

3. ITEMS REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS 2019, 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.
4. 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.
5. ALL TRENCHES WITHIN THE RIGHT-OF-WAY AND 10' UTILITY EASEMENT SHALL BE COMPACTED AND BACKFILLED IN ACCORDANCE WITH ITEM 203 AND 603 IN THE STATE SPECIFICATIONS.
6. SURFACE COURSE (ITEM 448) AND TACK COAT (ITEM 407) ARE TO BE APPLIED NO SOONER THAN TWELVE (12) 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 BEEN COMPLETED, THEN THE TOP COURSE MAY BE APPLIED. AS-BUILT DRAWINGS SHALL BE SUBMITTED PRIOR TO INSTALLATION OF THE SURFACE COURSE.
7. A MINIMUM 10' 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.
8. 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.
9. 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.
10. SANITARY 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.
11. 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.
12. ALL ELECTRICAL TRANSFORMERS SHALL BE LOCATED SO THAT THEY DO NOT INTERFERE WITH THE EXISTING MANHOLES OR WATER MAIN APPURTENANCES.
13. SUMP LINE CONDUITS ARE TO BE SDR-35.
14. WATER MAIN MATERIALS, VALVES, PIPE HYDRANTS, FITTINGS, AND APPURTENANCES AND INSTALLATION SHALL BE AS PER BUTLER COUNTY SPECIFICATIONS, USING CLASS 53 DUCTILE IRON AS PER AWWA C-151 WITH 4" MINIMUM COVER.
15. SANITARY SEWER MATERIALS AND INSTALLATION SHALL BE AS PER BUTLER COUNTY SPECIFICATION, USING SECTION 3110 FOR PVC SDR-35 & 26 PIPE; SECTION 3140 FOR ABS OR PVC COMPOSITE PIPE; SECTION 3410 FOR MANHOLES.
16. 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 EIGHTEEN (18) INCHES MEASURED BETWEEN THE OUTSIDE PIPE WALLS, BELOW THE BOTTOM OF THE WATER MAIN.

A. 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 TEN (10) FEET ON EACH SIDE OF THE WATER MAIN.

B. THE SEWER CROSSING SHALL BE CONSTRUCTED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.

C. WHERE A WATER MAIN PASSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE OF THE WATER MAIN.

- A. PVC PIPE AS PER ODOT SUPPLEMENTAL SPECIFICATION §31 FOR ALL DIAMETERS (CONTECH A2000 OR EQUAL).
- B. HDPE PIPE AS PER ODOT SUPPLEMENTAL SPECIFICATION §44 FOR DIAMETERS UP TO AND INCLUDING 24".
- C. CORRUGATED STEEL SPIRAL RIB PIPE AS PER ODOT SUPPLEMENTAL SPECIFICATION §43 FOR ALL DIAMETERS (CONTECH ULTRAFLO OR EQUAL).
- D. 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)

16. DEFLECTION TESTING FOR STORM SEWERS AND CULVERTS. FIFTEEN PERCENT (15%) OF ALL STORM SEWERS SHALL BE TESTED FOR DEFLECTION WITHIN THIRTY (30) DAYS AFTER THEY ARE COMPLETE. BUTLER COUNTY ENGINEER OR HIS DESIGNATED REPRESENTATIVE WILL DETERMINE WHAT FIFTEEN PERCENT (15%) SHALL BE TESTED. IF ANY STORM SEWER IN THE ORIGINAL FIFTEEN PERCENT (15%) IS FOUND OUT OF COMPLIANCE, DEFLECTION TESTS WILL BE REQUIRED ON 100% OF THE REMAINING STORM SEWER. A VERTICAL RING DEFLECTION GREATER THAN FIVE PERCENT (5%) WILL NOT BE ALLOWED. THIS DEFLECTION IS DEFINED AS FIVE PERCENT (5%) REDUCTION IN THE VERTICAL BASE OR AVERAGE INSIDE DIAMETER. THE METHOD OF TESTING SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. IF RIGID BALLS OR MANDRELS ARE USED TO TEST PIPE DEFLECTION, NO MECHANICAL PULPING DEVICES SHALL BE USED. THE DEFLECTION TEST MAY BE CONDUCTED BY ANY PERSONS HAVING THE NECESSARY SKILLS AND EQUIPMENT TO CONDUCT THE TEST. THE BUTLER COUNTY ENGINEER OR HIS DESIGNATED REPRESENTATIVE SHALL BE NOTIFIED IN WRITING PRIOR TO THE TESTING. THE TESTING WILL BE ACCOMPLISHED FROM MANHOLE TO MANHOLE OR CATCH BASIN TO CATCH BASIN, FOLLOWING THE COMPLETE FLUSHING OF THE PIPE. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT REQUIRED TO COMPLETE THE DEFLECTION TESTING. ANY SECTION OF PIPE THAT FAILS TO MEET THE AFORESAID REQUIREMENTS SHALL BE REPEATED BY A PROCEDURE ACCEPTABLE TO THE COUNTY OR BE EXCAVATED AND EITHER REPAIRED OR REPLACED, AND RETESTED UNTIL THE REQUIREMENTS ARE MET.

18. ALL CATCH BASINS AND MANHOLES WITH A DEPTH GREATER THAN FOUR (4) FEET 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.

19. ALL BUILDINGS TO BE SERVED BY THE PUBLIC SEWER SYSTEM SHALL BE CONSTRUCTED SO AS TO PROVIDE A MINIMUM OF FOUR (4) FEET OF VERTICAL SEPARATION BETWEEN THE PUBLIC SANITARY SEWER, AT THE POINT OF CONNECTION, AND THE LOWEST BUILDING LEVEL SERVED BY THE GRAVITY SEWER CONNECTION. 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 SEWER LATERALS 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 AND SEWER DEPARTMENT.

21. ALL WATER MAIN VALVES TO HAVE A MINIMUM DEPTH OF TWO AND ONE HALF (2.5) FEET AND A MAXIMUM DEPTH OF FOUR (4) FEET FROM PROPOSED GRADE TO THE TOP OF THE VALVE OPERATING NUT.

22. ANY WATER MAIN TWELVE (12) INCH DIAMETER OR LARGER SHALL BE ENCASED WITH LINEAR LOW-DENSITY POLYETHYLENE ENCASEMENT (POLYWRAP) AS PER SECTION 1520 OF THE BUTLER COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES STANDARD SPECIFICATIONS AND DETAILS BOOK.

23. ALL SANITARY SEWER LATERALS SHALL BE AT LEAST FOUR (4) FEET BELOW A PROPOSED BASEMENT FLOOR ELEVATION AT THE POINT OF CONNECTION TO SEWER MAIN AND SHALL NOT EXCEED A DEPTH OF TWELVE (12) FEET BELOW FINISH GRADE AT THE END OF THE LATERAL AT THE RIGHT-OF-WAY UNLESS SPECIFICALLY AUTHORIZED BY THE COUNTY.

24. PRIVATE DRIVEWAYS, PARKING LOTS AND OTHER PAVED AREAS, EARTHEN BERMS, OR STRUCTURES SHOULD NOT BE CONSTRUCTED OVER PRIVATE WATER OR SEWER LINES WITHIN THE PUBLIC ROAD RIGHT-OF-WAY OR WITHIN EASEMENTS AREA FOR THE 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 SERVICES LIENS 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 APPURTEANANCES.

25. 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 (513) 785-4145

27. ANY ROADWAY SETTLEMENT GREATER THAN ONE (1) INCH WILL BE REQUIRED TO BE REPAIRED WITH ODOT ITEM 613 LOW STRENGTH MORTAR BACKFILL (TYPE 1)

28. A TYPICAL FIVE (5) FOOT DRAINAGE EASEMENT IS TO BE PROVIDED ON BOTH SIDES OF EVERY LOT LINE.

EXISTING ZONING: R-1
FRONTAGE: 100'
SETBACKS: FRONT = 50' UNLESS OTHERWISE NOTED ON PLAN
SIDE = 15' MIN., 30' TOTAL
REAR = 45', UNLESS OTHERWISE NOTED ON PLAN

30. TOTAL # OF SINGLE FAMILY LOTS: 29

31. THOSE PROPERTIES IDENTIFIED AS CONTAINING A "WETLAND EASEMENT" ARE HEREBY APPRISED THAT THESE AREAS ARE PROTECTED UNDER PROVISION OF THE CLEAN WATER ACT. ANYONE, INCLUDING PRIVATE CITIZENS, FEDERAL, STATE AND LOCAL AGENCIES WHO WISHES TO DISCHARGE DREDGED OR FILL MATERIAL INTO WATER OF THE UNITED STATES, INCLUDING WETLANDS MUST OBTAIN A SECTION 404 PERMIT FROM THE U.S. ARMY CORPS OF ENGINEERS AND A SECTION 401 WATER QUALITY CERTIFICATION FROM THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OHIO EPA).

SECTION 28, TOWN 3E, RANGE 3N, M.Rs.
LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO
OCTOBER 2019



NORTHWEST CORNER OF A CONCRETE HEADWALL LOCATED ON THE SOUTH SIDE OF A DETENTION POND AT THE SOUTHEAST CORNER OF ROYAL GARDEN COURT & VICTORIA PLACE. THE HEADWALL IS 188 FEET SOUTH OF THE CENTERLINE OF ROYAL GARDEN COURT AND 207 FEET EAST OF THE CENTERLINE OF VICTORIA PLACE.
ELEV. = 755.56 (NAVD 88)

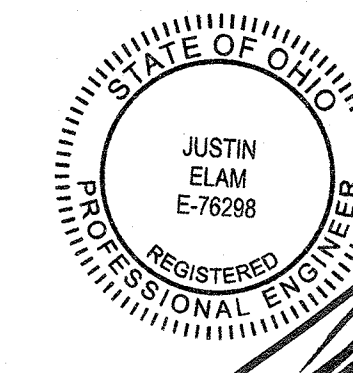
OWNER/DEVELOPER
WINDSOR ESTATES PROJECT I, LLC
3601 RIGBY ROAD, SUITE 300
MIAMISBURG, OH 45342
PH: (937) 435-8584

ENGINEER
CESO, INC.
3601 RIGBY ROAD, SUITE 300
MIAMISBURG, OH 45342
PH: (937) 435-8584

SWPPP CONTACT
ROSS BEHNFELDT
PH: (937) 401-3932



DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
1	TITLE SHEET
2	OVERALL UTILITY PLAN, INDEX MAP, & TYPICAL SECTION
3	PLAN & PROFILE COBURG DRIVE
4	PLAN & PROFILE ETON COURT
5	PLAN & PROFILE VICTORIA PLACE
6	PLAN & PROFILE OFFSTREET WATER MAIN (LOTS 392-393)
7	INTERSECTION DETAILS
8	OFFSTREET PROFILES
9	BASIN DETAILS
10	GRADING & EROSION CONTROL PLAN - PHASE I
11	GRADING & EROSION CONTROL PLAN - PHASE II
12	SWPPP NOTES
13	SWPPP DETAILS
14	SWPPP DETAILS
15	STORM & STREET DETAILS
16	SANITARY DETAILS
17	WATER DETAILS



JUSTIN ELAM, P.E.
REGISTERED ENGINEER
OHIO LICENSE NO. E-76298

DATE _____

DATE _____ APPROVED BY OHIO EPA-SEWER

[illegible]

EJP 02/14/2020
REV GRADING

WINDSOR ESTATES

SECTION 9

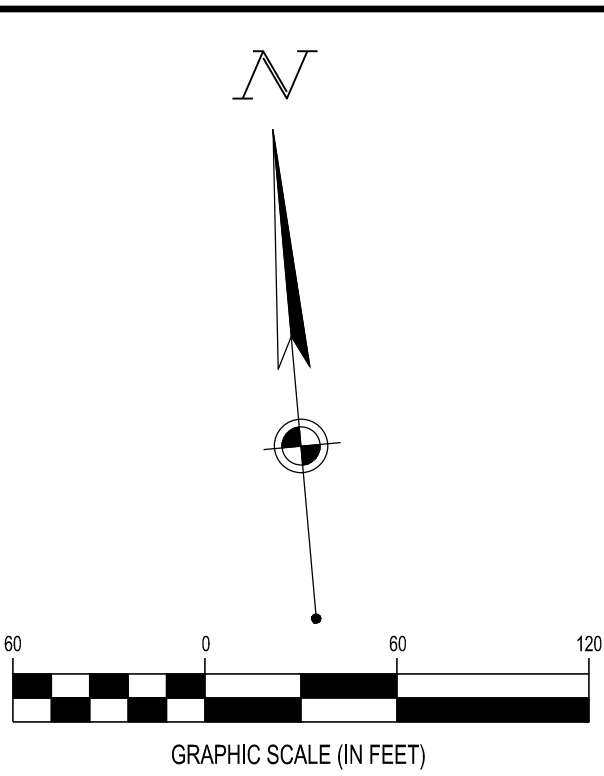
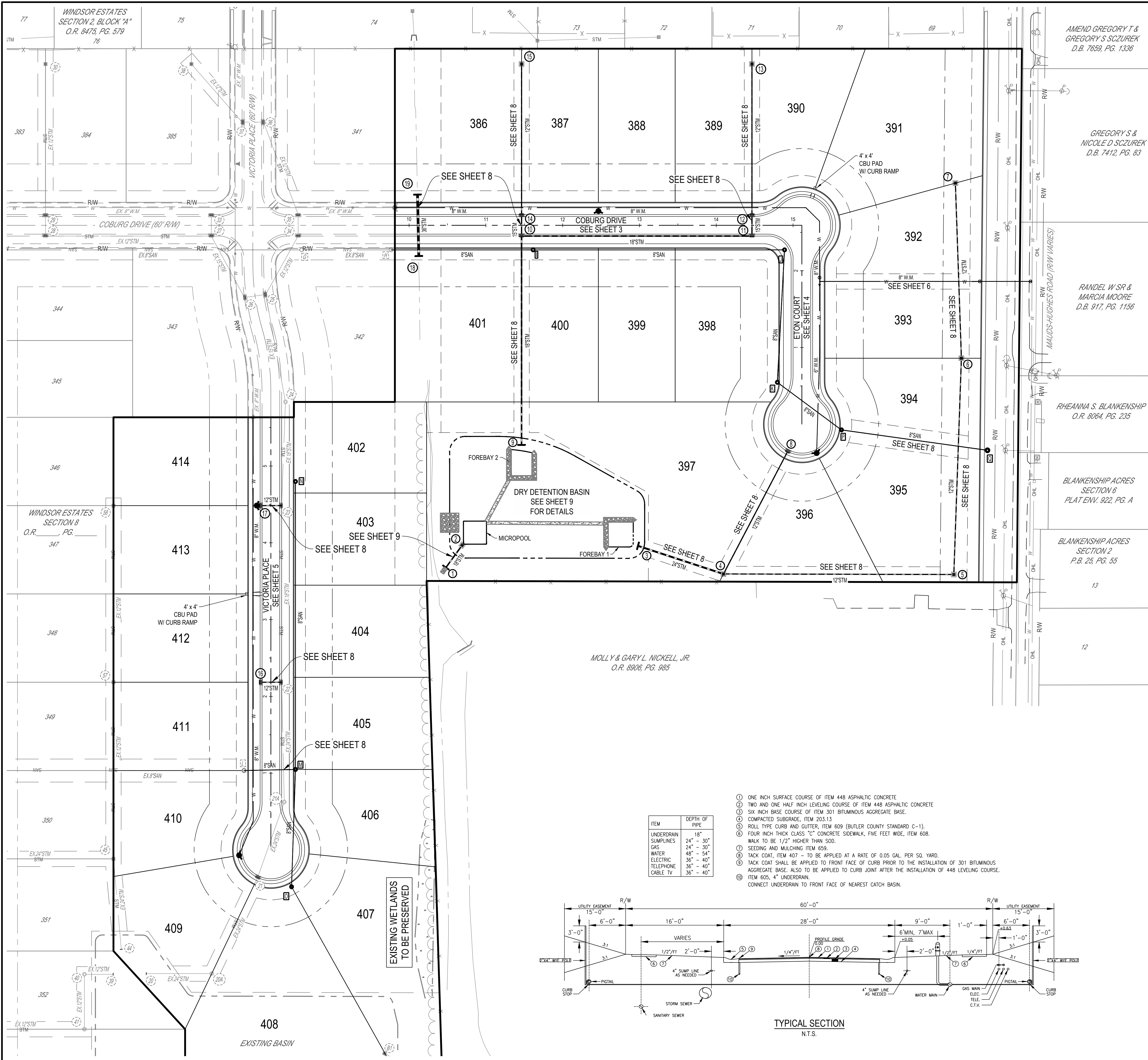
BUTLER COUNTY OHIO

LIBERTY TOWNSHIP

TITLE SHEET

ISSUE: CONSTRUCTION	
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JOB NO.:	75
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SHEET NO.
1 of 17

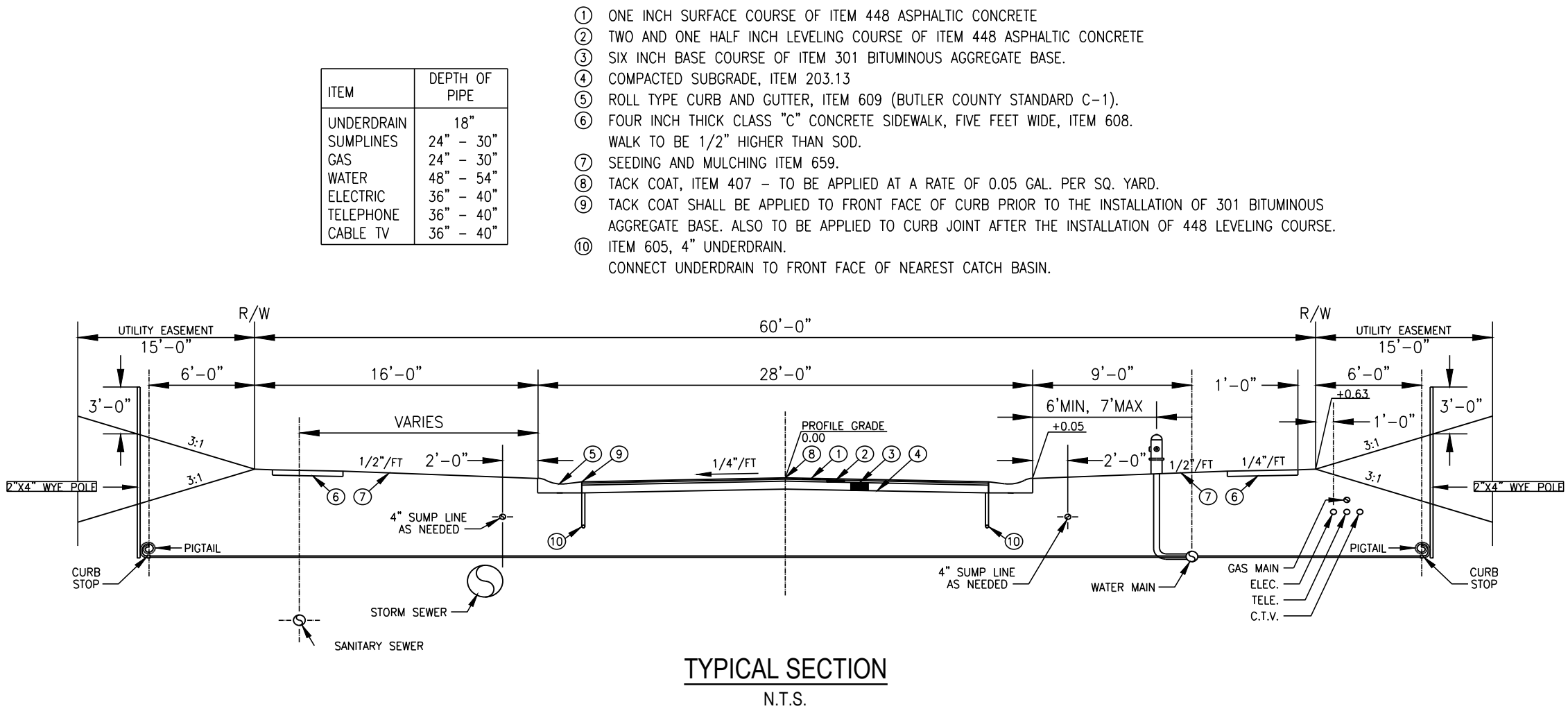


LEGEND

	PROPOSED SANITARY SEWER/MANHOLE/LETTER
	PROPOSED STORM DRAIN/STRUCTURE/NUMBER
	PROPOSED WATER MAIN
	EXISTING SANITARY SEWER/MANHOLE/LETTER
	EXISTING STORM DRAIN/STRUCTURE/NUMBER
	EXISTING WATER MAIN

BENCHMARK
NORTHWEST CORNER OF A CONCRETE HEADWALL LOCATED ON THE SOUTH SIDE OF A DETENTION POND AT THE SOUTHEAST CORNER OF ROYAL GARDEN COURT & VICTORIA PLACE. THE HEADWALL IS 188 FEET SOUTH OF THE CENTERLINE OF ROYAL GARDEN COURT AND 207 FEET EAST OF THE CENTERLINE OF VICTORIA PLACE.
ELEV. = 755.56 (NAVD 88)

NPDES PERMIT #1GC07384*AG.
GENERAL CONTRACTOR SHALL
REFERENCE OEPA GENERAL
PERMIT OHC000005 PRIOR TO
START OF CONSTRUCTION.



WWW.CESOINC.COM

NO.	DATE	REVISION DESCRIPTION

**WINDSOR ESTATES
SECTION 9**

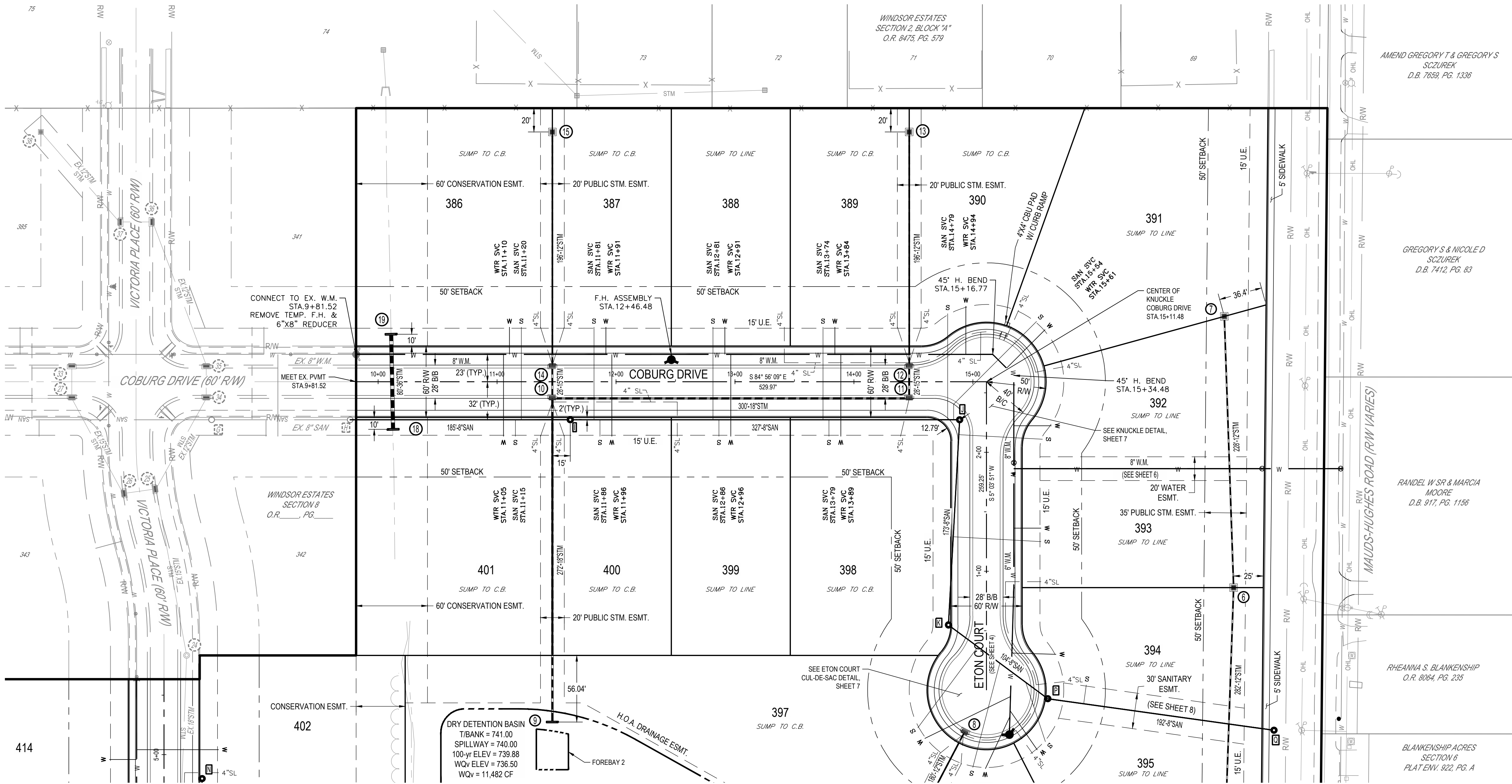
LIBERTY TOWNSHIP BUTLER COUNTY, OHIO

**OVERALL UTILITY
PLAN, INDEX
MAP, & TYPICAL
SECTION**

ISSUE:
CONSTRUCTION
DATE:
10.18.2019

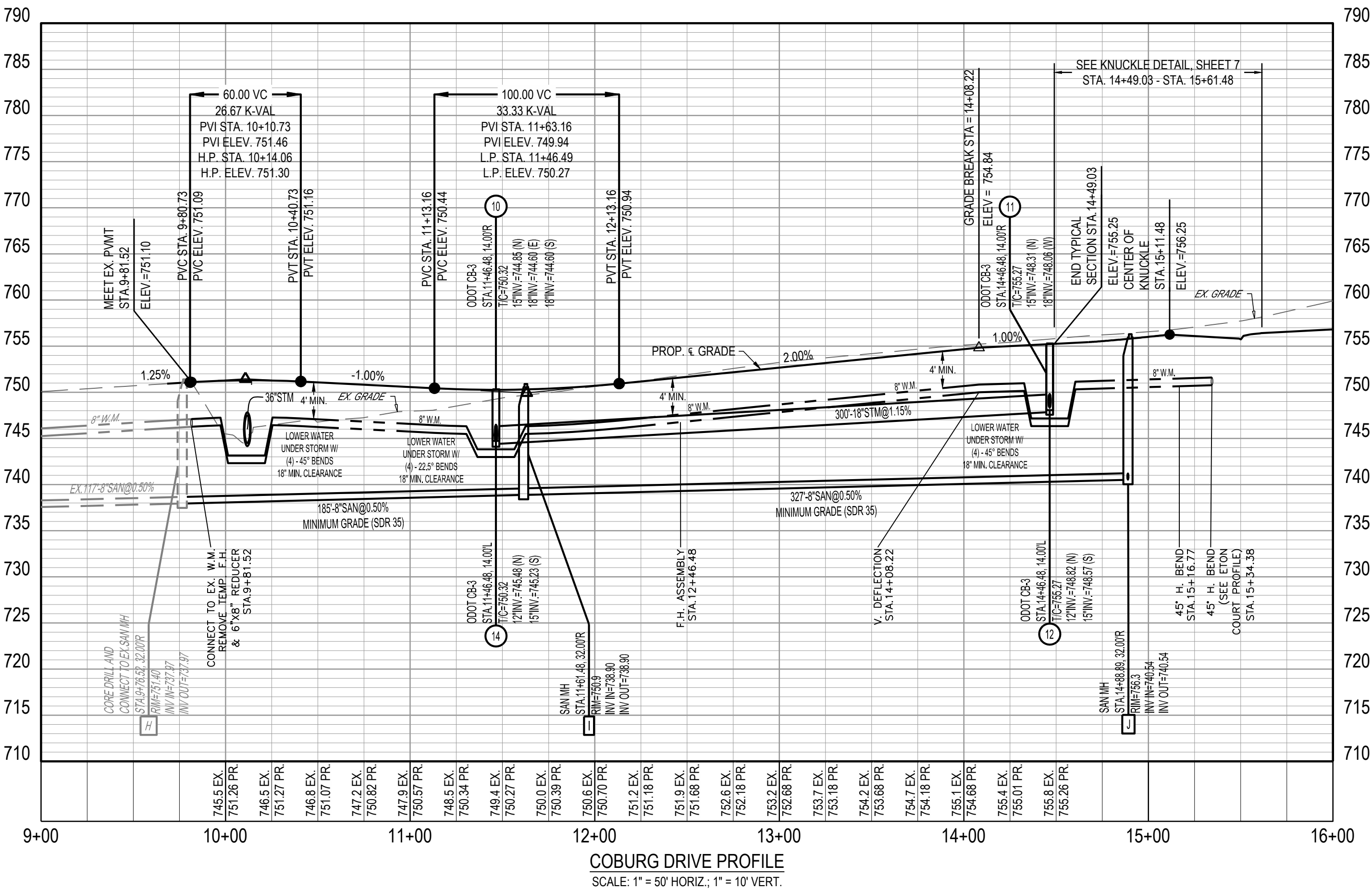
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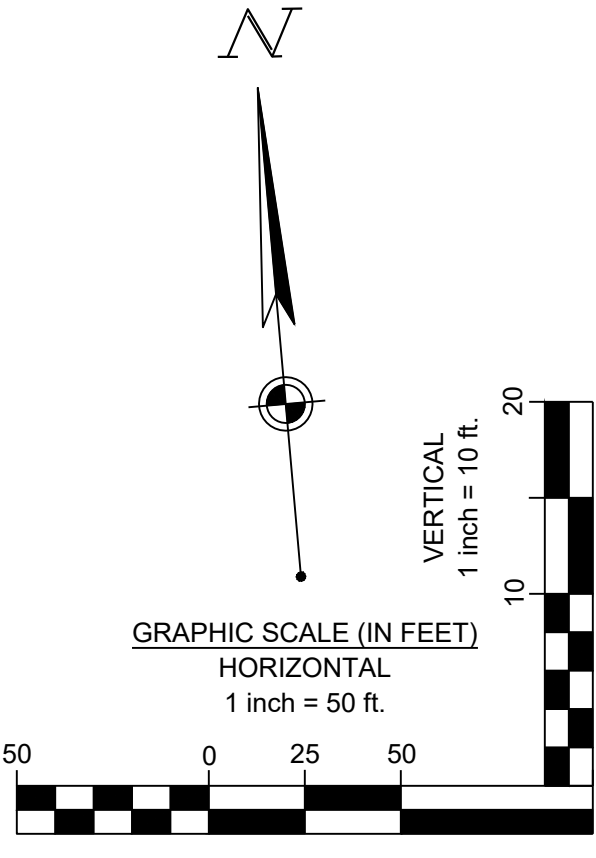


- NOTES:
- 48 HOURS NOTICE TO BE GIVEN TO AFFECTED RESIDENTS BEFORE CONSTRUCTION BEGINS.
 - ALL CATCH BASIN T/C ELEVATIONS LOCATED WITHIN THE CURB ARE SET TO THE BACK OF CURB ELEVATIONS.
 - LOWER 3/4" WATER SERVICES AS NEEDED TO AVOID CONFLICTS WITH STORM WITH MIN. 4" COVER.
 - LOCATION OF EXISTING UTILITIES TO BE DETERMINED IN THE FIELD PRIOR TO WORK BEGINNING.
 - ALL LOTS SUMP TO SUMP DRAIN UNLESS OTHERWISE NOTED IN PLAN.
 - 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.
 - CONTRACTORS TO ACCEPT ALL QUANTITIES AS CORRECT PRIOR TO BEGINNING CONSTRUCTION.
 - ALL UTILITY SERVICE LINES SHALL EXTEND ONE (1) FOOT BEYOND THE EASEMENT.

NOTE:
AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18") INCHES FROM STORM AND SANITARY SEWERS. ALSO, ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM AND SANITARY SEWERS AS POSSIBLE.



WATER MAIN RESTRAINT JOINT LOCATION CHART					
WATER MAIN DIA.	HORIZONTAL 45° BENDS	VERTICAL 45° BENDS UP (LOWER WATER UNDER...)	VERTICAL 45° BENDS DOWN (LOWER WATER UNDER...)	DEAD ENDS (PERMANENT & TEMPORARY)	TEE (BRANCH ONLY)
6"	18" BOTH SIDES	18" BOTH SIDES	36" BOTH SIDES	72' BACK	18"
8"	18" BOTH SIDES	36" BOTH SIDES	36" BOTH SIDES	90' BACK	18"



REVISION DESCRIPTION	
NO.	DATE

WINDSOR ESTATES
SECTION 9

PLAN & PROFILE
COBURG DRIVE

ISSUE:
CONSTRUCTION
DATE:
10.18.2019
JOB NO.: 755958
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SHEET NO.
3 of 17

WINDSOR ESTATES
SECTION 9

BUTLER COUNTY, OHIO

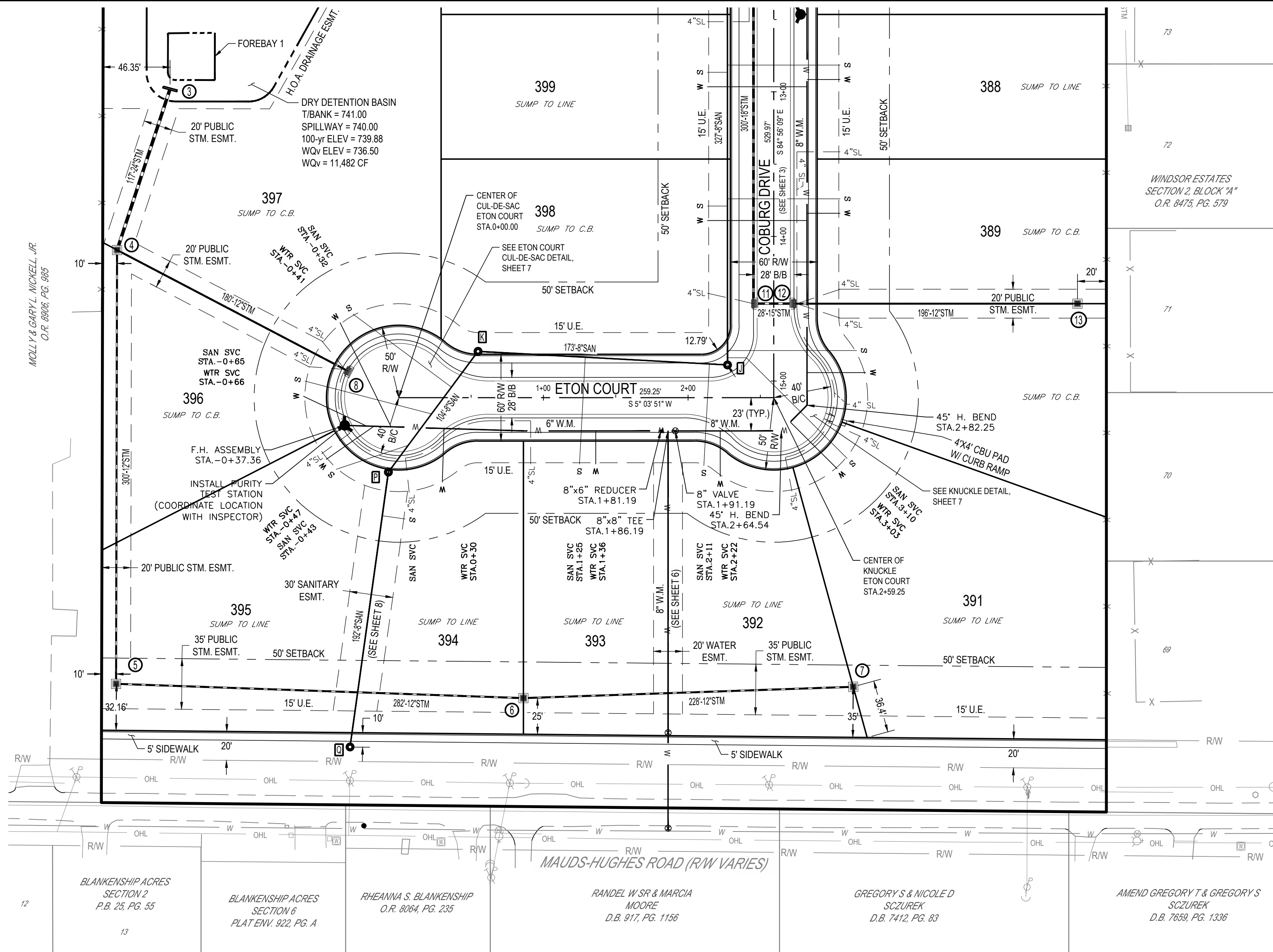
LIBERTY TOWNSHIP

PLAN & PROFILE
ETON COURT

ISSUE:
CONSTRUCTION
DATE:
10.18.2019

JOB NO.: 755958
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SHEET NO.
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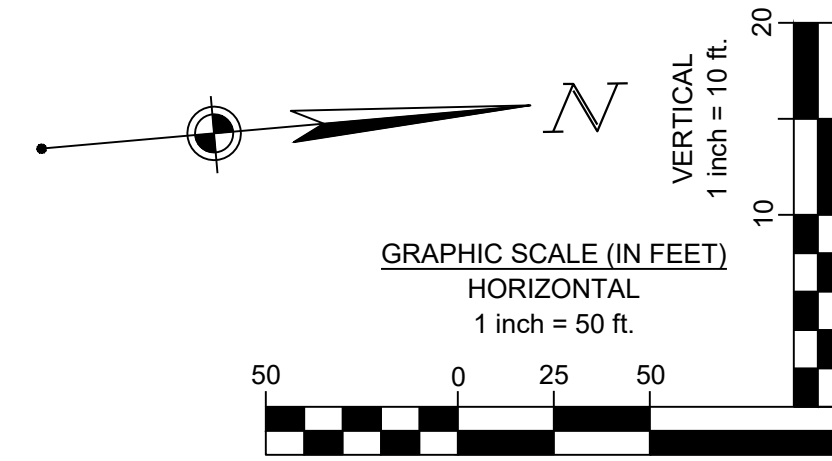
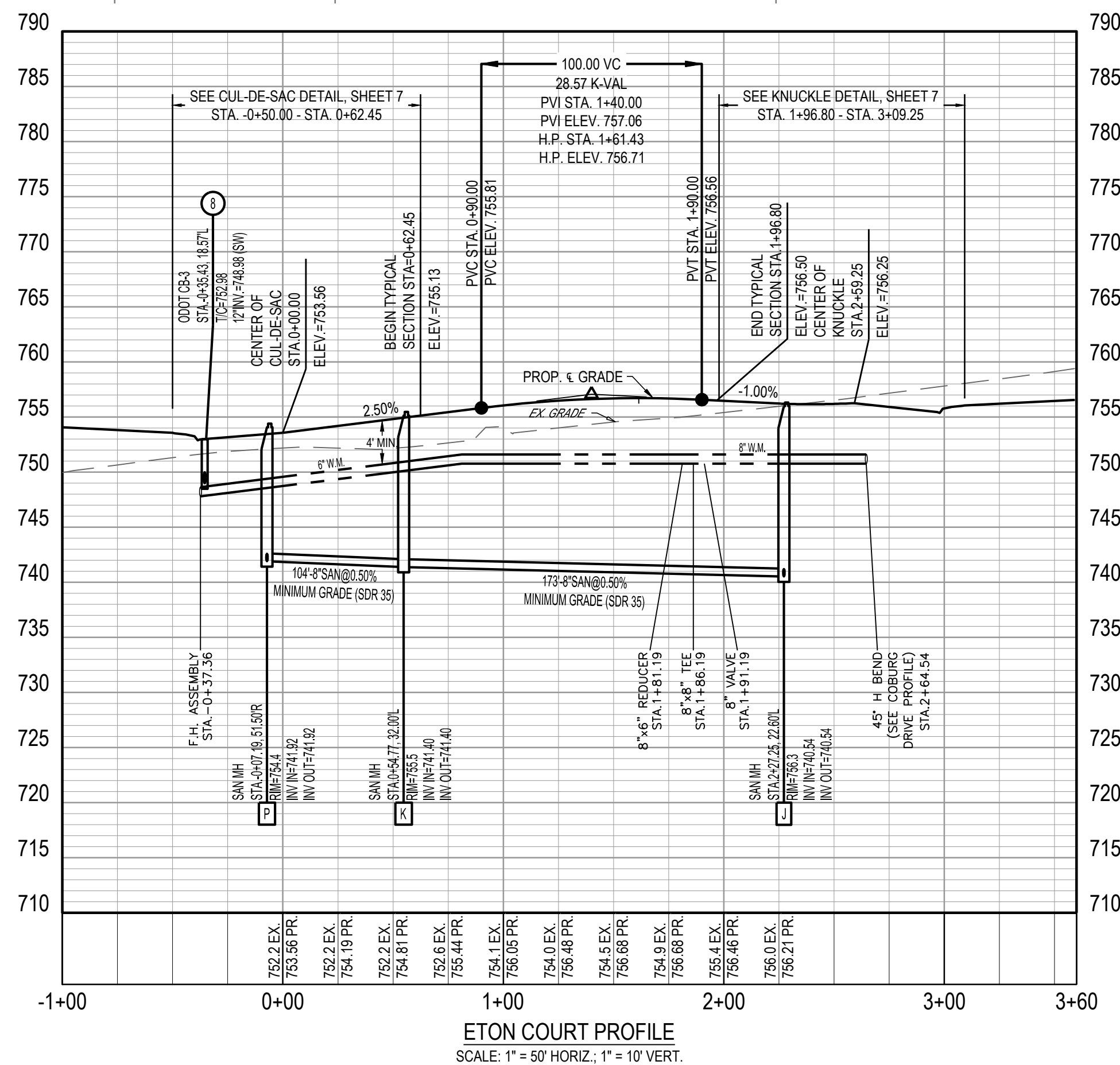
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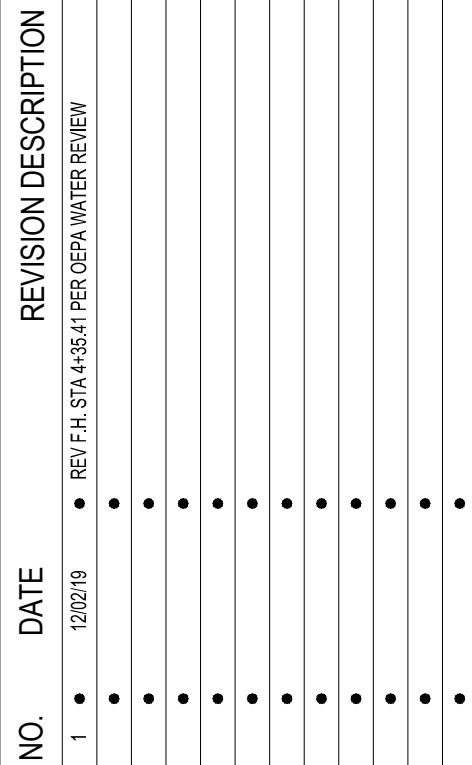
NOTE:

AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18") INCHES FROM STORM AND SANITARY SEWERS. ALSO, ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM AND SANITARY SEWERS AS POSSIBLE.

WATER MAIN RESTRAINT JOINT LOCATION CHART

WATER MAIN DIA.	HORIZONTAL 45° BENDS	VERTICAL 45° BENDS UP (LOWER WATER UNDER...)	VERTICAL 45° BENDS DOWN (LOWER WATER UNDER...)	DEAD ENDS (PERMANENT & TEMPORARY)	TEE (BRANCH ONLY)
6"	18" BOTH SIDES	18" BOTH SIDES	36" BOTH SIDES	72" BACK	18"
8"	18" BOTH SIDES	36" BOTH SIDES	36" BOTH SIDES	90" BACK	18"

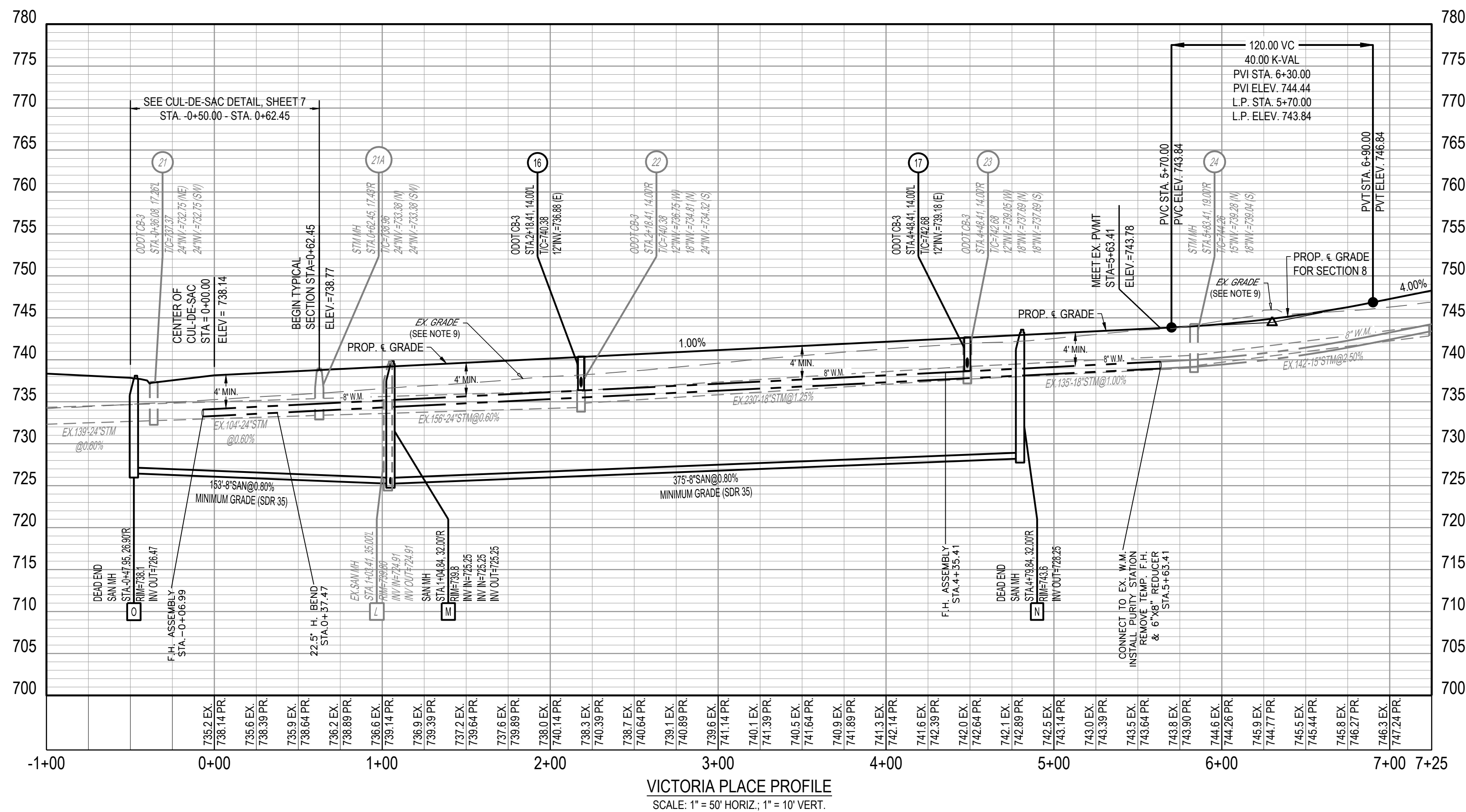




BUTLER COUNTY, OHIO

LIBERTY TOWNSHIP

ISSUE: CONSTRUCTION	
DATE: 10.18.2019	
B NO.:	755958
SIGN:	EAC
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CHECKED:	JEE
SHEET NO. 5 of 17	



- NOTE:**
AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18") INCHES FROM STORM AND SANITARY SEWERS. ALSO, ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM AND SANITARY SEWERS AS POSSIBLE.

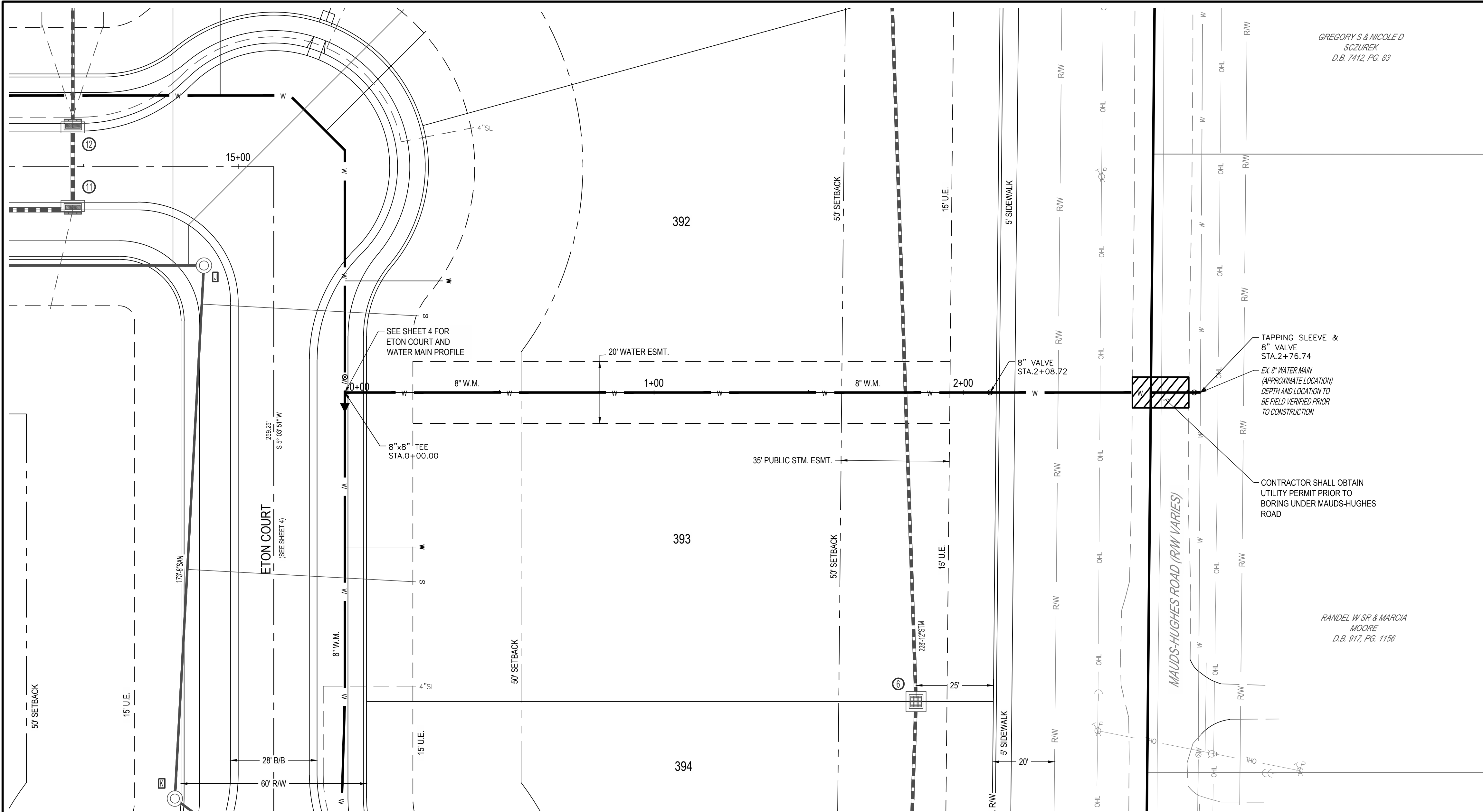
WATER MAIN RESTRAINT JOINT LOCATION CHART					
WATER MAIN DIA.	HORIZONTAL 45° BENDS	VERTICAL 45° BENDS UP (LOWER WATER UNDER...)	VERTICAL 45° BENDS DOWN (LOWER WATER UNDER...)	DEAD ENDS (PERMANENT & TEMPORARY)	TEE (BRANCH ONLY)
6"	18' BOTH SIDES	18' BOTH SIDES	36' BOTH SIDES	72' BACK	18'
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GRAPHIC SCALE (IN FEET)

HORIZONTAL
1 inch = 50 ft.

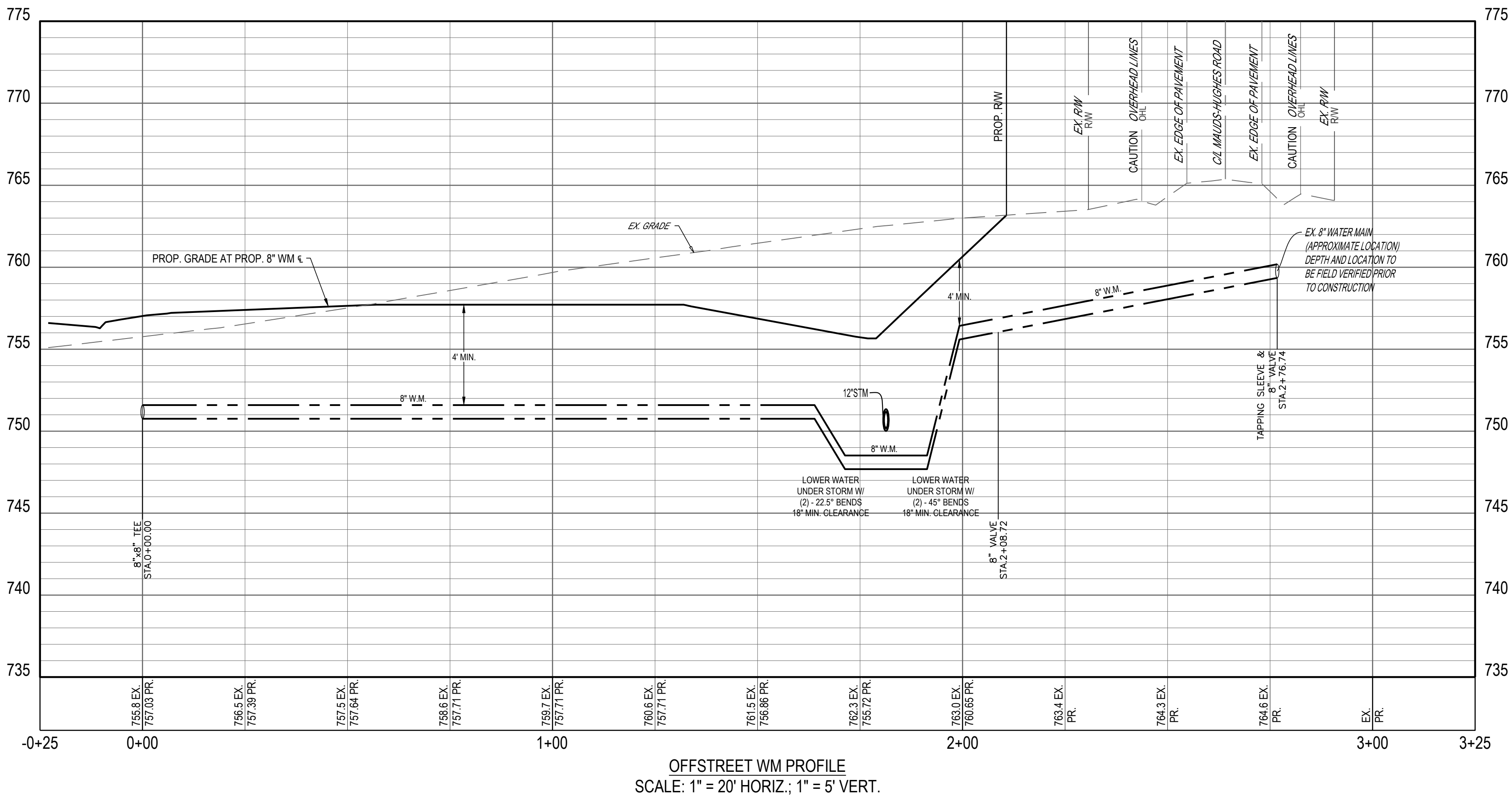
VERTICAL
1 inch = 10 ft.





GREGORY S & NICOLE D
SC22UREK
D.B. 7412, PG. 83

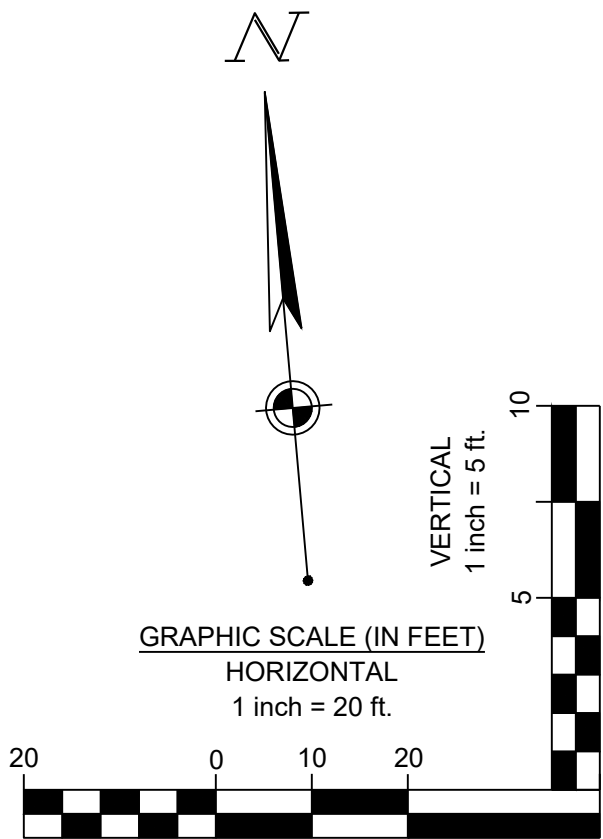
RANDEL W SR & MARCIA
MOORE
D.B. 917, PG. 1156



WATER MAIN RESTRAINT JOINT LOCATION CHART					
WATER MAIN DIA.	HORIZONTAL 45° BENDS	VERTICAL 45° BENDS UP (LOWER WATER UNDER...)	VERTICAL 45° BENDS DOWN (LOWER WATER UNDER...)	DEAD ENDS (PERMANENT & TEMPORARY)	TEE (BRANCH ONLY)
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REVISION DESCRIPTION

NO. DATE

WINDSOR ESTATES SECTION 9

BUTLER COUNTY, OHIO

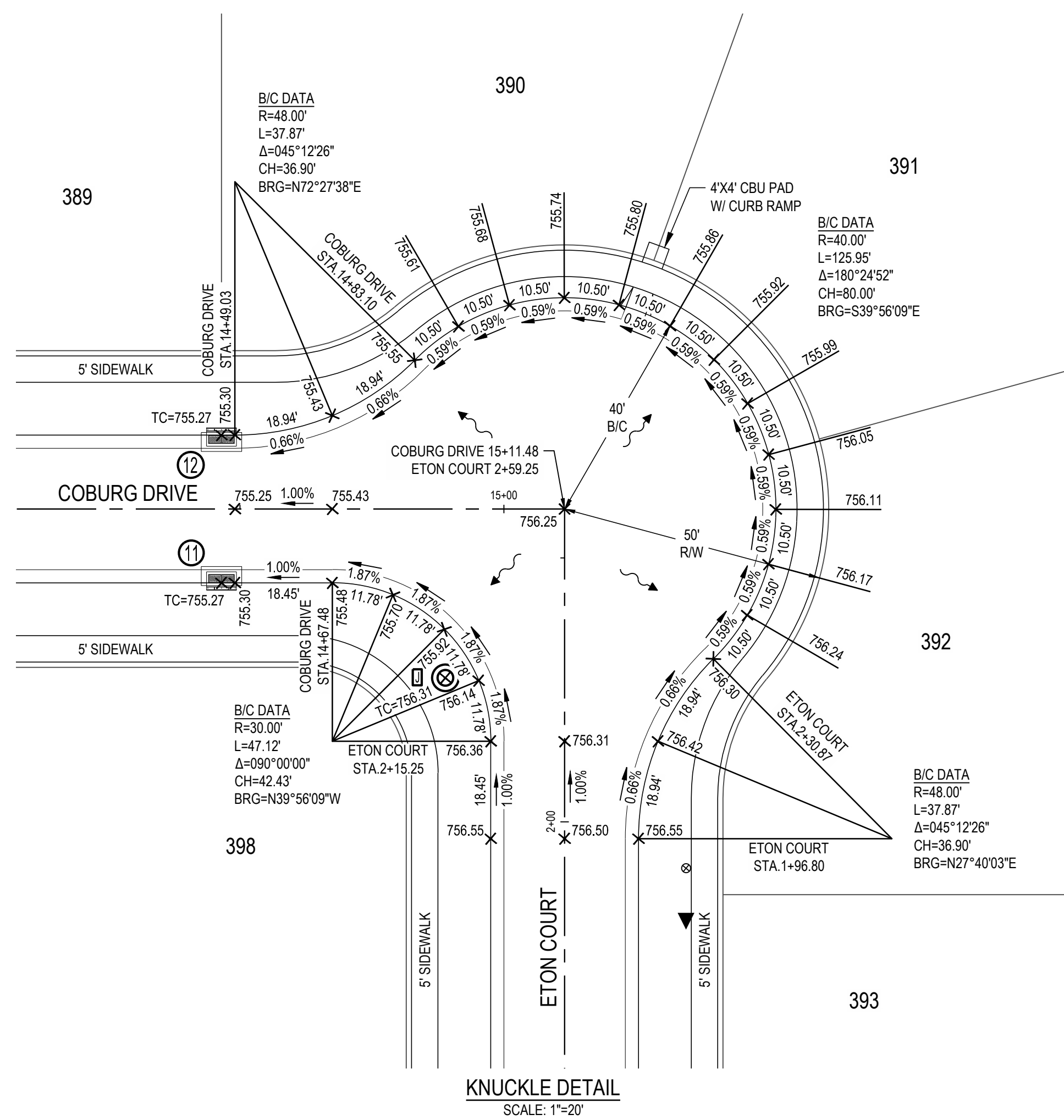
LIBERTY TOWNSHIP

PLAN & PROFILE OFFSTREET WATER MAIN (LOTS 392-393)

ISSUE:
CONSTRUCTION
DATE:
10.18.2019

JOB NO.: 755958
DESIGN: EAC
DRAWN: EAC
CHECKED: JEE

SHEET NO.
6 of 17



ETON COURT
STA 0+62.45

5' SIDEWALK

ETON COURT
STA 0+28.39

ETON COURT
0+00.00

50' R/W

40' B/C

ETON COURT
STA 0+62.45

5' SIDEWALK

ETON COURT
STA 0+28.39

PROP. FIRE HYD.

ETON COURT CUL-DE-SAC DETAIL

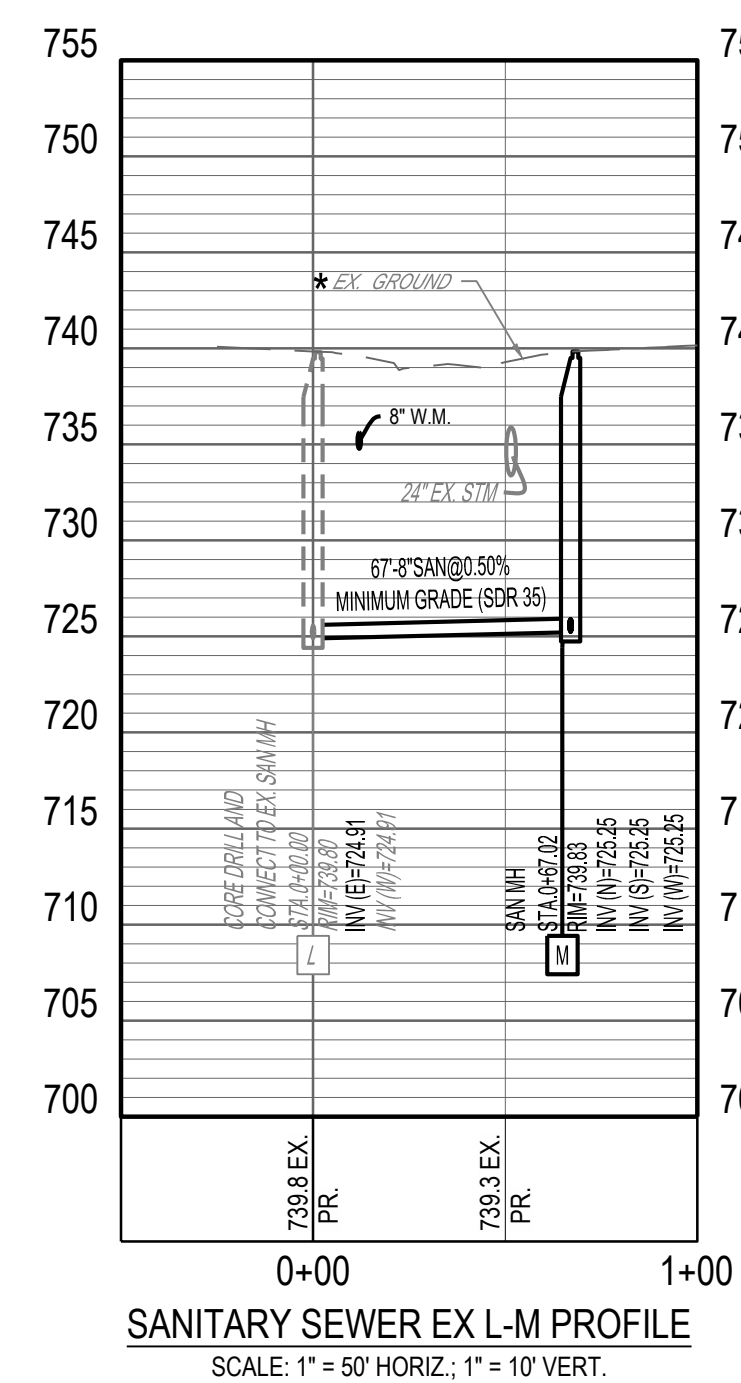
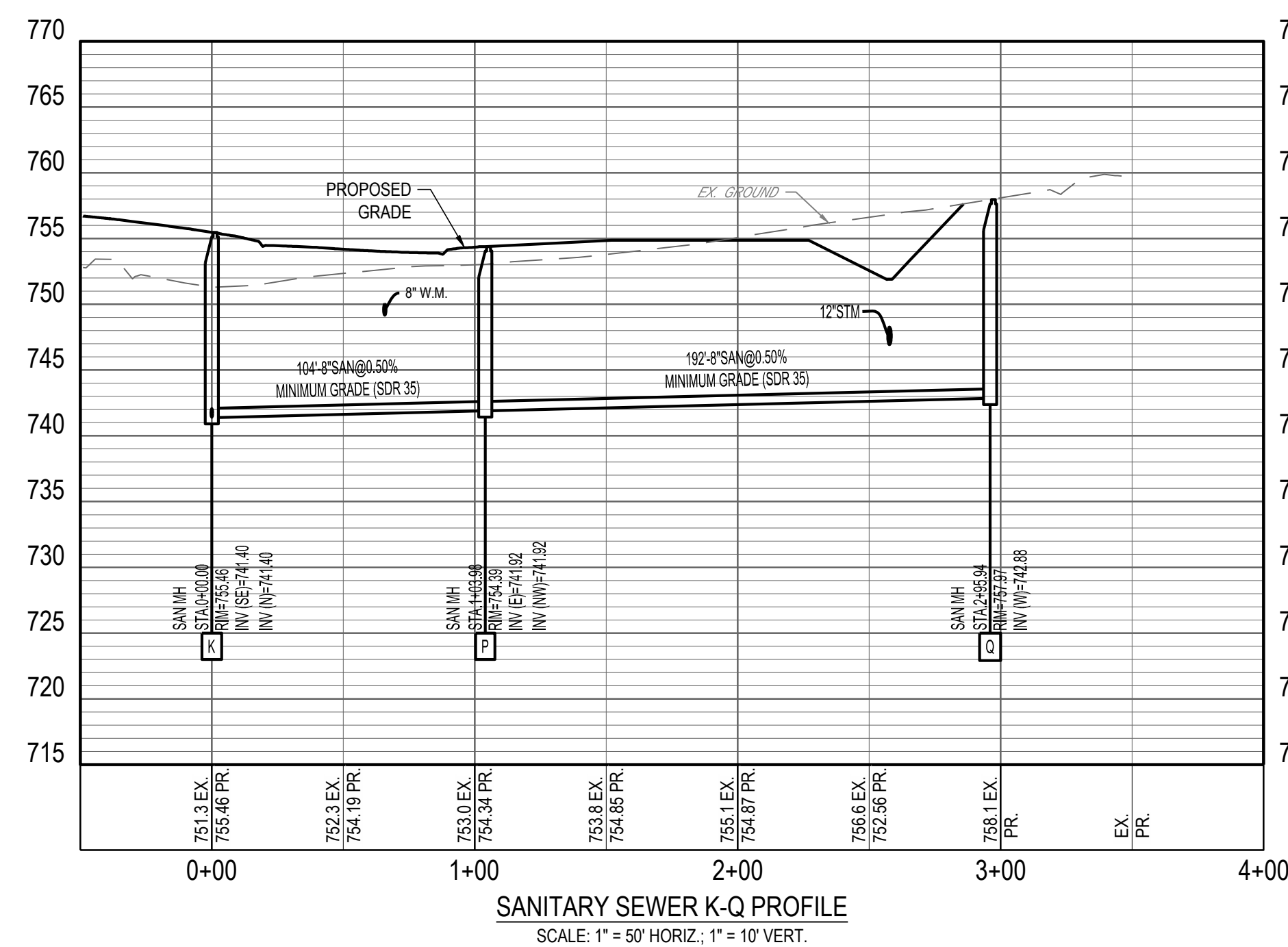
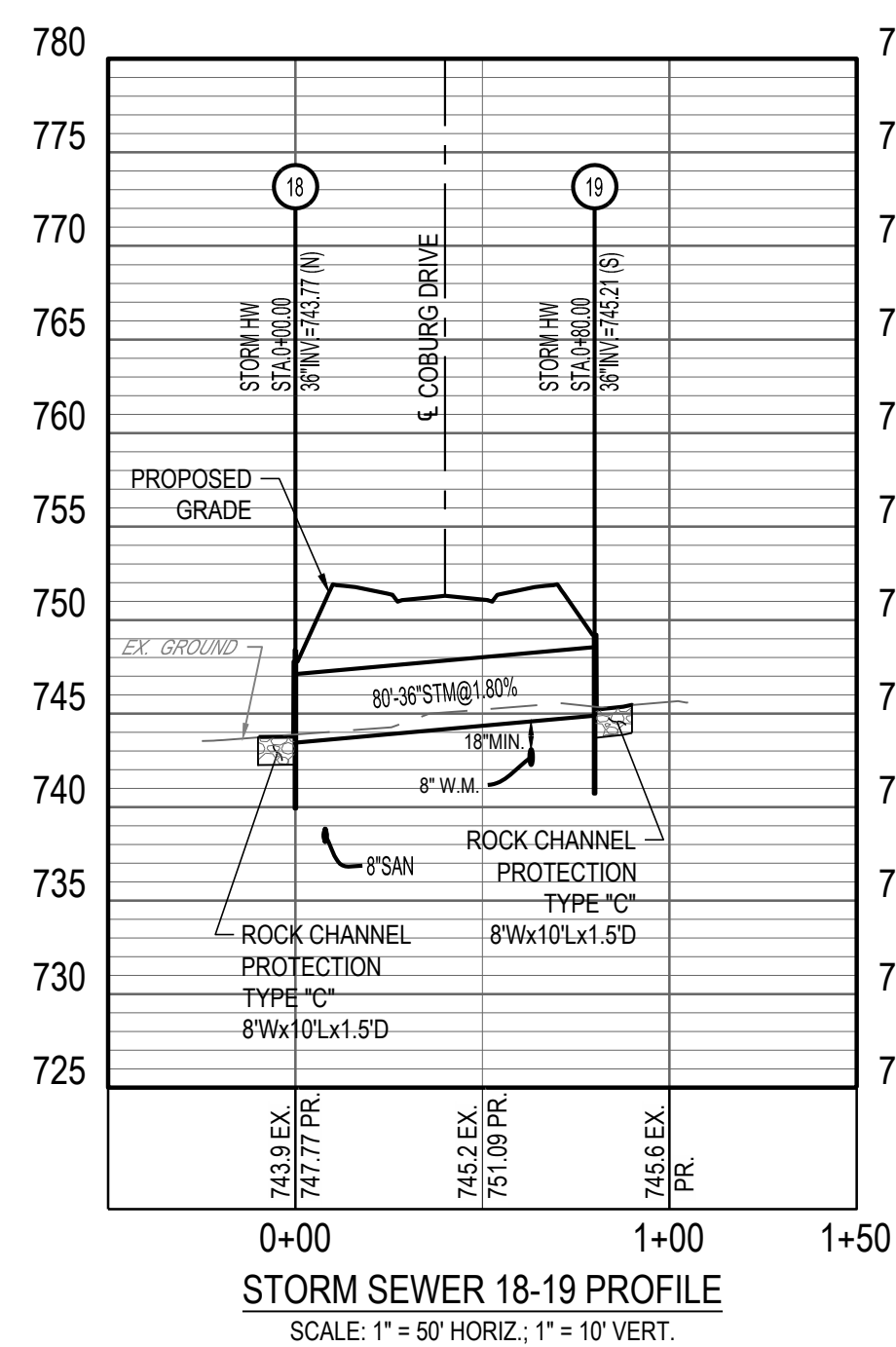
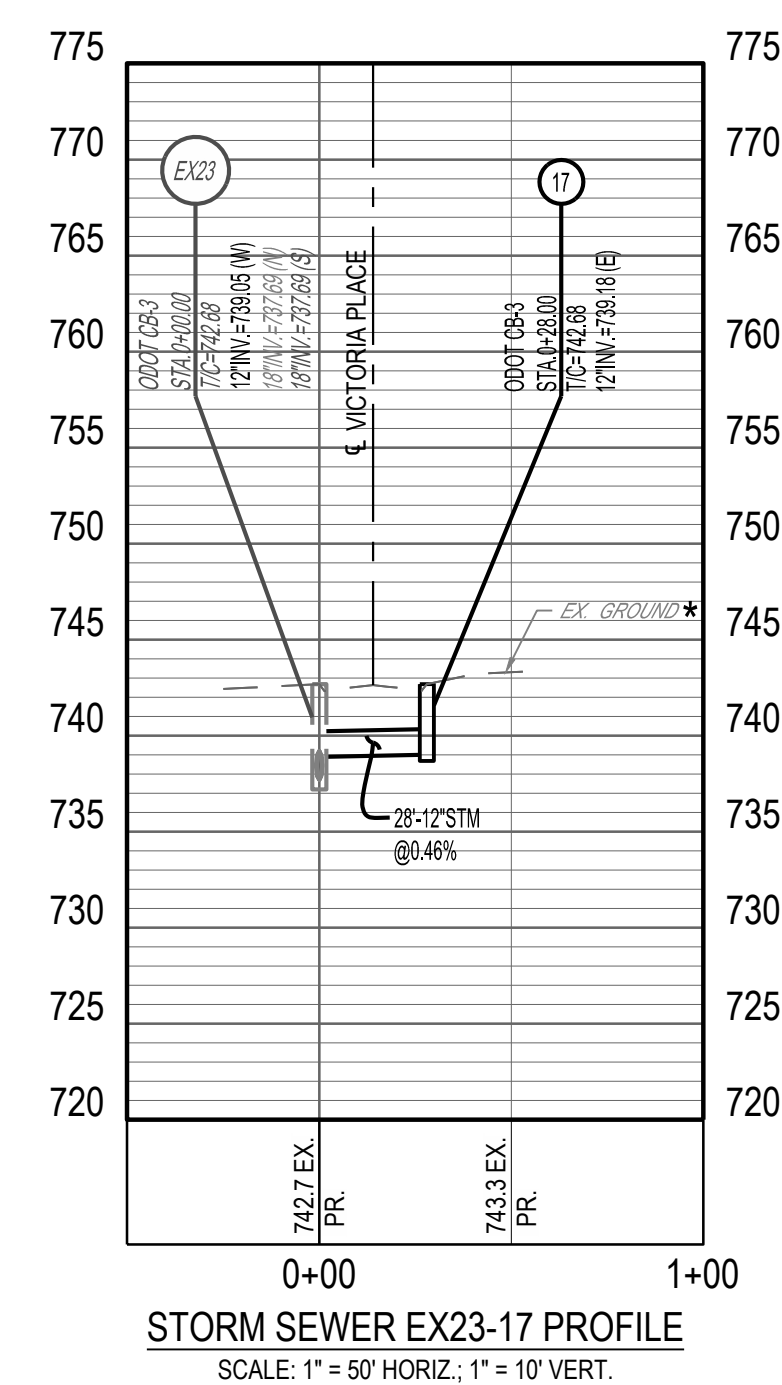
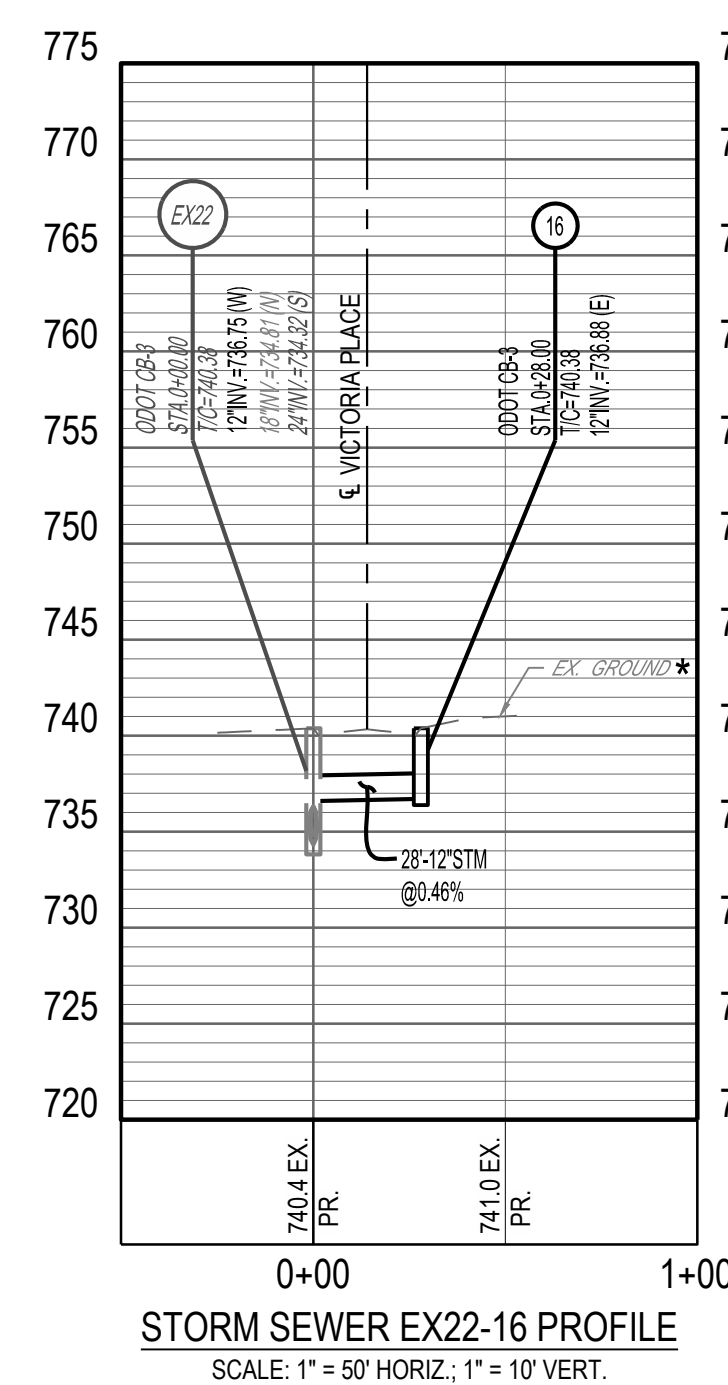
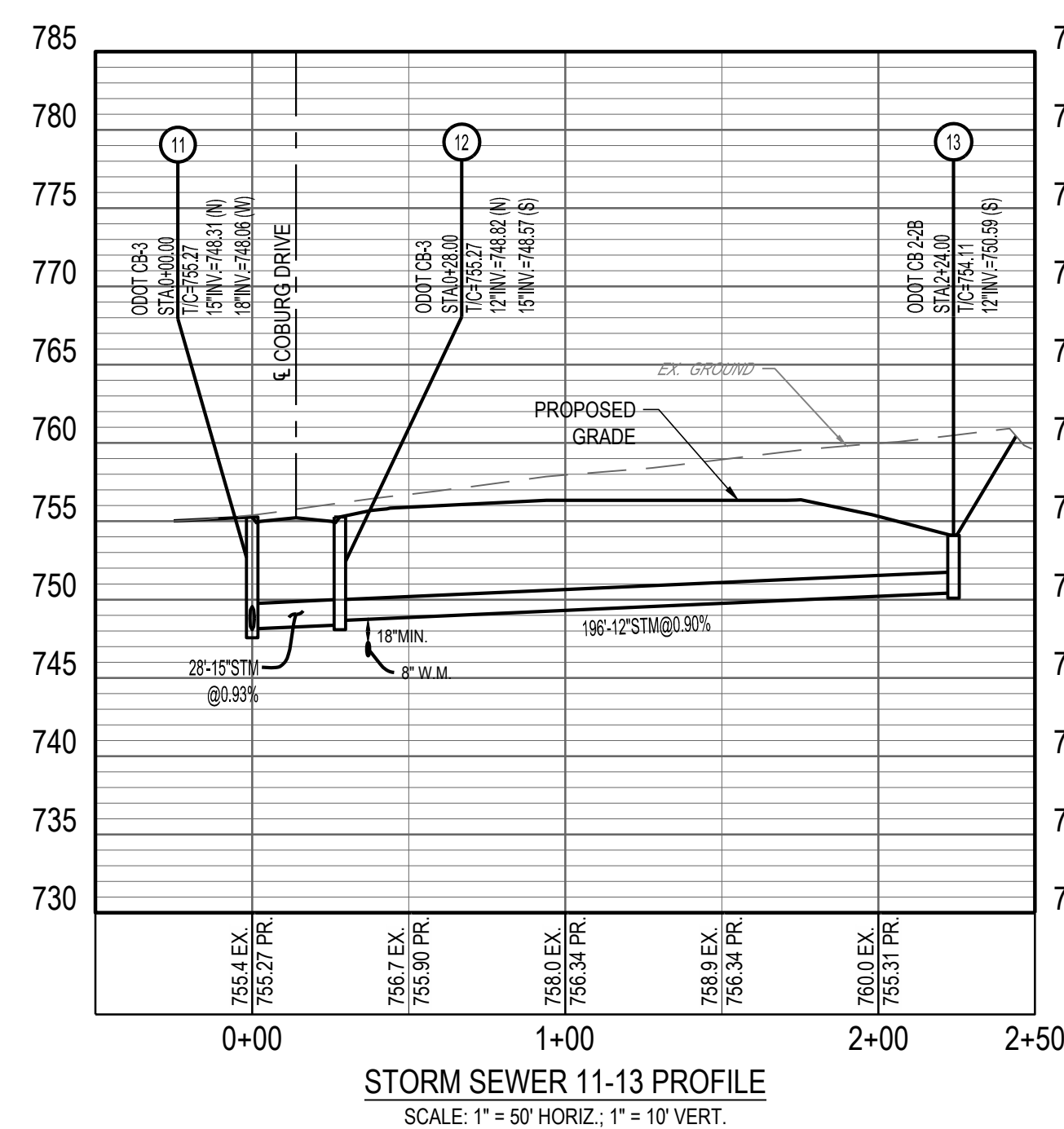
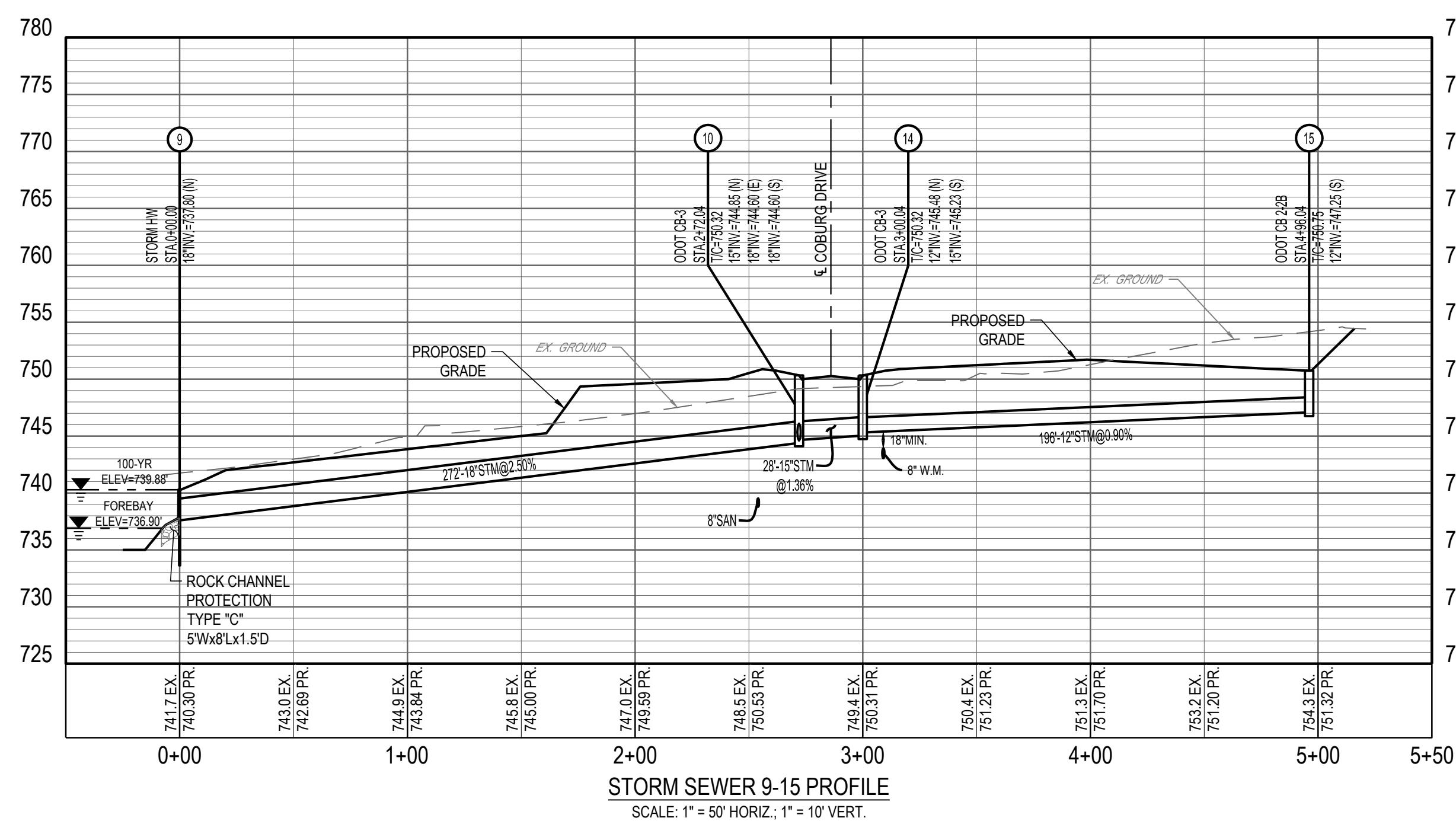
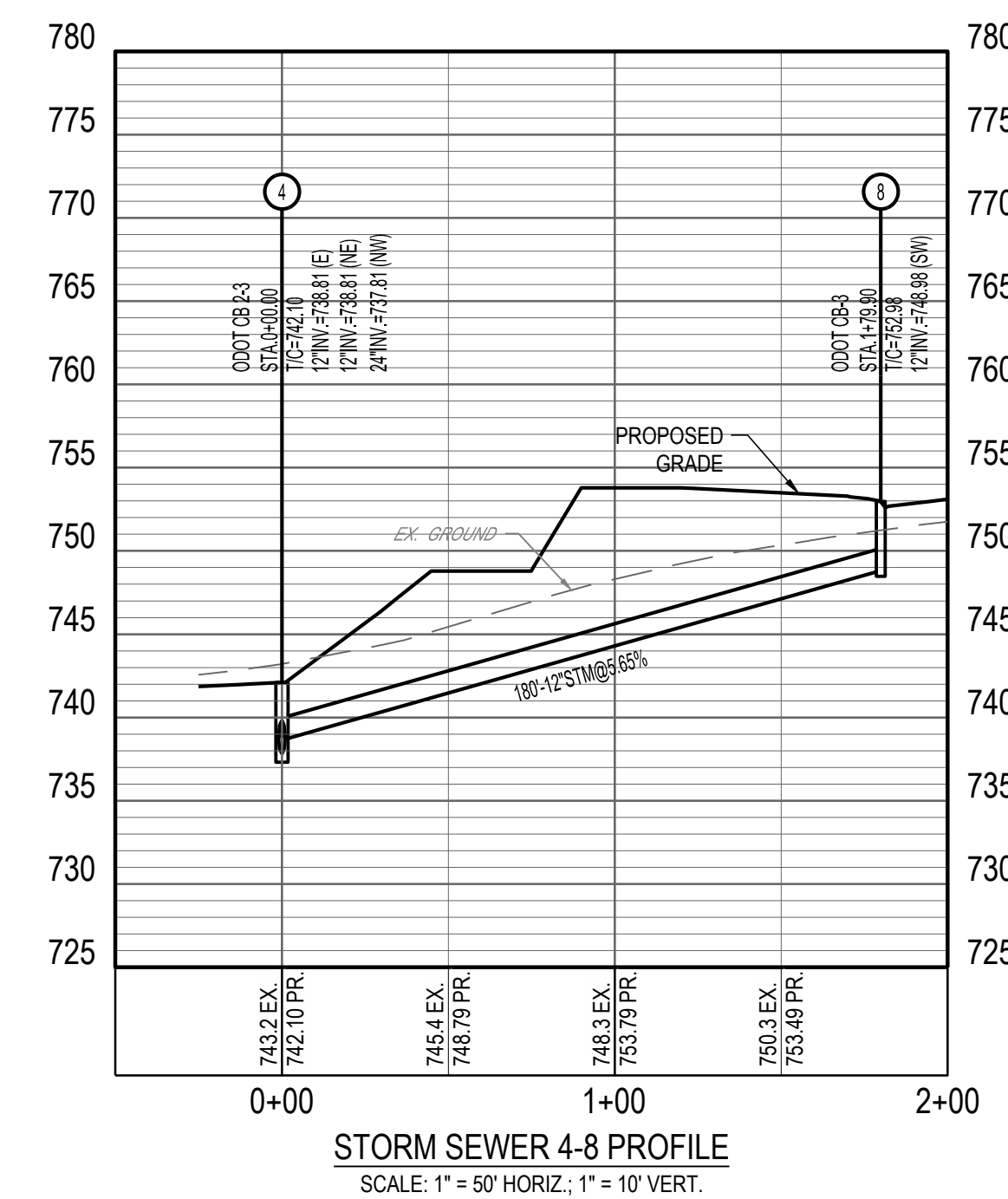
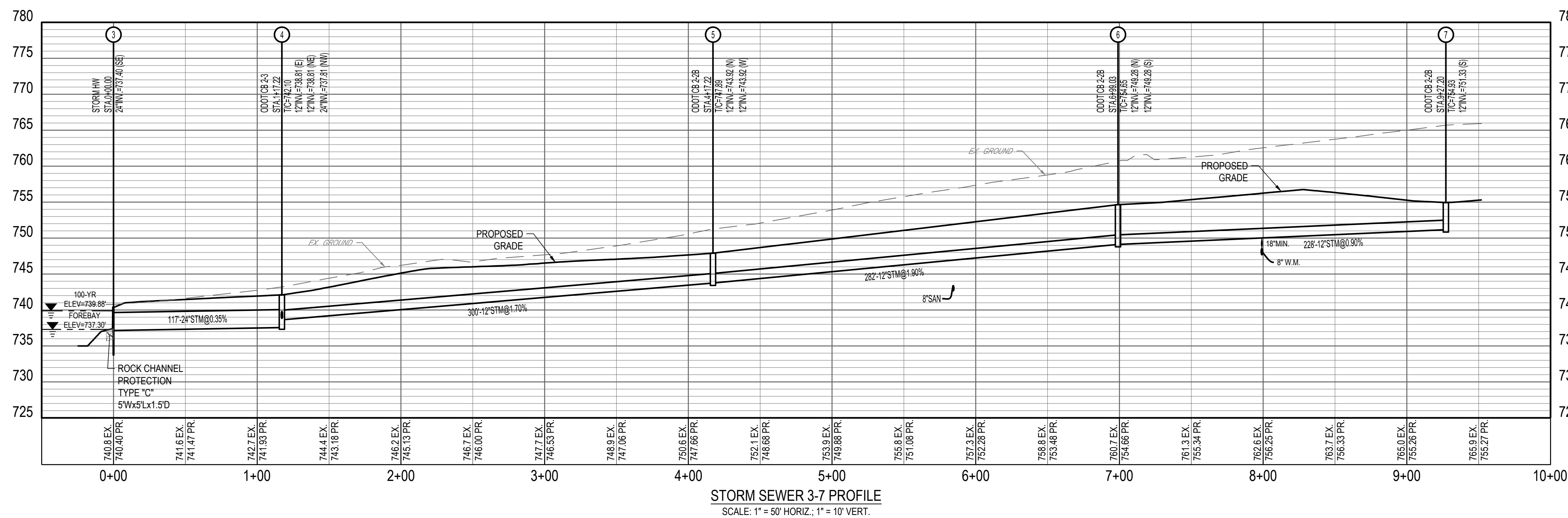
SCALE: 1"=20'

[illegible]

OHIO
Utilities Protection
SERVICE

811 or
1-800-362-2764

Call Before You Dig



- NOTES:**
1. 48 HOURS NOTICE TO BE GIVEN TO AFFECTED RESIDENTS BEFORE CONSTRUCTION BEGINS
 2. ALL CATCH BASIN T/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 LINELESS 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.
 8. ALL UTILITY SERVICE LINES SHALL EXTEND ONE (1) FOOT BEYOND THE EASEMENT.

NOTE:

AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18") INCHES FROM STORM AND SANITARY SEWERS. ALSO, ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM AND SANITARY SEWERS AS POSSIBLE.

[illegible]

WINDSOR ESTATES

SECTION 9

BUTLER COUNTY, OHIO

LIBERTY TOWNSHIP

OFFSTREET PROFILES

ISSUE:
CONSTRUCTION

DATE:
10.18.2019

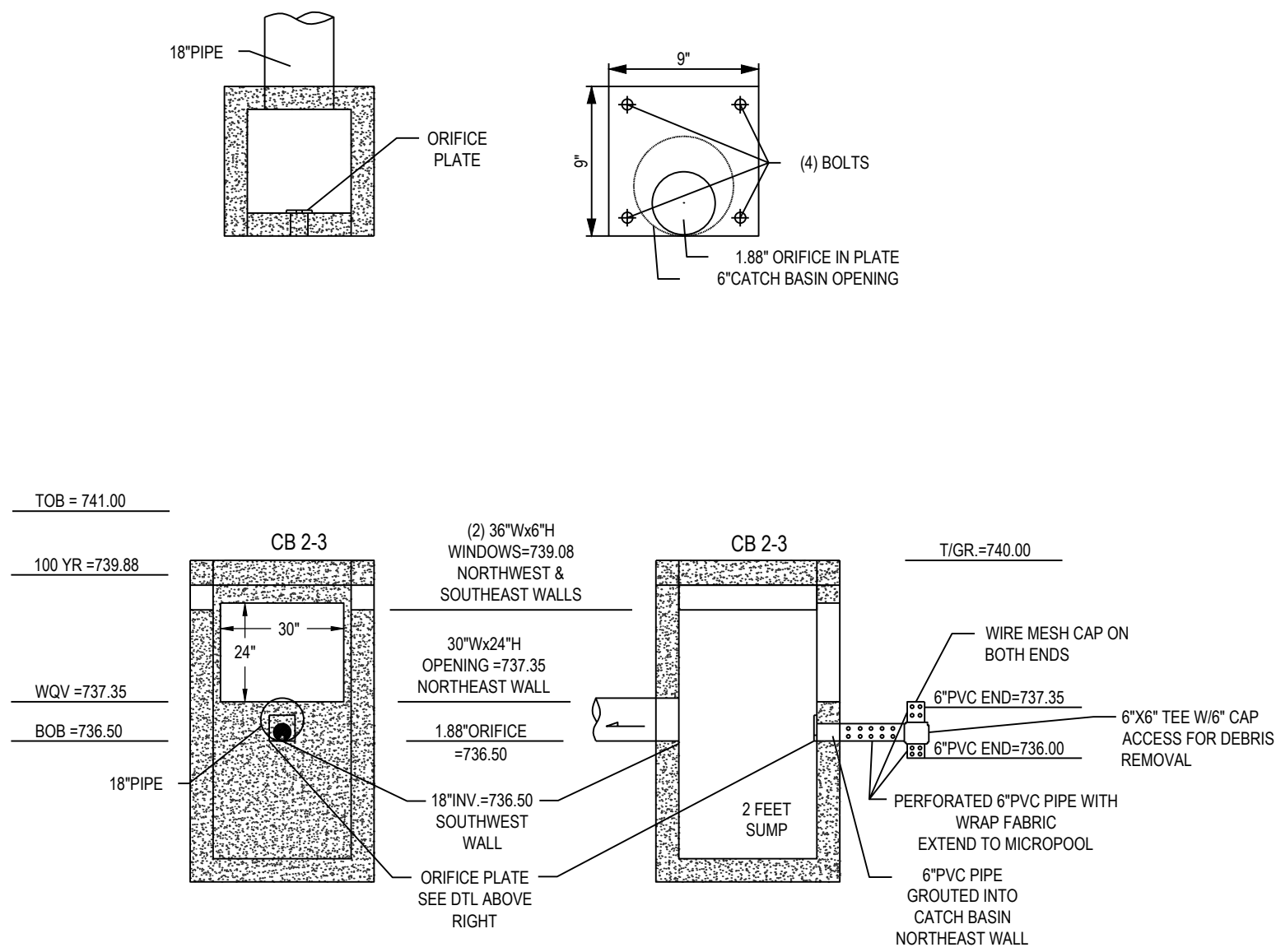
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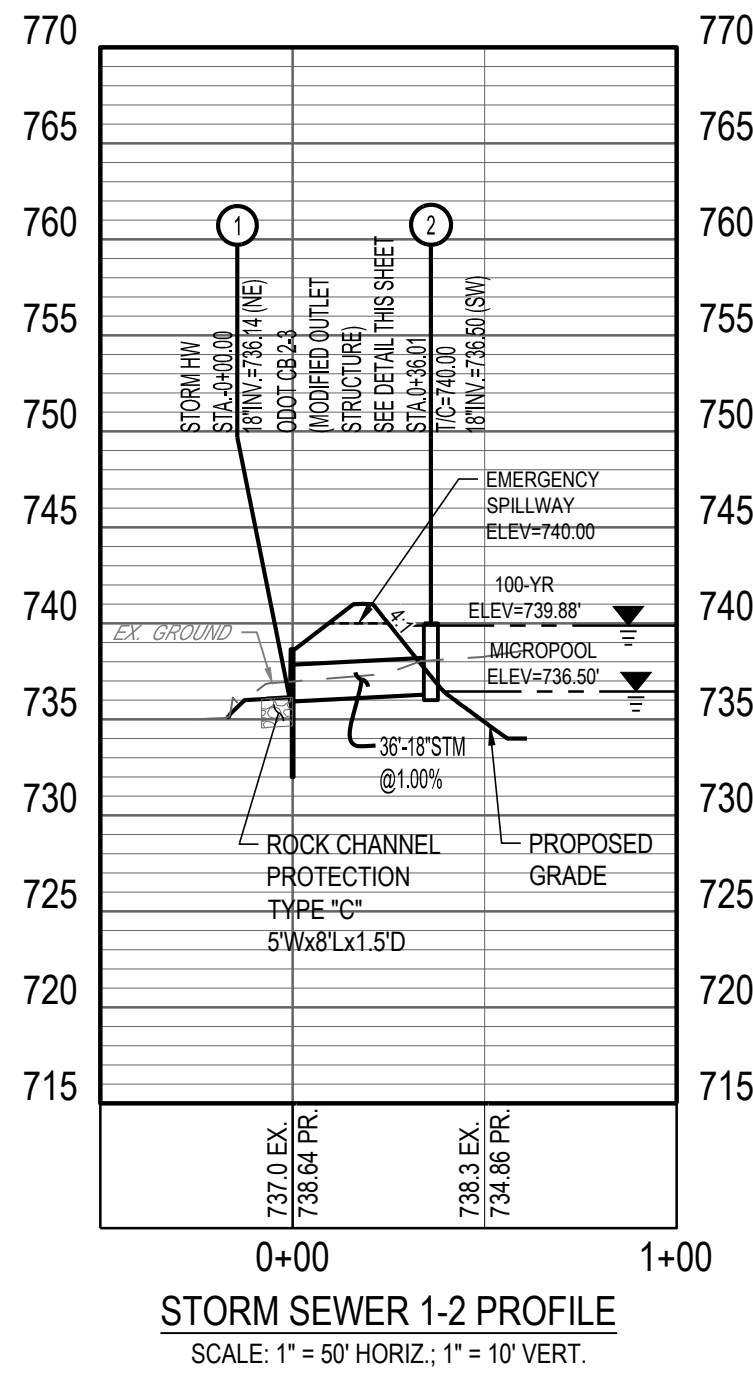
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SHEET NO.
8 of 17

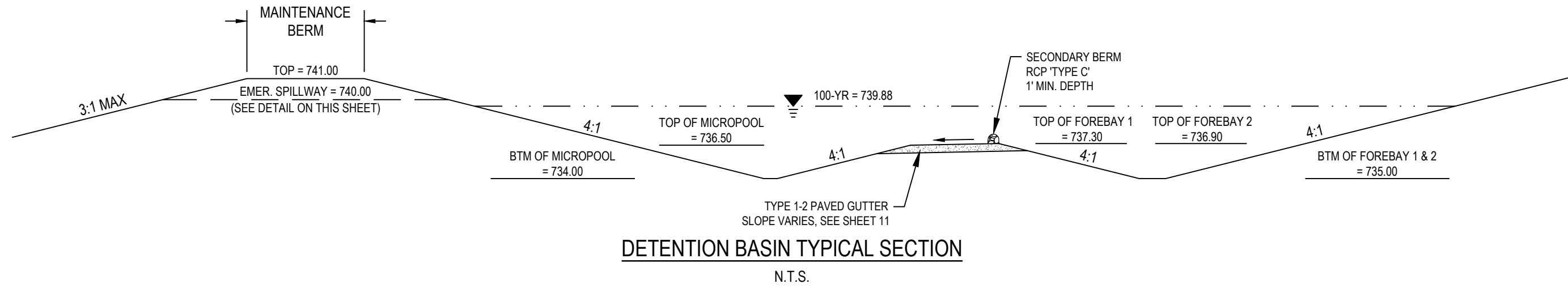


OUTLET STRUCTURE DETAIL
STRUCTURE 2
MODIFIED 3'X3' CATCH BASIN, ODOT CB 2-3
N.T.S.

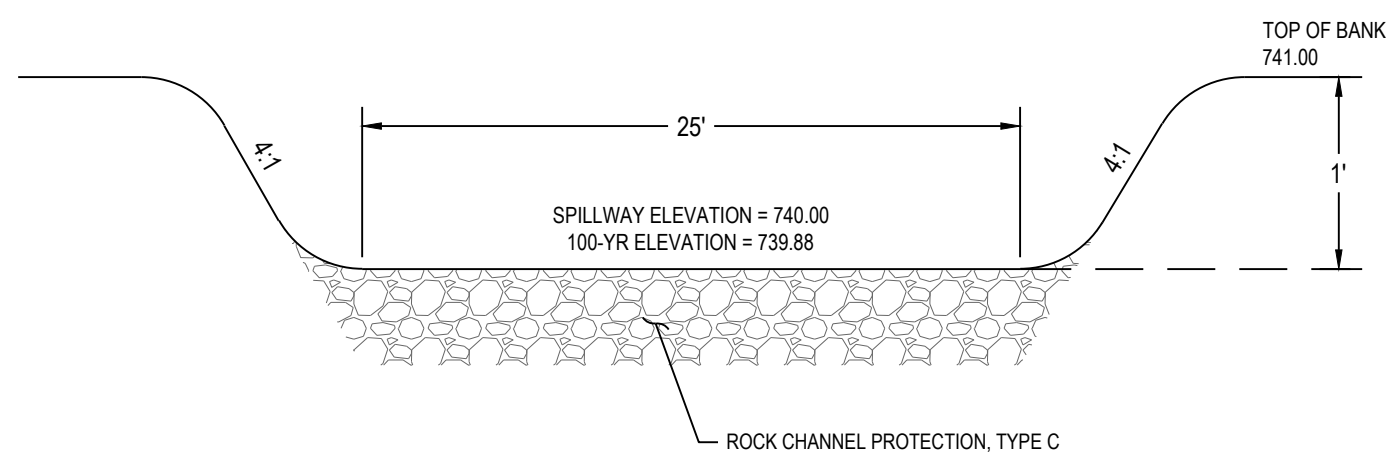
STORM EVENT	PEAK ELEVATION (FT)
1-YEAR	737.96
2-YEAR	738.20
5-YEAR (CRIT STM)	738.65
10-YEAR	738.98
25-YEAR	739.34
50-YEAR	739.64
100-YEAR	739.88



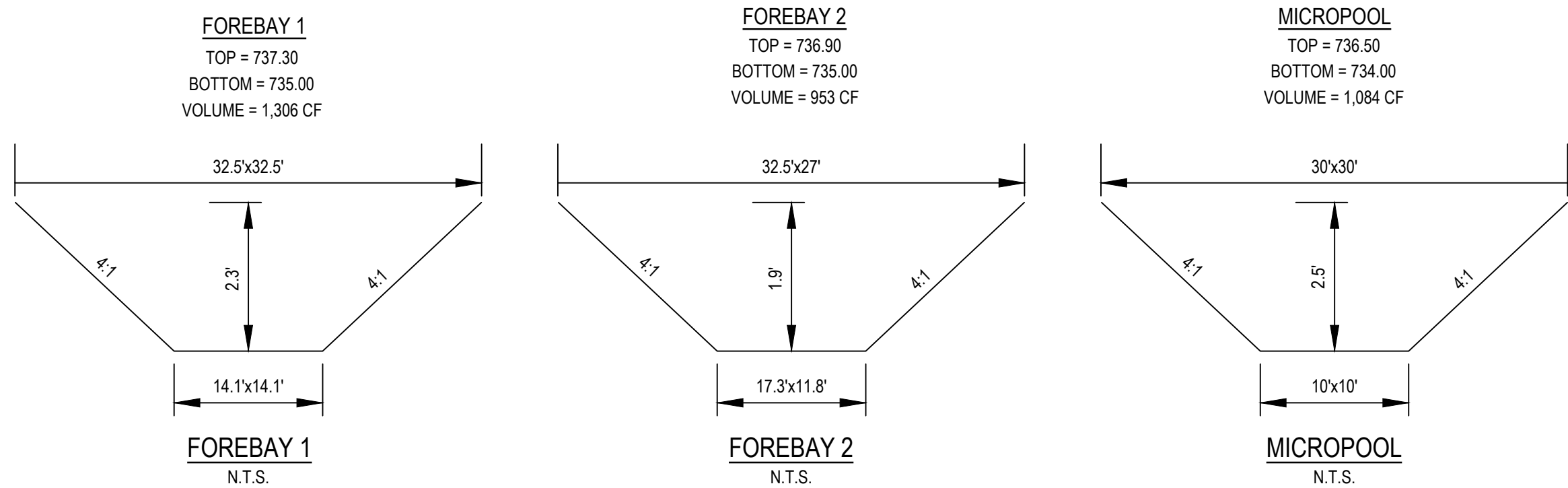
STORM SEWER 1-2 PROFILE
SCALE: 1" = 50' HORIZ.; 1" = 10' VERT.



DETENTION BASIN TYPICAL SECTION
N.T.S.



EMERGENCY SPILLWAY SECTION
N.T.S.



REVISION DESCRIPTION

NO. DATE

WINDSOR ESTATES SECTION 9

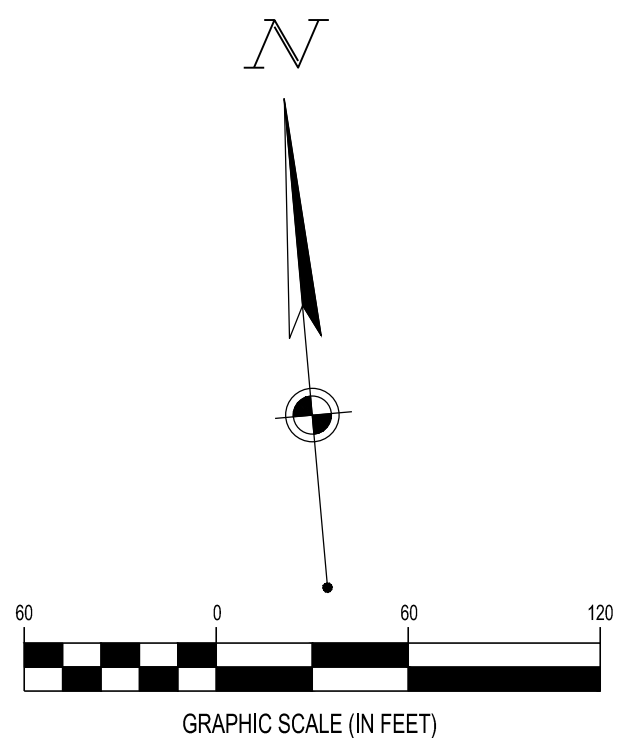
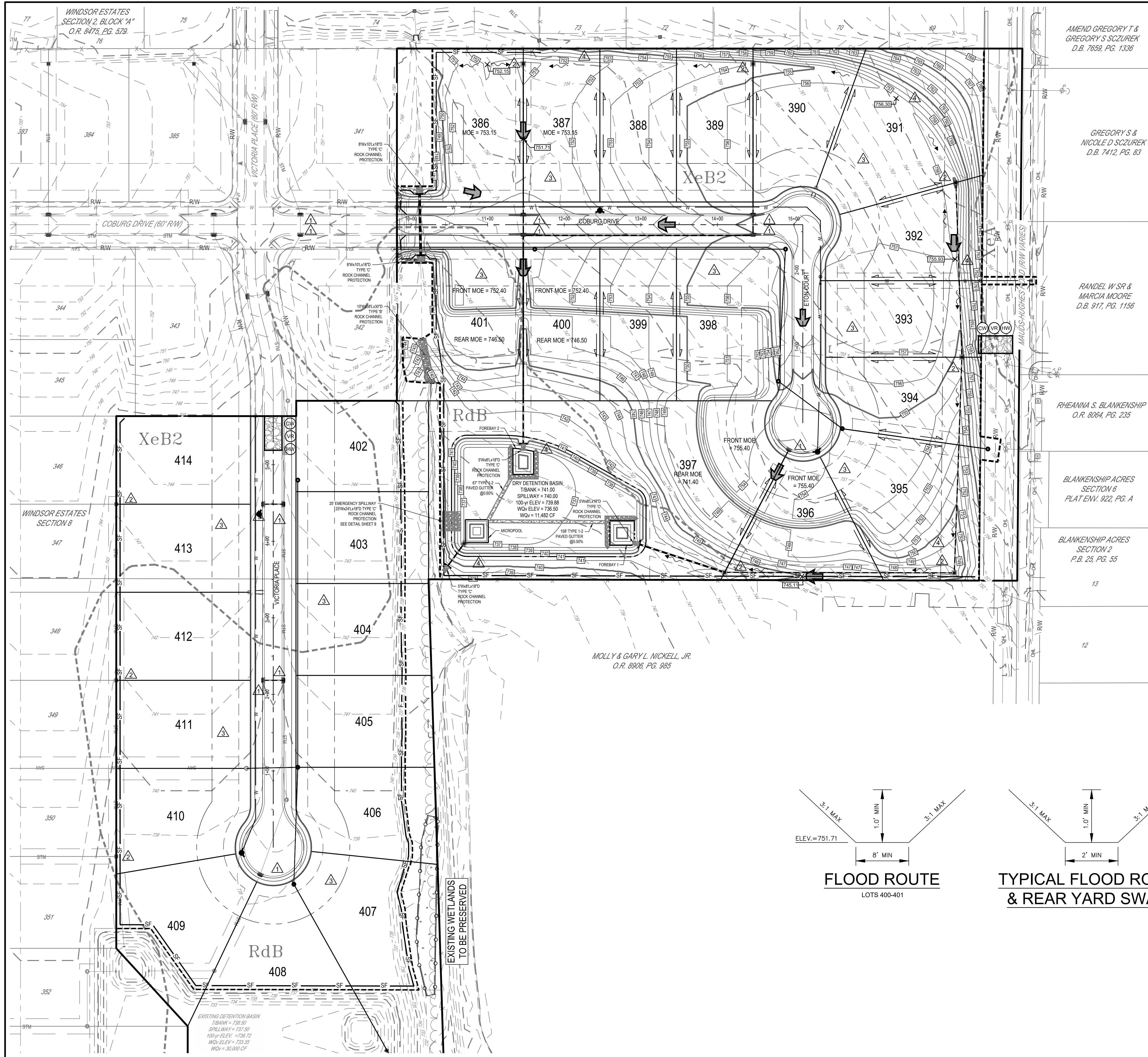
BUTLER COUNTY, OHIO

LIBERTY TOWNSHIP

BASIN DETAILS

ISSUE:
CONSTRUCTION
DATE:
10.18.2019
JOB NO.: 755958
DESIGN: EAC
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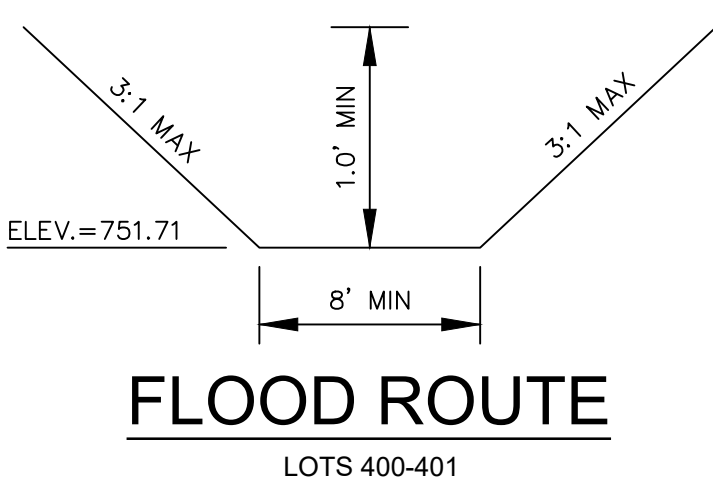
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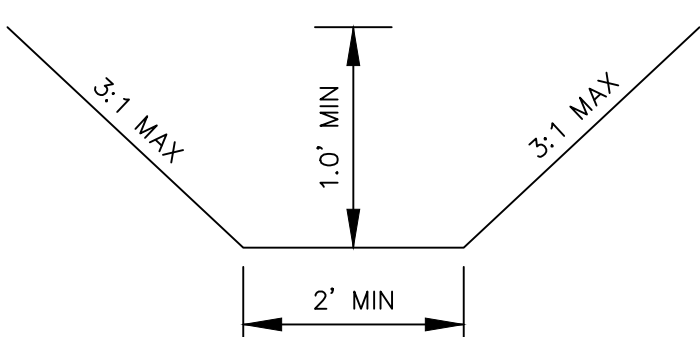
LEGEND

- PHASE LINE
- LIMITS OF DISTURBANCE
- TEMPORARY SILT FENCE
- EXISTING TREE LINE
- DRAINAGE PATH
- BUILDER'S SWALE
- FLOOD ROUTING
- ROCK CHECK DAMN
- SOIL BOUNDARY
- PROTECTION FENCE
- SOIL TYPES
- EXISTING SANITARY SEWER
- EXISTING STORM DRAIN
- EXISTING WATER MAIN
- CONSTRUCTION ENTRANCE
- HAZARDOUS WASTE STORAGE AREA
- VEHICLE REFUELING AREA
- CONCRETE WASHOUT AREA
- CURB INLET PROTECTION
- AREA INLET PROTECTION
- TEMPORARY SEEDING
- PERMANENT SEEDING

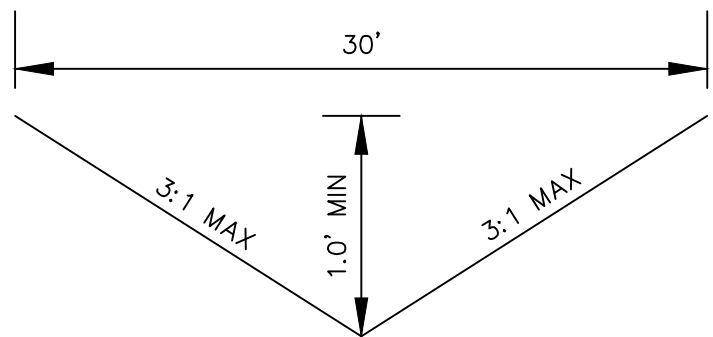
- NOTES:
- EROSION CONTROL PRACTICES SHALL BE INSTALLED BEFORE ANY MAJOR SOIL DISTURBANCE.
 - THE EXPOSED SUB-GRADE AREAS SHOULD BE PROOF ROLLED AND ANY SOFT YIELDING AREA SHOULD BE UNDERCUT.
 - ESTABLISH VEGETATION IN ALL BARE AREAS AS PER OEPA N.P.D.E.S. REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR N.P.D.E.S. INSPECTION DURING CONSTRUCTION PERIOD.
 - LOTS 402-414 WERE TO BE MASS GRADED WITH SECTION 8. ROADWAY AND ADDITIONAL UTILITIES ARE TO BE INSTALLED PER THIS PLAN. EXISTING CONTOURS SHOWN IN THIS AREA REPRESENT THE PROPOSED GRADE FROM SECTION 8.



FLOOD ROUTE
LOTS 400-401



TYPICAL FLOOD ROUTE
& REAR YARD SWALE



TYPICAL BUILDER'S
SWALE

NPDES PERMIT #1GC07384*AG.
GENERAL CONTRACTOR SHALL
REFERENCE OEPA GENERAL
PERMIT OHC000005 PRIOR TO
START OF CONSTRUCTION.



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NO.	DATE	REVISION DESCRIPTION
1	01/23/2020	REVISED GRADING LOTS 386-401

WINDSOR ESTATES
SECTION 9

BUTLER COUNTY, OHIO
LIBERTY TOWNSHIP

GRADING &
EROSION
CONTROL PLAN -
PHASE II

ISSUE:
CONSTRUCTION
DATE:
10.18.2019

JOB NO.: 755958
DESIGN: EAC
DRAWN: EAC
CHECKED: JEE

SHEET NO.
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Small Construction Site Controls

Specifications
for

The diagram illustrates the required controls for a small construction site. The main plan view shows a site layout with a stream at the top, two soil stockpiles (one oval, one rectangular), a concrete washout (CW) area, and various control structures. A dashed line indicates the rough graded areas. A detail view on the right shows the rough graded areas with a flow elevation and a flow direction arrow, and a note: 'Leave Rough Graded Areas Below Flow Elevation of Cuts and Trenches'.

PLAN VIEW

- Temporary seeding and/or mulch applied to rough graded areas
- Construction Entrance gravel
- Rough graded areas to allow settling below grade elevation
- Storm Drain w/ inlet protection
- Storm Drain without inlet protection
- Yard Drain w/ inlet protection
- Silt Fence
- Curb
- Concrete Washout

Specifications for **Small Construction Site Controls**

- inlet protection shall also be used as needed to control sediment runoff. Sediment control practices shall be inspected weekly after storm events, and maintained in good working condition.

Specifications
for

- gallons or more, accumulative above ground storage of 1330 gallons or more, or 42,000 gallons of underground storage. Contaminated soils must be disposed of in accordance with Item 8.

- 11. Other Air Permitting Requirements:** Certain activities associated with construction will require air permits including but not limited to: mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc. These activities will require specific Ohio EPA Air Permits for installation and operation. Operators must seek authorization from the corresponding district of Ohio EPA. For demolition of all commercial sites, a Notification for Restoration and Demolition must be submitted to Ohio EPA to determine if asbestos corrective actions are required.
- 12. Process Waste Water/Leachate Management.** Ohio EPA's Construction General Permit only allows the discharge of storm water and does not include other waste streams/discharges such as vehicle and/or equipment washing, on site septic leachate concrete wash outs, which are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event, leachate or septage is discharged; it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.
- 13. A Permit To Install (PTI)** is required prior to the construction of all centralized sanitary systems, including sewer extensions, and sewerage systems (except those serving one, two, and three family dwellings) and potable water lines. Plans must be submitted and approved by Ohio EPA. Issuance of an Ohio EPA Construction General Storm Water Permit does not authorize the installation of any sewerage system where Ohio EPA has not approved a PTI.

(Not to scale)

20'

Silt Fence

Spoil

Trench

50' minimum

Temporary Stream Crossing

Flow

PLAN VIEW

7. Fill Placed Within the Channel -The only fill permitted in the channel should be clean aggregate, stone or rock. No soil or other fine erodible material shall be placed in the channel. This restriction includes all fill for temporary crossings, diversions, and trench backfill when placed in flowing water. If the stream flow is diverted away from construction activity the material originally excavated from the trench may be used to backfill the trench.

Culvert Stream Crossing

(Not to scale)

The diagram illustrates a culvert stream crossing in two views: Plan View and Section.

PLAN VIEW: This view shows the culvert crossing the stream. The culvert is represented by a series of circles, indicating its length. The stream is shown as a winding line. The culvert is surrounded by rock fill, which is labeled "Minimize Width of Clearing". An "Access Road" is shown on the right side of the culvert. A "Flow" arrow indicates the direction of water movement. A dimension line indicates a "50' from Stream to Diversion".

SECTION: This view shows the cross-section of the culvert. The culvert is shown as a series of circles, indicating its length. The stream is shown as a winding line. The culvert is surrounded by rock fill, which is labeled "Rock Fill Only No Soil". The culvert is shown with a "16' Ø Min." diameter. The culvert is shown with a "12" Maximum Between Culverts" spacing. The culvert is shown with a "Culverts Across Whole Channel" dimension.

7. Number of Culverts - There shall be sufficient number of culverts to completely cross the stream channel from streambank to streambank with no more than a 12-in. space between each one.

Construction Entrance for

(Not To Scale)

The diagram illustrates the specifications for a construction entrance. It consists of two main views: a Plan View and a Profile View.

Plan View: This view shows a top-down perspective of the entrance. A horizontal line represents the road or existing paved surface. A vertical line represents the right-of-way diversion. The entrance is a rectangular opening in the road, filled with a pattern of circles representing stones or gravel. The width of the entrance is labeled as "14ft Minimum and Not Less Than Width of Ingress or Egress". The total width of the road is labeled as "70 ft. (or 30ft for Access to Individual House Lot)". To the right of the road, there are three vertical lines representing the road or other existing paved surface.

Profile View: This view shows a side-on perspective of the entrance. It shows the road or existing paved surface as a horizontal line. The entrance is a rectangular opening in the road, filled with a pattern of circles representing stones or gravel. The depth of the entrance is labeled as "18" or Sufficient of Divert Runoff". The road or existing paved surface is labeled as "Road or Other Existing Paved Surface". The entrance is labeled as "Culvert as Needed".

Labels:

- 70 ft. (or 30ft for Access to Individual House Lot)
- 14ft Minimum and Not Less Than Width of Ingress or Egress
- PLAN VIEW
- Right of Way Diversion as Needed
- Road or Other Existing Paved Surface
- 18" or Sufficient of Divert Runoff
- PROFILE
- Culvert as Needed

Specifications
for

6. **Timing**—The construction entrance shall be installed as soon as is practicable before major grading activities.

Figure 7.4.1

Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi
Minimum Elongation	20%
Equivalent Opening Size	EOS < 0.6 mm
Permittivity	1×10^{-3} cm/sec.



NO. DATE

WINDSOR ESTATES

SECTION 9

BUTLER COUNTY, OHIO

LIBERTY TOWNSHIP

SWPPP DETAILS

ISSUE:
CONSTRUCTION

DATE:
10.18.2019

JOB NO.: 755958

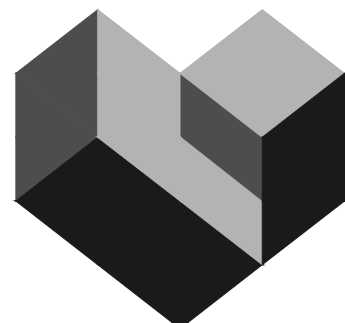
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REVISION DESCRIPTION

NO. DATE

WINDSOR ESTATES
SECTION 9

BUTLER COUNTY, OHIO

LIBERTY TOWNSHIP

SWPPP DETAILS

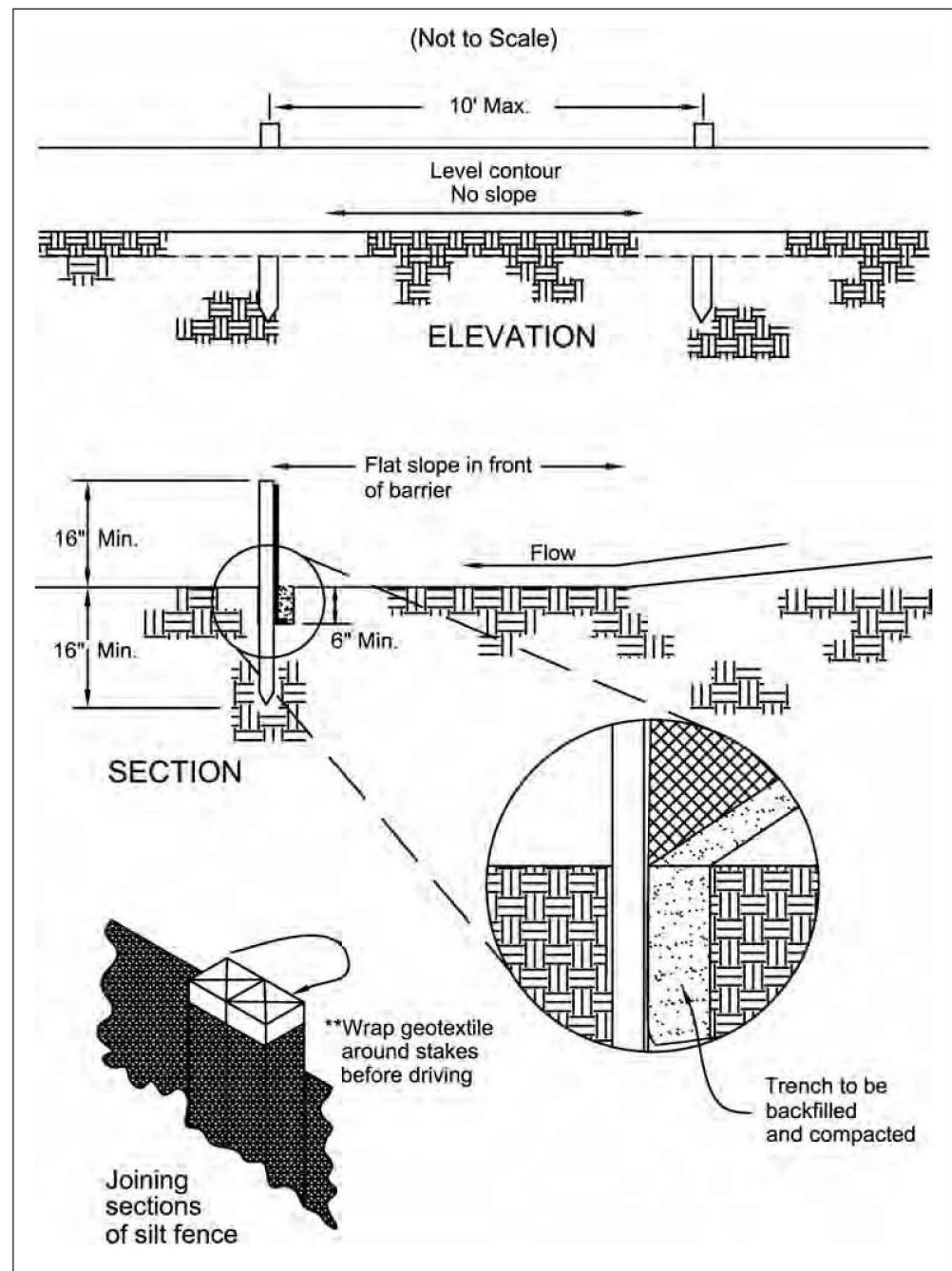
ISSUE:
CONSTRUCTION
DATE:
10.18.2019

JOB NO.:
DESIGN: EAC
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SHEET NO.
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Specifications
for
Silt Fence



- Silt fence shall be constructed before upslope land disturbance begins.
 - All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length.
 - Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
 - Silt fence shall be placed on the flattest area available.
 - Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
 - The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
 - The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
 - The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
 - Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground, (see details).
 - Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff over-tops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.
- Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.
- Silt fences shall be inspected after each rainfall and at least daily during a prolonged rainfall. The location of existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

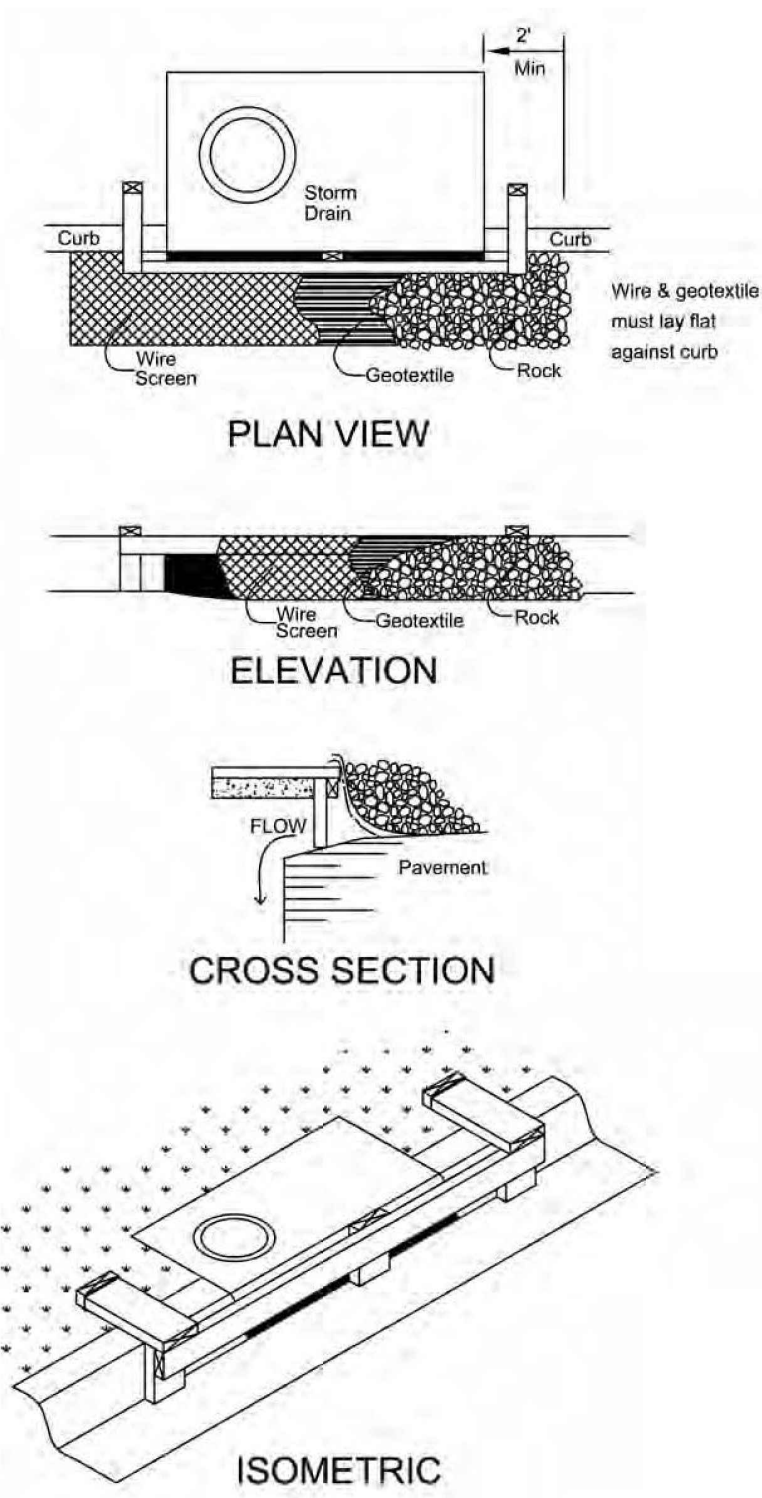
Criteria for silt fence materials

- Fence post – The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
- Silt fence fabric – See chart below.

Table 6.3.2 Minimum criteria for Silt Fence Fabric (ODOT, 2002)

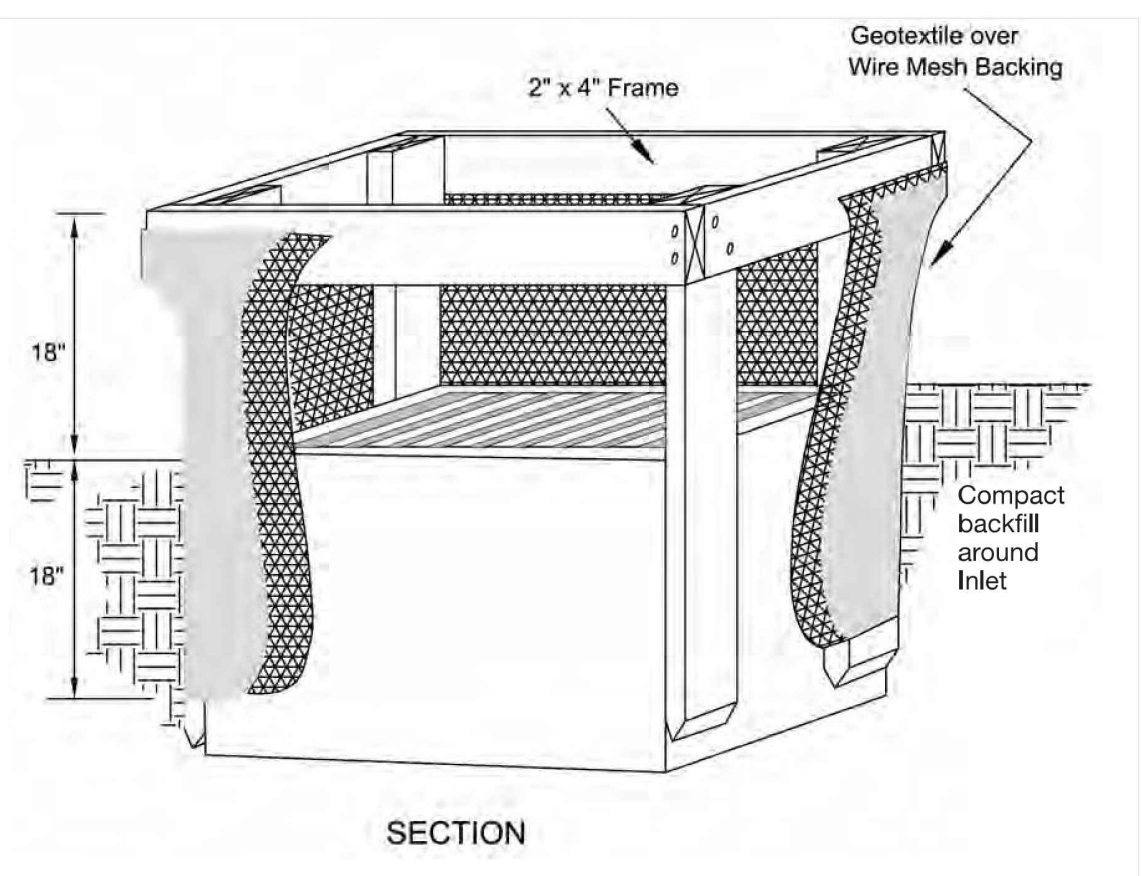
FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM G 4355

Specifications
for
Geotextile - Stone Inlet Protection for Curb Inlets



- Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
- Construct a wooden frame of 2-by-4-in. construction-grade lumber. The end spacers shall be a minimum of 1 ft. beyond both ends of the throat opening. The anchors shall be nailed to 2-by-4-in. stakes driven on the opposite side of the curb.
- The wire mesh shall be of sufficient strength to support fabric and stone. It shall be a continuous piece with a minimum width of 30 in. and 4 ft. longer than the throat length of the inlet, 2 ft. on each side.
- Geotextile cloth shall have an equivalent opening size (EOS) of 20-40 sieve and be resistant to sunlight. It shall be at least the same size as the wire mesh.
- The wire mesh and geotextile cloth shall be formed to the concrete gutter and against the face of the curb on both sides of the inlet and securely fastened to the 2-by-4-in. frame.
- Two-inch stone shall be placed over the wire mesh and geotextile in such a manner as to prevent water from entering the inlet under or around the geotextile cloth.
- This type of protection must be inspected frequently and the stone and/or geotextile replaced when clogged with sediment.

Specifications
for
Geotextile Inlet Protection



- Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
- The earth around the inlet shall be excavated completely to a depth at least 18 inches.
- The wooden frame shall be constructed of 2-inch by 4-inch construction grade lumber. The 2-inch by 4-inch posts shall be driven one (1) ft. into the ground at four corners of the inlet and the top portion of 2-inch by 4-inch frame assembled using the overlap joint shown. The top of the frame shall be at least 6 inches below adjacent roads if ponded water will pose a safety hazard to traffic.
- 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.
- Geotextile material shall have an equivalent opening size of 20-40 sieve and 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 inches 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.
- Backfill shall be placed around the inlet in compacted 6-inch layers until the earth is even with notch elevation on ends and top elevation on sides.
- A compacted earth dike or check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression. The top of the dike shall be at least 6 inches higher than the top of the frame.

Specifications
for
Temporary Seeding

Table 7.8.1 Temporary Seeding Species Selection

Seeding Dates	Species	Lb./1,000 ft2	Lb./Acre
March 1 to August 15	Oats	3	128 (4 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
	Tall Fescue	1	40
August 16th to November	Annual Ryegrass	1.25	55
	Perennial Ryegrass	3.25	142
	Creeping Red Fescue	0.4	17
	Kentucky Bluegrass	0.4	17
	Oats	3	128 (3 bushel)
November 1 to Feb. 29	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Rye	3	112 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Wheat	3	120 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Rye	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1.25	40
	Perennial Ryegrass	3.25	40
	Creeping Red Fescue	0.4	40
	Kentucky Bluegrass	0.4	40

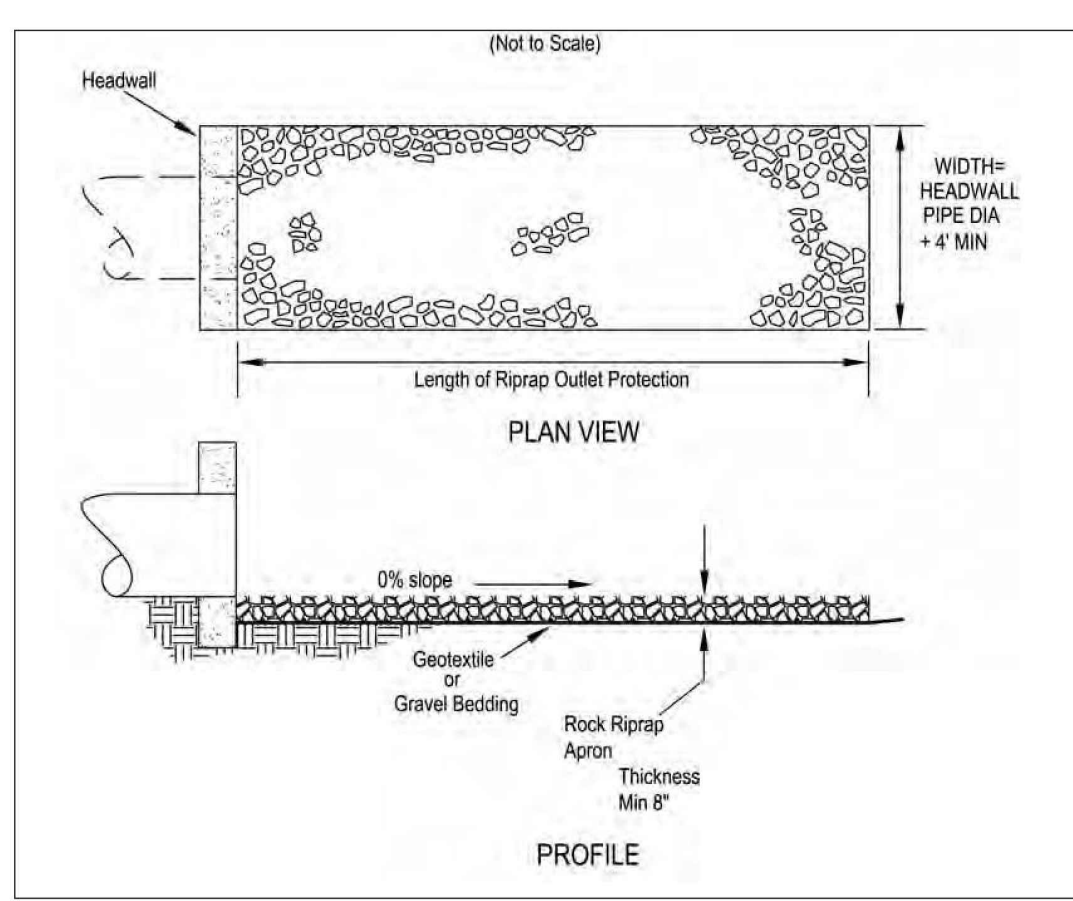
Note: Other approved species may be substituted.

- Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
- Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 14 days or greater. These idle areas shall be seeded within 7 days after grading.
- The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
- Soil Amendments—Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
- Seeding Method—Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

Mulching Temporary Seeding

- Applications of temporary seeding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.
- Materials:
 - Straw—If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons per acre or 90 lbs./1,000 sq. ft. (2-3 bales)
 - Hydroseeders—If wood cellulose fiber is used, it shall be used at 2000 lbs./ ac. or 46 lb./1,000-sq.-ft.
 - Other—Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ ac.
- Straw Mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:
 - Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
 - Mulch Netting—Netting shall be used according to the manufacturers recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
 - Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petrosel, Terra Tack or equivalent may be used at rates recommended by the manufacturer.
 - Wood-Cellulose Fiber—Wood-cellulose fiber binder shall be applied at a net dry wt. of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall cc a maximum of 50 lb. / 100 gal.

Specifications
for
Rock Outlet Protection



- Subgrade for the filter or bedding and riprap shall be prepared to the required lines and grades as shown on the plan. The subgrade shall be cleared of all trees, stumps, roots, sod, loose rock, or other material.
- Riprap shall conform to the grading limits as shown on the plan.
- Geotextile shall be securely anchored according to manufacturers' recommendations.
- Geotextile shall be laid with the long dimension parallel to the direction of flow and shall be laid loosely but without wrinkles and creases. Where joints are necessary, strips shall be placed to provide a 12-in. minimum overlap, with the upstream strip overlapping the downstream strip.
- Gravel bedding shall be ODOT No. 67's or 57's unless shown differently on the drawings.
- Riprap may be placed by equipment but shall be placed a manner to prevent slippage or damage to the geotextile.
- Riprap shall be placed by a method that does not cause segregation of sizes. Extensive pushing with a dozer causes segregation and shall be avoided by delivering riprap near its final location within the channel.
- Construction shall be sequenced so that outlet protection is placed and functional when the storm drain, culvert, or open channel above it becomes operational.
- All disturbed areas will be vegetated as soon as practical.

Specifications
for
Permanent Seeding

Site Preparation

- Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
- The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
- Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

- Lime—Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
- Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
- The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

- Seedings should not be made 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.
- The following methods may be used for "Dormant Seeding":

Straw and Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind or water.

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.

- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petrosel, Terra Tack or equivalent may be used at rates specified by the manufacturer.

- Wood Cellulose Fiber—Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

Irrigation

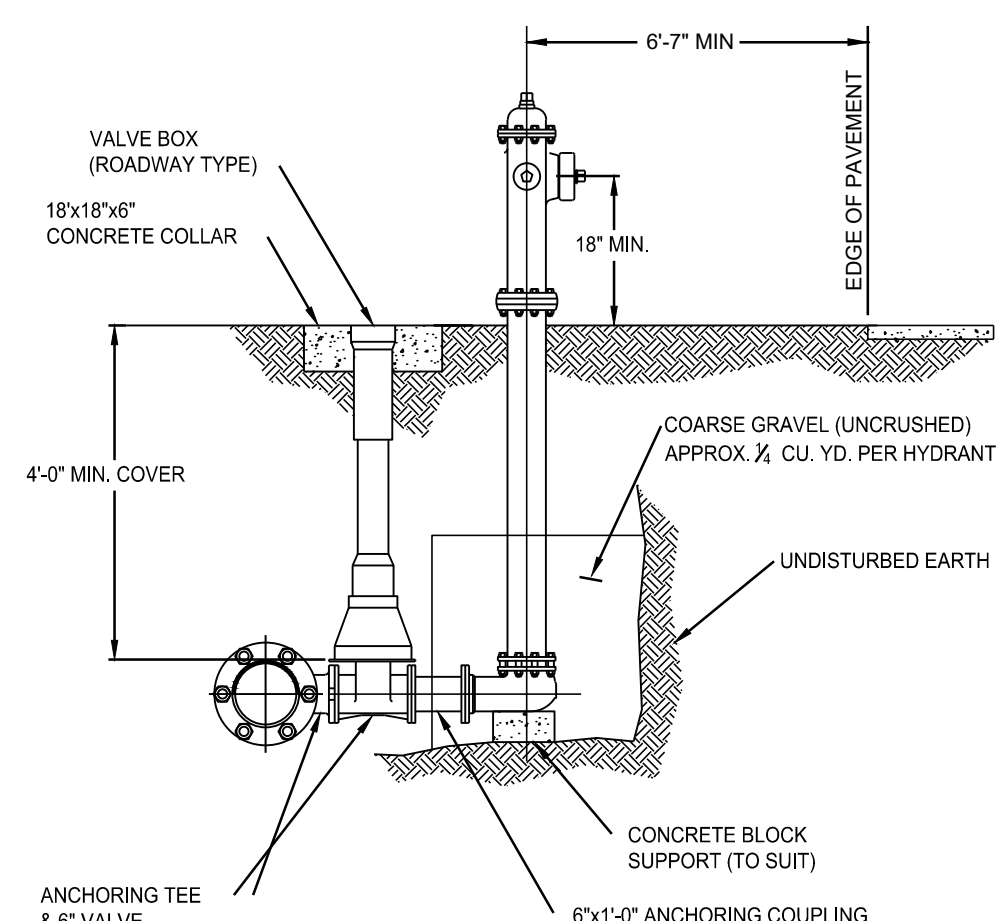
Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth.

Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

Table 7.10.2 Permanent Seeding

Seed Mix	Seeding Rate		Notes:
	Lbs./acre	Lbs./1,000 Sq. Feet	
General Use			
Creeping Red Fescue	20-40	1/2-1	For close mowing & for waterways with <2.0 ft/sec velocity
Domestic Ryegrass	10-20	1/4-1/2	
Kentucky Bluegrass	20-40	1/2-1	
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	Do not seed later than August
Crown Vetch	10-20	1/4-1/2	
Tall Fescue	20-30	1/2-3/4	
Flat Pea	20-25	1/2-3/4	Do not seed later than August
Tall Fescue	20-30	1/2-3/4	
Road Ditches and Swales			
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Kentucky Bluegrass	5	0.1	
Lawns			
Kentucky Bluegrass	100-120	2	For shaded areas
Perennial Ryegrass		2	
Kentucky Bluegrass	100-120	2	
Creeping Red Fescue		1-1/2	

Note: Other approved seed species may be substituted.

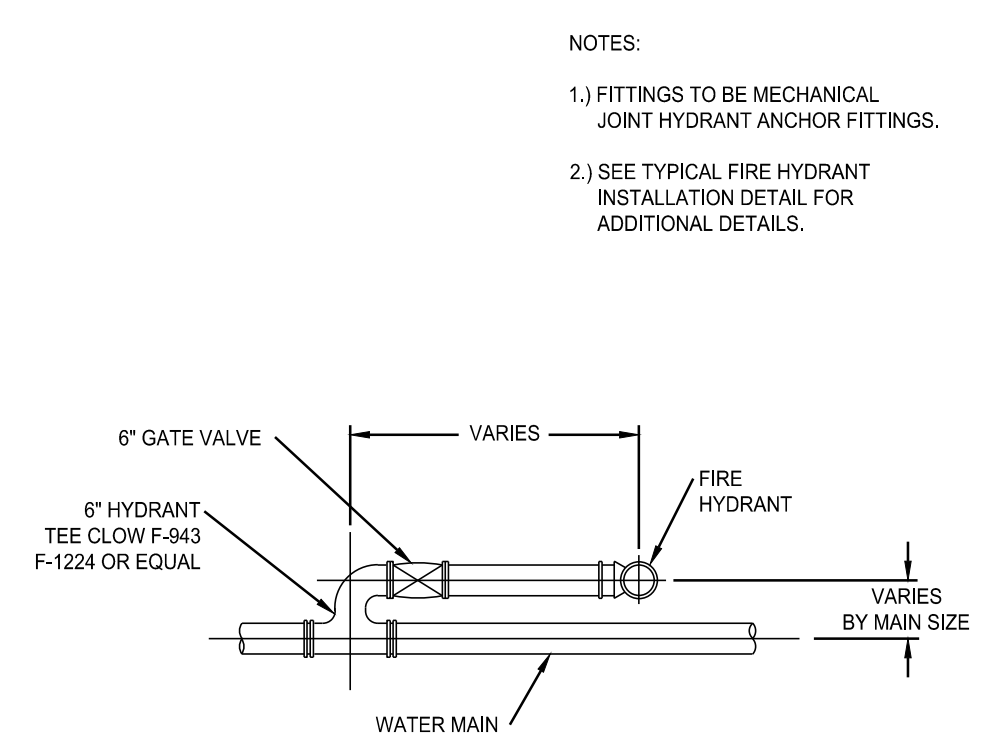


NOTES:
1.) VERIFY LOCATION OF F.H. RELATIVE TO WATER MAIN ON PLANS.
2.) CHECK STREET DETAILS FOR RELATIONSHIP BETWEEN MAIN, STREET AND F.H.

TYPICAL FIRE HYDRANT INSTALLATION

BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

5110

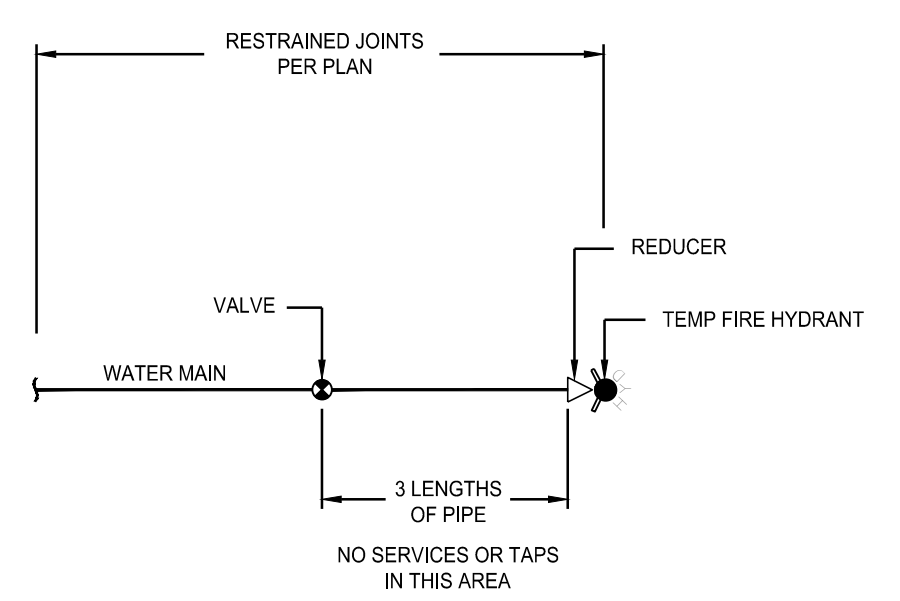


NOTES:
1.) FITTINGS TO BE MECHANICAL JOINT HYDRANT ANCHOR FITTINGS.
2.) SEE TYPICAL FIRE HYDRANT INSTALLATION DETAIL FOR ADDITIONAL DETAILS.

SETTING FOR HYDRANT ADJACENT TO MAIN

BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

5120

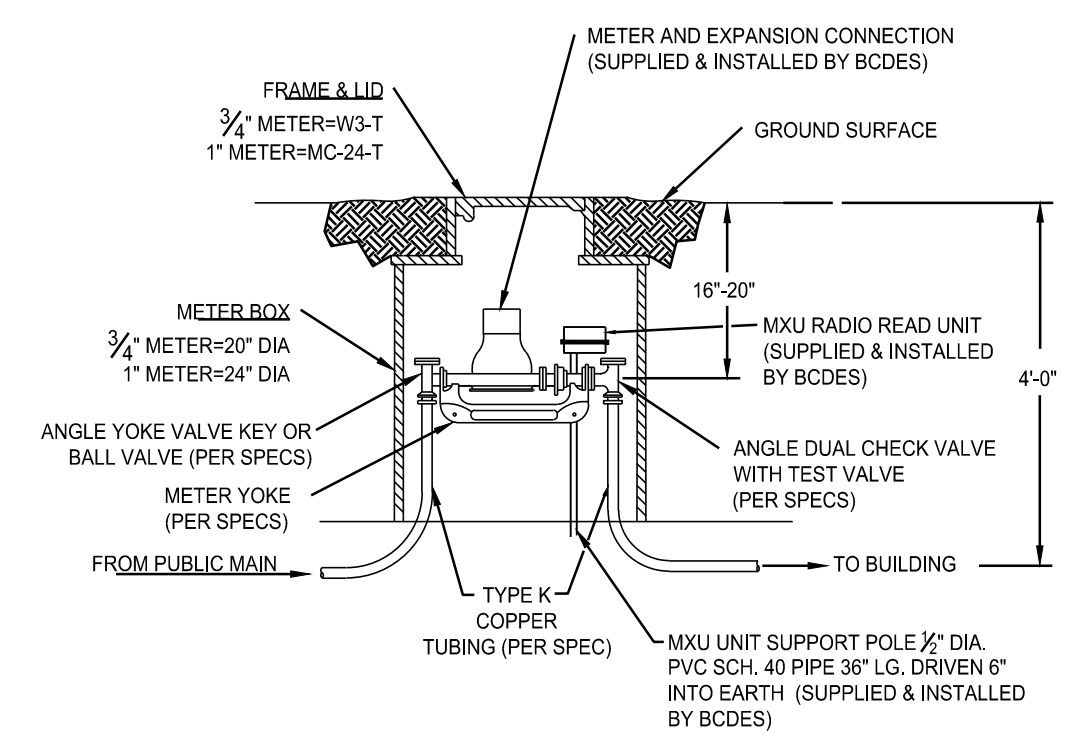


DEAD END DETAIL W/ TEMP F.H.



BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

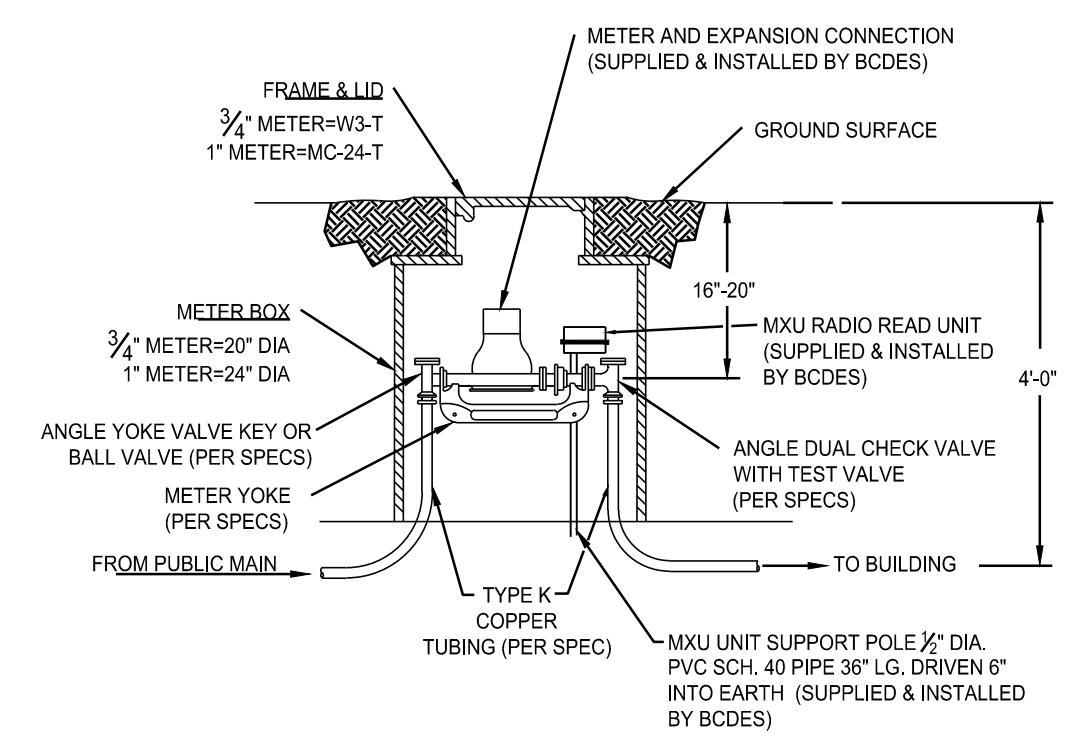
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STANDARD INSTALLATION FOR 3/4" AND 1" WATER METER SETTINGS

BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

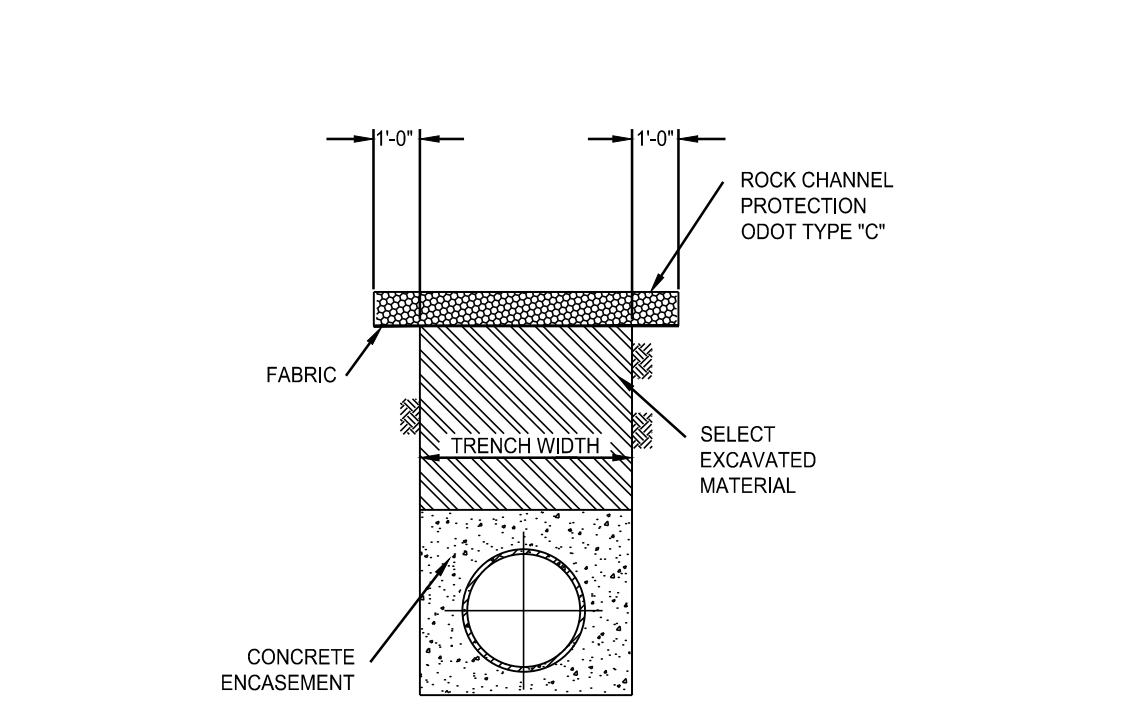
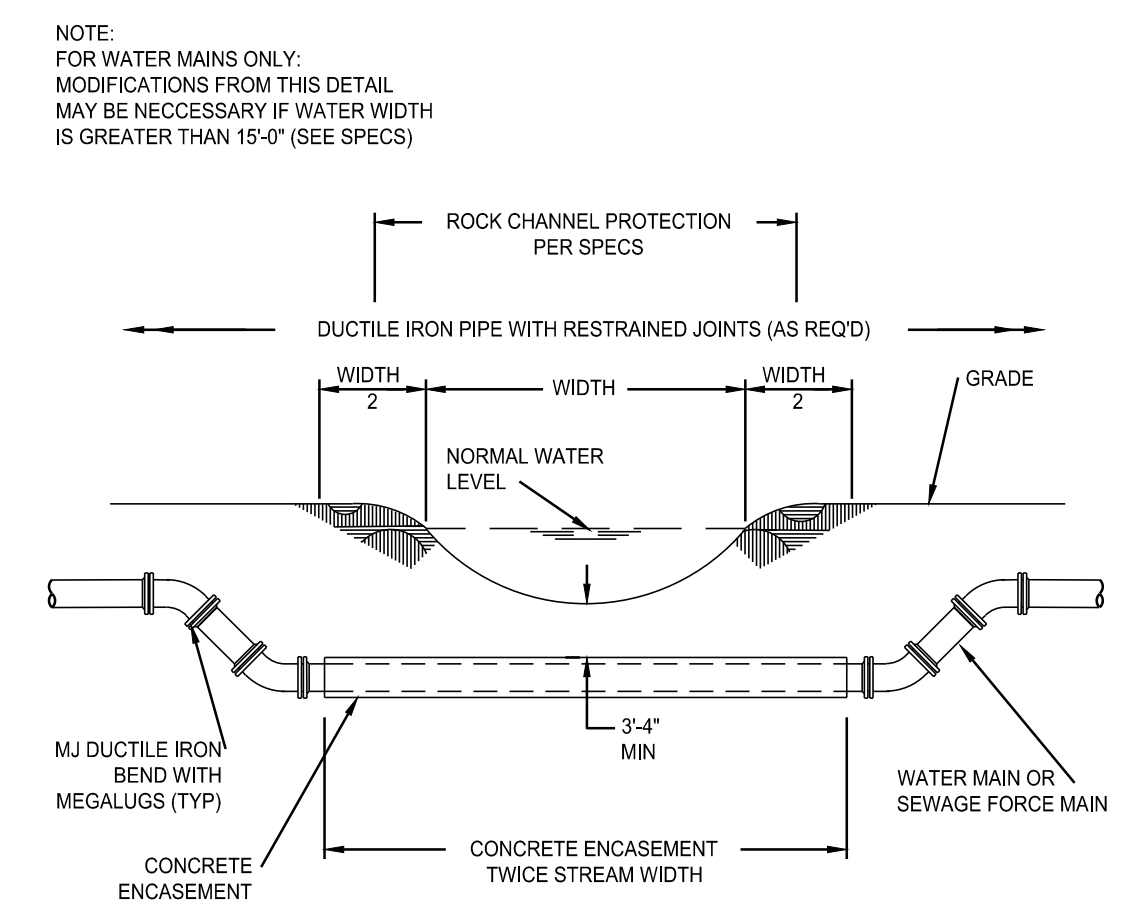
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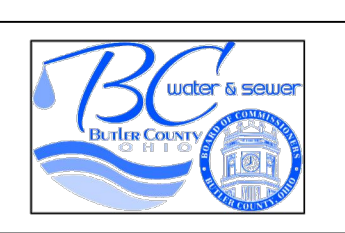
PURITY TEST STATION

BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

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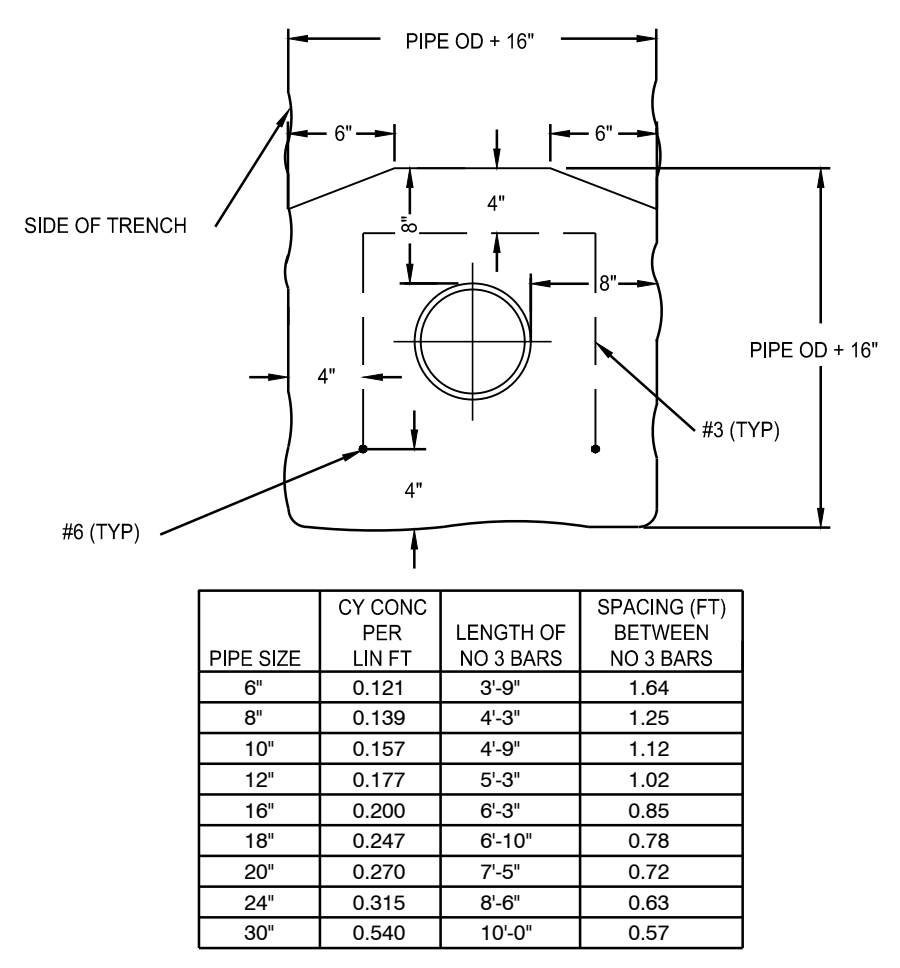


TYPICAL CREEK CROSSING & TRENCH DETAIL FOR WATER & SEWER FORCE MAINS



BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

4170



PIPE SIZE	CY CONC PER LIN FT	LENGTH OF NO 3 BARS WITH TEST VALVE (PER SPECS)	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'-2"	0.85
18"	0.247	6'-10"	0.78
20"	0.270	7'-5"	0.72
24"	0.315	8'-6"	0.63
30"	0.540	10'-0"	0.57

CONCRETE ENCASEMENT DETAIL

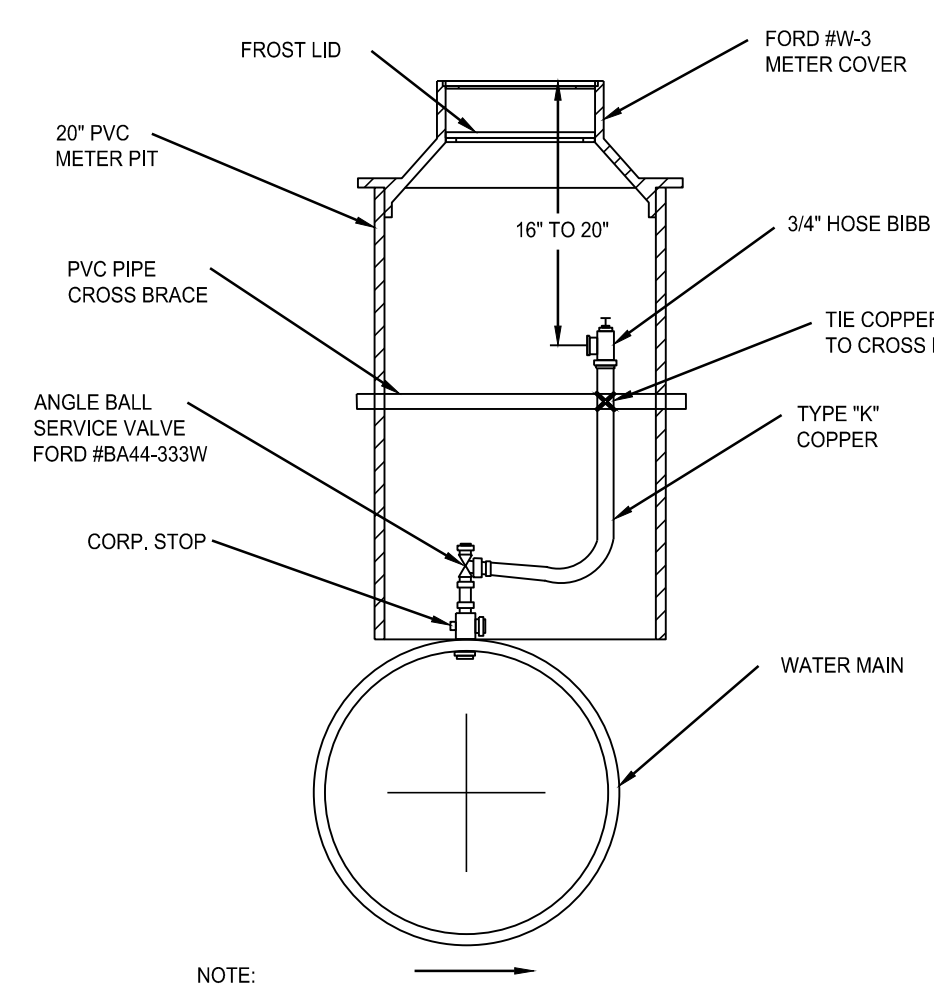
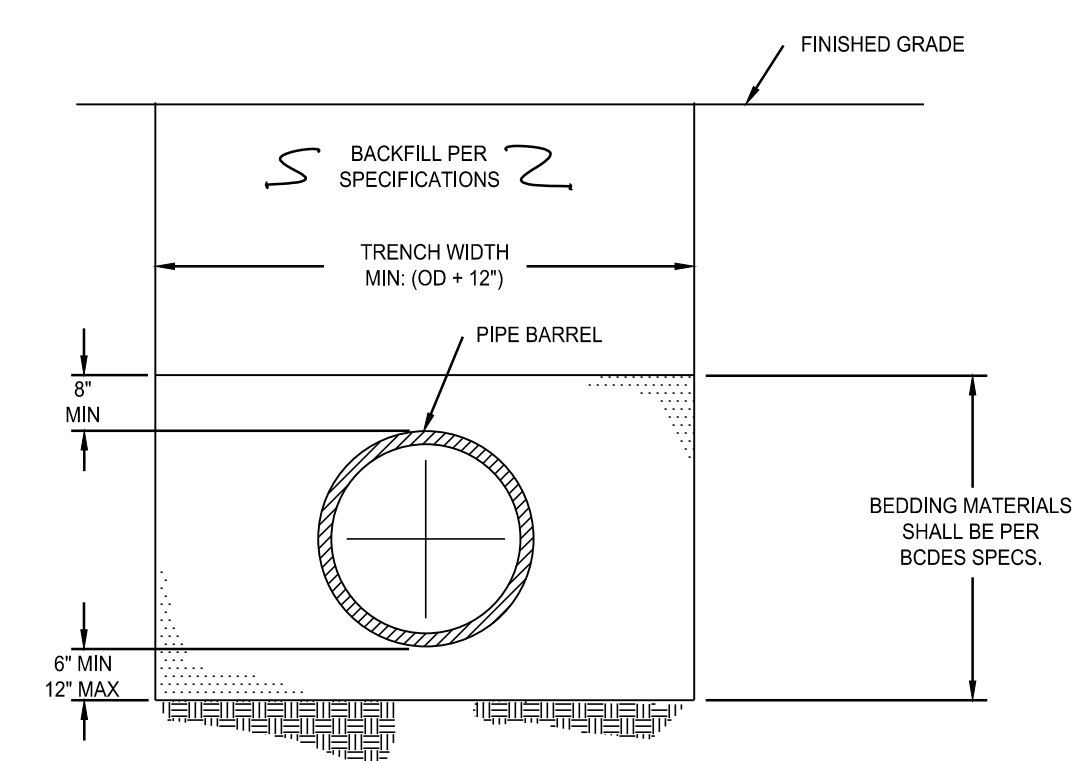
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4360

TYPICAL TRENCH DETAIL WATER MAIN INSTALLATION

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FAX: 513-887-3777

5280

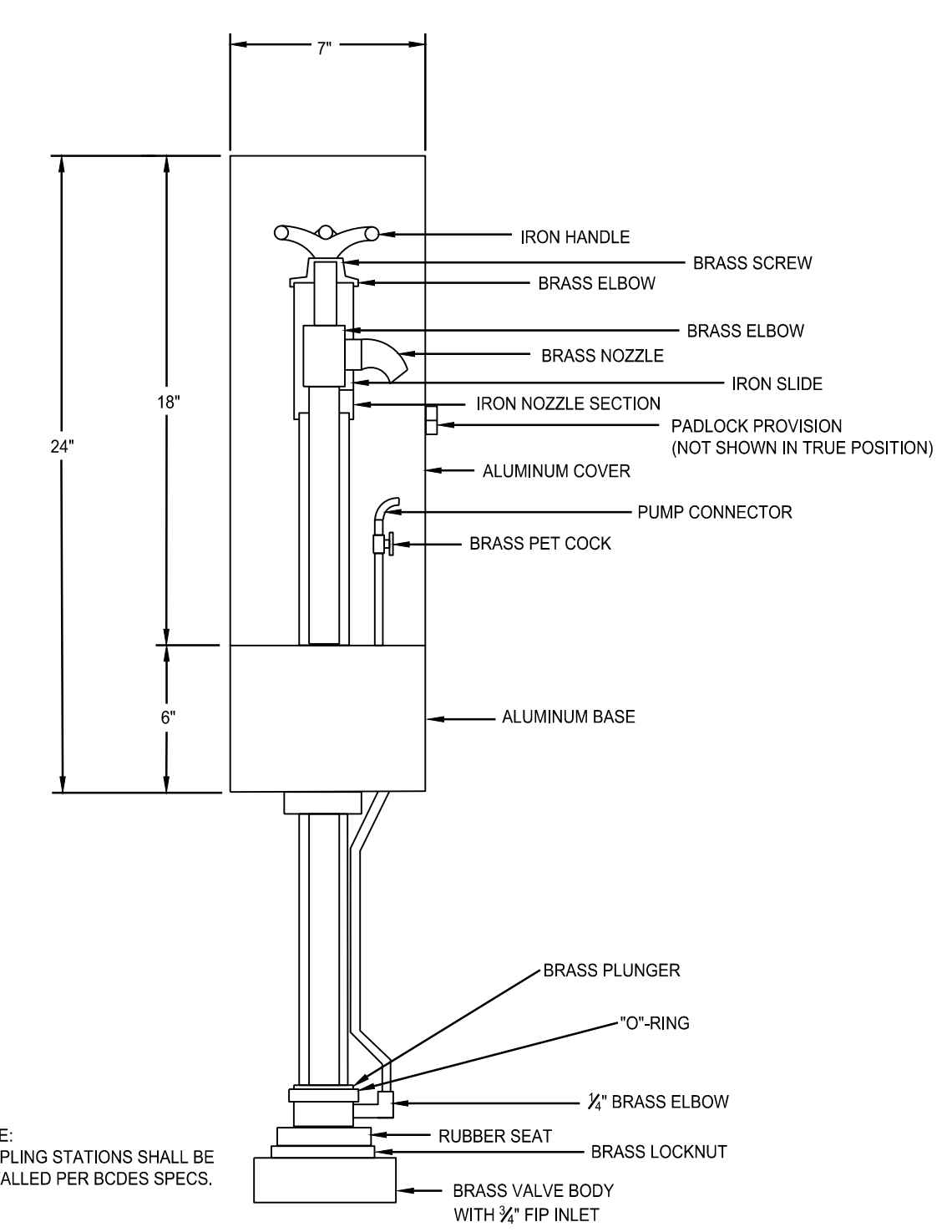


NOTE:
1) PIPE LESS THAN OR EQUAL TO 12" MUST USE 3/4" CORP. STOP, ANGLE BALL VALVE AND SERVICE PIPE.
2) PIPE GREATER THAN 12" TO USE 1" CORP. STOP, ANGLE BALL VALVE AND SERVICE PIPE.

MANUAL AIR RELEASE VALVE DETAIL

BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

5290



NOTE:
SAMPLING STATIONS SHALL BE INSTALLED PER BCDES SPECS.

PERMANENT LAB SAMPLING STATION

BUTLER COUNTY
WATER AND SEWER
130 HIGH STREET
HAMILTON, OH 45011
TELEPHONE: 513-887-3066
FAX: 513-887-3777

5270