

## INDEX TO SHEETS

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Know what's below.  
Call before you dig.

Call before you dig.

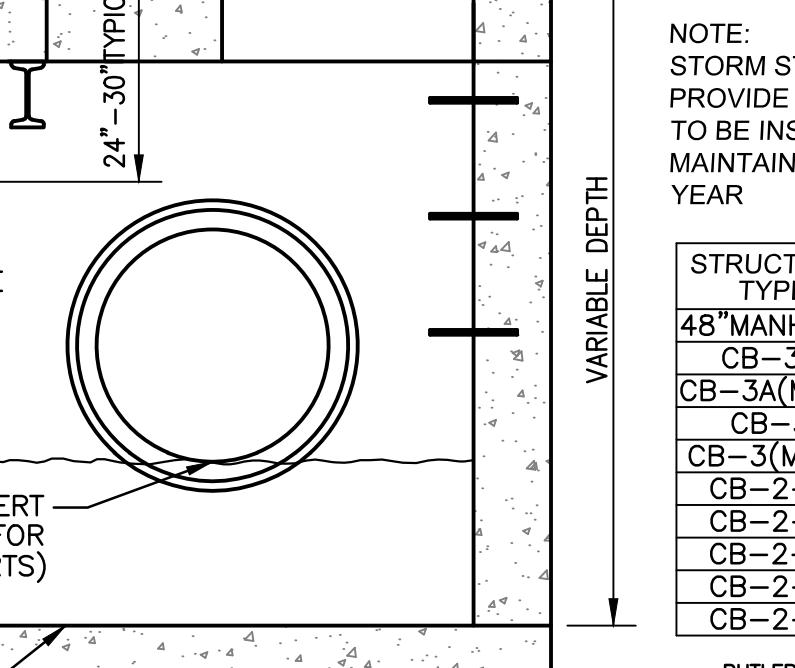
Call before you dig.

## LEGEND

EXISTING CONTOURS	
PROPOSED CONTOURS	
CENTERLINE	
PROPERTY LINE	
EXISTING SANITARY SEWER & MANHOLE	
PROPOSED SANITARY SEWER & MANHOLE	
EXISTING WATER MAIN	
FIRE HYDRANT	
WATER VALVE	
PROPOSED WATER MAIN	
EXISTING GAS MAIN	
SUMP DRAIN LINE	
EXISTING STORM PIPE & CATCH BASIN	
STORM CATCH BASIN	
STORM MANHOLE	
PROPOSED STORM PIPE	
EXISTING TELEPHONE	
EXISTING CABLE	
DIRECTION OF DRAINAGE	
PROPOSED SWALE	
LOT SWALE	

## STANDARD SERVICE DETAIL

### DETAIL



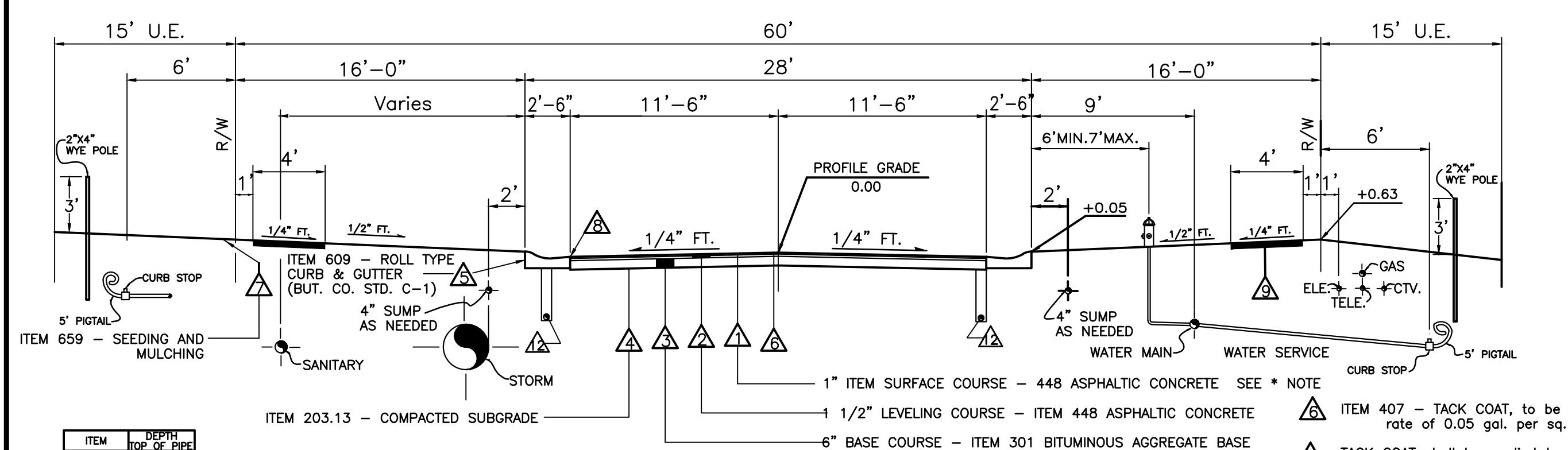
NOTE:  
STORM STRUCTURES THAT  
PROVIDE WATER QUALITY ARE  
TO BE INSPECTED AND  
MAINTAINED FOUR (4) TIMES PER  
YEAR

STRUCTURE TYPE	INNER STRUCTURE FLOOR AREA*
48" MANHOLE	12.57 S.F.
CB-3A(MOD)	4.87 S.F.
CB-3(MOD)	14.44 S.F.
CB-3	10.69 S.F.
CB-3(MOD)	31.68 S.F.
CB-2-2	4.00 S.F.
CB-2-3	9.00 S.F.
CB-2-4	16.00 S.F.
CB-2-5	25.00 S.F.
CB-2-6	36.00 S.F.

\* AS PER ODOT &  
BUTLER COUNTY STANDARD DETAILS

## STORM WATER QUALITY STRUCTURE DETAILS

(Not to Scale)



## TYPICAL SECTION

\*SURFACE COURSE (ITEM 448) AND TACK COAT (ITEM 407) ARE TO BE APPLIED NO SOONER THAN TWELVE (12) MONTHS AFTER THE LEVING OF THE SUBGRADE. ITEM 407 IS FIFTY (50) PERCENT OF THE HOMES ARE COMPLETED. IF AFTER TWO (2) YEARS FIFTY (50) PERCENT OF THE HOMES HAVE NOT BEEN COMPLETED, THEN THE TACK COAT MAY BE APPLIED.

△ 4" UNDERDRAIN - ITEM 605. CONNECT UNDERDRAIN TO CENTERLINE OF CURB AND GUTTER. CONNECT TO SIDEWALL OF NEAREST CATCH BASIN

# RESERVES AT ELKS POINTE SECTION THREE

SECTION 10, TOWN 2, RANGE 3  
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO  
APRIL, 2018



EJP 09/12/2018

## GENERAL NOTES

1. Item numbers refer to the 2010 Ohio Department of Transportation construction and material specifications, and all construction work shall be done according to said specifications of Butler County requirements and standards for subdivisions. When in conflict, the County requirements shall prevail.

2. Items that pertain to underground utilities such as watermain pipe, sanitary sewer pipe, water valves and manhole frames and covers, etc., will remain under specifications of the utility serving the area. Storm sewers shall be designed and constructed in accordance with the requirements of the Butler County Engineer.

3. All trenches within the right-of-way and 15' utility easement shall be compacted and backfilled in accordance with item 203 and 603 in the state specifications.

4. Surface course (item 448) and tack coat (item 407) are to be applied no sooner than nine (9) months after the leveling course, (item 448), and fifty (50) percent of the homes are completed. If after two (2) years fifty (50) percent of the homes have not been completed, then the top course may be applied.

5. A minimum 15' utility easement shall be shown on the record plat parallel and immediately adjacent to the right-of-way line allowing for installation, operation and maintenance of sewers, water, electric and telephone conduits and any other public or quasi public utility.

6. Developer shall be responsible for the installation of conduits for the full width of the public right-of-way at a depth of 36" for use by the electric, telephone and cable services. The location of the lines shall be coordinated with utility companies by the developer.

7. All electrical transformers shall be located so that they do not interfere with the existing manholes or water main appurtenances.

8. Sump line conduits are to be SDR 35.

9. WATER MAIN

A. Water main materials, valves, fire hydrants, fittings and appurtenances and installation to be as per Butler County specifications, using class 53 Ductile Iron as per AWWA C-151 with minimum cover.

B. All water main valves to have a minimum depth of 2.5' and a maximum depth of 4' from proposed grade to the top of the valve Operating Nut.

C. Minimum 10' horizontal, 18" vertical separation between water main and sanitary and/or storm sewer.

D. If meter pits cannot be initially installed at the location shown on the typical section, a curb stop can be set up at this location.

10. SANITARY SEWER

A. Sanitary sewer materials and installation to be as per Butler County specifications, using Section 3110 for PVC SDR-35 & 26 pipe; Section 3140 for ABS or PVC composite pipe; Section 3410 for manholes.

B. Crossings Whenever a sanitary sewer and water main must cross, the sewer shall be at such an elevation that the crown of the sewer is at least 18 inches measured between the outside pipe walls, below the bottom of the water main.

If it is absolutely impossible to maintain the 18 inch vertical separation, the water main shall be relocated or the sewer shall be constructed as follows:

1. A sewer passing over or under the water main shall be encased or constructed of materials that are equivalent to water main standards of construction for a minimum distance of 10 feet on each side of the water main.

2. The sewer crossing shall be constructed so that the sewer joints will be equidistant and as far as possible from the water main joints.

3. Where a water main passes under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main.

C. Sanitary laterals shall be extended to at least ten (10) feet beyond the Property / Right-of-Way or to the edge of the easement, whichever is greater.

D. Sanitary sewer laterals which shall include all pipe and appurtenances from the building to the public sewer main, and the connection to the public sewer main shall be considered private and the responsibility of the property owner to maintain. The connection to the sewer would be any piping that extends out from the main barrel of the sewer main.

E. All buildings to be served by the public sewer system shall be constructed so as to provide a minimum of four feet (4') of vertical separation between the public sanitary sewer at the point of connection and the lowest building level served by a gravity sewer connection and shall not exceed a depth of 12 feet below finish grade at the end of the lateral at the right-of-way unless specifically authorized by the County. In addition, said building level shall be at least one (1) foot above the lowest point of free-overflow (non-sealed manhole cover) upstream of any treatment facility of wastewater pumping facility that receives the discharge from said building. Said minimum service levels shall be recorded on the "As-built" plans for the development which will be kept on file in the office of the Butler County Water & Sewer Department.

11. Butler County Water and Sewer Department does not accept any responsibility for the relocation, repair, or replacement of any other utility installed within five (5) feet of the center line of any sanitary sewer main or water main.

12. Private driveways, parking lots and other paved areas, earthen berms or structures should not be constructed over private water sewer service lines within the public road right of way or within the easement areas for public utilities. Should this occur, the property owner shall be held responsible for the protection and repair and for providing access to any curb stops, meter pits, manholes, clean-outs, etc. installed in conjunction with these private service lines and for any damage or restoration of the paved surfaces or structures that may result from the future operation, maintenance, repair or replacement of said service lines and appurtenances.

13. STORM SEWER

A. Storm sewer pipe shall meet the requirements as follows:

1. PVC pipe as per ODOT Supplemental Specification 707.42 for all diameters.

2. Reinforced concrete pipe as per ODOT Construction and Material Specification 706.02 for all diameters.

3. Corrugated steel spiral pipe as per ODOT Supplemental Specification 707.01 or 707.02 for all diameters.

4. Reinforced concrete pipe as per ODOT Construction and Material Specification 706.02 for all diameters. Class shall be specified at the contractor's request. (Cincinnati Concrete Pipe, Duracrete or equal).

5. Bituminous coated corrugated steel pipe as per ODOT Specification 707.07.

Installation shall meet Butler County Specifications. All joints shall be soil seal joints unless specifically noted on the plans.

B. Deflection Testing for Storm Sewers and Culverts 15% of all storm sewers shall be tested for deflection within thirty days after they are complete. Butler County Engineer or his designated representative will determine what 15% shall be tested. If any storm sewer in the original 15% is found out of compliance, deflection tests will be required on 100% of the remaining storm sewer. A vertical ring deflection greater than 5% is not allowed. This deflection is defined as 2% relative in the vertical bend or change in direction. The radius of the bend shall be subject to the approval of the engineer. If rigid rods or mandrels are used to test pipe deflection, no mechanical pulling devices shall be used. The deflection test may be conducted with a nine prong mandrel, a rod or a cylinder or another manner acceptable to the Butler County Engineer or his designated representative. The testing will be accomplished from manhole to manhole or catchbasin to catchbasin, following the complete flushing of the line. The contractor shall furnish all equipment required to complete the deflection testing. The deflection test shall be witnessed by the County Engineer or his designee. Any section of pipe that fails to meet the aforementioned requirements shall be resurfaced or a procedure acceptable to the County or be excavated and either be relayed or replaced, and retested until the requirements are met.

C. All catch basins and manholes with a depth greater than 4' shall be provided with steps. Steps shall meet the requirements of ODOT STD. 604 and shall conform to the details as shown on Butler County Standard Drawing MH-1A.

D. Headwall: HW-4A to be used with Corrugated Metal pipe or HW-4B to be used with Concrete Pipe.

13. Roof drains, foundation drains, and other clean water connections to the sanitary sewer system are prohibited.

14. Any detention basin on site should be constructed prior to the clearing of topsoil and grading of the site. All trees and vegetation shall be removed from all proposed detention basins regardless of maintenance responsibility.

15. SEDIMENTATION CONTROL

The project has been designed to control erosion and prevent damage to other property. All stripping, earthwork, and regrading shall be performed to minimize erosion. Natural vegetation shall be retained wherever possible. The proposed plan will allow almost all eroded material to be retained on site.

All areas disturbed by the construction of the roadway, ditches and sediment basins shall be seeded and strawed as soon as possible to limit the erosion and stabilize the soil. Payment will be by the number of square yards disturbed per the grading plan. For additional sedimentation control details see grading plan.

16. Butler County will not be responsible for any pavement or storm sewer repairs resulting from water main and sanitary sewer repairs. Butler County also will not be responsible for adjusting manholes, valves, fire hydrants, meter pits, etc. as a result of grade changes. The grantor shall be responsible for proper adjustment of manholes, valves, fire hydrants, meter pits, etc. to the satisfaction of Butler County, due to grade changes, paving, repairing, etc. initiated by the grantor.

17. A typical five (5) foot drainage easement is to be provided on both sides of every lot line.

18. Any roadway settlement greater than one inch will be required to be repaired with item 613 Low Strength Mortar Backfill (Type 1). See Detail on Sheet #4.

19. Provide the Butler County Engineer's Office with a forty-eight (48) hour notice prior to the start of any construction, including sanitary installation. Phone 785-4145.

20. Contractor to accept all Quantities as correct prior to beginning construction.

21. Contractor shall include the cost of County inspection and extension fees in unit price bid.

22. Existing Zoning: R-PUD

Frontage: 90'

Setbacks: Front = 30'; unless otherwise noted on plan

Side = 8' Min., 16' Total

Rear = 30'; unless otherwise noted on plan

Lot Size: 13,500 S.F. Minimum

23. Total Acreage: 15.0353 Acres

24. Total Single Family Lots: 16

## JOB LOG

DATE	COMMENT
12-28-17	Submitted to Butler County Planning
3-13-18	Resubmitted to BCWS
4-10-18	Resubmitted to BCEO
9-12-18	Subject to geotechnical report providing recommendation about subgrade stabilization & preparation in wetland area

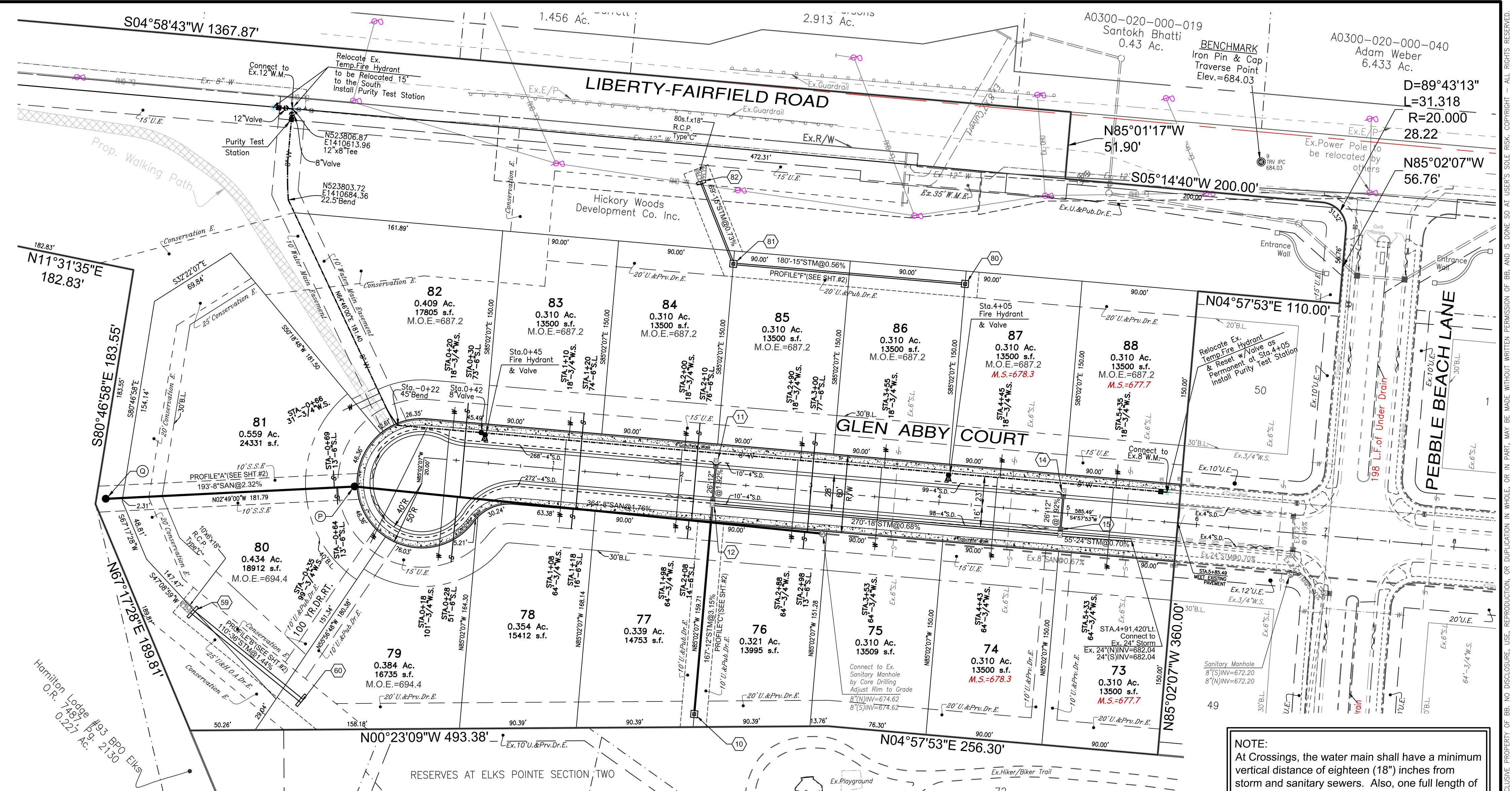
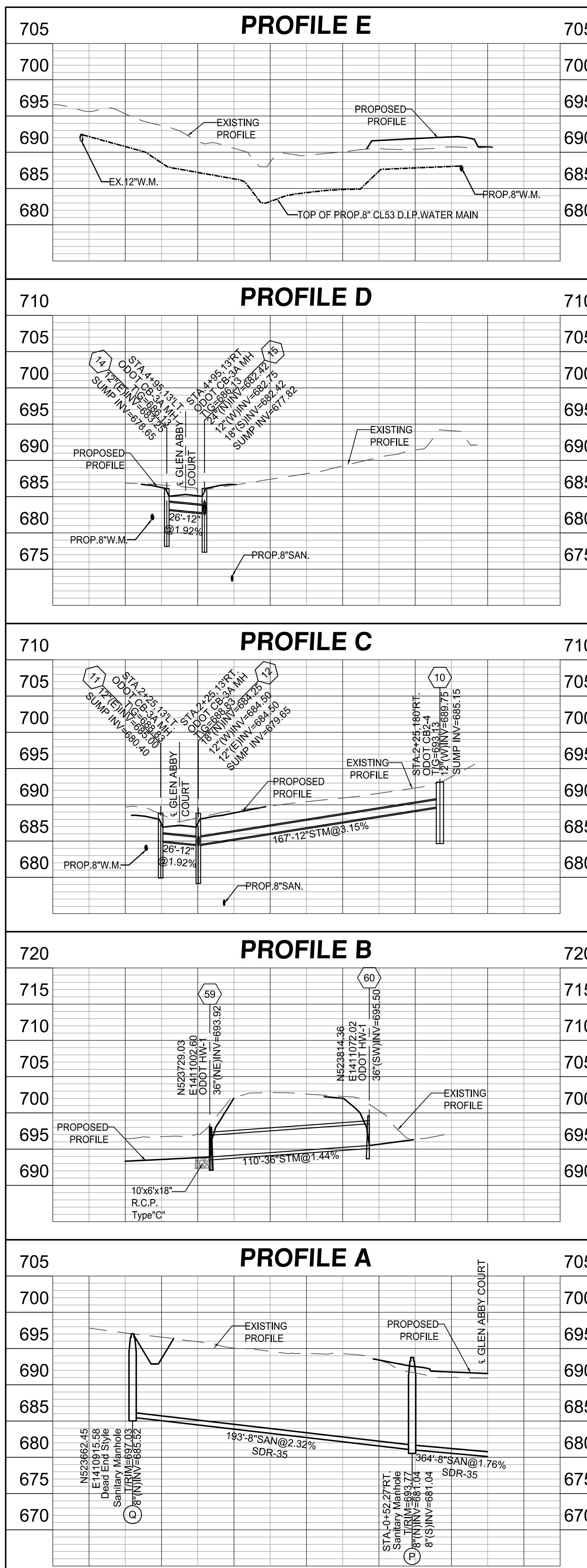
## SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

Item	Revision Description
1	Revised as per BCWS
2	Revised as per BCEO
3	Revised as per BCEO
4	

## CONSTRUCTION APPROVAL

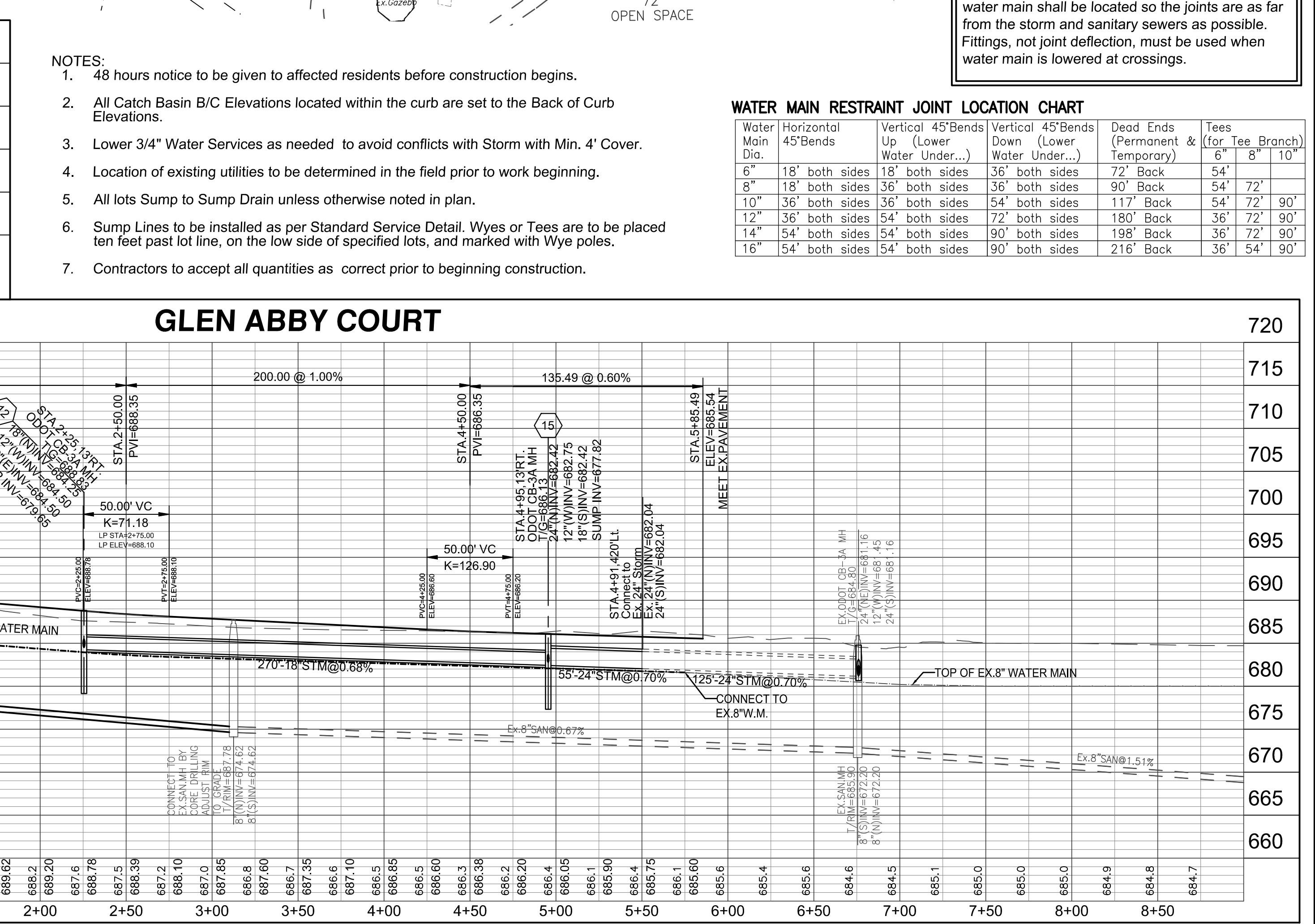
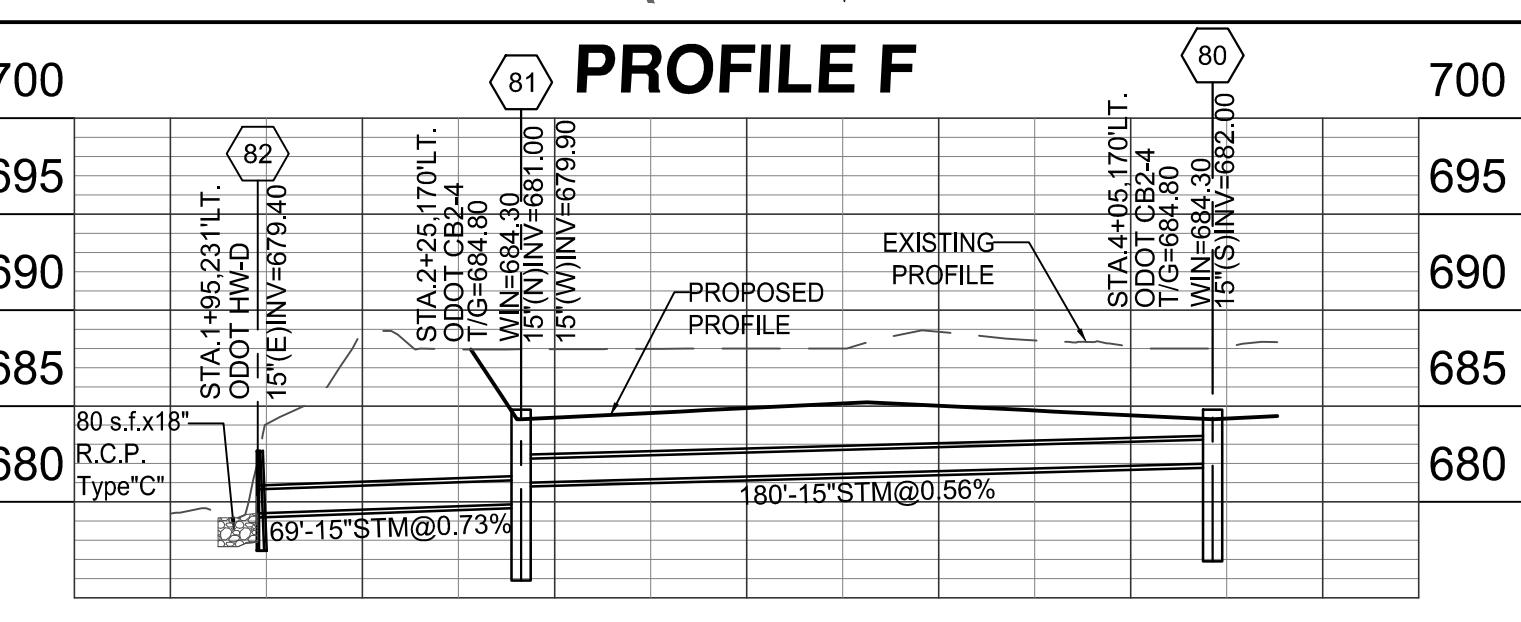
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Plot time: Sep 06, 2018 - 10:52am  
Drawing name: \2016\16-0067-003\DWG\16-0067-003.DWG = 1 avout Tab: DB2



# RESERVES AT ELKS POINTE SECTION THREE

WATER MAIN RESTRAINT JOINT LOCATION CHART							
Water Main Dia.	Horizontal 45°Bends	Vertical 45°Bends	Vertical 45°Bends	Dead Ends (Permanent & Temporary)	Tees (for Tee Branch)		
		Up (Lower Water Under...)	Down (Lower Water Under...)		6"	8"	10"
6"	18' both sides	18' both sides	36' both sides	72' Back	54'		
8"	18' both sides	36' both sides	36' both sides	90' Back	54'	72'	
10"	36' both sides	36' both sides	54' both sides	117' Back	54'	72'	90'
12"	36' both sides	54' both sides	72' both sides	180' Back	36'	72'	90'
14"	54' both sides	54' both sides	90' both sides	198' Back	36'	72'	90'
16"	54' both sides	54' both sides	90' both sides	216' Back	36'	54'	90'



OTE:  
t Crossings, the water main shall have a minimum  
vertical distance of eighteen (18") inches from  
orm and sanitary sewers. Also, one full length of  
ater main shall be located so the joints are as far  
om the storm and sanitary sewers as possible.  
ttings, not joint deflection, must be used when  
ater main is lowered at crossings.

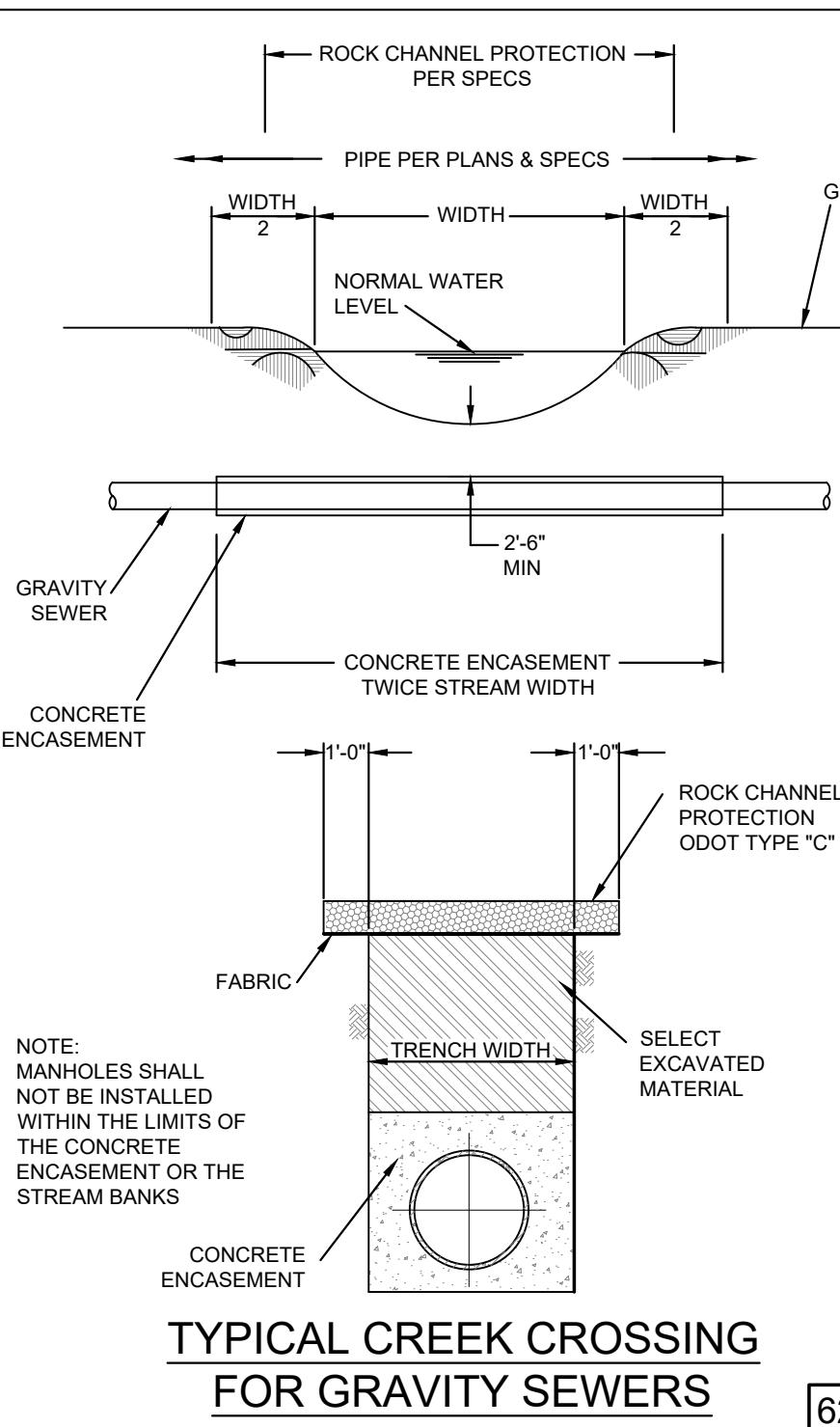
**NOTES:**

1. 48 hours notice to be given to affected residents before construction begins.
2. All Catch Basin B/C Elevations located within the curb are set to the Back of Curb Elevations.
3. Lower 3/4" Water Services as needed to avoid conflicts with Storm with Min. 4' Cover.
4. Location of existing utilities to be determined in the field prior to work beginning.
5. All lots Sump to Sump Drain unless otherwise noted in plan.
6. Sump Lines to be installed as per Standard Service Detail. Wyes or Tees are to be placed ten feet past lot line, on the low side of specified lots, and marked with Wye poles.
7. Contractors to accept all quantities as correct prior to beginning construction.

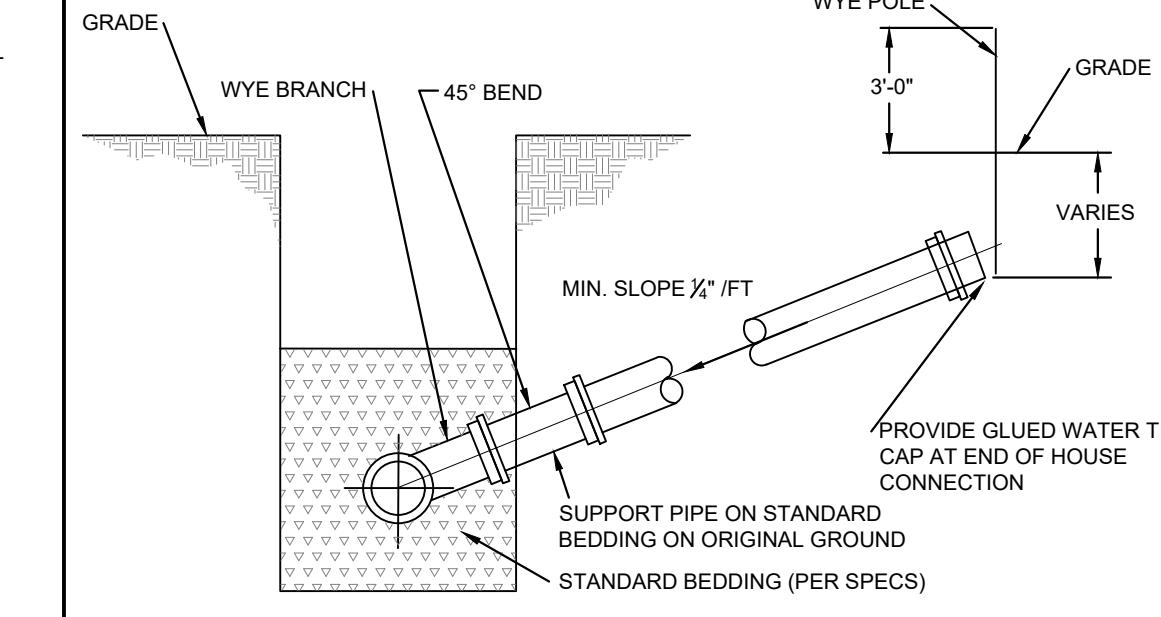
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rawn by:  
checked By:  
Issue Date: 12-  
sheet:

2/7



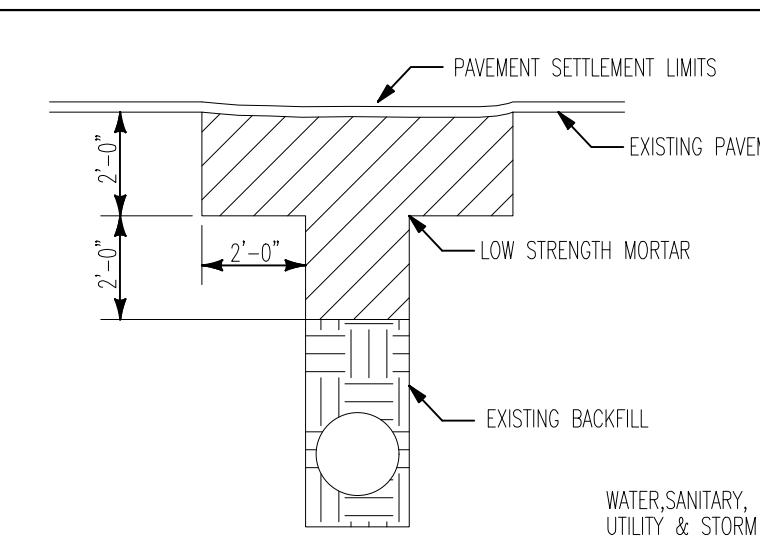


HOUSE CONNECTION FOR DEEP SEWER [6280]



TYPICAL CREEK CROSSING  
FOR GRAVITY SEWERS

HOUSE CONNECTION FOR SHALLOW SEWER [6290]



SETTLEMENT REPAIR

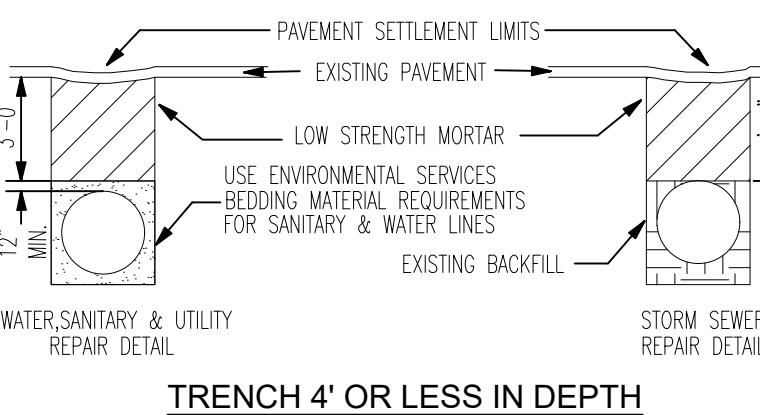
ITEM SPECIAL - LOW STRENGTH MORTAR BACKFILL MATERIAL  
DESCRIPTION: THIS WORK SHALL CONSIST OF THE PLACEMENT OF A FLOWABLE MIXTURE OF PORTLAND CEMENT, FLY ASH, AND SAND FOR BACK-FILLING CONDUIT OR AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS SPECIFIED. THE WORK SHALL BE IN ACCORDANCE WITH ODOT ITEMS 603 AND 499 UNLESS OTHERWISE SPECIFIED HEREIN.  
MATERIALS: MATERIALS SHALL BE:  
A. CEMENT 701.01 OR 701.04  
B. FLY ASH SHALL MEET ASTM C-618  
C. FINE AGGREGATE SHALL BE NEUTRAL SAND OR SAND MANUFACTURED FROM STONE, ROCK, OR AS-QUARRY SAND. THE GRADING OF THE SAND SHALL MEET THE REQUIREMENTS OF 703.05. THE SAND SHALL BE FINE ENOUGH TO STAY IN SUSPENSION IN THE MIXTURE TO THE EXTENT REQUIRED FOR PROPER FLOW. THE ENGINEER RESERVES THE RIGHT TO REJECT THE SAND IF THE FLOWABLE MIXTURE CANNOT BE PRODUCED.  
D. WATER USED FOR MORTAR BACKFILL SHALL BE FREE FROM OIL, ACID, STRONG ALKALIES, AND GASES WHICH ARE HARMFUL TO THE MATERIAL.  
E. SLUMPS MEASURED IN THE ORDINARY WAY WILL BE 8" OR HIGHER FOR PROPER PLACEMENT OF THE FLOWABLE MATERIAL.

MORTAR MIX PROPORIONING: THE INITIAL TRIAL MIXTURE SHALL CONSIST OF THE FOLLOWING QUANTITIES OF MATERIALS PER CUBIC YARD:

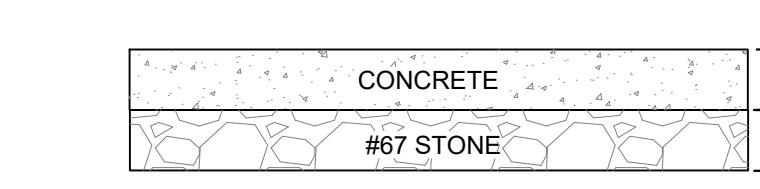
CEMENT	FLY ASH	SAND	WATER (TARGET)
50 LBS.	250 LBS.	2910 LBS.	500 LBS.
100 LBS.	500 LBS.	5820 LBS.	1000 LBS.
150 LBS.	750 LBS.	8730 LBS.	1500 LBS.
200 LBS.	1000 LBS.	11640 LBS.	2000 LBS.

ADJUSTMENTS TO THE PROPORTIONS MAY BE MADE BY THE ENGINEER PROVIDING THE TOTAL ABSOLUTE VOLUME OF THE MATERIALS IS MAINTAINED. THIS ITEM WILL BE INCLUDED IN THE STANDARD 603 INSULATION. THIS WILL NOT BE AN ADDITIONAL PAY ITEM, BUT REPLACEMENT FOR THE NORMAL BACKFILL.

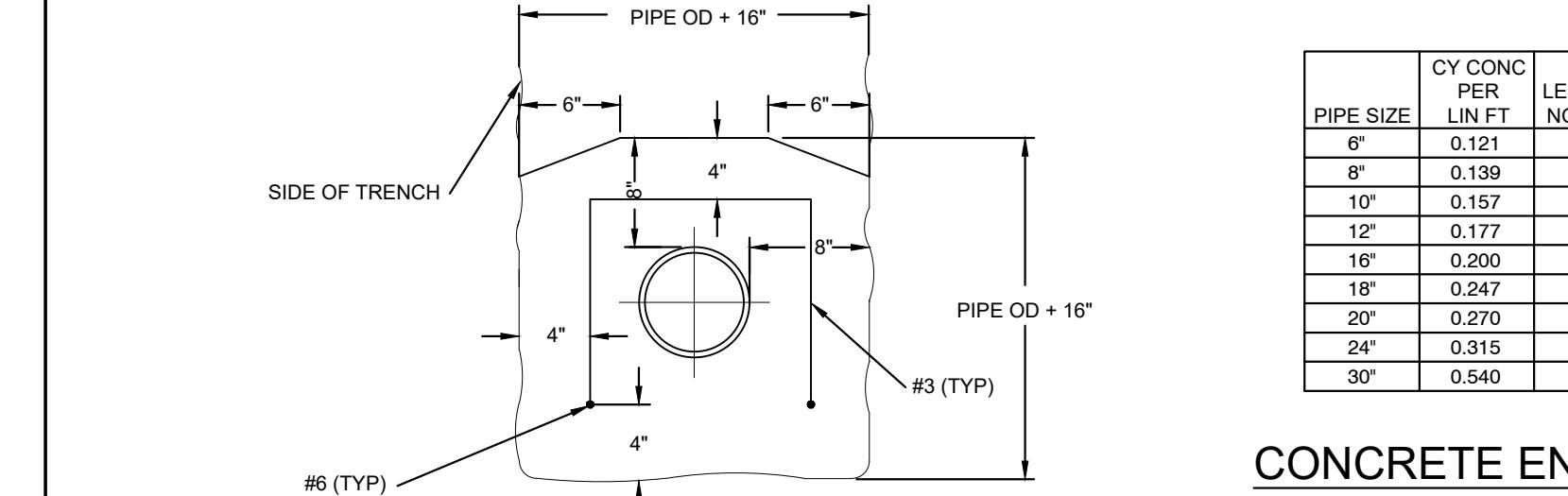
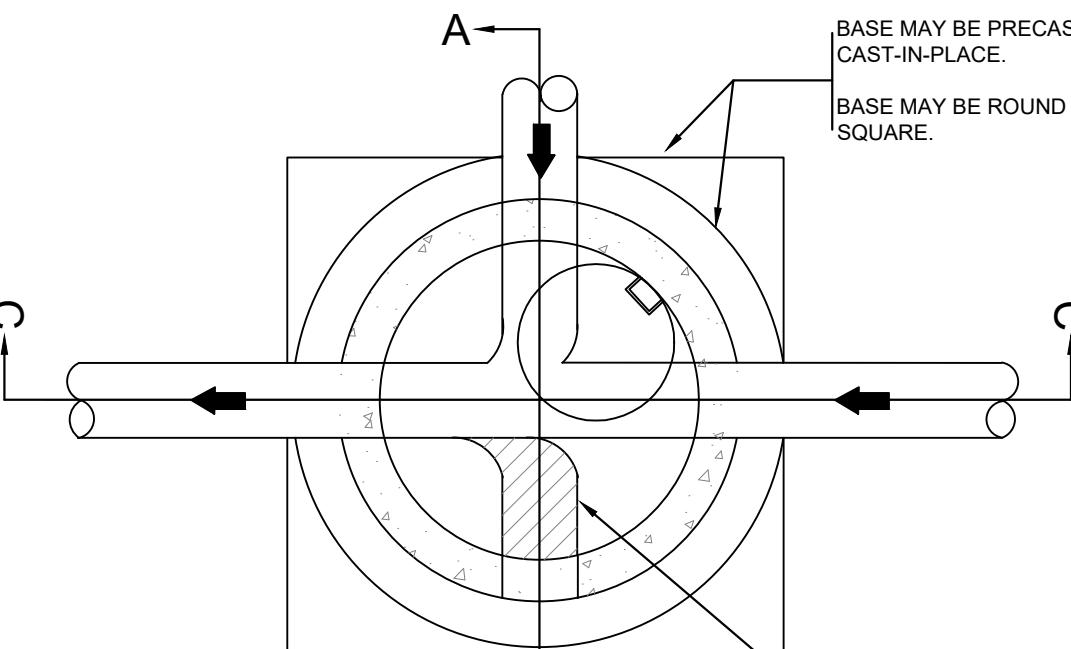
TRENCH 4' OR GREATER IN DEPTH



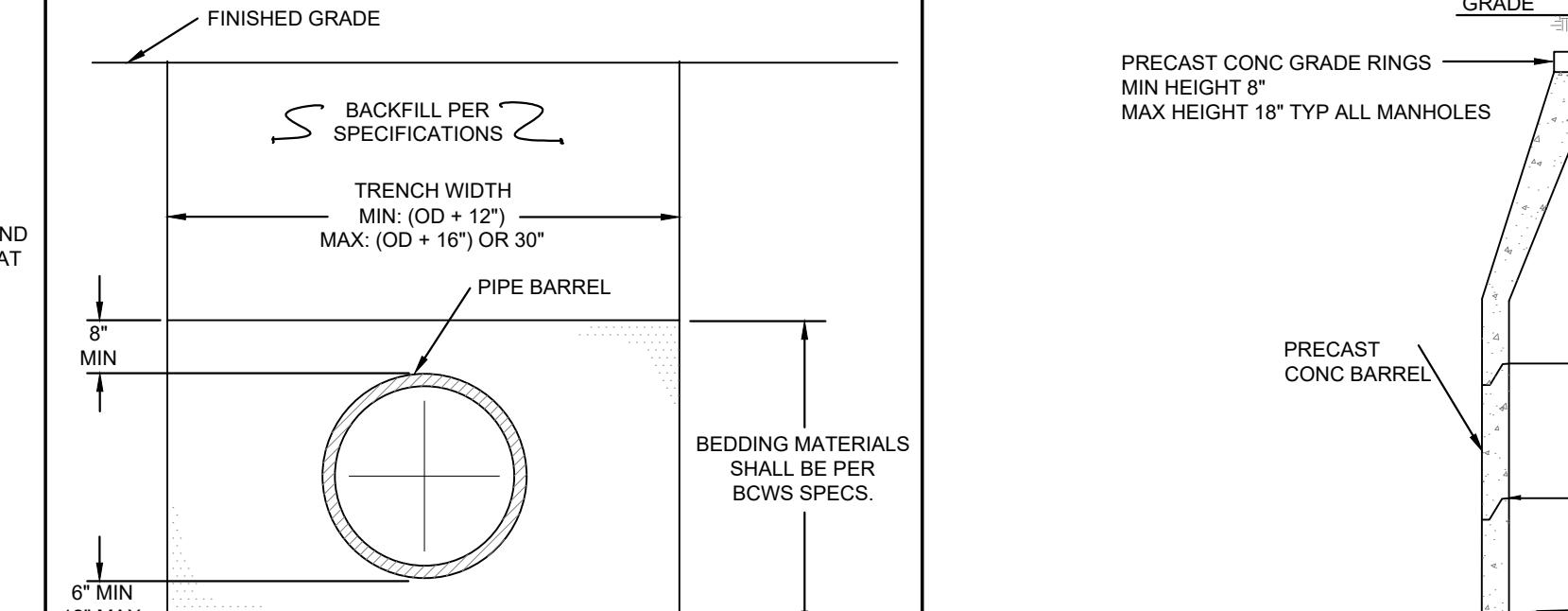
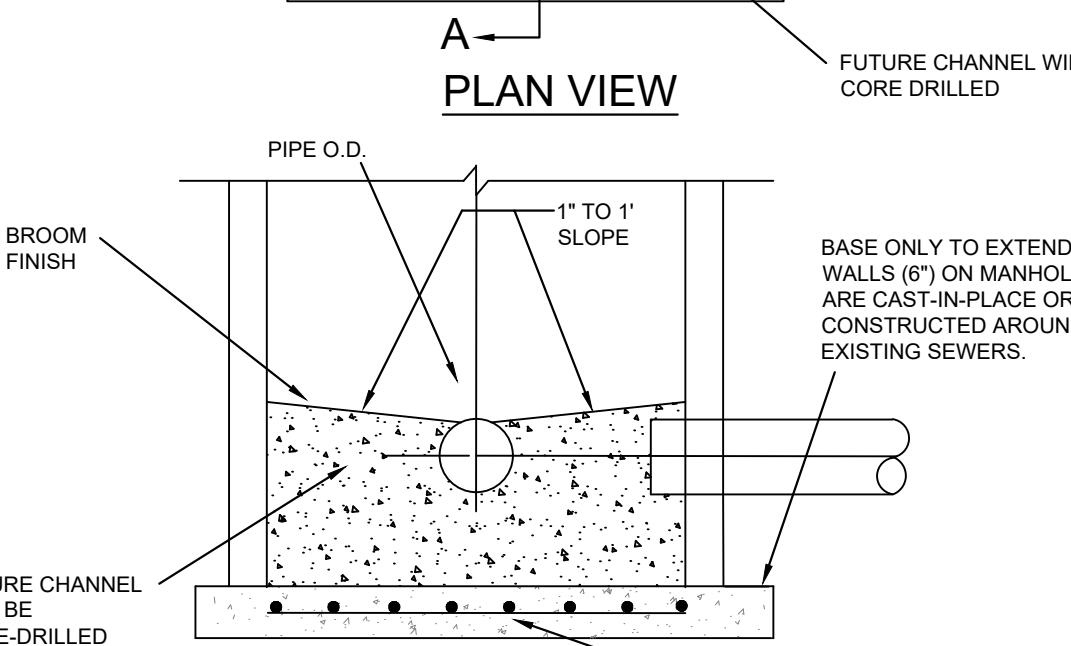
TRENCH 4' OR LESS IN DEPTH



SIDEWALK  
RESTORATION DETAIL [4010]

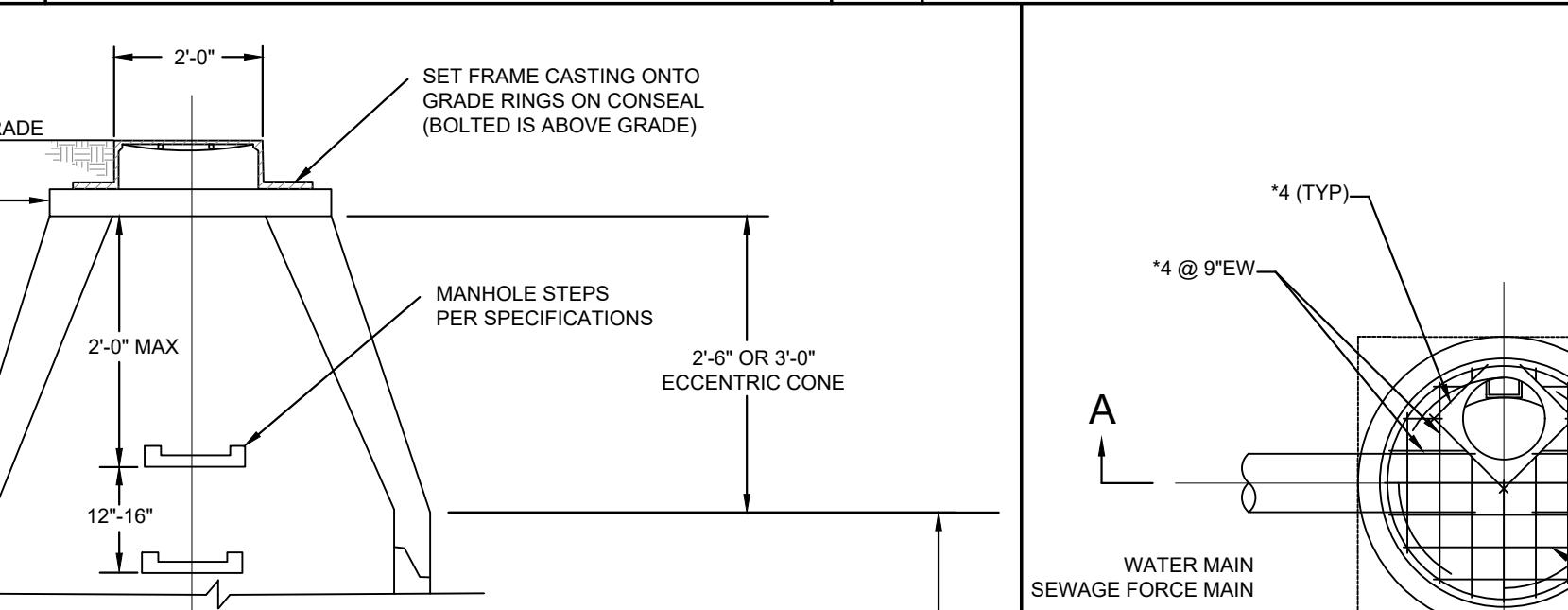
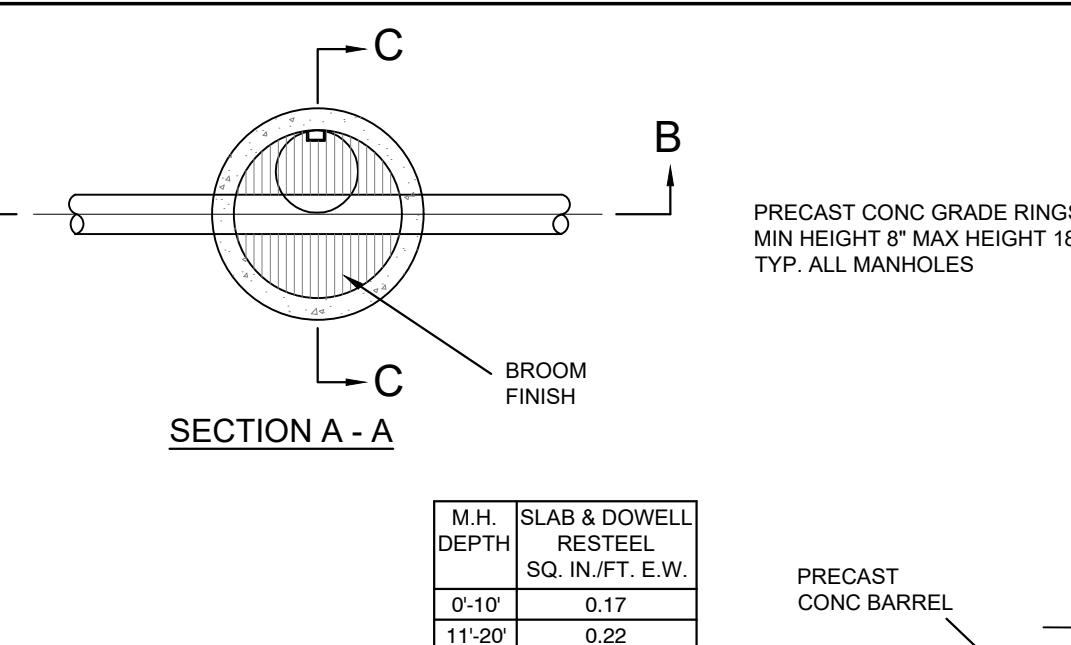


CONCRETE ENCASEMENT DETAIL [6240]



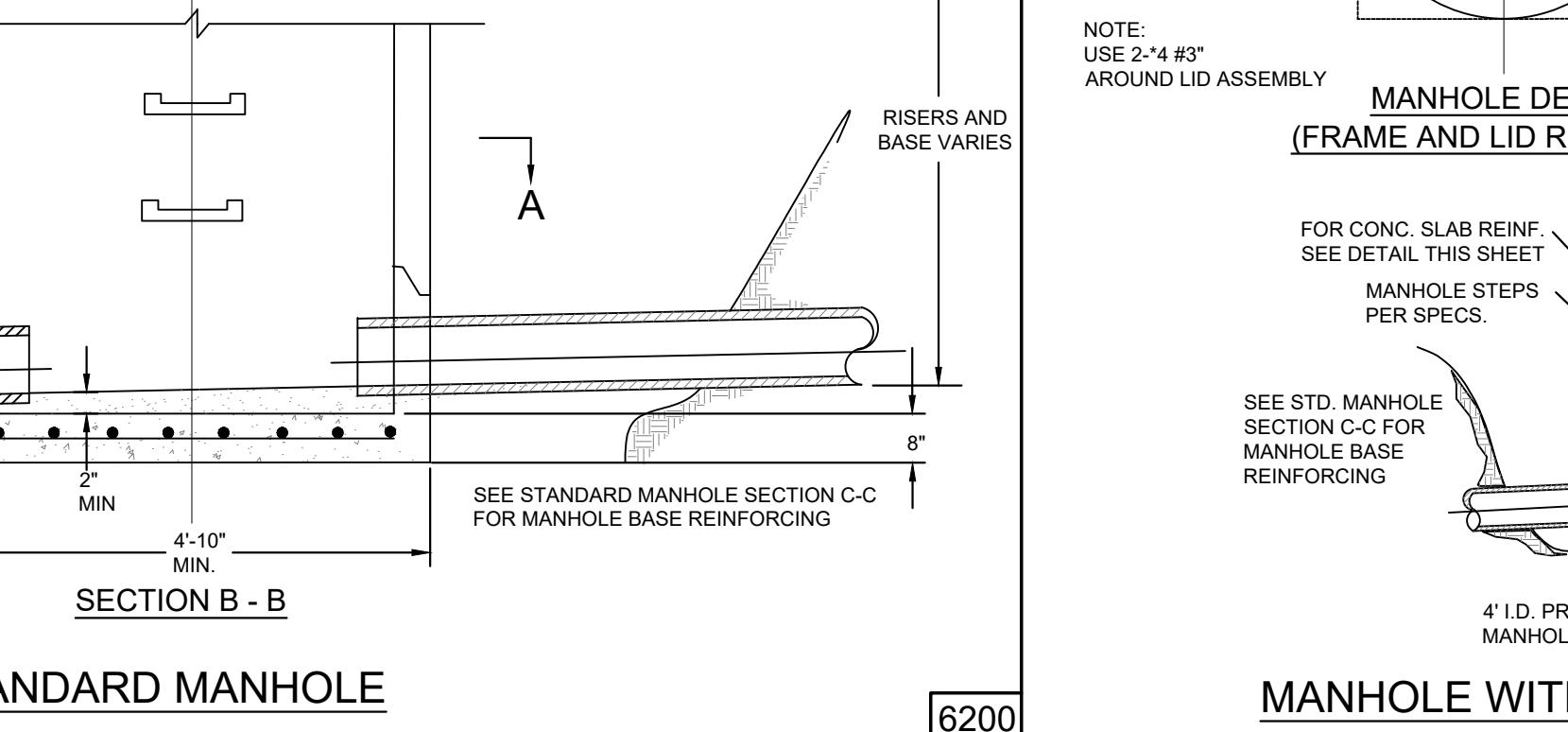
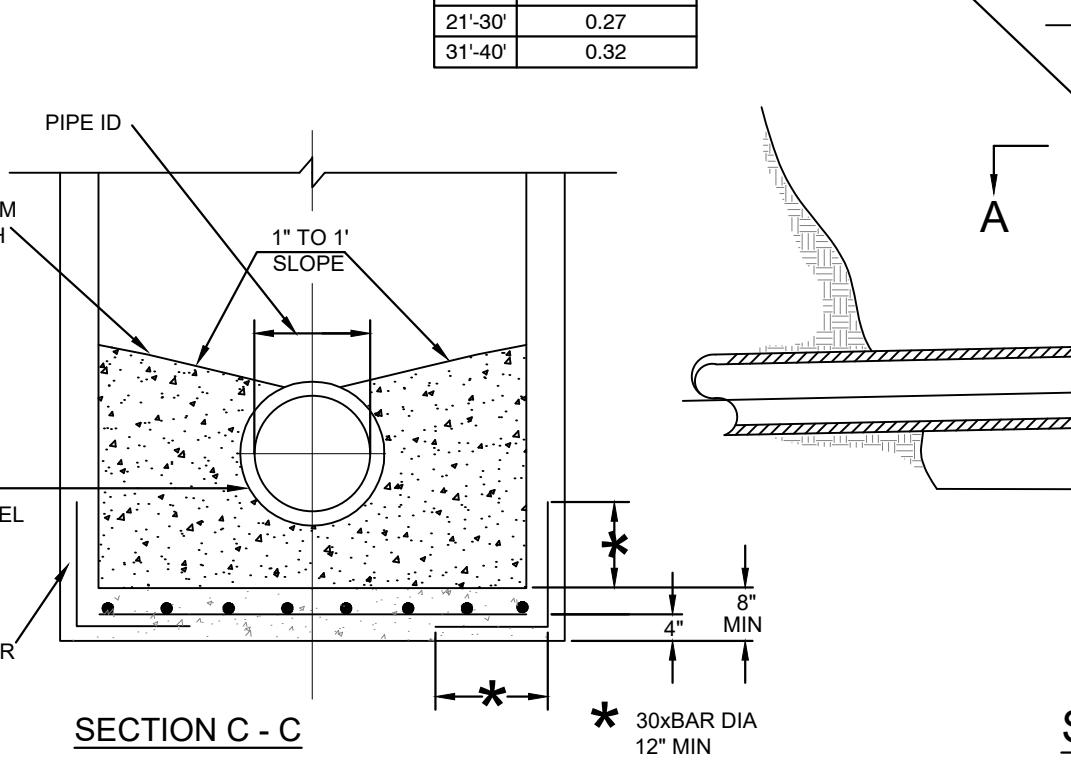
STANDARD CAST IN-PLACE MANHOLE [6130]

Typical Trench Detail  
SEWER INSTALLATION [6270]

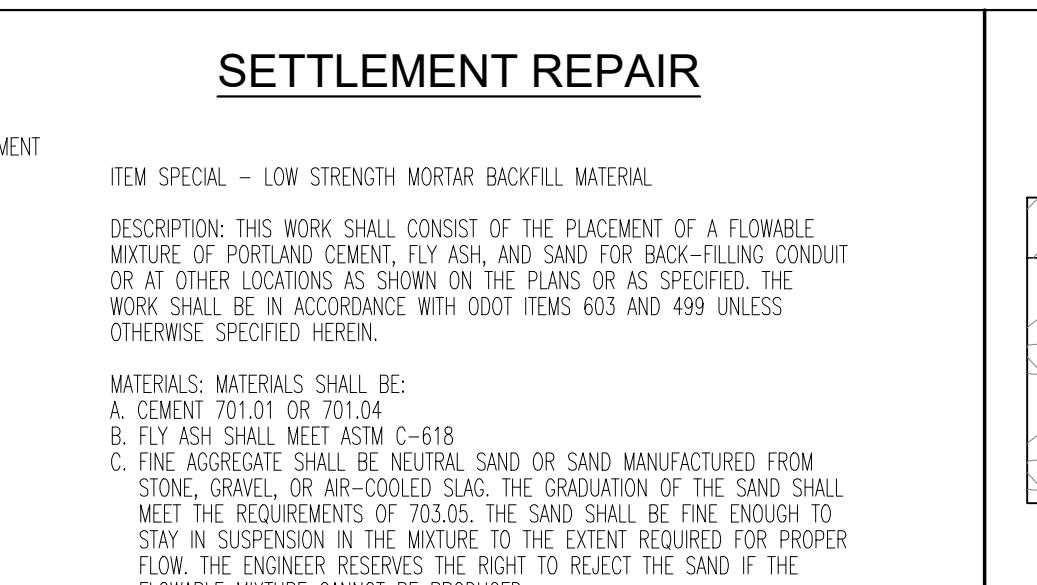


SECTION C - C  
SECTION A - A  
SECTION B - B

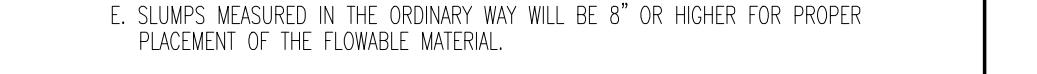
STANDARD MANHOLE [6200]



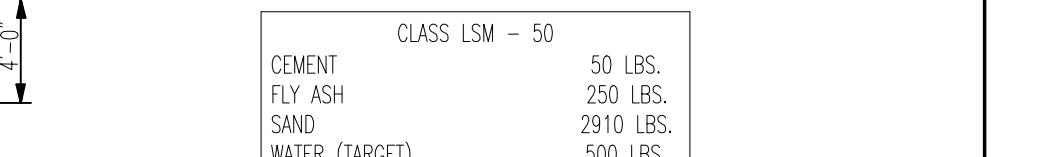
MANHOLE WITH SLAB TOP DETAIL [6210]



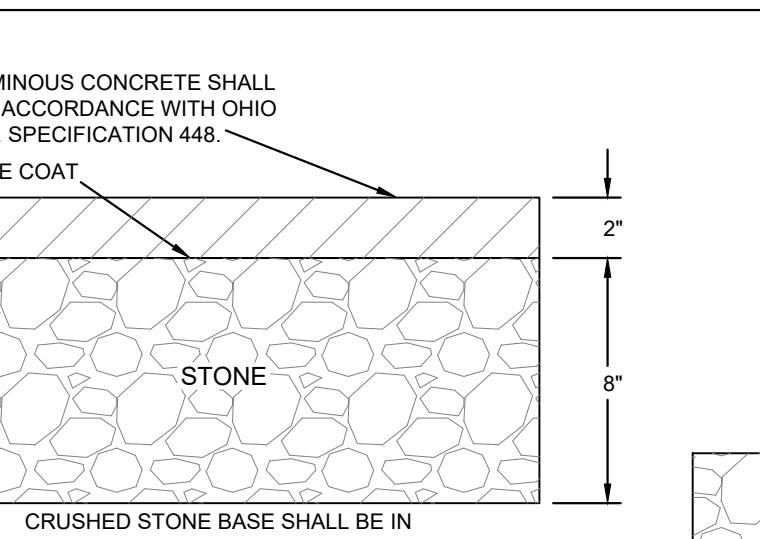
TRENCH 4' OR GREATER IN DEPTH



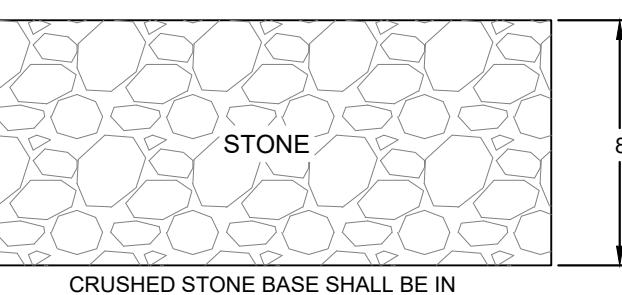
TRENCH 4' OR LESS IN DEPTH



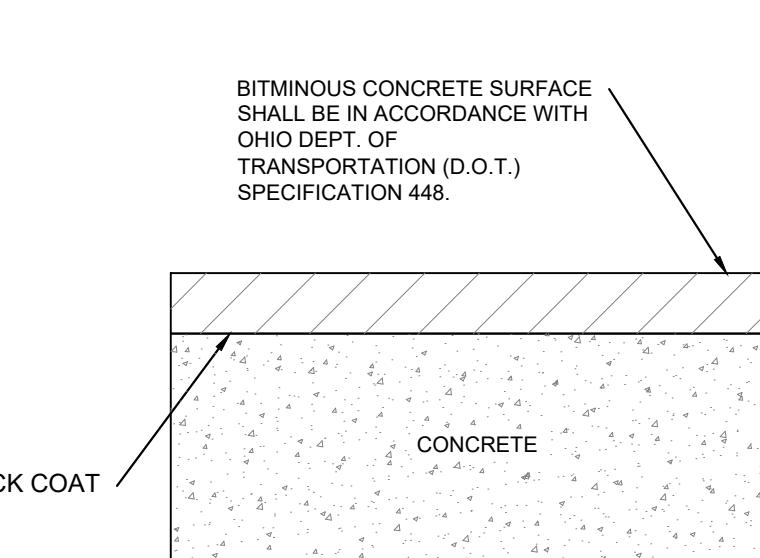
SIDEWALK  
RESTORATION DETAIL [4010]



TYPE "C"



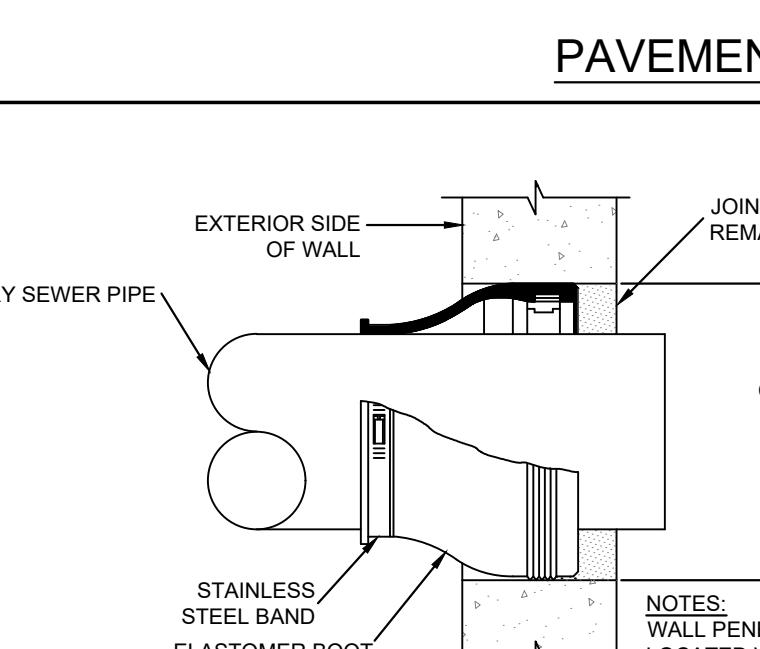
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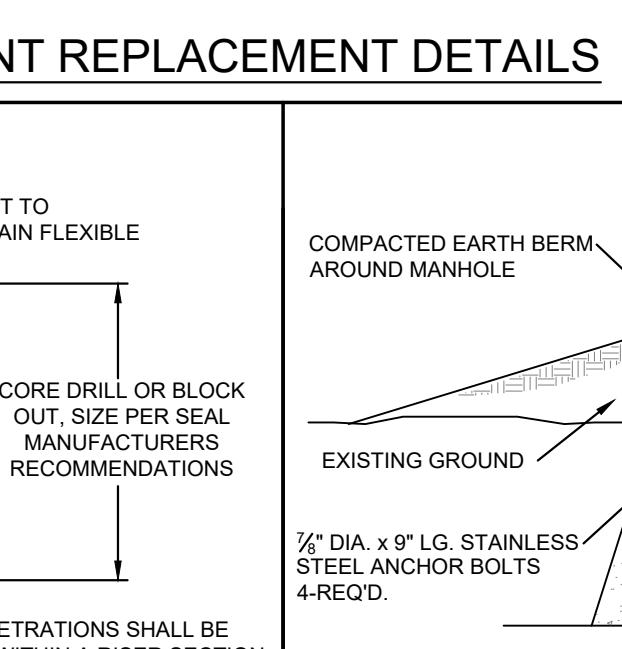
TYPE "D"



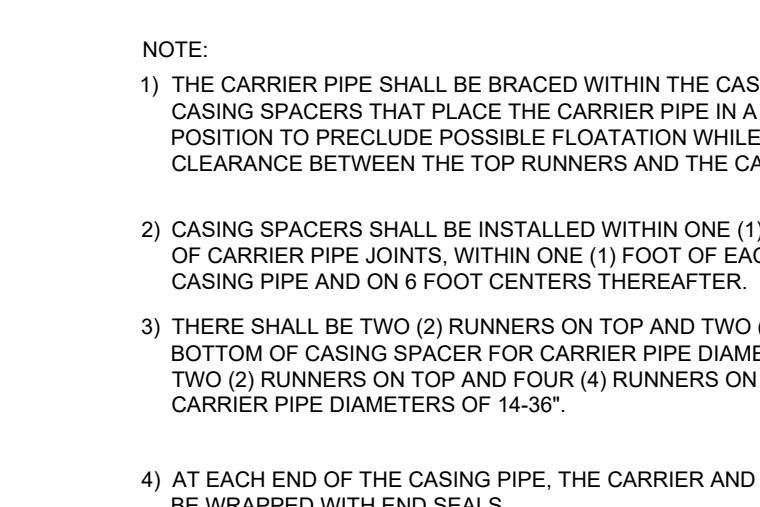
TYPE "B"



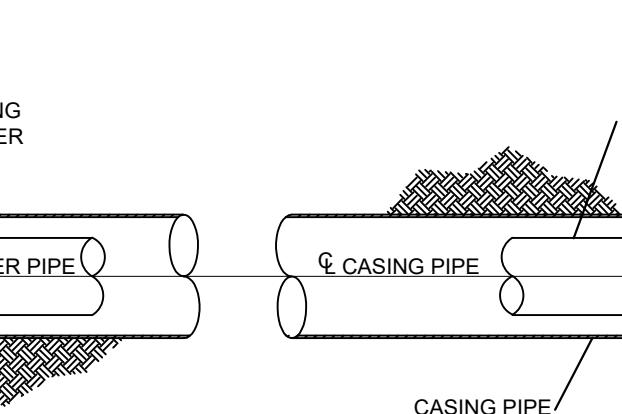
CONNECTION TO EXISTING MANHOLE [6150]



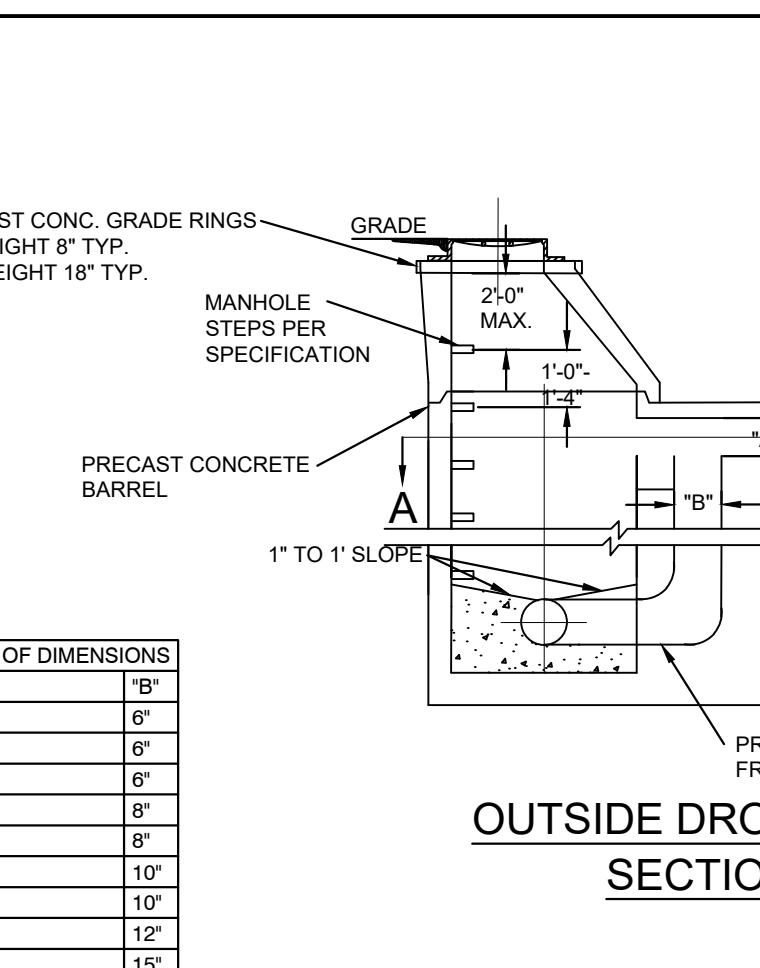
ELEVATED MANHOLE DETAIL [6170]



SEWER FORCE MAIN & WATER  
MAIN ENCASEMENT DETAIL [4370]



OUTSIDE DROP MANHOLE  
SECTION "A-A" [4370]



OUTSIDE DROP MANHOLE  
SECTION "B-B" [4370]

**DEAD END DETAIL WITH TEMPORARY FIRE HYDRANT**

RESTRAINED JOINTS PER PLAN

WATER MAIN

VALVE

TEMP FIRE HYDRANT

REDUCER

3 LENGTHS OF PIPE

NO SERVICES OR TAPS IN THIS AREA

**TYPICAL TRENCH DETAIL WATER MAIN INSTALLATION**

BACKFILL PER SPECIFICATIONS

TRENCH WIDTH MIN: (OD + 12")

PIPE BARREL

BEDDING MATERIALS SHALL BE PER BCDES Specs.

FINISHED GRADE

**STANDARD INSTALLATION FOR 1-1/2" & 2" WATER METER SETTINGS**

METER BOX 1 1/2" METER=30" DIA.  
2" METER=36" DIA.

MXU UNIT SUPPORT POLE 1 1/2" DIA. PVC SCH. 40  
PIPE 36" LG. DRIVEN 6" INTO EARTH (SUPPLIED & INSTALLED BY BCWS)

COPPERSETTER (PER Specs)

TYPE K COPPER PIPE

FROM PUBLIC MAIN

TO BUILDING

MXU RADIO READ UNIT (SUPPLIED & INSTALLED BY BCWS)

NOTE: 1) FOR METERS 3" AND LARGER, REFER TO THE STD. INSTALLATION FOR 3" AND LARGER WATER METERS.  
 2) ALL DOMESTIC WATER METERS SHALL BE SENSUS OMNI C2 TYPES FOR SIZES OF 1/2" AND LARGER.  
 3) BUTLER COUNTY ORDERS 2" C2 OMNI METERS WITH A 17" LAYING LENGTH TO ACCOMMODATE THE STANDARD COPPERSETTER. IF THE FACTORY ORDERED SIZE IS UTILIZED AN ADAPTER FLANGE PLATE WILL BE REQUIRED.

**TYPICAL CREEK CROSSING & TRENCH DETAIL FOR WATER & SEWER FORCE MAINS**

DUCTILE IRON PIPE WITH RESTRAINED JOINTS (AS REQ'D)

ROCK CHANNEL PROTECTION PER Specs

WIDTH

NORMAL WATER LEVEL

GRADE

WATER MAIN OR SEWAGE FORCE MAIN

CONCRETE ENCASEMENT TWICE STREAM WIDTH

MJ DUCTILE IRON BEND WITH MEGALUGS (TYP.)

CONCRETE ENCASEMENT

ROCK CHANNEL PROTECTION ODOT TYPE 'C'

FABRIC

TRENCH WIDTH

SELECT EXCAVATED MATERIAL

**PERMANENT LAB SAMPLING STATION**

STATION SHALL BE ENCLOSED IN A LOCKABLE, NON-REMOVABLE ALUMINUM BOX WITH HINGED OPENINGS.

ALL WORKING PARTS SHALL BE OF STAINLESS STEEL AND SERVICABLE FROM ABOVE GROUND WITH NO DIGGING OR REPLACEMENT NEEDED.

THE STATION SHALL BE MODEL #98-SS AS MANUFACTURED BY THE KUPERLE FOUNDARY, ST. LOUIS MO. OR APPROVED EQUAL.

**SETTING FOR HYDRANT ADJACENT TO MAIN**

6" GATE VALVE

6" HYDRANT TEE CLOW F-543 F-1224 OR EQUAL

WATER MAIN

FIRE HYDRANT

VARIES BY MAIN SIZE

NOTES:  
 1.) FITTINGS TO BE MECHANICAL JOINT HYDRANT ANCHOR FITTINGS.  
 2.) SEE TYPICAL FIRE HYDRANT INSTALLATION DETAIL FOR ADDITIONAL DETAILS (R5110)

**TEMPORARY PURITY TEST STATION**

VALVE BOX (ROADWAY TYPE)

18x18x6" CONCRETE COLLAR

4'-0" MIN. COVER

COARSE GRAVEL (UNCRUSHED) APPROX 1/4 CU. YD. PER HYDRANT

UNDISTURBED EARTH

ANCHORING TEE & 6" VALVE

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.

**CONCRETE ENCASEMENT**

PIPE SIZE	C.Y. 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'-6"	0.72
24"	0.315	8'-6"	0.63
30"	0.340	10'-0"	0.57

**PAVEMENT REPLACEMENT DETAILS**

DRIVEWAY

SIDE OF TRENCH

PIPE O.D. + 16"

SAW CUT STRAIGHT PAVEMENT EDGE EVEN WITH EDGE OF UNDISTURBED EARTH (TYP.)

HOT Poured BITUMINOUS JOINT MATERIAL (ASPHALT 0% W/ ODO)

COMPACTED GRANULAR BACKFILL ODOT 310

ODOT 404 ASPHALTIC CONC MATCH EX. THICKNESS (MIN 2"), ODOT 451 REINFORCED CONC MATCH EX. THICKNESS (MIN 6"), OR ODOT 304 CRUSHED AGGREGATE MATCH EX. THICKNESS (MIN 6")

NO. 3 (TYP.)

NO. 6 (TYP.)

ASPHALTIC CONCRETE ROADWAY

EXISTING PAVEMENT JOINT

HOT Poured BITUMINOUS JOINT MATERIAL

MIN. 6" ODOT 451 REINFORCED CONC.

SIDE OF TRENCH

LOW STRENGTH MORTAR MATERIAL

20" PVC METER PIT

ANGLE BALL SERVICE VALVE FORD IBA44-333W

MIN. 8" BITUMINOUS AGGREGATE BASE ODOT 301

20' PVC PIPE CROSS BRACE

FROST LID

20" PVC METER COVER

3/4" HOSE BIBB

TYPE "K" COPPER

TIE COPPER TUBING TO CROSS BAR

WATER MAIN

ANGLE BALL SERVICE VALVE FORD IBA44-333W

MIN. 6" ODOT 451 REINFORCED CONC.

SIDE OF TRENCH

LOW STRENGTH MORTAR MATERIAL

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

**AIR RELEASE VALVE DETAIL**

EXISTING PAVEMENT JOINT

HOT Poured BITUMINOUS JOINT MATERIAL

MIN. 6" ODOT 451 REINFORCED CONC.

SIDE OF TRENCH

LOW STRENGTH MORTAR MATERIAL

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

**TYPICAL FIRE HYDRANT INSTALLATION**

GROUND SURFACE

MONITOR COVER & FRAME (PER Specs)

METER (SUPPLIED & INSTALLED BY BCWS)

16'-20"

4'-0" MIN. COVER

METER BOX 1 1/2" METER=30" DIA.  
2" METER=36" DIA.

MXU RADIO READ UNIT (SUPPLIED & INSTALLED BY BCWS)

COPPERSETTER (PER Specs)

TYPE K COPPER PIPE

FROM PUBLIC MAIN

TO BUILDING

TYPE K COPPER PIPE 5' PIGTAIL

NOTE: 1) FOR METERS 3" AND LARGER, REFER TO THE STD. INSTALLATION FOR 3" AND LARGER WATER METERS.  
 2) ALL DOMESTIC WATER METERS SHALL BE SENSUS OMNI C2 TYPES FOR SIZES OF 1/2" AND LARGER.  
 3) BUTLER COUNTY ORDERS 2" C2 OMNI METERS WITH A 17" LAYING LENGTH TO ACCOMMODATE THE STANDARD COPPERSETTER. IF THE FACTORY ORDERED SIZE IS UTILIZED AN ADAPTER FLANGE PLATE WILL BE REQUIRED.

**WATER DETAILS**

BUTLER COUNTY, OHIO

Plot time: Dec 28, 2017 - 11:28am  
 Drawing name: K:\~FFV\BLOCKS\DETAILS\BUTLER\BC\_WAT.DWG - Layout Tab: WAT

Sheet: 5/7

Page: 5/7

Page Number: 5/7

Page Count: 7

Page Size: 11x17

Page Orientation: Landscape

Page Type: DWG

Page Description: Water Details

Page Status: Active

Page Revision: 0

Page Date: 12-28-17

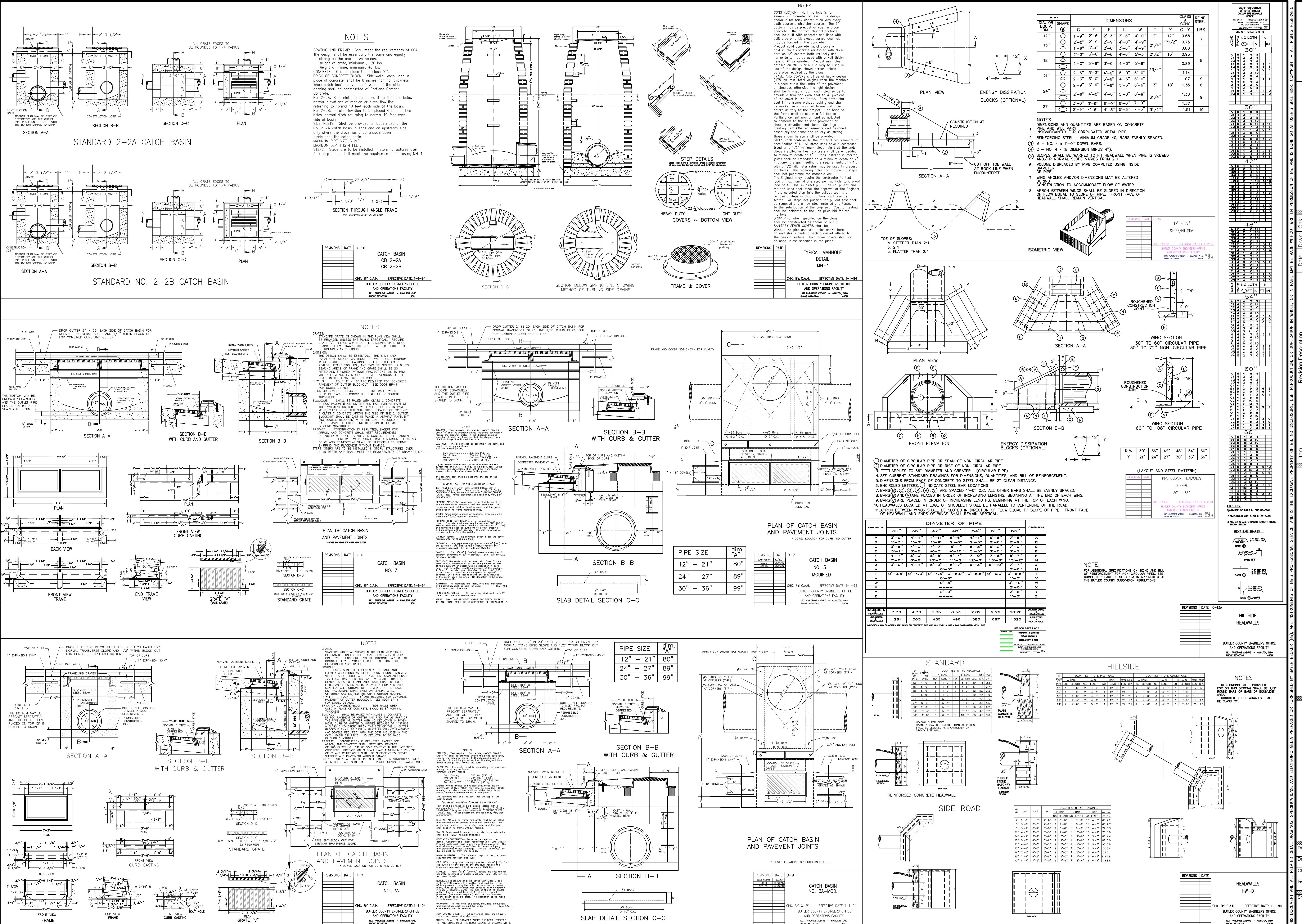
Page Author: bayerbecker.com

Page Company: 6900 Tylerville Road Suite A  
 Mason, Ohio 45040 - 513.336.6600

Plot time: May 25, 2016 - 12:50pm  
Drawing name: K:\~FF\BLOCKS\DETAILS\BUTLER\Bcstdndet.dwg - Layout Tab: NewBorderStorm

20

Plot time: May 25, 2016 = 12:50pm  
Drawing name: K:\~FF\BLOCKS\DETAILS\BUTLER\Bcstmtd.dwg - Layout Tab: NewBorderStc



## GENERAL NOTES

### EROSION AND SEDIMENT CONTROLS

#### Vegetative practices

Such practices may include: temporary seeding, permanent seeding, mulching, mowing, sod stabilization, vegetative bank strips, planting trees or shrubs, and other methods shall initiate appropriate vegetative practices on all disturbed areas within seven (7) days if they are to remain dormant (undisturbed) for more than fourteen (14) days. Permanent or temporary soil stabilization shall be applied to disturbed areas within seven (7) days after final grade is reached on any portion of the site.

#### Structural Practices

Structural practices shall be used to control erosion and trap sediment from all sites remaining disturbed for more than fourteen (14) days.

#### Timing

Sediment control structures shall be functional throughout earth disturbing activity. Sediment ponds and perimeter sediment barriers shall be implemented as the first step of grading and within seven days from the start of grubbing. They shall continue to function until the upslope development area is restabilized.

#### Sediment Barriers

Sheet flow runoff from denuded areas shall be intercepted by sediment barriers. Sediment barriers, such as sediment fences or diversions, direction runoff to settling facilities, shall protect adjacent properties and water resources from sediment transported by sheet flow.

Erosion and sediment control practices used to satisfy the conditions of this plan shall meet the standards and specifications in the current edition of Water Management and Sediment Control in Urbanized Areas (Soil Conservation Service).

#### Waste Disposal

No solid or liquid waste, including building materials, shall be discharged or stored after runoff. Off-site vehicle tracking of sediments shall be minimized. The plan shall ensure and demonstrate compliance with applicable State of local waste disposal, sanitary sewer or septic system regulations.

#### Maintenance

All temporary and permanent control practices shall be maintained and repaired as needed to assure continued performance of their intended function.

#### Dormant Seedings

1. Seedings shall not be planted from October 1 through November 20. During this period the seeds are likely to germinate but probably will not be able to survive the winter.

2. The following methods may be used for "Dormant Seeding":

From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20 and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.

From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.

Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.

Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

#### REVEGETATION

Seed, sod or mulch bare soil as soon as possible.

#### SEEDING AND MULCHING

Spread 4 to 6 inches of topsoil. Fertilize according to soil test (or apply 10 lb./1000 sq. ft. of 20-10-10 or 10-10-10 fertilizer.) Seed with an appropriate mix for the site (see table.) Rake lightly to cover seed with 1/4" of soil. Roll lightly. Mulch with straw (70-90 lb., or one bale per 1000 sq. ft.) Anchor mulch by punching 2 inches into the soil with a dual weighted disk or by using nesting or other measures on steep slopes, or windy areas. Water gently every day or two to keep soil moist. Less watering is needed once grass is 2 inches tall.

#### SODDING

Spread 4 to 6 inches of topsoil. Fertilize according to soil test (or apply 10lb./1000 sq. ft. of 20-10-10 or 10-10-10 fertilizer.) Lightly water the sod. Lay sod. Tamp or roll lightly. On slopes, lay sod starting at the bottom and work toward the top. Place sod on a flat surface. Do not lay sod on wet soil. Wet soil 6 inches deep (or until water stands 1 inch deep in a straight-sided container). Then water lightly every day or two for 2 weeks. If construction is completed after October 31, sodding or sodding may be delayed. Applying mulch or temporary seed (such as rye or winter wheat) is recommended if weather permits. Straw bale or silt fences must be maintained until final seeding or sodding is completed in spring March 15– May 31.

#### STRAW BALES

##### 4 STRAW BALE DETAILS

1. Excavate the trench. 2. Place and stake the straw bales.

3. Wedge loose straw between the bales. 4. Backfill and compact the excavated soil.

##### CONSTRUCTION OF A STRAW BALE BARRIER

Source: Adapted from Installation of Straw and Filter Barriers for Sediment Control, Sherwood and Wyant.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z

##### PROPER PLACEMENT OF A STRAW BALE BARRIER IN DRAINAGE WAY

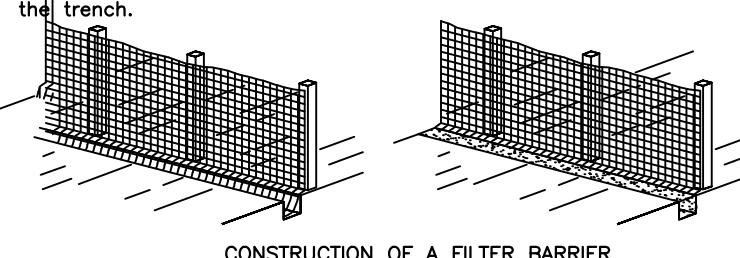
Source: Installation of Straw and Filter Barriers for Sediment Control, Sherwood and Wyant.

##### CROSS SECTION OF A PROPERLY INSTALLED STRAW BALE

Source: Michigan Soil Erosion and Sediment Control Guidebook, 1975

## 5 SILT FENCE OR MULCH BERM DETAILS

1. Set the stakes.
2. Excavate a 4" x 4" trench upstream along the line of stakes.
3. Staple filter material to stakes and extend it into the trench.
4. Backfill and compact the excavated soil.



### CONSTRUCTION OF A FILTER BARRIER

Source: Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Flow  
PLAN  
Elevation  
A-A  
B-B

### PROPER PLACEMENT OF A STRAW BALE BARRIER IN DRAINAGE WAY

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Points A should be higher than point B

### TEMPORARY STREAM CROSSING

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

1. Set the posts and excavate a 4" x 4" trench upstream along the line of posts.

2. Staple wire fencing to the posts.

3. Attach the filter fabric to the wire fence and extend it into the trench.

4. Backfill and compact the excavated soil.

### SPECIFIC APPLICATION

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is likely to cause inconvenience or damage to adjacent structures and unprotected areas.

### 8 GRAVEL CURB INLET SEDIMENT FILTER

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Wire Screen  
Concrete Block  
Extension of fabric and wire in the trench.  
Filter fabric  
Gravel Filter  
Runoff Water  
Sediment  
Concrete Gutter  
Curb Inlet

### SPECIFIC APPLICATION

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is likely to cause inconvenience or damage to adjacent structures and unprotected areas.

### STRAW BALE DROP INLET SEDIMENT FILTER

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Wire Screen  
Concrete Block  
Drop Inlet with Grate  
Filter fabric  
Gravel Filter  
Runoff Water  
Sediment  
Drop Inlet  
Curb Inlet

### SPECIFIC APPLICATION

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is likely to cause inconvenience or damage to adjacent structures and unprotected areas.

### 9 BLOCK AND DROP INLET SEDIMENT FILTER

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

1. Mulch should be placed along a level contour so that it will not channel runoff and create concentrated flows.

2. Upstream limitation (sheet flow).

3. Design Criteria:

– particle sizes (99% passing 1 inch sieve etc.)

– moisture content

– not more than 2 organdies

4. Planning considerations: most effective when combined with vegetated buffer.

### 10 SOD DROP INLET SEDIMENT FILTER

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Wire Screen  
Concrete Block  
Drop Inlet with Grate  
Filter fabric  
Gravel Filter  
Runoff Water  
Sediment  
Drop Inlet  
Curb Inlet

### SPECIFIC APPLICATION

This method of inlet protection is applicable only at the time of permanent seeding to prevent excessive ponding around the structure.

### 11 SOIL PILES

1. Located away from any downslope street, driveway, stream, lake, wetland, ditch or drainageway. Temporary seed such as annual rye is recommended for topsoil piles. Surround with straw bales or silt fence.

GRAVE DRIVE

Install a drive access drive using 3 to 5 inch aggregate over a geotextile material. Lay gravel 6 inches deep and 10 feet wide from the foundation to the street. Use to prevent tracking dirt onto the road by all vehicles.

Maintain throughout construction until driveway is paved.

Park all construction vehicles on the street and off of the site.

### SEDIMENT CLEANUP

By the end of each work day, sweep or scrape up soil tracked onto the road. By the end of the next work day after a storm, clean up soil washed off-site, and check straw bales and silt fence for damage or sediment buildup.

NOT required, but highly recommended. Install as soon as gutters and downspouts are completed. Route water to a grassed or paved area. Maintain until a lawn is established.

### 12 SOD DROPS INLET SEDIMENT FILTER

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

1. Inlet protection shall be constructed either before upslope land disturbance begins or before the storm drain becomes operational.

2. The Earth around the inlet shall be excavated completely to a depth of least 18 in.

3. The wall height which shall be constructed of 2-by-4-in. construction-grade lumber, the 2-by-4-in. Posts shall be driven 1 ft. into the ground at four corners of the inlet and the top portion of the 2-by-4-in. frame assembled using the overlap joint shown. The top of the frame shall be at least 6-in. below adjacent roadside ponded water point.

4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.

5. Geotextile shall have an equivalent opening size of 20-40 sieve.

6. Geotextile shall be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 in. below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.

7. Boulders shall be placed around the inlet in compacted 4-in. layers until the elevation is even with notch elevation on ends and top elevation on sides.

8. A compacted earth dike or a check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression and if runoff bypassing the inlet will not flow to a settling pond. The top of earth dikes shall be at least 6 in. higher than the top of the frame.

### 13 GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

1. Inlet protection shall be constructed either before upslope land disturbance begins or before the storm drain becomes operational.

2. The Earth around the inlet shall be excavated completely to a depth of least 18 in.

3. The wall height which shall be constructed of 2-by-4-in. construction-grade lumber, the 2-by-4-in. Posts shall be driven 1 ft. into the ground at four corners of the inlet and the top portion of the 2-by-4-in. frame assembled using the overlap joint shown. The top of the frame shall be at least 6-in. below adjacent roadside ponded water point.

4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.

5. Geotextile shall have an equivalent opening size of 20-40 sieve.

6. Geotextile shall be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 in. below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.

7. Boulders shall be placed around the inlet in compacted 4-in. layers until the elevation is even with notch elevation on ends and top elevation on sides.

8. A compacted earth dike or a check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression and if runoff bypassing the inlet will not flow to a settling pond. The top of earth dikes shall be at least 6 in. higher than the top of the frame.

### 14 BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

Source: Michigan Soil Erosion and Sediment Control Guidebook, 1975

1. Points A should be higher than point B

### CROSS SECTION OF A PROPERLY INSTALLED STRAW BALE

Source: Michigan Soil Erosion and Sediment Control Guidebook, 1975

1. Excavate the trench. 2. Place and stake the straw bales.

3. Wedge loose straw between the bales. 4. Backfill and compact the excavated soil.

### CONSTRUCTION OF A STRAW BALE BARRIER

Source: Adapted from Installation of Straw and Filter Barriers for Sediment Control, Sherwood and Wyant

Points A should be higher than point B

### PROPER PLACEMENT OF A STRAW BALE BARRIER IN DRAINAGE WAY

Source: Installation of Straw and Filter Barriers for Sediment Control, Sherwood and Wyant

1. Set the posts and excavate a 4" x 4" trench upstream along the line of posts.

2. Staple wire fencing to the posts.

3. Attach the filter fabric to the wire fence and extend it into the trench.

4. Backfill and compact the excavated soil.

### SPECIFIC APPLICATION

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is likely to cause inconvenience or damage to adjacent structures and unprotected areas.

### 15 GABIONS