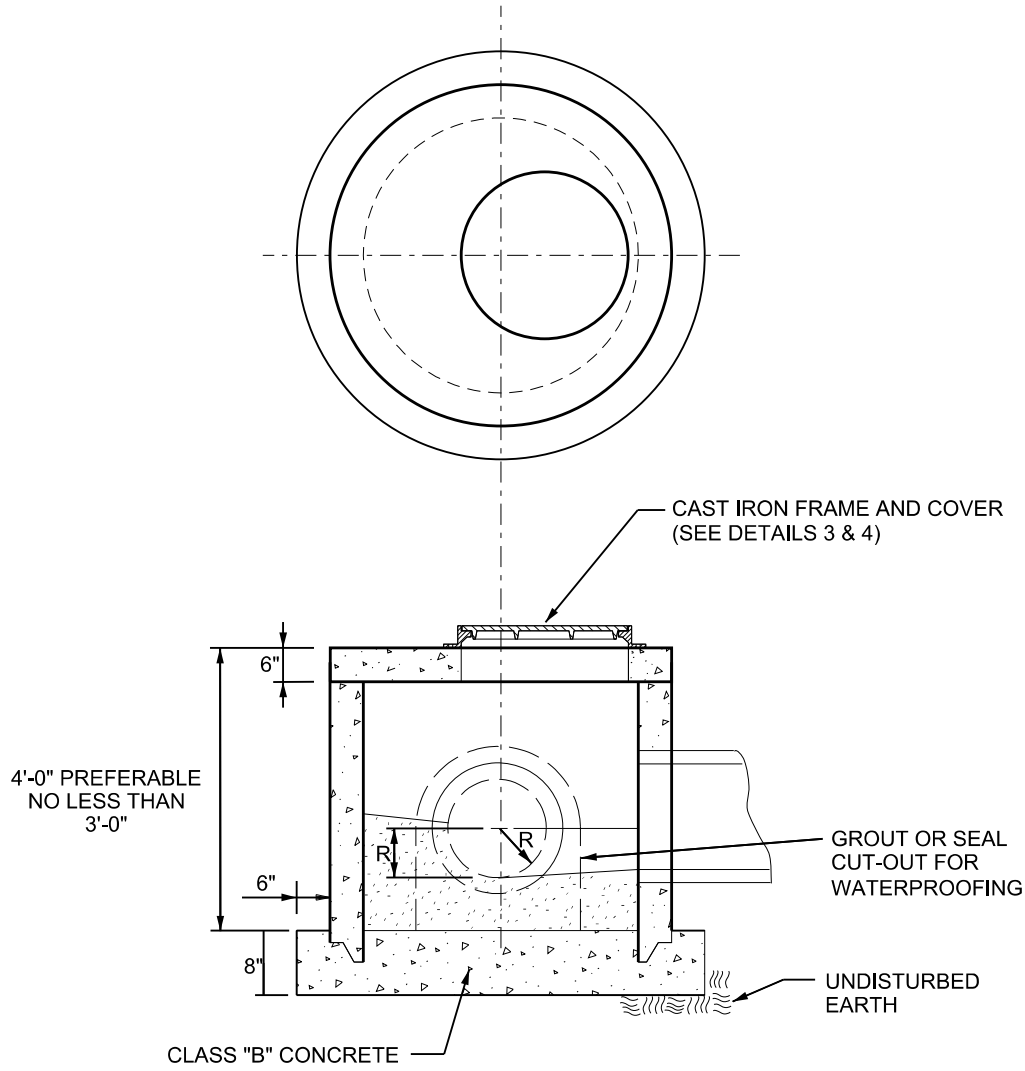
1. ALL MANHOLES WITH PIPE ENTERING WITH DIAMETER OF 18" D.I.P. OR LESS SHALL BE SUPPLIED WITH KOR-N-SEAL FLEXIBLE BOOTS OF APPROVED EQUAL.
2. WHERE THE DIFFERENCE IN THE INVERT ELEVATION IS >6" A STANDARD LENGTH OF DUCTILE IRON PIPE SHALL BE INSTALLED TO BRIDGE THE FILL AREA BETWEEN THE MANHOLE AND THE UNDISTURBED PIPE TRENCH.
3. ALL MANHOLES MUST BE PRECAST.
4. EXTERIOR MANHOLE SEALING SLEEVE REQUIRED AT ALL JOINTS.

SEWER DETAIL No. 5

TERMINAL MANHOLE

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



NOTES:

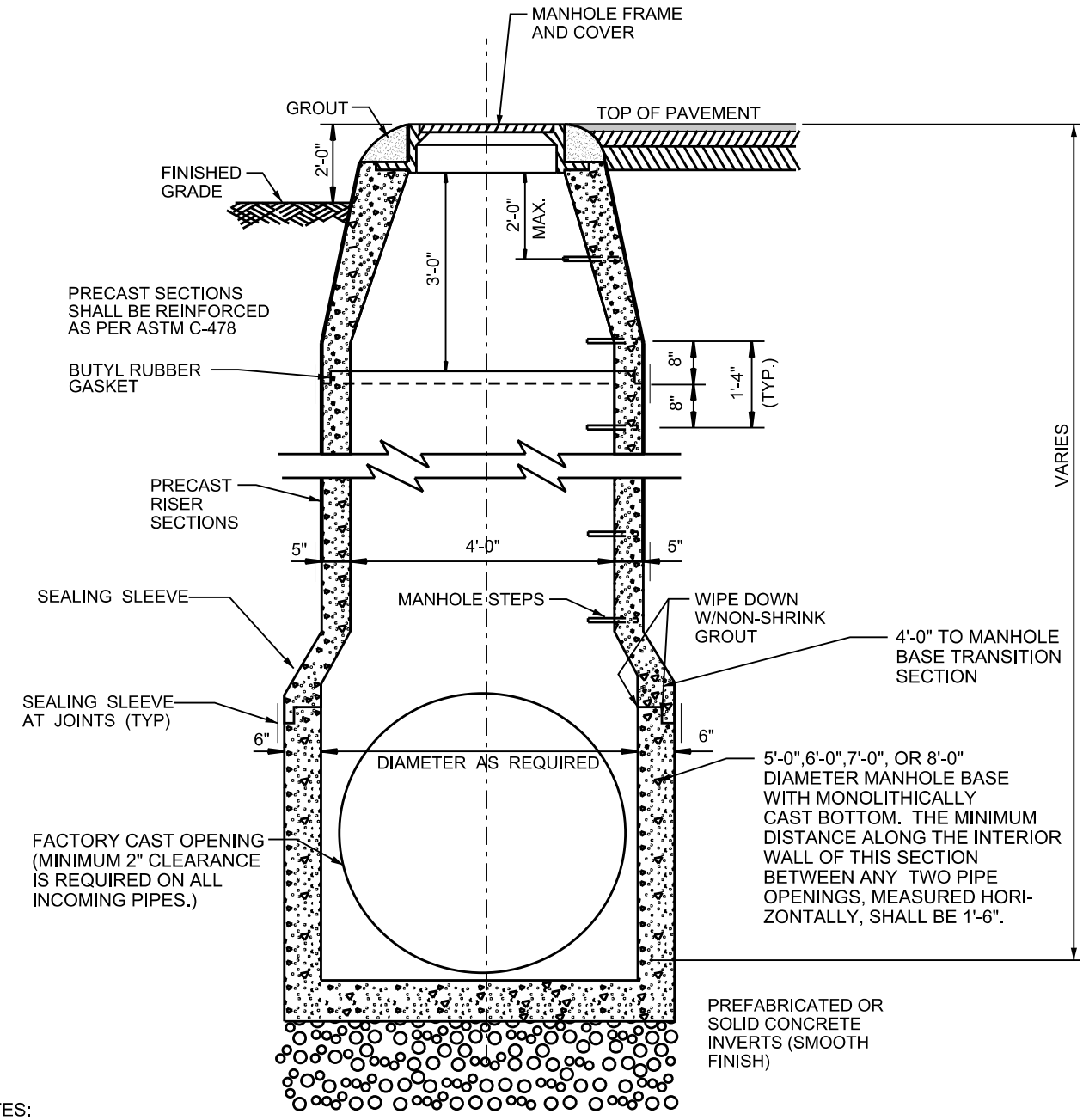
1. GROUT TO DRAIN WITH SOLID CONCRETE.

SEWER
DETAIL No.
6

SHALLOW BOTTOM MANHOLE

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



NOTES:

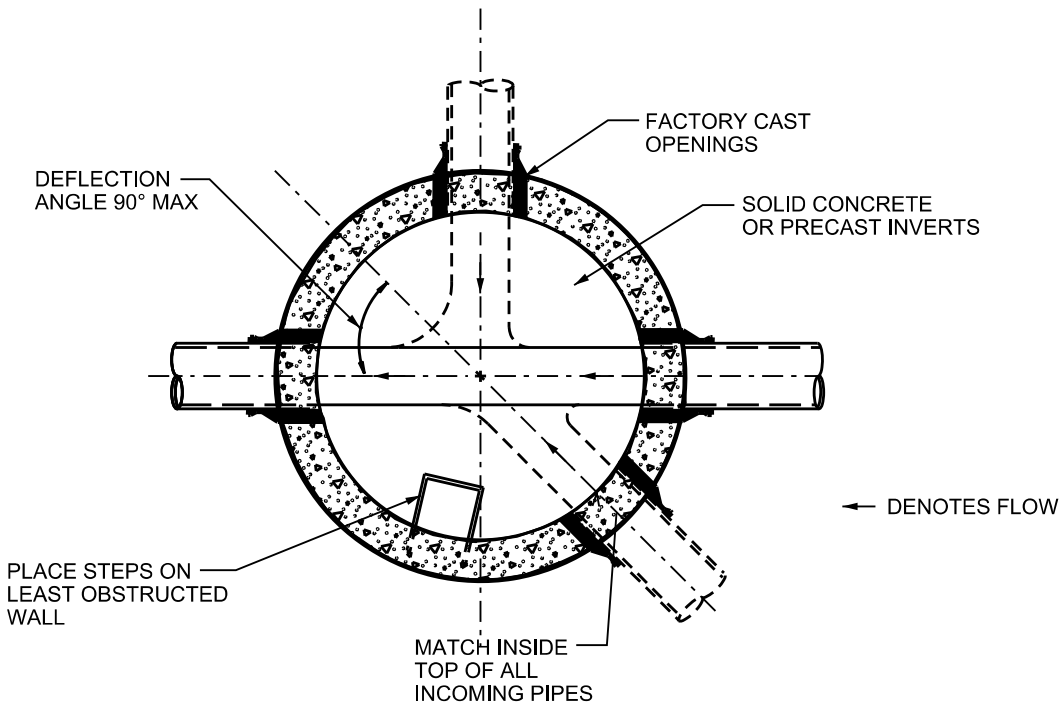
1. BASE SECTION SHALL BE SET ON FOUNDATION OF NO.57 COMPACTED STONE AGGREGATE A MINIMUM OF 12" THICKNESS AND COVERING THE ENTIRE BOTTOM OF THE EXCAVATION FOR THE MANHOLE.
2. WIPE DOWN INNER JOINTS W/NON-SHRINK GROUT
3. MANHOLE MUST BE PRECAST
4. EXTERIOR MANHOLE SEALING SLEEVE REQUIRED AT ALL JOINTS.

SEWER
DETAIL No.
7

PRECAST MANHOLE FOR PIPES 21" TO 42" DIAMETER

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER

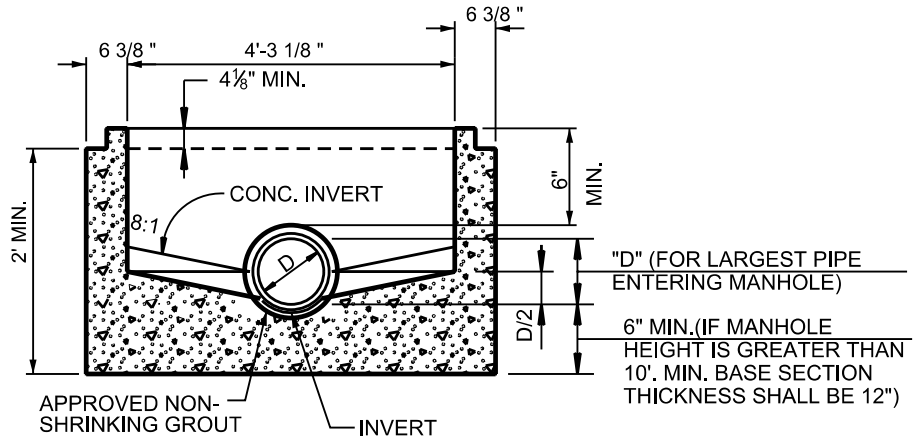


SEWER
DETAIL No.
8

MANHOLE INVERT PLAN

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



SEWER DETAIL No.

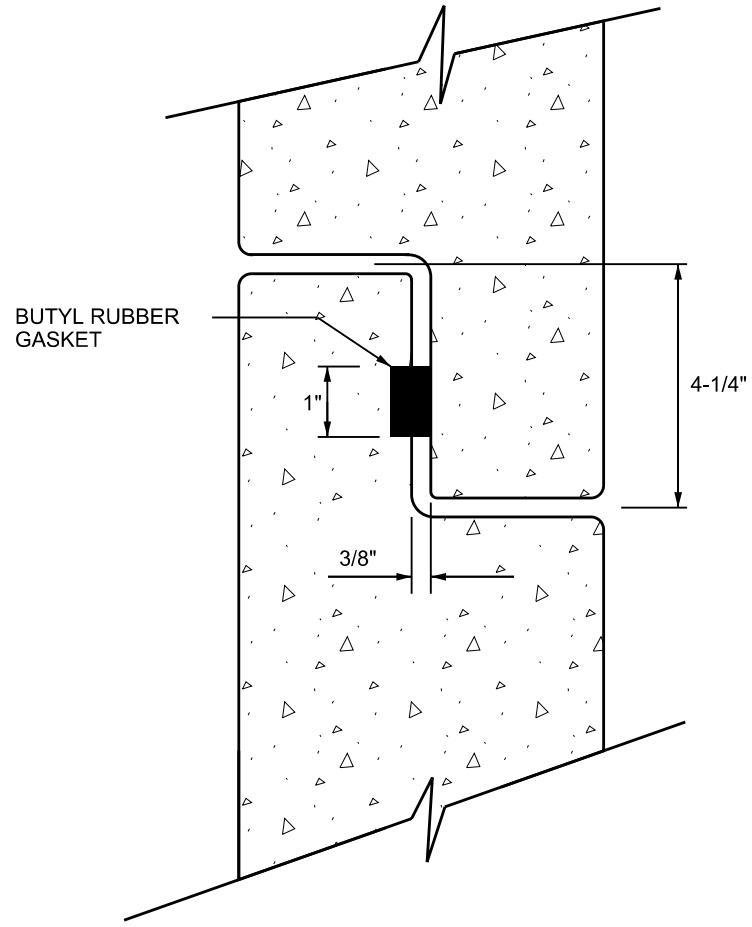
9

MANHOLE PASS THROUGH INVERT SECTION

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER

S04B
02-16-95

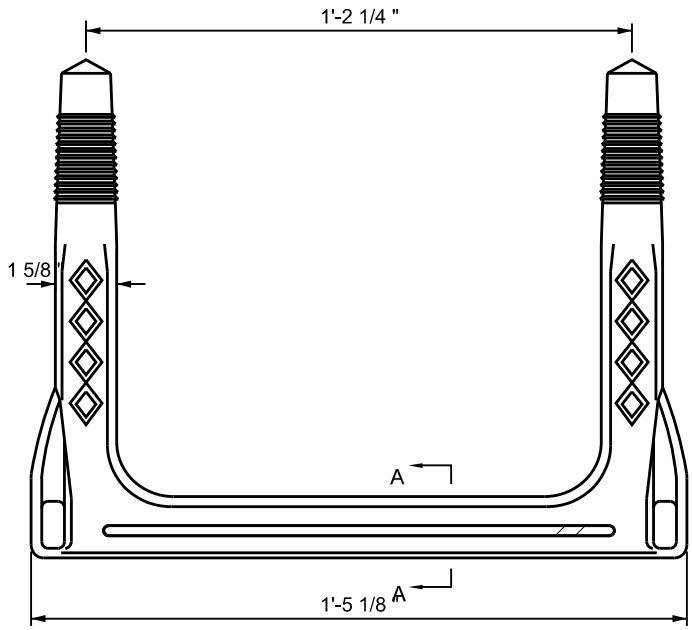


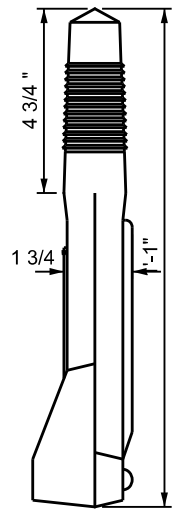
SEWER
DETAIL No.
10

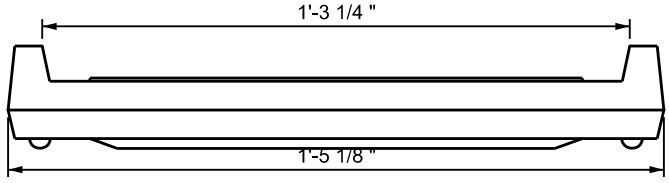
GASKET FOR PRECAST MANHOLE SECTIONS

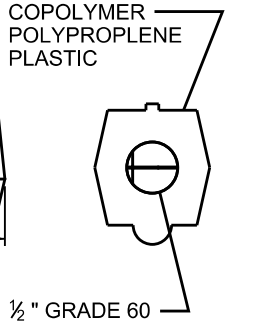
SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER









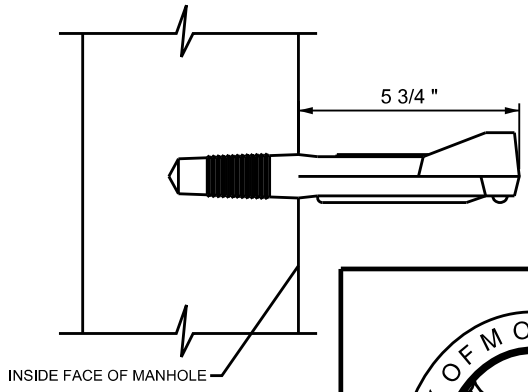
NOTES:

1. MANHOLE STEPS SHALL BE POLYPROPYLENE COATED STEEL REINFORCING RODS WITH ROD AND PULL OUT RATINGS MEETING OSHA STANDARDS

2. FOR LARGER DIAMETER MANHOLES (DEEPER THAN 22') A CAGED ALUMINUM LADDER SHALL BE USED.

3. MANHOLE AND INLET STEPS SHALL BE INSTALLED AT MAXIMUM 16" INTERVALS.

SECTION A

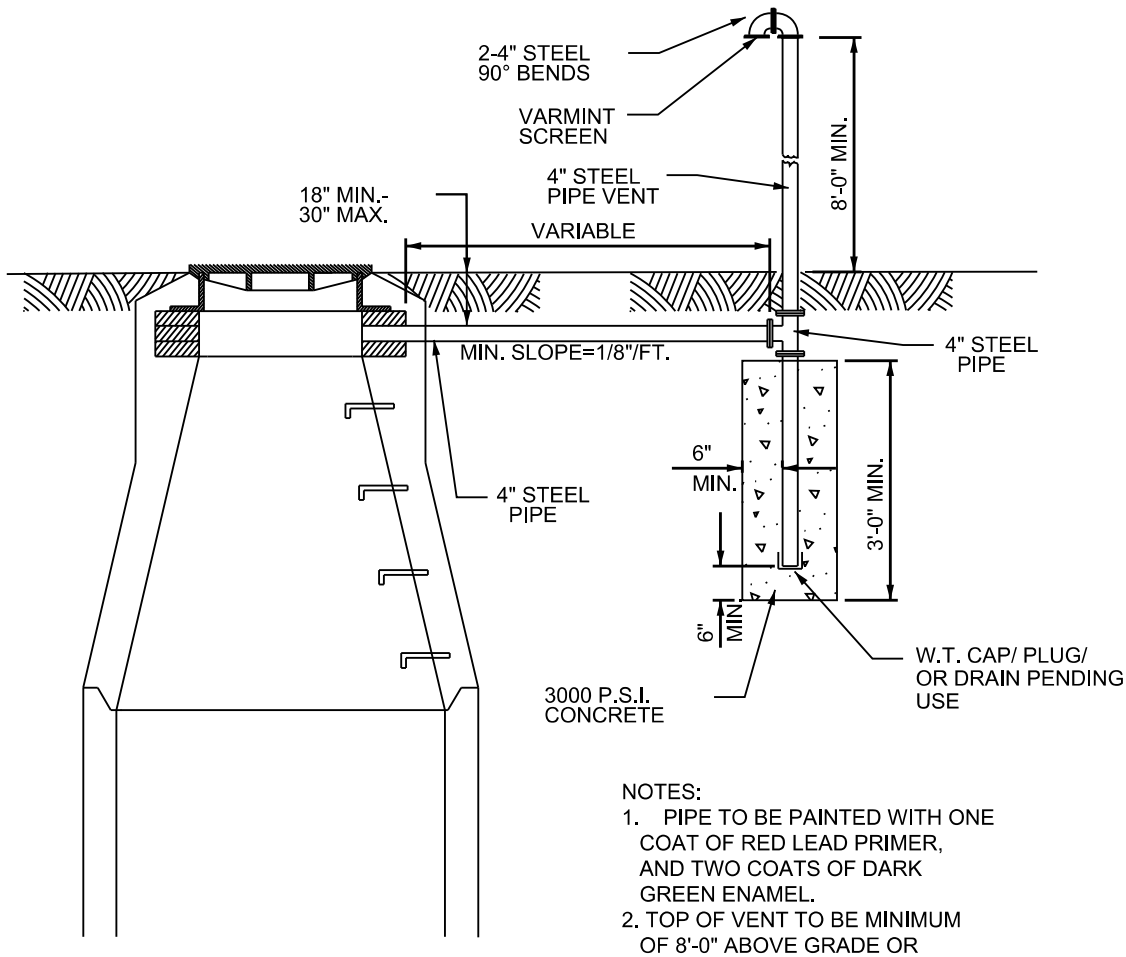


SEWER DETAIL No. 11

MANHOLE STEPS

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



NOTES:
1. PIPE TO BE PAINTED WITH ONE COAT OF RED LEAD PRIMER, AND TWO COATS OF DARK GREEN ENAMEL.
2. TOP OF VENT TO BE MINIMUM OF 8'-0" ABOVE GRADE OR HIGHER IF ELEVATION IS SHOWN ON PLANS.

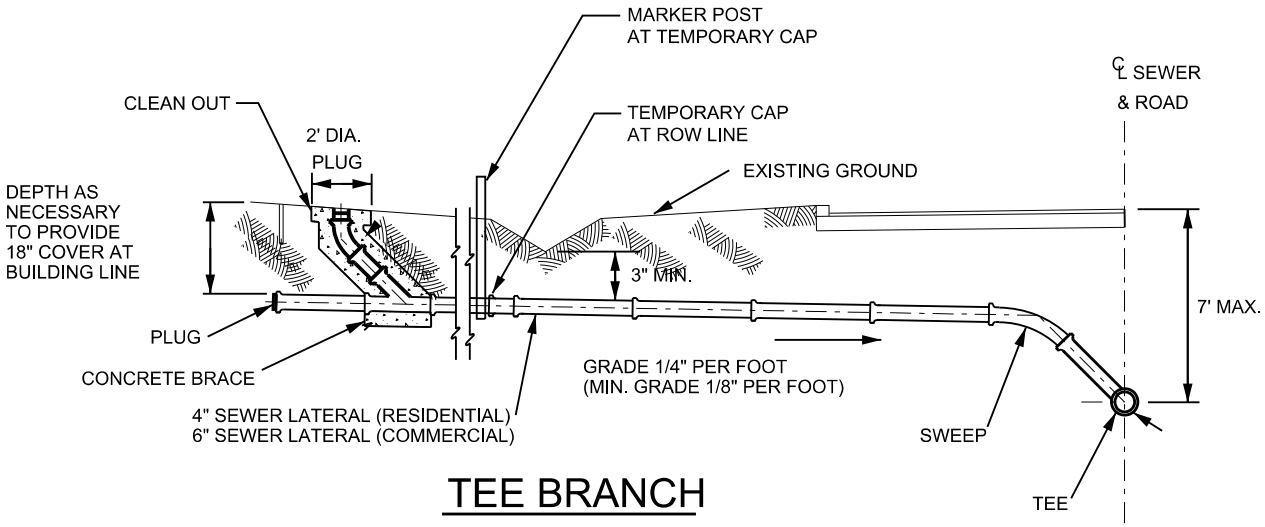
NOTE:
1. TO BE USED ON CAP SEWER, HIGH PRESSURE OR HIGH FLOW SEWERS.

SEWER DETAIL No.
12

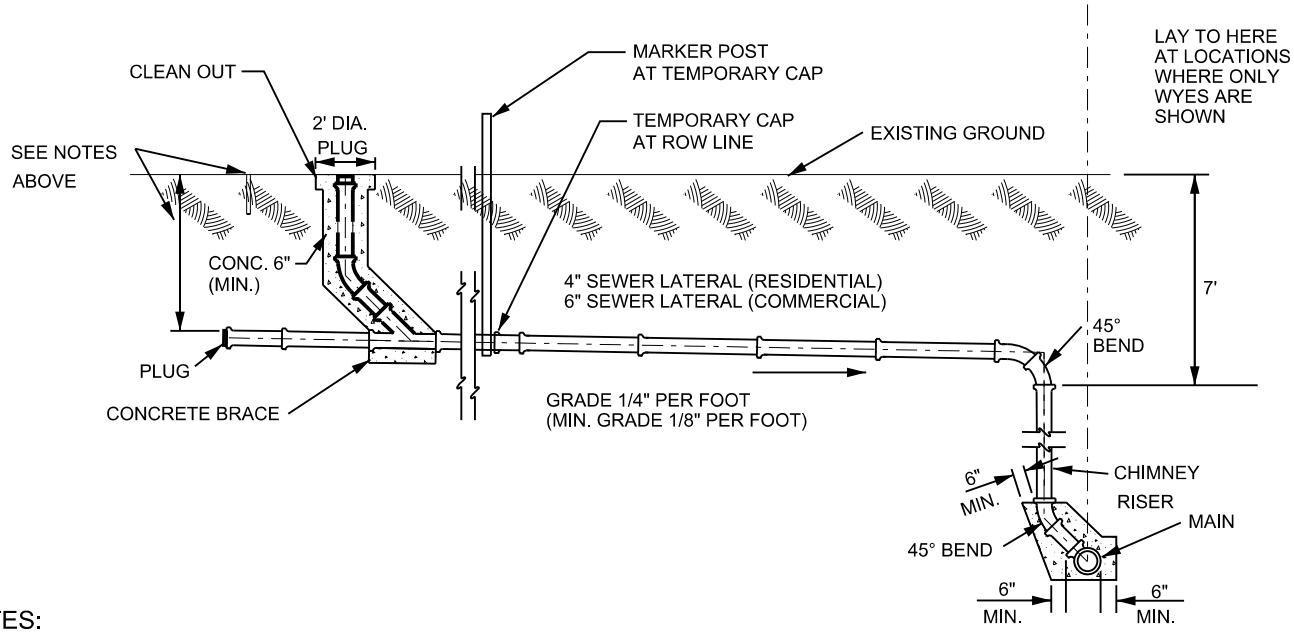
MANHOLE VENT

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



TEE BRANCH



NOTES:

1. "SEWER" TAPE TO BE INSTALLED ALONG MAIN & LATERALS.
2. BACKFLOW VALVE SHALL BE PLACED IN BOX
3. MANHOLE SHALL BE SET AT ALL 6" OR LARGER LATERAL CONNECTIONS

SEWER
DETAIL No.
13

SANITARY SEWER LATERAL

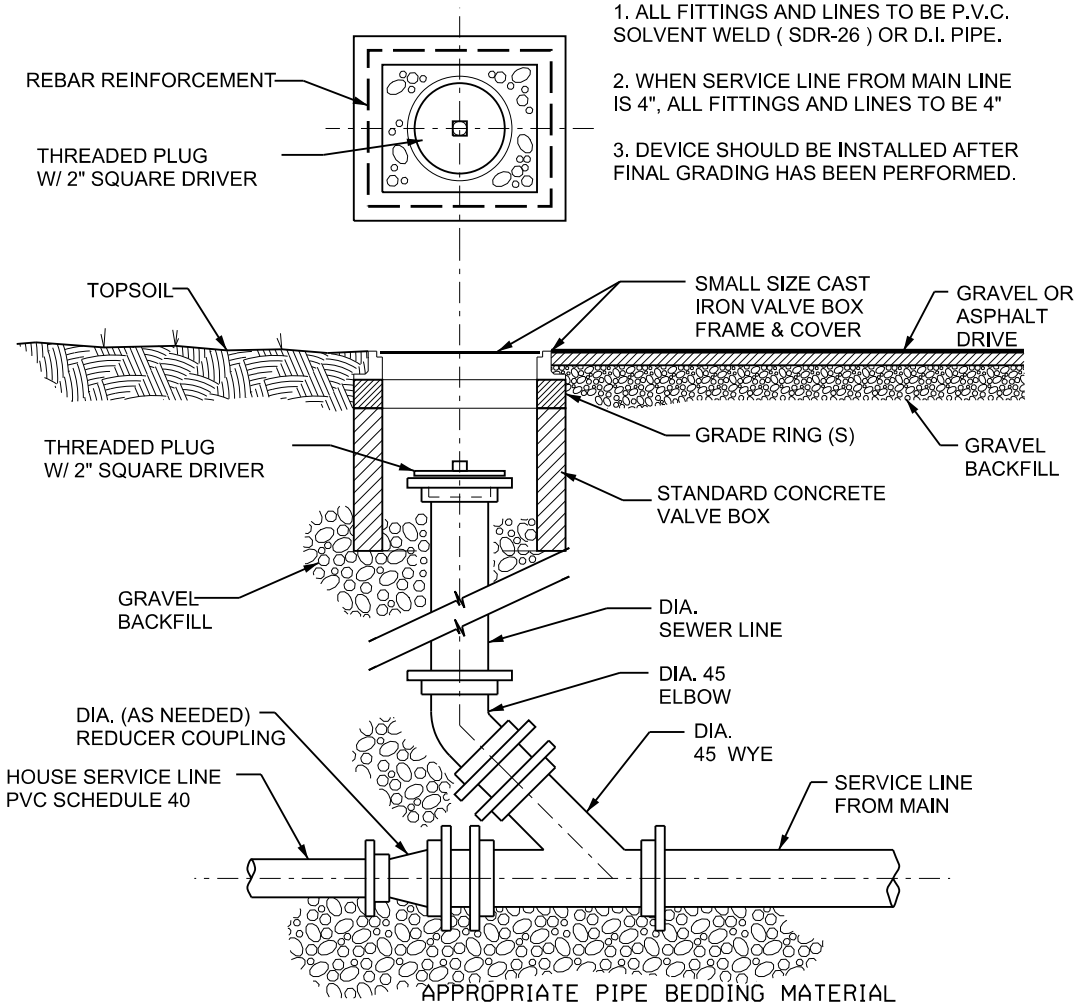
SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER

NOTES:
1. ALL FITTINGS AND LINES TO BE P.V.C. SOLVENT WELD (SDR-26) OR D.I. PIPE.

2. WHEN SERVICE LINE FROM MAIN LINE IS 4", ALL FITTINGS AND LINES TO BE 4"

3. DEVICE SHOULD BE INSTALLED AFTER FINAL GRADING HAS BEEN PERFORMED.

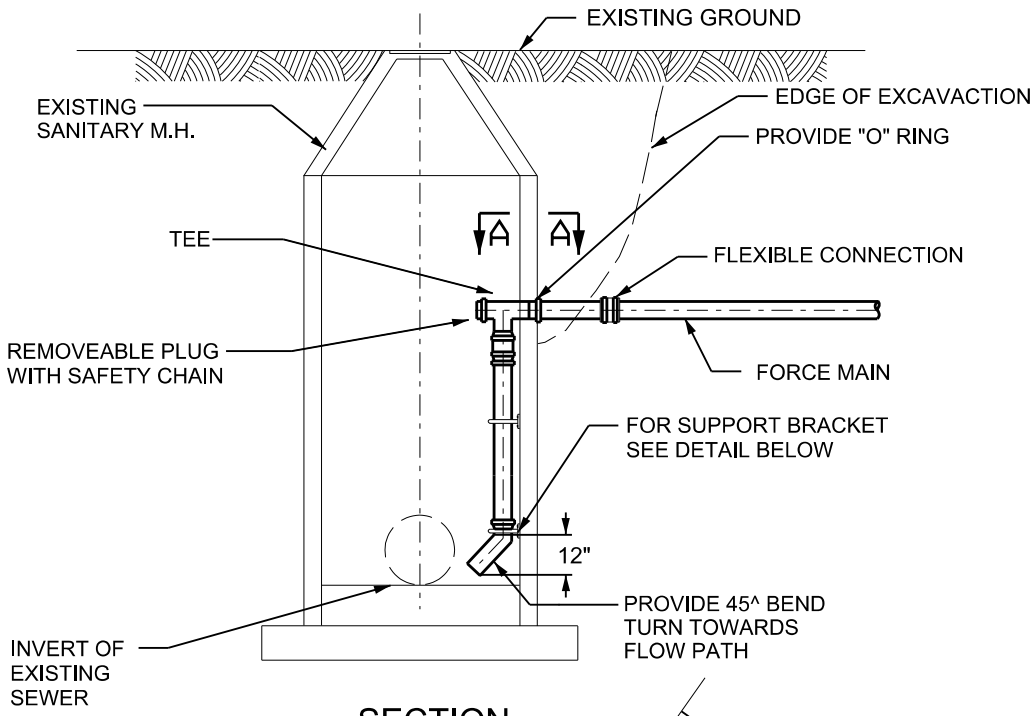


SEWER
DETAIL No.
14

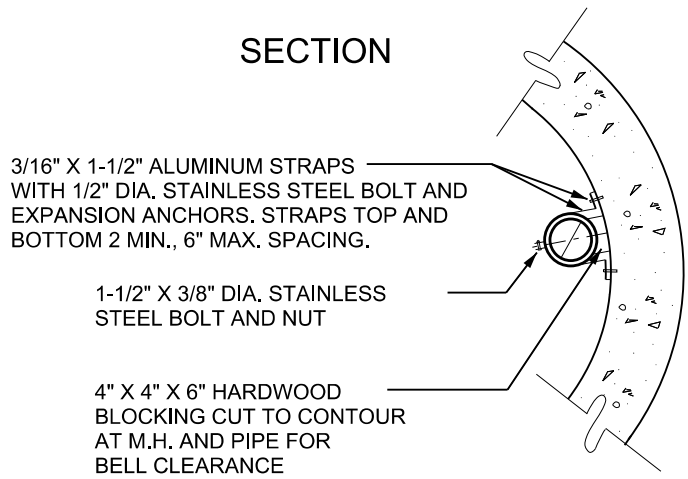
SANITARY SEWER CLEANOUT

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



SECTION



SECTION A-A

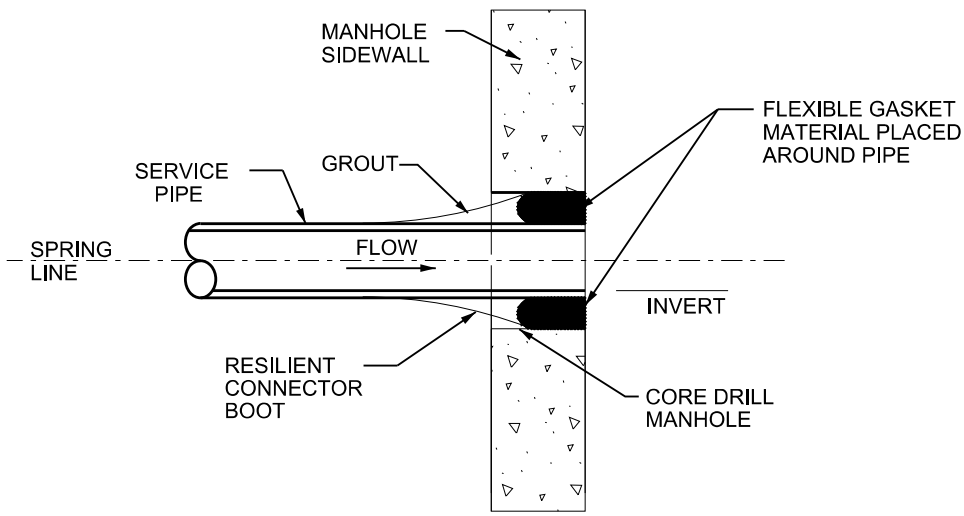
SIZE MAY VARY ON FORCE MAIN PIPING

SEWER
DETAIL No.
15

FORCE MAIN/LATERAL CONNECTION

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER

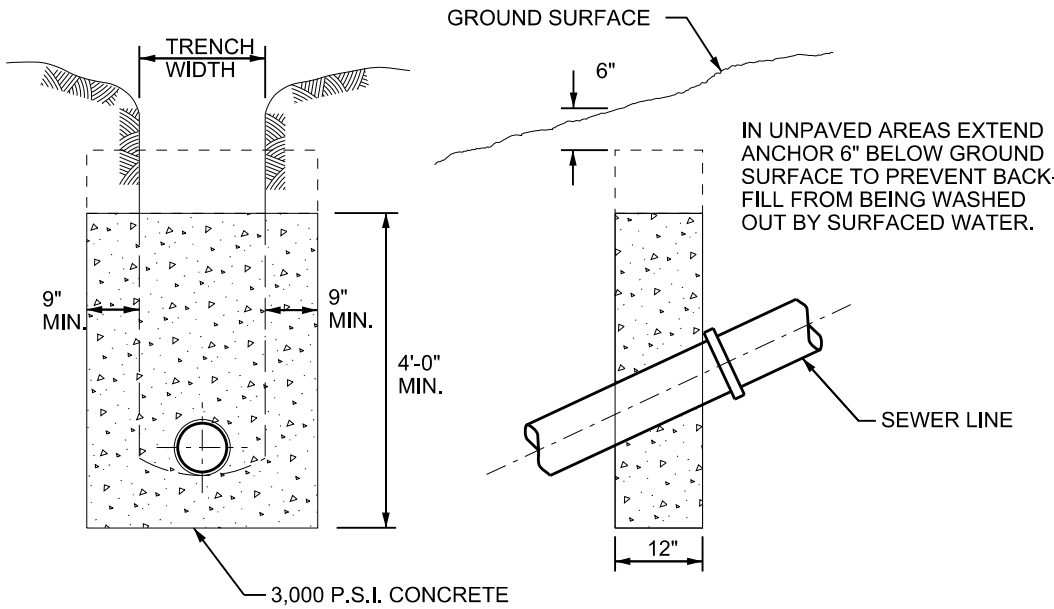


SEWER DETAIL No. 16

SERVICE PIPE TO MANHOLE CONNECTION

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



NOTES:

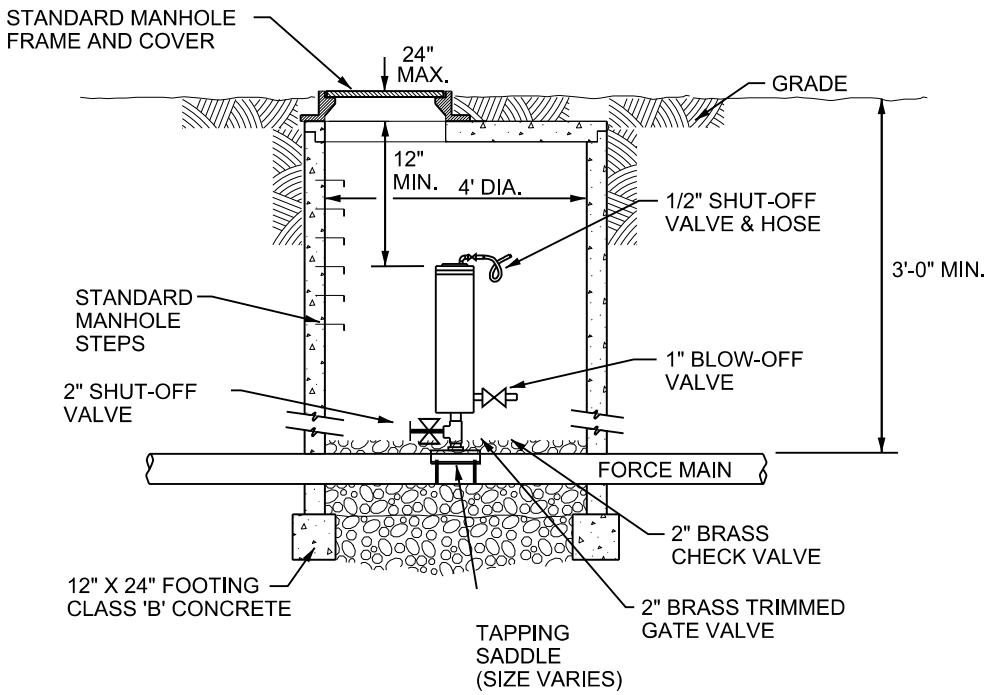
1. PROVIDE NO ANCHOR ON GRADES LESS THAN 10% UNLESS NOTED.
2. PROVIDE ANCHOR 50' CENTER TO CENTER ON GRADES BETWEEN 10% AND 30%.
3. PROVIDE ANCHOR 25' CENTER TO CENTER ON GRADES BETWEEN 30% AND 50%.
4. CONTRACTOR MAY SUBMIT ALTERNATE DESIGN UTILIZING ROCK BOLTS TO KEY ANCHOR TO ROCK TRENCH
5. FOR CONDITIONS OTHER THAN SHOWN HEREON, ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR SPECIFIED BY THE DESGIN ENGINEER.

SEWER DETAIL No.
17

CONCRETE RESTRAINT COLLAR

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



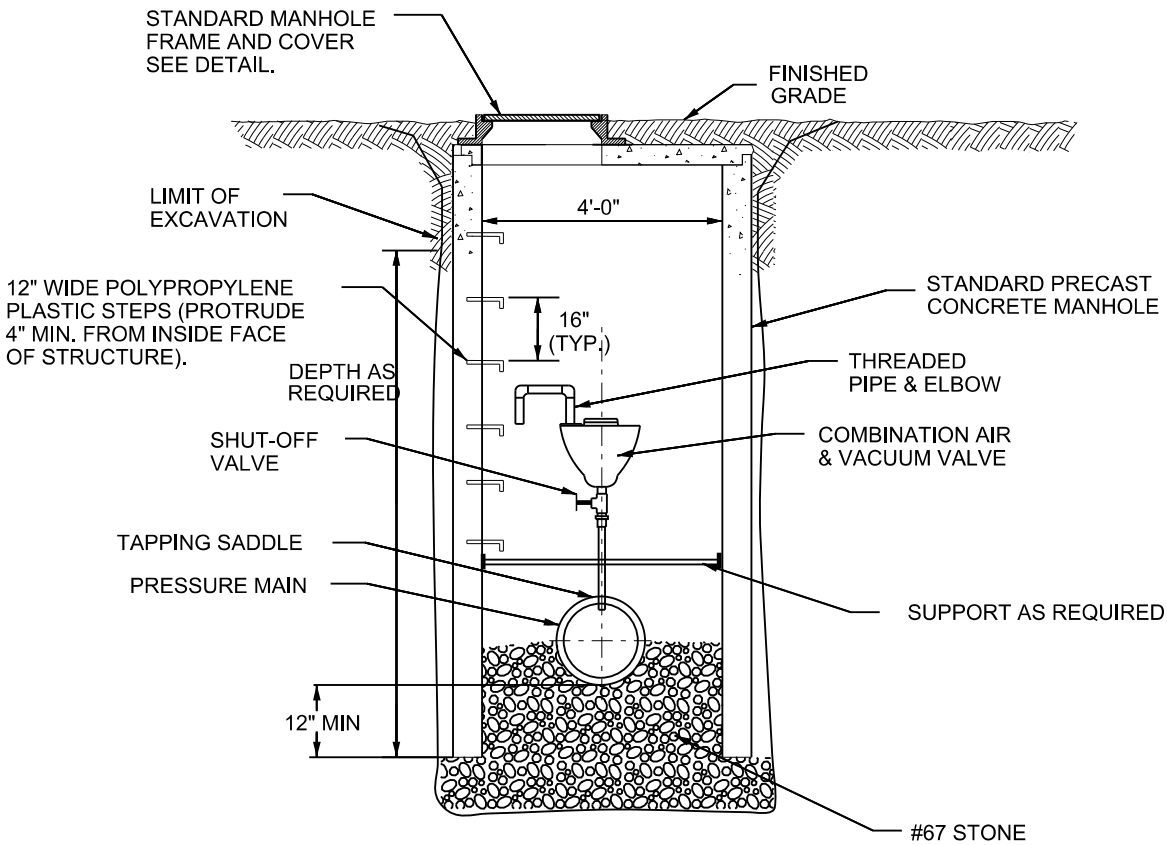
NOTE:
SEWAGE AIR AND VACUUM VALVES SHALL ALLOW UNRESTRICTED VENTING OR RE-ENTRY OF AIR THROUGH IT, DURING FILLING OR DRAINING OF THE FORCE MAIN, TO PREVENT VACUUM. THE SEWAGE AIR AND VACUUM VALVE SHALL INCORPORATE (2) STAINLESS STEEL FLOATS DIRECTLY CONNECTED BY A STAINLESS STEEL FLOAT GUIDE, TO MAINTAIN AN AIR GAP BETWEEN THE BOTTOM FLOAT AND TOP SHUT-OFF FLOAT. THE AIR GAP SHALL RETARD WASTE SOLIDS FROM FOULING OR CLOGGING THE TOP SHUT-OFF FLOAT. THE INTERNAL BAFFLE SHALL BE FITTED WITH A GUIDE BUSHING AND ACT TO PROTECT THE SHUTOFF FLOAT FROM DIRECT AIR FLOW. THE BAFFLE SHALL RETAIN THE 45° DUROMETER BUNA-N SEAT IN PLACE, WITHOUT DISTORTION, FOR TIGHT SHUT-OFF. VALVE SHALL BE APCO SERIES 400 AS MANUFACTURED BY VALVE AND PRIMER CORPORATION, OR APPROVED EQUAL.
ALL INTERNALS SHALL BE EASILY REMOVED THROUGH THE TOP COVER WITHOUT REMOVING THE MAIN VALVE FROM THE LINES. THE COMPLETE VALVE SHALL WITHSTAND 500 P.S.I. TEST. INLET AND BLOW-OFF VALVES, QUICK-DISCONNECT COUPLINGS AND MINIMUM 5' HOSE FOR FLUSHING.
SEE SEWER DEPARTMENT FOR CURRENT MODELS.

SEWER
DETAIL No.
18

AIR RELEASE VALVE
SANITARY FORCE - MAIN

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



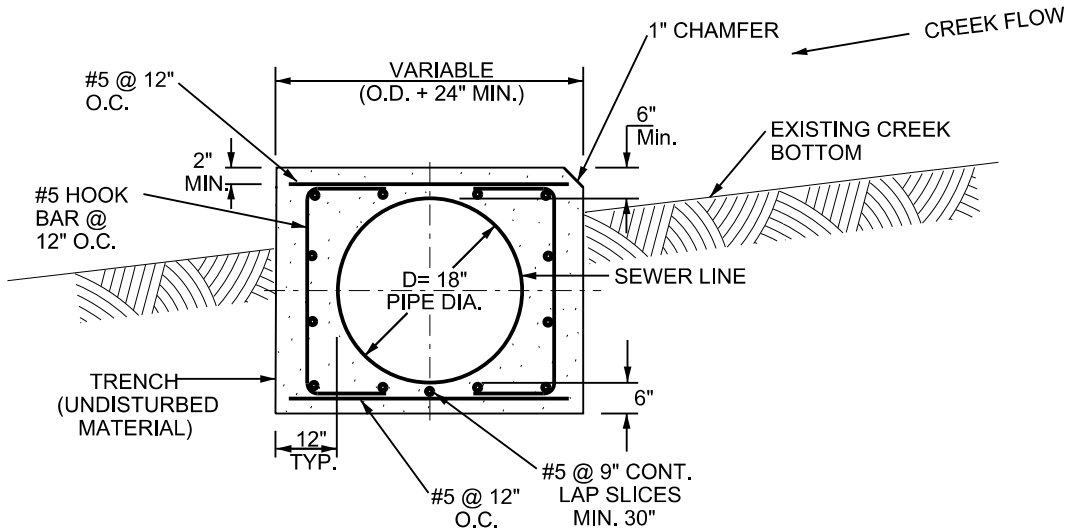
NOTE:
VALVE IS TO BE SIZED FOR CONDITIONS. SEE SEWER DEPARTMENT FOR CURRENT MODELS.

SEWER DETAIL No.
19

COMBINATION AIR AND VACUUM VALVE ASSEMBLY

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



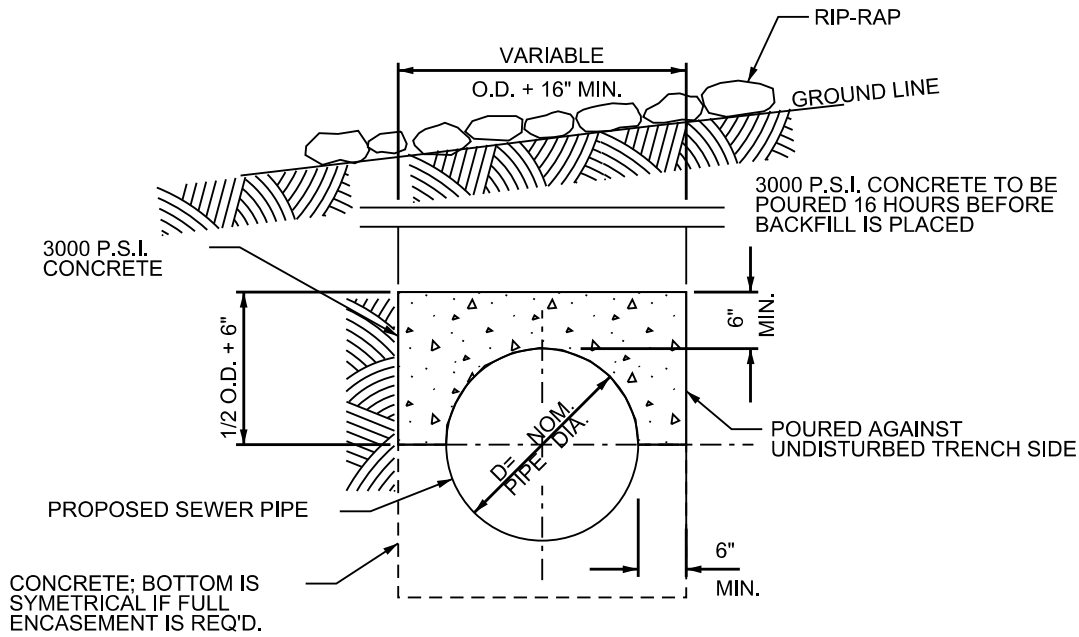
NOTE:
3000 P.S.I. CONCRETE TO BE POURED 16 HOURS BEFORE BACKFILL IS PLACED AND IN SUCH A MANNER AS TO PREVENT PIPE FROM FLOATING.

SEWER DETAIL No.
20

CONCRETE ENCASEMENT FOR CREEK CROSSING

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



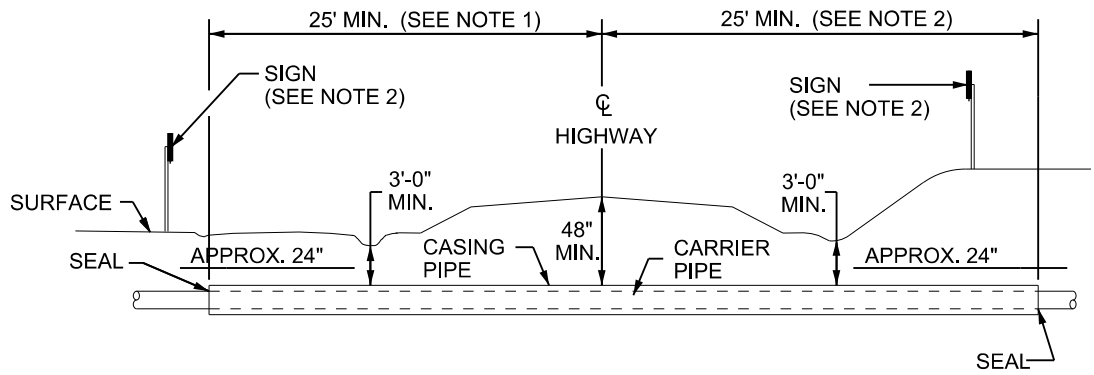
SEWER DETAIL No.

21

CONCRETE PIPE PROTECTION FOR SANITARY SEWER

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



SEWER LINES

NOTES:

1. CASING SHALL EXTEND TO THE GREATER OF THE FOLLOWING DISTANCES:

   A. 2' BEYOND TOE OF SLOPE
   B. 3' BEYOND DITCH LINE
   C. MIN. OF 25' WHEN CASING IS SEALED AT BOTH ENDS.

2. SIGN TO INDICATE LOCATION OF PIPE LINE AT R.O.W. LINE, KIND OWNERSHIP, AND DEPTH OF PIPE LINE.

3. THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE AT LEAST TWO INCHES GREATER THAN LARGEST DIAMETER OF CARRIER PIPE, JOINTS OR COUPLINGS FOR CARRIER PIPES LESS THAN 6" IN DIAMETER AND AT LEAST 4" GREATER FOR CARRIER PIPES 6" AND OVER IN DIAMETER.

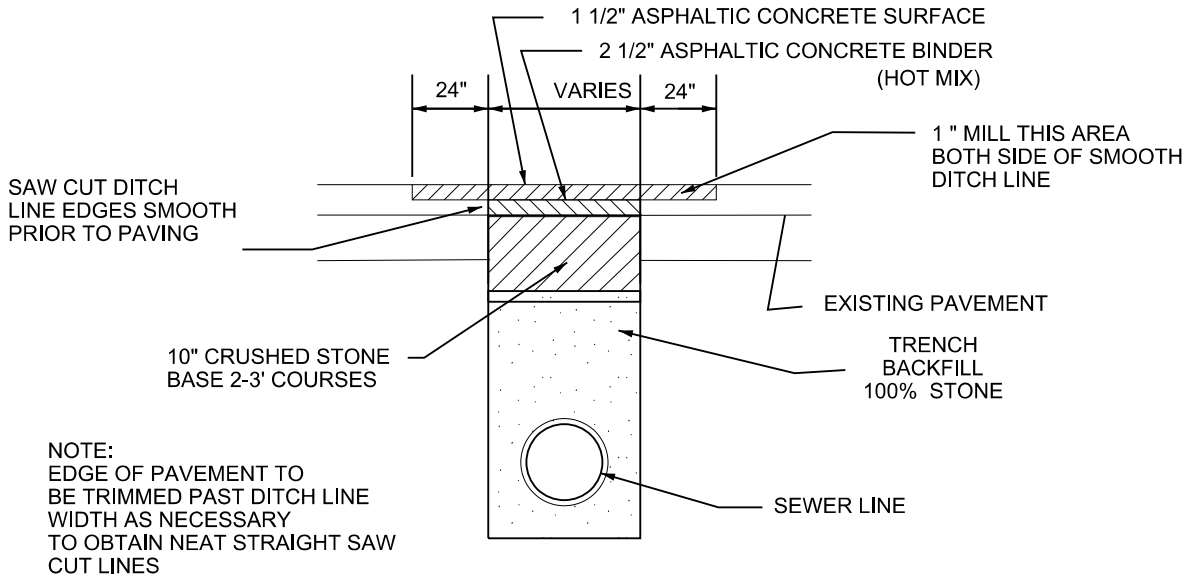
4. SEWER LINE MUST BE BLOCKED INSIDE CASING PIPE TO MAINTAIN ALIGNMENT. BACKFILL CASING WITH SAND TO TOP OF CARRIER PIPE.

SEWER
DETAIL No.
22

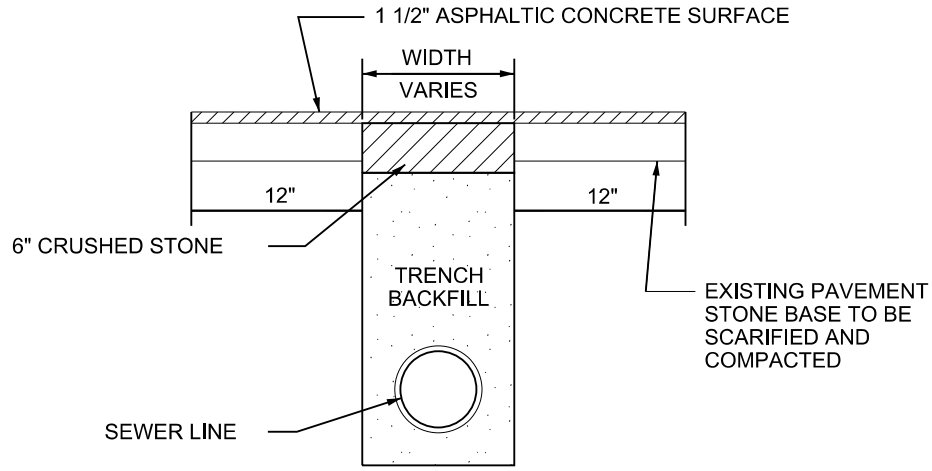
HIGHWAY CROSSING
SANITARY SEWER

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



TYPICAL SECTION STANDARD ASPHALT SURFACE REPAIR



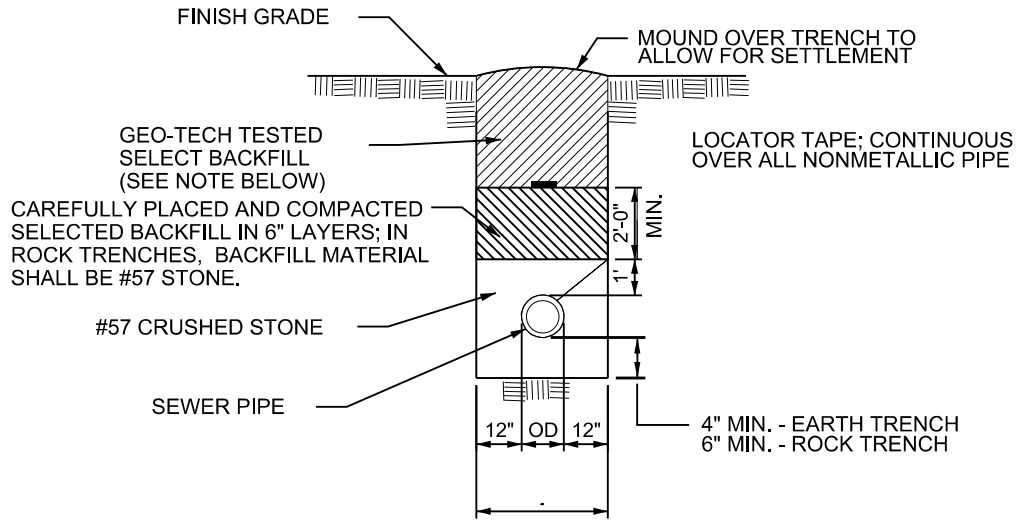
TYPICAL SECTION DOUBLE SURFACE TREATMENT

SEWER
DETAIL No.
23

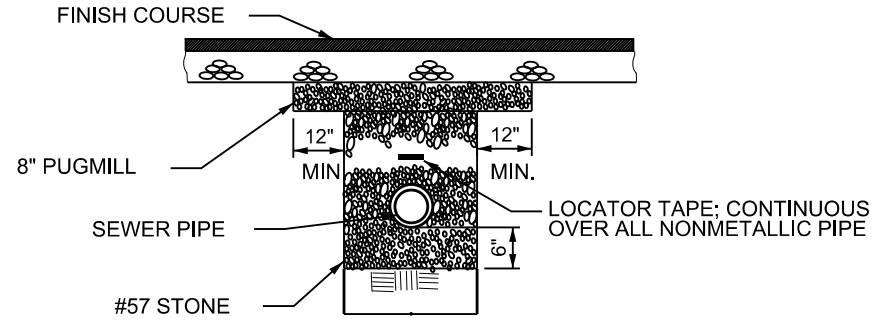
TYPICAL PAVEMENT REPLACEMENT

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER



SECTION - (NON-ROADWAY AREAS)



SECTION - (PROP. PAVED AREAS)

NOTE: ONLY ACCEPTABLE GRANULAR MATERIAL WITH A ZERO P.I. WILL BE CONSIDERED FOR SELECTED BACKFILL BACKFILL MUST BE COMPACTED TO 98% STD. PROCTOR DENSITY. COMPACTION SHALL BE TESTED BY THE CONTRACTOR AND THE RESULT OF SAID TEST SHALL BE SUBMITTED TO THE ENGINEER.

SEWER DETAIL No. 24

TRENCH & BACKFILL FOR 8" - 18" DIA.

SCALE: NONE

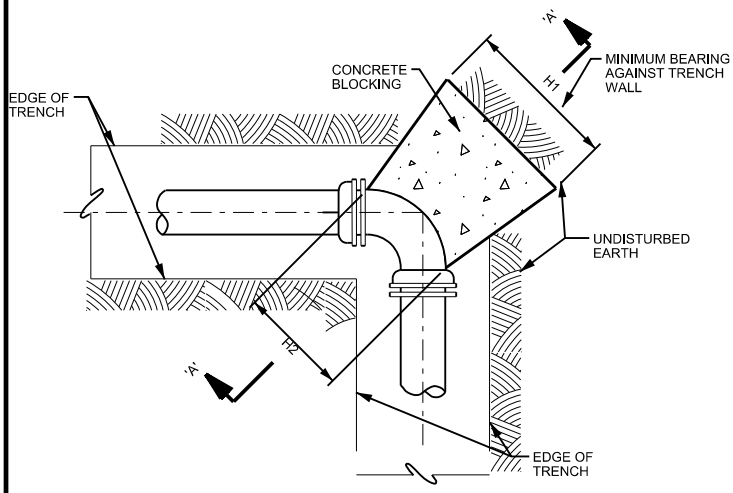
CITY OF MONTEVALLO WATER & SEWER

TABLE OF DIMENSIONS FOR CONCRETE BLOCKERS																									
TEES, CROSSES & PLUGS					90° BENDS					45° BENDS					22-½° BENDS					11-¼° BENDS					PIPE SIZE
H1	H2	V	D	C.F.	H1	H2	V	D	C.F.	H1	H2	V	D	C.F.	H1	H2	V	D	C.F.	H1	H2	V	D	C.F.	
18"	10"	12"	18"	1.90	18"	10"	12"	18"	1.90	18"	6"	12"	18"	1.50	18"	6"	12"	18"	1.50	18"	6"	12"	18"	1.50	2" & 2-1/4"
24"	12"	12"	18"	2.25	24"	12"	12"	18"	2.25	18"	8"	12"	18"	1.60	18"	8"	12"	18"	1.60	18"	8"	12"	18"	1.60	3" & 4"
24"	16"	18"	18"	3.50	30"	16"	18"	18"	4.05	24"	10"	16"	18"	3.20	24"	10"	16"	18"	3.20	24"	10"	16"	18"	3.20	6"
36"	18"	18"	18"	5.05	39"	18"	24"	18"	7.30	30"	11"	18"	18"	3.95	30"	11"	18"	18"	3.95	24"	11"	16"	18"	3.40	8"
48"	24"	18"	24"	7.15	54"	32"	24"	18"	10.25	24"	18"	21"	18"	4.60	24"	18"	21"	18"	4.60	24"	18"	21"	18"	4.60	10"
54"	30"	24"	24"	13.4	54"	32"	36"	24"	18.15	42"	18"	24"	24"	9.60	24"	18"	24"	24"	6.60	24"	18"	21"	24'	6.10	12"
60"	32"	30"	24"	17.9	60"	40"	42"	24"	25.00	44"	24"	30"	24"	13.2	30"	24"	24"	24"	9.20	27"	21"	24"	24'	7.90	14"
66"	34"	36"	24"	22.5	69"	48"	48"	24"	29.00	48"	30"	36"	24"	17.0	36"	30"	27"	24"	11.80	27"	24"	27"	24"	9.10	16"
66"	36"	40"	24"	27.5	69"	48"	48"	24"	33.00	48"	30"	36"	24"	17.0	36"	30"	29"	24"	13.0	27"	30"	29"	24"	11.0	18"
	38"		24"			48"		24"			40"		24"			36"		24"		30"	40"		28"		20"
	42"		24"			60"		24"			48"		24"			42"		24"			42"		32"		24"
	58"		24"			96"		24"			72"		24"			72'		24"			48"		36"		30"

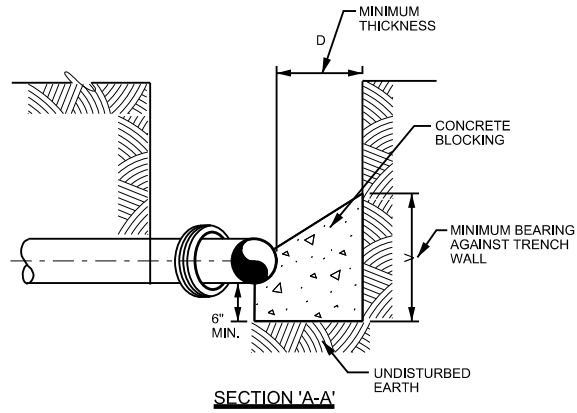
DETAIL - PIPE BRACING

SCALE: NONE

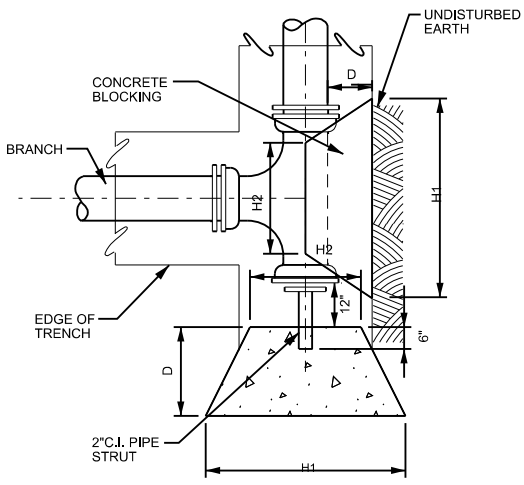
NOTE: DIMENSIONS ARE CONTROLLED BY DIAMETER OF BRANCH MAIN.



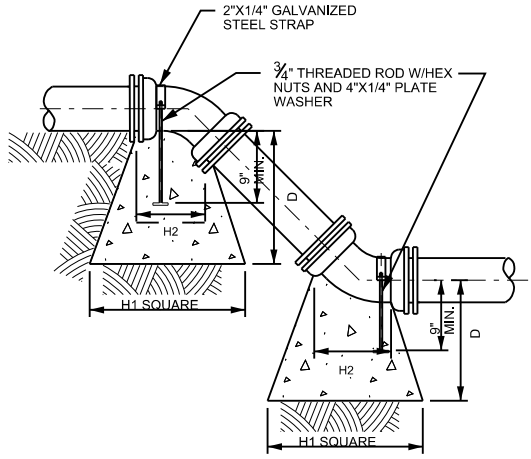
HORIZONTAL BENDS



SECTION 'A-A'



TEES, CROSSES AND PLUGS



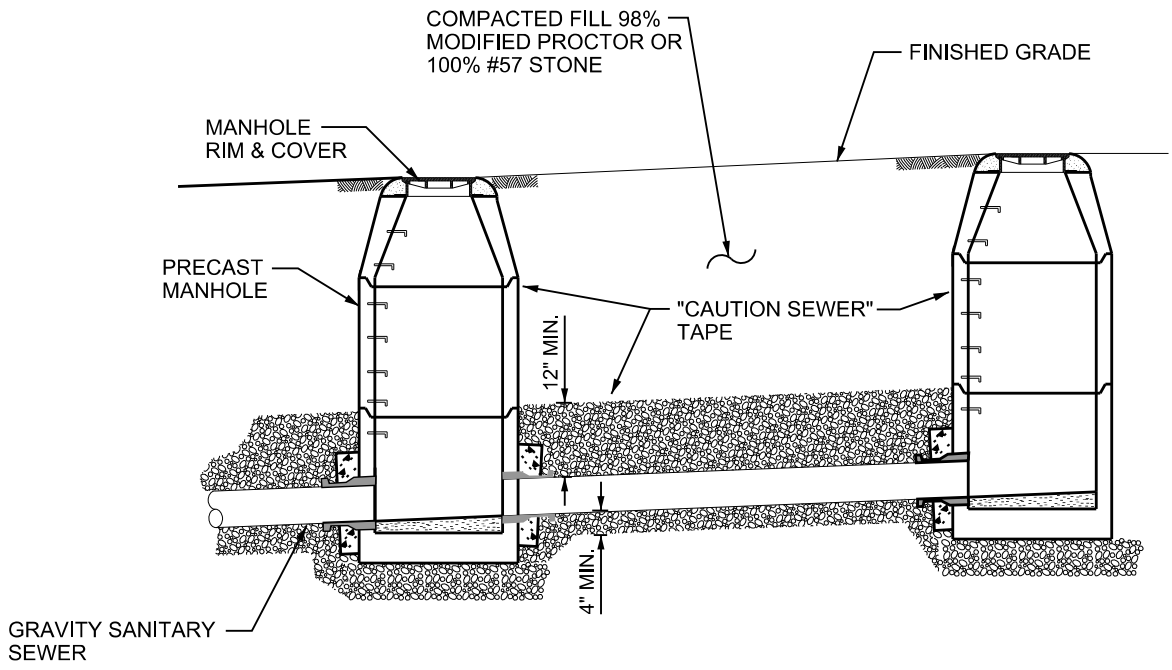
VERTICAL BENDS

SEWER DETAIL No. 25

PIPE BRACING

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER

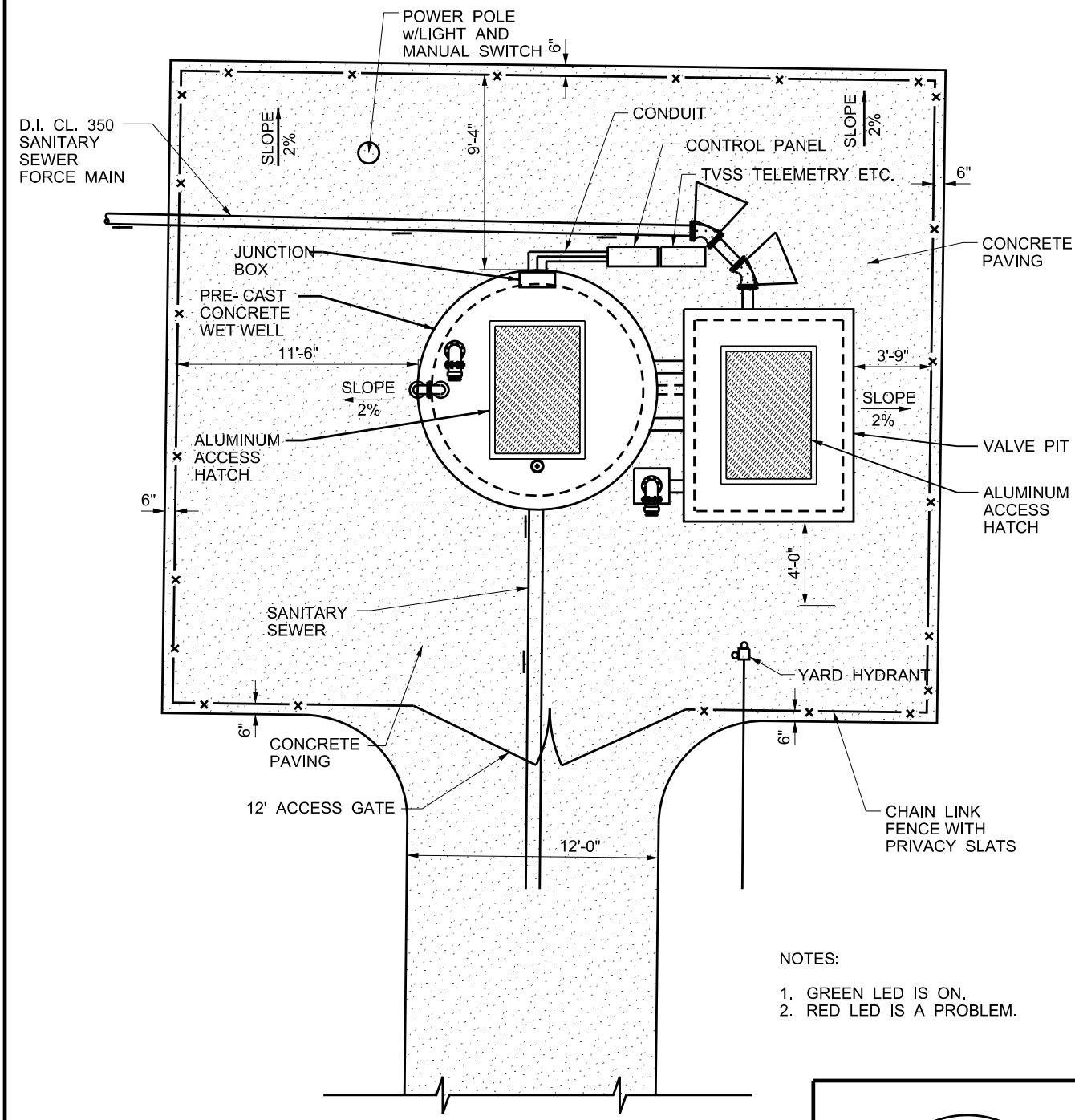


SEWER DETAIL No. 26

TYPICAL GRAVITY SEWER LINE INSTALLATION

SCALE: NONE

CITY OF MONTEVALLO WATER & SEWER



NOTES:

1. GREEN LED IS ON.
2. RED LED IS A PROBLEM.

SEWER
DETAIL No.
27

TYPICAL PUMP STATION SITE PLAN

SCALE: NONE

CITY OF MONTEVALLO
WATER & SEWER

DEVELOPMENT: _____

NUMBER OF LOTS OR UNITS: _____

STATE OF ALABAMA)

COUNTY OF SHELBY)

DEVELOPER SEWER AGREEMENT

THIS AGREEMENT is made and entered into by and between **MONTEVALLO WATER AND SEWER BOARD, ("BOARD"**), and _____ _____ ("**DEVELOPER**") as an owner of lots or other property within **BOARD**'s service area effective on this _____ day of _____, 20____.

The **DEVELOPER** desires to install sewer mains and other related equipment necessary to furnish sewer to lots or properties and/or homes, and connect sewer lines to a sewer main belonging to **BOARD** and **BOARD** is willing to accept **DEVELOPER** onto the system on the terms and conditions as follows:

1. Contact **BOARD**'s General Manager describing the development along with your need for sanitary sewer.

   (a) During initial contact, furnish **BOARD** three (3) copies of a preliminary plat showing the location of the subdivision including a section tie point. The preliminary plat should have a scale of not less than 1" equals 100', and contour Interval of not less than 10'. The preliminary plat should identify the road or street system, the proposed lots and the proposed water and sewer mains, and other related equipment. Flow calculations must be submitted that take into consideration all present and future users for each drainage area. These calculations must include all assumptions used to determine flow. Allow thirty (30) days for preliminary review.

2. **DEVELOPER's** engineer must obtain from **BOARD** one set of specifications and standard detail sheets necessary for providing a set of detailed construction plans. These construction plans must meet the requirements of the **BOARD**'s Standard Sanitary Sewer Specifications. All drawings must be designed by an engineer and bear his stamp.

   (a) In the event the **DEVELOPER** proposes to install an alternative sanitary sewer system such as a Recirculating Sand Filter or Package Plant, each system

shall be submitted for consideration. Three (3) sets of construction drawings along with all submittal data for the system shall be submitted for the proposed alternative system.

3. Submit to **BOARD** three (3) sets of plans for approval. Submit payment to **BOARD** for an analysis and review of the plans, in the amount then required by the **BOARD**. All sewer line sizes and type will be determined by analysis and review.

4. The following Statement shall appear on the preliminary plat and shall be endorsed by an authorized representative of the **BOARD**:

   The Montevallo Water and Sewer Board has reviewed the submitted Information for the proposed Development and determined that sewer service can be made available. All construction shall be the responsibility of the Developer.

   _____

   Name/Title *Date*

5. Service will not begin unless these conditions are met, including the foregoing and the following, but not necessarily limited thereto:

   (a) No service will be provided until all construction is approved and all testing is completed.

   (b) Prior to construction of any sewer lines, provide **BOARD** the necessary submittal data on materials as outlined in the specifications along with Affidavit of Compliance of the pipe.

   (c) Prior to construction, provide to **BOARD** a Certificate of Insurance with coverage as outlined in specifications. The Insurance Certificate must include Montevallo Water and Sewer Board, as additional insured.

   (d) You must provide evidence to **BOARD** that you have complied with all rules and regulations of the Health Department for Shelby County, Alabama, and the State of Alabama, and Alabama Department of Environmental Management, and any other governmental agency, or agency that has an interest in the extension of the sewer service of **BOARD**.

6. After **BOARD** has received approved plans, submittal data and Certificate of Insurance, the **DEVELOPER**'s Engineer or the **DEVELOPER** shall make arrangements for a preconstruction conference to include **BOARD**. Shelby County and/or Alabama Highway Departments, the **DEVELOPER**'s Engineer,

Contractor and Sub-Contractors. No preconstruction meeting will be authorized until a signed preliminary plat is received from the County Engineer.

7. After the preconstruction conference (and not before), the contractor will be authorized to proceed with installation of sewer lines. The authorization must be in writing, if not, there is no authorization.

8. **BOARD** will provide inspection as the system is installed and must be notified at least one week in advance of commencement of construction.

9. **DEVELOPER** will be responsible for the maintenance of the improvements for a period of one year from the date of the final inspection and acceptance in writing. The **DEVELOPER** will be required to file a maintenance bond with the **BOARD** prior to any sewer service becoming available. The amount of the bond will be for the full amount of the cost of the improvements based on **BOARD**'s Engineer's estimate and will remain in effect during the required maintenance period.

10. All sewer lines, to include alternative sanitary sewer systems and other related equipment, once tapped into the **BOARD**'s system, will become a part of the system and will be total and separate property of the **BOARD**. **DEVELOPER** by the execution of this instrument does hereby transfer, set over and convey unto the **BOARD** all of its rights, title and interest in and to the sewer lines and other related equipment.

11. **BOARD** agrees to furnish sewer service at its regular price charged by the **BOARD** to its customers of like kind, as may be increased or decreased from time to time, together with any fees being charged to its customers of like kind, as such fee or fees may be increased or decreased from time to time.

12. **BOARD** will make no payment whatsoever to the **DEVELOPER** for sewer lines and/or sewer equipment installed by the **DEVELOPER**. The consideration will be **BOARD**'s promise to deliver and/or furnish sewer service to the customers on the lines.

13. All connections to existing mains shall be made by **BOARD** or an approved contractor. All materials will be furnished by the **DEVELOPER**.

14. The **DEVELOPER** is responsible to **BOARD** for the actions of all contractors, sub-contractors or any other agent involved in construction of this development.

15. Obtaining sewer service without the approval of the **BOARD** will be subject to a fine per occurrence in the amount, as established by the **BOARD** for its customers of like kind, as may be increased or decreased from time to time.

16. A cash deposit may be submitted in lieu of completion of construction for signature on final plat. The amount of the deposit shall be 150% of the **BOARD**'s estimate of the remaining construction cost. The cash deposit in no way releases the **DEVELOPER** from any responsibility to complete the development.

17. Final plats submitted for signatures shall be accompanied by two (2) sets of plans and electronic files in both PDF format and DWG, DGN or DXF format.

18. The following certificate shall appear on the final plat to be recorded in Shelby County and shall be endorsed by an authorized representative of the **BOARD**:

    The undersigned, a duly authorized representative of the Montevallo Water and Sewer Board, hereby approves the within plat for the recording of same in the Probate Office of Shelby County, Alabama. It is specifically understood that approval of this plat in no way approves or implies an approval of any additional phase, lots or additions to the property contiguous to or adjoining the property described in the plat this the _____ day of _____, 20____.

    _____
    Name/Title

19. It is specifically understood between the parties to this Agreement that each and every item set forth herein must be completed within the strictest sense of the word, and any noncompliance will relieve the **BOARD** from being obligated to furnish sewer or take any further action toward furnishing sewer.

20. This acknowledges receipt of notice of all currently due fees that apply to this Development. Such fees, charges, expenses and costs may be changed, amended or added to by **BOARD** from time to time, for customers of like kind, and must be paid in full before this agreement is final and Preliminary Plat signed.

21. **THIS AGREEMENT IS FOR THE ABOVE REFERENCED DEVELOPMENT, PHASE OR LOTS AS STATED ONLY. NO OTHER PHASES, LOTS OR ADDITIONS CONTIGUOUS TO OR ADJOINING ARE APPROVED OR IMPLIED TO BE APPROVED NOW OR AT ANY TIME IN THE NEAR FUTURE**.

22. The approval of the plans and specifications above requires that construction of the development begin and be concluded and accepted by **BOARD** within one (1) year from this date. If you have not begun construction within the one (1) year period, or if you began construction, but it has not been completed and accepted by the **BOARD** within one (1) year from this date, then, all plans and specifications will have to be resubmitted to the **BOARD** for approval. At the time of such resubmittal, all then current fees and charges as established by the **BOARD,** as of the resubmittal date, shall become due and payable in full.

23. The amount of any fee, cost, expense or charge set forth herein and provided or required to be paid to **BOARD**, shall be in **the then current amount** as may be set and established by the **BOARD** for its customers of like kind, from time to time.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals by and through their duly authorized and acting officers, members, managers and/or other duly authorized and acting individual to be effective on the day and date first above written.

MONTEVALLO WATER AND SEWER BOARD

BY:_____

Manager or Authorized Representative

_____

Witness to Signature for BOARD

_____Date:_____

(Print Name)

DEVELOPER

BY: _____

_____

(Print Name and Title of Authorized Signer)

_____

Witness to Signature for **DEVELOPER**

_____

Development Name & Number of Lots/Units