

# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## CUY - 77 - 00.42 CITY OF BRECKSVILLE CUYAHOGA COUNTY PART 1 (FOR PART 2, SEE SUM-77-32.27)

FEDERAL PROJECT NUMBER

E220056

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

THE PROJECT INVOLVES COMPLETING THE EXISTING PARTIAL DIAMOND INTERCHANGE AT I.R. 77 AND MILLER ROAD BY ADDING A NORTHBOUND (NB) EXIT RAMP AND A SOUTHBOUND (SB) ENTRANCE RAMP; ADDING AN AUXILIARY LANE BETWEEN NEW SB ENTRANCE RAMP AND THE I.R. 80 EXIT RAMP; WIDENING OF MILLER ROAD TO PROVIDE LEFT-TURN LANES INCLUDING STRUCTURE WIDENING; AND ADDING DUAL WESTBOUND (WB) RIGHT TURN LANES ONTO I.R. 77 NB ENTRANCE RAMP.

EARTH DISTURBED AREAS

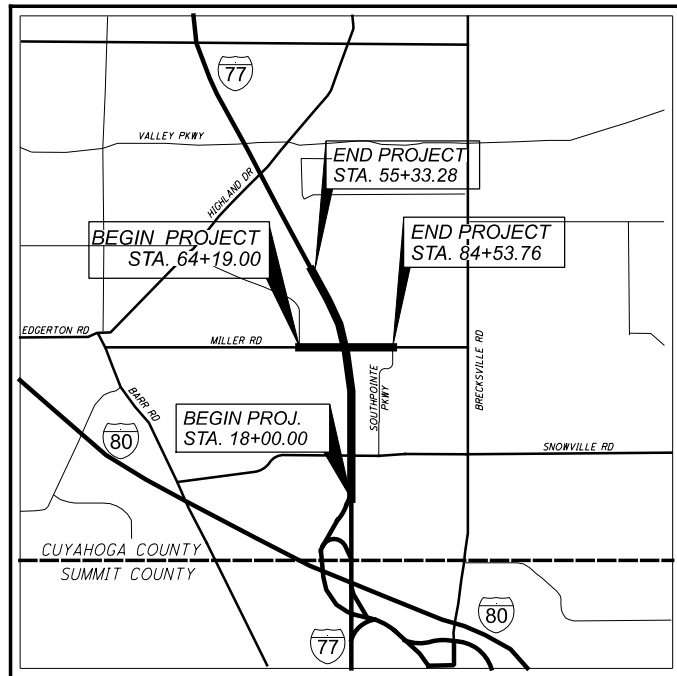
PROJECT EARTH DISTURBED AREA: 17.52 ACRES  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.00 ACRES  
NOTICE OF INTENT EARTH DISTURBED AREA: 18.52 ACRES

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2019 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.



LOCATION MAP

LATITUDE: 41°17'22" N LONGITUDE: 81°38'13" W



PORTION TO BE IMPROVED	-----
INTERSTATE HIGHWAY	=====
FEDERAL ROUTES	-----
STATE ROUTES	-----
COUNTY & TOWNSHIP ROADS	-----
OTHER ROADS	-----

SEE SHEET P.3 FOR DESIGN DESIGNATION

DESIGN EXCEPTIONS

SHOULDER WIDTH - APPROVED 8/31/21

P.8, P.119

ADA DESIGN WAIVERS

NONE REQUIRED

**UNDERGROUND UTILITIES**

Contact Two Working Days Before You Dig



OHIO811. 8-1-1. or 1-800-362-2764 (Non members must be called directly)

PLAN PREPARED BY:

**EUTHENICS**

8235 Mohawk Dr. | Cleveland, OH 44136

ENGINEER'S SEAL ROADWAY	ENGINEER'S SEAL STRUCTURE
SIGNED: <i>Alan R. Piatak</i>	SIGNED: <i>Brandon Sopko</i>
DATE: 6/1/2022	DATE: 6/1/2022

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STANDARD CONSTRUCTION DRAWINGS

										CUYAHOGA COUNTY ENGINEER CONSTRUCTION DRAWINGS	SUPPLEMENTAL SPECIFICATIONS CONT.						
BP-1.1	07-28-00	MGS-4.1	01-20-17	WQ-1.1	01-18-13	MT-99.20	04-19-19	HL-30.33	01-21-22	TC-51.11	01-15-16	AS-1-15	07-17-15	BP-2.8C	10-10-08	872	01-21-22
BP-2.1	01-21-22	MGS-4.2	07-19-13	WQ-1.2	01-15-16	MT-99.30	01-17-20	HL-40.20	07-17-20	TC-52.10	10-18-13	AS-2-15	01-18-19	CB-3C	11-15-17	875	01-18-19
BP-2.2	01-15-21	MGS-5.3	07-15-16			MT-99.60	07-15-16	HL-50.11	01-16-15	TC-52.20	01-15-21	BR-2-15	01-21-22	CB-3C2	10-31-13	895	04-18-14
BP-2.5	01-21-22	MGS-6.1	01-19-18	DM-1.1	07-17-20	MT-101.60	01-17-20	HL-50.21	01-15-21	TC-61.10	01-17-20	GSD-1-19	01-15-21	MH-10C	03-01-21	904	04-15-22
BP-3.1	01-21-22			DM-1.2	07-16-21	MT-101.70	01-17-20	HL-60.11	07-21-17	TC-61.30	07-19-19	PCB-91	07-17-20			905	04-17-20
BP-4.1	07-19-13	RM-1.1	01-15-21	DM-4.1	07-17-20	MT-101.75	01-17-20	HL-60.12	07-16-21	TC-65.10	01-17-14	SBR-1-20	07-17-20	SUPPLEMENTAL SPECIFICATIONS		908	10-20-17
BP-5.1	01-21-22	RM-3.1	07-20-18	DM-4.2	07-20-12	MT-101.90	07-17-20	HL-60.21	07-20-18	TC-65.11	07-21-17	SIGD-1-21	01-21-22			909	04-15-22
BP-6.1	07-19-13	RM-4.1	01-17-20	DM-4.3	01-15-16	MT-102.10	01-17-20	HL-60.31	01-17-20	TC-71.10	07-16-21	SIGD-2-14	01-15-21	800-2019	07-15-22		
BP-7.1	01-21-22	RM-4.2	04-17-20	DM-4.4	01-15-16	MT-102.20	04-19-19			TC-72.20	07-20-18	TVPF-1-18	07-20-18			921	04-20-12
BP-9.1	01-18-19	RM-4.5	07-21-17			MT-102.30	10-16-15	TC-12.31	04-15-22	TC-73.20	01-17-20	VPF-1-90	07-20-18	805	07-16-10		
		RM-4.6	07-19-13	MT-95.30	07-19-19	MT-103.10	01-21-22	TC-15.116	07-16-21	TC-74.10	01-21-22			807	01-21-22		
F-1.1	07-19-13			MT-95.31	07-19-19	MT-104.10	10-16-15	TC-16.22	07-16-21	TC-81.22	07-16-21			808	01-18-19		
F-3.1	07-19-13	CB-2-2A	07-16-21	MT-95.40	01-17-20	MT-105.10	01-17-20	TC-21.11	07-16-21	TC-83.10	01-17-20			809	04-15-22		
F-3.2	07-18-14	CB-2-3	07-16-21	MT-95.41	01-17-20			TC-21.21	07-16-21	TC-83.20	07-21-17			813	10-19-18		
F-3.3	07-19-13	CB-3A	07-16-21	MT-95.45	01-17-20	HL-10.31	04-17-20	TC-22.10	04-17-20	TC-85.10	04-17-20			821	04-20-12		
F-3.4	07-19-13	CB-4	07-16-21	MT-95.70	01-17-20	HL-20.11	01-15-21	TC-22.20	01-17-14	TC-85.20	07-20-18			824	01-18-19		
		CB-5	07-16-21	MT-97.10	04-19-19	HL-20.21	01-15-21	TC-41.10	07-19-13					832	10-19-18		
MGS-1.1	07-16-21	I-3D	07-16-21	MT-98.10	01-17-20	HL-30.11	01-15-21	TC-41.20	10-18-13	ITS-14.10	01-21-22			836	01-19-18		
MGS-2.1	01-19-18	MH-3	07-16-21	MT-98.21	01-17-20	HL-30.21	04-17-20	TC-41.50	10-18-13	ITS-14.11	01-21-22			846	04-17-15		
MGS-3.1	01-19-18			MT-98.22	01-17-20	HL-30.22	01-15-21	TC-42.10	10-18-13	ITS-14.50	01-21-22			847	01-15-21		
MGS-3.2	01-18-13			MT-98.29	01-17-20	HL-30.32	04-17-20	TC-42.20	10-18-13	ITS-60.10	01-15-21			850	04-15-22		

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED DATE 6/1/22 DISTRICT DEPUTY DIRECTOR

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_ DIRECTOR, DEPARTMENT OF TRANSPORTATION

TITLE SHEET

DESIGN AGENCY	EUTHENICS
DESIGNER	ANC
REVIEWER	DTB
PROJECT ID	104983
SHEET TOTAL	P.1 P.445

CUY-77-00.42 PART 1

MODEL: Sheet PAPER: 17x11 (in.) DATE: 6/17/2022 TIME: 2:05:56 PM USER: ftsidham F:\Jobs\1162-Miller Road Interchange\104983\400-Engineering\Roadway\Sheets\104983\_GT001.dgn

**ROADWAY CONT.**

**ITEM 608 - 4" CONCRETE WALK, AS PER PLAN**  
**ITEM 608 - CURB RAMP, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS ITEM 608, THE CONCRETE WALK AND CURB RAMP SHALL HAVE 6" X 6" - W1.4x W1.4 WOVEN WIRE FABRIC.

PAYMENT SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM THE WORK, INCLUDING THE WOVEN WIRE FABRIC AS WELL AS ITEM 304 - 2" AGGREGATE BASE. THIS ITEM SHALL BE PAID AT THE CONTRACT PRICE BID PER SQUARE FOOT OF ITEM 608, 4" CONCRETE WALK, AS PER PLAN OR ITEM 608, CURB RAMP, AS PER PLAN.

**BENCHING OF FOUNDATION SLOPES**

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS AS SET FORTH IN SECTION 203.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND GEOTECHNICAL BULLETIN GB 2 AND AS DIRECTED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF SECTION 203.05.

**REMOVAL AND REPLACEMENT OF SOFT SUBGRADE**

WHERE SOFT SUBGRADE IS ENCOUNTERED UNDER EXISTING PAVEMENT TO BE REMOVED AND REPLACED AND DUE TO NO FAULT OR NEGLIGENCE OF THE CONTRACTOR, IT SHALL BE EXCAVATED, REMOVED, AND REPLACED WITH SUITABLE MATERIAL IN ACCORDANCE WITH THE FOLLOWING ITEMS:

ITEM 204 - EXCAVATION OF SUBGRADE, AS DIRECTED  
 ITEM 204 - GRANULAR MATERIAL, TYPE B, AS DIRECTED  
 ITEM 204 - GEOTEXTILE FABRIC, AS DIRECTED

LOCATION	APPROXIMATE STATION	RECOMMENDATIONS
MILLER ROAD	66+12 TO 69+19	UNDERCUT 24"
	69+19 TO 70+80	UNDERCUT 15"
	70+80 TO 74+41	UNDERCUT 12"
	74+41 TO 79+71	UNDERCUT 24"
	79+71 TO 81+73	UNDERCUT 15"
	81+73 TO 83+00	UNDERCUT 12"
IR-77	18+26 TO 21+75	UNDERCUT 18"

CONTRACTOR SHALL TAKE EXTREME CAUTION WHEN EXCAVATING SOFT SUBGRADE IN PROXIMITY TO EXISTING UNDERGROUND UTILITIES. SUBGRADE EXCAVATION SHALL BE NON-PERFORMED WITHIN ONE (1) FOOT ON EITHER SIDE OF UTILITY.

**SHOULDER REMOVAL/REPLACEMENT FOR PIER FOOTING CONSTRUCTION**

THE LIMITS OF SHOULDER REMOVAL/REPLACEMENT REQUIRED TO CONSTRUCT THE PROPOSED PIER FOOTINGS NOT OTHERWISE SHOWN ON THE PLANS SHALL BE AS DIRECTED BY THE ENGINEER. THE INTENT IS TO LIMIT REMOVAL/REPLACEMENT AS TO ONLY WHAT IS NECESSARY FOR CONSTRUCTION. CONTINGENCY QUANTITIES ARE PROVIDED HEREIN FOR REPAIRS TO THE ABUTTING SHOULDERS UNAVOIDABLY DAMAGED, AS DETERMINED BY THE ENGINEER.

THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE DESIGNATED PORTIONS OF EXISTING SHOULDERS PER 202.05 OR 203.04(E), AS APPLICABLE, AND BY METHODS THAT WILL NOT DISTURB, DAMAGE OR UNDERMINE ADJACENT PAVEMENT OR PORTIONS OF THE SHOULDERS INTENDED TO REMAIN IN PLACE. ANY ADJACENT FACILITIES DAMAGED AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE, AS DETERMINED BY THE ENGINEER, AND WHICH ARE NOT OTHERWISE DESIGNATED FOR REPLACEMENT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE, ALL AT THE DIRECTION OF THE ENGINEER.

CONFIGURATIONS AND COMPOSITIONS OF PARTIALLY REPLACED SHOULDERS SHALL MATCH THE EXISTING. BACKFILL MATERIAL FOR EXCAVATIONS UNDERNEATH SHOULDER PAVEMENT SHALL USE MATERIALS CONFORMING TO ITEM 204 GRANULAR MATERIAL, TYPE B AND IS INCLUDED FOR PAYMENT WITH ITEM 503 - UNCLASSIFIED EXCAVATION. CONTINGENCY QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY AND ARE ALSO IN THE OFFICE CALCULATIONS FOR THIS WORK.

**EROSION CONTROL**

**SEEDING AND MULCHING**

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

ITEM 659 - SOIL ANALYSIS TEST _____	2 EACH
ITEM 659 - TOPSOIL _____	3,539 CU. YD.
ITEM 659 - REPAIR SEEDING AND MULCHING _____	1,594 SQ. YD.
ITEM 659 - INTER-SEEDING _____	1,594 SQ. YD.
ITEM 659 - COMMERCIAL FERTILIZER _____	4 TON
ITEM 659 - LIME _____	7 ACRES
ITEM 659 - WATER _____	176 M. GAL.
ITEM 659 - MOWING _____	72 M. SQ.FT.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON LIMITS IDENTIFIED AS NECESSARY IN THE CROSS-SECTIONS. ANY ADDITIONAL AREAS OUTSIDE OF THE AREAS IDENTIFIED IN THE CROSS-SECTIONS THAT ARE DISTURBED BY THE CONTRACTOR TO FACILITATE CONSTRUCTION, MUST BE RESTORED IN ACCORDANCE WITH C&MS 107.10 AND CONSIDERED INCIDENTAL TO THE WORK. NO ADDITIONAL COMPENSATION WILL BE MADE FOR THESE AREAS.

**ENVIRONMENTAL COMMITMENTS**

**ASBESTOS NOTIFICATION**

A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST SURVEYED THE BRIDGE STRUCTURE SCHEDULED FOR DEMOLITION AND/OR REHABILITATION; THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURE.

ODOT SHALL PROVIDE A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, TO THE SUCCESSFUL BIDDER.

THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO ONE OF THE ADDRESSES BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

ASBESTOS PROGRAM  
 OHIO EPA, DAPC  
 P.O. BOX 1049  
 COLUMBUS, OH 43216-1049  
 OR

ASBESTOS PROGRAM  
 OHIO EPA, DAPC  
 50 W. TOWN ST., SUITE 700  
 COLUMBUS, OH 43215

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION. THE FORM SHALL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. COPIES OF THE OEPA FORM AND BRIDGE INSPECTION REPORT ARE AVAILABLE FOR REVIEW AT THE ODOT DISTRICT 12 OFFICE, 5500 TRANSPORTATION BOULEVARD, GARFIELD HEIGHTS, OHIO 44125.

BASIS FOR PAYMENT THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THEOEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

**ENDANGERED BAT SPECIES HABITAT REMOVAL**

THE PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY ENDANGERED NORTHERN LONG-EARED AND INDIANA BAT, AND THE STATE ENDANGERED LITTLE BROWN AND TRICOLORED BATS. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT AND ORC 1531.25. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

**DRAINAGE**

**CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES**

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

**FARM DRAINS**

ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE RIGHT OF WAYS BY ITEM 611 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 611 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 611, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING DM-1.1, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEMS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 611 - 6" CONDUIT, TYPE B _____	200 FT.
ITEM 611 - 6" CONDUIT, TYPE E _____	50 FT.
ITEM 611 - 6" CONDUIT, TYPE F _____	100 FT.
ITEM 601 - ROCK CHANNEL PROTECTION TYPE C WITH AGGREGATE FILTER _____	5 CU. YD.

**REVIEW OF DRAINAGE FACILITIES**

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

**POST CONSTRUCTION STORM WATER TREATMENT**

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT. BOTH VEGETATED FILTER STRIPS AND A MANUFACTURED WATER QUALITY STRUCTURE ARE UTILIZED ON THIS PROJECT.

**VEGETATED FILTER STRIP**

THIS PLAN UTILIZES VEGETATED FILTER STRIP(S) FOR POST CONSTRUCTION STORM WATER TREATMENT. PLACE EITHER ITEM 660 SODDING OR ITEM 659 SEEDING AND MULCHING WITH A 4-INCH LIFT OF TOPSOIL AND ITEM 670, SLOPE EROSION PROTECTION TO ALL DISTURBED AREAS DESIGNATED AS VEGETATED FILTER STRIPS, THE EDGE OF SHOULDER, AND THE FORESLOPE AS SPECIFIED IN THE PLANS.

DESIGN AGENCY

**EUTHENICS**  
 EESH Mahawir, Dr. | Cleveland, OH 44115

DESIGNER

ESM

REVIEWER

DTB 03/01/22

PROJECT ID

104983

SHEET TOTAL

P.20 | P.445

**DRAINAGE CONT.**

**MANUFACTURED WATER QUALITY STRUCTURE**

THIS PLAN UTILIZES MANUFACTURED WATER QUALITY STRUCTURES FOR WATER QUALITY TREATMENT. AREAS HAVE BEEN SHOWN IN THE PLANS FOR PLACEMENT OF AN OFF-LINE SYSTEM. PAYMENT FOR THESE DEVICES SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 895, MANUFACTURED WATER QUALITY STRUCTURE, TYPE 3.

**MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED**

ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY THE CITY OF BRECKSVILLE FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 ITEM.

**ITEM SPECIAL - MISCELLANEOUS METAL**

EXISTING CASTINGS MAY PROVE TO BE UNSUITABLE FOR REUSE, AS DETERMINED BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE CASTINGS OF THE REQUIRED TYPE, SIZE AND STRENGTH (HEAVY OR LIGHT DUTY) FOR THE PARTICULAR STRUCTURE IN QUESTION. ALL MATERIAL SHALL MEET ITEM 611 OF THE SPECIFICATIONS AND SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM SPECIAL - MISCELLANEOUS METAL \_\_\_\_\_ 2,000 POUNDS

THE CONTRACTOR IS CAUTIONED TO USE EXTREME CARE IN THE REMOVAL, STORAGE AND REPLACEMENT OF ALL EXISTING CASTINGS. CASTINGS DAMAGED BY THE NEGLIGENCE OF THE CONTRACTOR, AS DETERMINED BY THE ENGINEER, SHALL BE REPLACED WITH THE PROPER NEW CASTINGS AT THE EXPENSE OF THE CONTRACTOR.

**EXISTING SUBSURFACE DRAINAGE**

PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS OR AGGREGATE DRAINS ENCOUNTERED DURING CONSTRUCTION.

PROVIDE AN OUTLET PER STANDARD CONSTRUCTION DRAWING DM-1.1 FOR ALL UNDERDRAINS THAT OUTLET TO A SLOPE. UNDERDRAINS THAT CAN BE CONNECTED TO THE NEW OR EXISTING UNDERDRAINS AT THE END OF THE PROJECT LIMITS AS WELL AS ALL NECESSARY BENDS OR BRANCHES REQUIRED FOR CONNECTION ARE INCLUDED IN THE BASIS OF PAYMENT FOR UNCLASSIFIED PIPE UNDERDRAINS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 601 - TIED CONCRETE BLOCK MAT, WITH TYPE 1 UNDERLAYMENT \_\_\_\_\_ 20 SQ. YD.  
 ITEM 605 - AGGREGATE DRAINS \_\_\_\_\_ 200 FT.  
 ITEM 611 - 6" CONDUIT, TYPE F \_\_\_\_\_ 100 FT.  
 ITEM 611 - PRECAST REINFORCED CONCRETE OUTLET \_\_\_\_\_ 5 EACH  
 ITEM 605 - 6" UNCLASSIFIED PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC \_\_\_\_\_ 400 FT.

**STORM SEWER WORK, AS PER PLAN**

ALL STORM SEWER WORK IN THE MILLER ROAD RIGHT OF WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS (DATED 2019) AS ADOPTED BY THE CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS (CCDPW) AND UNIFORM STANDARD SEWER DETAILS. THE REFERENCES LISTED ABOVE CAN BE FOUND AT THE FOLLOWING LINK

<https://www.cuyahogacounty.us/publicworks/services/design-and-construction/sanitary-design>. THE "AS PER PLAN" DESIGNATION FOR ALL STORM SEWER ITEMS INDICATES THE BID ITEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CCDPW AND THE REQUIREMENTS LISTED IN THE GENERAL NOTES, OR SHOWN ON THE STORM DETAILS WITHIN THIS PLAN.

PRIOR TO ORDERING MATERIALS AND STARTING CONSTRUCTION THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE COUNTY. CONSTRUCTION MAY COMMENCE UPON PERMIT APPROVAL. A CCDPW CONSTRUCTION INSPECTOR MUST BE PRESENT AT ALL TIMES AT THE JOB SITE DURING CONSTRUCTION, TESTING, MONITORING, AND ALL OTHER ACTIVITIES RELATED TO THE STORM SEWER INSTALLATION OR TESTING. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE CCDPW CONSTRUCTION INSPECTOR PRIOR TO THE BEGINNING OF CONSTRUCTION. ALL COSTS ASSOCIATED WITH OBTAINING A CCDPW PERMIT AND ANY COST FOR COUNTY INSPECTION SHALL BE CONSIDERED INCIDENTAL TO THE STORM SEWER WORK, AS PER PLAN ITEMS.

THE "AS PER PLAN" REQUIRES THE CONTRACTOR TO TEST THE SEWER PIPE AND MANHOLES PER THE REQUIREMENTS OF THE UNIFORM STANDARDS. ALL SEWER VIDEO SHALL BE REVIEWED AND APPROVED BY THE CITY ENGINEER AND THE CCDPW.

THE "AS PER PLAN" REQUIRES PREMIUM PIPE JOINTS FOR ALL STORM SEWER PIPING. ALL JOINTS ARE TO BE WATER-TIGHT JOINTS; SOIL-TIGHT JOINTS, ETC., ARE NOT ACCEPTABLE.

THE "AS PER PLAN" REQUIRES THAT MONOLITHIC CRADLING BE PROVIDED ALONG STORM SEWER IN CONDITIONS WHEN FINISHED COVER IS 3 FEET OR LESS. CRADLING SHALL SATISFY THE REQUIREMENTS AS DETAILED ON SHEET 235.

THE "AS PER PLAN" REQUIRES THE TRENCH BACKFILL BE PREMIUM BACKFILL, WHICH MAY BE ODOT 304 LS, ODOT 613 LSM, OR RECYCLED CONCRETE MEETING ODOT 304 GRADATION. RECYCLED CONCRETE SHALL NOT BE USED AS SEWER BEDDING OR COVER TO 12" MINIMUM OVER STORM SEWER PIPE AND ALL LATERALS IN ANY LOCATION. IN ADDITION:

A) WHETHER WITHIN OR OUTSIDE THE PUBLIC RIGHT-OF-WAY, ALL TRECHES UNDER PAVEMENT (INCLUDING DRIVEWAYS, PARKING AREAS, WALKS, OR OTHER HARD SURFACES) INCLUDING A POINT 5' BEYOND SUCH PAVEMENT SHALL BE BACKFILLED WITH PREMIUM BACKFILL.

B) ALL PREMIUM BACKFILL MATERIAL (WITH EXCEPTION OF LSM) SHALL BE COMPACTED TO MINIMUM 98% PROCTOR IN MAXIMUM 12-INCH LIFTS. COMPACTION METHODS SHALL BE CONFIRMED BY AN APPROVED TESTING COMPANY AND THE REPORTS PROVIDED TO THE CITY & COUNTY; UNLESS A TEST STRIP IS PREFORMED AND MEANS AND METHODS ARE ESTABLISHED AND APPROVED BY THE CITY & COUNTY. REGARDLESS IF SUCH MEANS AND METHODS ARE APPROVED, THE CITY AND/OR COUNTY RESERVE THE RIGHT TO REQUIRE ADDITIONAL TESTING TO SUBSTANTIATE COMPACTION. ALL TESTING AND INSPECTION, INCLUDING ADDITIONAL TESTING, SHALL BE AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE PROVIDED AS REQUESTED.

C) MATERIALS FOR PIPE BEDDING AND BACKFILL SHALL BE LIMITED TO COARSE INTERLOCKING LIMESTONE AGGREGATE NO. 57, 6, 67, 68, 7, 78, 8, ODOT CMS ITEM 304 LIMESTONE, OR LIMESTONE SCREENINGS, COMPACTED THE SAME AS ABOVE.

D) UTILITY BACKFILL IN OTHER AREAS MAY UTILIZE SUITABLE ON-SITE MATERIAL IF CONTRACTOR CAN ACHIEVE COMPACTION PER ODOT 203.07-1.

E) THE BACKFILL SHALL BE AS DIRECTED BY THE CITY OF BRECKSVILLE, THE CCDPW UNIFORM STANDARDS, AND/OR THE ODOT STANDARDS, ACCORDING TO THE MOST RESTRICTIVE OF THESE. REGARDING THE ODOT STANDARDS, THE BACKFILL SHALL CONFORM TO SECTION 603.08 BACKFILLING FOR CONDUIT AS SPECIFIED IN THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (LATEST EDITION).

F) MATERIALS INCLUDING, BUT NOT LIMITED TO RECYCLED CONCRETE (OTHER THAN AS DESCRIBED ABOVE), SLAG (OF ANY KIND), SANDSTONE, RIVER GRAVEL, AND FOUNDRY SAND, SHALL NOT BE PERMITTED FOR BEDDING, COVER, OR BACKFILL. ALL OTHER BACKFILL SHALL BE SUBJECT TO THE REQUIREMENTS OF THE COUNTY AND CITY.

G) BENTONITE CLAY DAMS, PER THE UNIFORM STANDARD DETAIL SHALL BE REQUIRED AND INSTALLED WHERE SPECIFIED IN THE PLANS.

**ITEM 611 - MANHOLE, NO. 3, AS PER PLAN 3  
 ITEM 611 - MANHOLE NO. 3 WITH 96" BASE I.D. AND 9" WEIR, AS PER PLAN 3**

THIS ITEM SHALL CONFORM TO ODOT STANDARD CONSTRUCTION DRAWING MH-3 WITH THE FOLLOWING MODIFICATIONS:

STORM SEWER MANHOLES SHALL HAVE A CUYAHOGA COUNTY NO. 9 FRAME AND A NO. 28 COVER STAMPED "STORM" AS DETAILED ON THE CUYAHOGA COUNTY ENGINEER'S CONSTRUCTION DRAWING MH-10C.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE FINAL CASTING LOCATION FOR ANY MANHOLE LOCATED WITHIN A TRAVELLED LANE IS CENTERED WITHIN THE LANE. THIS COORDINATION WILL INCLUDE BOTH THE MANHOLE SUPPLIER AND ANY MINOR FIELD ADJUSTMENTS NECESSARY TO CENTER THE FINAL CASTING LOCATION BASED ON THE LOCATION OF THE MANHOLE STEPS.

**ITEM 611 - MANHOLE, NO. 3, AS PER PLAN 4**

THIS ITEM SHALL CONFORM TO ITEM 611, MANHOLE, NO. 3, AS PER PLAN 3 WITH THE FOLLOWING ADDITION:

A HORIZONTAL BEND EXISTS ALONG THE 24" STORM SEWER AT STA. 83+92.00±, 24.00± RT. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF THE EXISTING STORM SEWER BOTH HORIZONTALLY AND VERTICALLY BEFORE ORDERING MATERIALS FOR THE MANHOLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIND A SUITABLE LOCATION AND ADJUST THE LENGTHS OF CONDUIT AS NEEDED IF EXISTING UTILITIES POSE AN ISSUE WITH INSTALLING THE MANHOLE AT THE BEND LOCATION.

**ITEM 611 - MANHOLE, NO. 3, AS PER PLAN 5**

THIS ITEM SHALL CONFORM TO ODOT STANDARD CONSTRUCTION DRAWING MH-3 WITH THE FOLLOWING MODIFICATIONS:

STORM SEWER MANHOLES SHALL HAVE A CUYAHOGA COUNTY NO. 9 FRAME AND A NO. 28 COVER STAMPED "STORM" AS DETAILED ON THE CUYAHOGA COUNTY ENGINEER'S CONSTRUCTION DRAWING MH-10C.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE FINAL CASTING LOCATION IS PLACED IN LINE WITH THE LONGITUDINAL JOINT AS SHOWN ON THE PLAN.

**ITEM 611 - CATCH BASIN MISC.: CUYAHOGA COUNTY 3C**

THIS ITEM CONSISTS OF FURNISHING AND INSTALLING A CUYAHOGA COUNTY 3C CATCH BASIN IN ACCORDANCE WITH CUYAHOGA COUNTY STANDARD CONSTRUCTION DRAWING CB-3C, COMPLETE IN PLACE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM 611 - CATCH BASIN MISC.: CUYAHOGA COUNTY 3C, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL CATCH BASIN IN ACCORDANCE WITH THE REQUIREMENTS OF THE CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS.

**ITEM 611 - CATCH BASIN MISC.: CUYAHOGA COUNTY TWIN 3C**

THIS ITEM CONSISTS OF FURNISHING AND INSTALLING A CUYAHOGA COUNTY TWIN 3C CATCH BASIN IN ACCORDANCE WITH CUYAHOGA COUNTY STANDARD CONSTRUCTION DRAWING CB-3C2, COMPLETE IN PLACE. THIS ITEM ALSO INCLUDES THE 12" TYPE B CONDUIT (706.02) NECESSARY TO CONNECT THE TWO CATCH BASINS. NOTE THAT PRECAST BASINS WITH KNOCK-OUT PANELS WILL NOT BE PERMITTED.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM 611 - CATCH BASIN MISC.: CUYAHOGA COUNTY TWIN 3C, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL CATCH BASIN IN ACCORDANCE WITH THE REQUIREMENTS OF THE CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS.

**ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT**

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH ITEM 613 - LOW STRENGTH MORTAR BACKFILL, TYPE 3 OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS DETERMINED BY THE ENGINEER. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM THE OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED.

THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT. THE QUANTITY FOR PLUGGING AND FILLING THE EXISTING CONDUIT SHALL BE USED IN LIEU OF REMOVING THE EXISTING PIPE IN AREAS WHERE THE ENGINEER DEEMS IT APPROPRIATE.

THE FOLLING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT 50 LIN. FT.

DESIGN AGENCY	
EUTHENICS 6535 Mahoning Dr.   Cleveland, OH 44130	
DESIGNER	ESM
REVIEWER	DTB 03/01/22
PROJECT ID	104983
SHEET	TOTAL
P.21	P.445

SHEET NUM.										PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
17-19	21	102	137	220	229	253	342	377	382, 383	OFFICE CALCS	01/MS/PV	02/NFP/BR							07/MS/BR
<b>ROADWAY</b>																			
LS											LS			201	11000	LS	CLEARING AND GRUBBING		
		7									7			202	20010	EACH	HEADWALL REMOVED		
				39							15,332	15,371		202	23000	SY	PAVEMENT REMOVED		
		675									17,349	18,024		202	30000	SF	WALK REMOVED		
		90									90			202	30700	FT	CONCRETE BARRIER REMOVED		
											34	34		202	30800	34	SY	TRAFFIC ISLAND REMOVED	
											4,165	4,165		202	32000	4,165	FT	CURB REMOVED	
		1,425			219	310					1,954			202	35100	1,954	FT	PIPE REMOVED, 24" AND UNDER	
		965				1,374					625	749		202	35101	1,374	FT	PIPE REMOVED, 24" AND UNDER, AS PER PLAN	252
											965			202	35200	965	FT	PIPE REMOVED, OVER 24"	
		6,599									6,599			202	38000	6,599	FT	GUARDRAIL REMOVED	
		4,013									4,013			202	48000	4,013	FT	CABLE BARRIER REMOVED	
		1									1			202	53100	1	EACH	MAILBOX REMOVED	
		9			2						11			202	58000	11	EACH	MANHOLE REMOVED	
		23									23			202	58100	23	EACH	CATCH BASIN REMOVED	
					2						2			202	58700	2	EACH	MANHOLE ABANDONED	
50	50				529						629			SPECIAL	20270000	629	FT	FILL AND PLUG EXISTING CONDUIT (18")	21 & 227
							292				292			SPECIAL	20270000	292	FT	FILL AND PLUG EXISTING CONDUIT (3")	340
		732						292			3,484			202	75000	3,484	FT	FENCE REMOVED	
						2		2,752			2			202	75610	2	EACH	VALVE BOX REMOVED	
		1									1			202	98100	1	EACH	REMOVAL MISC.: CONCRETE SLAB REMOVAL	17
			19,653								19,653			203	10000	19,653	CY	EXCAVATION	
			1,971								1,971			203	10001	1,971	CY	EXCAVATION, AS PER PLAN	19
			49,793								49,793			203	20000	49,793	CY	EMBANKMENT	
6											6			SPECIAL	20365000	6	EACH	SETTLEMENT PLATFORM	18
				46							28,948	28,994		204	10000	28,994	SY	SUBGRADE COMPACTION	
			5,145								5,145			204	13000	5,145	CY	EXCAVATION OF SUBGRADE	20
			5,145								5,145			204	30010	5,145	CY	GRANULAR MATERIAL, TYPE B	20
12											12			204	45000	12	HOUR	PROOF ROLLING	
											12,563	12,563		204	50000	12,563	SY	GEOTEXTILE FABRIC	20
											42	42		209	15001	42	STA	RESHAPING UNDER GUARDRAIL, AS PER PLAN	19
152											152			209	60201	152	STA	LINEAR GRADING, AS PER PLAN	19
		12,231									12,231			606	15050	12,231	FT	GUARDRAIL, TYPE MGS	
		3,412									3,412			606	15550	3,412	FT	GUARDRAIL, BARRIER DESIGN, TYPE MGS	
		4									4			606	26050	4	EACH	ANCHOR ASSEMBLY, MGS TYPE B	
		8									8			606	26150	8	EACH	ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016)	
		8									8			606	26550	8	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
		6									6			606	35002	6	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	
		1									1			606	35102	1	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	
		1									1			SPECIAL	60655150	1	EACH	CABLE BARRIER, ANCHOR ASSEMBLY	19
		1									1			606	60028	1	EACH	IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL) 65MPH DESIGN SPEED, 24" WIDTH	
							584	2,688			2,688			607	23000	2,688	FT	FENCE, TYPE CLT	
							864				864		584	607	39900	584	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC	
							LS				864		864	607	39994	864	FT	TEMPORARY VANDAL FENCE, TYPE B	
												LS		607	98200	LS		FENCE, MISC.:ALUMINUM LETTERING	371
											14,329	14,329		608	10001	14,329	SF	4" CONCRETE WALK, AS PER PLAN	20
		2,126									2,126			608	52001	2,126	SF	CURB RAMP, AS PER PLAN	20
		95									95			622	10100	95	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE B	
		3									3			622	25000	3	EACH	CONCRETE BARRIER END SECTION, TYPE D	
		1									1			622	25050	1	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D	
											2			623	38500	2	EACH	MONUMENT ASSEMBLY	
											17			623	40500	17	EACH	REFERENCE MONUMENT	
								4			4			625	32000	4	EACH	GROUND ROD	
		1									1			SPECIAL	69050350	1	EACH	MAILBOX REMOVED AND RESET	

GENERAL SUMMARY

DESIGN AGENCY  
**EUTHENICS**  
 625 Walnut Dr., Cleveland, OH 44130

DESIGNER  
 COM

REVIEWER  
 ANC 05/26/22

PROJECT ID  
 104983

SHEET TOTAL  
 P.94 P.445

SHEET NUM.										PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
21	22	28	32A	102	103	104	220	290	OFFICE CALCS	01/MS/PV	02/NFP/BR	07/MS/BR						
<b>DRAINAGE ALTERNATES</b>																		
					1,106					1,106			611	04400	1,106	FT	12" CONDUIT, TYPE B (ALTERNATE 1)	
					356					356			611	04600	356	FT	12" CONDUIT, TYPE C (ALTERNATE 1)	
					348					348			611	05900	348	FT	15" CONDUIT, TYPE B (ALTERNATE 1)	
					14					14			611	06100	14	FT	15" CONDUIT, TYPE C (ALTERNATE 1)	
					159					159			611	07400	159	FT	18" CONDUIT, TYPE B (ALTERNATE 1)	
					24					24			611	07600	24	FT	18" CONDUIT, TYPE C (ALTERNATE 1)	
					8					8			611	09100	8	FT	21" CONDUIT, TYPE C (ALTERNATE 1)	
					50					50			611	09400	50	FT	21" CONDUIT, TYPE D (ALTERNATE 1)	
					326					326			611	10400	326	FT	24" CONDUIT, TYPE B (ALTERNATE 1)	
					5					5			611	10600	5	FT	24" CONDUIT, TYPE C (ALTERNATE 1)	
					10					10			611	11900	10	FT	27" CONDUIT, TYPE B (ALTERNATE 1)	
					176					176			611	13400	176	FT	30" CONDUIT, TYPE B (ALTERNATE 1)	
						96				96			611	16400	96	FT	36" CONDUIT, TYPE B (ALTERNATE 1)	
						247				247			611	19600	247	FT	42" CONDUIT, TYPE C (ALTERNATE 1)	
						421				421			611	21100	421	FT	48" CONDUIT, TYPE C (ALTERNATE 1)	
	1,106									1,106			611	04401	1,106	FT	12" CONDUIT, TYPE B, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	356									356			611	04601	356	FT	12" CONDUIT, TYPE C, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	348									348			611	05901	348	FT	15" CONDUIT, TYPE B, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	14									14			611	06101	14	FT	15" CONDUIT, TYPE C, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	159									159			611	07401	159	FT	18" CONDUIT, TYPE B, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	24									24			611	07601	24	FT	18" CONDUIT, TYPE C, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	8									8			611	09101	8	FT	21" CONDUIT, TYPE C, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	50									50			611	09401	50	FT	21" CONDUIT, TYPE D, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	326									326			611	10401	326	FT	24" CONDUIT, TYPE B, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	5									5			611	10601	5	FT	24" CONDUIT, TYPE C, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	10									10			611	11901	10	FT	27" CONDUIT, TYPE B, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	176									176			611	13401	176	FT	30" CONDUIT, TYPE B, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	96									96			611	16401	96	FT	36" CONDUIT, TYPE B, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	247									247			611	19601	247	FT	42" CONDUIT, TYPE C, AS PER PLAN, 706.02 (ALTERNATE 2)	22
	421									421			611	21101	421	FT	48" CONDUIT, TYPE C, AS PER PLAN, 706.02 (ALTERNATE 2)	22
<b>PAVEMENT</b>																		
										737			254	01000	737	SY	PAVEMENT PLANING, ASPHALT CONCRETE (T= 3.25")	
										4,090			254	01000	4,090	SY	PAVEMENT PLANING, ASPHALT CONCRETE (VARIABLE THICKNESS)	
		23								23			254	01000	23	SY	PAVEMENT PLANING, ASPHALT CONCRETE (1.5" DEPTH)	28
										1,081			302	56001	1,081	CY	ASPHALT CONCRETE BASE, (449), AS PER PLAN (PG64-22)	22
							8			4,847			304	20000	4,855	CY	AGGREGATE BASE	
										1,236			407	20000	1,236	GAL	NON-TRACKING TACK COAT	
										8			411	10000	8	CY	STABILIZED CRUSHED AGGREGATE	
										130			441	70801	130	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE A, (449), (UNDER GUARDRAIL), AS PER PLAN	22
										598			442	00100	598	CY	ANTI-SEGREGATION EQUIPMENT	
										413			442	10001	417	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN (PG76-22M)	22
										387			442	10100	387	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446) (T= 1.75")	
										102			442	10100	102	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446) (VARIABLE THICKNESS)	
										46			451	13011	46	SY	8" REINFORCED CONCRETE PAVEMENT, CLASS QC 1P, AS PER PLAN	220
										13,175			451	15070	13,175	SY	11" REINFORCED CONCRETE PAVEMENT, CLASS QC 1P WITH QC/QA	
					133					133			SPECIAL	45130000	133	FT	PRESSURE RELIEF JOINT, TYPE A	22
										8,972			452	15020	8,972	SY	12" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P WITH QC/QA	
										3,242			609	14000	3,242	FT	CURB, TYPE 2-A	
					392					600			609	26000	992	FT	CURB, TYPE 6	
										288			609	72000	288	SY	CONCRETE MEDIAN	
										0.59			618	40601	0.59	MILE	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE), AS PER PLAN	22

DESIGN AGENCY  
**EUTHENICS**  
 6255 Mahan Dr., Cleveland, OH 44130

DESIGNER  
 COM

REVIEWER  
 ANC 05/26/22

PROJECT ID  
 104983

SHEET TOTAL  
 P.96 | P.445

CUY-77-00.42 PART 1

MODEL: Sheet PAPER: 17x11 (in.) DATE: 07-Oct-22 TIME: 12:05:24 PM USER: comitnik  
 F:\Jobs\1162-Miller Road Interchange\104983\03-Contracts\03-Addendum\Water Main Material Revision\Updated PDFs and Drawings 10-07-104983\_GG004.dgn

SHEET NUM.											PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
	102	104	229	242	250	253	289	290	307	01/IMS/PV	02/NFP/BR	07/IMS/BR								
						5,000							5,000		SPECIAL	61199820	5,000	LB	<b>WATER WORK</b>	248
						2							2		638	98000	2	EACH	MISCELLANEOUS METAL	246
						4							4		638	98000	4	EACH	WATER WORK, MISC.: 12" CUT-IN VALVE ASSEMBLY AND VALVE BOX, COMPLETE	249
																		EACH	WATER WORK, MISC.: FURNISHING AND SETTING 6" HYDRANT, COMPLETE (KENNEDY VALVE K81A STYLE)	
						3							3		638	98000	3	EACH	WATER WORK, MISC.: FIRE HYDRANT REMOVED AND DISPOSED OF	252
						1							1		638	98000	1	EACH	WATER WORK, MISC.: 2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE	251
						1						1			638	98000	1	EACH	WATER WORK, MISC.: 12" GATE VALVE WITH VALVE BOX, COMPLETE	246
													3		638	98000	3	EACH	WATER WORK, MISC.: 6" WATERMAIN UNDERPASS	250
					LS	3							3		638	98000	3	EACH	WATER WORK, MISC.: 12" WATERMAIN UNDERPASS	250
													LS		638	98100	LS		WATER WORK, MISC.: CITY OF CLEVELAND, DIVISION OF WATER LABOR CHARGES	242
						200							200		638	98600	200	FT	WATER WORK, MISC.: 20" STEEL PIPE ENCASEMENT, BORED OR JACKED	250
						1,532							814	718	638	98600	1,532	FT	WATER WORK, MISC.: 12" AWWA C900 OR C909 PVC WATERMAIN WITH STAB TYPE, RUBBER GASKETED BELL AND SPIGOT JOINTS, 235 PSI MINIMUM AND RESTRAINED CLASS 350 CEMENT LINED DUCTILE IRON FITTINGS	244
															638	98600	615	FT	WATER WORK, MISC.: 12" AWWA C900 PVC WATERMAIN WITH INTERNAL RESTRAINED JOINTS (CERTA-LOK, EAGLE LOC OR APPROVED EQUAL) 305 PSI MINIMUM AND RESTRAINED CLASS 350 CEMENT LINED DUCTILE IRON FITTINGS	244
						615							615		638	98600	615	FT	WATER WORK, MISC.: OUT FILL AND PLUG EXISTING 12" WATER MAIN	250
						601							601		638	98600	601	FT		
																			<b>SANITARY SEWER</b>	
						50							50		611	00900	50	FT	6" CONDUIT, TYPE B FOR SANITARY, AS PER PLAN	227
						50							50		611	01100	50	FT	6" CONDUIT, TYPE C FOR SANITARY, AS PER PLAN	227
						8							8		611	04601	8	FT	12" CONDUIT, TYPE C, AS PER PLAN, 706.02 CLASS V WITH ASTM TYPE 1 BEDDING	227
						187							187		611	07401	187	FT	18" CONDUIT, TYPE B, AS PER PLAN, 706.02 CLASS V WITH ASTM TYPE 1 BEDDING	227
						495							495		611	07601	495	FT	18" CONDUIT, TYPE C, AS PER PLAN, 706.02 CLASS V WITH ASTM TYPE 1 BEDDING	227
						4							4		611	97200	4	EACH	CONDUIT, MISC.: BENTONITE CLAY DAM	227
						5							5		611	99575	5	EACH	MANHOLE, NO. 3, AS PER PLAN 1	227
						1							1		611	99575	1	EACH	MANHOLE, NO. 3, AS PER PLAN 2	227
						2							2		611	99655	2	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	227
						3							3		611	99661	3	EACH	MANHOLE RECONSTRUCTED TO GRADE, AS PER PLAN	227
																			<b>TRAFFIC CONTROL</b>	
						8							8		620	00500	8	EACH	DELINEATOR, POST GROUND MOUNTED	
													4		620	31200	4	EACH	REMOVAL OF DELINEATOR	
													239		621	00100	239	EACH	RPM	
													170		621	54000	170	EACH	RAISED PAVEMENT MARKER REMOVED	
												9			625	32000	9	EACH	GROUND ROD	
						1							1		626	00102	1	EACH	BARRIER REFLECTOR, TYPE 1 (ONE-WAY)	
						4							4		626	00102	4	EACH	BARRIER REFLECTOR, TYPE 1 (BI-DIRECTIONAL)	
						95							95		626	00112	95	EACH	BARRIER REFLECTOR, TYPE 3 (ONE-WAY)	
						90							90		626	00112	90	EACH	BARRIER REFLECTOR, TYPE 3 (BI-DIRECTIONAL)	
													225.1		630	02100	225.1	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
													525.8		630	03100	525.8	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
													38.7		630	06500	38.7	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W6X9	
													83.1		630	07600	83.1	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W10X12	
													16		630	08600	16	EACH	SIGN POST REFLECTOR	
													6		630	09000	6	EACH	BREAKAWAY STRUCTURAL BEAM CONNECTION	
													7		630	72340	7	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-12.31, DESIGN 12	
													1		630	72420	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-15.116, DESIGN 2	
													3		630	75000	3	EACH	SIGN ATTACHMENT ASSEMBLY	
													9		630	79100	9	EACH	SIGN HANGER ASSEMBLY, MAST ARM	
													435.3		630	80100	517.3	SF	SIGN, FLAT SHEET	
													190		630	80200	190	SF	SIGN, GROUND MOUNTED EXTRUSHEET	
													1,883		630	80224	1,883	SF	SIGN, OVERHEAD EXTRUSHEET	
													6		630	84500	6	EACH	GROUND MOUNTED STRUCTURAL BEAM SUPPORT FOUNDATION	
													11		630	84510	11	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION	
													81		630	84900	81	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
													7		630	85100	7	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
													51		630	86002	51	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	

GENERAL SUMMARY

DESIGN AGENCY



DESIGNER

COM

REVIEWER

ANC 05/26/22

PROJECT ID

104983

SHEET

P.97

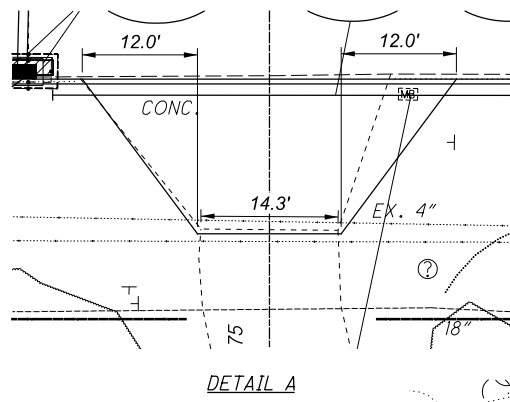
TOTAL

P.445

SHEET NO.	202													451	601			602	606										608	620	622		626				690			
	HEADWALL REMOVED	WALK REMOVED	CONCRETE BARRIER REMOVED	SPECIAL - FILL AND PLUG EXISTING CONDUIT	REMOVAL MISC.: CONCRETE SLAB REMOVAL	PIPE REMOVED, 24" AND UNDER	PIPE REMOVED, OVER 24"	GUARDRAIL REMOVED	CABLE BARRIER REMOVED	MAILBOX REMOVED	MANHOLE REMOVED	CATCH BASIN REMOVED	FENCE REMOVED	SPECIAL - PRESSURE RELIEF JOINT, TYPE A	ROCK CHANNEL PROTECTION, TYPE A WITH AGGREGATE FILTER	ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER	ROCK CHANNEL PROTECTION, TYPE C WITH AGGREGATE FILTER	CONCRETE MASONRY	GUARDRAIL, TYPE MGS	GUARDRAIL, BARRIER DESIGN, TYPE MGS	IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL)	ANCHOR ASSEMBLY, MGS TYPE B	ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016)	ANCHOR ASSEMBLY, MGS TYPE T	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	SPECIAL - CABLE BARRIER, ANCHOR ASSEMBLY	CURB RAMP, AS PER PLAN	DELINEATOR, POST GROUND MOUNTED	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	CONCRTE BARRIER END SECTION, TYPE D	CONCRETE BARRIER END ANCHORAGE, REINFORCED, TYPE D	BARRIER REFLECTOR, TYPE 1 ONE-WAY	BARRIER REFLECTOR, TYPE 1 BI-DIRECTIONAL	BARRIER REFLECTOR, TYPE 3 ONE-WAY	BARRIER REFLECTOR, TYPE 3 BI-DIRECTIONAL	SPECIAL - MAILBOX REMOVED AND RESET			
EACH	SF	FT	FT	EACH	FT	FT	FT	FT	EACH	EACH	EACH	FT	FT	CY	CY	CY	CY	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	SF	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH		
P.107					100		1,780				4					2.00	0.2	1768			1		2															23	1	
P.109	2			50	1	115	822				4		66		1.11	0.4	1156					2	2	2					2						2		17			
P.111	2					121	2,171				2	522	67					3626			2	2		2					2						2		50			
P.113					93	554	255		1	1	4																													
P.115					441	391				6	8	210																												
P.118			90			513	1,531	4,913		2	1						0.3	5681	3412	1	1	4	4	2	1	1		4	95	3		1	1			95				
P.124		675													8.90		1.4																							
P.217																												494												
P.218																												656												
P.219																												976												
P.220																																								
P.222	2						16							60			46																							
P.224	1						4								6.67		0.7																							
P.225					42											2.67	2.2																							
P.226																	1.4																							
SUBTOTAL														60	15.57	5.77																								
TOTALS CARRIED TO GENERAL SUMMARY	7	675	90	50	1	1,425	965	6,599	4,913	1	9	23	732	133	60	16	6	52.6	12,231	3,412	1	4	8	8	6	1	1	2,126	8	95	3	1	1	4	95	90	1			

ROADWAY SUBSUMMARY

DESIGN AGENCY	
<b>EUTHENICS</b> <small>6255 Mahoning Dr., Cleveland, OH 44132</small>	
DESIGNER	
ESM	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.102	P.445

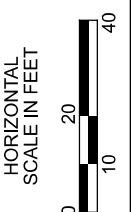
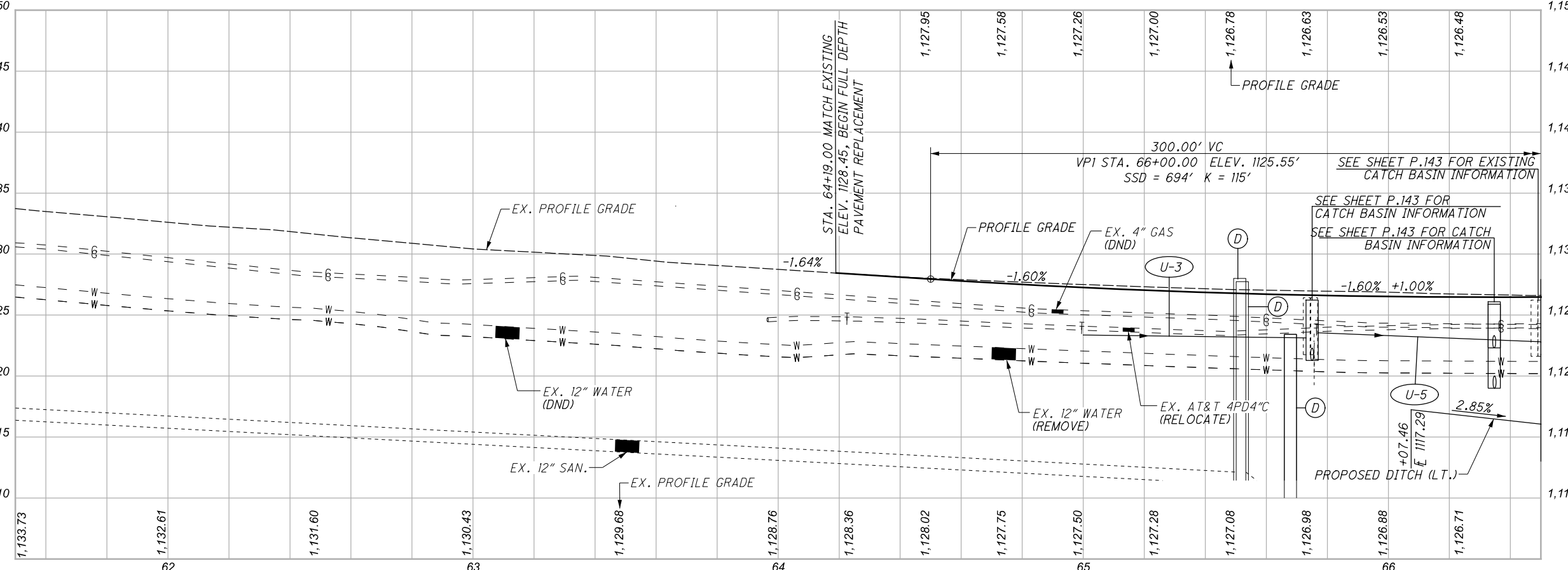
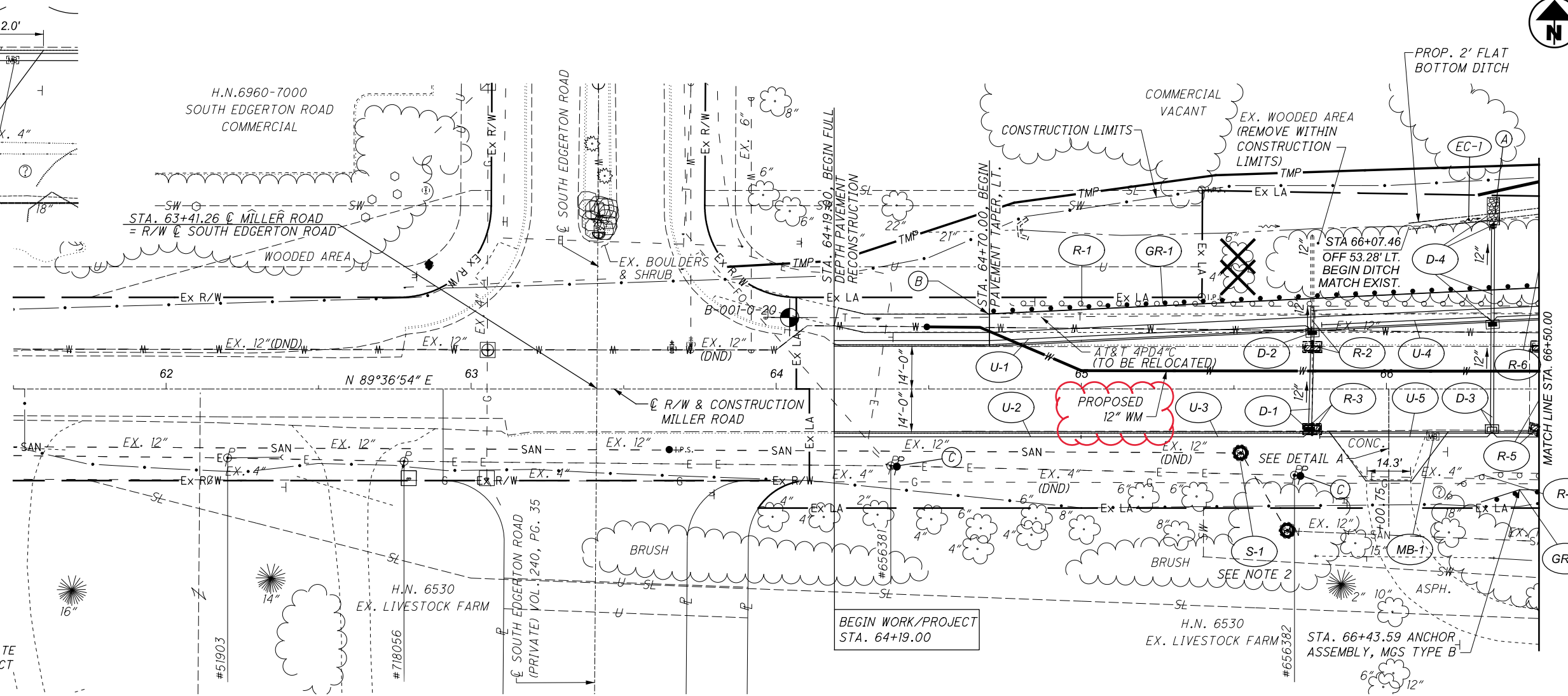


- (A) ROCK CHANNEL PROTECTION TYPE C, 4' W X 9' L X 18" THICK WITH AGGREGATE FILTER
- (B) STA. 64+69.50 ANCHOR ASSEMBLY, MGS TYPE T
- (C) PROPOSED CEI POWER POLE
- (D) FOR SANITARY MANHOLE INFORMATION, SEE SHEET P.230

**LEGEND**  
 DND - DO NOT DISTURB  
 H.N. - HOUSE NUMBER

- NOTES:**
- REFER TO CROSS SECTIONS FOR PROPOSED DITCH LOCATIONS AND ELEVATIONS.
  - EX. SANITARY MANHOLE IS WITHIN THE LIMITS OF TEMPORARY PAVEMENT. RECONSTRUCT TO GRADE TO ACCOMMODATE TEMPORARY PAVEMENT AND RECONSTRUCT TO FINAL GRADE UPON REMOVAL OF TEMPORARY PAVEMENT.
  - FOR QUANTITIES, SEE SUBSUMMARY ON SHEET P.107
  - FOR PROPOSED WATER WORK, SEE SHEET P.254
  - FOR PAVEMENT BUILDUP OF DRIVE APRON AT STA. 66+00.75, SEE SHEET P.220.

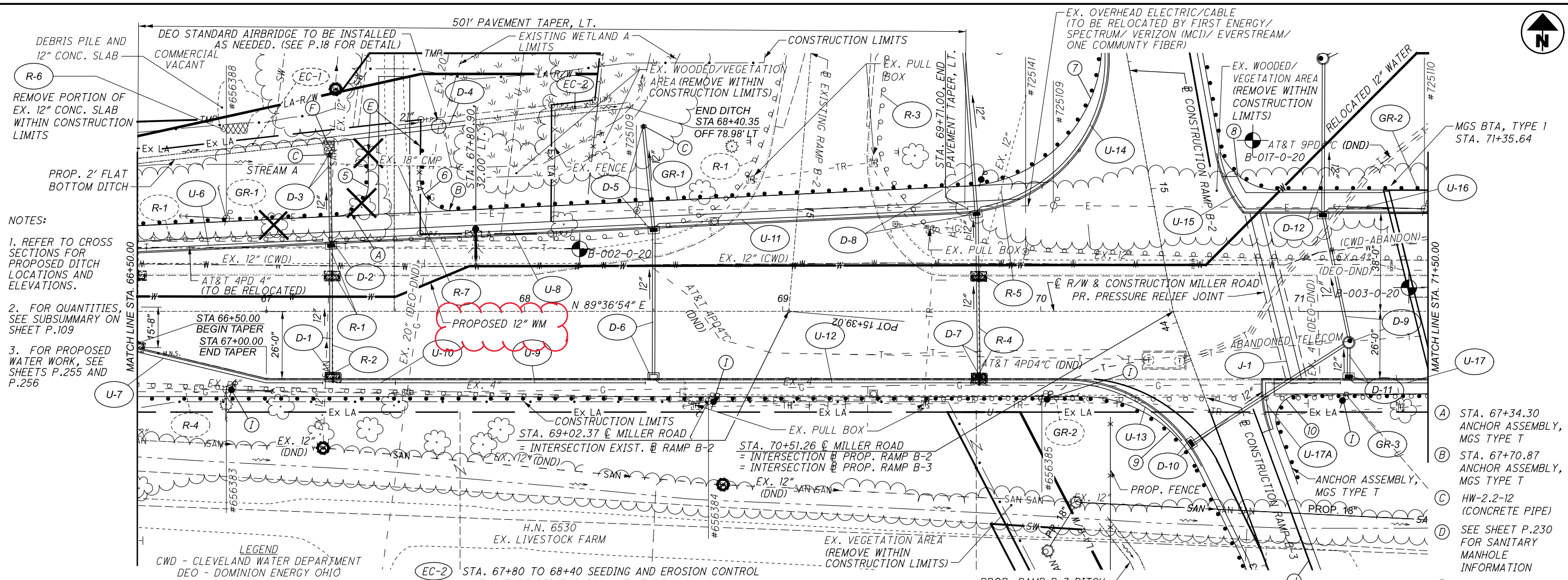
(EC-1) STA. 66+07.46 TO 67+30.00 SEEDING AND EROSION CONTROL MAT W/TURF REINFORCING MAT, TYPE 1 (W=7.5')



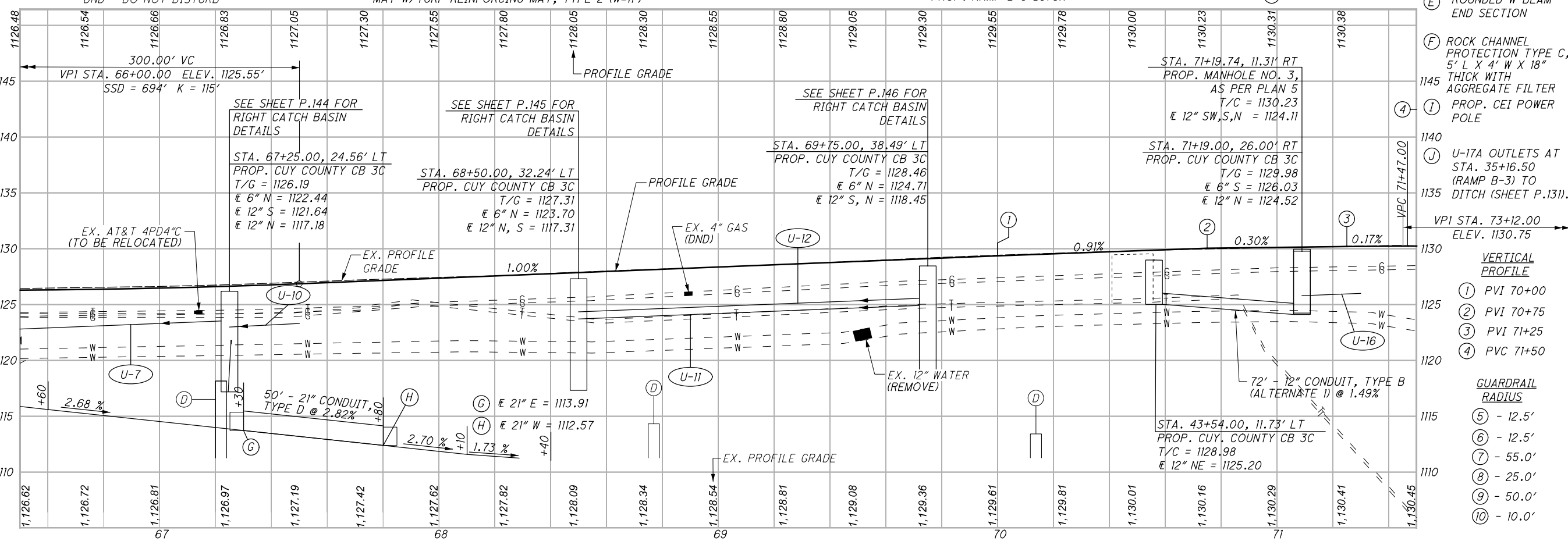
**PLAN AND PROFILE - MILLER ROAD**  
STA. 61+50 TO STA. 66+50

DESIGN AGENCY	
<b>EUTHENICS</b> 8333 Mahan Dr., Cleveland, OH 44135	
DESIGNER	ESM
REVIEWER	DTB
PROJECT ID	104983
SHEET	TOTAL
P.108	P.445





- NOTES:
- REFER TO CROSS SECTIONS FOR PROPOSED DITCH LOCATIONS AND ELEVATIONS.
  - FOR QUANTITIES, SEE SUBSUMMARY ON SHEET P.109
  - FOR PROPOSED WATER WORK, SEE SHEETS P.255 AND P.256



**PLAN AND PROFILE - MILLER ROAD (WETLAND A & STREAM A)**  
 STA. 66+50 TO STA. 71+50

- (A) STA. 67+34.30 ANCHOR ASSEMBLY, MGS TYPE T
  - (B) STA. 67+70.87 ANCHOR ASSEMBLY, MGS TYPE T
  - (C) HW-2.2-12 (CONCRETE PIPE)
  - (D) SEE SHEET P.230 FOR SANITARY MANHOLE INFORMATION
  - (E) ROUNDED W-BEAM END SECTION
  - (F) ROCK CHANNEL PROTECTION TYPE C, 5' L X 4' W X 18" THICK WITH AGGREGATE FILTER
  - (I) PROP. CEI POWER POLE
  - (J) U-17A OUTLETS AT STA. 35+16.50 (RAMP B-3) TO DITCH (SHEET P.131).
- VERTICAL PROFILE**
- (1) PVI 70+00
  - (2) PVI 70+75
  - (3) PVI 71+25
  - (4) PVC 71+50
- GUARDRAIL RADIUS**
- (5) - 12.5'
  - (6) - 12.5'
  - (7) - 55.0'
  - (8) - 25.0'
  - (9) - 50.0'
  - (10) - 10.0'

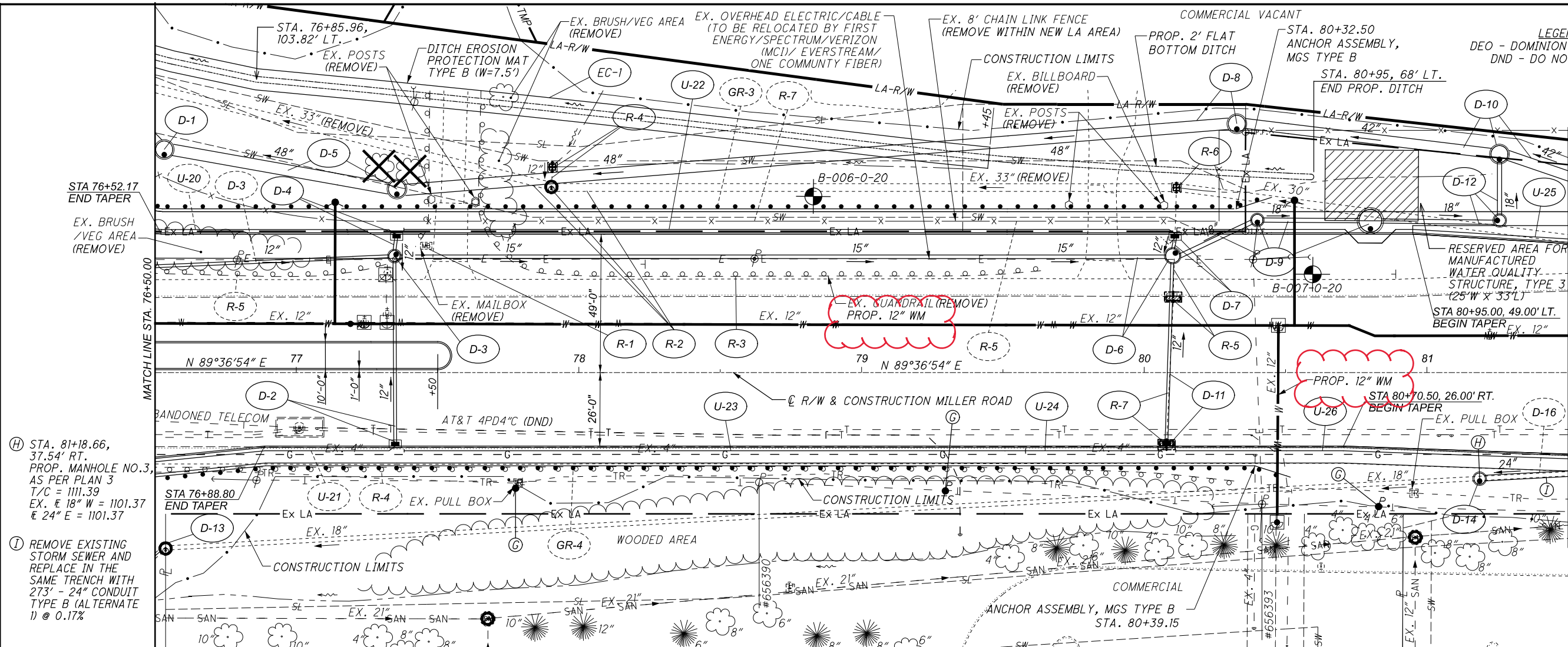
DESIGN AGENCY  
**EUTHENICS**  
 833 Mohawk Dr. | Cleveland, OH 44130

DESIGNER  
 ESM

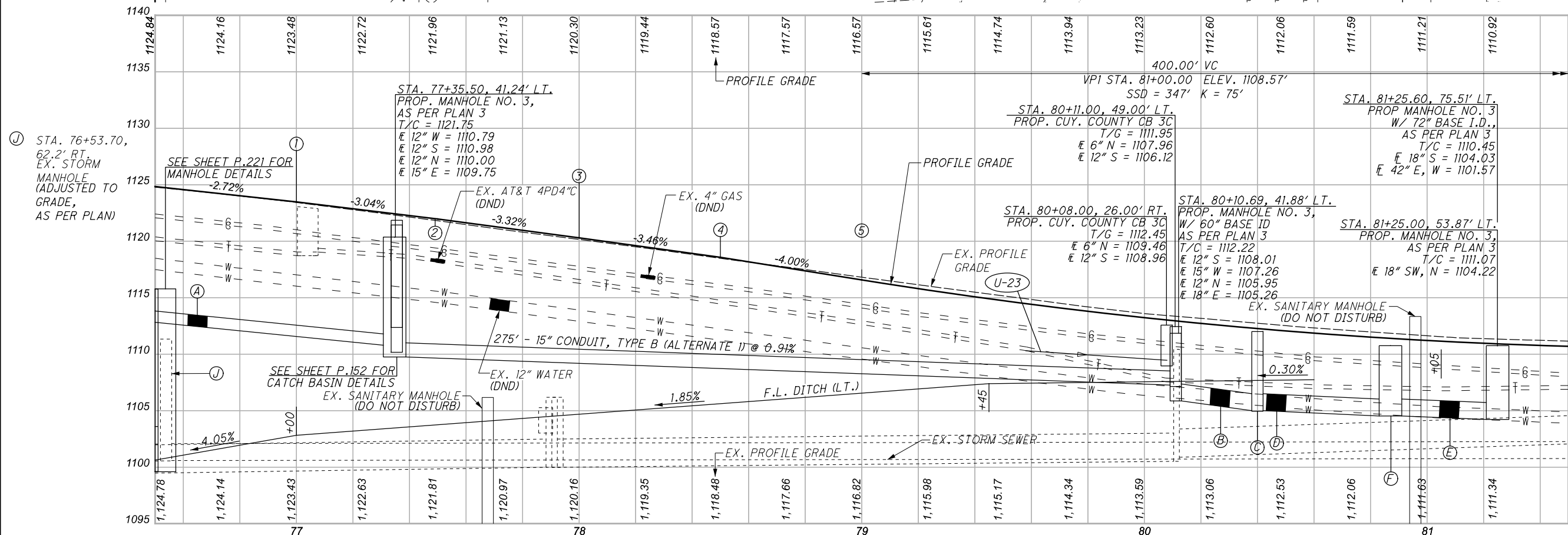
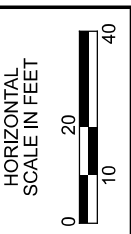
REVIEWER  
 DTB 03/01/22

PROJECT ID  
 104983

SHEET TOTAL  
 P.110 P.445



- LEGEND**  
 DEO - DOMINION ENERGY OHIO  
 DND - DO NOT DISTURB
- NOTES:**
- REFER TO CROSS SECTIONS FOR PROPOSED DITCH LOCATIONS AND ELEVATIONS.
  - FOR QUANTITIES, SEE SUBSUMMARY ON SHEET P.113
  - FOR PROPOSED WATER WORK, SEE SHEETS P.257 AND P.258
- (A) 245' - 12" CONDUIT, TYPE B (ALTERNATE 1) @ 1.62%
  - (B) 33' - 18" CONDUIT, TYPE B (ALTERNATE 1) @ 0.94%
  - (C) STA. 80+40.00, 54.03' LT. PROP. MANHOLE NO.3, AS PER PLAN 3 T/C = 1112.00 E 18' SW, E = 1104.95
  - (D) 40'-18" CONDUIT, TYPE B (ALTERNATE 1) @ 0.95%
  - (E) 46'-18" CONDUIT, TYPE B (ALTERNATE 1) @ 0.76%
  - (F) STA. 80+80.00, 53.76' LT. PROP. MANHOLE NO.3 W/96" BASE I.D. AND 9" WEIR, APP 3 T/C = 1111.12 E 18' W, NE = 1104.57
  - (G) PROP. CEI POWER POLE



- VERTICAL PROFILE**
- (1) PVI 77+00
  - (2) PVI 77+50
  - (3) PVI 78+00
  - (4) PVI 78+50
  - (5) PVC 79+00
- APP - AS PER PLAN

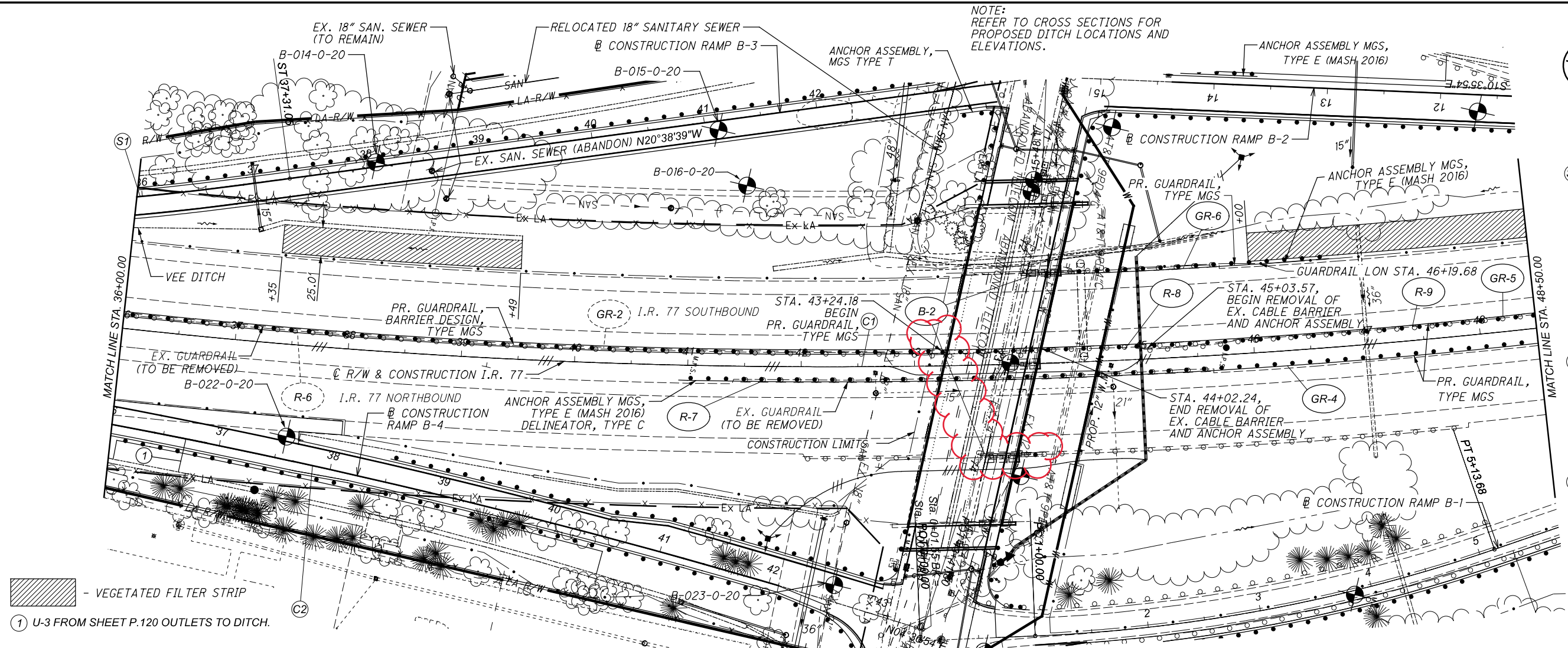
**PLAN AND PROFILE - MILLER ROAD**  
 STA. 76+50 TO STA. 81+50

DESIGN AGENCY	EUTHENICS
DESIGNER	ESM
REVIEWER	DTB 03/01/22
PROJECT ID	104983
SHEET	P.114
TOTAL	P.445

REF. NO.	START PLAN SHEET NO.	STATION LIMITS		LOCATION	202					601	602	605		606							611		620	622		626						
					CONCRETE BARRIER REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	CABLE BARRIER REMOVED	CATCH BASIN REMOVED	MANHOLE REMOVED	TIED CONCRETE BLOCK MAT WITH TYPE 1 UNDERLAYMENT	CONCRETE MASONRY	6" BASE PIPE UNDERDRAIN, WITH GEOTEXTILE FABRIC	6" CONDUIT, TYPE F	GUARDRAIL BARRIER DESIGN, TYPE MGS	GUARDRAIL, TYPE MGS	IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL)	ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016)	ANCHOR ASSEMBLY, MGS TYPE B	ANCHOR ASSEMBLY, MGS TYPE T	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	SPECIAL - CABLE BARRIER, ANCHOR ASSEMBLY	18" CONDUIT, TYPE C	MANHOLE, NO. 3	PRECAST REINFORCED CONCRETE OUTLET	DELINEATOR, POST GROUND MOUNTED	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	CONCRETE BARRIER END SECTION, TYPE D	CONCRETE BARRIER END ANCHORAGE REINFORCED, TYPE D	BARRIER REFLECTOR TYPE 1, ONE-WAY	BARRIER REFLECTOR TYPE 3, ONE-WAY
					FT	FT	FT	FT	EACH	EACH	SY	CY	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	FT	EACH	EACH	EACH	FT	EACH	EACH	EACH	EACH	
D-1	P.120	26+65	28+91	LT								0.31										257	1									
D-2	P.120	28+91	31+96	LT																		300	1									
D-3	P.120	31+96		LT																		36	1									
GR-1	P.119	21+11	32+46	LT																									1	12		
GR-2	P.120	24+39	43+24	LT																										20		
GR-3	P.120	29+34	35+33	RT																										6		
GR-4	P.121	41+42	58+88	RT																										19		
GR-5	P.121	43+24	58+86	LT																										17		
GR-6	P.121	44+44	46+72	LT			157																									
GR-7	P.122	58+86	74+47	LT																										18		
GR-8	P.123	71+90	74+65	LT																										3		
GR-9	P.123	74+23	74+73	LT																												
GR-10	P.119	6+75	8+62.5	RT																												
R-1	P.119	20+61	23+50	LT			269																									
R-2	P.120	25+79	28+10	LT			231																									
R-3	P.120	26+65	31+96	LT		495				1																						
R-4	P.120	31+96		LT						1																						
R-5	P.120	31+96		LT		18			1																							
R-6	P.120	24+34	44+02	LT			1965																									
R-7	P.121	41+43	45+61	RT			419																									
R-8	P.121	43+09	45+54	LT			244																									
R-9	P.121	45+04	63+54	LT			1848																									
R-10	P.123	63+02	64+59	LT			157																									
R-11	P.123	64+08	75+57	LT			1100																									
R-12	P.119	20+03	20+62	LT	60																											
U-1	P.119	18+00	22+03	LT				1.77		406	34																					
U-2	P.120	22+03	35+16 ***	LT						1321																						
U-3	P.120	29+67	36+70 ****	RT						708	30																					
B-1	P.119	20+03	20+62	LT																												
B-2	P.121	43+44	44+44	LT	30		54																									
**** STATIONING OFF RAMP B-3																																
**** STATIONING OFF RAMP B-4																																
TOTALS CARRIED TO SUB-SUMMARY					90	513	1,531	4,913	1	2	1.77	0.31	2,435	64	3,412	5,681	1	4	1	4	2	1	1	593	3	1	4	95	3	1	1	95

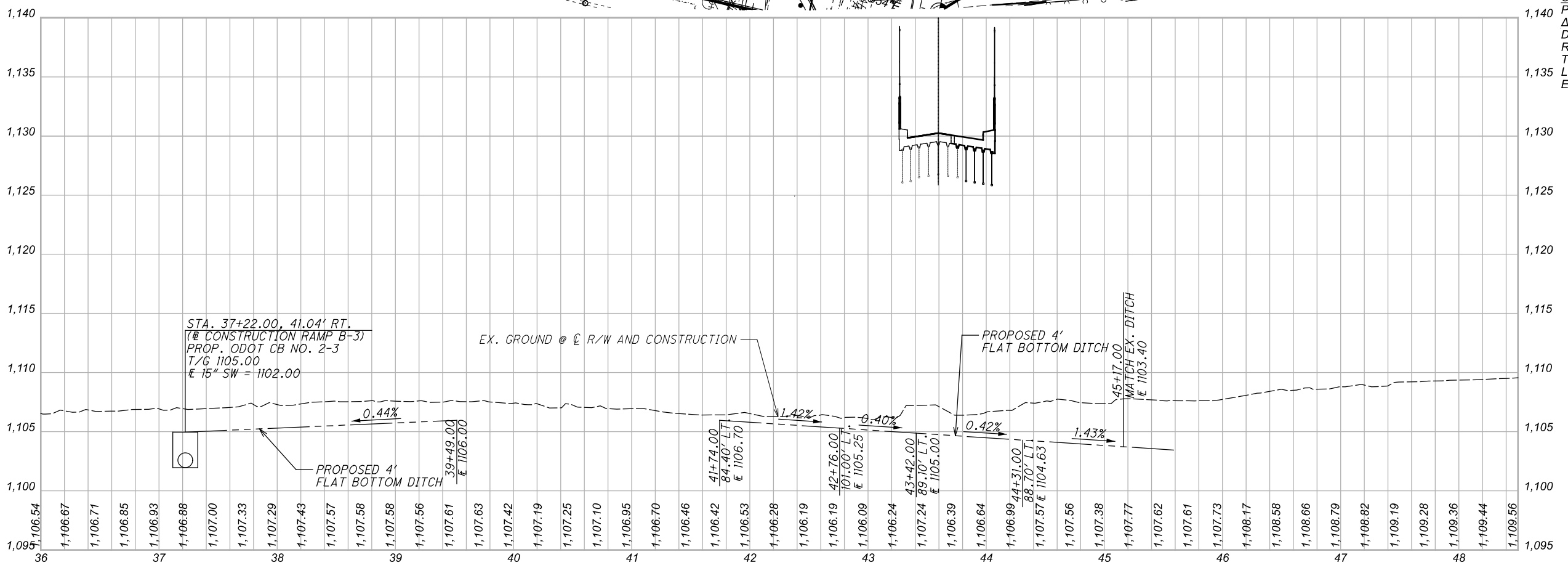
ESTIMATED QUANTITIES - I.R. 77

DESIGN AGENCY	
<b>EUTHENICS</b> 625 Walnut Dr., Cleveland, OH 44132	
DESIGNER	
ESM	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.118	P.445



VEGETATED FILTER STRIP

U-3 FROM SHEET P.120 OUTLETS TO DITCH.

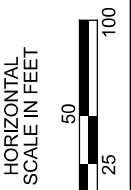


**(S1) RAMP B-3 SPIRAL DATA**  
P.I. = Sta. 35+97.77  
Ls = 200.00'  
θs = 05°30'00"  
LT = 133.40'  
ST = 66.73'  
x = 199.51'  
y = 12.79'  
k = 199.51'  
p = 12.79'  
C = 199.92'  
Start = Sta. 35+31.05  
End = Sta. 37+31.05  
C.B. = N18°48'40"W

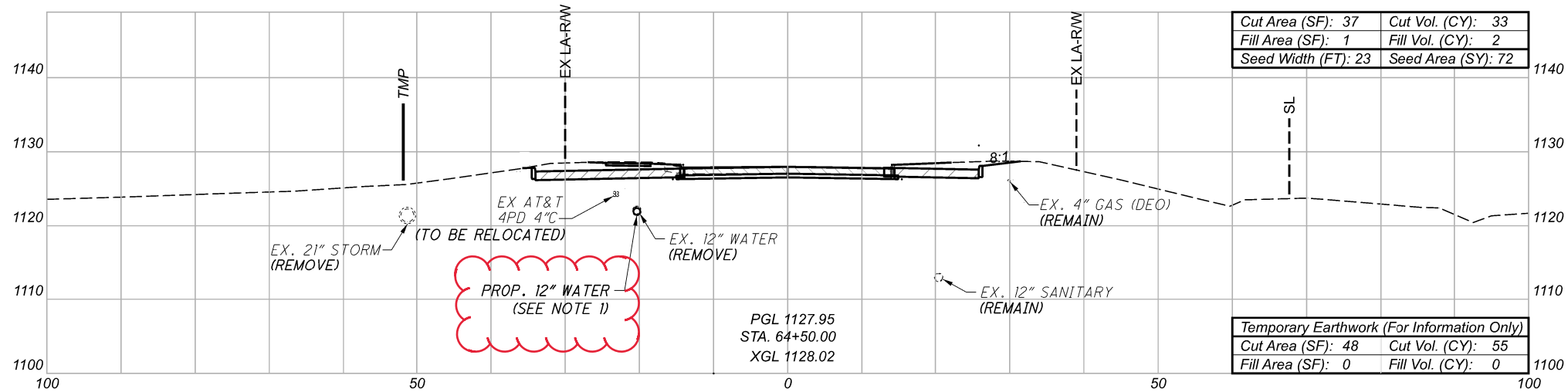
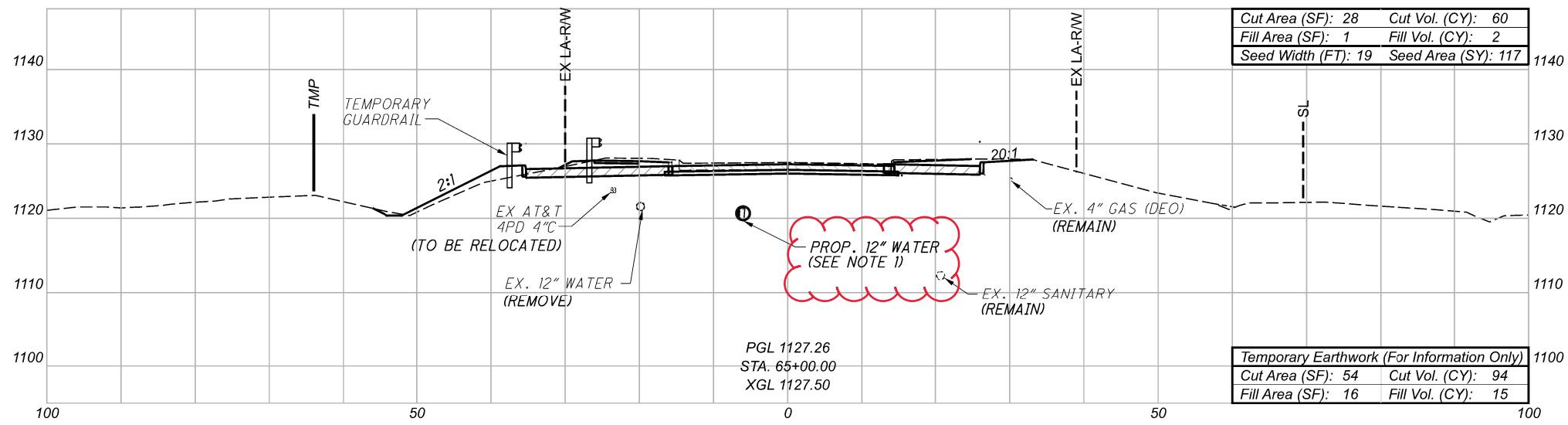
**(C1) I.R. 77 CURVE DATA**  
P.I. = Sta. 43+95.81  
Δ = 28°44'59" LT  
Dc = 01°00'00"  
R = 5,729.58'  
T = 1,468.43'  
L = 2,874.98'  
E = 185.18'

**(C2) RAMP B-4 CURVE DATA**  
P.I. = Sta. 38+51.77  
Δ = 09°00'29" RT  
Dc = 00°55'47"  
R = 6,162.00'  
T = 485.4'  
L = 968.8'  
E = 19.09'

**RAMP B-1 CURVE DATA**  
P.I. = Sta. 3+08.29  
Δ = 16°32'50" LT  
Dc = 04°00'00"  
R = 1,432.39'  
T = 208.29'  
L = 413.68'  
E = 15.06'



**PLAN AND PROFILE - I.R. 77**  
**STA. 36+00 TO STA. 48+50**



**LEGEND**

	TEMPORARY PAVEMENT
	ITEM 202 - PAVEMENT REMOVED

**NOTES**  
 1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.254

CROSS SECTIONS - MILLER ROAD  
 STA. 64+50 TO STA. 65+00

DESIGN AGENCY  
**EUTHENICS**  
 8225 Mahan Dr. | Cleveland, OH 44132

DESIGNER  
 DTB

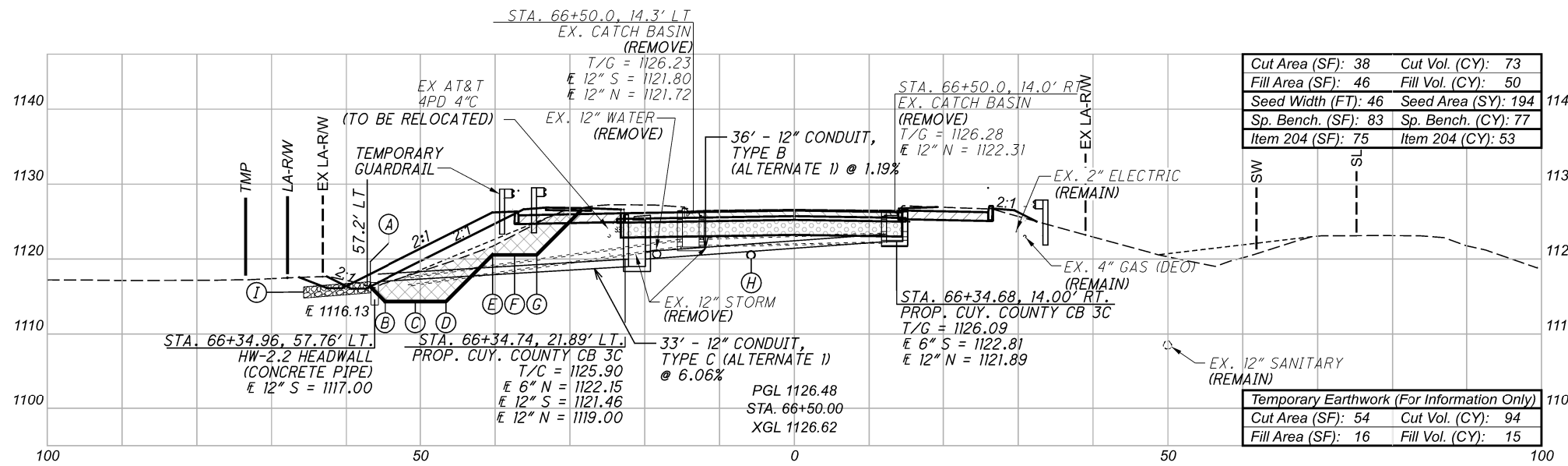
REVIEWER

RAB 03/01/22

PROJECT ID

104983

Sheet Totals					SHEET	TOTAL
Seeding	Cut	Fill	Temp. Cut	Temp. Fill		
189	93	4	149	15	P.142	P.445



Cut Area (SF): 38	Cut Vol. (CY): 73
Fill Area (SF): 46	Fill Vol. (CY): 50
Seed Width (FT): 46	Seed Area (SY): 194
Sp. Bench. (SF): 83	Sp. Bench. (CY): 77
Item 204 (SF): 75	Item 204 (CY): 53

Temporary Earthwork (For Information Only)	
Cut Area (SF): 54	Cut Vol. (CY): 94
Fill Area (SF): 16	Fill Vol. (CY): 15

**LEGEND**

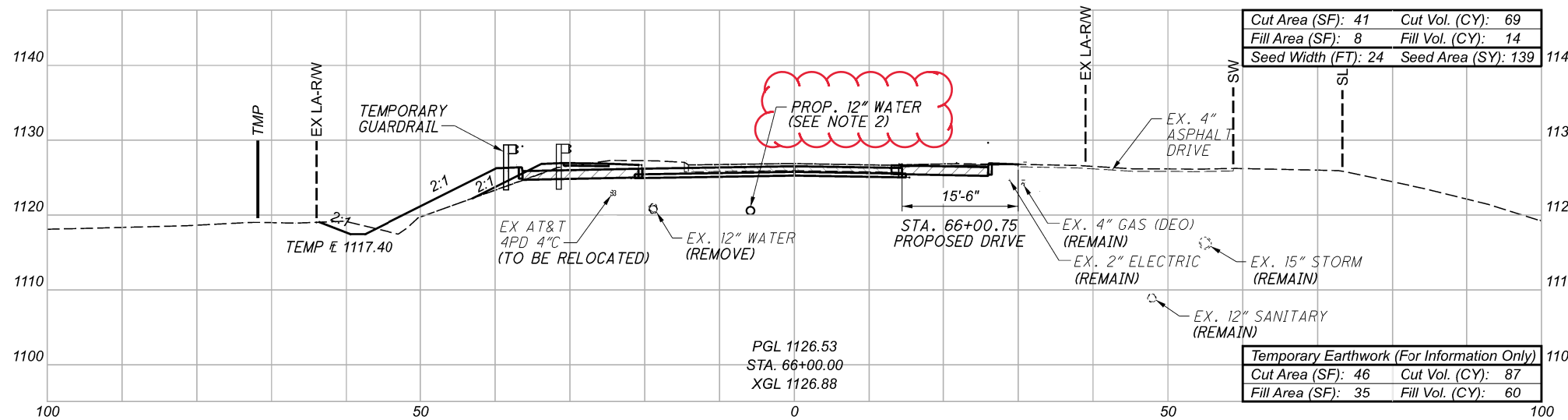
- ITEM 202 - PAVEMENT REMOVED
- ITEM 204 - EXCAVATION OF SUBGRADE  
ITEM 204 - GRANULAR MATERIAL, TYPE B AND  
GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
- TEMPORARY PAVEMENT
- SPECIAL BENCHING

- (A) 56.8' LT.
- (B) 54.8' LT.
- (C) ELEV. = 1114.34
- (D) 46.58' LT.
- (E) 40.35' LT.
- (F) ELEV. = 1120.56
- (G) 34.45' LT.

(H) PROP. 12" WATER  
(SEE NOTE 2 AND 3)

(I) ROCK CHANNEL PROTECTION  
TYPE C, 18" THICK WITH  
AGGREGATE FILTER

APP - AS PER PLAN

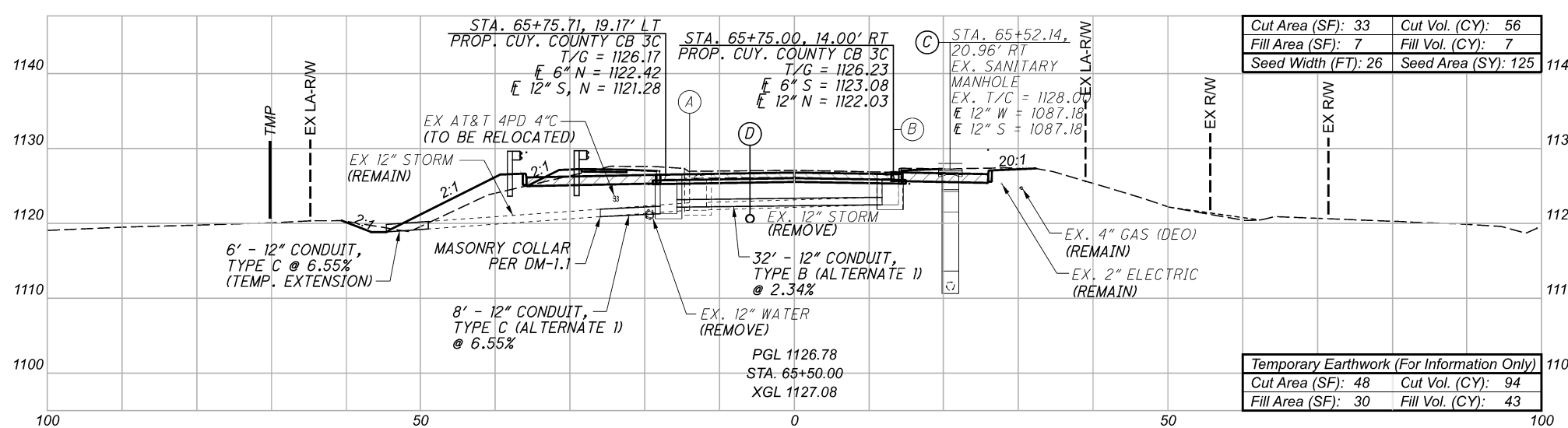


Cut Area (SF): 41	Cut Vol. (CY): 69
Fill Area (SF): 8	Fill Vol. (CY): 14
Seed Width (FT): 24	Seed Area (SY): 139

Temporary Earthwork (For Information Only)	
Cut Area (SF): 46	Cut Vol. (CY): 87
Fill Area (SF): 35	Fill Vol. (CY): 60

**NOTES**

1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.254
2. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.255
3. PROVIDE 18" VERTICAL CLEARANCE BETWEEN STORM AND WATER MAIN.



Cut Area (SF): 33	Cut Vol. (CY): 56
Fill Area (SF): 7	Fill Vol. (CY): 7
Seed Width (FT): 26	Seed Area (SY): 125

Temporary Earthwork (For Information Only)	
Cut Area (SF): 48	Cut Vol. (CY): 94
Fill Area (SF): 30	Fill Vol. (CY): 43

- (A) STA. 65+75.0, 14.0' LT  
EX. CATCH BASIN  
(REMOVE)  
T/G = 1126.42  
E 12" S = 1121.80  
E 12" N = 1121.75
- (B) STA. 65+75.0, 14.0' RT  
EX. CATCH BASIN  
(REMOVE)  
T/G = 1126.54  
E 12" N = 1122.48
- (C) ADJUST MANHOLE TO GRADE  
(TEMPORARY PAVEMENT)  
INSTALL HEAVY DUTY CASTING

(D) PROP. 12" WATER MAIN  
(SEE NOTE 1 AND 3)

Sheet Totals					
Seeding	Cut	Fill	Temp. Cut	Temp. Fill	Item 204
458	275	148	275	118	53

CROSS SECTIONS - MILLER ROAD  
STA. 65+50 TO STA. 66+50

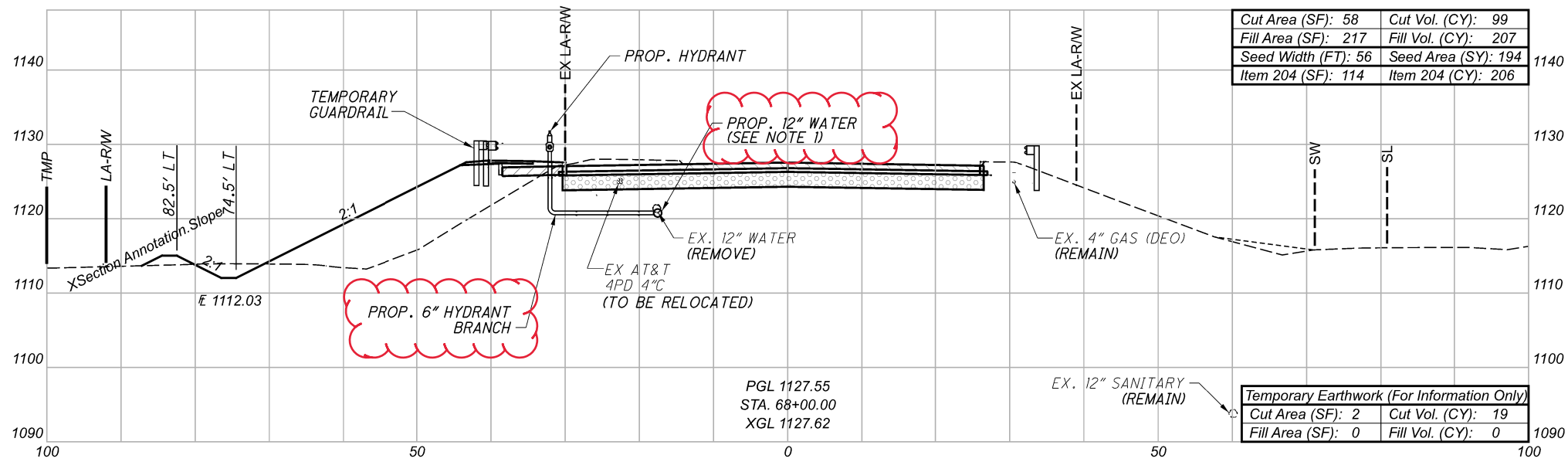
DESIGN AGENCY  
**EUTHENICS**  
6225 Mahan Dr., Cleveland, OH 44132

DESIGNER  
DTB

REVIEWER  
RAB 03/01/22

PROJECT ID  
104983

SHEET TOTAL  
P.143 P.445



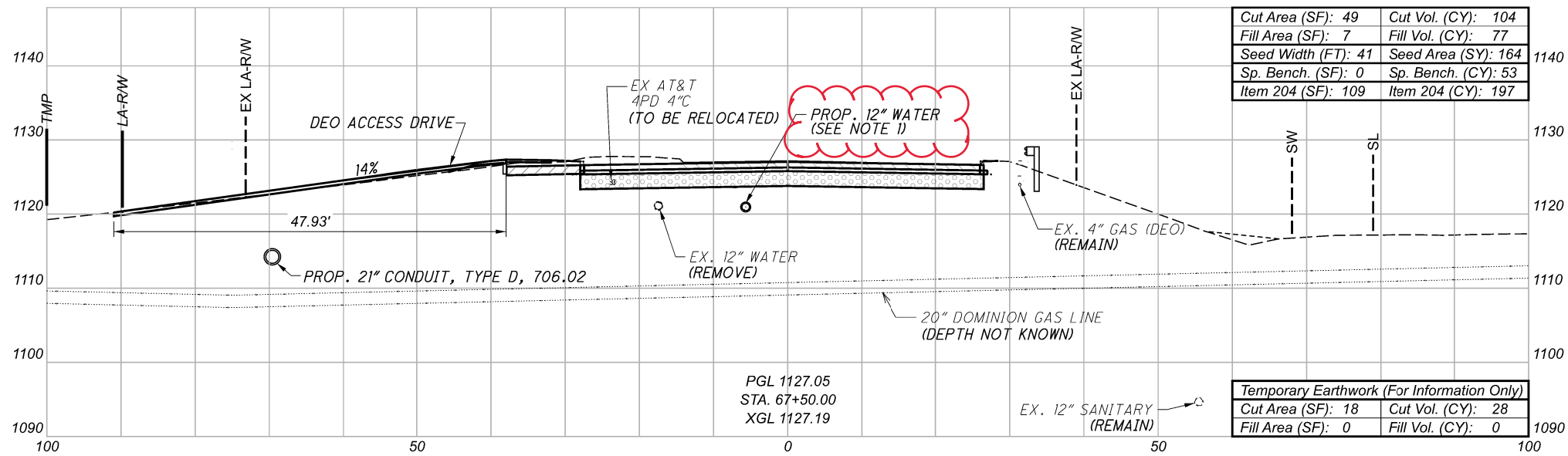
**LEGEND**

- ITEM 202 - PAVEMENT REMOVED
- ITEM 204 - EXCAVATION OF SUBGRADE  
ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
- TEMPORARY PAVEMENT
- SPECIAL BENCHING

**NOTES**

1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.255

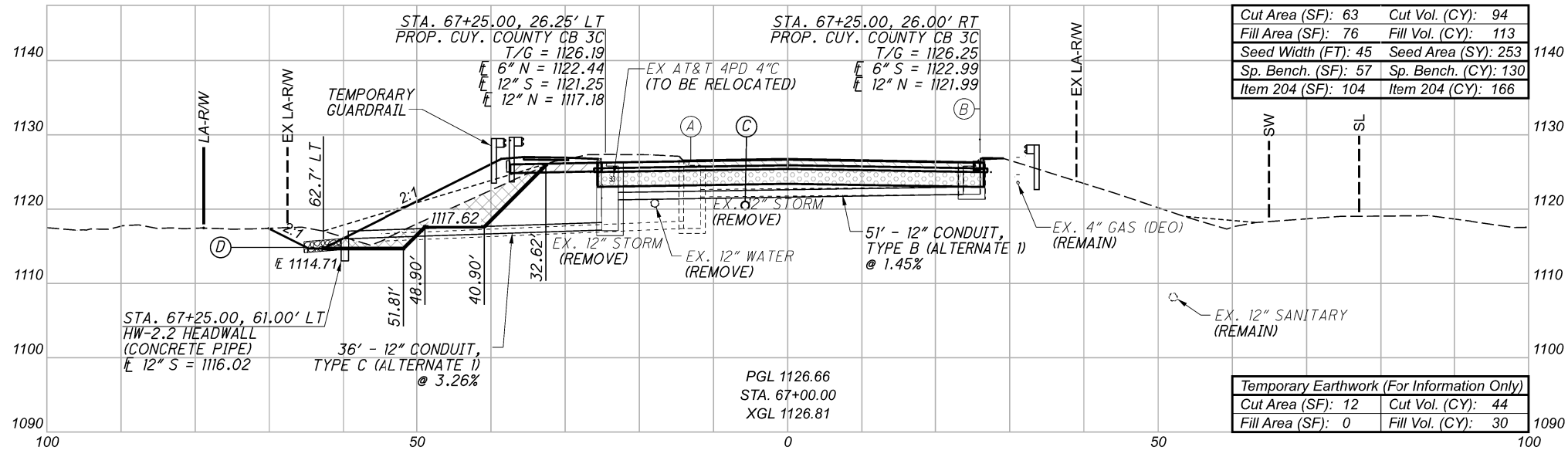
APP - AS PER PLAN



LEVEL A TEST HOLES - 20" GAS MAIN

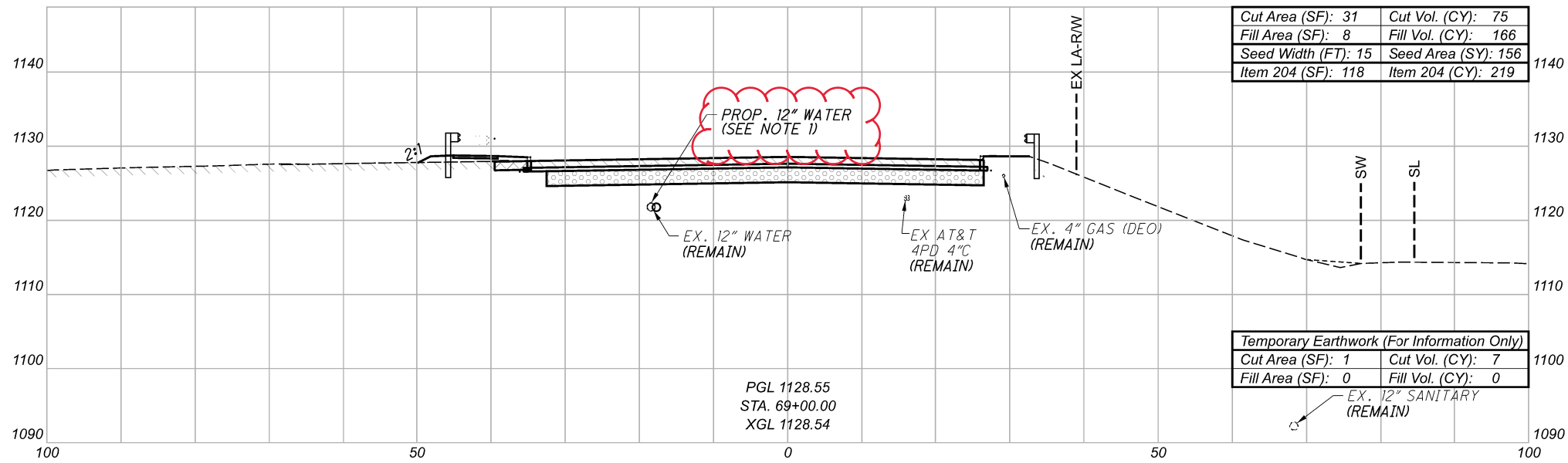
LOCATION	EX. GROUND LEVEL AT TEST HOLE	DEPTH OF TEST HOLE	BOTTOM OF TEST HOLE
STA. 67+62, 26.5' LT.	1127.44	9.69'	1117.75 *
STA. 67+65, 75.0' LT.	1119.02	9.26'	1109.76 *
STA. 67+67, 75.5' LT.	1119.01	11.62'	1107.39 *
STA. 67+71, 115.6' LT.	1114.83	6.51'	1108.32 #

\* NO UTILITY FOUND  
 # TOP OF GAS MAIN ELEVATION



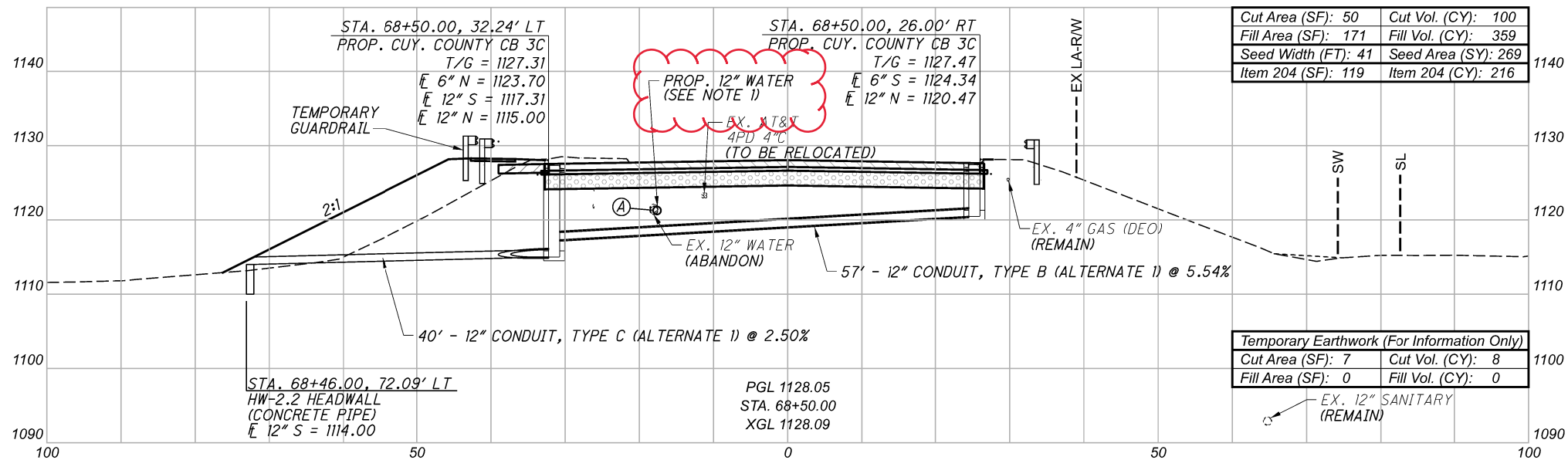
- (A) STA. 67+25.0, 14.0' LT EX. CATCH BASIN (REMOVE)  
 T/G = 1126.56  
 E 12" S = 1121.64  
 E 12" N = 1117.39
- (B) STA. 67+25.0, 14.0' RT EX. CATCH BASIN (REMOVE)  
 T/G = 1126.41  
 E 12" N = 1121.99
- (C) PROP. 12" WATER (PROVIDE 18" VERTICAL CLEARANCE BETWEEN STORM AND WATER MAIN)
- (D) ROCK CHANNEL PROTECTION TYPE C, 18" THICK WITH AGGREGATE FILTER

Sheet Totals					
Seeding	Cut	Fill	Temp. Cut	Temp. Fill	Item 204
611	480	580	91	30	569



**LEGEND**

	ITEM 202 - PAVEMENT REMOVED
	ITEM 204 - EXCAVATION OF SUBGRADE ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
	TEMPORARY PAVEMENT

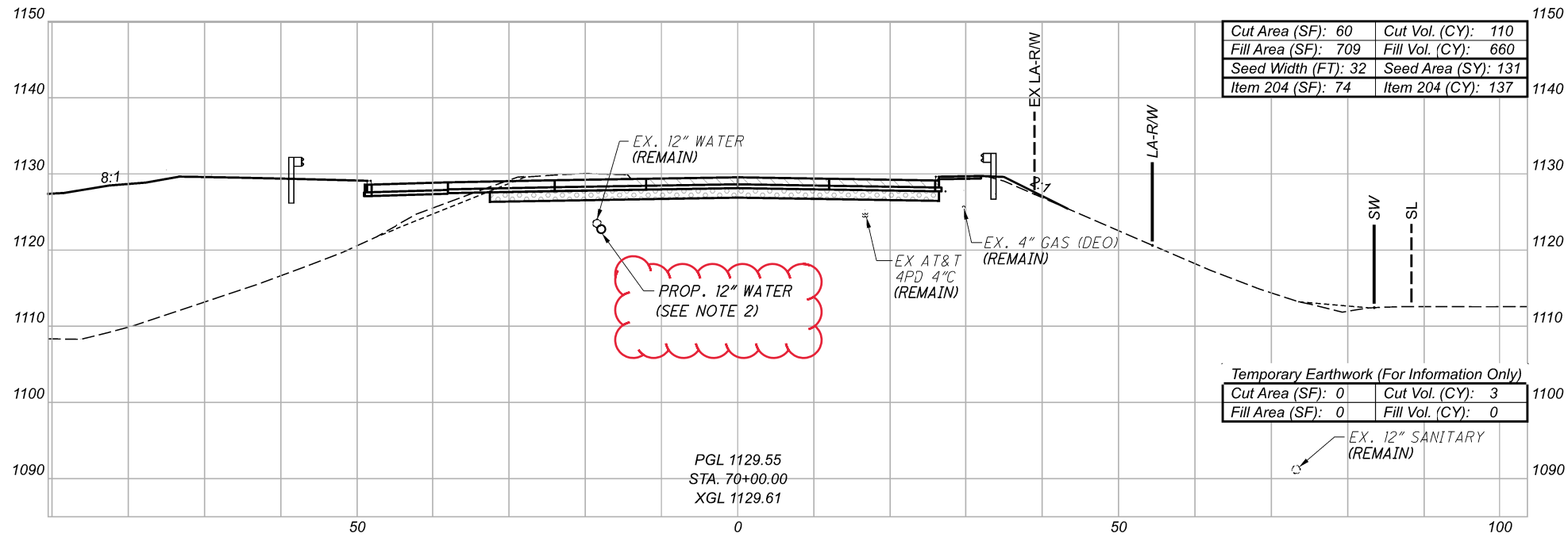


Ⓐ PROVIDE 18" VERTICAL CLEARANCE BETWEEN STORM AND WATER MAIN.



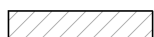
**NOTES**  
 1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.255

Sheet Totals					
Seeding	Cut	Fill	Temp. Cut	Temp. Fill	Item 204
425	175	525	15	0	435



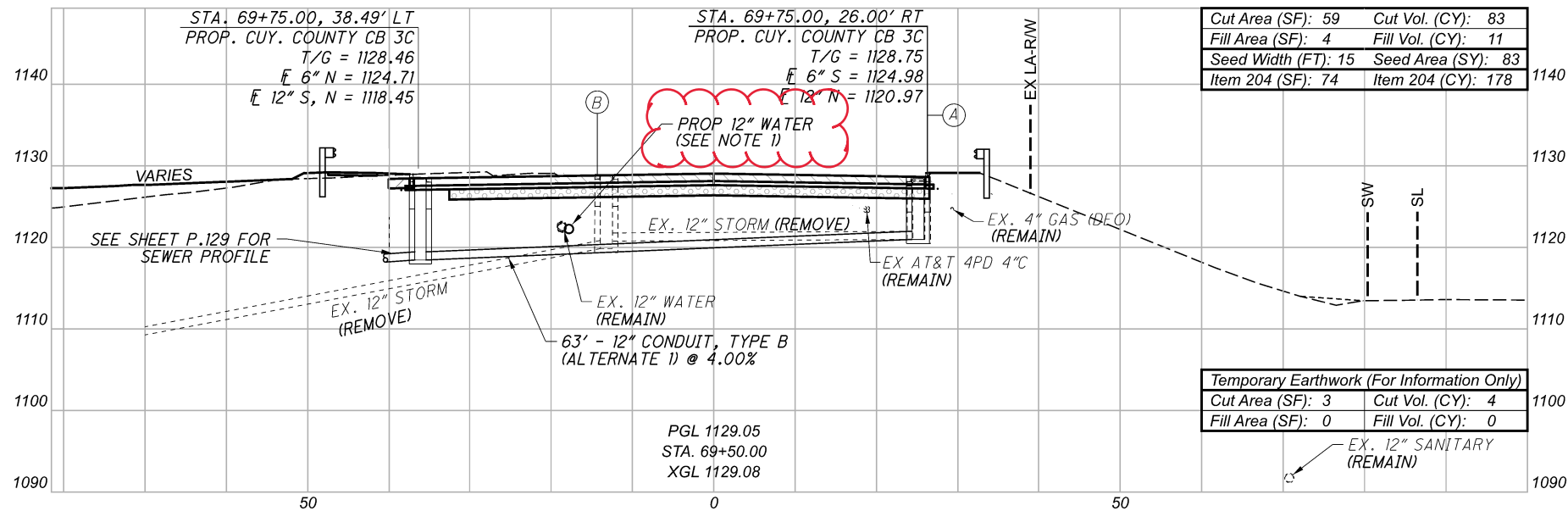


**LEGEND**

-  ITEM 202 - PAVEMENT REMOVED
-  ITEM 204 - EXCAVATION OF SUBGRADE  
 ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
-  TEMPORARY PAVEMENT

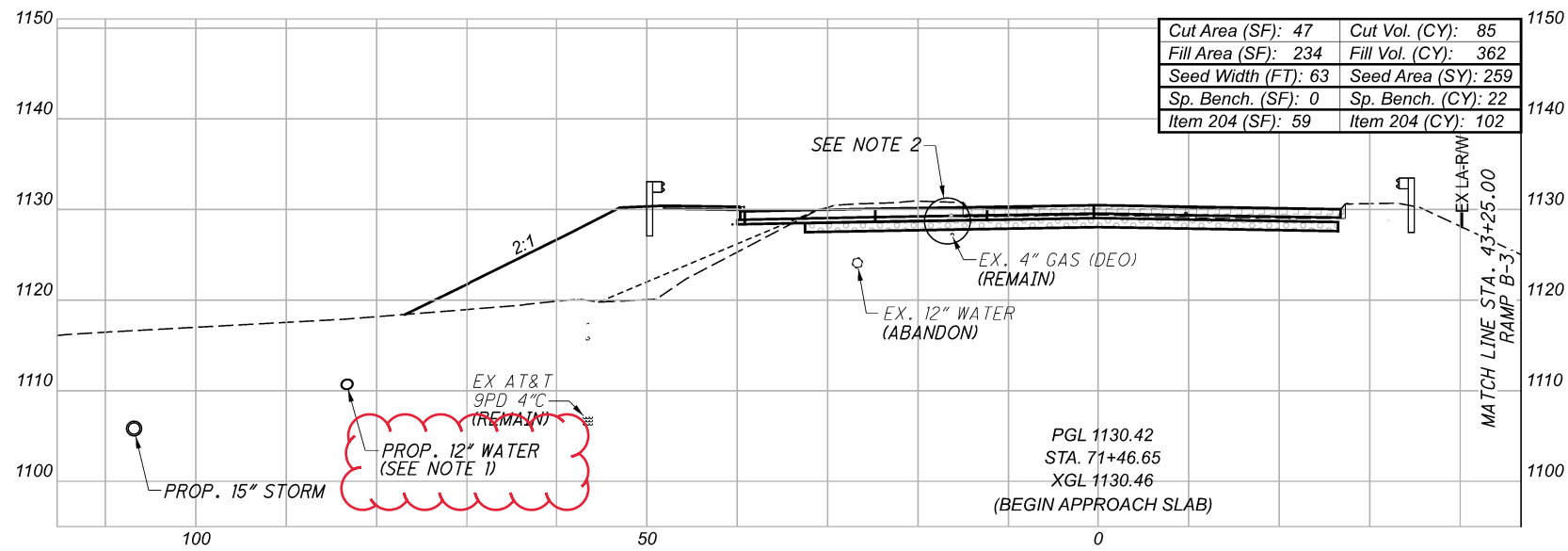
APP - AS PER PLAN

- NOTES**
- FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.255
  - FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.256
  - NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS.



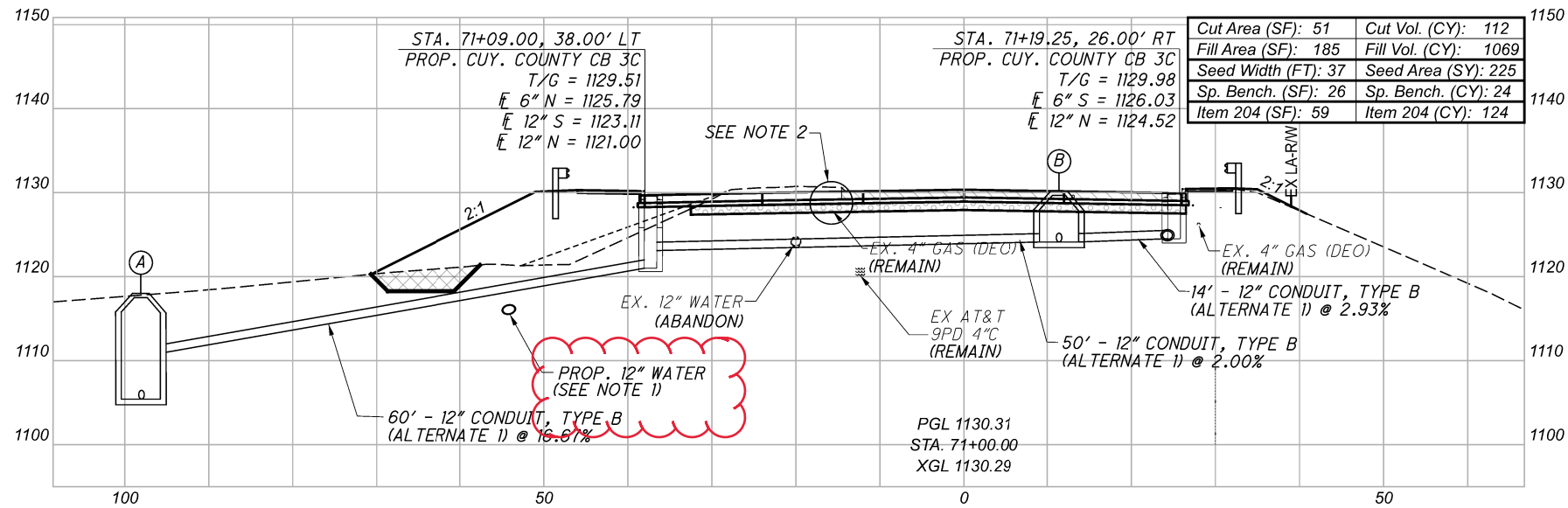
- (A) STA. 69+76.0, 26.0' RT  
 EX. CATCH BASIN (REMOVE)  
 T/G = 1128.24  
 E 12" N = 1120.97
- (B) STA. 69+75.0, 14.0' LT  
 EX. CATCH BASIN (REMOVE)  
 T/G = 1128.92  
 E 12" S = 1120.70  
 E 12" N = 1119.85

Sheet Totals					
Seeding	Cut	Fill	Temp. Cut	Temp. Fill	Item 204
214	193	671	7	0	315



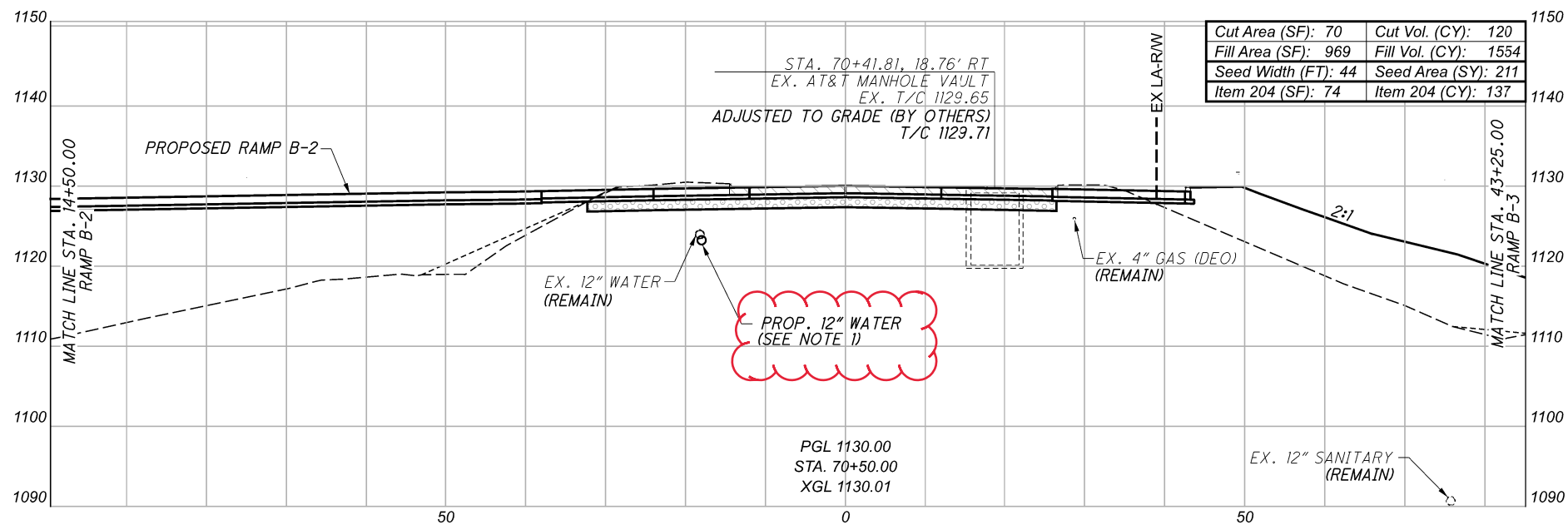
**NOTES**

- FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.256
- NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS.



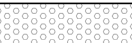




- (A) STA. 71+09.00, 98.00' LT  
 PROP. MANHOLE NO. 3,  
 AS PER PLAN 3  
 T/C = 1118.00  
 E 12" S = 1111.00  
 E 15" E = 1105.42

- (B) STA. 71+19.74, 11.31' RT  
 PROP. MANHOLE NO. 3,  
 AS PER PLAN 5  
 T/C = 1130.23  
 E 12" SW, S, N = 1124.11



**LEGEND**

-  ITEM 202 - PAVEMENT REMOVED
  -  ITEM 202 - APPROACH SLAB REMOVED
  -  ITEM 204 - EXCAVATION OF SUBGRADE  
 ITEM 204 - GRANULAR MATERIAL, TYPE B AND  
 GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
  -  SPECIAL BENCHING
  -  TEMPORARY PAVEMENT
- APP - AS PER PLAN

CROSS SECTIONS - MILLER ROAD  
 STA. 70+50 TO STA. 71+46.65

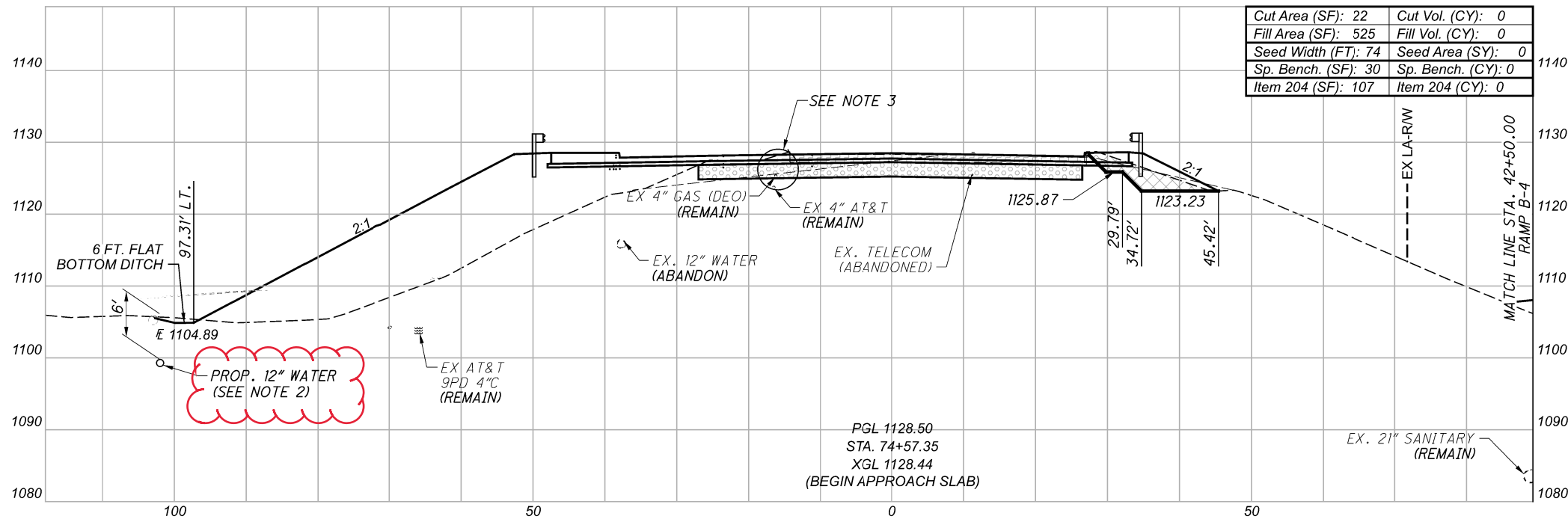
DESIGN AGENCY  
**EUTHENICS**  
 8235 Mahoning Dr. | Cleveland, OH 44132

DESIGNER  
 DTB

REVIEWER  
 RAB 03/01/22

PROJECT ID  
 104983

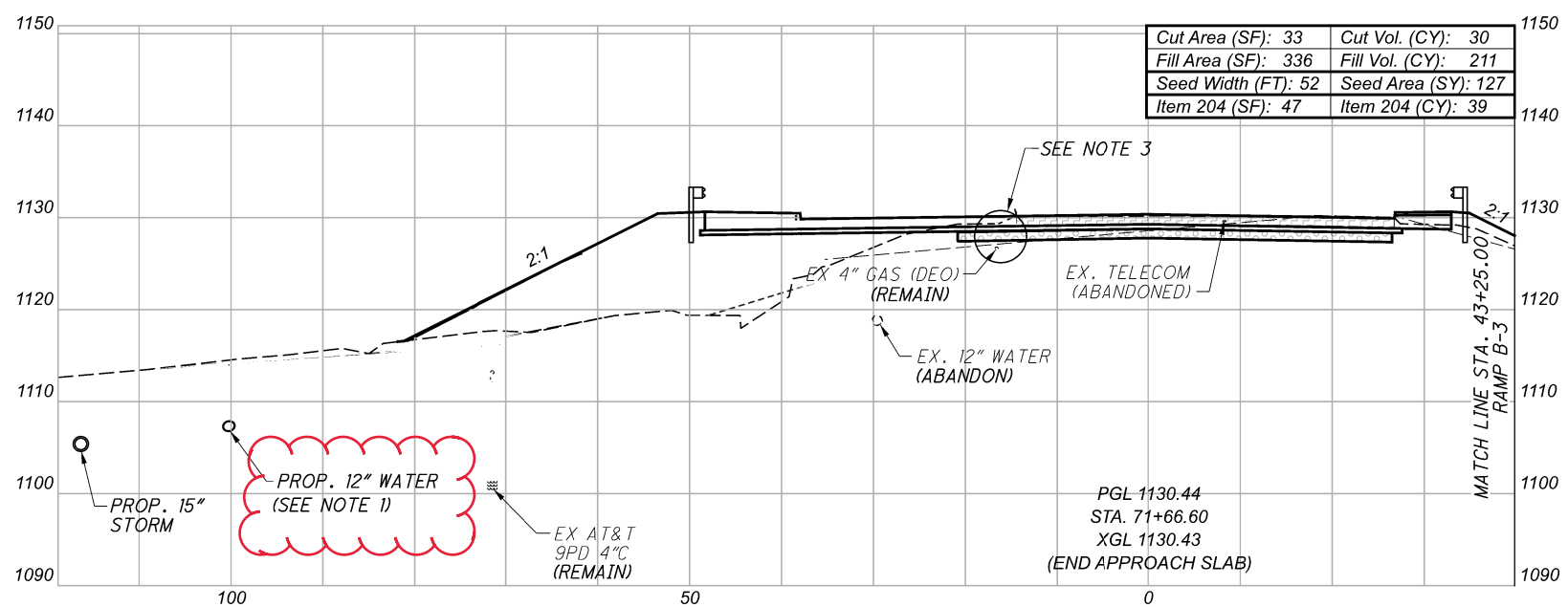
Sheet Totals				
Seeding	Cut	Fill	Item 204	TOTAL
695	363	3031	363	P.147 P.445



**LEGEND**

	ITEM 202 - APPROACH SLAB REMOVED
	ITEM 204 - EXCAVATION OF SUBGRADE ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
	SPECIAL BENCHING

- NOTES**
1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.256
  2. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.257
  3. NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS.



CROSS SECTIONS - MILLER ROAD  
 STA. 71+66.60 TO STA. 74+57.35

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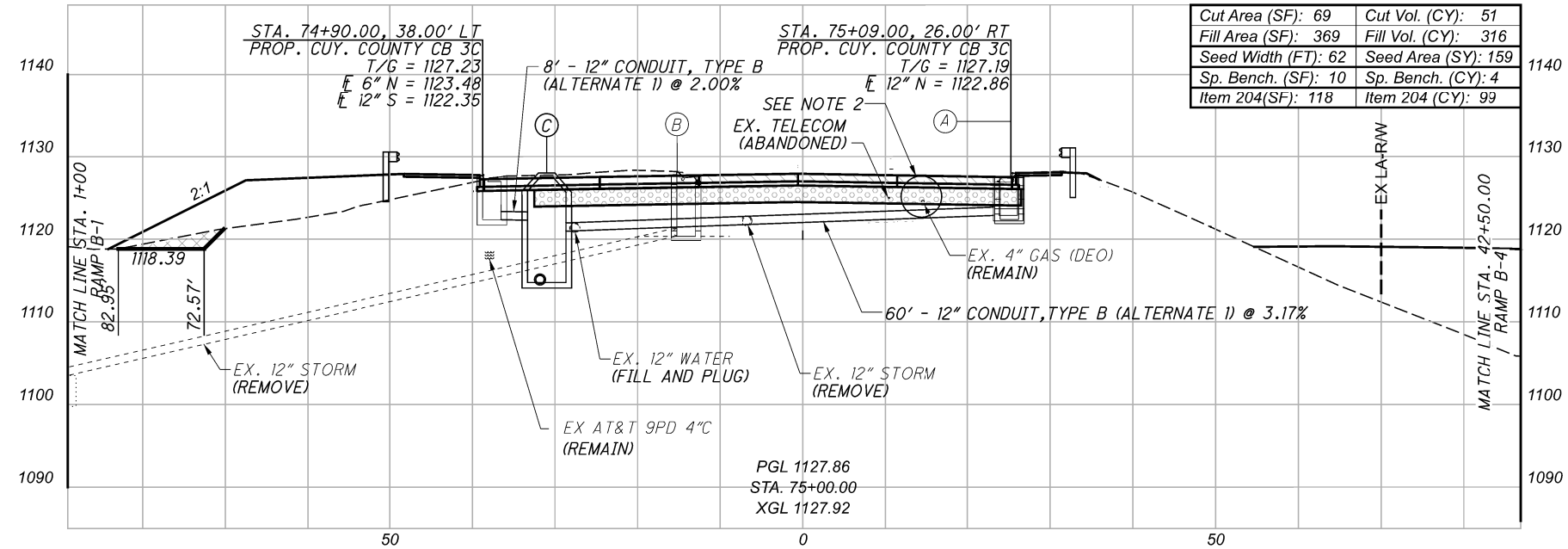
DESIGNER  
 DTB

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 RAB 03/01/22

PROJECT ID  
 104983

Sheet Totals			
Seeding	Cut	Fill	Item 204
127	30	211	39

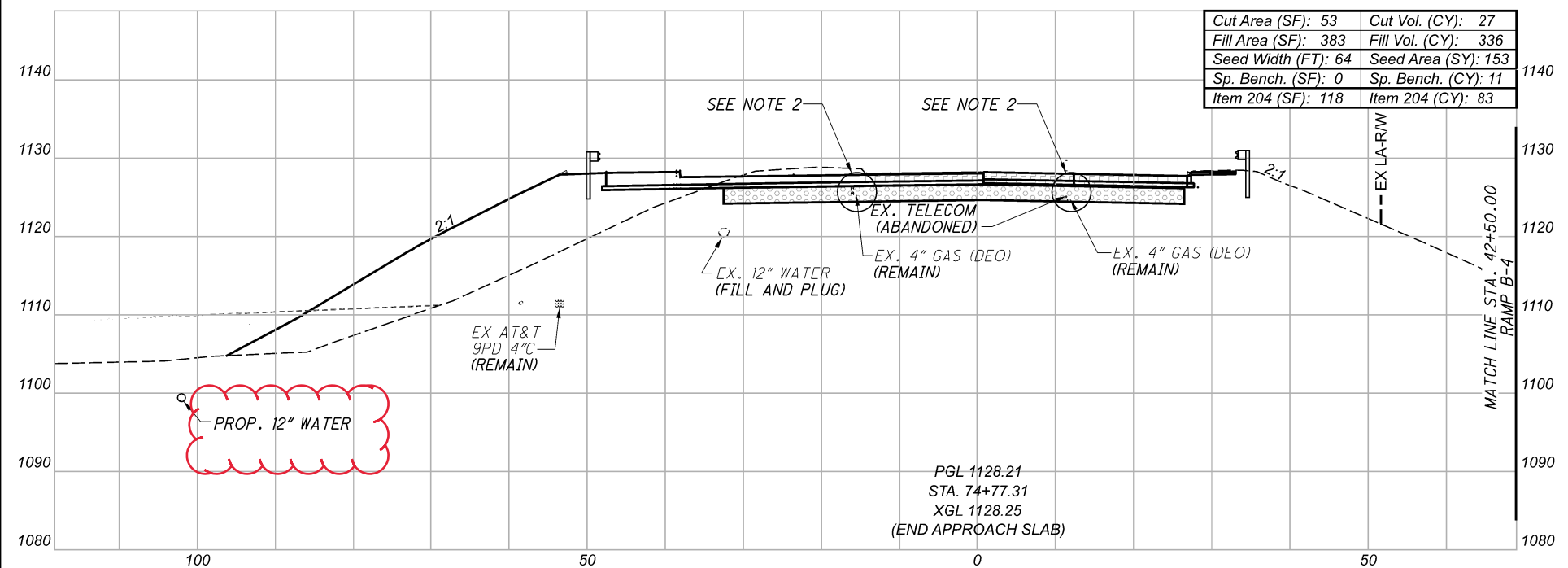
SHEET	TOTAL
P.148	P.445



Cut Area (SF): 69	Cut Vol. (CY): 51
Fill Area (SF): 369	Fill Vol. (CY): 316
Seed Width (FT): 62	Seed Area (SY): 159
Sp. Bench. (SF): 10	Sp. Bench. (CY): 4
Item 204(SF): 118	Item 204 (CY): 99

- LEGEND**
- ITEM 202 - PAVEMENT REMOVED
  - ITEM 202 - APPROACH SLAB REMOVED
  - ITEM 204 - EXCAVATION OF SUBGRADE  
ITEM 204 - GRANULAR MATERIAL, TYPE B AND  
GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
  - SPECIAL BENCHING

- (A) STA. 75+00.0, 26.0' RT  
EX. CATCH BASIN (REMOVE)  
T/G = 1127.44  
E 12" N = 1122.37
- (B) STA. 75+00.0, 14.0' LT  
EX. CATCH BASIN (REMOVE)  
T/G = 1127.56  
E 12" S = 1121.79  
E 12" N = 1120.34
- (C) STA. 74+90.00, 31.00' LT  
PROP. MANHOLE, NO. 3,  
AS PER PLAN 3  
T/C = 1128.00  
E 12" N = 1122.21  
E 12" S = 1120.96  
E 12" E = 1114.75



Cut Area (SF): 53	Cut Vol. (CY): 27
Fill Area (SF): 383	Fill Vol. (CY): 336
Seed Width (FT): 64	Seed Area (SY): 153
Sp. Bench. (SF): 0	Sp. Bench. (CY): 11
Item 204 (SF): 118	Item 204 (CY): 83

- NOTES**
- FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.257
  - NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS.

Sheet Totals			
Seeding	Cut	Fill	Item 204
312	93	652	182

CROSS SECTIONS - MILLER ROAD  
 STA. 74+77.31 TO STA. 75+00

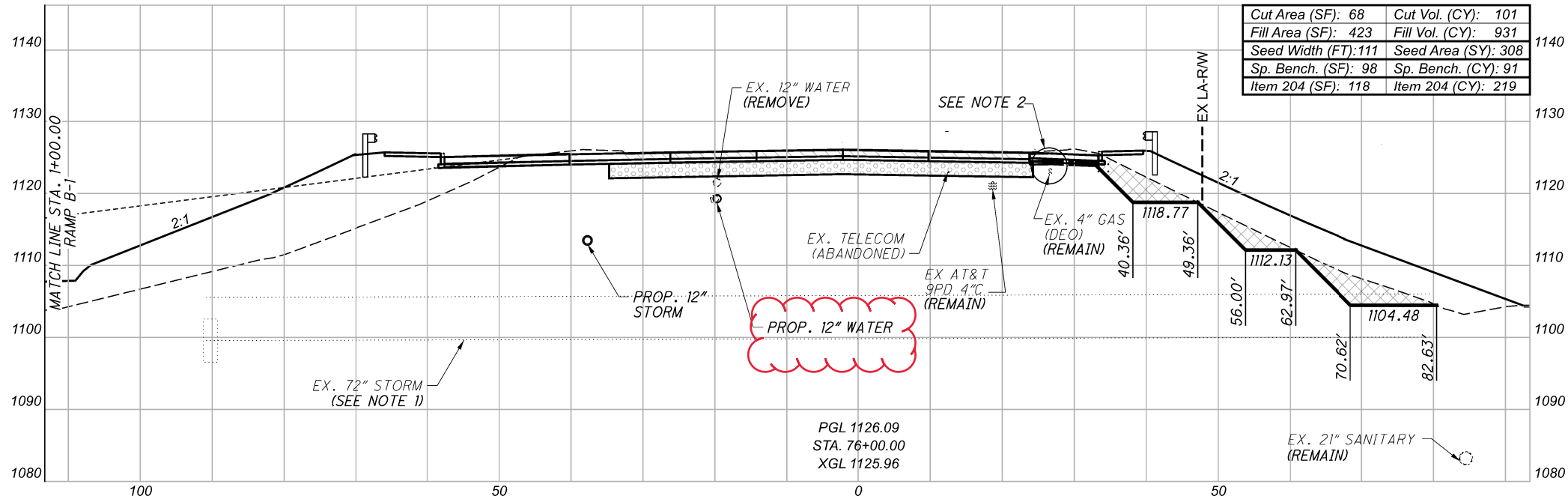
DESIGN AGENCY  
**EUTHENICS**  
 8235 Mahoning Dr. | Cleveland, OH 44132

DESIGNER  
 DTB

REVIEWER  
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PROJECT ID  
 104983

SHEET TOTAL  
 P.149 P.445



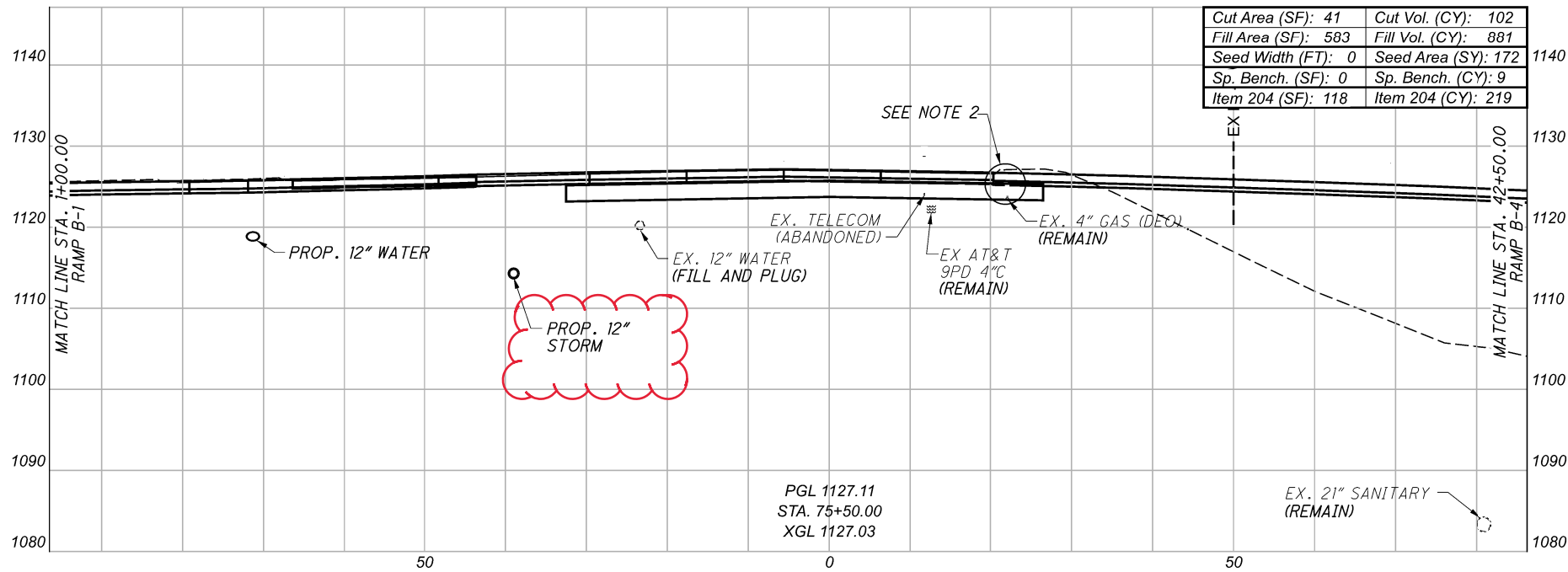
PROP. 12" WATER

PGL 1126.09  
 STA. 76+00.00  
 XGL 1125.96

**LEGEND**

	ITEM 202 - PAVEMENT REMOVED
	ITEM 204 - EXCAVATION OF SUBGRADE ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
	SPECIAL BENCHING

- NOTES:**
- SEE SHEET P.222 FOR EXISTING 72" CULVERT DETAIL
  - NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS.



PROP. 12" STORM

PGL 1127.11  
 STA. 75+50.00  
 XGL 1127.03

CROSS SECTIONS - MILLER ROAD  
 STA. 75+50 TO STA. 76+00

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**EUTHENICS**  
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DESIGNER  
 DTB

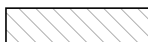


REVIEWER  
 RAB 03/01/22

PROJECT ID  
 104983

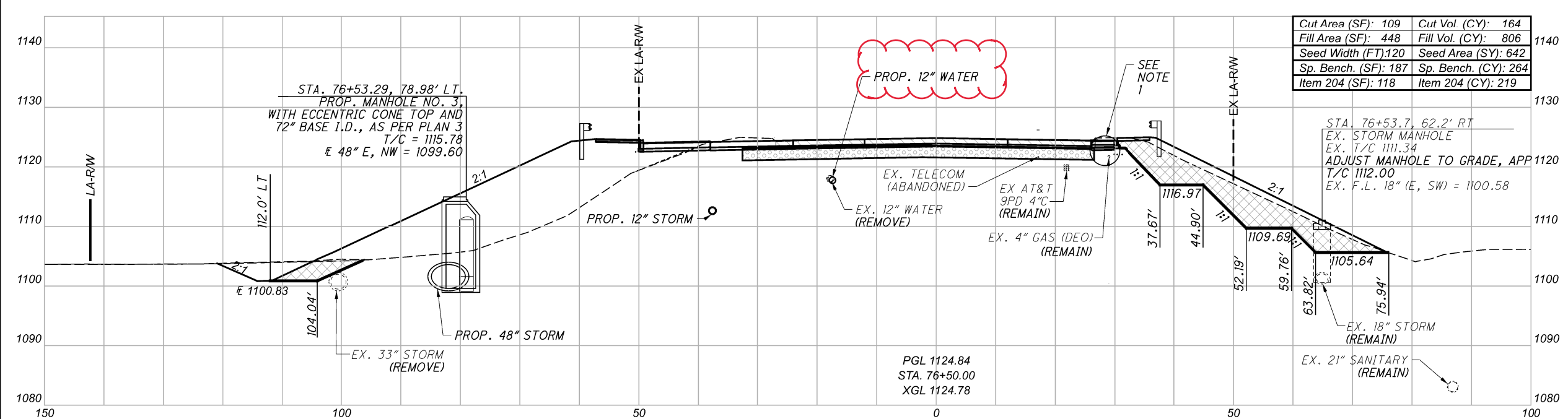
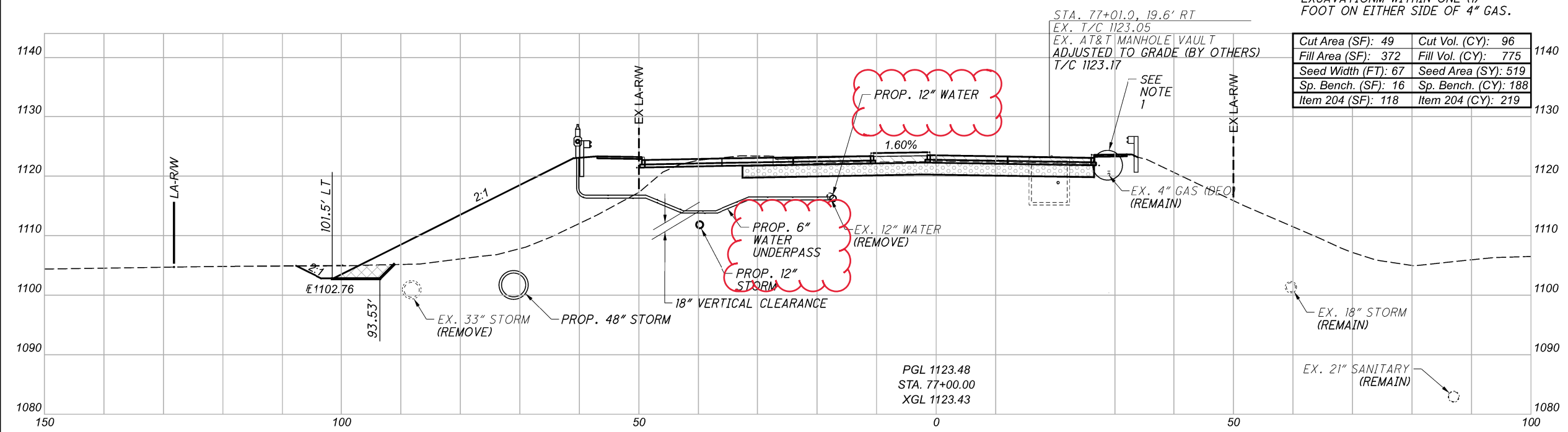
Sheet Totals			
Seeding	Cut	Fill	Item 204
480	303	1812	438

SHEET TOTAL  
 P.150 P.445

**LEGEND**

-  ITEM 202 - PAVEMENT REMOVED
-  ITEM 204 - EXCAVATION OF SUBGRADE  
ITEM 204 - GRANULAR MATERIAL, TYPE B AND  
GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)
-  SPECIAL BENCHING

APP - AS PER PLAN  
**NOTES**  
 1. NON-PERFORM SUBGRADE EXCAVATIONM WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS.



CROSS SECTIONS - MILLER ROAD  
 STA. 76+50 TO STA. 77+00

DESIGN AGENCY  
**EUTHENICS**  
 6235 Mahan Dr., Cleveland, OH 44130

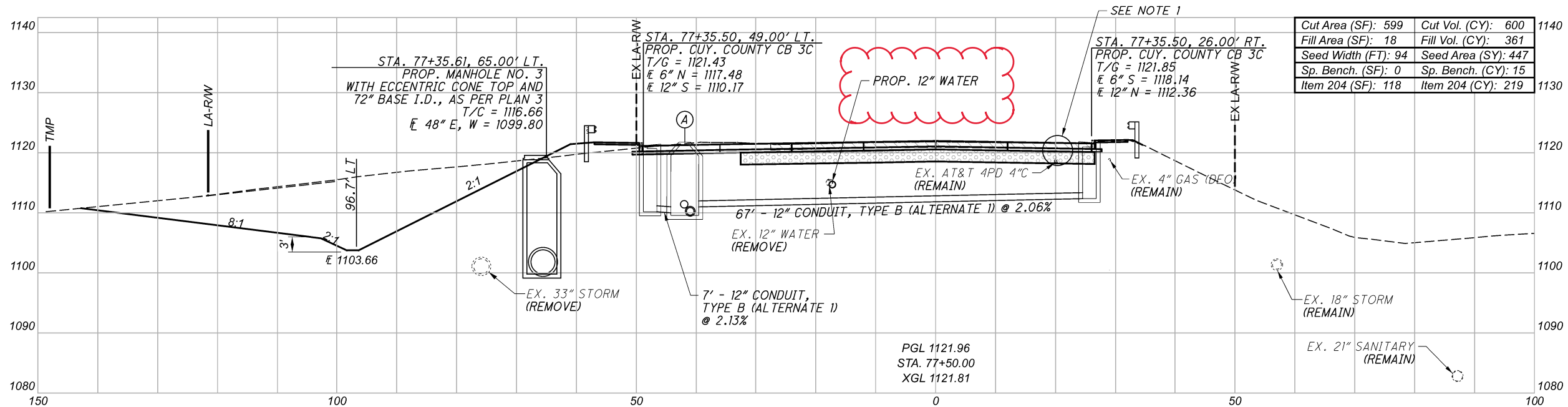
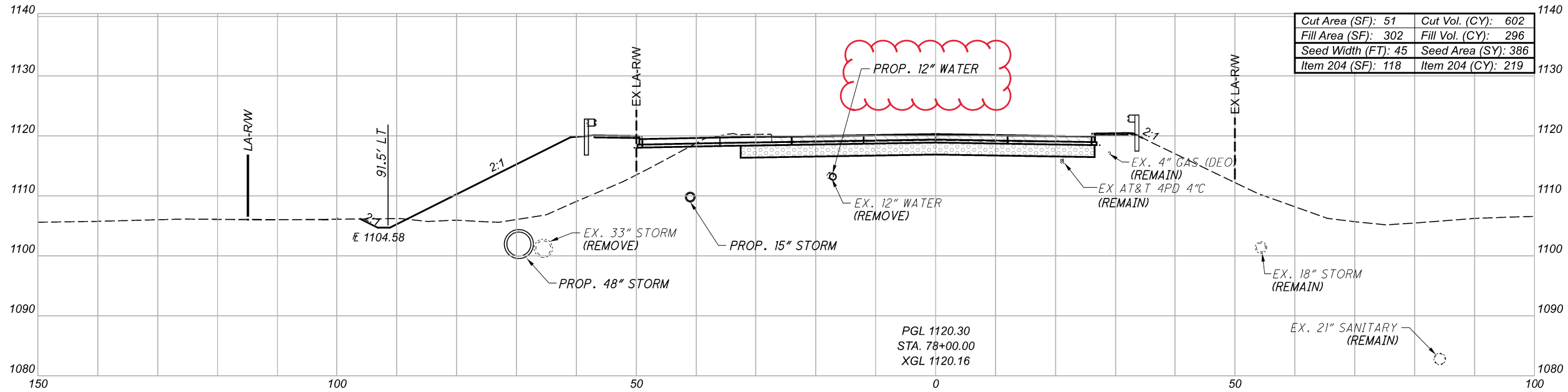
DESIGNER  
 DTB

REVIEWER  
 RAB 03/01/22

PROJECT ID  
 104983

SHEET	TOTAL
P.151	P.445

Sheet Totals				
Seeding	Cut	Fill	Item 204	TOTAL
1161	712	2033	438	P.445



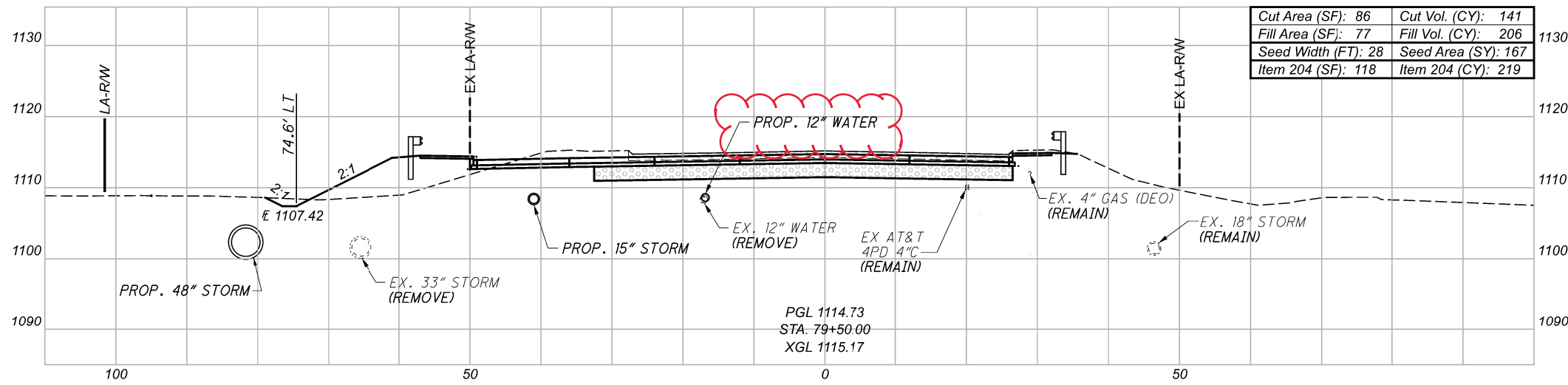
(A) STA. 77+35.50, 41.24' LT.  
 PROP. MANHOLE NO. 3,  
 AS PER PLAN 3  
 T/C = 1121.75  
 E 12" W = 1110.79  
 E 12" S = 1110.98  
 E 12" N = 1110.00  
 E 15" E = 1109.75

LEGEND  
 APP - AS PER PLAN

LEGEND  
 ITEM 202 - PAVEMENT REMOVED  
 ITEM 204 - EXCAVATION OF SUBGRADE  
 ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)

NOTES  
 1. NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF AT&T DUCTS.

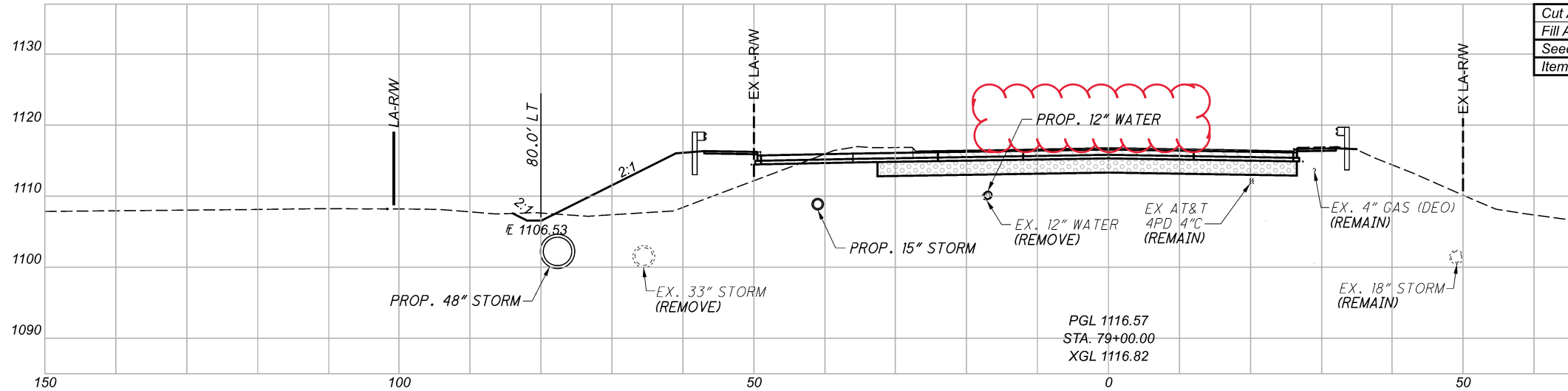
Sheet Totals			
Seeding	Cut	Fill	Item 204
833	1217	672	438



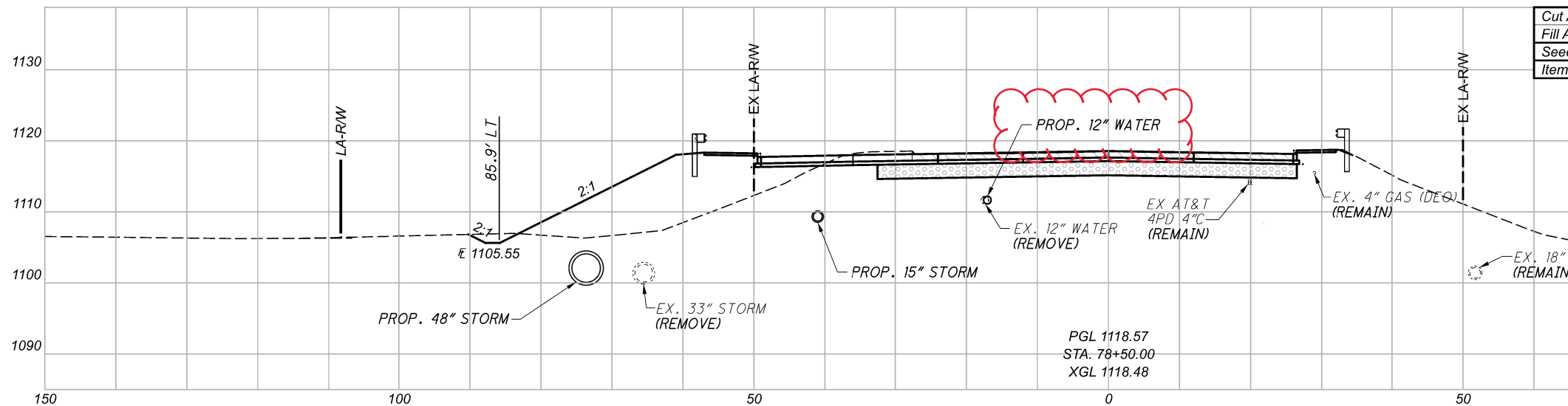
**LEGEND**

	ITEM 202 - PAVEMENT REMOVED
	ITEM 204 - EXCAVATION OF SUBGRADE ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)

**NOTES**  
 1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.258



Cut Area (SF): 50	Cut Vol. (CY): 94
Fill Area (SF): 232	Fill Vol. (CY): 494
Seed Width (FT): 39	Seed Area (SY): 233
Item 204 (SF): 118	Item 204 (CY): 219



CROSS SECTIONS - MILLER ROAD  
 STA. 78+50 TO STA. 79+50

DESIGN AGENCY  
**EUTHENICS**  
 8235 Mahoning Dr., Cleveland, OH 44132

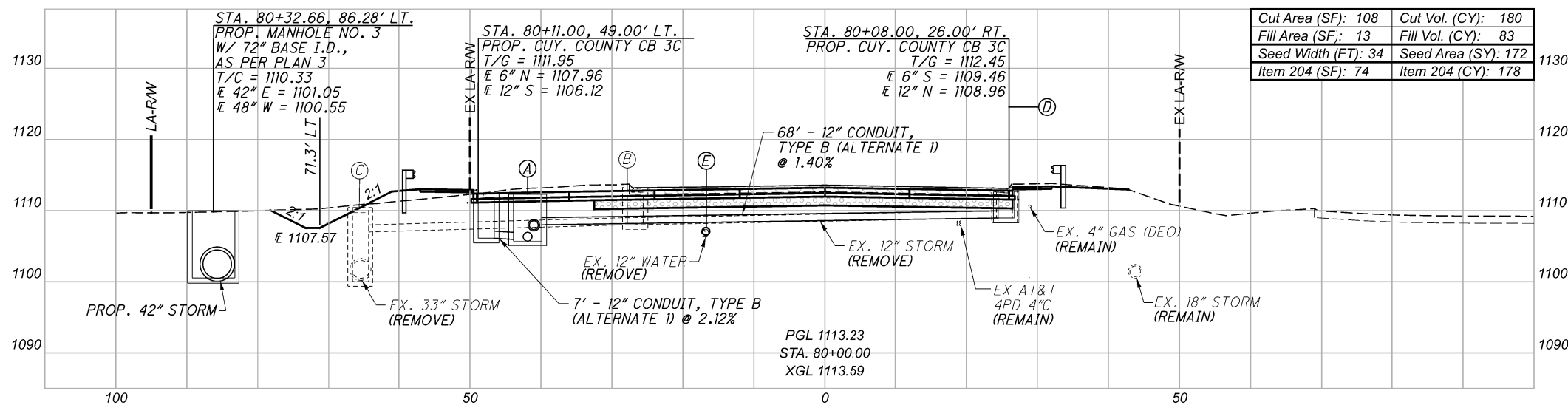
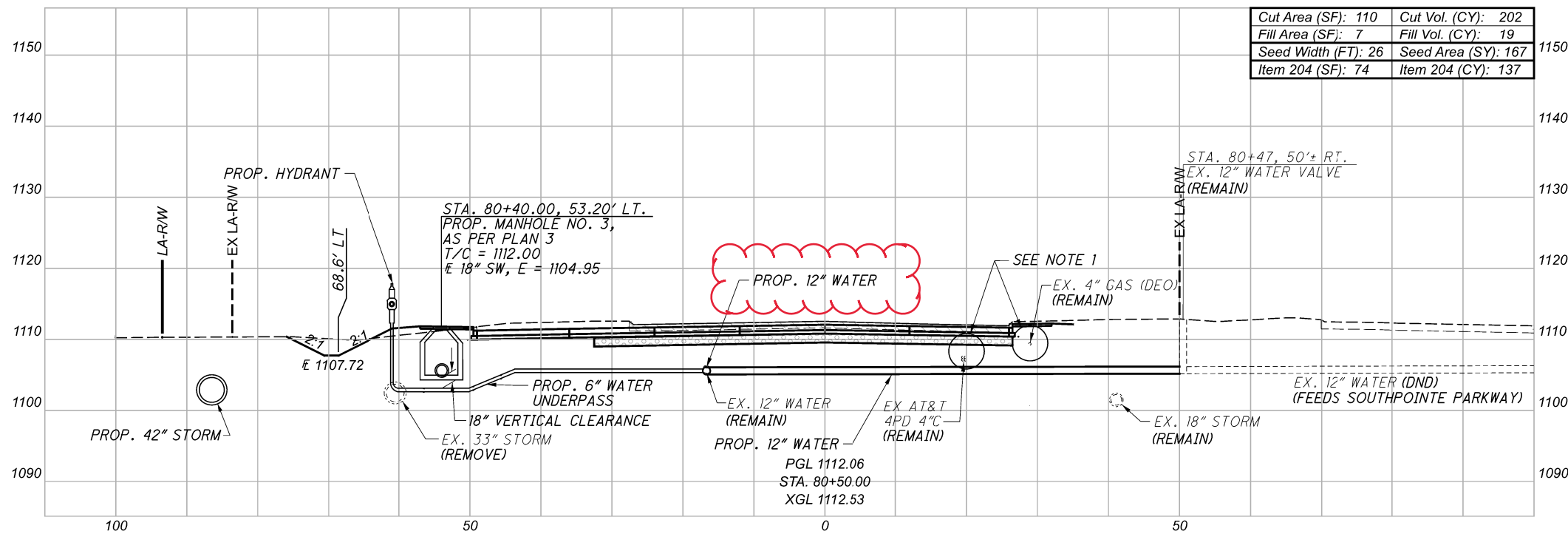
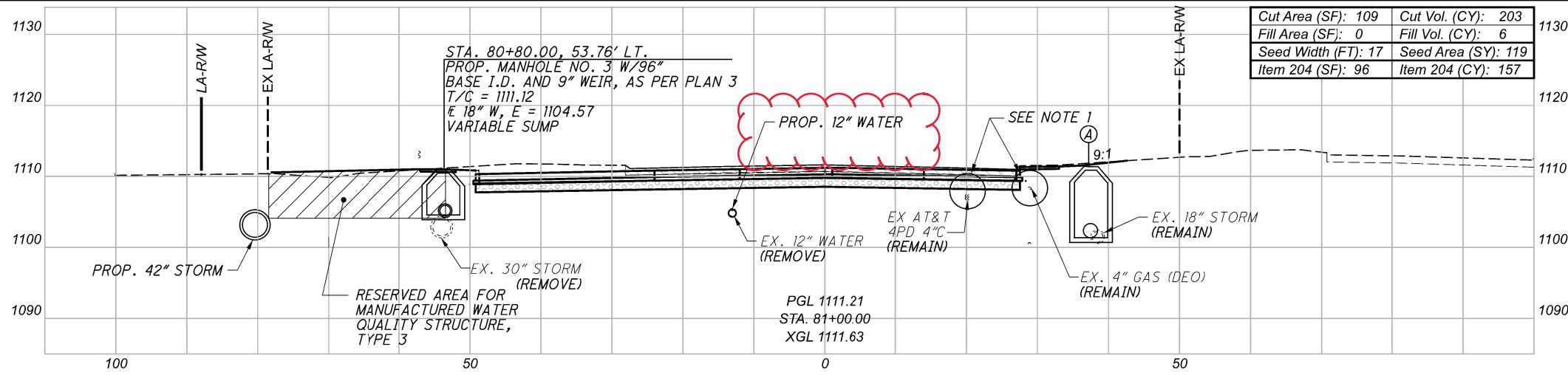
DESIGNER  
 DTB

REVIEWER  
 RAB 03/01/22

PROJECT ID  
 104983

Sheet Totals				
Seeding	Cut	Fill	Item 204	TOTAL
597	342	1050	657	P.153 P.445





(A) STA. 81+18.66, 37.54' RT  
 PROP. MANHOLE NO. 3, AS PER PLAN 3  
 T/C = 1111.39  
 EX. E 18" W = 1101.37  
 E 24" E = 1101.37

- LEGEND**
- ITEM 202 - PAVEMENT REMOVED
  - ITEM 204 - EXCAVATION OF SUBGRADE
  - ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)

- NOTES**
- NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS AND AT&T DUCT

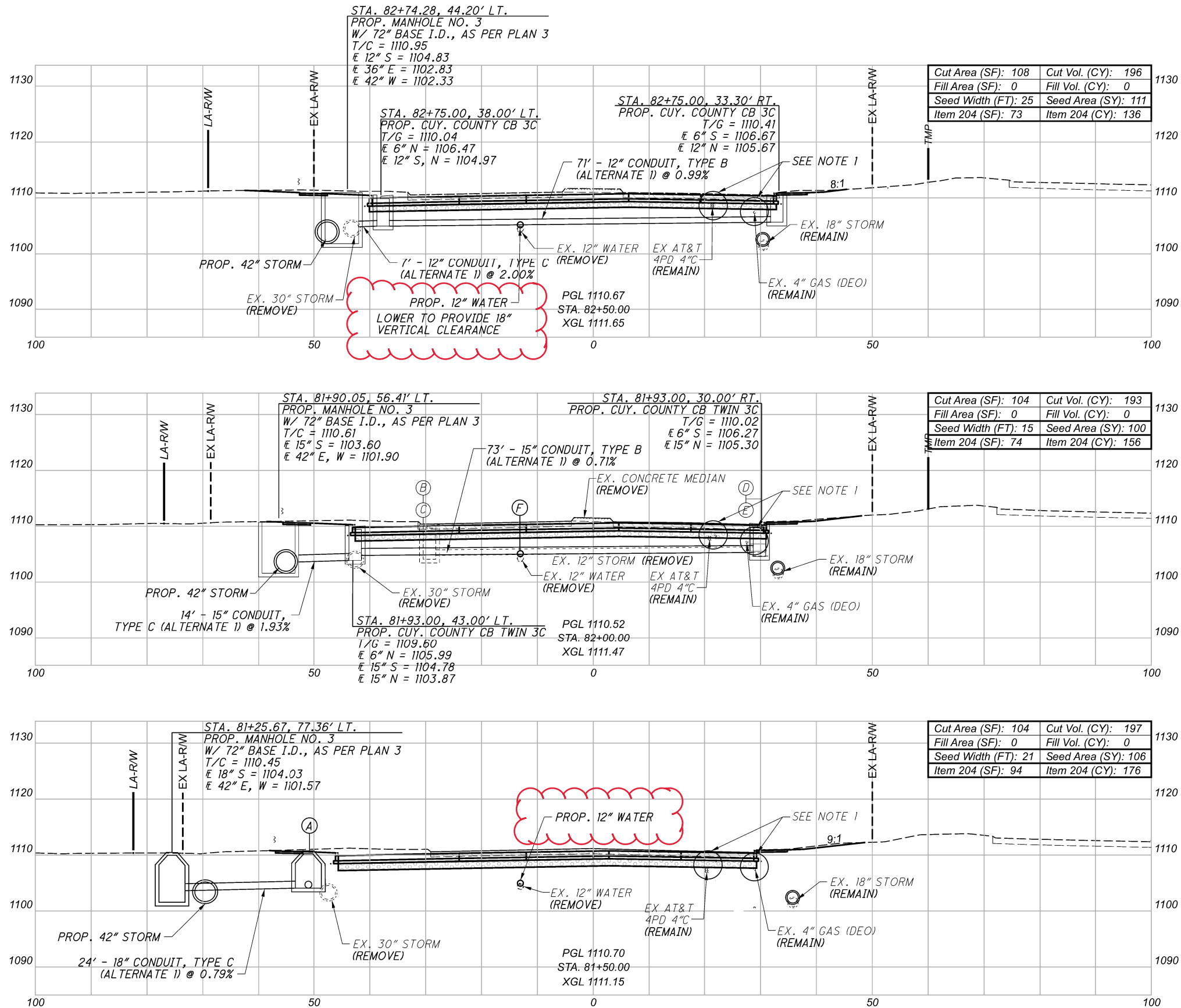
- (A) STA. 80+10.69, 41.88' LT  
 PROP. MANHOLE NO. 3, WITH 60" BASE ID AS PER PLAN 3  
 T/C = 1112.29  
 E 12" S = 1108.01  
 E 15" W = 1107.26  
 E 12" N = 1105.95  
 E 18" E = 1105.26
- (B) STA. 80+10.0, 26.2' LT  
 EX. CATCH BASIN (REMOVE)  
 T/G = 1113.28  
 E 12" S, N = 1108.01
- (C) STA. 80+10.0, 65.5' LT  
 EX. CATCH BASIN (REMOVE)  
 T/G = 1110.43  
 E 12" S = 1107.00  
 E 33" E = 1100.88  
 E 33" W = 1100.51
- (D) STA. 80+08.0, 26.0' RT  
 EX. CATCH BASIN (REMOVE)  
 T/G = 1113.25  
 E 12" N = 1108.96

(E) PROP. 12" WATER (PROVIDE 18" VERTICAL CLEARANCE BETWEEN STORM AND WATER MAIN)

CROSS SECTIONS - MILLER ROAD  
 STA. 80+00 TO STA. 81+00

DESIGN AGENCY	EUTHENICS
DESIGNER	DTB
REVIEWER	RAB
PROJECT ID	104983
SHEET	P.154
TOTAL	P.445

Sheet Totals			
Seeding	Cut	Fill	Item 204
458	585	108	472



**LEGEND**

	ITEM 202 - PAVEMENT REMOVED
	ITEM 204 - EXCAVATION OF SUBGRADE ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)

**NOTES**  
 1. NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS AND AT&T DUCTS.

- (B) STA. 81+90.0, 30.4' LT  
EX. CATCH BASIN (REMOVE)  
T/G = 1110.34  
E 12" E = 1104.92  
E 12" S = 1104.78  
E 12" N = 1104.68
- (C) STA. 81+95.9, 30.6' LT  
EX. CATCH BASIN (REMOVE)  
T/G = 1110.27  
E 12" W = 1104.99
- (D) STA. 81+89.1, 30.2' RT  
EX. CATCH BASIN (REMOVE)  
T/G = 1110.20  
E 12" E = 1105.50  
E 12" N = 1105.30
- (E) STA. 81+95.8, 30.2' RT  
EX. CATCH BASIN (REMOVE)  
T/G = 1110.15  
E 12" W = 1105.68

(F) PROP. 12" WATER (PROVIDE 18" VERTICAL CLEARANCE BETWEEN STORM AND WATER MAIN)

(A) STA. 81+25.00, 53.87' LT.  
PROP. MANHOLE, NO. 3,  
AS PER PLAN 3  
T/C = 1111.07  
E 18" SW, N = 1104.22

Sheet Totals			
Seeding	Cut	Fill	Item 204
317	586	0	468

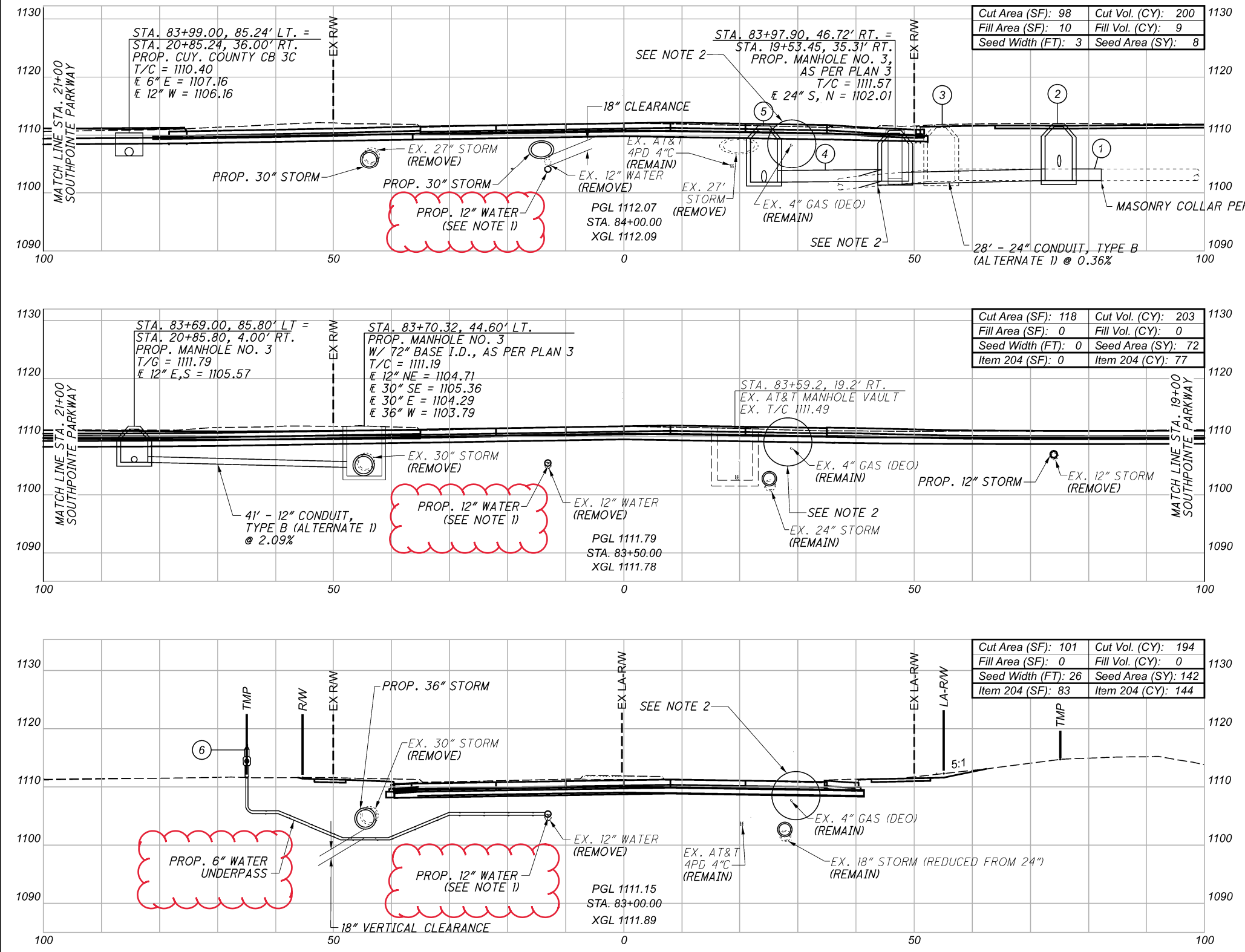
**LEGEND**

	ITEM 202 - PAVEMENT REMOVED
	ITEM 204 - EXCAVATION OF SUBGRADE ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)

**NOTES**

1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.259

2. NON-PERFORM SUBGRADE EXCAVATION WITHIN ONE (1) FOOT ON EITHER SIDE OF 4" GAS



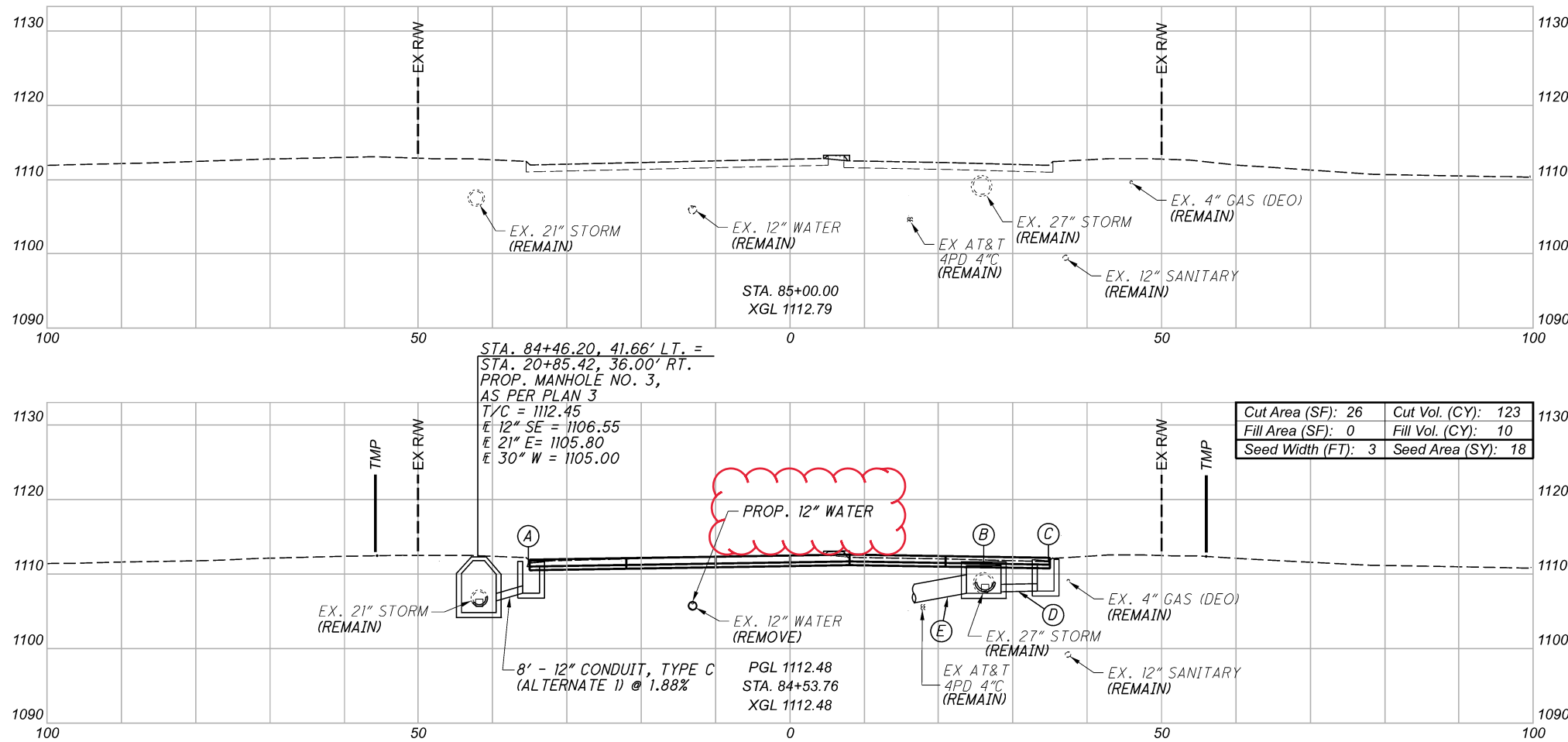
- ① 5' - 24" CONDUIT, TYPE C (ALTERNATE 1) @ 0.006% (CONNECT TO EXISTING)
- ② STA. 83+96.85, 74.82' RT. PROP. MANHOLE NO. 3, AS PER PLAN 3 T/C = 1110.98 E 12" W = 1104.60 E 24" N, S = 1102.11
- ③ STA. 83+96.93, 54.64' RT. EX. STORM MANHOLE (REMOVE) T/C = 1111.85 E 6" E = 1104.66 E 18" SW = 1104.60 E 24" S = 1102.10 E 24" N = 1101.92
- ④ 25' - 24" CONDUIT, TYPE B (ALTERNATE 1) (SEE NOTE 2)
- ⑤ STA. 83+92±, 24'± RT. PROP. MANHOLE NO. 3, AS PER PLAN 4 T/C = 1111.61 E 24" W, S = 1101.84±
- ⑥ STA. 83+26.02, 65.00' LT = STA. 20+64.81, 36.89' LT PROP. HYDRANT ASSEMBLY

Sheet Totals			
Seeding	Cut	Fill	Item 204
222	597	9	221

DESIGNER	DTB
REVIEWER	RAB 03/01/22
PROJECT ID	104983
SHEET	P.156
TOTAL	P.445

CROSS SECTIONS - MILLER ROAD  
 STA. 83+00 TO STA. 84+00

DESIGN AGENCY  
**EUTHENICS**  
 6225 Mahoning Dr., Cleveland, OH 44132



**LEGEND**

- ITEM 202 - PAVEMENT REMOVED
- ITEM 204 - EXCAVATION OF SUBGRADE
- ITEM 204 - GRANULAR MATERIAL, TYPE B AND GEOTEXTILE FABRIC (UNSTABLE SUBGRADE)

APP - AS PER PLAN

**NOTES**

1. FOR PROFILE AND DETAILING OF THE PROPOSED WATER MAIN, SEE SHEET P.259

Cut Area (SF): 26	Cut Vol. (CY): 123
Fill Area (SF): 0	Fill Vol. (CY): 10
Seed Width (FT): 3	Seed Area (SY): 18

- (A) STA. 84+49.00, 35.00' LT. PROP. CUY. COUNTY CB 3C  
 T/G = 1111.55  
 E 6" S = 1108.85  
 E 12" NW = 1106.70
- (B) STA. 84+41.36, 26.31' RT. PROP. MANHOLE NO. 3, AS PER PLAN 3  
 T/C = 1111.79  
 E 12" S = 1107.77  
 E 27" E = 1107.57  
 E 30" NW = 1107.57
- (C) STA. 84+41.00, 35.00' RT. PROP. CUY. COUNTY CB 3C  
 T/G = 1111.59  
 E 6" S = 1108.76  
 E 12" N = 1107.87
- (D) 9' - 12" CONDUIT, TYPE B (ALTERNATE 1) @ 1.11%
- (E) 100' - 30" CONDUIT, TYPE B (ALTERNATE 1) @ 2.21%

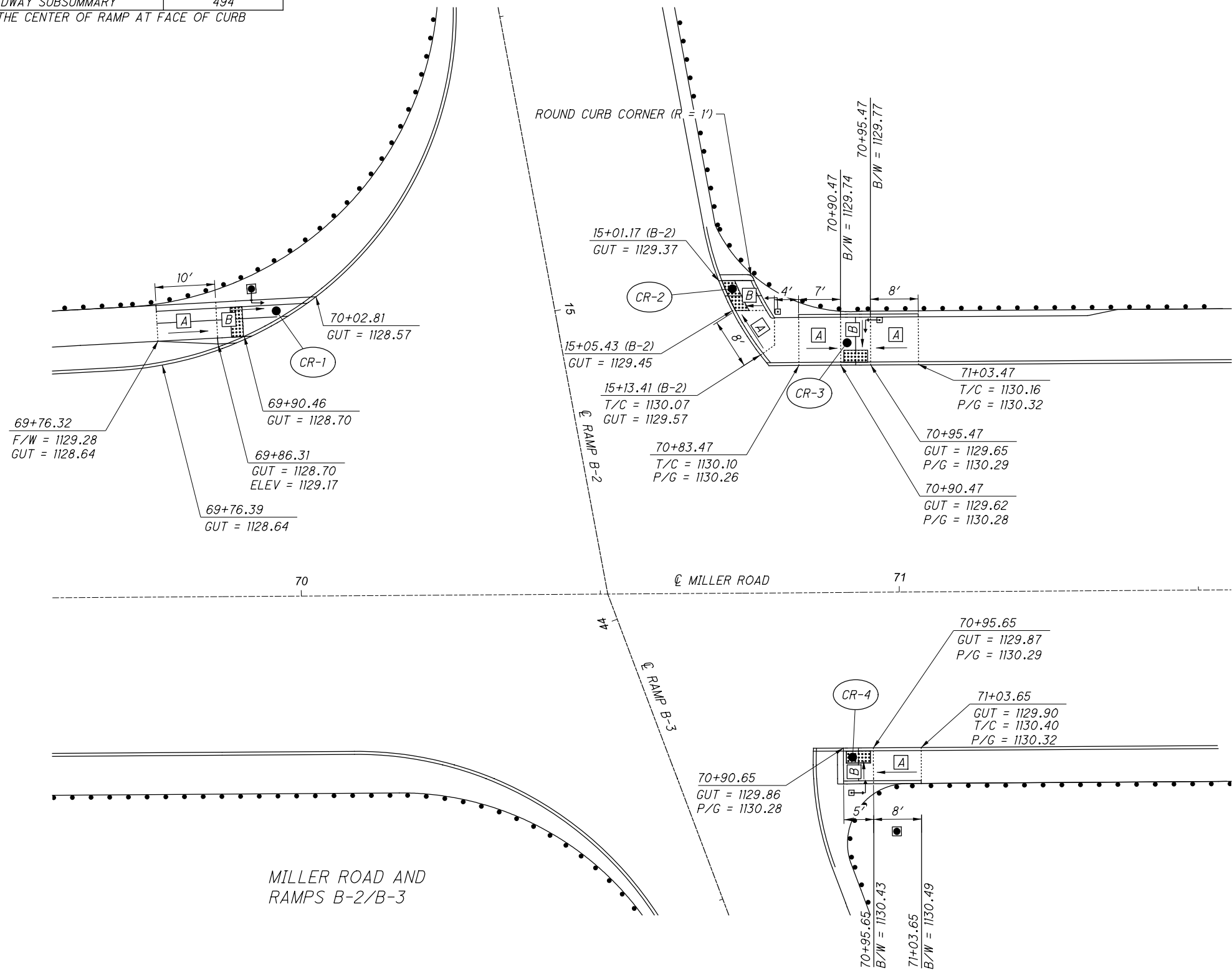
Sheet Totals			104983	
Seeding	Cut	Fill	SHEET	TOTAL
18	123	10	P.157	P.445

ITEM 608 - CURB RAMP, AS PER PLAN

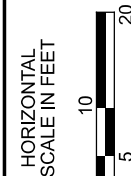
REF. NO.	TYPE	LOCATION (MILLER ROAD)	WIDTH	AREA (SQ. FT.)
CR-1	B3	STA. 69+98.09, 46.81' LT.	5'	136
CR-2	B1	STA. 70+71.20, 49.70' LT.	5'	106
CR-3	B2	STA. 70+92.97, 38.00' LT.	5'	160
CR-4	B1	STA. 70+92.97, 26.00' RT.	5'	92
TOTAL CARRIED TO ROADWAY SUBSUMMARY				494

LOCATION SHOWN IS TO THE CENTER OF RAMP AT FACE OF CURB

- LEGEND**
- A 13:1 SLOPE MAX
  - B 64:1 SLOPE MAX
  - TRUNCATED DOMES



MILLER ROAD AND RAMP B-2/B-3



MISCELLANEOUS DETAILS - CURB RAMPS  
 MILLER ROAD - RAMPS B-2 AND B-3

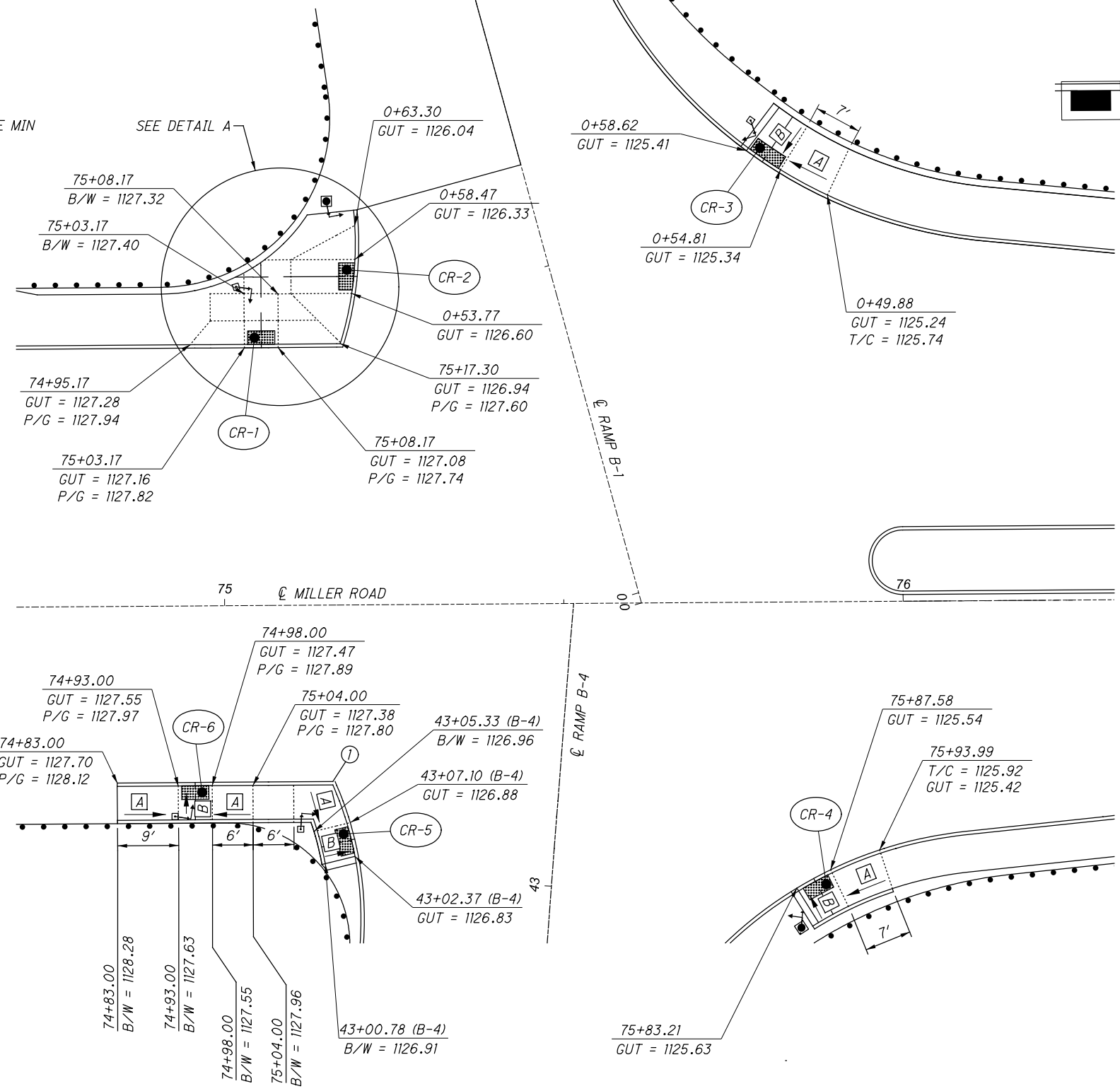
DESIGN AGENCY	EUTHENICS 8233 Mohawk Dr., Cleveland, OH 44135
DESIGNER	COM
REVIEWER	MRC 03/01/22
PROJECT ID	104983
SHEET TOTAL	P.217 P.445

**ITEM 608 - CURB RAMP, AS PER PLAN**

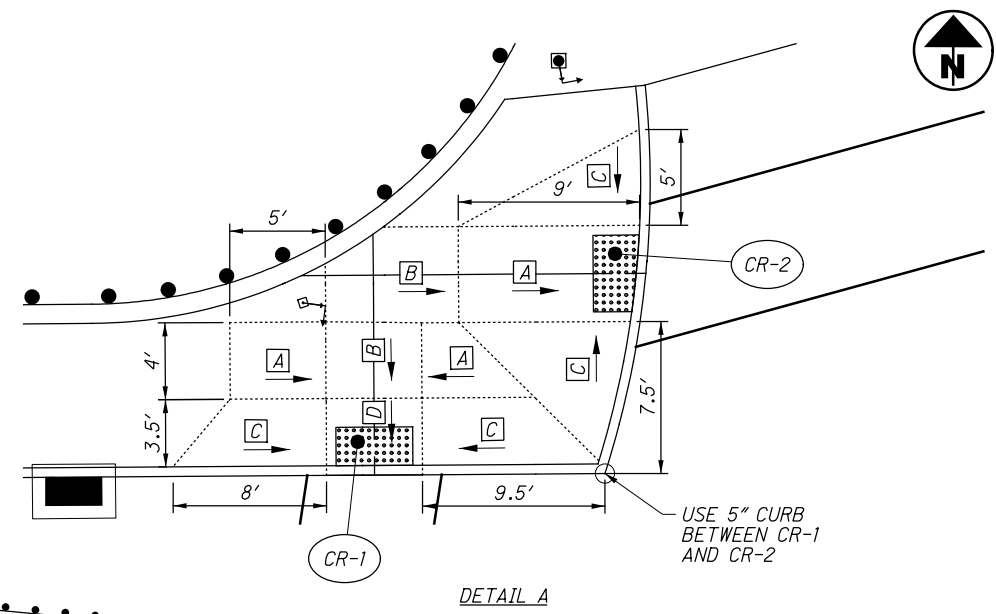
REF. NO.	TYPE	LOCATION (MILLER ROAD)	WIDTH	AREA (SQ. FT.)
CR-1	C1	STA. 75+05.67, 38.00' LT.	5'	122
CR-2	A1	STA. 75+19.87, 48.42' LT.	5'	134
CR-3	B1	STA. 75+79.68, 64.88' LT.	5'	111
CR-4	B1	STA. 75+86.55, 40.75' RT.	5'	89
CR-5	B1	STA. 75+18.94, 34.49' RT.	5'	80
CR-6	B2	STA. 75+95.50, 26.00' RT.	5'	120
TOTAL CARRIED TO ROADWAY SUBSUMMARY				656

LOCATION SHOWN IS TO THE CENTER OF RAMP AT FACE OF CURB

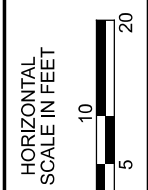
- LEGEND**
- A 13:1 SLOPE MAX
  - B 64:1 SLOPE MAX
  - C 10:1 SLOPE MAX
  - D 20:1 RUNNING SLOPE MIN
  - TRUNCATED DOMES



MILLER ROAD AND RAMPS B-1/B-4



① - STA. 75+16.11  
 P/G = 1127.37  
 GUT = 1126.95  
 T/C = 1127.34 (CURB HT = 5")



MISCELLANEOUS DETAILS - CURB RAMPS  
 MILLER ROAD - RAMPS B-1 AND B-4

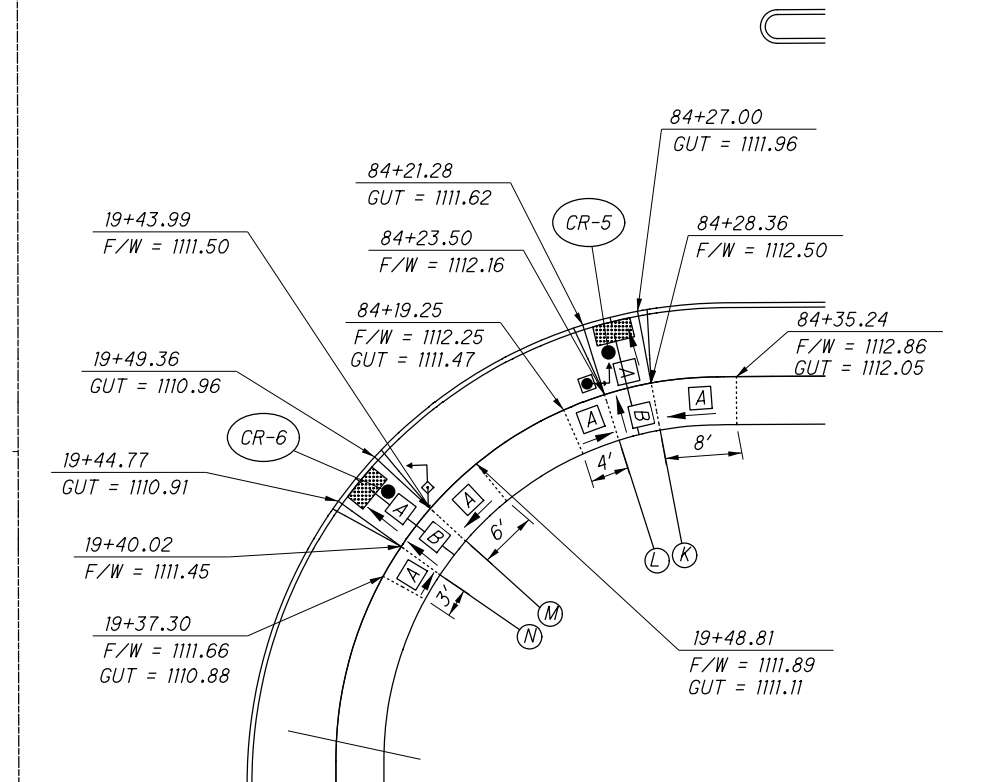
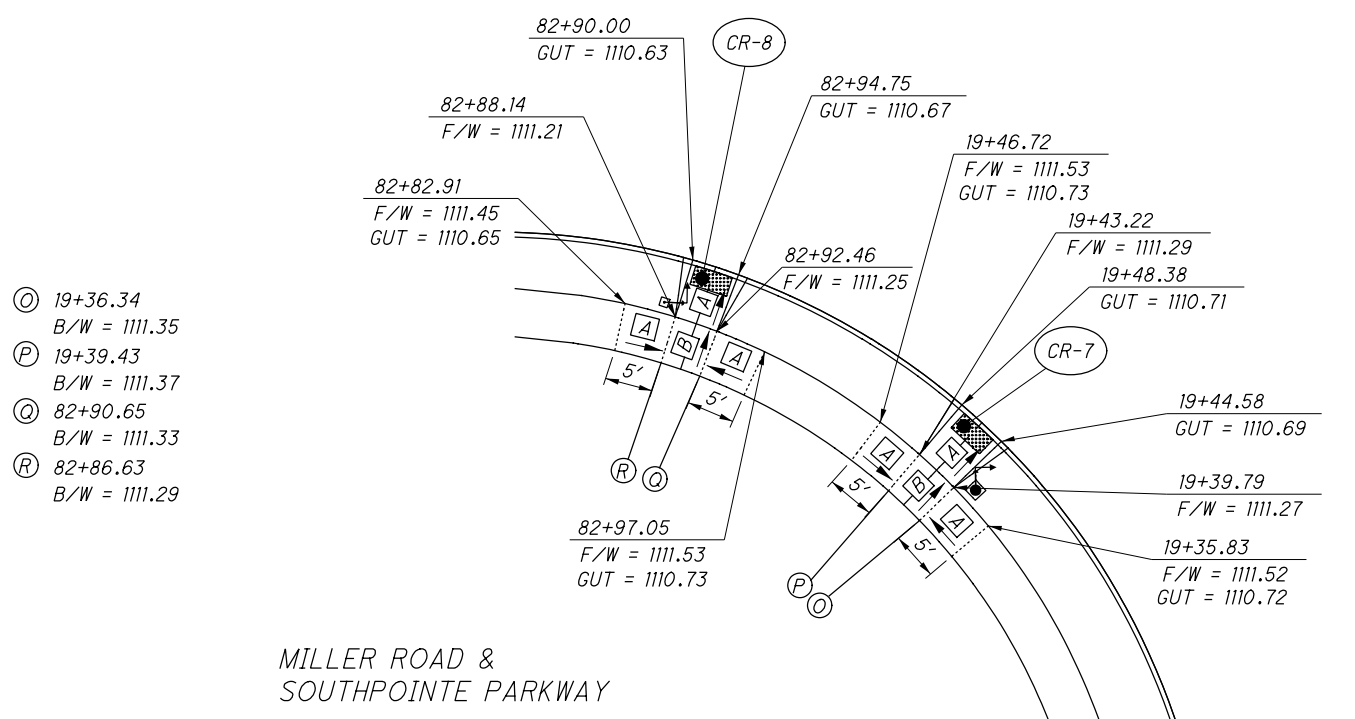
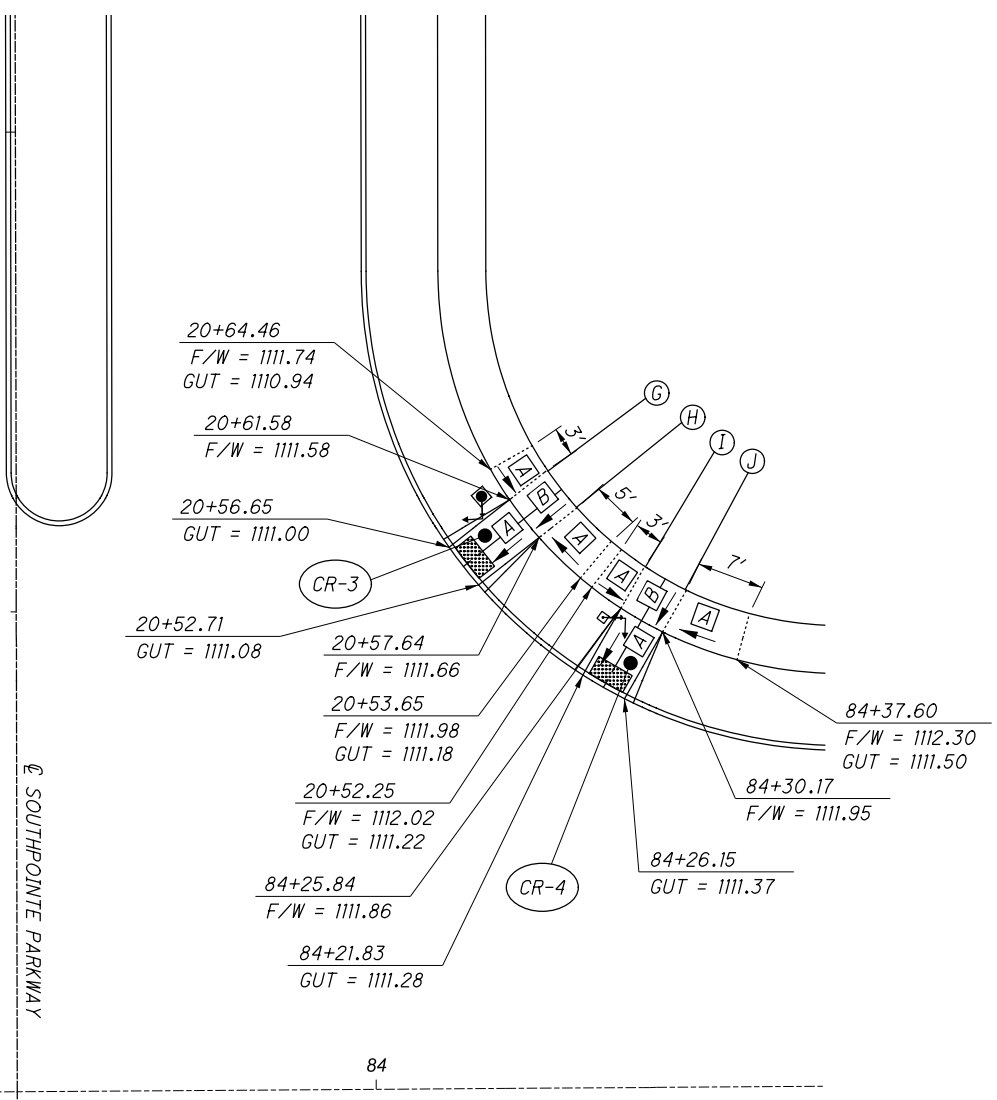
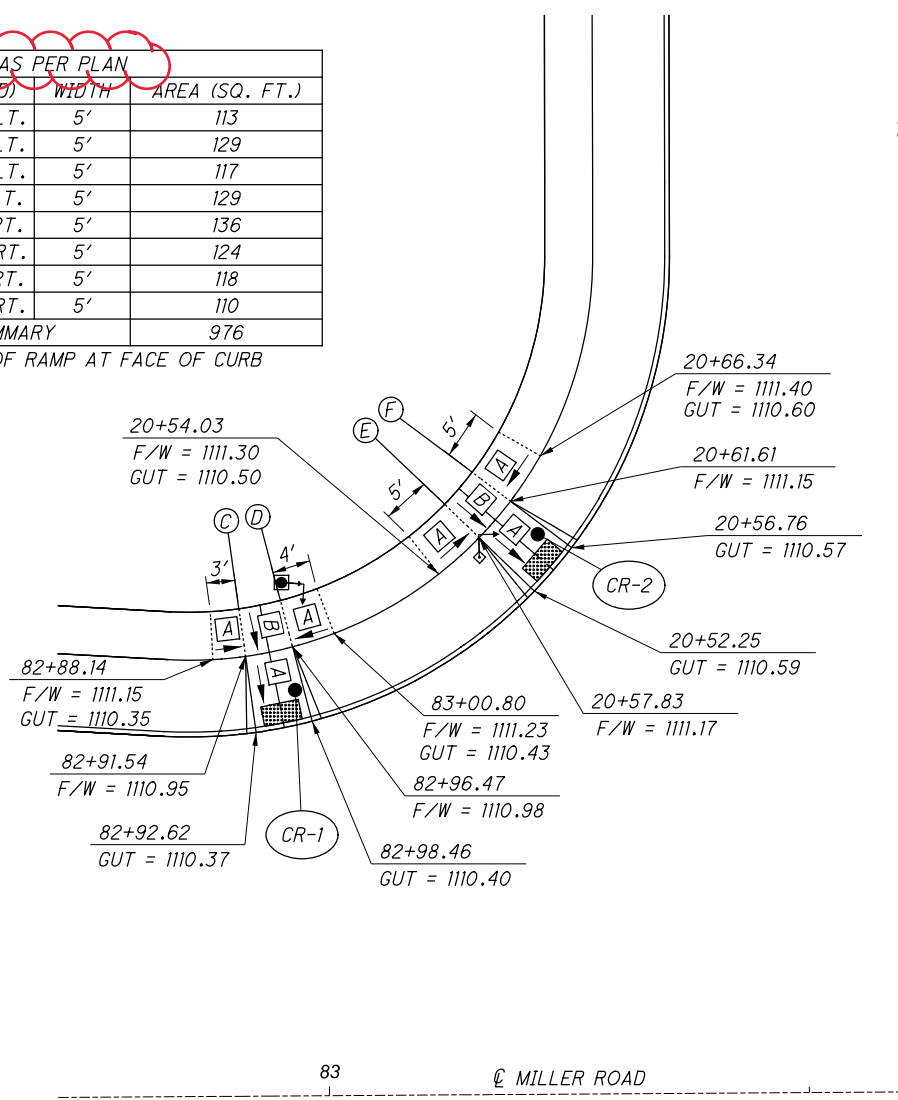
DESIGN AGENCY	
<b>EUTHENICS</b> 8533 Mohawk Dr., Cleveland, OH 44135	
DESIGNER	
COM	
REVIEWER	
MRC 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.218	P.445

ITEM 608 - CURB RAMP, AS PER PLAN

REF. NO.	TYPE	LOCATION (MILLER ROAD)	WIDTH	AREA (SQ. FT.)
CR-1	C2	STA. 82+95.56, 38.40' LT.	5'	113
CR-2	C2	STA. 83+23.72, 54.63' LT.	5'	129
CR-3	C2	STA. 84+09.45, 54.42' LT.	5'	117
CR-4	C2	STA. 84+23.96, 41.73' LT.	5'	129
CR-5	C2	STA. 84+24.12, 36.43' RT.	5'	136
CR-6	C2	STA. 83+97.33, 53.04' RT.	5'	124
CR-7	C2	STA. 83+20.01, 53.27' RT.	5'	118
CR-8	C2	STA. 82+92.38, 36.87' RT.	5'	110
TOTAL CARRIED TO ROADWAY SUBSUMMARY				976

LOCATION SHOWN IS TO THE CENTER OF RAMP AT FACE OF CURB

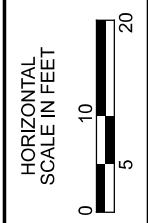
- LEGEND**
- A 13:1 SLOPE MAX
  - B 64:1 SLOPE MAX → 5(.0156) = +.08
  - TRUNCATED DOMES
- C 82+90.90  
B/W = 1111.03
  - D 82+95.23  
B/W = 1111.06
  - E 20+61.31  
B/W = 1111.25
  - F 20+64.65  
B/W = 1111.23



- G 20+64.67  
B/W = 1111.66
- H 20+70.73  
B/W = 1111.74
- I 20+54.62  
B/W = 1111.94
- J 20+52.13  
B/W = 1112.03

- K 84+29.59  
B/W = 1112.58
- L 84+25.30  
B/W = 1112.24
- M 19+40.58  
B/W = 1111.58
- N 19+37.16  
B/W = 1111.53

MILLER ROAD & SOUTHPONTE PARKWAY



MISCELLANEOUS DETAILS - CURB RAMPS  
 MILLER ROAD - SOUTHPONTE PARKWAY

DESIGN AGENCY	EUTHENICS
DESIGNER	COM
REVIEWER	MRC 03/01/22
PROJECT ID	104983
SHEET	P.219
TOTAL	P.445

# SANITARY SEWER NOTES

## SANITARY

### SANITARY SEWER WORK, AS PER PLAN

ALL SANITARY SEWER WORK INCLUDING SANITARY SEWERS, SANITARY MANHOLES, WYE CONNECTIONS, SANITARY LATERALS, RISER PIPES, AND SANITARY TEST TEES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING ITEMS BY A CONTRACTOR THAT IS LICENSED WITH THE CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS (CCDPW): THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS DATED 2019 AS ADOPTED BY THE CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS (CCDPW); CUYAHOGA COUNTY SANITARY ENGINEERING DIVISION RULES AND REGULATIONS; UNIFORM STANDARD SEWER DETAILS; AND THE CCDPW GENERAL SANITARY NOTES. THE REFERENCES LISTED ABOVE CAN BE FOUND AT THE FOLLOWING LINK <https://www.cuyahoga-county.us/publicworks/services/design-and-construction/sanitary-design>. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL OF THE SPECIFICATION, DETAILS AND REQUIREMENT OF THE CCDPW PRIOR TO ORDERING ANY SANITARY SEWER ITEMS. THE "AS PER PLAN" DESIGNATION FOR ALL SANITARY SEWER ITEMS INDICATES THAT THE BID ITEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CCDPW AND THE REQUIREMENTS LISTED IN THE GENERAL NOTES, OR SHOWN ON THE SANITARY DETAILS WITHIN THIS PLAN.

THE "AS PER PLAN" REQUIRES THE CONTRACTOR TO PERFORM ADDITIONAL SUBSURFACE INVESTIGATION FOR AREAS WHERE THE PROPOSED WORK IS BELOW THE SOIL BORING DEPTHS INDICATED ON THE SUBSURFACE INVESTIGATION SHEETS PROVIDED AT THE BACK OF THE ROADWAY PLANS.

THE "AS PER PLAN" REQUIRES THE CONTRACTOR TO TEST THE SEWER PIPE AND MANHOLES PER THE REQUIREMENTS OF THE UNIFORM STANDARDS. ALL SEWER VIDEO SHALL BE REVIEWED AND APPROVED BY THE CITY ENGINEER AND THE CCDPW.

SUBJECT TO THE CONVENIENCE OF THE OHIO DEPARTMENT OF TRANSPORTATION AND THE CITY OF BRECKSVILLE AND BY OBTAINING THE NECESSARY PERMITS FROM THE CITY OF BRECKSVILLE, PROSPECTIVE BIDDERS SHALL BE PERMITTED TO EXPLORE THE SITE BY MAKING BORINGS OR DIGGING TEST PITS. IN SUCH EVENT, THE WORK SHALL BE DONE AT THE SOLE EXPENSE AND RISK OF THE BIDDER, WHO SHALL MAINTAIN AND RESTORE THE SITE TO AN ORIGINAL CONDITION OF SAFETY.

THE CONTRACTOR SHALL FIELD VERIFY ALL PIPE SIZES AND INVERTS AND MANHOLE LOCATIONS AND TOP OF CASTING ELEVATIONS PRIOR TO ORDERING MATERIALS. ANY DISCREPANCIES BETWEEN CONTRACTOR OBSERVED ELEVATIONS AND PLAN ELEVATIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE SANITARY SEWER WORK, AS PER PLAN ITEMS.

### CCDPW PERMIT AND CONSTRUCTION INSPECTION REQUIRED

PRIOR TO ORDERING MATERIALS AND STARTING CONSTRUCTION THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE COUNTY. CONSTRUCTION MAY COMMENCE UPON PERMIT APPROVAL. A CCDPW CONSTRUCTION INSPECTOR MUST BE PRESENT AT ALL TIMES AT THE JOB SITE DURING CONSTRUCTION, TESTING, MONITORING, AND ALL OTHER ACTIVITIES RELATED TO THE SANITARY SEWER INSTALLATION OR TESTING. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE CCDPW CONSTRUCTION INSPECTOR PRIOR TO THE BEGINNING OF CONSTRUCTION. ALL COSTS ASSOCIATED WITH OBTAINING A CCDPW PERMIT AND ANY COST FOR COUNTY INSPECTION SHALL BE CONSIDERED INCIDENTAL TO THE SANITARY SEWER WORK, AS PER PLAN ITEMS.

### FINE FOR LACK OF CCDPW INSPECTION

IF ANY SEWER SYSTEM CONSTRUCTION IS DONE WITHOUT A CCDPW CONSTRUCTION INSPECTOR PRESENT, THE CONTRACTOR SHALL BE FINED DOUBLE THE COUNTY CONSTRUCTION INSPECTION FEE FOR EACH DAY OF WORK THAT HAS BEEN DONE WITHOUT THE REQUIRED CONSTRUCTION INSPECTION. FURTHERMORE, THE COUNTY RESERVES THE RIGHT TO REQUIRE THAT THE CONTRACTOR EXCAVATE AND UNCOVER ANY SUCH WORK FOR CCDPW INSPECTION. ANY AND ALL WORK FOUND TO BE INADEQUATE OR SUB-STANDARD IN ANY REGARD, AS DETERMINED BY THE COUNTY, SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. IN ADDITION, THE COUNTY MAY REQUIRE ANY WORK TO BE CCTV INSPECTED AND THE VIDEOS SUBMITTED TO THE COUNTY FOR REVIEW AND APPROVAL.

### SHOP DRAWINGS

PRIOR TO CONSTRUCTION, SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER, AND THEN SUBMITTED TO THE MUNICIPAL ENGINEER AND THE RESPONSIBLE AGENCY FOR REVIEW AND APPROVAL.

### MAINTAINING SEWAGE FLOW

THE CONTRACTOR SHALL BE REQUIRED TO BYPASS AND MAINTAIN THE FLOW IN ALL EXISTING LIVE SANITARY AND STORM SEWERS DURING CONSTRUCTION AND THE METHOD EMPLOYED SHALL BE APPROVED BY THE RESPONSIBLE AGENCY. NO SANITARY FLOW SHALL BE PERMITTED TO BE BYPASSED INTO A CLEAN WATER SYSTEM SUCH AS A DITCH, STREAM OR STORM SEWER, AND NO STORM FLOW WILL BE PERMITTED TO BE BYPASSED INTO A SANITARY SEWER SYSTEM. THE CONTRACTOR SHALL PROTECT WATER RESOURCES, WETLANDS AND OTHER NATURAL RESOURCES. ANY SPILLAGE, LEAKAGE, FLOODING, BASEMENT FLOODING, POLLUTION, AND/OR VIOLATION OF ANY ENVIRONMENTAL LAWS, RULES, OR REGULATIONS OF ANY KIND SHALL BE TOTALLY AND COMPLETELY THE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ANY AND ALL CLEANUP AND/OR FINES, AND NO ADDITIONAL PAYMENT SHALL BE MADE. ALL COST ASSOCIATED WITH MAINTAINING SEWAGE FLOW DURING CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO THE SANITARY SEWER WORK, AS PER PLAN ITEMS.

### UNRECORDED SANITARY CONNECTIONS

ANY UNRECORDED ACTIVE CONNECTION TO A SANITARY SEWER ENCOUNTERED DURING CONSTRUCTION SHALL BE RECONNECTED TO THE EXISTING SANITARY SEWER TO THE SATISFACTION OF THE ENGINEER.

ONLY THE FOLLOWING CONDUIT TYPE MAY BE USED: POLYVINYL CHLORIDE (PVC) ODOT CMS SECTION 707.44. ALL PVC PIPE SHALL MEET THE REQUIREMENTS OF THE GENERAL COUNTY SEWER NOTES, MAIN LINE AND SERVICE LATERAL PIPE. PREMIUM JOINT PIPE IS REQUIRED FOR ALL SANITARY, STORM, AND LATERAL SEWER PIPING. ALL JOINTS ARE TO BE WATER-TIGHT; SOIL-TIGHT JOINTS, ETC. ARE NOT ACCEPTABLE. RESILIENT CONNECTORS ARE REQUIRED FOR ALL PIPING AT CONNECTIONS TO SANITARY STRUCTURES.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE SANITARY SEWER SUBSUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE.

ITEM 611 - 6" CONDUIT, TYPE B FOR SANITARY, AS PER PLAN 50 LIN. FT.  
ITEM 611 - 6" CONDUIT, TYPE C FOR SANITARY, AS PER PLAN 50 LIN. FT.

### ITEM 611 - 12" AND 18" CONDUIT, TYPE B AND TYPE C, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS THIS ITEM SHALL BE LIMITED TO REINFORCED CONCRETE CLASS 5 PIPE WITH TYPE 1 BEDDING WITH PREMIUM WATERTIGHT JOINTS PER ASTM C443 (SOIL TIGHT JOINTS, ETC. ARE NOT ACCEPTABLE), PVC PIPE WILL NOT BE PERMITTED. ALL SANITARY LATERAL CONNECTIONS SHALL HAVE PREFORMED WYE BRANCHES INSTALLED IN THE MAINLINE SEWER. THE SEWER TRENCH AND BACKFILL SHALL BE AS SHOWN ON THE TYPE 1 TYPICAL TRENCH DETAIL FOR SANITARY SEWERS ON THE SANITARY DETAIL SHEET. BACKFILL SEWER TRENCHES UNDER PAVEMENT, TO A POINT 5' BEYOND THE EDGE OF PAVEMENT WITH PREMIUM BACKFILL. RESILIENT CONNECTORS ARE REQUIRED FOR ALL PIPING AT CONNECTIONS TO SANITARY SEWER STRUCTURES. THIS ITEM SHALL ALSO INCLUDE TESTING AND TELEVISIONING THE COMPLETE SEWER AS REQUIRED BY CCDPW.

### ITEM 611 - MANHOLE NO. 3, AS PER PLAN 1

### ITEM 611 - MANHOLE NO. 3, AS PER PLAN 2

THESE ITEMS SHALL BE CONSTRUCTED AS SHOWN ON THE SANITARY SEWER MANHOLE DETAILS AND AS PER THE REQUIREMENTS OF THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH.

### ITEM 611 - MANHOLE ADJUSTED TO GRADE, AS PER PLAN

### ITEM 611 - MANHOLE RECONSTRUCTED TO GRADE, AS PER PLAN

THESE ITEMS SHALL BE CONSTRUCTED IN ACCORDANCE ODOT CMS ITEM WITH THE FOLLOWING ADDITION: CHIMNEY SEALS SHALL BE INSTALLED ON ALL EXISTING SANITARY MANHOLES ADJUSTED OR RECONSTRUCTED TO GRADE.

PAYMENT FOR ADJUSTING OR RECONSTRUCTING THE SANITARY MANHOLE INCLUDING CHIMNEY SEALS SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH.

### SANITARY SEWER PIPE AND MANHOLE TESTING REQUIREMENTS

ALL SANITARY SEWERS AND MANHOLES SHALL BE TESTED PER SECTION 5.211 OF THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS. ALL SEWER VIDEOS SHALL BE REVIEWED AND APPROVED BY THE CITY ENGINEER AND CCDPW.

### CONNECTIONS TO SANITARY SEWERS

ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

### ITEM 611 - CONDUIT, MISC: BENTONITE CLAY DAM

THIS ITEM SHALL CONSIST OF CONSTRUCTING A BENTONITE CLAY DAM AROUND A SEWER THAT IS INSTALLED BELOW THE HIGH GROUND WATER LEVEL AS DETERMINED AND DIRECTED BY THE ENGINEER. CONSTRUCT THE BENTONITE CLAY DAM PER THE NOTES AND DETAILS CONTAINED WITH THE CCDPW BENTONITE CLAY DAM DETAIL AT THE LOCATIONS DIRECTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE SANITARY SEWER SUBSUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 611 - CONDUIT, MISC: BENTONITE CLAY DAM 4 EACH

### PIPE SEPARATION REQUIREMENTS

THE FOLLOWING REQUIREMENTS SHALL APPLY BOTH IN THE RIGHT-OF-WAY AND ON PRIVATE PROPERTY:

MAINTAIN MINIMUM 10' HORIZONTAL CLEARANCE (BARREL TO BARREL) BETWEEN ALL MAINLINE WATERMANS, SANITARY SEWERS, AND STORM SEWERS.

MAINTAIN MINIMUM 5' HORIZONTAL CLEARANCE (BARREL TO BARREL) BETWEEN ALL WATER SERVICE LATERALS, SANITARY SERVICE LATERALS, AND STORM SERVICE LATERALS. LATERALS SHALL BE LAID OUT IN THIS HORIZONTAL ORDER: WATER, STORM, SANITARY, SUCH THAT THERE IS MINIMUM 10 FEET BETWEEN WATER AND SANITARY.

MAINTAIN MINIMUM 18" VERTICAL CLEARANCE (BARREL TO BARREL) BETWEEN ALL MAINLINE AND SERVICE LATERAL PIPING.

WHEN IT IS IMPOSSIBLE TO MAINTAIN THE PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED, THE SEWER SHALL BE ENCASED IN CONCRETE (INCLUDE THE UNIFORM STANDARDS CONCRETE ENCASEMENT DETAIL IN THE PLANS) OR BE CONSTRUCTED OF WATER MAIN TYPE MATERIALS THAT SHALL WITHSTAND A 150-PSI PRESSURE TEST. THE CROSSING SHALL BE ARRANGED SUCH THAT THE SEWER JOINTS WILL BE AS FAR AS POSSIBLE FROM THE WATER JOINTS. ALL PIPING SHALL BE PROPERLY SUPPORTED AT ALL CROSSINGS TO PREVENT DAMAGE.

### ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH ITEM 613 - LOW STRENGTH MORTAR BACKFILL, TYPE 3 OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS DETERMINED BY THE ENGINEER. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM THE OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED.

THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT. THE QUANTITY FOR PLUGGING AND FILLING THE EXISTING CONDUIT SHALL BE USED IN LIEU OF REMOVING THE EXISTING PIPE IN AREAS WHERE THE ENGINEER DEEMS IT APPROPRIATE.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE SANITARY SEWER SUBSUMMARY TO BE USED AS DIRECTED BY THE ENGINEER TO FILL AND PLUG THE EXISTING 18" SANITARY SEWER BETWEEN THE PROPOSED MANHOLE AT STA. 14+77.82 BASELINE "B" AND STA. 13+23.54 BASELINE "A".

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT 529 LIN. FT.

CUY-77-00.42 PART 1

MODEL: 104983\_UN001A\_PAPER: 17x11 (in.) DATE: 28-Sep-22 TIME: 13:20:08 PM USER: comitrik  
F:\Jobs\1162-Miller\_Road\_Interchange\104983\00-Contracts\03-Addendum\Pre-Bid\_Question\_871104983\_UN001A.dgn

SANITARY NOTES

DESIGN AGENCY

**EUTHENICS**  
EES Moham Dr. | Cleveland, OH 44135

DESIGNER

ARP

REVIEWER

RAB 03/01/22

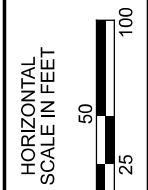
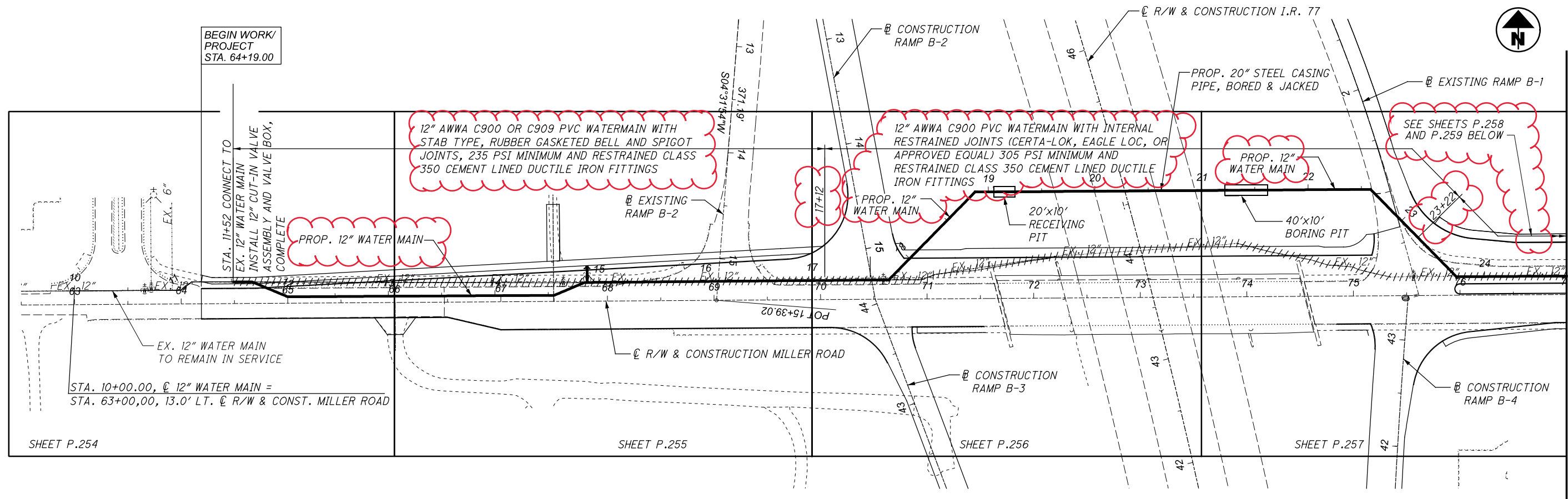
PROJECT ID

104983

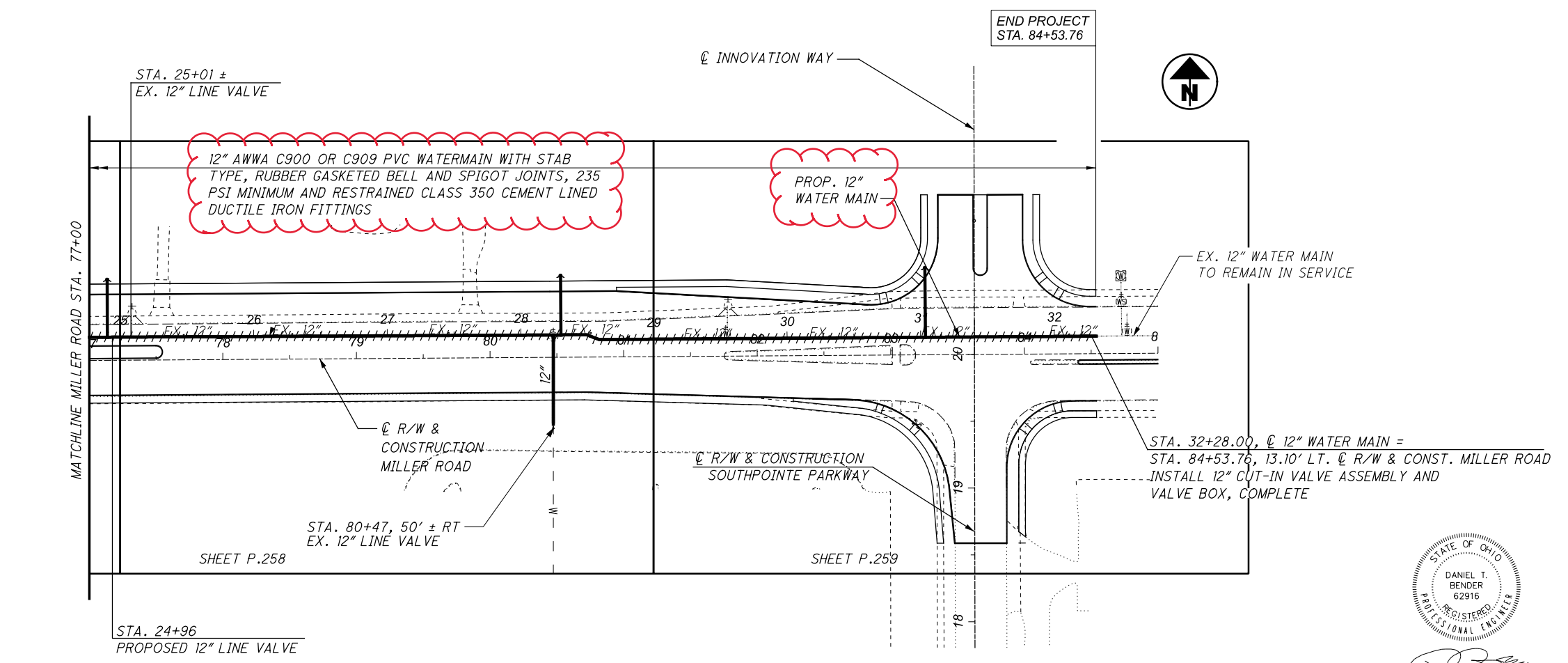
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P.227 P.445





WATER WORK SCHEMATIC PLAN

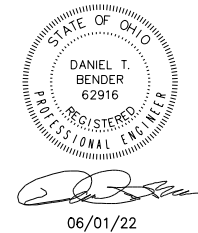


**SEQUENCE OF CONSTRUCTION**

**STAGE ONE:**  
 STAGE ONE WILL BEGIN WITH THE INSTALLATION OF A NEW CUT-IN-VALVE AT STA. 11+52.00. SHUT NEW 12" CUT-IN LINE VALVE AND EXISTING 12" LINE VALVE AT STA. 25+00± OFF AND CONSTRUCT PROPOSED 12" WATER MAIN.

**STAGE TWO:**  
 STAGE TWO WILL BEGIN WITH THE INSTALLATION OF A NEW CUT-IN-VALVE AT STA. 32+28.00. SHUT NEW 12" CUT-IN LINE VALVE, NEWLY CONSTRUCTED 12" LINE VALVE AND EXISTING 12" LINE VALVE ALONG SOUTHPOINTE PARKWAY WATER MAIN CORRIDOR, LOCATED AT STA. 80+47, 50'± RT. @ MILLER ROAD AND CONSTRUCT PROPOSED 12" WATER MAIN ALONG MILLER ROAD AND ALONG SOUTHPOINTE PARKWAY BETWEEN THE MILLER ROAD WATER MAIN AND EXISTING CLOSED VALVE.

////////// - EX. 12" WATER MAIN TO BE FILLED AND PLUGGED AND/OR REMOVED



<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
DESIGNER: TDP	
REVIEWER: DTB 03/01/22	
PROJECT ID: 104983	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
1	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6225 Mahoning Dr., Cleveland, OH 44132	
SHEET TOTAL	
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# WATER WORK NOTES

**DEVELOPERS, ENGINEERS, AND CONTRACTORS ARE TO ABIDE BY THE MOST CURRENT VERSION OF THE CLEVELAND WATER NOTES AND DETAILS. THE MOST UP-TO-DATE VERSION CAN BE FOUND AT WWW.CLEVELANDWATER.COM/CONSTRUCTION/**

**CLEVELAND DIVISION OF WATER NOTES FOR NEW PVC WATER MAIN INSTALLATION**

**GENERAL:**

1. ALL WATER WORK REQUIRED, WHETHER SHOWN ON THE PLANS OR AS DIRECTED BY THE CLEVELAND DIVISION OF WATER SHALL BE AT THE EXPENSE OF THE PROJECT.
2. THE INFORMATION SHOWN ON THE CLEVELAND DIVISION OF WATER'S SUMMARY OF WORK/CHARGE LETTER AND STRIP MAPS ARE TAKEN FROM EXISTING AVAILABLE RECORDS, AND THEIR ACCURACY IS NOT GUARANTEED.
3. CALL THE INSPECTION AND ENFORCEMENT UNIT AT 216-664-2342 TO SCHEDULE A PRECONSTRUCTION MEETING. THE OPERATION OF ANY VALVE OR ALTERATION OF ANY PART OF THE WATER SYSTEM BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF THE CLEVELAND DIVISION OF WATER INSPECTOR.
4. THE MUNICIPALITY SHALL REQUIRE THAT THE PROJECT'S PROFESSIONAL ENGINEER OBTAIN ACTUAL FIELD MEASUREMENTS OF THE MAIN DURING INSTALLATION AND SHALL FURNISH THE CWD INSPECTOR WITH RECORD PRINTS IN A FORM ACCEPTABLE TO THE DIVISION OF WATER. THE CLEVELAND DIVISION OF WATER WILL REQUIRE THE DELIVERY AND ACCEPTANCE OF TWO COPIES OF RECORD (AS BUILT) PRINTS BEFORE THE PRESSURE TEST AND CHLORINATION OF THE MAIN.
5. FOR THE PURPOSES OF CHLORINATION AND BACTERIOLOGICAL TESTING OF THE WATER MAINS, THE CONTRACTOR SHALL PROVIDE AND INSTALL, AT EACH OF THE CHLORINATION PIT LOCATIONS SHOWN AND AT OTHER LOCATIONS DETERMINED BY THE DIVISION OF WATER, FLUSHING/SAMPLING TAPS OF SIZES TO BE DETERMINED BY THE DIVISION OF WATER. CHLORINATION PITS SHALL BE SIX (6) FOOT SQUARE MEETING OSHA STANDARDS.
6. A TWO YEAR WARRANTY, COMMENCING FROM THE DATE OF ACCEPTANCE OF THE FINAL CHLORINATION OF THE WATER MAIN INSTALLATION, SHALL BE PROVIDED BY THE BUILDER/DEVELOPER AND/OR CONTRACTOR FOR ALL WATER MAINS AND SERVICE CONNECTION WORK PERFORMED BY THE CONTRACTOR, INCLUDING RETAPS, SHOULD ANY LEAKS OCCUR AND REPAIRS BE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP.
7. USE BACKFILL MATERIAL AS SPECIFIED AND COMPACT SUFFICIENTLY IN THOSE AREAS WHERE EXISTING MAINS AND WATER SERVICE CONNECTIONS ARE EXPOSED. (SEE CLEVELAND DIVISION OF WATER STANDARD DETAIL PVC-001).
8. ALL MATERIALS, INCLUDING BUT NOT LIMITED TO WATER MAINS, FIRE HYDRANTS, VALVES, CONNECTION MATERIALS AND OTHER WATER APPURTENANCES, SHALL BE NEW AND UNUSED AND SHALL CONFORM TO THE MOST CURRENT CLEVELAND DIVISION OF WATER SPECIFICATIONS. ALL MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH CLEVELAND DIVISION OF WATER'S STANDARDS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING WATER MAINS AND APPURTENANCES THEREOF WHEN CONNECTING THE NEW WATER MAIN FOR THE HYDROSTATIC TEST. ALL REPAIRS TO DAMAGED EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE DIVISION OF WATER. (REFER TO THE ALTERNATE TEST DETAIL PVC-002 AS NEEDED).

10. ALL HYDROSTATIC PRESSURE TESTING SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF THE CLEVELAND DIVISION OF WATER'S INSPECTOR. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI. THE PRESSURE TEST SHALL BE FOR A DURATION OF TWO (2) HOURS WITH THE PRESSURE BEING MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE. SHOULD THE PRESSURE TEST FAIL, THE CONTRACTOR SHALL FIND AND CORRECT THE DEFICIENCY(IES) TO THE SATISFACTION OF CLEVELAND DIVISION OF WATER AND REPEAT THE TWO (2) HOUR PRESSURE TEST.

**WATER MAINS:**

- 11A. ALL PIPE, UNLESS OTHERWISE CALLED FOR, SHALL BE POLYVINYL CHLORIDE (PVC) PRESSURE PIPE IN ACCORDANCE AWWA C-900-97 CLASS 200 OR C-909-98 200 PSI OR BETTER. JOINTS SHALL BE MADE UTILIZING A STAB TYPE, RUBBER GASKETED BELL & SPIGOT SOLVENT CEMENT TYPE JOINTS WILL NOT BE PERMITTED. STANDARD PLASTIC TRACER TAPE IS TO BE BURIED 4'-0" AND LOCATED DIRECTLY ABOVE THE WATERMAIN.
- 11B. ALL FITTINGS, UNLESS OTHERWISE CALLED FOR, SHALL BE APPROVED DUCTILE IRON, CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED. ALL FITTINGS AND PIPE CONNECTED TO FITTINGS SHALL BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT CONFORMING TO THE MATERIAL AND PERFORMANCE REQUIREMENTS OF ANSI/AWWA C-110/A21.10 AND ANSI/AWWA C-111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANSI/AWWA C-153/A21.53. EXCEPT FOR ANCHOR TEES, REDUCERS OR OTHER SPECIAL CIRCUMSTANCES WHEN DIRECTED BY CLEVELAND DIVISION OF WATER, ALL FITTINGS ARE TO HAVE BELL ENDS.
- 11C. ALL BOLTS AND NUTS ON ALL "RETAINED" MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".
- 11D. WHERE SHOWN ON THE PLANS, OR WHEN OTHERWISE CALLED FOR, DUCTILE IRON PIPE AND FITTINGS SHALL HAVE AN APPROVED "TYPE I" OR "TYPE II" BOLTLESS RESTRAINED PUSH-ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS WHERE NOTED, (AWWA C-900 RJ) PVC BOLTLESS RESTRAINED PIPE MAY BE USED.
- 11E. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL PLUG ALL OPEN PIPE ENDS WITH WATER TIGHT PLUGS AS PER THE "PREVENTITIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION" SECTION OF THE MOST CURRENT REVISION OF AWWA C-651 AS TO PREVENT THE INFILTRATION OR INTRUSION OF ANY FOREIGN OBJECTS OR MATERIALS. DATE STAMPED DIGITAL PHOTOS SHALL BE PROVIDED FOR EACH WORKDAY DEMONSTRATING THAT PROPER AWWA C-651 METHODS WERE USED TO PLUG ALL OPEN WATER MAIN ENDS. EACH PHOTO SHALL CLEARLY IDENTIFY THE STATION AT WHICH THE PIPE IS PLUGGED. THE STATIONING SHALL BE SHOWN BY THE USE OF A STATION MARKER PLACED AT THE PLUGGED PIPE END.  
  
PHOTOS SHALL BE SUBMITTED ON A DAILY BASIS UNLESS OTHERWISE DEFINED BY THE CLEVELAND DIVISION OF WATER INSPECTOR OR ENGINEER. ALL PHOTOS TAKEN OVER THE COURSE OF THE PROJECT SHALL BE SUBMITTED BY THE CONTRACTOR AS PART OF THE AS-BUILT SUBMITTAL. AS-BUILTS SHALL BE CONSIDERED INCOMPLETE WITHOUT SAID COLLECTION OF DIGITAL PHOTOS.

- 11F. ALL PVC PIPE SHALL BE INSTALLED WITH A CONTINUOUS RUN OF INSULATED #12 GAUGE COPPER WIRE TAPED TO THE TOP OF THE PIPE EVERY 5 FEET. BRING TRACE WIRE TO THE SURFACE AT EVERY VALVE BOX, OR HYDRANT (SEE DETAILS). ALL SPLICES OR CONNECTIONS TO THE WIRE ARE TO BE MADE USING APPROVED DIRECT BURY LUGS OR NUTS. SHOULD THE TYPE OF PIPE CHANGE TO DUCTILE IRON PIPE, THEN TRACE WIRE SHOULD BE TERMINATED AT THE FIRST VALVE BOX OR HYDRANT AFTER THE TRANSITION IS MADE.

**HYDRANTS:**

- 12A. IN ALL HYDRANT INSTALLATIONS, THE CONTRACTOR SHALL FACE ALL HYDRANT'S 4" (STEAMER) NOZZLE TOWARD THE PAVEMENT PRIOR TO TESTING AND CHLORINATION OF WATER MAINS. CONTRACTOR SHALL CONSULT WITH THE LOCAL MUNICIPALITY'S ENGINEERING OR SERVICE DEPARTMENT TO OBTAIN HYDRANT MODEL AND NOZZLE THREAD REQUIREMENTS IF NOT INDICATED ON THE APPROVED PLANS.
- 12B. HYDRANT ASSEMBLIES SHALL BE CONSTRUCTED OF DUCTILE IRON (CL. 52) CEMENT LINED PIPE.

**VALVES:**

13. ALL VALVES SHALL BE AN APPROVED MODEL RESILIENT SEATED GATE VALVES AS PER THE MOST CURRENT VERSION OF AWWA C509 OR C515.

**CONNECTIONS:**

14. WATER CONNECTIONS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY AND ARE NOT PART OF THE WATER MAIN APPROVAL. ADDITIONAL PERMITS FOR SERVICE CONNECTIONS MUST BE OBTAINED FROM THE DIVISION OF WATER PRIOR TO INSTALLATION OF ANY PORTION OF THE SERVICE CONNECTION(S). IT IS THE CONTRACTORS RESPONSIBILITY TO ARRANGE FOR PERMITS FOR ALL SIZE WATER SERVICE CONNECTIONS BEFORE PERFORMING ANY WORK. THE AMOUNT OF THE CHARGES CAN BE OBTAINED FROM THE DIVISION OF WATER, PERMITS AND SALES SECTION AT 216-664-2444 X5203.
15. ONE INCH SERVICE CONNECTIONS SHALL BE PERMITTED TO SERVICE HOMES BASED ON THE FOLLOWING CRITERIA:
  - \* PEAK FLOW DEMANDS DO NOT EXCEED 25 GPM FOR AN INDIVIDUAL HOME/UNIT, INCLUSIVE OF ALL USAGE (FIRE, DOMESTIC AND/OR IRRIGATION) AND
  - \* LENGTH OF ONE INCH CONNECTION DOES NOT EXCEED 50 FEET AS MEASURED FROM THE MAIN TO THE CURB VALVE.

ANY SERVICE REQUESTS DIFFERING FROM THE STATED CRITERIA SHALL REQUIRE THE SUBMITTAL OF A COMPLETE WATER SERVICE APPLICATION. PEAK DEMANDS ARE TO BE ASSESSED ON APPLICATION AND SETBACKS ARE TO BE SHOWN ON AN ACCOMPANYING SITE PLAN. SITE PLANS SHALL SHOW WATER METER VAULTS IN THE RIGHT OF WAY OR IN AN EASEMENT CONTIGUOUS TO THE RIGHT OF WAY FOR ANY HOMES/UNITS WITH SETBACKS GREATER THAN 150 FEET. EASEMENTS ARE TO BE PROVIDED WITH THE SERVICE CONNECTION APPLICATION SUBMITTAL.

16. ALL WATER MAIN CURB VALVE BOXES & METER VAULTS WILL BE INSTALLED IN GRASS AREAS WHEN POSSIBLE.

17. SERVICE SADDLES SHALL BE USED FOR ALL SERVICE CONNECTIONS. THE OULET SHALL BE TAPPED WITH EITHER AWWA TAPER (C.C.) OR AWWA F.I.P.T. THREADS. SADDLES SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL APPLICABLE PARTS OF ANSI/AWWA C800-NSF 61 CERTIFIED, AND BE APPROVED BY THE DIVISION OF WATER.

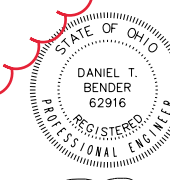
**EMERGENCIES:**

18. IF A WATER MAIN OR SERVICE CONNECTION BREAK OCCURS DURING CONSTRUCTION AND EMERGENCY ASSISTANCE IS REQUIRED, PLEASE NOTIFY THE CLEVELAND DIVISION OF WATER AT 216-664-3060.

WATER WORK NOTES

CUY-77-00.42 PART 1

MODEL: 104983 UN006 PAPER SIZE: 17x11 (in.) DATE: 07-Oct-22 TIME: 12:12:12 PM USER: comtkr F:\Jobs\1162-Miller Road Interchange\104983\03-Addendum\Water Main Material Revision\Updated PDFs and Drawings 10-07\104983\_UN006.dgn



06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
2	44
DESIGN AGENCY	
<b>EUTHENICS</b> <small>8333 Mahoning Dr., Cleveland, OH 44135</small>	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.238	P.445

# WATER WORK NOTES

**SCOPE OF WORK:**

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING COMPLETE WITH VALVES AND OTHER APPURTENANCES, WATER MAIN RELOCATIONS AND PERFORMING OTHER INCIDENTAL WORK NECESSARY AS SHOWN ON THE WATER WORK PLAN AND PROFILE SHEETS. THE WORK INVOLVES FURNISHING AND INSTALLING 2,145 FEET OF 12 INCH C900 OR C909 POLYVINYL CHLORIDE (PVC) WATERLINE ALONG MILLER ROAD. ADDITIONAL WORK INCLUDES BORING AND JACKING 200 FEET OF 20 INCH STEEL CASING PIPE UNDER I.R. 77 ALONG WITH THE INSTALLATION OF (1)-12" INCH GATE VALVES, (2)-12" INCH CUT-IN VALVE, AIR RELIEF VALVE, 4 HYDRANTS AND PERFORMING OTHER INCIDENTAL WORK NECESSARY AS SHOWN ON THE WATER WORK PLAN AND PROFILE SHEETS.

**GENERAL NOTES**

- (A) WATER MAIN IS TO BE INSTALLED IN ACCORDANCE WITH THE CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE CITY OF CLEVELAND WATER DEPARTMENT (CWD). ALL BENDS, TEES, CROSSES, HYDRANT BRANCHES, VALVES, HYDRANT BASE ELBOWS AND SPECIAL FITTINGS SHALL HAVE RETAINED MECHANICAL JOINTS. ALL MATERIAL MUST BE MADE IN THE USA.
- (B) ALL RETAINED MECHANICAL JOINTS WITHIN THE LIMITS OF THE INTERNAL RESTRAINED JOINTS SHALL BE TRIPLE WRAPPED WITH V-BIO ENHANCED POLYETHYLENE ENCASMENT.
- (C) MINIMUM DEPTH OF COVER FOR WATER MAINS AND SERVICE CONNECTIONS SHALL BE SIX (6) FEET UNLESS OTHERWISE NOTED.
- (D) A SIX (6") INCH HYDRANT ASSEMBLY SHALL INCLUDE THE VALVE, VALVE BOX, TEE, BENDS, OFFSET BENDS, PIPE, A STANDARD 6" HYDRANT AND ANY NECESSARY OFFSET TO SET HYDRANT TO PROPER GRADE.
- (E) THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR MAKING ALL NECESSARY ARRANGEMENTS WITH ALL UTILITY COMPANIES.
- (F) IN THE CASE OF ANY ITEM NOT SPECIFICALLY MENTIONED IN THE "WATERWORK NOTES", OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS - JANUARY 1, 2019 SHALL GOVERN.

THE CONTRACTOR SHALL NOTIFY THE CLEVELAND WATER DEPARTMENT INSPECTION AND ENFORCEMENT DIVISION (PHONE: 216-664-2342) THREE (3) WEEKS PRIOR TO STARTING ANY WATER WORKS CONSTRUCTION. THE CONTRACTOR MUST NOTIFY THE CWD HYDRAULICS UNIT AT 216-664-2444 PRIOR TO SHUTTING ANY WATER MAINS DOWN.

AFTER AWARD OF CONTRACT, THE CONTRACTOR THROUGH THE ENGINEER, SHALL SUBMIT TO THE CITY OF CLEVELAND WATER DEPARTMENT, INSPECTION AND ENFORCEMENT SECTION, A CONSTRUCTION SCHEDULE AND CONSTRUCTION SEQUENCE RELATING TO WATERWORK.

CONTRACTOR SHALL ALSO MAKE PAYMENT TO THE DIVISION OF WATER FOR ALL DIVISION OF WATER LABOR REQUIRED TO COMPLETE THE WORK REQUIRED HEREIN. CONTRACTOR SHALL MAKE ALL PAYMENT FOR DIVISION OF WATER LABOR BEFORE ANY WATER WORK IS PERFORMED. SEE PARAGRAPH "DIVISION OF WATER- LABOR CHARGES". ALL DIVISION OF WATER LABOR CHARGES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DEEMED TO BE INCLUDED IN THE APPROPRIATE BID ITEM.

**DEFINITIONS**

WHEREVER IN THESE WATER WORK NOTES AND SPECIFICATIONS THE FOLLOWING TERMS OR PRONOUNS IN PLACE OF THEM ARE USED, THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE STATE: THE STATE IS THE CITY OF CLEVELAND ACTING THROUGH ITS AUTHORIZED REPRESENTATIVE.

ENGINEER: THE ENGINEER IS DISTRICT DEPUTY DIRECTOR OR DISTRICT ENGINEER, THE DISTRICT CONSTRUCTION ENGINEER OR THE DISTRICT MAINTENANCE ENGINEER OR THE PROJECT ENGINEER ASSIGNED TO ADMINISTER THE CONTRACT, OR THEIR DULY DESIGNATED DEPUTIES, AGENTS, OR REPRESENTATIVES.

THE CITY: THE CITY IS THE DIRECTOR OF THE DEPARTMENT OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND, OR HIS DULY DESIGNATED REPRESENTATIVE(S), CITY INSPECTOR, AND/OR THE WATER DESIGN REVIEW ENGINEER OF THE DIVISION OF WATER.

**STATUS OF CITY INSPECTORS**

INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES ARE AUTHORIZED TO INSPECT ALL WORK DONE AND MATERIALS FURNISHED, SUCH INSPECTION MAY EXTEND TO ALL OR ANY PART OF THE WATERWORK, AND TO THE PREPARATION OR MANUFACTURE OF THE MATERIALS TO BE USED IN THE WATERWORK. THE CITY INSPECTOR AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES WILL MAKE WORK INSTRUCTIONS THROUGH THE ENGINEER. ARRANGEMENTS FOR CITY INSPECTORS ARE TO BE MADE BY NOTIFYING INSPECTION AND ENFORCEMENT DIVISION OF WATER (216) 664-2342, WITHIN THE TIME SPECIFIED. NO WORK SHALL BE ACCEPTED UNLESS INSPECTED.

**ACCESS TO WORK AND PLACE OF MANUFACTURE**

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY, AT LEAST SEVEN (7) DAYS PRIOR TO THE COMMENCEMENT OF THE MANUFACTURE OF ANY MATERIALS, OF THE TIME AND PLACE WHERE THE MANUFACTURE IS TO COMMENCE, IN ORDER THAT A REPRESENTATIVE OF THE ENGINEER AND THE CITY, OR HIS DESIGNEE, MAY BE PRESENT TO INSPECT THE MANUFACTURE. THE CONTRACTOR SHALL PROVIDE, WITHOUT CHARGE OR EXPENSE TO THE STATE AND CITY, ALL NECESSARY ASSISTANCE TO THE ENGINEER AND THE CITY, OR HIS DESIGNEE, WHEN REQUIRED FOR INSPECTION OR VERIFICATION OF WORK DONE.

**DIMENSIONS, DETAILED DRAWINGS AND ELEVATIONS**

FIGURED DIMENSIONS ON DRAWINGS SHALL TAKE PRECEDENCE OVER MEASUREMENTS BY SCALE, AND DETAILED DRAWINGS ARE TO TAKE PRECEDENCE OVER GENERAL DRAWINGS AND SHALL BE CONSIDERED AS EXPLANATORY OF THEM AND NOT AS INDICATING EXTRA WORK. IF, HOWEVER, ANY OF THE DETAILED DRAWINGS SHOW MORE ELABORATE OR EXPENSIVE WORK THAN IS NORMALLY SPECIFIED AND INDICATED BY THE CONTRACT DRAWINGS, NOTICE THEREOF MUST BE GIVEN TO THE ENGINEER BY THE CONTRACTOR WITHIN TEN (10) DAYS AFTER RECEIPT OF SUCH DETAILED DRAWINGS IN ORDER THAT THE DRAWINGS MAY BE AMENDED OR THE ADDITIONAL EXPENSE ON ACCOUNT OF SUCH WORK MAY BE ADJUSTED AND AUTHORIZED. IF THE ENGINEER DOES NOT RECEIVE SUCH NOTICE FROM THE CONTRACTOR WITHIN TEN (10) DAYS AFTER THE DETAILED DRAWINGS HAVE BEEN RECEIVED BY HIM, IT IS HEREBY AGREED THAT THE CONTRACTOR ACCEPTS THE DRAWINGS AND WILL EXECUTE THEM WITHOUT CLAIM FOR EXTRA COMPENSATION.

**ERRORS AND DISCREPANCIES**

IF THE CONTRACTOR, IN THE COURSE OF HIS WORK, FINDS ANY DISCREPANCY BETWEEN THE PLANS, DESCRIPTION AND LOCATION OF WORK, ESTIMATE OF QUANTITIES, THE PHYSICAL CONDITION OF THE LOCALITY, OR ANY ERRORS IN PLANS OR IN THE LAYOUT AS GIVEN BY THE DRAWINGS AND INSTRUCTIONS WHICH MAKE IT IMPOSSIBLE FOR HIM TO COMPLETE THE WORK REQUIRED UNDER THE PLANS AND SPECIFICATIONS, IT SHALL BE HIS DUTY TO IMMEDIATELY INFORM THE ENGINEER IN WRITING AND THE ENGINEER SHALL VERIFY THE SAME. ANY WORK DONE AFTER SUCH DISCOVERY, UNTIL AUTHORIZED, SHALL BE DONE AT THE CONTRACTOR'S RISK.

**FLOODS AND FREEZING WEATHER**

PROPER FACILITIES SHALL BE PROVIDED FOR PROTECTING THE WORK FROM DAMAGE BY FLOOD, RAIN OR FROST, AND WORK DONE IN FREEZING WEATHER SHALL BE DONE IN SUCH MANNER AS THE ENGINEER MAY APPROVE. VALVES SHALL BE PROTECTED FROM FREEZING UNTIL BACKFILLED IN THE COMPLETED WORK.

**ADDITIONAL WORK**

(A) ATTENTION IS CALLED TO THE FACT THAT THE WORK UNDER THIS CONTRACT INCLUDES CERTAIN PERFORMANCE AS INCIDENTAL TO THE ITEMIZED REQUIREMENTS HEREOF, THOUGH NOT EXCLUSIVE AS FOLLOWS: TO PERFORM ALL EXCAVATION, BACKFILLING, SHEETING, SHORING, AND TO TEST AND CHLORINATE THE INSTALLATION. FOR THE PERFORMANCES HEREIN DESCRIBED AND FOR OTHER INCIDENTAL ALLOWANCES OF LIKE NATURE, NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCE WILL BE MADE, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR THE VARIOUS ITEMS OF WORK TO BE DONE UNLESS OTHERWISE SPECIFIED UNDER THIS CONTRACT.

(B) PRELIMINARY FLUSHING: BEFORE BEING PLACED IN SERVICE, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW AND/OR RELOCATED WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH SHALL HAVE BEEN BACKFILLED.

(C) FLUSH, TEST AND SAMPLE: THE CITY, DIVISION OF WATER, WILL CHARGE TO THE CONTRACTOR A "FLUSHING, TEST AND SAMPLE" FEE FOR DIVISION OF WATER LABOR INCURRED IN THE WORK, PAYABLE TO THE PERMITS AND SALES SECTION OF THE DIVISION OF WATER BEFORE ANY WORK IS PERFORMED. FLUSHING, TEST AND SAMPLING IS LIMITED TO 350 LINEAL FEET OF WATER MAIN. NEW AND/RE RELOCATED WATER MAINS OR EXTENSION OF WATER MAINS EXCEEDING 350 LINEAL FEET SHALL BE CHLORINATED. CHLORINATION FEES WILL BE CHARGED TO THE CONTRACTOR FOR CWD LABOR INCURRED IN THE CHLORINATION OF MAINS.

**CLOSING VALVES**

THE CLOSING OF ALL GATE VALVES ON WATERMAINS FOR MAKING CORRECTIONS, TESTS, OR FOR ANY OTHER CAUSE, SHALL BE DONE BY THE CITY OF CLEVELAND. THE CONTRACTOR SHALL NOTIFY THE CLEVELAND WATER DEPARTMENT THREE (3) WEEKS IN ADVANCE OF THE SHUTDOWN AND THEY WILL SPECIFY THE TIME AND/OR SPECIAL CONDITIONS, HOURS, ETC. SYSTEMS DEMANDS MAY CONTROL THE TIME OF DAY, WEEK, MONTH OR YEAR WHEN VALVES MAY BE CLOSED. NO CONSIDERATION FOR DELAYS CAUSED BY SUCH CONTROLLING DEMANDS WILL BE ALLOWED. THE CONTRACTOR SHALL THOROUGHLY INVESTIGATE POSSIBLE CONDITIONS WHERE CLOSING OF VALVES MAY BE RESTRICTED TO A CERTAIN TIME.

**TESTING MAINS**

(A) ALL PIPES, VALVES, FITTINGS, ETC., SHALL BE LAID IN SUCH A MANNER AS TO LEAVE ALL JOINTS WATERTIGHT. AFTER THE PIPE IS LAID, SUCH LENGTHS OF THE WATER MAIN AS THE CITY OR HIS DESIGNATE MAY DETERMINE, SHALL BE TESTED UNDER HYDROSTATIC PRESSURE.

(B) THE HYDROSTATIC TEST SHALL BE UNDER THE DIRECTION OF THE CITY, OR ITS DESIGNATE. THE CONTRACTOR MAY OBTAIN WATER FOR TESTING BY OBSERVING THE RULES AND REGULATIONS ENFORCED IN THE MUNICIPALITIES OR TOWNSHIPS IN WHICH THE WORK IS BEING DONE.

THE CITY WILL FURNISH A PRESSURE GAUGE FOR MEASURING THE PRESSURE ON THE WATER MAIN, BUT THE CONTRACTOR SHALL FURNISH A SUITABLE PUMP, PIPES, TEST HEADS AND ALL APPLIANCES, LABOR, FUEL AND OTHER APPURTENANCES NECESSARY TO MAKE THESE TESTS.

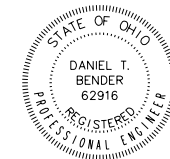
(C) THE HYDROSTATIC TEST PRESSURE SHALL BE FOR A DURATION OF A MINIMUM OF TWO (2) HOURS WITH ALL VALVES CLOSED DURING WHICH TIME THE INTERNAL PRESSURE SHALL REMAIN WITHIN 5 PSI OF THE SPECIFIED TEST PRESSURE. SHOULD THE TEST PRESSURE DROP MORE THAN 5 PSI, THE CONTRACTOR SHALL RECHARGE THE WATER MAIN TO THE SPECIFIED TEST PRESSURE AND LOCATE AND REPAIR THE LEAK TO THE SATISFACTION OF THE CITY. ANY DAMAGED OR DEFECTIVE PIPE, PIPE JOINTS, FITTINGS, VALVES, HYDRANTS OR APPURTENANCES SHALL BE REPAIRED OR REPLACED WITH SOUND MATERIAL AND THE HYDROSTATIC PRESSURE TEST REPEATED.

(D) AFTER A SECTION OF THE WATER MAIN HAS BEEN TESTED, THE CONTRACTOR SHALL FLUSH THE SAME. FLUSHING SHALL BE DONE IN ACCORDANCE WITH THESE SPECIFICATIONS.

(E) IN COLD WEATHER IMMEDIATELY AFTER TESTING A SECTION OF THE WATER MAIN THE CONTRACTOR SHALL OPEN ALL VALVES AND AIR RELIEF VALVES AND PROPERLY DRAIN BONNETS OF ALL VALVES IN THE SECTION OF THE WATER MAIN, AND TAKE ALL OTHER PRECAUTIONS NECESSARY TO PREVENT INJURY TO WATER MAIN AND APPURTENANCES DUE TO FREEZING.

(F) IN ORDER TO BE ABLE TO MAKE PROPER ALLOWANCE FOR LEAKAGE AT VALVES AND AIR RELIEF VALVES, ONLY THOSE SECTIONS OF WATER MAIN MAY BE TESTED AND SHALL HAVE SUCH VALVES, TEST PLUGS AND CAPS ACCESSIBLE. THE PERMITTED LEAKAGE SHALL NOT EXCEED A RATE OF SEVENTY-FIVE (75) GALLONS PER TWENTY-FOUR (24) HOURS PER MILE OF PIPE PER INCH OF NOMINAL DIAMETER.

(G) IN TESTING NEW MAINS, THE CONTRACTOR SHALL NOT BE PERMITTED TO USE ANY PART OF THE EXISTING MAINS IN HIS TEST UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE BLIND FLANGES, PLUGS OR CAPS, DEPENDING ON DESIGN, TO THE TESTED LENGTH OF THE PROPOSED MAIN SO THAT IT WILL BE COMPLETELY INDEPENDENT OF THE SAID EXISTING MAINS. PROPER RESTRAINT OF ALL BLIND FLANGES, PLUGS OR CAPS TO PREVENT BLOWOFF SHALL BE PROVIDED AND IN THE CASE OF DEAD END MAINS CONCRETE PIERS WILL BE REQUIRED. NO EXTRA PAYMENT WILL BE MADE FOR TESTING MAINS AND THE ENTIRE COST SHALL BE DEEMED TO BE INCLUDED IN THE PRICE BID PER LINEAL FOOT OF WATERMAIN FURNISHED AND INSTALLED UNDER THIS CONTRACT.



*[Signature]*  
06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
<b>SUBJECT:</b> 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
3	44
DESIGN AGENCY	
<b>EUTHENICS</b> 833 Mohawk Dr.   Cleveland, OH 44130	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.239	P.445

WATER WORK NOTES

CUY-77-00.42 PART 1

MODEL: 104983 UN007 PAPER SIZE: 17x11 (in.) DATE: 10/7/2022 TIME: 10:31:14 AM USER: esmccaslin F:\Jobs\1162-Miller\_Road Interchange\104983\03-Addendum\Water Main Material Revision\Updated PDFs and Drawings 10-07\104983\_UN007.dgn

# WATER WORK NOTES

**TESTS, INSPECTION AND REPORTS - CONTINUED**

SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATIONS THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR, AT HIS OWN EXPENSE.

ALL AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE (PVC), FITTINGS AND SPECIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE ENGINEER AFTER DELIVERY OF MATERIAL TO THE JOB SITE. NO MISSHAPEN, IMPERFECTLY COATED, OR DAMAGED PIPE, FITTINGS, OR APPURTENANCES SHALL BE INSTALLED IN THE WORK.

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER EIGHT (8) SETS OF LISTS OF ALL PIPE AND FITTINGS AND OF ALL APPURTENANCES IN EACH SHIPMENT OF MATERIALS DELIVERED TO THE JOB SITE. THE LISTS SHALL CONTAIN THE SERIAL OR MARK NUMBER, WEIGHT, SIZE, AND DESCRIPTION OF EACH ITEM RECEIVED AT THE JOB SITE.

THE CITY RESERVES THE RIGHT TO TEST ALL MATERIALS FURNISHED BY THE CONTRACTOR DURING THE LIFE OF THE PROPOSED CONTRACT. THE CITY MAY ELECT TO RANDOMLY TEST MATERIALS OR CAUSE TO HAVE MATERIALS RANDOMLY TESTED. NO COMPENSATION FOR DELAYS WILL BE MADE TO THE CONTRACTOR EITHER DURING OR AS A RESULT OF THESE TESTS. THE CONTRACTOR SHALL BE RESPONSIBLE, AT HIS SOLE EXPENSE, TO REMEDY ANY DEFICIENCIES, TO THE SATISFACTION OF THE CITY, FOUND AS A RESULT OF THESE TESTS.

ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

**SHOP DRAWINGS**

(A) SUBMITTALS: AS SOON AS POSSIBLE AFTER THE EXECUTION OF THE CONTRACT, THE CONTRACTOR SHALL CAUSE TO BE PREPARED AND SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL, EIGHT (8) SETS OF PRINTS OF ALL SHOP DRAWINGS. SHOP DRAWINGS SHALL BE FULLY DIMENSIONED, MANUFACTURER OR FABRICATOR GENERATED DETAILED WORKING DRAWINGS OR DETAILED SHOP DRAWINGS OF ALL PIPE AND FITTINGS, SPECIAL FITTINGS, COUPLINGS, SPECIALS AND MISCELLANEOUS DETAILS, SUCH AS VALVES, DRAIN FORGINS, PRECAST VAULTS, CASTINGS, BONDING OF JOINTS, AIR RELIEF OUTLETS, ANCHORS, PITOMETER OUTLETS, RESTRAINED JOINTS, ACCESS OPENINGS, PIPING FOR GATE VALVE ASSEMBLY, ETC. INFORMATION SHOWN ON SHOP DRAWINGS SHALL INCLUDE THICKNESSES, WEIGHT, DIRECTION OF TURNING, TYPE AND SPECIFICATION OF MATERIALS, AND OF SIMILAR INFORMATION OF ALL PIPING, VALVES AND MISCELLANEOUS DETAILS.

ALL WORKING AND SHOP DRAWING SUBMITTALS SHALL BE FULL SIZED DRAWINGS, TRUE TO SCALE. NO REDUCED COPIES OR PREVIOUSLY USED DRAWINGS FROM OTHER CONTRACTS SHALL BE ACCEPTED. NO WORK SHALL BE DONE IN THE SHOP OR IN THE FIELD UNTIL AFTER THE SHOP DRAWINGS HAVE BEEN FINALLY APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL ALSO SUBMIT THE ENGINEER FOR REVIEW AND/OR APPROVAL, A MINIMUM OF EIGHT (8) SETS OF A COMPLETE ASSEMBLY PLAN FOR THE ENTIRE LENGTH OF THE PIPE LINE CONSISTING OF THE HORIZONTAL PIPE ALIGNMENT, THE PIPE PROFILE, AND ACCOMPANIED WITH A DETAILED TABULATED LAYING SCHEDULE. THIS ASSEMBLY PLAN AND LAYING SCHEDULE SHALL SHOW THE CORRECT PLAN LOCATION AND ELEVATION, BY BOTH SURVEY AND WATER MAIN STATIONING, OF ALL FITTINGS TO BE FURNISHED, AND SHALL INCLUDE LOCATION OF ALL AIR RELIEF VALVES, DRAINS ASSEMBLIES, ANCHORS, MANHOLES, PITOMETER VAULTS, VALVE VAULTS, RESTRAINED JOINTS, ACCESS MANHOLES, ELECTROLYSIS TEST STATIONS, VALVES ASSEMBLIES, ETC. THIS WATER MAIN ASSEMBLY PLAN AND PROFILE SHALL BE A DOUBLE LINED DRAWING, INCLUDING PIPE CENTERLINE, SIMILAR TO THAT SHOWN ON THE CONTRACT DRAWINGS, AND SHALL SHOW BY SURVEY AND WATER MAIN STATIONING ALL HORIZONTAL POINTS OF INTERSECTIONS (HPI), INCLUDING DEGREE OF DEFLECTION. THE WATER MAIN ASSEMBLY PLAN PROFILE SHALL ALSO INCLUDE PIPE CENTERLINE ELEVATIONS, AND SHALL SHOW BY SURVEY AND WATER MAIN STATIONING ALL VERTICAL POINTS OF INTERSECTIONS (VPI), INCLUDING DEGREE OF DEFLECTION. THE ASSEMBLY PLAN AND TABULATED LAYING SCHEDULE SHALL SHOW THE LIMITS OF THE RESTRAINED DISTANCES, CLASS(ES) OF PIPE AND OTHER PERTINENT INFORMATION.

(B) REVIEWS AND APPROVALS: SHOP DRAWINGS, UNTIL APPROVED, SHALL BE SUBMITTED IN A MINIMUM OF EIGHT (8) SETS OR COPIES, CORRECTED AS DIRECTED BY THE ENGINEER AND RESUBMITTED AS OFTEN AS NECESSARY FOR FINAL APPROVAL. ALL SUCH DRAWINGS SHALL BE ACCOMPANIED WITH A CONTRACTOR'S "LETTER OF TRANSMITTAL" LISTING THE DRAWINGS, THEIR CONTENTS, THE ITEM NUMBER FOR WHICH THE SUBMITTAL IS MADE, AND THE PROJECT FOR WHICH THEY ARE INTENDED. TWO (2) SETS OF PRINTS OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED TO THE CONTRACTOR THROUGH THE ENGINEER WITH THE CRITICISMS OR APPROVAL OF THE CITY NOTED THEREON. AFTER SUCH APPROVAL, THE CONTRACTOR SHALL FURNISH NOT LESS THAN EIGHT (8) SETS OR COPIES FOR THE ENGINEER'S/DESIGN ENGINEER'S USE. THE CONTRACTOR SHALL DISTRIBUTE A SUFFICIENT NUMBER OF ADDITIONAL SETS AS MAY BE REQUIRED FOR THE WORK, INCLUDING AT LEAST ONE (1) SET FOR THE FIELD OFFICE, ALL BEARING THE ENGINEER'S/DESIGN ENGINEER'S "APPROVAL" STAMP OR OTHER WRITTEN DOCUMENTATION INDICATING APPROVAL.

(C) CONTRACTOR'S RESPONSIBILITY: THE ENGINEER WILL NOT RELEASE FINAL APPROVED SHOP DRAWINGS UNTIL THE CONTRACTOR FURNISHES FIELD DATA, IN WRITING, ON HIS COMPANY STATIONARY, ADDRESSED TO THE ENGINEER, EXPLICITLY STATING THAT THE CONTRACTOR HAS MADE, THROUGHOUT THE FULL LIMITS OF THE WORK CONTEMPLATED HEREIN, THOROUGH FIELD INVESTIGATIONS AND FIELD VERIFICATIONS OF ALL UTILITIES AND UTILITY SERVICE CONNECTIONS, BOTH PUBLIC AND PRIVATE, INCLUDING ALL SEWERS, ALL SEWER SERVICE CONNECTIONS, AND APPURTENANCES THEREOF, AND OF ANY OTHER OBSTRUCTION THAT MAY BE ENCOUNTERED IN THE WORK, AND THAT ACCORDING TO HIS FIELD INVESTIGATIONS AND FIELD VERIFICATIONS, NO KNOWN UTILITIES, UTILITY SERVICE CONNECTIONS OR OBSTRUCTIONS WILL AFFECT THE PIPE LAYING AS SHOWN ON THE CONTRACT DRAWINGS. WHERE THE CONTRACTOR FINDS VARIATIONS WILL BE REQUIRED TO THE PROPOSED PIPELINE ALIGNMENT AND/OR PROFILE AS SHOWN ON THE CONTRACT DRAWINGS, HE SHALL DOCUMENT THOSE VARIATIONS IN ACCORDANCE WITH PARAGRAPH G.

IN ADDITION, IT SHALL THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL FIELD DIMENSIONS AND ALL DESIGN CRITERIA, INCLUDING DESIGN AND PRESSURE REQUIREMENTS, PRIOR TO PREPARING THE VARIOUS SHOP DRAWING SUBMITTALS IN ORDER TO ASCERTAIN THAT ALL MATERIALS TO BE FURNISHED MEET OR EXCEED THE REQUIREMENTS OF THIS CONTRACT. AT THE TIME OF EACH SUBMISSION, THE CONTRACTOR SHALL GIVE THE ENGINEER SPECIFIC WRITTEN NOTICE OF EACH VARIATION THAT THE SHOP DRAWINGS MAY HAVE FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL CAUSE A SPECIFIC NOTATION TO BE MADE ON EACH SHOP DRAWING SUBMITTED TO THE ENGINEER FOR REVIEW OF EACH SUCH VARIATION. THE ENGINEER'S/DESIGN ENGINEER'S REVIEW AND APPROVAL OF SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE ENGINEER'S/DESIGN ENGINEER'S APPROVAL SHALL NOT EXTEND TO ANY SUCH VARIATION UNLESS CONTRACTOR HAS, IN WRITING, CONSPICUOUSLY CALLED THE ENGINEER'S/DESIGN ENGINEER'S ATTENTION TO EACH SUCH VARIATION AT THE TIME OF THE SUBMITTAL, AS REQUIRED BY THIS PARAGRAPH, AND THE ENGINEER HAS GIVEN WRITTEN APPROVAL OF THAT PARTICULAR VARIATION BY A SPECIFIC WRITTEN NOTATION THEREOF INCORPORATED IN OR ACCOMPANYING THE SHOP DRAWING REVIEW AND/OR APPROVAL.

THE CONTRACTOR SHALL LOCATE ALL PIPE ENDS AND/OR ALL EXISTING PIPE JOINTS WHERE CONNECTIONS ARE TO BE MADE, INCLUDING WHERE EXISTING MAINS ARE TO BE TAPPED, ALONG WITH THE NEXT EXISTING PIPE JOINT TO DETERMINE THE EXACT LOCATION AND ELEVATION (LINE AND GRADE) OF THE EXISTING WATER MAIN. THE CONTRACTOR SHALL ALSO EXPOSE THE EXISTING PIPE JOINTS ADJACENT TO WHERE CONNECTIONS ARE TO BE MADE TO DETERMINE THE TYPE OF THE EXISTING JOINTS AND THE DIRECTION OF THE EXISTING JOINTS. NO PIPE FABRICATION DRAWING WILL BE APPROVED UNTIL THIS INFORMATION IS SUBMITTED TO THE ENGINEER. ALL FIELD DATA SHALL BE OBTAINED IN THE PRESENCE OF THE INSPECTOR.

THE FIELD DATA SHALL BE OBTAINED BY THE CONTRACTOR, AND SUBMITTED TO THE ENGINEER, IN SUFFICIENT TIME IN ADVANCE OF THE PROPOSED WORK IN ORDER TO DETERMINE IF ANY ADJUSTMENTS TO THE LINE AND GRADE OF THE PROPOSED WATER MAIN OR ADJUSTMENTS TO THE EXISTING WATER MAIN IS REQUIRED DUE TO THE INFORMATION OBTAINED IN THE FIELD DATA. THE INFORMATION OBTAINED IN THE FIELD DATA SHALL ALSO BE FORWARDED TO THE PIPE FABRICATOR WITH SUFFICIENT TIME TO ALLOW FOR THE PREPARATION OF REVISED SHOP DRAWINGS AND FOR FABRICATION OF THOSE PIPE AND FITTINGS REQUIRED TO MAKE THE CONNECTION. NO EXTRA COMPENSATION TO THE CONTRACTOR SHALL BE MADE FOR ANY DELAYS AND/OR ADDITIONAL, PIPE, FITTINGS, AND SPECIALS, OR EQUIPMENT, TOOLS AND INCIDENTALS, FOR FAILURE TO HAVING PROPERLY OBTAINED AND FORWARDED IN A TIMELY MANNER TO THE ENGINEER THE REQUIRED FIELD INFORMATION DATA FOR REVIEW AND APPROVAL AND THE SAME TO THE PIPE FABRICATOR.

(D) ACCURACY/COMPLETENESS: THE DATA SHOWN ON THE SHOP DRAWINGS SHALL BE COMPLETE WITH RESPECT TO QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE AND DESIGN CRITERIA, MATERIALS AND SIMILAR DATA TO ENABLE THE ENGINEER TO REVIEW THE INFORMATION AS REQUIRED. IT IS, AMONG OTHER THINGS, THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL FIELD DIMENSIONS PRIOR TO PREPARING THE VARIOUS SHOP DRAWING SUBMITTALS.

SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR FOR ACCURACY OF INFORMATION PRIOR TO SUBMISSION. WHENEVER IT IS EVIDENT THAT SUCH CHECKING HAS NOT BEEN DONE, REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER WILL NOT BE CONSIDERED FURTHER AND WILL BE RETURNED TO THE CONTRACTOR FOR CHECKING AND RESUBMISSION.

THE ENGINEER WILL REVIEW AND APPROVE WITH REASONABLE PROMPTNESS IN ADDITION, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL FIELD DIMENSIONS AND ALL DESIGN SHOP DRAWINGS SUBMITTED BY THE CONTRACTOR. HOWEVER, THE ENGINEER'S REVIEW AND APPROVAL WILL BE ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE WORK AND FOR COMPLIANCE WITH THE REQUIREMENTS SET FORTH IN THE CONTRACT DOCUMENTS. SUCH REVIEW AND APPROVAL DO NOT EXTEND TO:

1. MEANS, METHODS, TECHNIQUES, SEQUENCES OR SPECIFIC PROCEDURES OF CONSTRUCTION, EXCEPT WHERE A MEANS, METHOD, TECHNIQUE, SEQUENCE OR PROCEDURE OF CONSTRUCTION IS SPECIFIED IN OR REQUIRED BY THE CONTRACT DOCUMENTS DUE TO ITS EFFECT ON THE CONFORMANCE OF THE COMPLETED WORK WITH THE DESIGN REQUIREMENTS, OR TO SAFETY PRECAUTIONS OR PROGRAMS INCIDENT THERETO.
2. DESIGN DATA REFLECTED IN THE SHOP DRAWING SUBMITTAL WHICH IS WITHIN THE SPECIAL EXPERTISE OF THE MANUFACTURER/DESIGNER OF THAT EQUIPMENT, UPON WHICH THE CITY AND THE ENGINEER HAVE A RIGHT TO RELY.
3. SAFETY ASPECTS OF THE EQUIPMENT TO BE INSTALLED, INCLUDING, BUT NOT LIMITED TO, OSHA REQUIREMENTS AND INSTALLATION PROCEDURES.
4. APPROVAL OF A SEPARATE AND SPECIFIC ITEM OF WORK. FOR WHICH SUCH APPROVAL IS GIVEN AND, THEREFORE, GOVERNS.
5. THE APPROVAL BY THE ENGINEER OF ANY SHOP DRAWING SHALL NOT RELIEVE THE CONTRACTOR FROM ITS RESPONSIBILITY TO THE CITY AND OTHERS FOR ERRORS OR OMMISIONS IN THE SHOP DRAWINGS OR THE RESULTING INSTALLATION.
6. WHERE A SHOP DRAWING IS REQUIRED BY THE SPECIFICATIONS, ANY RELATED WORK PERFORMED PRIOR TO THE ENGINEER'S/DESIGN THE ENGINEER'S REVIEW AND APPROVAL OF THE PERTINENT SUBMISSION WILL BE THE SOLE EXPENSE AND RESPONSIBILITY OF THE CONTACTOR.

(E) FINAL MYLAR TRACINGS: AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH REPRODUCIBLE TRACINGS ON MYLAR OF EACH OF THE FINAL SHOP DRAWINGS. LAYING SCHEDULES AND LINE ASSEMBLY DRAWINGS SHALL BE REVISED BY THE PIPE FABRICATOR TO REFLECT "AS-BUILT" DATA FURNISHED BY THE CONTRACTOR; SEE PARAGRAPH H, "AS-BUILT SHOP DRAWINGS." MYLAR SHALL BE OF MINIMUM 4-MIL THICKNESS, SHALL BE OF A SINGLE BASE STOCK WITH AN ETCHED SURFACE TO PROVIDE A MATTE FINISH ON THE FRONT AND SHALL BE OF A PERMANENT NON-ERASABLE, "WASH-OFF" TYPE, OF WHICH THE IMAGE ON THE MYLAR MEDIUM CANNOT BE REMOVED BY ERASURE. TRACINGS NOT 22" X 34" IN SIZE WILL NOT BE ACCEPTED. ALL MYLAR TRACINGS OF ALL WORKING AND SHOP DRAWING SUBMITTALS SHALL BE OF FULL SIZED DRAWINGS, TRUE TO SCALE. NO MYLAR TRACINGS OF REDUCED COPIES OR PREVIOUSLY USED DRAWINGS FROM OTHER CONTRACTS WILL BE ACCEPTED.

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
<b>SUBJECT:</b> 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET 5	TOTAL 44
DESIGN AGENCY <b>EUTHENICS</b> 8233 Mahony Dr.   Cleveland, OH 44125	
DESIGNER TDP	
REVIEWER DTB 03/01/22	
PROJECT ID 104983	
SHEET P.241	TOTAL P.445

CUY-77-00.42 PART 1

MODEL: 104983 UN009 PAPER SIZE: 17x11 (in.) DATE: 10/4/2022 TIME: 12:18:06 PM USER: esmccaslin F:\Jobs\1162-Miller Road Interchange\104983\03-Addendum\Water Main Material Revision\CWD General Notes\104983\_UN009.dgn



*Daniel T. Bender*  
06/01/22

WATER WORK NOTES

# WATER WORK NOTES

## SHOP DRAWINGS

(F) DRAWING IDENTIFICATION: ALL DRAWINGS SUBMITTED FOR APPROVAL SHALL BE IDENTIFIED AS FOLLOWS:

CITY OF CLEVELAND - DIVISION OF WATER  
PROJECT IDENTIFICATION  
ITEM NUMBER AND DESCRIPTION OF ITEM

(G) AS-BUILT SHOP DRAWINGS: THE FOLLOWING IS A LIST OF ITEMS TO USE WHEN COMPILING AS-BUILT DRAWINGS. A GENERAL RULE TO FOLLOW WHEN COMPILING AS-BUILT DRAWINGS IS THAT ANY IMPORTANT DEVIATIONS FROM ORIGINAL DRAWINGS MADE DURING CONSTRUCTION SHALL BE NOTED ON AS-BUILT DRAWINGS.

### a. TITLE SHEET

- i. PRIME CONTRACTOR - NAME AND ADDRESS.
  1. ANY MAJOR SUBCONTRACTORS - NAME AND ADDRESS.
- ii. RESIDENT PROJECT REPRESENTATIVE.
- iii. BURIED OR CONCEALED MATERIALS USED ON PROJECT.
- iv. FOR ALL VALVES, INDICATE THE NUMBER OF TURNS TO OPEN AND INDICATE DIRECTION TO OPEN (CLOCKWISE OR COUNTER-CLOCKWISE).
- v. A BOLD NOTE TO INDICATE THAT THE SET OF PLANS ARE "AS-BUILT DRAWINGS".

### b. WATER MAIN CONSTRUCTION

- i. SHOW UNUSUAL CONNECTIONS TO EXISTING MAINS IN DETAIL. (SCHEMATIC, WHERE NECESSARY)
- ii. SHOW CORRECT HORIZONTAL ALIGNMENT AND GRADE, INCLUDING CENTERLINE ELEVATIONS FOR ALL MAINS INSTALLED TO GRADE.
- iii. SHOW CORRECT STATIONING OF TEES, BENDS (HORIZONTAL AND VERTICAL), VALVES, AIR RELEASE VALVES, BLOW-OFF CHAMBERS, AND SERVICE CONNECTIONS.
- iv. SHOW PERPENDICULAR DISTANCES FROM HYDRANT TO WATER MAIN AND FROM HYDRANT TO WATCH VALVE. IF CONNECTION TO WATER MAIN IS BY A PARALLEL OR OVER THE MAIN TEE, SO INDICATE THIS ON THE RECORD DRAWINGS.
- v. SHOW CORRECT BEGINNING AND ENDING STATIONING AND TYPE OF ENCASEMENT PIPES. NOTE TYPE OF ANNULAR SPACE FILL MATERIAL USED.

### c. DETAIL SHEETS

- i. ANY DETAILS NOT USED OR NOT APPLICABLE SHALL BE SO NOTED. EXAMPLE - IF THREE ALTERNATES FOR PAVEMENT ARE ON DETAIL SHEET, THE TWO NOT USED SHALL BE SO NOTED. (BOX AND CROSS OUT UNUSED DETAILS).

### d. ALL CONSTRUCTION

- i. DENOTE ANY AREA WHERE ANY EXISTING UTILITY WAS REPAIRED, REPLACED OR RELOCATED. SHOW CORRECT LOCATION IF PLAN LOCATION WAS INCORRECT.
- ii. NOTE AND ACCURATELY LOCATE ALL EXISTING UNDERGROUND UTILITIES ENCOUNTERED DURING CONSTRUCTION, WHETHER SHOWN ON THE DRAWINGS OR NOT.

AFTER THE "AS-BUILT" DRAWINGS HAVE BEEN COMPLETED BY THE CONTRACTOR AND HIS ENGINEER/SURVEYOR AND SUCH HAS BEEN REVIEWED BY THE INSPECTOR THE CONTRACTOR SHALL SUBMIT THE ORIGINAL SET OF "AS-BUILT" PRINTS AND THE ORIGINAL FIELD BOOK TO THE CITY FOR ITS PERMANENT FILES.

(A) BASIS OF PAYMENT: THE FULL COST OF FURNISHING ALL LABOR, TESTING, MATERIAL AND EQUIPMENT TO PROVIDE THE REQUIRED SHOP DRAWING SUBMITTALS, INCLUDING THE FINAL MYLAR SUBMITTALS, AS DESCRIBED HEREIN SHALL BE INCLUDED FOR PAYMENT UNDER THE VARIOUS WATERWORK ITEMS TO BE DONE UNDER THIS CONTRACT.

## HANDLING PIPE AND ACCESSORIES

(A) UNLOADING PIPE, FITTINGS, VALVES, HYDRANTS, AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, HAULED TO AND DISTRIBUTED AT THE SITE OF THE PROJECT BY THE CONTRACTOR. THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. IN LOADING AND UNLOADING, THEY SHALL BE LIFTED BY HOISTS OR SLID, OR ROLLED ON SKIDWAYS IN SUCH MANNER AS TO AVOID SHOCK. UNDER NO CIRCUMSTANCES SHALL THEY BE DROPPED. PIPE HANDLED ON SKIDWAYS MUST NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ON THE GROUND.

(B) AT SITE OF WORK: IN DISTRIBUTING THE PIPE ALONG THE WORK, EACH PIPE AND FITTING SHALL BE PLACED AS NEARLY AS POSSIBLE TO THE POINT WHERE IT IS TO BE LAID, AND FACING IN THE PROPER DIRECTION. COATED PIPE SHALL BE HANDLED WITH WIDE BELT SLINGS. IRON CHAINS, CABLES OR OTHER EQUIPMENT LIKELY TO CAUSE DAMAGE TO THE PIPE WALL OR COATINGS SHALL NOT BE USED. PIPE WHICH HAS BEEN IMPROPERLY DISTRIBUTED AND WHICH SHALL BE MOVED LONGITUDINALLY ALONG THE TRENCH SHALL BE RELOADED ON A SUITABLE CAR OR TRUCK OR LIFTED AND SWUNG BY A DERRICK OR MOVED BY SUCH MEANS AS MAY BE SATISFACTORY TO THE ENGINEER.

(C) PROTECTION OF PIPE COATING: PIPE SHALL BE HANDLED IN SUCH MANNER THAT A MINIMUM AMOUNT OF DAMAGE TO THE COATING WILL RESULT. ANY PIPE OR FITTING, THE COATING OF WHICH HAS BEEN DAMAGED IN SHIPPING OR HANDLING, SHALL HAVE THE DAMAGED PORTION WELL CLEANED AND COATED IN THE SHOP WITH A MATERIAL EQUAL TO THAT APPLIED TO THE PIPE AND FITTINGS AND APPROVED BY THE CITY BEFORE BEING PLACED IN THE WORK. THE CONTRACTOR SHALL THOROUGHLY COAT ALL EXPOSED PARTS OF BOLTS AND NUTS WITH AN APPROVED ASPHALT PAINT, AFTER ALL PIPE HAS BEEN LAID AND BEFORE BACKFILLING HAS BEEN PLACED. ALL FIELD COATINGS SHALL BE FURNISHED AND APPLIED BY THE CONTRACTOR.

(D) PROTECTION OF AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE: IF IN THE PROCESS OF MANUFACTURE, TRANSPORTATION, OR HANDLING, ANY POLYVINYL CHLORIDE PIPE, FITTING OR SPECIAL RECEIVES ANY DAMAGE TO THE INTERIOR LINING OR THE PIPE WALL, SUCH PIPE, FITTING OR SPECIAL SHALL BE REJECTED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

(E) PIPE KEPT CLEAN: THE INTERIOR OF THE PIPE, FITTINGS, AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.

(F) FROST PROTECTION: VALVES AND HYDRANTS BEFORE INSTALLATION SHALL BE DRAINED AND STORED IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE BY FREEZING.

(G) PIPE WHICH IS PLACED IN STORAGE OR ON STREET TREELAWNS SHALL BE SO ARRANGED AS NOT TO CAUSE UNDUE INTERFERENCE OR INCONVENIENCE TO VEHICLE OR PEDESTRIAN TRAFFIC. ALL PIPE, FITTINGS AND SPECIALS SHALL BE SUFFICIENTLY PROTECTED TO PREVENT ANY INJURY TO SUCH, INCLUDING THE INTERIOR AND EXTERIOR COATINGS.

## CHANGES IN WATER MAINS

WHEREVER IT BECOMES NECESSARY, IN THE OPINION OF THE ENGINEER OR THE CITY TO CHANGE THE LOCATION OR ELEVATION OF WATER MAINS AND HYDRANTS AND WHERE WATER MAIN CONNECTIONS ARE TO BE MADE BETWEEN EXISTING DISTRIBUTION MAINS AND WATER MAINS INSTALLED UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LINE MATERIALS AS REQUIRED IN ORDER TO RECONNECT THE WATER MAIN AND SHALL FURNISH AND INSTALL COMPLETE, ALL NEW WATER MAIN MATERIALS INCLUDING PIPE, ADAPTERS, FITTINGS AND VALVES TO MAKE THE CONNECTIONS INDICATED, EXCEPT BRANCH SLEEVES AND VALVES WHICH SHALL BE FURNISHED BY THE CONTRACTOR BUT WILL BE INSTALLED BY THE CITY, EXCEPT WHERE OTHERWISE SPECIFIED UNDER THE SECTION ENTITLED "WORK TO BE DONE BY THE CITY." THE CONTRACTOR SHALL ALSO FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS AND EQUIPMENT AND MAKE THE EXCAVATION, BACKFILL AND REPAVING FOR SUCH CONNECTIONS. PAYMENT FOR THIS SHALL BE INCLUDED IN PRICE BID UNDER THE APPROPRIATE ITEM FOR SIZE OF WATER MAIN OR CONNECTION TO BE INSTALLED. ALL WATER MAIN MATERIALS, VALVES, AND APPURTENANCES REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR. (SEE WORK TO BE DONE BY THE CITY).

## WORK TO BE DONE BY THE CITY

(A) TAPPING MAINS: THE CONTRACTOR SHALL FURNISH ALL BRANCH SLEEVES, TAPPING SADDLES AND TAPPING VALVES OF THE SIZES AND TYPES INDICATED ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION, BACKFILLING, SEEDING OR SODDING AND REPAVING REQUIRED THEREFORE. THE CONTRACTOR SHALL ALSO FURNISH ALL EQUIPMENT, TOOLS AND INCIDENTALS, INCLUDING AIR COMPRESSOR, REQUIRED TO DO THIS WORK.

1) THE CITY WILL INSTALL ALL BRANCH SLEEVES, TAPPING SLEEVES AND TAPPING VALVES ON ALL CAST IRON, DUCTILE IRON AND CONCRETE PIPE OF ALL SIZES.

2) THE CITY WILL MAKE THE PRESSURE TAPS ON POLYVINYL CHLORIDE WATER MAINS FOR TAP SIZES UP TO AND INCLUDING 16-INCHES, AND ON CONCRETE WATER MAINS FOR TAP SIZES UP TO AND INCLUDING 12-INCHES.

3) THE CONTRACTOR SHALL ARRANGE FOR AND SHALL PAY FOR ALL PRESSURE TAPS OF 20-INCH AND LARGER ON CAST IRON OR DUCTILE IRON WATER MAINS AND FOR ALL PRESSURE TAPS OF 16-INCH AND LARGER ON CONCRETE AND STEEL WATER MAINS. THE CONTRACTOR'S COSTS FOR SUCH ARRANGEMENTS FOR PRESSURE TAPPING SHALL BE INCLUDED IN THE APPROPRIATE BID ITEM.

4) THE CITY WILL NOT OPERATE EQUIPMENT PROVIDED BY THE CONTRACTOR. HOWEVER, THE CITY WILL INSTALL ALL BRANCH SLEEVES, TAPPING SADDLES AND TAPPING VALVES AS INDICATED HEREIN AND WILL ASSIST IN MAKING THE PRESSURE TAP WHERE PRESSURE TAPPING IS PROVIDED BY THE CONTRACTOR. THE CITY WILL ONLY OPERATE EQUIPMENT BELONGING TO THE CITY. ALL LABOR COSTS INCURRED BY THE CITY FOR WORK REQUIRED TO BE DONE BY THE CITY IN THE TAPPING OF WATER MAINS WILL BE CHARGED TO THE CONTRACTOR. SEE THE "DIVISION OF WATER-LABOR CHARGES" NOTE. THE CITY, DIVISION OF WATER, WILL CHARGE TO THE CONTRACTOR A "TAPPING FEE" FOR DIVISION OF WATER INCURRED IN THE WORK, PAYABLE TO THE PERMITS AND SALES SECTION OF THE DIVISION OF WATER BEFORE ANY WORK IS PERFORMED.

(B) PIPE CUTTING: IN LOCATIONS WHERE BRANCH SLEEVES AND VALVES CANNOT BE INSTALLED, THE CONTRACTOR WILL BE REQUIRED TO CUT IN TEES AND SLEEVE-IN THE REMAINDER OF THE CUT SECTION OF THE EXISTING MAIN, OR, WHEN OTHERWISE REQUIRED. WHERE THE CONTRACTOR MUST MAKE PIPE CUTS, IT IS CALLED TO THE CONTRACTOR'S ATTENTION THAT THE DIVISION OF WATER HAS ON HAND AT HARVARD YARDS MOTOR OPERATED PIPE CUTTERS WHICH ARE AVAILABLE FOR CUTTING PIPE BY CITY FORCES.

THE COSTS CHARGED FOR PIPE CUTTING BY CITY FORCES MAY BE OBTAINED FROM THE PERMITS AND SALES SECTION OF THE DIVISION OF WATER, PUBLIC UTILITIES BUILDING, 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44114. THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, BACKFILLING AND REPAVING AND ALL AIR COMPRESSOR AND CRANE SERVICE SHALL BE FURNISHED BY THE CONTRACTOR. THE CITY, DIVISION OF WATER, WILL CHARGE TO THE CONTRACTOR A "PIPE CUTTING FEE" FOR DIVISION OF WATER LABOR INCURRED IN THE WORK, PAYABLE TO THE PERMITS AND SALES SECTION OF THE DIVISION OF WATER BEFORE ANY WORK IS PERFORMED.

## DIVISION OF WATER - LABOR CHARGES

THE CITY, DIVISION OF WATER, WILL CHARGE TO THE CONTRACTOR CERTAIN CHARGES PURSUANT TO SECTION 531.03(a) OF THE CODIFIED ORDINANCES OF THE DIVISION OF WATER, AS AMENDED BY ORDINANCE 1043-75 AND ADOPTED BY THE CITY OF CLEVELAND BOARD OF CONTROL RESOLUTION NO: 003- 82, AND PER ORDINANCE NO: 2661- 81, FOR DIVISION OF WATER LABOR REQUIRED IN THE WORK, PAYABLE TO THE PERMITS AND SALES SECTION OF THE DIVISION OF WATER BEFORE ANY WORK IS PERFORMED. THE PROSPECTIVE BIDDERS/CONTRACTOR ARE REFERRED TO THE DIVISION OF WATER CHARGE LETTER IN THE REFERENCE FILES AND THE GENERAL SUMMARY FOR THE LUMP SUM ITEM 638 - WATER WORK MISC.: CITY OF CLEVELAND, DIVISION OF WATER LABOR CHARGES.

## EXCAVATION

(A) THE CONTRACTOR SHALL PERFORM ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN, PIPE CONNECTIONS AND APPURTENANT STRUCTURES, INCLUDING TUNNEL AND SHAFT EXCAVATION. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINAGE, SHEETING AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES OR CONDITIONS FORESEEN AND UNFORESEEN OR ENCOUNTERED IN THE WORK OF THIS CONTRACT.

(B) TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF BACKFILL UNDER AND AROUND PIPES, AND SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND SHORING, PUMPING AND DRAINING AS MAY BE NECESSARY.

(C) THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
6	44
DESIGN AGENCY	
<b>EUTHENICS</b> 833 Mohawk Dr.   Cleveland, OH 44118	
DESIGNER	TDP
REVIEWER	DTB
PROJECT ID	104983
SHEET	TOTAL
P.242	P.445

WATER WORK NOTES

CUY-77-00.42 PART 1

MODEL: 104983 UN010 PAPER SIZE: 17x11 (in.) DATE: 10/4/2022 TIME: 12:24:20 PM USER: esmccaslin F:\Jobs\1162-Miller\_Road Interchange\104983\03-Addendum\Water Main Material Revision\CWD General Notes\104983\_UN010.dgn



06/01/22

# WATER WORK NOTES

## EXCAVATION- CONTINUED

(D) THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED, BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY AND OF THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEETED TRENCH SHALL BE EIGHTEEN (18) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE EXCEPT BY CONSENT OF THE CITY; THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL NOT BE MORE THAN TWO (2) FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.

(E) THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

(F) ANY PART OF THE TRENCH EXCAVATED BELOW GRADE SHALL BE CORRECTED WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(G) WHEN THE UNCOVERED TRENCH BOTTOM AT SUBGRADE IS SOFT AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, A FURTHER DEPTH AND OR WIDTH SHALL BE EXCAVATED AND BACKFILLED TO PIPE FOUNDATION GRADE AS REQUIRED UNDER (F), OR OTHER APPROVED MEANS SHALL BE ADOPTED TO ASSURE A FIRM FOUNDATION FOR THE PIPE.

(H) LEDGE ROCK, BOULDERS, LARGE STONES, AND SHALE SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST SIX (6) INCHES BELOW ALL PARTS OF THE PIPE, VALVES, OR FITTINGS AND A CLEAR WIDTH OF NINE (9) INCHES ON EACH SIDE OF ALL POLYVINYL CHLORIDE PIPE, IRON PIPE, CONCRETE PIPE, AND STEEL PIPE SHALL BE PROVIDED.

(I) EXCAVATION BELOW SUBGRADE IN ROCK, SHALE OR IN BOULDERS SHALL BE BACKFILLED TO SUBGRADE WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(J) BELL HOLES OF AMPLE DIMENSIONS SHALL BE DUG IN EARTH TRENCHES AT EACH JOINT TO PERMIT THE JOINTING TO BE MADE PROPERLY. ADEQUATE CLEARANCE FOR PROPER JOINTING OF PIPE LAID IN ROCK SHALL BE PROVIDED AT BELL HOLES.

(K) THE USE OF EXCAVATING MACHINERY WILL BE PERMITTED EXCEPT IN PLACES WHERE ITS OPERATION WILL CAUSE DAMAGE TO TREES, BUILDINGS, OR EXISTING STRUCTURES ABOVE OR BELOW GROUND, IN WHICH CASE HAND METHODS SHALL BE EMPLOYED.

(L) TREES, FENCES, POLES AND ALL OTHER PROPERTY SHALL BE PROTECTED UNLESS THEIR REMOVAL IS AUTHORIZED. ANY PROPERTY DAMAGED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.

(M) HYDRANTS UNDER PRESSURE, VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES, FIRE OR POLICE CALL BOXES, OR OTHER UTILITY CONTROLS SHALL BE LEFT UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIOD.

(N) THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATIONS IN GOOD ORDER DURING THE CONSTRUCTION, SO AS NOT TO HINDER OR INJURE THE PIPE LAYING, MASONRY OR OTHER WORK. HE SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT MOVEMENT OF THE SIDES OF SUCH EXCAVATION, AND SHALL REMOVE AT HIS OWN EXPENSE ANY MATERIAL SLIDING INTO THE EXCAVATION.

## SHEETING AND BRACING

(A) THE CONTRACTOR SHALL FURNISH AND PUT IN PLACE SUCH SHEETING AND BRACING AS MAY BE REQUIRED TO SUPPORT THE SIDES OF TRENCHES OR OTHER EXCAVATION AND SHALL REMOVE SUCH SHEETING AND BRACING, AS THE TRENCH OR EXCAVATION IS FILLED UP, UNLESS THE ENGINEER SHALL ORDER IT LEFT IN PLACE, IN WHICH CASE THE CONTRACTOR SHALL CUT THE PLANK OFF AT A HEIGHT AS ORDERED BY THE ENGINEER, OR AS CALLED FOR ON THE CONTRACT DRAWINGS.

(B) FOR ALL EXCAVATIONS FOR THE WORK DESCRIBED HEREIN, THE CONTRACTOR SHALL FURNISH AND PLACE SHEETING AND BRACING SO AS TO REDUCE TO A MINIMUM THE POSSIBILITY OF INJURY OR DAMAGE TO THE SAME.

(C) IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT SUFFICIENT OR PROPER SUPPORTS, SHEETING, OR BRACING HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS, SHEETING OR BRACING, AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS BY THE CONTRACTOR SHALL NOT RELIEVE OR RELEASE HIM FROM HIS RESPONSIBILITY FOR SUFFICIENCY OF SUCH SUPPORTS.

(D) SHEETING AND BRACING SHALL BE PROVIDED IN ACCORDANCE WITH RULE 4121:1-3-13 OF "THE SPECIFIC SAFETY REQUIREMENTS OF THE INDUSTRIAL COMMISSION OF OHIO RELATING TO CONSTRUCTION."

## REMOVAL OF EXCAVATED MATERIAL

(A) ALL SURPLUS MATERIAL AND SUCH OTHER MATERIAL AS THE ENGINEER MAY DEEM UNFIT FOR USE AS BACKFILL SHALL BE DISPOSED OF BY THE CONTRACTOR SO AS TO GIVE A MINIMUM OF INCONVENIENCE TO THE PUBLIC. IN CASE OF SETTLEMENT AFTER BACKFILL, THE CONTRACTOR SHALL SUPPLY SUFFICIENT MATERIAL SATISFACTORY TO THE ENGINEER TO MAKE UP FOR THE DEFICIENCY.

(B) IN THE STORING OF EXCAVATED MATERIAL, WHICH IS TO BE USED AS A BACKFILL, THE CONTRACTOR SHALL EXERCISE CARE SO AS TO AVOID INCONVENIENCING THE PUBLIC. IF IN THE OPINION OF THE ENGINEER IT IS NECESSARY TO REMOVE THIS EXCAVATED MATERIAL FROM THE STREET OR LOTS, THE CONTRACTOR SHALL BE REQUIRED TO DO SO.

(C) ANY MATERIAL WHICH MAY SPILL OR DRIP FROM VEHICLES BY HAULING IN THE STREETS SHALL BE REMOVED AND THE STREETS CLEANED BY THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER.

(D) WHEN SO DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL EXCAVATED MATERIALS FROM THE SITE.

## LAYING PIPE

(A) PROPER IMPLEMENTS, TOOLS, AND FACILITIES, SATISFACTORY TO THE ENGINEER, SHALL BE PROVIDED AND USED BY THE CONTRACTOR FOR THE SAFE AND CONVENIENT PROSECUTION OF THE WORK. ALL PIPE, FITTINGS, AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH, PIECE BY PIECE, BY MEANS OF DERRICK, PROPER SLINGS, AND OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH MANNER AS TO PREVENT DAMAGE TO PIPE OR COATING. UNDER NO CIRCUMSTANCES SHALL PIPE OR ACCESSORIES BE DROPPED OR DUMPED INTO THE TRENCH. IF ANY DEFECTIVE PIECE IS DISCOVERED WHILE PIPE IS SUSPENDED OR AFTER BEING LAID, A NEW PIECE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

(B) ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH, AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING.

(C) AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY APPROVED MEANS, AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE. NO PIPE SHALL BE LAID IN WATER, OR WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF THE ENGINEER.

(D) WHEREVER NECESSARY TO DEFLECT PIPE FROM A STRAIGHT LINE, EITHER IN THE VERTICAL OR HORIZONTAL PLANE TO AVOID OBSTRUCTIONS, TO PLUMB STEMS, OR FOR OTHER REASONS, THE DEGREE OF DEFLECTION SHALL BE APPROVED BY THE ENGINEER AND SHALL NOT EXCEED THE DEGREE OF JOINT OPENING RECOMMENDED BY THE PIPE MANUFACTURER.

(E) THE POLYVINYL CHLORIDE PIPE ENDS SHALL BE KEPT CLEAN UNTIL JOINTS ARE MADE.

(F) BEFORE LAYING STEEL PIPE, THE PREPARATION OF PIPE ENDS FOR THE STEEL PIPE AND FITTINGS SHALL BE MADE IN ACCORDANCE WITH THE AWWA SPECIFICATIONS, C 200-86, "STEEL PIPE 6" AND LARGER," OR LATEST REVISION THEREOF.

## FLOATING

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST THE FLOATING OF THE PIPE DUE TO WATER COMING INTO THE TRENCH, OR THROUGH CAVING IN, FLUSHING OR PUDDLING. IN CASE OF SUCH FLOATING THE CONTRACTOR SHALL REPLACE THE PIPE AT HIS OWN EXPENSE AND MAKE WHOLLY GOOD ANY INJURY OR DAMAGE WHICH MAY HAVE RESULTED.

## BACKFILLING

(A) BACKFILLING SHALL CONSIST OF A SAND BEDDING BACKFILL, AND BACKFILL, UNLESS OTHERWISE SPECIFIED, OR WHERE PREMIUM BACKFILL IS REQUIRED PER PVC-001, MADE WITH MATERIAL EXCAVATED FROM THE TRENCHES, PROVIDING THE SAME IS SATISFACTORY TO THE ENGINEER AND THE CITY. IF, IN THE OPINION OF THE ENGINEER AND THE CITY, THE MATERIAL EXCAVATED IS UNSATISFACTORY, THEN THE CONTRACTOR SHALL FURNISH AT HIS OWN EXPENSE OTHER SUITABLE MATERIAL FOR BACKFILL. ALL BACKFILL MATERIAL SHALL BE FREE FROM SLAG, CINDERS, RUBBISH, AND OTHER OBJECTIONABLE MATERIAL. BACKFILL SHALL BE PLACED INTO THE TRENCH AND NOT DOZED OR DUMPED FROM THE TOP OF THE TRENCH. THIS WORK INCLUDES ALL BACKFILLING, TOGETHER WITH RAMMING, PUDDLING, AND ROLLING, AS REQUIRED; THE FURNISHING OF SAND BEDDING BACKFILL, SUITABLE MATERIAL FOR BACKFILL, INCLUDING PREMIUM BACKFILL; AND ALL APPURTENANT WORK INCIDENTAL THERETO.

(B) BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE BROUGHT TO THE GRADE OF THE BOTTOM OF THE PIPE, EXCEPT AT PIPE JOINTS. WHEREVER THE BOTTOM OF THE TRENCH HAS BEEN EXCAVATED BELOW THE BOTTOM OF THE PIPE, THE CONTRACTOR SHALL PLACE SAND BEDDING, OR OTHER APPROVED MATERIAL SATISFACTORY TO THE ENGINEER AND THE CITY, TO BRING THE BOTTOM OF THE TRENCH TO THE GRADE OF THE BOTTOM OF THE PIPE. THIS SAND BEDDING SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS PLACED IN THE TRENCH.

(C) THE BEDDING BACKFILL THREE (3) INCHES UNDER, AROUND AND TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF ALL PIPE, UNLESS OTHERWISE SPECIFIED, SHALL BE MADE WITH SAND, WHICH MATERIAL SHALL BE FREE FROM STONE AND OTHER OBJECTIONABLE MATERIAL NOTED ABOVE IN PARAGRAPH (A) AND HEREIN. THE SAND USED FOR BEDDING BACKFILL SHALL BE A NATURAL BANK SAND, MEETING REQUIREMENTS OF ODOT 703 "AGGREGATE" SECTION 703.02 "AGGREGATE FOR PORTLAND CEMENT", GRADED FROM FINE TO COARSE, NOT LUMPY A NATURAL BANK SAND, GRADED FROM FINE TO COARSE, NOT LUMPY OR FROZEN, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH, OR OTHER DELETERIOUS OR OBJECTIONABLE MATERIAL. THE SAND USED FOR BEDDING BACKFILL SHALL NOT CONTAIN A TOTAL OF MORE THAN 10% BY WEIGHT OF LOAM AND CLAY, AND ALL SUCH MATERIAL MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. NOT MORE THAN 5% SHALL REMAIN ON A #4 SIEVE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE SAND BEDDING BACKFILL, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, AND DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN THIN LAYERS OF SIX (6) INCHES, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.

(D) BACKFILL ABOVE THE ONE (1) FOOT SAND BEDDING BACKFILL SHALL BE MADE WITH MATERIAL SPECIFIED HEREIN IN EITHER PARAGRAPH (A) OR AS SPECIFIED HEREIN FOR PREMIUM BACKFILL IN PARAGRAPH (G).



<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
7	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8233 Mahan Dr.   Cleveland, OH 44135	
DESIGNER	TDP
REVIEWER	DTB
03/01/22	
PROJECT ID	104983
SHEET	TOTAL
P.243	P.445

CUY-77-00.42 PART 1

MODEL: 104983 UN011 PAPERSIZE: 17x11 (in.) DATE: 10/4/2022 TIME: 12:28:06 PM USER: esmccaslin F:\Jobs\1162-Miller\_Road Interchange\104983\003-Addendum\Water Main Material Revision\CWD General Notes\104983\_UN011.dgn

WATER WORK NOTES

# WATER WORK NOTES

**BACKFILLING - CONTINUED**

(E) PREMIUM BACKFILL SHALL BE PLACED WHERE EXISTING AND FUTURE PERMANENT PAVEMENT, SIDEWALKS, DRIVEWAYS, SEWER PIPE CROSSINGS AND CURB CROSSINGS HAVE BEEN OPEN OR UNDERCUT. THE PLACEMENT OF PREMIUM BACKFILL ALSO APPLIES TO ALL EXCAVATION WITHIN THREE (3) FEET OF EXISTING OR FUTURE PERMANENT PAVEMENT, SIDEWALKS, DRIVEWAYS, SEWER PIPE CROSSINGS AND CURB CROSSINGS. IF PART OF THE TRENCH IS UNDER EXISTING OR FUTURE PAVEMENT, SIDEWALK, DRIVEWAY OR CURB THE ENTIRE TRENCH SHALL BE BACKFILLED WITH PREMIUM BACKFILL MATERIAL SPECIFIED HEREIN.

(F) ONLY AFTER THE ONE (1) FOOT SAND BEDDING BACKFILL HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.

(G) PREMIUM BACKFILL SHALL CONSIST OF LIMESTONE SCREENINGS. THE PREMIUM BACKFILL SHALL BE READILY INCORPORATED IN AN 8- INCH LAYER AND SHALL BE IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS, ITEM 304, "AGGREGATE BASE" SECTION 304.02 "AGGREGATE", MEETING THE FOLLOWING REQUIREMENTS:

SIEVE	% PASSING GRADING
2-INCH	100
1-INCH	70-100
3/4-INCH	50-90
NO. 4	30-60
NO. 30	9-33
NO. 200	0-13

THE FRACTION OF THESE MATERIALS PASSING A #40 SIEVE SHALL HAVE A LIQUID LIMIT NOT GREATER THAN 30 (THIRTY) AND A PLASTICITY INDEX NOT GREATER THAN 6 (SIX).

SLAG; NATURAL OR SYNTHETIC CRUSHED AGGREGATE SUCH AS BROKEN OR CRUSHED ROCK; CRUSHED CONCRETE; OR OTHER TYPE OF MATERIAL IN LIEU OF THE SAND BEDDING BACKFILL AND THE LIMESTONE SCREENING BACKFILL MATERIAL WILL NOT BE PERMITTED.

THE MINIMUM COMPACTION FOR ALL SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTER.

(H) BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER AND THE CITY, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.

(I) SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER EXCAVATION, EXCEEDING ONE (1) FOOT MEASURED FROM THE GROUND OR PAVEMENT SURFACE IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG EIGHT (8) INCHES BELOW PIPE GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER. A FOUR (4) INCH LAYER OF CRUSHED LIMESTONE SHALL BE PLACED ON THE ENTIRE WIDTH OF THE BOTTOM OF THE TRENCH, FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF SAND BEDDING TO SIX (6) INCHES ABOVE THE TOP OF THE PIPE. THE FOUR (4) INCH CRUSHED LIMESTONE SHALL BE WELL GRADED FROM FINE TO COARSE, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH OR OTHER OBJECTIONABLE MATERIAL. ALL LIMESTONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED LIMESTONE, HYDRATED LIME SHALL

BE SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THIS BED OF CRUSHED LIMESTONE, WITH FILLER OF HYDRATED LIME IN PLACE, SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS LAID IN THE TRENCH AND THE SAND BEDDING BACKFILL IS PLACED. THE SAND BEDDING BACKFILL SHALL BE FOR THREE (3) INCHES UNDER, AROUND AND TO A DEPTH OF SIX (6) INCHES ABOVE THE TOP OF THE PIPE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, AND DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. ON TOP OF THE SAND BEDDING BACKFILL THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIMESTONE SIX (6) INCHES THICK FOR THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THIS SIX (6) INCH LAYER OF COMPACTED LIMESTONE A SECOND FILLER OF HYDRATED LIME SHALL THEN BE APPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH LIMESTONE SCREENINGS AS ELSEWHERE SPECIFIED HEREIN, CAREFULLY PLACED AND COMPACTED BY TAMPING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM PREVIOUSLY DESCRIBED, MAY BE OMITTED WHERE THE CINDER DEPTH, MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2'-6".

(J) THE COST OF FURNISHING, HAULING, PLACING AND COMPACTING THE SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL MATERIALS, INCLUDING SPECIAL TREATMENT OF CINDER EXCAVATION(S), SHALL BE DEEMED TO BE INCLUDED IN THE PRICE BID PER LINEAL FOOT OF WATER MAIN FURNISHED AND INSTALLED UNDER THIS CONTRACT.

**PROVISIONS FOR PROTECTING THE WORK**

THE CONTRACTOR SHALL FURNISH ALL THE NECESSARY EQUIPMENT, SHALL TAKE ALL NECESSARY PRECAUTIONS AND SHALL ASSUME THE ENTIRE COST OF HANDLING ANY SEWAGE, SEEPAGE, STORM SURFACE AND FLOOD FLOWS OR ICE, WHICH MAY BE ENCOUNTERED AT ANY TIME DURING THE CONSTRUCTION OF THE WORK. THE MANNER OF PROVIDING FOR THESE OCCURRENCES SHALL MEET WITH THE APPROVAL OF THE ENGINEER. AFTER INSTALLATION, THE CONTRACTOR SHALL FURNISH AND MAINTAIN SATISFACTORY PROTECTION TO ALL EQUIPMENT WHETHER OF THIS OR OTHER CONTRACT AGAINST INJURY BY WEATHER, FLOODING OR BY DIRECT OR INCIDENTAL DAMAGE FROM HIS OWN OPERATIONS, LEAVING ALL WORK IN A PERFECT CONDITION AT THE COMPLETION OF THE CONTRACT. NO EXTRA PAYMENT WILL BE MADE FOR THIS WORK BUT THE ENTIRE COST OF THE SAME SHALL BE INCLUDED IN THE WORK TO BE DONE IN THIS CONTRACT.

**CASING PIPE OR TUNNELING**

THE INSTALLATION OF CASING PIPE OR TUNNELING WILL NOT BE PERMITTED WITHOUT PERMISSION OF THE CITY. ONLY WHERE SPECIFICALLY SHOWN ON THE DRAWINGS WILL CASING PIPE OR TUNNELING BE PERMITTED. IN BACKFILLING THE CASING PIPE OR TUNNEL, SAND SHALL BE USED. BACKFILLING MADE WITH NON-SHRINKING GROUT MAY BE USED WITH THE APPROVAL OF THE ENGINEER AND THE CITY. WRAP AROUND RUBBER END SEALS ARE TO BE USED FOR SINGLE CARRIER PIPES, OR MOLDED END SEALS FOR CLUSTER CARRIER PIPES ARE TO BE USED AT THE END OF EACH OPENING. BRICK BULKHEADS ARE NOT ALLOWED.

**LISTS AND INVOICES**

(A) THE CONTRACTOR SHALL FURNISH THE CITY WITH THE LIST IN DUPLICATE OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME.

(B) THE MATERIAL SHALL BE SHIPPED IN SUCH SECTIONS AS THE STATE AND CITY MAY ORDER.

**PAVEMENT SAW CUTS**

WHERE "VERMEER" TYPE SAW OR ANY OTHER TYPE OF MACHINERY OR MEANS IS USED TO CUT THE EXISTING PAVEMENT IN ADVANCE OF THE PAVEMENT REMOVAL, THE CONTRACTOR SHALL IMMEDIATELY FILL THE SAW-CUT GAP WITH ASPHALT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND AT HIS EXPENSE, MAINTAIN, THE SAW-CUT GAPS AND SHALL REPAIR AND/OR REPLACE ASPHALT AS NECESSARY.

**PAVEMENT DAMAGE - CONTRACTOR'S RESPONSIBILITY**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND AT HIS EXPENSE, MAINTAIN, REPAIR AND/OR REPLACE ANY PAVEMENT, ROADWAYS, DRIVEWAYS, BERMS, CURBS, SIDEWALKS AND TREELAWNS OR OTHER AREAS WITHIN THE LIMITS OF THIS PROJECT, THAT MAY BE DAMAGED BY HIM OR THOSE IN HIS EMPLOY DUE TO MANEUVERING OF CONSTRUCTION EQUIPMENT, OR DAMAGED BY VEHICULAR TRAFFIC REROUTED DUE TO CONSTRUCTION AND TRAFFIC MAINTENANCE.

THE CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE ALL DAMAGED OR INJURED PAVEMENT, ROADWAYS, DRIVEWAYS, BERMS, CURBS, SIDEWALKS AND TREELAWNS, BOTH TEMPORARY AND PERMANENT, IN ACCORDANCE WITH THESE SPECIFICATIONS, CONTRACT DRAWINGS OR APPLICABLE CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE CITY OF CLEVELAND ENGINEER OR STATE OF OHIO DEPARTMENT OF TRANSPORTATION (O.D.O.T.).

**REMOVED ITEMS**

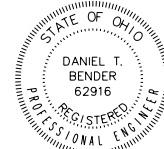
ALL MATERIALS CONSISTING OF PIPE, FITTINGS, VALVES, CASTINGS AND OTHER WATER MAIN STRUCTURES, UNLESS SPECIFICALLY INDICATED OTHERWISE HEREIN, WHICH ARE DESIGNATED FOR REMOVAL BY THE CONTRACTOR SHALL BECOME PROPERTY OF THE CONTRACTOR AND BE REMOVED AND DISPOSED OF BY HIM.

**ITEM 638 - WATER WORK, MISC.: 12" AWWA C900 OR C909 PVC WATERMAIN WITH STAB TYPE, RUBBER GASKETED BELL AND SPIGOT JOINTS, 235 PSI MINIMUM AND RESTRAINED CLASS 350 CEMENT LINED DUCTILE IRON FITTINGS**  
**ITEM 638 - WATER WORK, MISC.: 12" AWWA C900 PVC WATERMAIN WITH INTERNAL RESTRAINED JOINTS (CERTA-LOK, EAGLE LOC OR APPROVED EQUAL), 305 PSI MINIMUM AND RESTRAINED CLASS 350 CEMENT LINED DUCTILE IRON FITTINGS**

**WORK INCLUDED**

(A) THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO LAY, CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL POLYVINYL CHLORIDE PIPE, DUCTILE IRON FITTINGS, TRACER WIRE, V-BIO ENHANCED POLYETHYLENE ENCASUREMENT (FITTINGS TRIPLE WRAPPED WITHIN LIMITS OF INTERNAL RESTRAINED JOINTS), INCLUDING ALL PAINTING, TESTING OF PIPE AND FITTINGS, REMOVAL AND RESTORATION OF MISCELLANEOUS ITEMS, SHEETING AND SHORING, EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, BACKFILLING, SAND BEDDING AND PREMIUM BACKFILL, AND REPAVING (BOTH TEMPORARY AND PERMANENT), ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(B) IN MAKING THE CONNECTION TO EXISTING MAINS WHERE BRANCH SLEEVES CAN BE USED, THE CONTRACTOR SHALL SUPPLY THE SAME. THE DIVISION OF WATER WILL INSTALL THE BRANCH SLEEVE AND WILL MAKE THE PRESSURE TAP (IF APPLICABLE) IN ACCORDANCE WITH THE REQUIREMENTS INDICATED UNDER "WORK TO BE DONE BY CITY." IF THE INSTALLATION OF BRANCH SLEEVES AND VALVES CANNOT BE ACCOMPLISHED, THE CONTRACTOR WILL BE REQUIRED TO FURNISH AND INSTALL TEES WITH SLEEVES OR COUPLINGS TO COMPLETE THE CONNECTION. THE CONTRACTOR WILL BE REQUIRED TO MAKE THE NECESSARY EXCAVATION, BACKFILL AND REPAVING (IF NOT PAID FOR SEPARATELY AS PART OF THIS CONTRACT).



*[Signature]*  
06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
8	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8233 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.244	P.445

CUY-77-00.42 PART 1

MODEL: 104983\_UN012\_PAPER SIZE: 17x11 (in.) DATE: 07-Oct-22 TIME: 11:59:45 AM USER: comitk  
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WATER WORK NOTES

# WATER WORK NOTES

WATER WORK NOTES

**QUALIFICATIONS AND EXPERIENCE:**

QUALIFICATIONS: ALL AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE AND DUCTILE IRON FITTINGS AND PIPE SPECIALS SHALL BE FURNISHED BY A MANUFACTURER WHO IS FULLY EXPERIENCED, REPUTABLE, AND QUALIFIED IN THE MANUFACTURE OF THE AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE. THE PIPE, FITTINGS AND SPECIALS SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE BEST PRACTICES AND METHODS AND SHALL COMPLY IN ALL RESPECTS WITH THE CONTRACT DRAWINGS AND WITH THESE SPECIFICATIONS.

EXPERIENCE: ALL BIDDERS SHALL BE REQUIRED TO SHOW TO THE SATISFACTION OF THE ENGINEER THAT THE TYPE AND SIZE OF PIPE AND FITTINGS HE PROPOSES TO FURNISH, SHALL BE MADE BY A MANUFACTURER WHOSE PIPE HAS BEEN SUCCESSFULLY USED FOR LIKE WORK FOR A PERIOD OF NOT LESS THAN FIVE (5) YEARS.

**LAYING**

(A) PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPE AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATING AND FITTINGS FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF THE PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTINGS SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

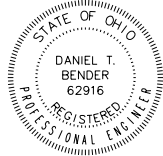
(B) IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER, BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE LAID, SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE COMPLETED WORK, AND WHEN LAID, SHALL CONFORM TO THE LINES AND GRADES GIVEN BY THE ENGINEER. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A WATER TIGHT PLUG DURING CONSTRUCTION.

(C) PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

(D) IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS, THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST AMERICAN WATER WORKS ASSOCIATION, AWWA C605, UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS FOR WATER.

CUY-77-00.42 PART 1

MODEL: 104983 UN013 PAPERSIZE: 17x11 (in.) DATE: 10/4/2022 TIME: 8:45:13 PM USER: dbender  
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*[Signature]*  
06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
9	44
DESIGN AGENCY	
<b>EUTHENICS</b> <small>8233 Mahoning Dr.   Cleveland, OH 44138</small>	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
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# WATER WORK NOTES

PAYMENT SHALL ALSO INCLUDE CUTTING EXISTING PIPE (REMOVAL OF PIPE IS INCLUDED UNDER ITEM 202, PIPE REMOVED, 24" AND UNDER, AS PER PLAN), REMOVAL OF EXISTING CONCRETE THRUST BLOCKS, REMOVAL OF EXISTING PLUGS/CAPS, CONNECTING, FURNISHING AND INSTALLING RESTRAINED JOINTS, VICTAULIC JOINTS AND COMPRESSION COUPLINGS, PAINTING, SPECIAL EXTERIOR COATING, V- BIO ENHANCED POLYETHYLENE ENCASEMENT (FITTINGS TRIPLE WRAPPED WITHIN LIMITS OF INTERNAL RESTRAINED JOINTS), REMOVAL AND RESTORATION OF MISCELLANEOUS ITEMS AND PAVEMENT (IF NOT PAID SEPERATELY AS PART OF THIS CONTRACT) AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS REQUIRED TO COMPLETE THE WORK SHOWN ON THE CONTRACT DRAWINGS AND AS SPECIFIED, OR AS ORDERED, ALL FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

**ITEM 638 - WATER WORK, MISC.: 12" GATE VALVE WITH VALVE BOX, COMPLETE**  
**ITEM 638 - WATER WORK, MISC.: 12" CUT-IN VALVE ASSEMBLY WITH VALVE BOX, COMPLETE**

**WORK INCLUDED:**

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR, AND SHALL PROPERLY SET IN PLACE AND CONNECT, AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, GATE VALVES AND VALVE BOXES AND COVERS, OF THE VARIOUS SIZES AND TYPES SPECIFIED OR ORDERED AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. IN GENERAL, THE WORK SHALL INCLUDE FURNISHING, PLACING, TESTING, AND PAINTING OF THE GATE VALVES, INCLUDING OPERATING NUTS AND OTHER ACCESSORIES AND APPURTENANCES AND THE FURNISHING OF ALL LABOR, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. ALL VALVES SHALL HAVE CWD STANDARD SIZED OPERATING NUTS AND ALL OTHER ACCESSORIES AND APPURTENANCES, INCLUDING WHERE REQUIRED VALVE STEM EXTENSION (IN VALVE BOX) AND/OR VALVE ROD EXTENSION (IN VALVE VAULT) AND THE FURNISHING OF ALL LABOR, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE CONTRACTOR'S ATTENTION IS HEREWITH DIRECTED TO SECTION "WORK TO BE DONE BY THE CITY," OF THESE SPECIFICATIONS.

**DEFINITIONS/STANDARDS:**

VALVES FURNISHED AND SET IN PLACE UNDER THIS ITEM SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE AWWA MINIMUM STANDARDS AND IN ACCORDANCE WITH THE SUPPLEMENTAL REQUIREMENTS OF THESE SPECIFICATIONS. SIZE AND TYPE OF VALVES SHALL BE AS NOTED ON THE CONTRACT DRAWINGS AND AS SPECIFIED HEREIN OR INDICATED IN THE SCHEDULE OF BID ITEMS. STANDARDS REFERENCED HEREIN SHALL BE LATEST REVISION THEREOF, EXCEPT AS MODIFIED HEREIN:

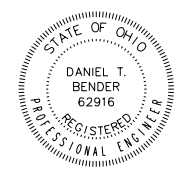
ANSI/AWWA C203-02:  
 COAL-TAR PROTECTIVE COATINGS AND LININGS FOR STEEL WATER PIPELINES - ENAMEL AND TAPE - HOT APPLIED;

**MEASUREMENT:**

THE NUMBER OF LINEAR FEET OF WATER MAIN TO BE PAID FOR UNDER ITEM, "AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE AND DUCTILE IRON FITTINGS," CLASSIFIED AS TO SIZE AND TYPE, SHALL BE THAT ACTUALLY FURNISHED AND PLACED IN ACCORDANCE WITH THAT SHOWN IN THE CONTRACT DRAWINGS AND THESE SPECIFICATIONS, AS MEASURED ALONG THE AXIS OF THE PIPE, INCLUDING FITTINGS AND VALVES CONNECTED UP IN PLACE. FOR CONNECTIONS BETWEEN NEW AND EXISTING MAINS, MEASUREMENT SHALL BE THE DISTANCE FROM CENTER LINE TO CENTER LINE OF MAINS AND THE ACTUAL LENGTH OF EXISTING MAIN ORDERED TO BE REMOVED TO MAKE THE CONNECTION.

**PAYMENT:**

THE UNIT PRICE STIPULATED TO BE PAID FOR UNDER EACH LINEAR FEET OF "AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE AND DUCTILE IRON FITTINGS," CLASSIFIED AS TO SIZE AND TYPE, SHALL INCLUDE THE FURNISHING OF ALL THE MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS FOR AND TO PROPERLY CONSTRUCT AND CONNECT IN PLACE, AS SHOWN ON THE CONTRACT DRAWINGS AND AS SPECIFIED HEREIN, ALL AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE, STAB TYPE RUBBER GASKETED BELL AND SPIGOT JOINTS, INTERNAL RESTRAINED JOINTS (CERTA-LOK, EAGLE LOG OR APPROVED EQUAL), AND RESTRAINED CLASS 350 CEMENT LINED DUCTILE IRON FITTINGS USING RETAINED MECHANICAL JOINTS, FURNISHING AND INSTALLATION OF TRACER WIRE, PAVEMENT CUTTING, ALL EXCAVATIONS, INCLUDING ROCK, RAVEMENTS, WATER MAIN TRENCH, AND DISPOSAL OF EXCESS SOIL AND PAVEMENTS; TRENCH DEWATERING; SHEETING AND SHORING, INCLUDING USE OF TRENCH BOX; ALL SHOP DRAWING SUBMITTALS; THE FURNISHING AND INSTALLING OF ALL APPROVED MATERIALS AS HEREIN SPECIFIED AND AS REQUIRED TO COMPLETE THE WORK; SAND BEDDING BACKFILL; BACKFILL AND/OR PREMIUM BACKFILL; HYDROSTATIC PRESSURE TESTING OF THE WATER MAIN AND ALL APPURTENANCES AND THE REPAIR AND/OR REPLACEMENT OF MATERIALS DUE LEAKAGE OR DEFECTS; ASSISTING IN THE CHLORINATION AND FLUSHING PROCEDURES; PROTECTION OF TREES, SHRUBBERY AND LAWNS AND/OR THEIR REMOVAL AND REPLACEMENT; SEEDING AND/OR SODDING; SIDEWALK REMOVAL AND REPLACEMENT; REMOVAL AND REPLACEMENT OF MAILBOXES; PROTECTING AND MAINTAINING UTILITIES AND UTILITY SERVICES; REPAIR OF SITE DAMAGE DUE TO CONSTRUCTION AND THE FURNISHING OF "AS-BUILT" DRAWINGS.



*Daniel T. Bender*  
 06/01/23

CUY-77-00.42 PART 1

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WATER WORK NOTES

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
10	44
DESIGN AGENCY	
<b>EUTHENICS</b> <small>6233 Mahony Dr.   Cleveland, OH 44135</small>	
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104983	
SHEET	TOTAL
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**MATERIALS CONTINUED**

(D) ALL STEEL SHALL MEET THE REQUIREMENTS OF THE "SPECIFICATIONS FOR STRUCTURAL STEEL", SERIAL DESIGNATION A 36-70A, ADOPTED BY THE AMERICAN SOCIETY FOR TESTING AND MATERIALS.

(E) WHERE IRON OR STEEL IS SHOWN GALVANIZED, CADMIUM PLATED, PARKERIZED OR OTHERWISE TREATED, OR IS SO ORDERED, NO ADDITIONAL ALLOWANCE WILL BE MADE FOR SUCH TREATMENT. ALL METAL TO BE GALVANIZED SHALL BE THOROUGHLY CLEANED BY IMMERSION IN PICKLING LIQUORS. GALVANIZING SHALL BE PERFORMED BY DIPPING IN HOT ZINC BATH AND KEEPING THE METAL IMMersed UNTIL THE TEMPERATURE OF THE METAL HAS OBTAINED THE SAME TEMPERATURE AS THAT OF THE BATH. CADMIUM PLATING SHALL BE BY AN APPROVED PROCESS AND PLATING SHALL BE FROM 0.0003 INCH TO 0.0005 INCH THICK.

(F) ALUMINUM, EXCEPT AS OTHERWISE REQUIRED, SHALL BE ALUMINUM ALLOY EQUIVALENT TO SPECIFICATION 6063; RIVETS AND SCREWS SHALL BE 2017 ALLOY; ALUMINUM PLATE AND STRUCTURAL SHAPES SHALL BE 6061-T6 AND EXTRUDED SHAPES SHALL BE 6063-T5; ALL AS MANUFACTURED BY THE ALUMINUM COMPANY OF AMERICA, OR APPROVED EQUAL.

(G) BRASS SHALL BE OF A COMMERCIAL GRADE CONFORMING TO THE "STANDARD SPECIFICATIONS FOR BRASS PLATE, SHEET, STRIP AND ROLLED BAR", ASTM DESIGNATION B 36-89, ALLOY NO. 3, "SPECIFICATION FOR STRUCTURAL STEEL."

(H) BRONZE FOR BOLTS, NUTS AND ANCHOR BOLTS SHALL BE TOBIN OR MANGANESE BRONZE OR OF SIMILAR APPROVED MATERIAL.

(I) COPPER-SILICON ALLOY OR "EVERDUR" SHALL CONFORM TO ASTM DESIGNATION B 96-86, "SPECIFICATION FOR COPPER-SILICON ALLOY PLATE SHEET, STRIP, AND ROLLED BAR FOR GENERAL PURPOSES AND PRESSURE VESSELS," (FORMERLY B 97-70, TYPE B).

(J) STAINLESS STEEL RODS AND FASTENERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A 276-89A, TYPE 304, "SPECIFICATION FOR STAINLESS AND HEAT-RESISTING STEEL BARS AND SHAPES",

(K) ALL CASTINGS SHALL BE SMOOTH, FREE FROM BLOW HOLES, TRUE AND WHERE REQUIRED, SHALL FIT PROPERLY TOGETHER.

(L) ALL WROUGHT IRON SHALL MEET THE REQUIREMENTS OF ASTM DESIGNATION A 860-89, "SPECIFICATION FOR HIGH STRENGTH BUTT WELDING FITTINGS OF WROUGHT HIGH STRENGTH FOR ALLOY STEEL."

**CLEANING AND TESTING**

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMER TEST. NO CASTINGS SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

**COATING**

EACH CASTING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUT WITH ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE EQUAL TO BLACK ASPHALT VARNISH AS MANUFACTURED BY THE EXCELSIOR VARNISH WORKS, INC., CLEVELAND, OHIO 44102.

OTHER METHODS OF COATING AND TYPES OF COATING MATERIALS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

# WATER WORK NOTES

IN ADDITION TO THE SHOP COAT, THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

**PAINTING**

ALL MISCELLANEOUS METAL WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) FIELD COATS OF COAL TAR PITCH EQUAL TO KOPPERS BITUMASTIC SUPER TANK SOLUTION OR EQUIVALENT.

**MEASUREMENT**

THE MISCELLANEOUS METAL WORK SHALL BE THE METAL WORK ACTUALLY FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE DETAILED DRAWINGS APPROVED BY THE ENGINEER. IN THE COMPUTING OF WEIGHTS, IF NOT DETERMINED BY WEIGHING, ONE (1) CUBIC FOOT OF CAST IRON SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND FIFTY (450) POUNDS, AND ONE (1) CUBIC FOOT OF STEEL SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND NINETY (490) POUNDS. THE WEIGHT OF CAST IRON SHALL BE USED FOR CAST IRON VALVE BOXES AND COVERS, AND CAST IRON SECTIONS OF VALVE BOXES AND COVERS.

**PAYMENT**

THE UNIT PRICE STIPULATED PER POUND FOR " ITEM SPECIAL - MISCELLANEOUS METAL" SHALL INCLUDE THE FURNISHING, ERECTING, MACHINING, FITTING, ADJUSTING, BOLTING, CLEANING AND PAINTING OF ALL MISCELLANEOUS METAL, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE WATER WORK SUBSUMMARY AND BID SCHEDULE FOR THIS WORK:

ITEM SPECIAL- MISCELLANEOUS METAL 5,000 LB.

**BRICK AND CONCRETE MASONRY**

**WORK INCLUDED**

UNDER THESE ITEMS THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS, INCLUDING TOOLS AND EQUIPMENT FOR THE CONSTRUCTION, COMPLETE, OF ALL MISCELLANEOUS MASONRY STRUCTURES AND INCLUDING PLAIN ANCHORS, PIERS (THRUST BLOCKS), SUPPORTS UNDER VALVES, FLOORS FOR VAULTS AND CHAMBERS, AND OTHER PERTINENT WORK TOGETHER WITH THE HAULING, MIXING, PLACING, FORMING, SCAFFOLDING, SHEETING AND BRACING, GROUTING, PLASTERING, CURING, ETC., ALL AS SPECIFIED AND AS REQUIRED OR SHOWN ON THE CONTRACT DRAWINGS.

**BRICK AND MASONRY MATERIAL**

THE MATERIAL FURNISHED BY THE CONTRACTOR FOR THE VARIOUS KINDS OF MASONRY CONSTRUCTION TO BE CONSTRUCTED SHALL CONFORM TO THE FOLLOWING OHIO DEPARTMENT OF TRANSPORTATION (ODOT) SPECIFICATIONS:

(A) ALL BRICK FURNISHED AND USED SHALL EITHER BE O.D.O.T. ITEM 704.01 SHALE BRICK COMPLYING WITH THE REQUIREMENTS FOR "GRADE SM", ASTM DESIGNATION: C 32-84, "SPECIFICATION FOR SEWER AND MANHOLE BRICK (MADE FROM CLAY OR SHALE)," OR SHALL BE SOLID TYPE O.D.O.T. ITEM 704.02 CONCRETE BRICK COMPLYING WITH THE REQUIREMENTS PER ASTM DESIGNATION: C 55- 85,"SPECIFICATION FOR CONCRETE BUILDING BLOCK," TYPE II, GRADES N-II OR S-II, EXCEPT AS MODIFIED PER ODOT SPECIFICATIONS.

(B) ALL CEMENT USED SHALL CONFORM TO ASTM DESIGNATION: C 150-89, "SPECIFICATION FOR PORTLAND CEMENT," TYPE III, PER O.D.O.T. ITEM 701.05 AND ITEM 705.10.

(C) FINE AGGREGATE USED FOR CONCRETE SAND, MORTAR OR GROUT SHALL BE CLEAN, FREE FROM DIRT, LOAM, VEGETABLE OR OTHER ORGANIC MATTER. SAND SHALL NOT CONTAIN MORE THAN THREE PERCENT (3%) BY WEIGHT OF LOAM OR CLAY AND IN NO CASE SHALL SAND BE USED IF ITS GRAINS ARE COATED WITH THESE SUBSTANCES. FINE AGGREGATE SHALL BE WELL GRADED FROM COURSE TO FINE AND WHEN TESTED BY MEANS OF LABORATORY SIEVES SHALL CONFORM TO THE REQUIREMENTS OF O.D.O.T. ITEM 703.03. SILT SHALL NOT EXCEED THREE (3%) PERCENT.

(D) AGGREGATE FOR PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF 703.02 ODOT.

(E) ALL WATER SHALL BE CLEAN AND ACCURATELY MEASURED FOR EACH BATCH OF CONCRETE.

(F) ALL PLAIN CONCRETE SHALL BE CLASS "C" CONCRETE PER ODOT ITEM 499.03 HAVING A COMPRESSIVE STRENGTH AT 28 DAYS OF 4000 POUNDS. PLACING AND JOINTS SHALL BE PER DETAILS AND PER ODOT 511.08, 511.09, 511.10, 511.11 AND 511.12. CONCRETE TEST CYLINDERS SHALL BE MADE AND TESTED PER ASTM C31-84 AND C-39-83B.

(G) REINFORCING STEEL SHALL BE GRADE 60 AND BE PER ODOT ITEM 509.

(H) ALL CEMENT MORTAR SHALL BE MIXED IN THE PROPORTION OF ONE (1) PART CEMENT, THREE (3) PARTS OF SAND, EXCEPT THE MORTAR FOR BRICK CATCH BASINS AND SEWER MANHOLES WHICH SHALL BE 1:2 MIX.

(I) PRECAST MASONRY VAULT SECTIONS MAY BE FURNISHED IF THEY MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS ON FILE WITH THE CLEVELAND DIVISION OF WATER OR APPROVED BY THE ENGINEER.

**PAYMENT**

PAYMENT FOR BRICK OR CONCRETE MASONRY IS TO BE INCLUDED IN THE UNIT PRICE IN WHICH IT IS TO BE USED AND SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING ALL NECESSARY LABOR, TOOLS, EQUIPMENT AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK.

PAYMENT FOR PLAIN CONCRETE MASONRY USED FOR CONCRETE ANCHORS AND PIERS (THRUST BLOCKS) SHALL BE INCLUDED IN THE UNIT PRICE PER LINEAR FOOT OF WATER MAIN BID FOR "ITEM 638 - WATER WORK, MISC.: AWWA C900 OR C909 POLYVINYL CHLORIDE PIPE" OR SHALL BE INCLUDED IN "ITEM 638 - WATER WORK, MISC.: PLUGGING EXISTING WATER MAINS AND BRANCHES."

**ITEM 202 - VALVE BOX REMOVED**

**WORK INCLUDED**

WHERE INDICATED ON THE CONTRACT DRAWINGS, OR AS ORDERED, THE CONTRACTOR SHALL REMOVE EXISTING VALVE BOX. THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY AT THE LOCATIONS SHOWN ON THE CONTRACT DRAWINGS OR WHERE ORDERED INCLUDING PAVEMENT CUTTING, PAVEMENT REMOVAL, EXCAVATION, BACKFILLING, SEEDING AND SODDING AND REPAVING, ALL AS REQUIRED OR AS ORDERED TO COMPLETE THE WORK.

**PAYMENT**

PAYMENT FOR WORK UNDER THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH:

ITEM 202 - VALVE BOX REMOVED

AND SHALL INCLUDE ALL PAVEMENT CUTTING, PAVEMENT REMOVAL, EXCAVATION, AND BACKFILLING, AND THE FURNISHING OF ALL LABOR, TOOLS, AND ALL EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN OR AS ORDERED. SEEDING AND SODDING, REPAVING (BOTH TEMPORARY AND PERMANENT), SIDEWALK REPLACEMENT AND OTHER SIDE RESTORATION SHALL BE INCLUDED IF NOT PAID FOR SEPARATELY UNDER OTHER ITEMS INDICATED IN THE PLANS.

**ITEM 638 - WATER WORK, MISC.: FURNISHING AND SETTING 6" HYDRANT, COMPLETE**

**WORK INCLUDED**

THE CONTRACTOR SHALL FURNISH ALL CITY OF CLEVELAND STANDARD HYDRANTS, HYDRANT BRANCH DUCTILE IRON PIPE AND RETAINED MECHANICAL JOINT FITTINGS, VALVE BOXES AND COVERS, LABOR, TOOLS AND EQUIPMENT FOR AND SHALL PROPERLY INSTALL AT THE LOCATION(S) SHOWN ON THE CONTRACT DRAWINGS, 6" HYDRANT ASSEMBLY COMPLETE.

IN GENERAL, THIS WORK SHALL INCLUDE THE FURNISHING, SETTING, TESTING, PAINTING, THE EXCAVATION, SHEETING, SHORING, BACKFILLING, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

**HYDRANTS**

THE 6" HYDRANT SHALL CONFORM WITH THE DIVISION OF WATER'S SPECIFICATIONS AND APPROVED HYDRANT DRAWINGS ON FILE WITH THE DIVISION OF WATER AT THE PUBLIC UTILITIES BUILDING, 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44114.

**SETTING**

(A) GENERAL LOCATION:

HYDRANTS SHALL BE LOCATED A MINIMUM OF TEN (10) FEET AWAY FROM SANITARY SEWERS AND FIVE (5) FEET AWAY FROM STORM SEWERS AND IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY, AND IN SUCH A MANNER THAT THE POSSIBILITY OF DAMAGES FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED. UNLESS OTHERWISE DIRECTED, THE SETTING OF ANY HYDRANT SHALL CONFORM TO THE FOLLOWING:

(B) LOCATION REGARDING CURB LINES:

WHEN PLACED BEHIND THE CURB, THE HYDRANT BARREL SHALL BE SET SO THAT THE CENTER OF THE BARREL WILL BE NO LESS THAN THREE (3) FEET FROM THE GUTTER FACE OF THE CURB, OR DEVIATE FROM SUCH LOCATION OR DEVIATE FROM THE LOCATION INDICATED ON THE CONTRACT DRAWINGS, EXCEPT BY CONSENT OF THE ENGINEER.



06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
13	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8533 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.249	P.445

**JACKING OPERATION CONTINUED**

THE JACKING- BORING METHOD SHALL CONSIST OF PUSHING THE CASING WITH A BORING AUGER ROTATING WITHIN THE CASING TO REMOVE THE SPOIL. WHEN AUGERS, OR SIMILAR DEVICES, ARE USED FOR CASING EMPLACEMENT, THE FRONT OF THE CASING SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER AND CUTTING HEAD FROM LEADING THE CASING WITH NO UNSUPPORTED EXCAVATION AHEAD OF THE CASING. ALL AUGER LEADS SHALL BE OF THE PROPER SIZE. THE AUGER AND CUTTING HEAD ARRANGEMENT SHALL BE REMOVABLE FROM WITHIN THE CASING IN THE EVENT AN OBSTRUCTION IS ENCOUNTERED. THE FACE OF THE CUTTING HEAD SHALL BE ARRANGED TO PROVIDE REASONABLE OBSTRUCTION TO THE FREE FLOW OF SOFT OR POOR MATERIAL.

AFTER THE CASING IS IN PLACE, THE PIPE SHALL BE INSERTED ON SKIDS AS REQUIRED WITH JOINTS PROPERLY MADE AND SO PULLED INTO PLACE AS TO TIGHTEN THE JOINTS WHICH ARE TO BE MADE AS SPECIFIED, AND WITH PROPER PROVISIONS FOR CONNECTING TO THE PIPE AT EACH END OF THE ENCASED SECTIONS.

AFTER THE PIPE IS IN PLACE, THE SPACE BETWEEN THE OUTSIDE OF THE PIPE AND INSIDE OF THE CASING SHALL BE COMPLETELY FILLED WITH SAND, FORCED INTO PLACE TO THE FULL SATISFACTION OF THE CITY.

WHEN THE BORED OR AUGURED HOLE IS OVERSIZED, THE CONTRACTOR SHALL CAREFULLY PRESSURE GROUT THE ENTIRE VOID AROUND THE OUTSIDE OF THE CASING PIPE. THE VOID SHALL BE COMPLETELY FILLED BY PRESSURE GROUTING WITH PORTLAND CEMENT GROUT CONSISTING OF ONE (1) PART CEMENT TO NOT MORE THAN THREE (3) PARTS FINE SAND TO THE FULL SATISFACTION OF THE CITY.

IF, IN THE OPINION OF THE ENGINEER, THE INSTALLATION OF THE CASING IS BEING CONDUCTED IN AN UNSAFE MANNER, OR IS NOT SUCH AS TO MINIMIZE SETTLEMENT OR PERMIT CLOSE ADHERENCE TO LINE AND GRADE, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO REVISE HIS PROCEDURE TO COMPLY WITH METHODS WHICH ARE KNOWN TO GIVE MORE SATISFACTORY RESULTS.

THE JACKING OPERATION SHALL BE PROGRESSED ON A 24-HOUR BASIS WITHOUT STOPPAGE ( EXCEPT FOR ADDING LENGTHS OF PIPE) UNTIL THE LEADING EDGE OF THE PIPE HAS REACHED THE RECEIVING PIT. HOWEVER, SHOULD THE JACKING STOP, AND FOR ANY REASON WHATEVER SHOULD NOT BE ABLE TO GET STARTED AGAIN, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, TUNNEL THE REMAINING DISTANCE USING TUNNEL PLATES. THE CASING SHALL BE INSTALLED INSIDE THE TUNNEL LINER AND THE ANNULAR SPACE BETWEEN CASING AND LINER SHALL BE PRESSURE GROUTED. IN ANY CASE, THE METHOD AND MATERIALS TO BE USED SHALL BE SUBMITTED TO THE CITY THROUGH THE ENGINEER AND APPROVED BY THE CITY BEFORE WORK PROCEEDS WITH THE INSTALLATION OF THE ENCASEMENT.

THE CONTRACTOR AND/OR ANY SUBCONTRACTOR MUST BE FULLY EQUIPPED AND EXPERIENCED IN THE INSTALLATION OF PIPES BY JACKING, SHIELD JACKING OR TUNNELING METHODS. THE CONTRACTOR AND/OR ANY SUBCONTRACTOR SHALL SUBMIT TO THE ENGINEER AND TO THE CITY EVIDENCE OF SUCCESSFUL INSTALLATION BY HIM OF SIMILAR PROJECTS UNDER SIMILAR CIRCUMSTANCES.

**EXCAVATION**

ALL MATERIAL ENCOUNTERED IN THE JACKING OR BORING AND JACKING OR THE PIPE CASING SHALL BE EXCAVATED REGARDLESS OF THE NATURE THEREOF BY APPROVED TUNNELING OR BORING METHODS. ALL PIPE CASING EXCAVATED MATERIAL MUST BE REMOVED AND DISPOSED OF AS SPECIFIED. EXCAVATION SHALL BE CONFINED WITHIN THE LIMITS OF THE CASING. IN DRY AND STABLE SOILS EXCAVATION, IF APPROVED BY THE ENGINEER AND THE CITY, MAY BE CARRIED AHEAD OF JACKING A DISTANCE NOT TO EXCEED 18-INCHES. IN SAND, GRAVEL AND ANY SOFT OR WET MATERIAL, EXCAVATION AHEAD OF THE PIPE CASING WILL NOT BE PERMITTED. OPEN CUT WILL NOT BE PERMITTED UNLESS THE CONTRACT DRAWINGS OR DETAIL DRAWINGS INDICATE OTHERWISE.

EXCAVATION BRACING SHALL BE DESIGNED AND SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF C&M 503.

**INSTALLATION OF CARRIER PIPE**

CASING SPACERS/CHOCKS: THE CONTRACTOR SHALL FURNISH A ND INSTALL A BOLTED STYLE STAINLESS TEEL (TYPE 304) RUBBER OR PVC LINED SHLEL WITH SPACER/CHOCK MADE OF ULTRA-HIGH MOLECULAR WEIGHT (UHMW) POLYETHYLENE HAVING A HIGH ABRASIVE RESISTANT AND LOW FRICTION PROPERTIES. ALL BOLTS AND NUTS USED TO FASTEN THE SHELL TO THE CARRIER PIPE SHALL BE MADE OF STAINLESS STEEL, TYPE 304. THE SPACERS/CHOCKS SHALL BE EQUAL TO THAT MANUFACTURED BY CASCADE WATERWORKS MANUFACTURING, COMPANY OR POWER SEAL PIPE LINE PRODUCTS CORPORATION. THREE (3) SETS OF SPACERS/CHOCKS PER EIGHTEEN (18) FOOT LENGTHS OF PIPE OR FOUR (4) SETS OF SPACERS/CHOCKS PER TWNETY 920) FOOT LENGTHS WILL BE REQUIRED. A SET OF SPACERS/CHOCKS SHALL BE PLACED NOT MORE THAN 2-1/2 FEET FROM EACH PIPE JOINT WITH ADDITIONAL BLOCKS EVENLY SPACED. CARRIER PIPE SHALL BE INSTALLED USING THE "STANDARD CONFIGURATION" AND THE CASING VOIDS SHALL BE FILLED WITH GROUT. INSTALLATION OF THE CARRIER PIPE WITHIN THE ENCASEMENT WILL BE PAID FOR UNDER THE APPROPRIATE ITEM SPECIAL FOR WATER MAINS.

**RUBBER END SEAL AND SAND FILLED**

AFTER THE WATER MAIN HAS BEEN INSTALLED IN ITS FINAL POSITION INSIDE THE CASING AND HAS BEEN TESTED, A WRAP AROUND RUBBER END SEAL SHALL BE BUILT IN ONE END OF THE CASING. FOLLOWING THE COMPLETION OF THE RUBBER END SEAL, SAND SHALL BE PUMPED INTO THE CASING COMPLETELY FILLING THE SPACE BETWEEN IT AND THE WATER MAIN. THE METHOD USED FOR PLACING THIS SAND SHALL BE SUCH THAT IT WILL NOT DAMAGE THE COATING ON THE WATER MAIN. AFTER THE SAND FILL IS COMPLETED, ANOTHER WRAP AROUND RUBBER END SEAL SHALL BE INSTALLED AT THE OPPOSITE END OF THE CASING TO PREVENT ESCAPE OF BACKFILL MATERIAL. THE VOIDS BETWEEN THE CASING AND BORE SHALL BE PRESSURE GROUT FILLED.

BEFORE STARTING THIS BACKFILLING, THE CONTRACTOR SHALL SUBMIT FULL DETAILS OF THE METHOD OF BACKFILLING THAT HE PROPOSES TO USE TO THE CITY, AND NO WORK SHALL BE STARTED UNTIL APPROVAL OF THE METHOD HAS BEEN GRANTED.

**CONTRACTOR'S RESPONSIBILITY**

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER THAT STANDARD ROADWAY CLEARANCES WILL BE MAINTAINED AT ALL TIMES. ALL WORKING OPERATIONS OF THE CONTRACTOR, OR ANY SUBCONTRACTOR MUST BE SUBORDINATE TO THE FREE AND UNOBSTRUCTED USE OF THE ROADWAY.

# WATER WORK NOTES

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL COSTS OF THE INSPECTION AS WELL AS OTHER COSTS INCURRED IN CONNECTION WITH THIS WORK. SUCH COSTS WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE PRICE BID FOR JACKED ENCASEMENTS UNDER ITEM 638 - WATER WORK, MISC.: - 20" STEEL PIPE ENCASEMENT, BORED OR JACKED.

**AGREEMENTS/PERMITS**

ALL JACKED ENCASEMENTS SHALL BE BUILT IN FULL ACCORD WITH THE REQUIREMENTS OF STATE, COUNTY, AND/OR LOCAL REGULATIONS AND ORDINANCES PERTAINING TO SUCH CONSTRUCTION AND SHALL BE SUBJECT TO INSPECTION AND CONTROL BY THE VARIOUS OFFICIALS HAVING JURISDICTION OVER SAME. PERMITS FOR JACKING CASING ACROSS INTERSTATE FREEWAYS ARE MADE PART OF THESE SPECIFICATIONS, IF SO APPLICABLE, AND IF AVAILABLE. PERMITS NOT AVAILABLE AT THE TIME OF BIDDING WILL BE MADE AVAILABLE TO THE CONTRACTOR AS SOON AS POSSIBLE AFTER AWARD OF THE CONTRACT. THE PERMIT, ITS TERMS AND CONDITIONS SET FORTH IN THE PERMIT BY THE ISSUING AGENCY, SHALL HAVE THE FULL FORCE AS THOUGH BEING MADE PART OF THESE SPECIFICATIONS.

**TEST BORINGS**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIS OWN TEST BORINGS AND FOR DETERMINING THE MATERIALS HE WILL ENCOUNTER IN CONSTRUCTION OF THE WORK UNDER THIS ITEM.

**SUBMITTED DATA**

PRIOR TO THE CONSTRUCTION OF THE WORK UNDER ITEM 638 - WATER WORK, MISC.: - 20" STEEL PIPE ENCASEMENT, BORED OR JACKED, THE CONTRACTOR SHALL SUBMIT DRAWINGS AND OTHER DATA ON MATERIALS TO BE FURNISHED HEREUNDER FOR THE APPROVAL OF THE CITY IN ACCORDANCE WITH THE SHOP DRAWING PROVISIONS OF THESE SPECIFICATIONS.

**PAYMENT**

THE UNIT PRICE STIPULATED PER LINEAL FOOT FOR STEEL PIPE ENCASEMENTS SPECIFIED UNDER ITEM 638 - WATER WORK, MISC.: - 20" STEEL PIPE ENCASEMENT, BORED OR JACKED SHALL BE IN FULL COMPENSATION FOR THE FURNISHING OF ALL MATERIALS FOR AND THE PROPER INSTALLATION OF THE STEEL PIPE ENCASEMENTS INCLUDING ALL EXCAVATION AND BACKFILL (INCLUDING BORING PIT AND RECEIVING PIT), BORING, JACKING, HAULING AWAY MATERIAL, SHEETING AND BRACING, WOOD BLOCKING, SKIDS AND STRAPPING, SAND, GROUT, RUBBER END SEAL AND THE FURNISHING OF ALL LABOR, MATERIALS AND TOOLS AND APPLIANCES NECESSARY TO PROPERLY COMPLETE THE WORK AS SPECIFIED OR AS SHOWN ON THE CONTRACT DRAWINGS. THE CARRIER PIPE AND FITTINGS WILL BE PAID FOR UNDER APPROPRIATE ITEM FOR WATER MAINS.

**ITEM 638 - WATER WORK, MISC.: 2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE**

**WORK INCLUDED**

THE CONTRACTOR SHALL, UNDER "ITEM 638 - WATER WORK, MISC.: 2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE", FURNISH ALL MATERIAL INCLUDING PIPE, VALVE, VALVE BOX COMPLETE REQUIRED TO INSTALL 2" AIR RELIEF VALVE ASSEMBLY WITH VALVE BOX COMPLETE, AT THE LOCATION(S) SHOWN ON THE PLANS. THE 2" AIR RELIEF VALVE ASSEMBLY WITH VALVE BOX SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.

**AIR RELIEF VALVE ASSEMBLY COMPLETE WITH VALVE BOXES COMPLETE**

ALL AIR RELIEF VALVES SHALL BE 2-INCH BRONZE ANGLE VALVES WITH A 2- INCH BRONZE WATER METER AND 2- INCH IRON PIPE THREADED COMPANION FLANGE, AND A 2-INCH EXTRA HEAVY BRASS "CLOSE" (2-INCH LONG) NIPPLE. 2-INCH AIR RELIEF VALVES SHALL BE RATED FOR MINIMUM 150 PSI WORKING PRESSURE AND 225 PSI TEST PRESSURE AND BE EQUAL IN ALL RESPECTS TO THE 2-INCH ANGLE METER VALVE MANUFACTURED BY FORD METER BOX CO. NO. FV 13-777W; OR MUELLER CO. NO. H-14286. THE AIR RELIEF VALVE ASSEMBLY SHALL INCLUDE ALL 2" GALVANIZED BLACK IRON PIPE AND BRASS PIPE AS REQUIRED AND SPECIFIED HEREIN AND SHALL INCLUDE VALVE BOXES AS REQUIRED.

**2" GALVANIZED BLACK IRON PIPE AND BRASS PIPE**

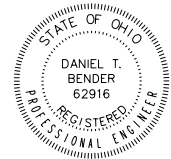
THE CONTRACTOR SHALL ALSO UNDER "ITEM 638 - WATER WORK, MISC.: - 2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE" FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED, ALL 2-INCH EXTRA STRONG BRASS PIPE AND FITTINGS AND ALL 2-INCH EXTRA HEAVY GALVANIZED BLACK IRON PIPE AND FITTINGS RESPECTIVELY, WHICH ARE NECESSARY FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

**BRASS PIPE AND FITTINGS**

ALL BRASS PIPE AND FITTINGS SHALL BE EXTRA STRONG 2-INCH PIPE SIZE RATED FOR MINIMUM 150 PSI WORKING PRESSURE AND 225 PSI TEST PRESSURE AND SHALL CONFORM TO ASTM B 43-88, "SPECIFICATION FOR SEAMLESS RED BRASS PIPE, STANDARD SIZES," AND BE EQUAL TO REVERE RED BRASS PIPE AS MANUFACTURED BY REVERE COPPER AND BRASS, INCORPORATED. FITTINGS SHALL BE EXTRA STRONG WEIGHT AND SHALL HAVE SOUND WELL-FITTING THREADS.

**GALVANIZED BLACK IRON PIPE AND FITTINGS**

ALL GALVANIZED BLACK IRON PIPE, NIPPLES AND FITTINGS SHALL BE EXTRA HEAVY BLACK IRON PIPE RATED FOR MINIMUM 150 PSI WORKING PRESSURE AND 225 PSI TEST PRESSURE AND SHALL CONFORM TO ASTM DESIGNATION A 53-89A, "SPECIFICATION FOR PIPE, STEEL, BLACK AND HOT-DIPPED, ZINC COATED WELDED AND SEAMLESS," OR EQUAL. THE FITTINGS SHALL BE BEADED, OR MALLEABLE IRON EXTRA HEAVY WEIGHT. ALL PIPE AND FITTINGS SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE, AND SHALL HAVE SOUND, WELL-FITTING THREADS.



06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

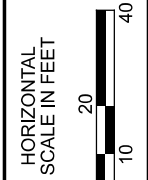
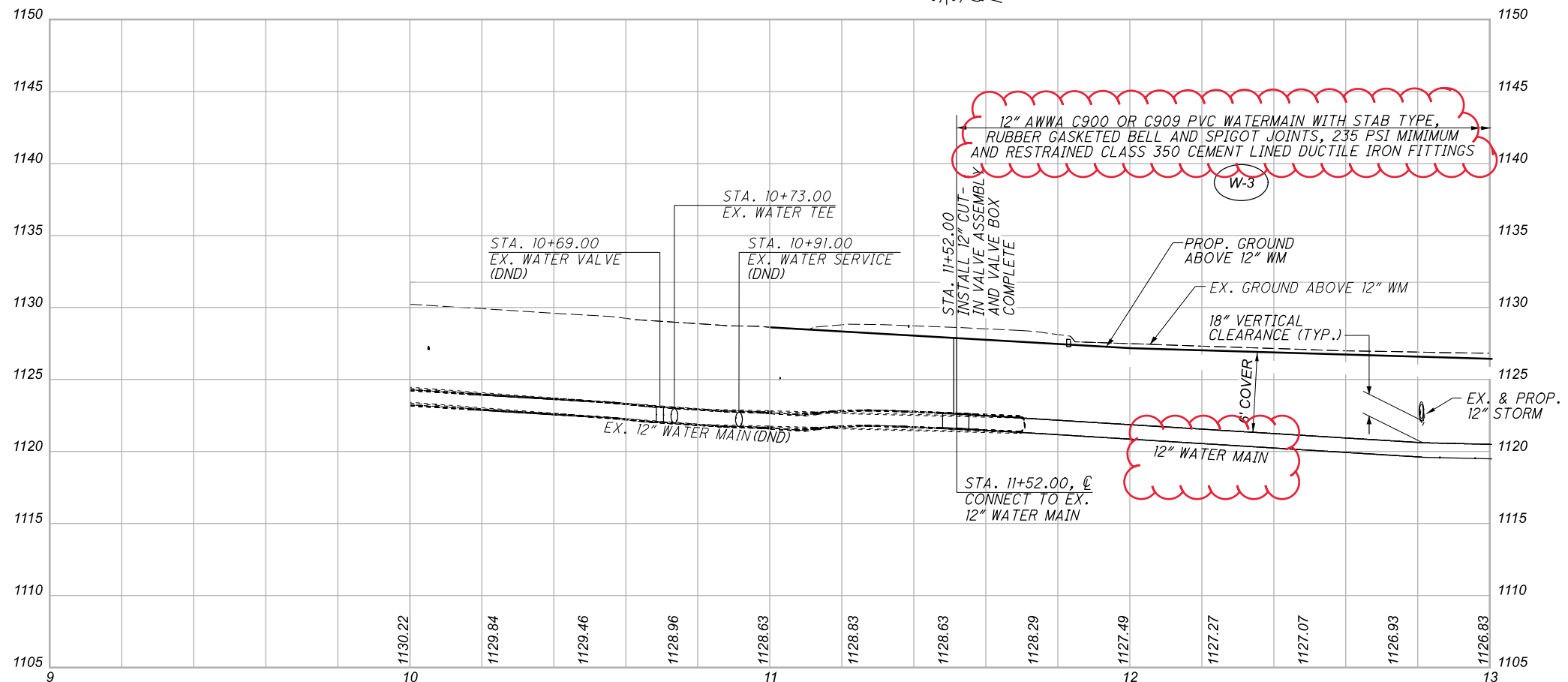
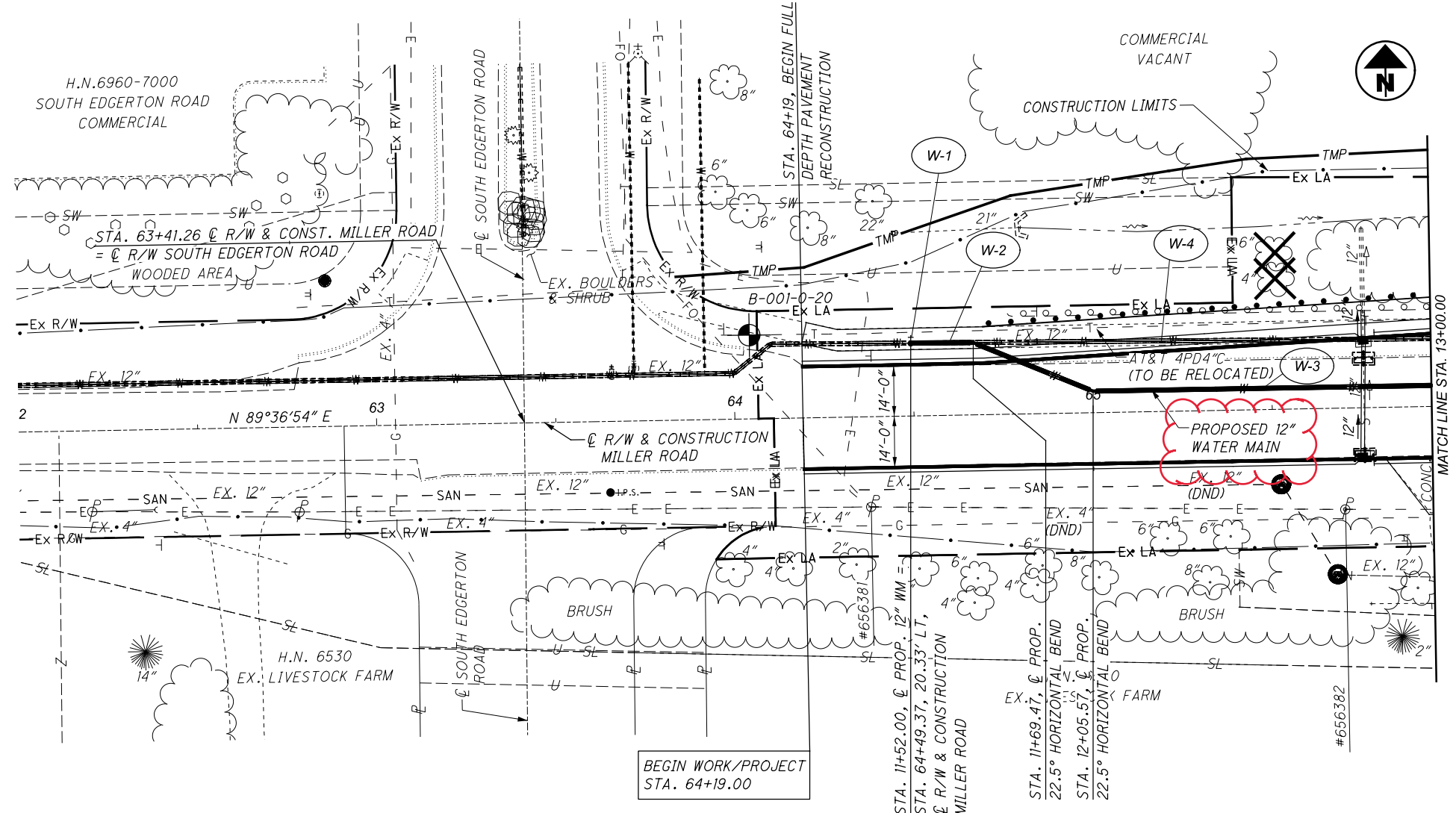
SUBSET	TOTAL
15	44
DESIGN AGENCY	
EUTHENICS 8333 Mahony Dr., Cleveland, OH 44135	
DESIGNER	TDP
REVIEWER	DTB
03/01/22	
PROJECT ID	104983
SHEET	TOTAL
P.251	P.445

REF. NO.	START PLAN SHEET NO.	STATION LIMITS		LOCATION	202				SPECIAL													PROFESSIONAL ENGINEER
		BEGIN	END		PIPE REMOVED 24" AND UNDER	PIPE REMOVED 24" AND UNDER, AS PER PLAN	PIPE REMOVED 24" AND UNDER, AS PER PLAN	VALVE BOX REMOVED	MISCELLANEOUS METAL	WATERWORK MISC.: 20" STEEL PIPE ENCASEMENT BORED OR JACKED	WATER WORK MISC.: 12" CUT-IN VALVE ASSEMBLY AND VALVE BOX, COMPLETE	WATER WORK MISC.: FURNISHING AND SETTING 6" HYDRANT, COMPLETE	WATERWORK MISC.: FIRE HYDRANT REMOVED AND DISPOSED OF	638			WATER WORK MISC.: 2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE	WATER WORK MISC.: 12" GATE VALVE WITH VALVE BOX, COMPLETE	WATER WORK MISC.: CUT, FILL AND PLUG EXISTING 12" WATER MAIN			
FUNDING SOURCE					01/IMS/PV	01/IMS/PV	02/NFP/BR	01/IMS/PV	01/IMS/PV	01/IMS/PV	01/IMS/PV	01/IMS/PV	01/IMS/PV	01/IMS/PV	02/NFP/BR	01/IMS/PV	01/IMS/PV	02/NFP/BR	01/IMS/PV			
	P.250	WATER NOTES							5000													
W-1	P.254	11+52								1												
W-2	P.254	11+52	11+70			18																
W-3	P.254	11+52	17+12											420	140							
W-4	P.254	11+70	14+86		310																	
W-4A		14+87	17+72			131	154															
W-5		14+89																				
W-5A		14+89				8																
W-6		17+07																				
W-7		17+67						1														
W-8		17+12	23+22																			
W-9		17+72	23+73																601			
W-10		19+28	21+23							200												
W-11		23+22	32+28											394	512							
W-12		22+73	32+28			443	512															
W-13		24+90.5																				
W-14		25+00																				
W-15		25+02						1														
W-16		25+08																				
W-17		28+24																				
W-17A		28+24																				
W-18		28+30																				
W-19		29+55				25																
W-20		31+03.50																				
W-21		32+28								1												
TOTALS CARRIED TO GENERAL SUMMARY					310	625	749	2	5000	200	2	4	3	814	1532	718	615	1	1	601		



WATER WORK QUANTITIES  
MILLER ROAD

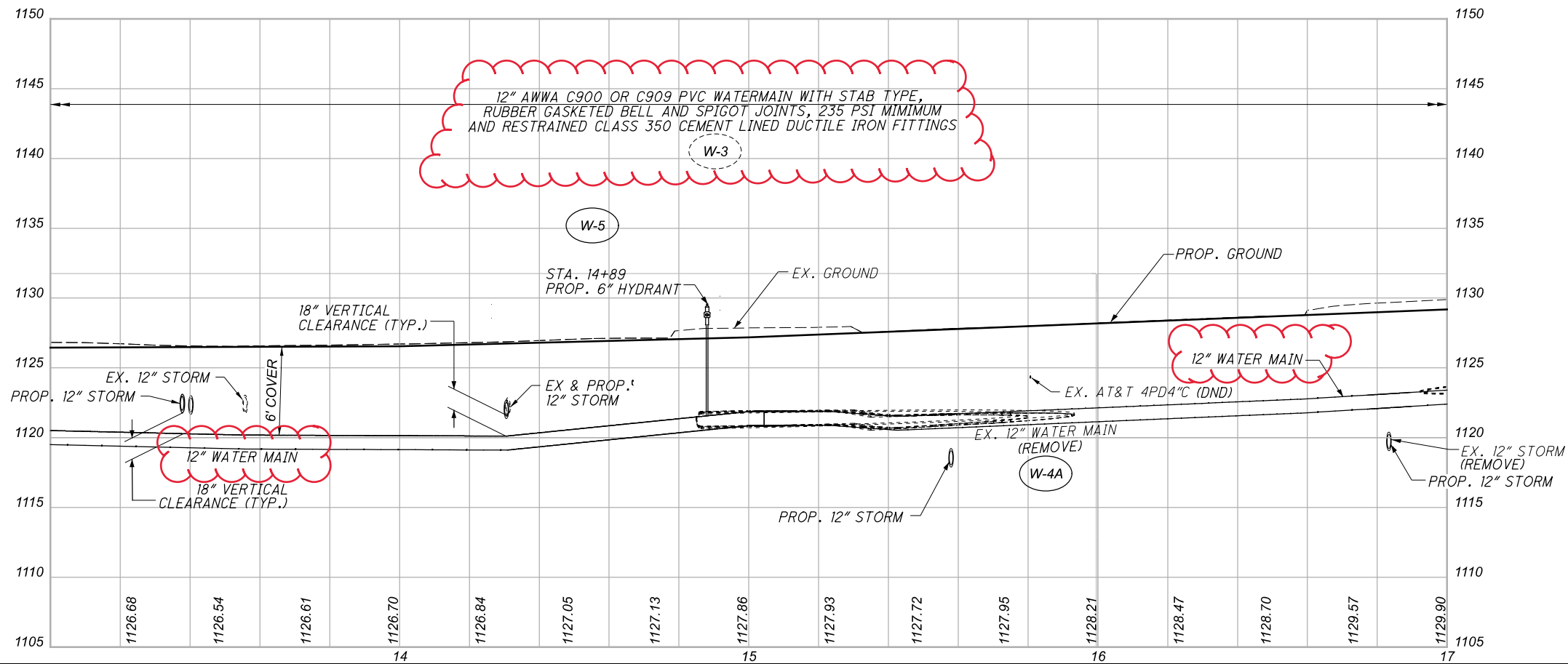
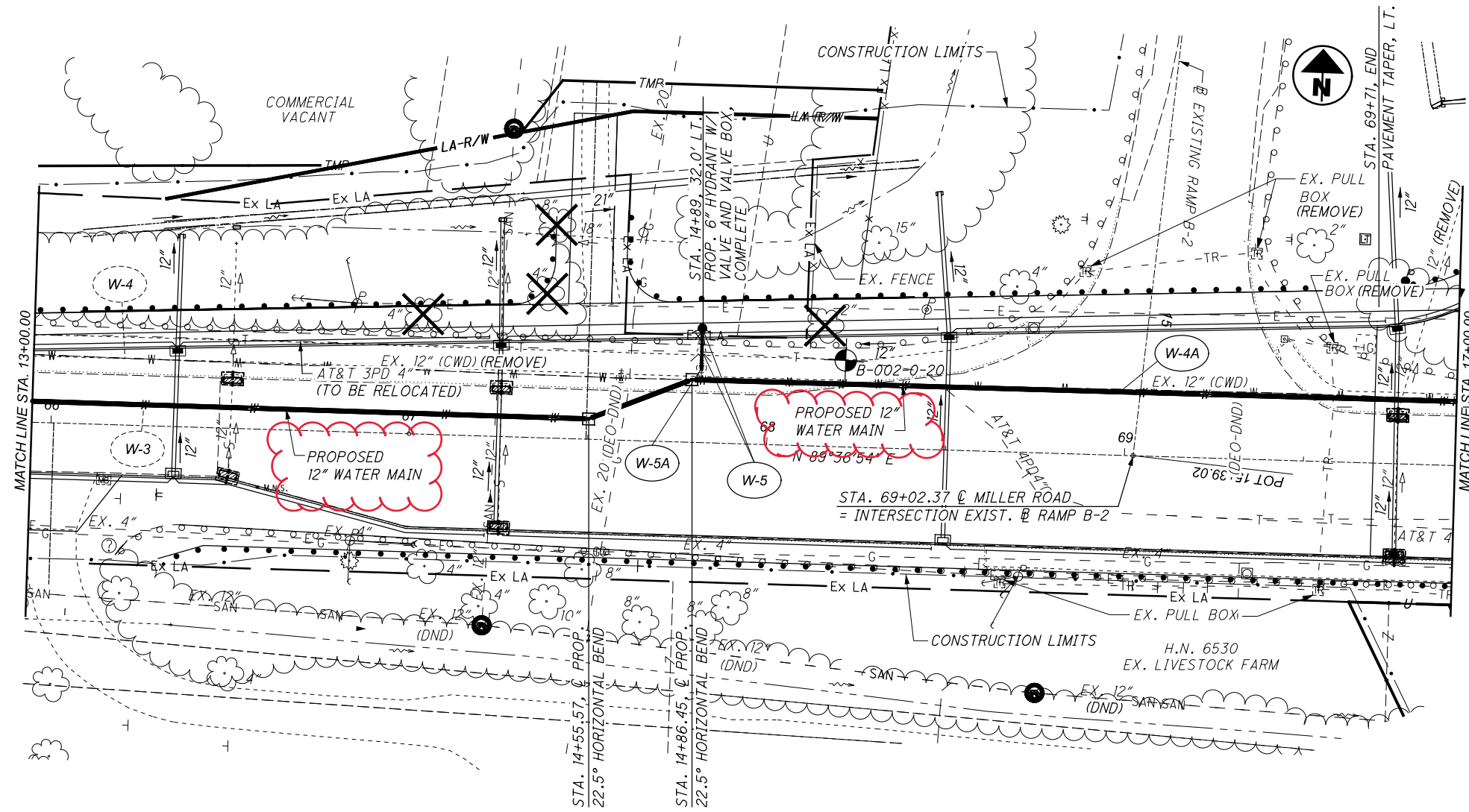
SUBSET	TOTAL
17	44
DESIGN AGENCY	
EUTHENICS 8535 Mahoning Dr.   Columbus, OH 43235	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P.253	P.445



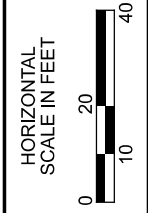
**WATER WORK PLAN AND PROFILE**  
**STA. 9+00 TO STA. 13+00**

SUBSET	TOTAL
18	44
DESIGN AGENCY	
EUTHENICS 6233 Mohawk Dr., Cleveland, OH 44130	
DESIGNER	
ESM	
REVIEWER	
DTB 11/12/21	
PROJECT ID	
104983	
SHEET	TOTAL
P.254	P.445

06/01/22

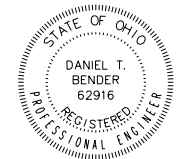
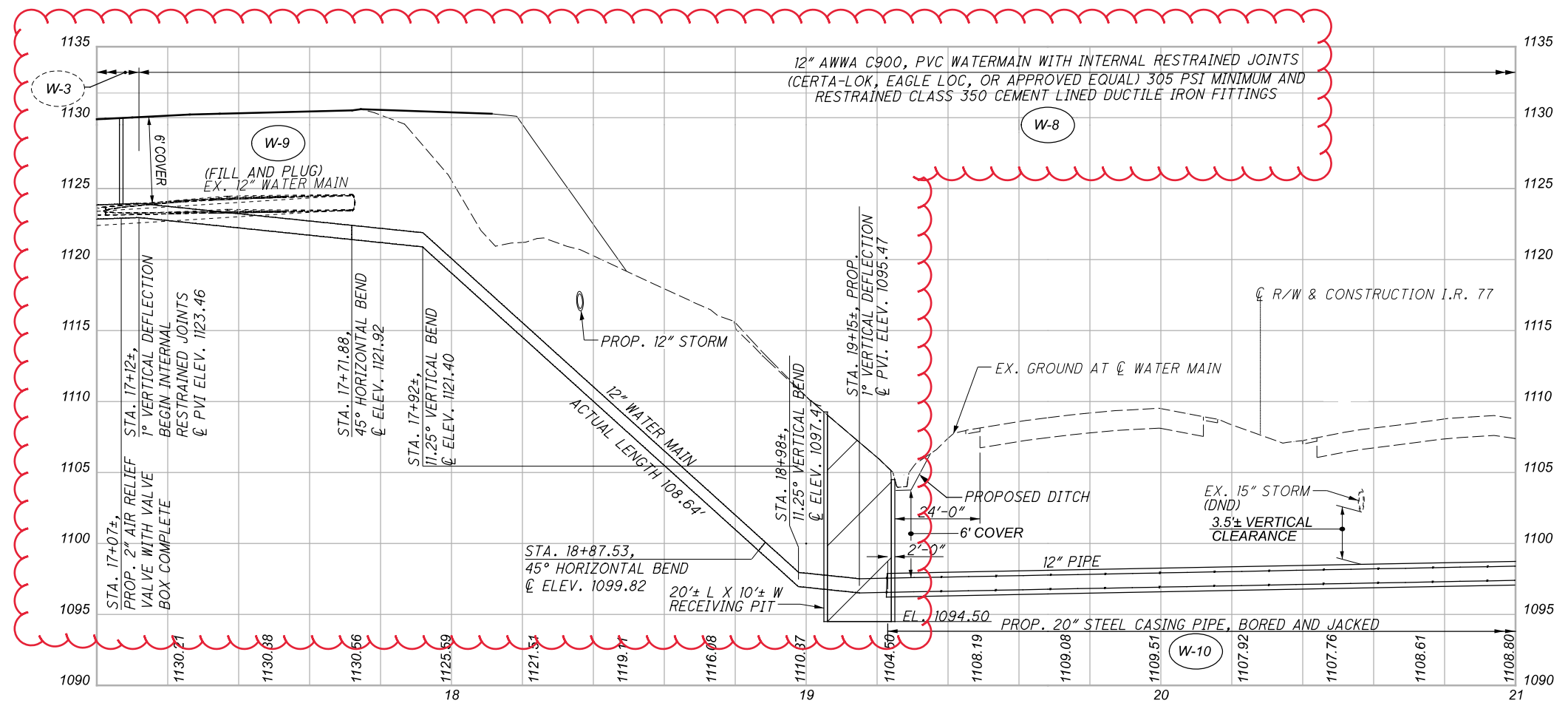
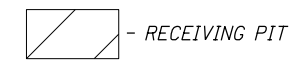
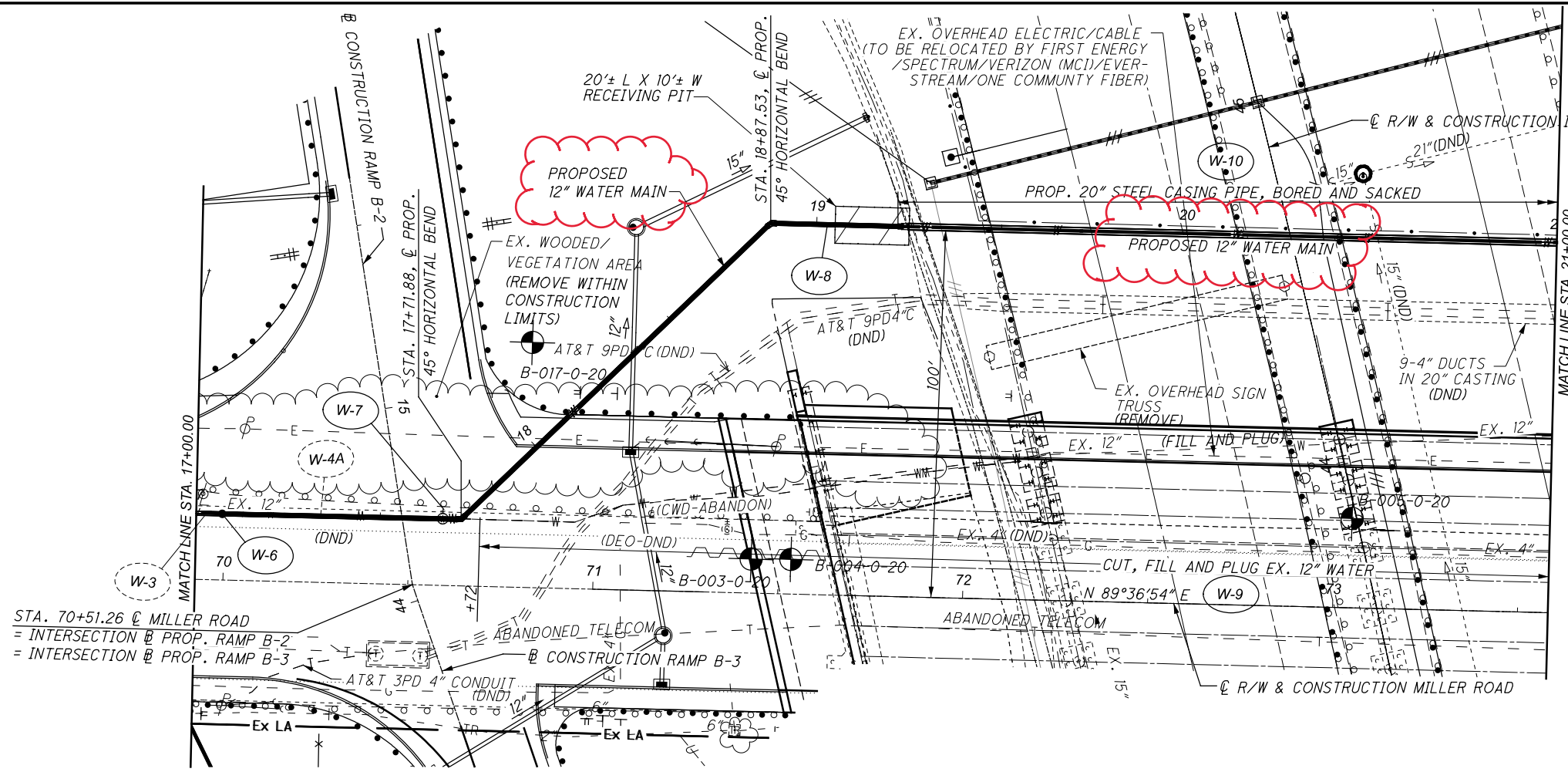


06/01/22



WATER WORK PLAN AND PROFILE  
 STA. 13+00 TO STA. 17+00

SUBSET	TOTAL
19	44
DESIGN AGENCY	
EUTHENICS 8333 Mohawk Dr., Cleveland, OH 44130	
DESIGNER	
ESM	
REVIEWER	
DTB 11/12/21	
PROJECT ID	
104983	
SHEET	TOTAL
P.255	P.445

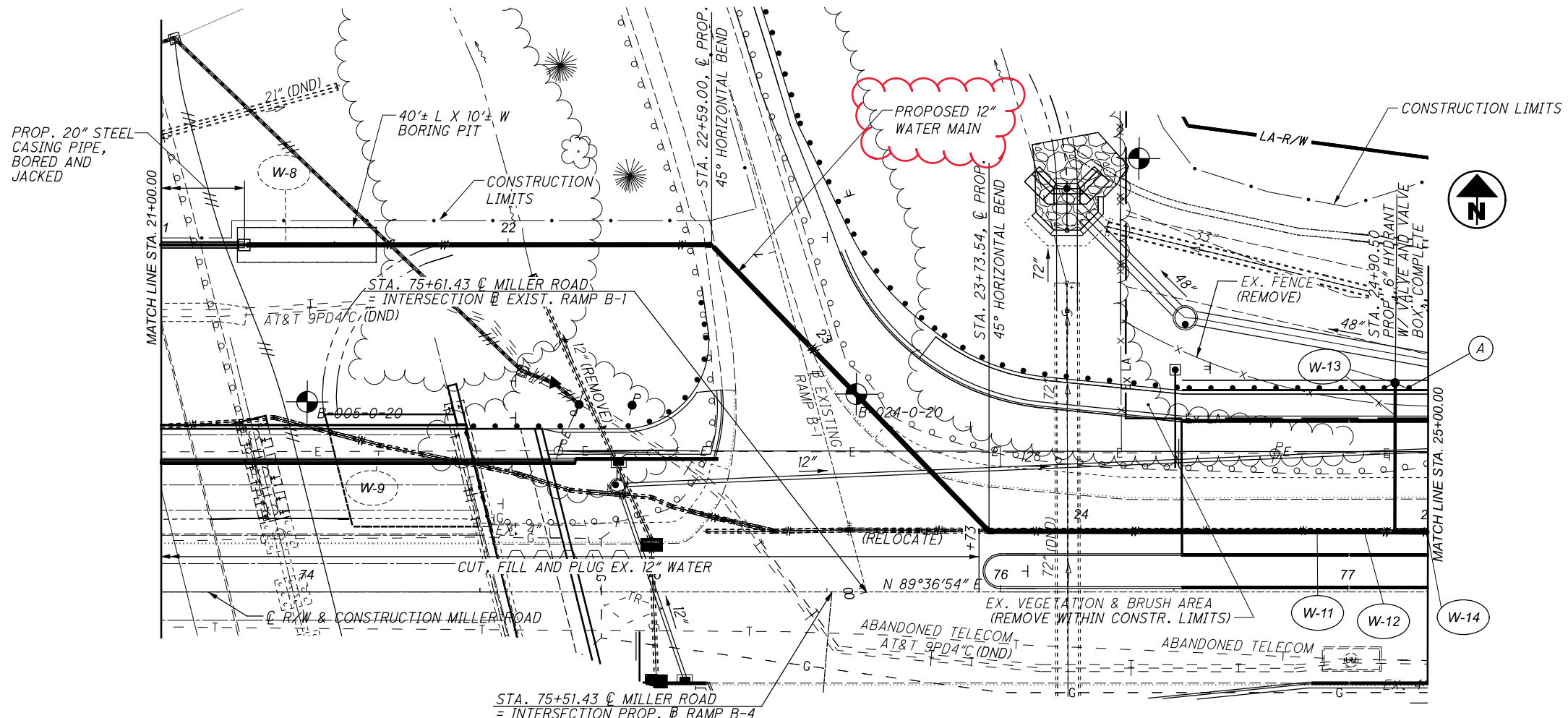


06/01/22

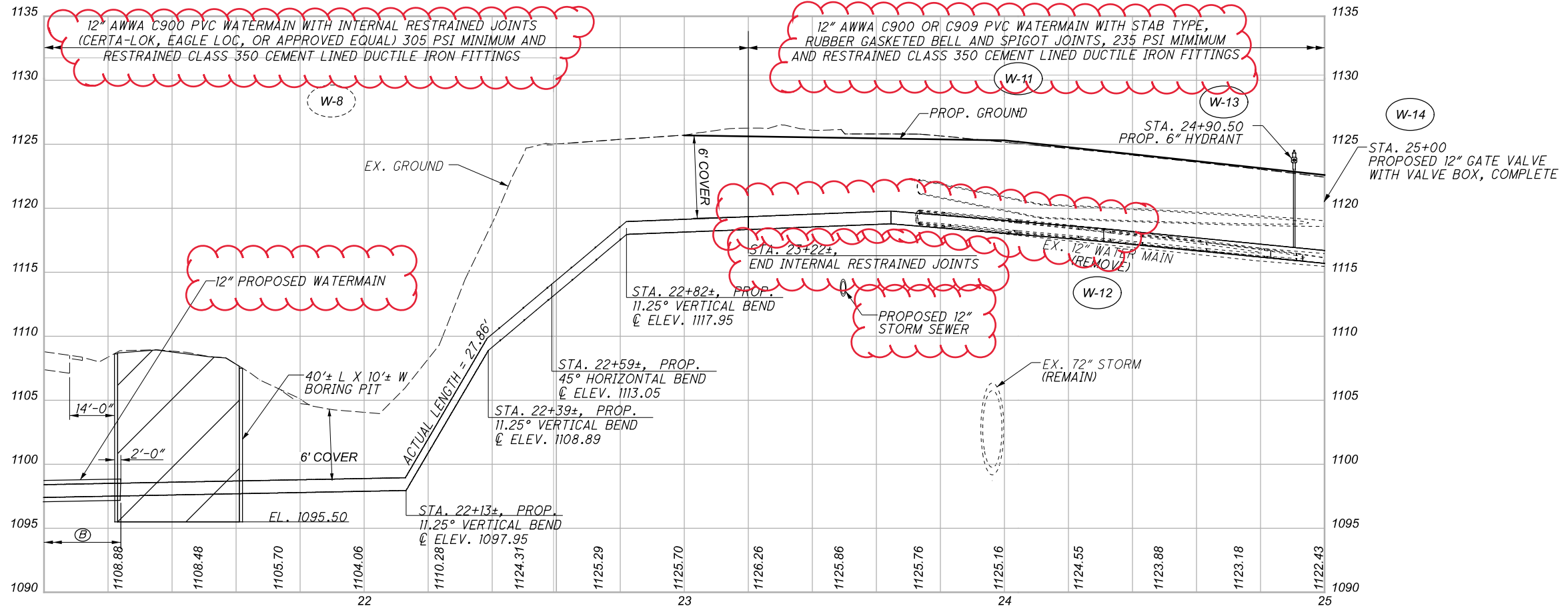


**WATER WORK PLAN AND PROFILE**  
**STA. 17+00 TO STA. 21+00**

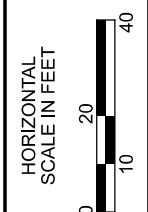
SUBSET	TOTAL
20	44
DESIGN AGENCY	
EUTHENICS 6533 Mahoning Dr.   Cleveland, OH 44135	
DESIGNER	
ESM	
REVIEWER	
DTB 11/12/21	
PROJECT ID	
104983	
SHEET	TOTAL
P.256	P.445



- (A) PROVIDE OPENING IN GUARDRAIL
- (B) PROP. 20" STEEL CASING PIPE, BORED AND JACKED
- (W-10) - BORING PIT



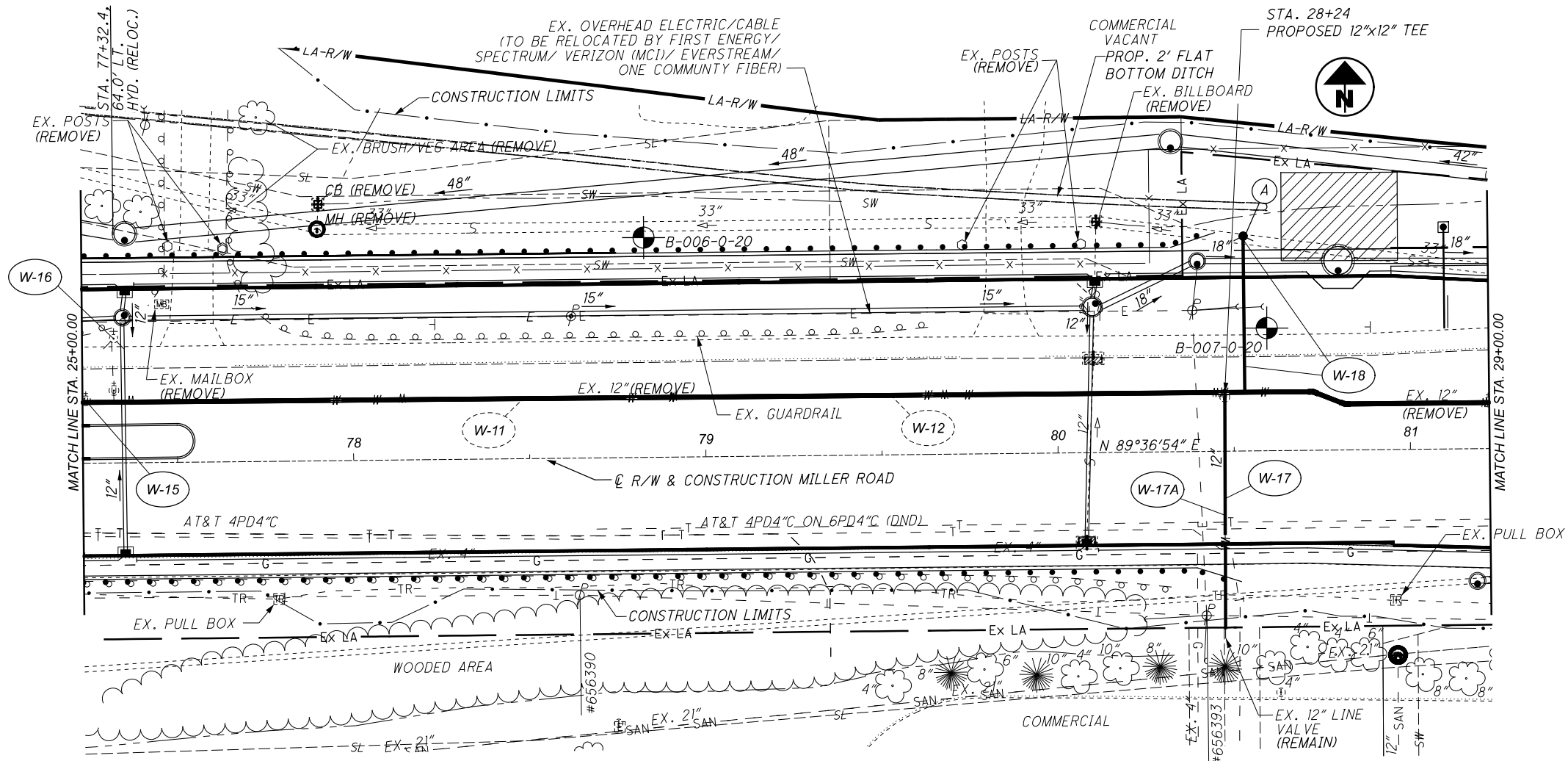
06/01/22



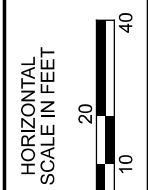
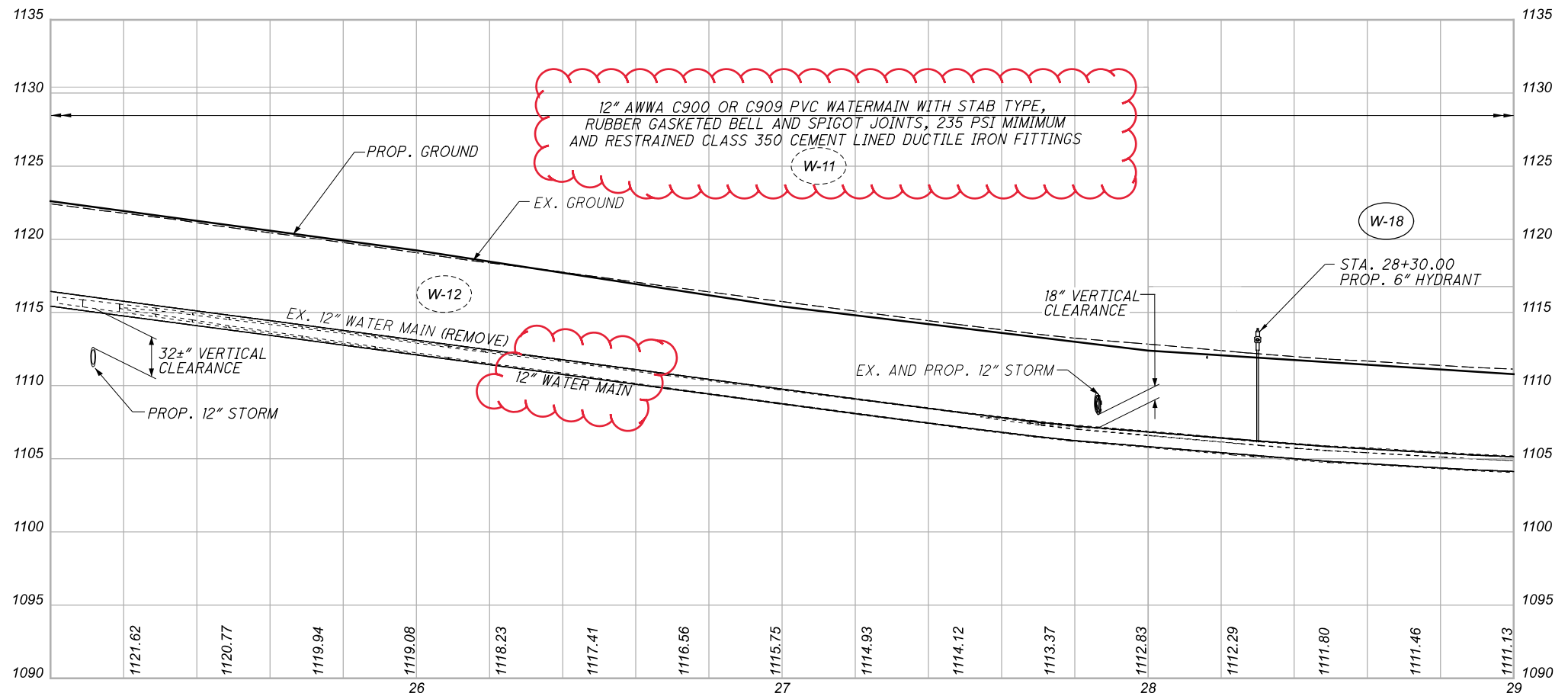
WATER WORK PLAN AND PROFILE  
 STA. 21+00 TO STA. 25+00

SUBSET	TOTAL
21	44
DESIGN AGENCY	
EUTHENICS 6333 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
ESM	
REVIEWER	
DTB 11/12/21	
PROJECT ID	
104983	
SHEET	TOTAL
P.257	P.445





(A) STA. 28+30.00  
PROP. 6" HYDRANT  
W/ VALVE AND VALVE  
BOX, COMPLETE

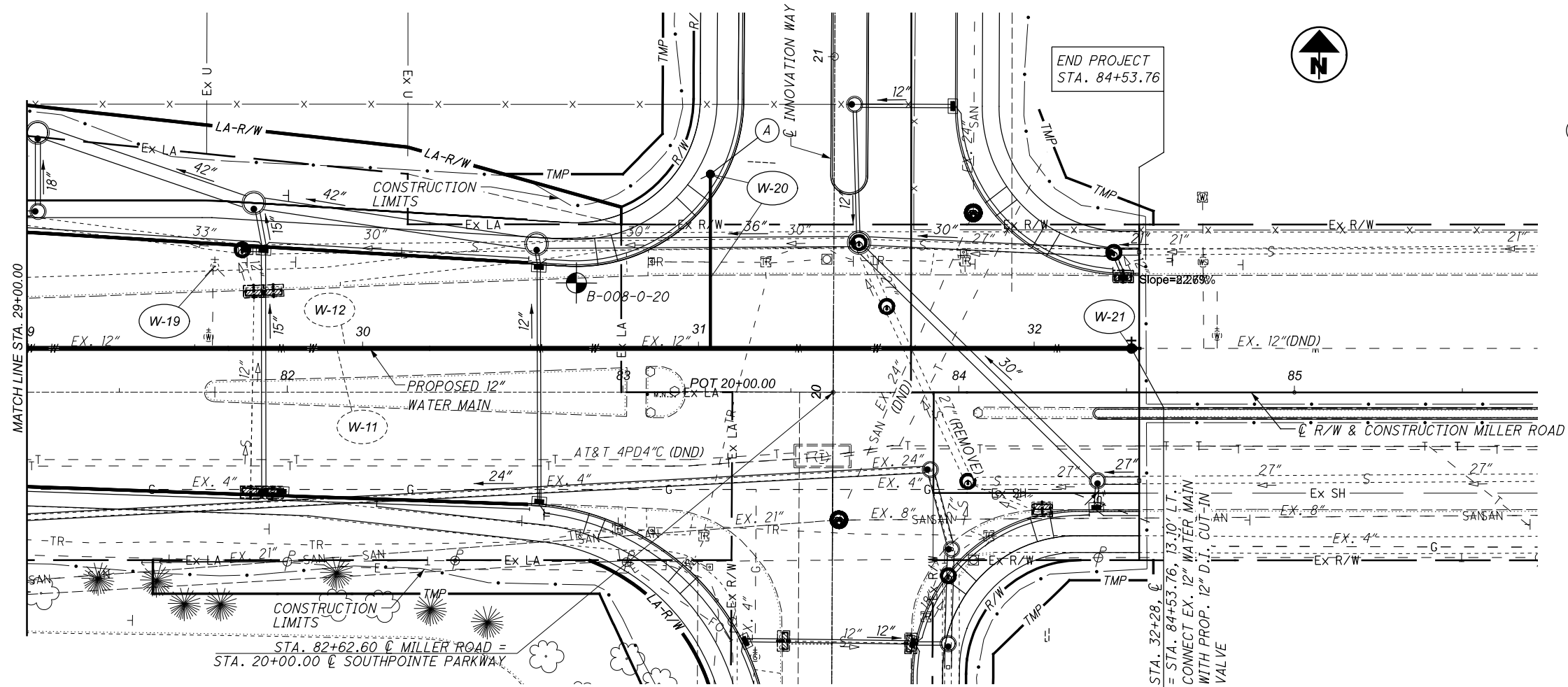


WATER WORK PLAN AND PROFILE  
STA. 25+00 TO STA. 29+00



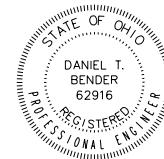
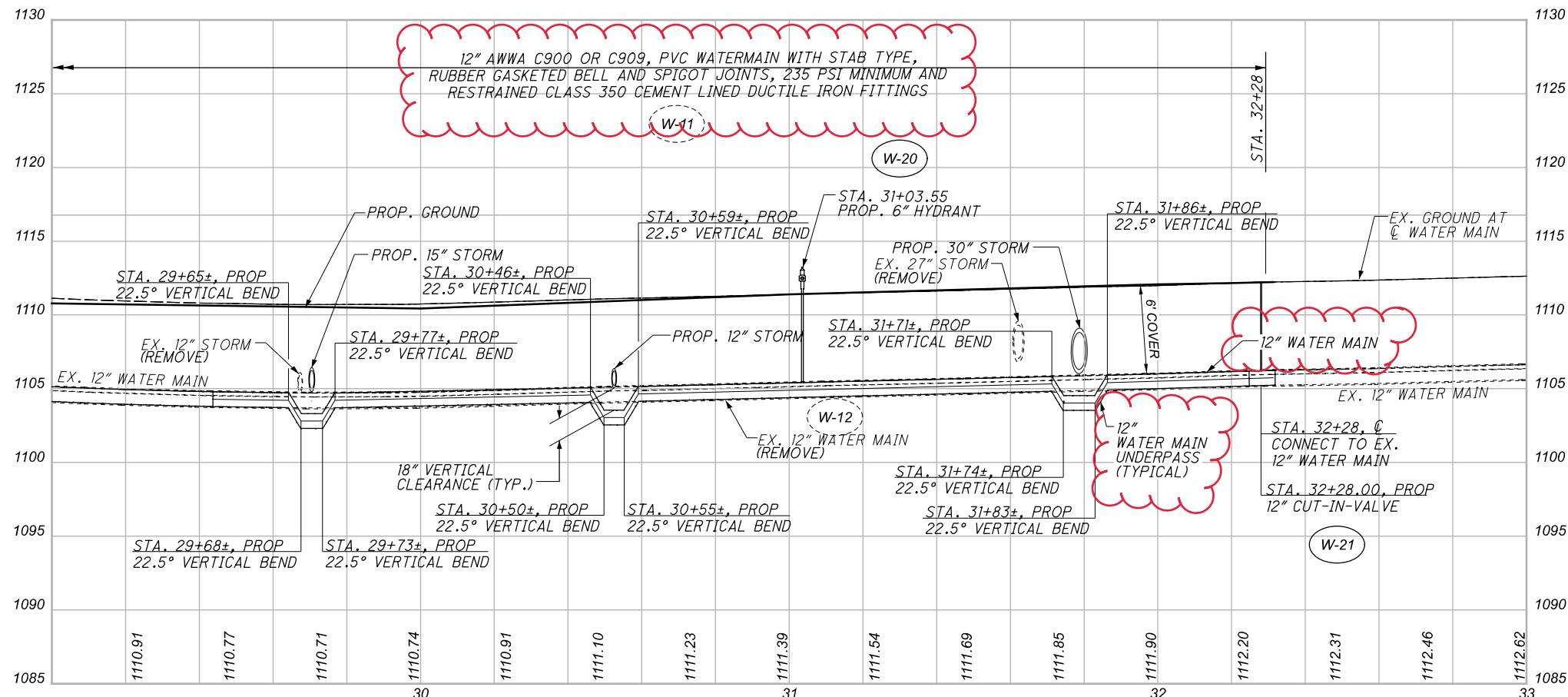
06/01/22

SUBSET	TOTAL
22	44
DESIGN AGENCY	
EUTHENICS 6233 Mohawk Dr., Cleveland, OH 44130	
DESIGNER	
ESM	
REVIEWER	
DTB 11/12/21	
PROJECT ID	
104983	
SHEET	TOTAL
P.258	P.445



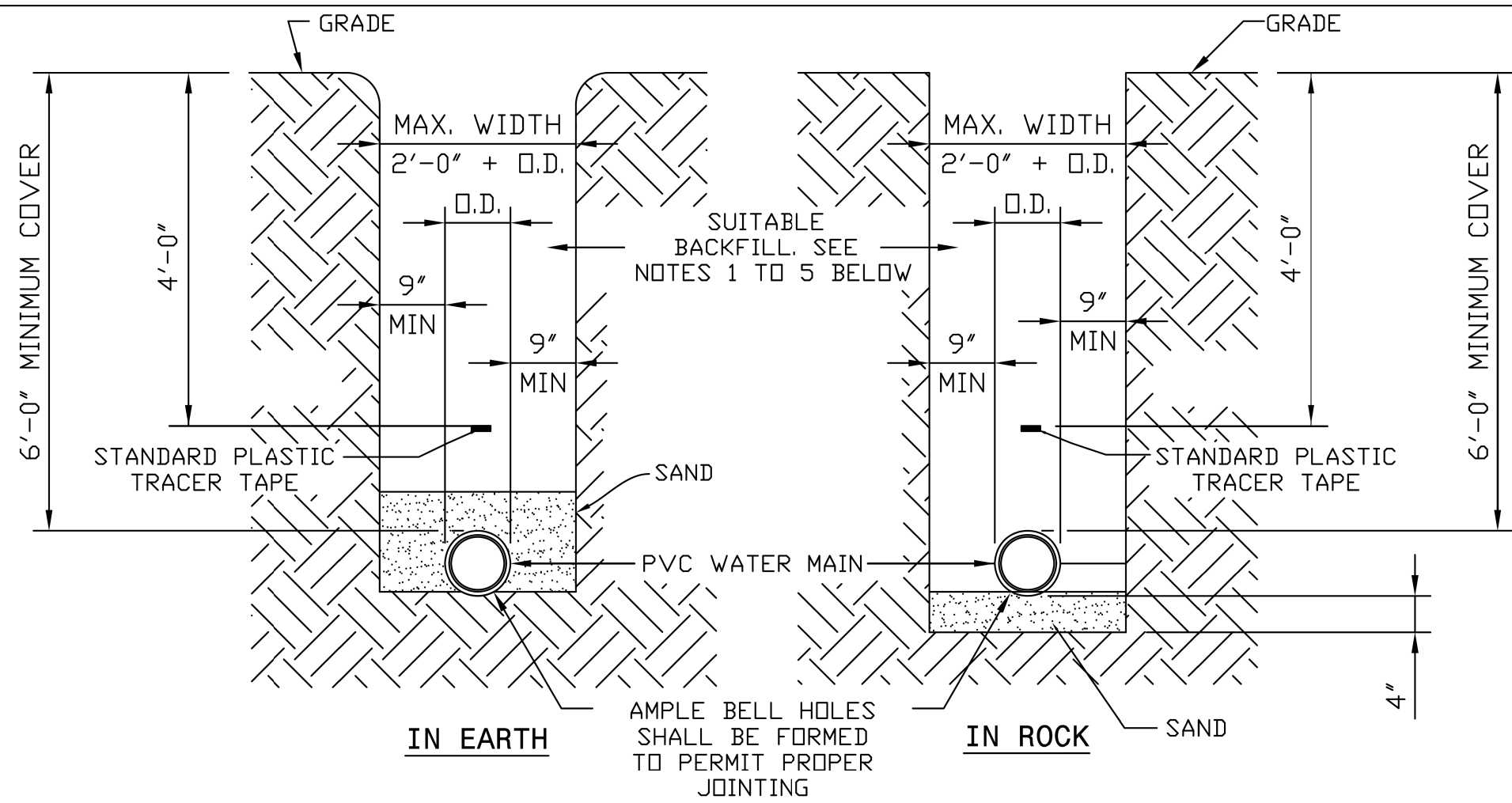
(A) STA. 31+03.50  
 PROP. 6" HYDRANT  
 W/ VALVE AND VALVE  
 BOX, COMPLETE

WATER WORK PLAN AND PROFILE  
 STA. 29+00 TO STA. 32+28



06/01/22

SUBSET	TOTAL
23	44
DESIGN AGENCY	
EUTHENICS 6233 Mohawk Dr., Cleveland, OH 44130	
DESIGNER	
ESM	
REVIEWER	
DTB 11/12/21	
PROJECT ID	
104983	
SHEET	TOTAL
P.259	P.445



### WATER MAIN TRENCH DETAILS

- NOT TO SCALE -

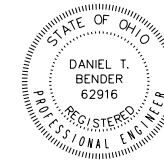
**NOTES:**

- 1) SUITABLE BACKFILL SHALL CONSIST OF EXCAVATED MATERIAL FREE OF ROCK (>3"), FROZEN EARTH AND DEBRIS. THE BACKFILL SHALL NOT BE ALLOWED TO FREE-FALL ONTO THE PREVIOUSLY PLACED PIPE. THE CONTRACTOR SHALL CONSOLIDATE THE BACKFILL IN SUCH A MANNER TO ENSURE THE MINIMUM POSSIBLE SETTLEMENT. PREMIUM BACKFILL IS REQUIRED UNDER EXISTING OR FUTURE PAVEMENTS, SIDEWALKS, AND/OR DRIVES OR WHEN REQUIRED BY THE LOCAL MUNICIPALITY. PREMIUM BACKFILL SHALL BE FULL DEPTH OF THE TRENCH.
- 2) PREMIUM BACKFILL SHALL BE LIMESTONE SCREENINGS GRADED PER ODOT 304.02 OR ODOT 411. NO SLAG IS PERMITTED.
- 3) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE BACKFILL SO AS TO AVOID INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN PLACING THE BACKFILL.
- 4) MINIMUM COMPACTION FOR PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.
- 5) PAVEMENT, SIDEWALK OR DRIVES TO BE INSTALLED IN ACCORDANCE WITH LOCAL MUNICIPALITY'S SPECIFICATIONS.

PVC-001

DATE: 11-1-09

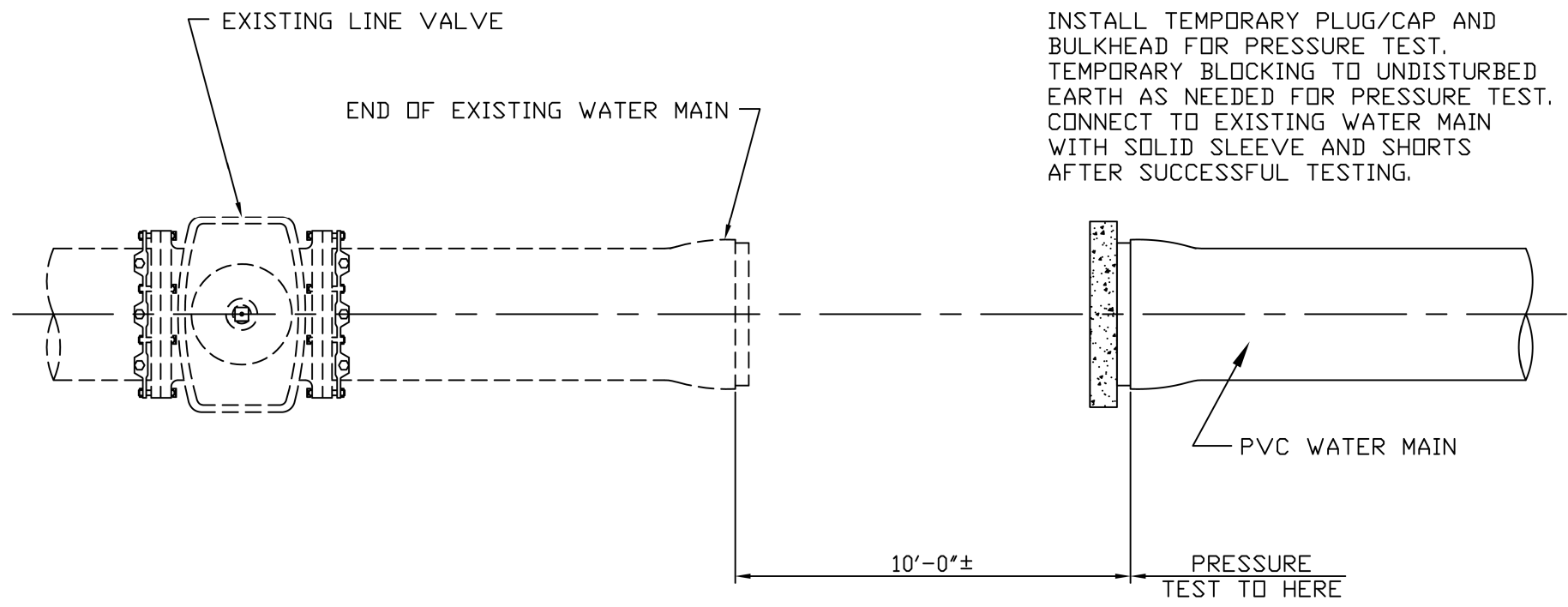
BY: DR



06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
24	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8333 Mahoning Dr.   Cleveland, OH 44138	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 260	P. 445



NOTE:  
PRESSURE TESTING OF WATER MAINS:  
 WHERE NEW/EXTENDED WATER MAINS ARE CONNECTED TO AN EXISTING WATER MAIN FOR PRESSURE TEST, RESULTING IN FAILURE OF THE PRESSURE TEST OR ANY DAMAGE TO THE EXISTING WATER MAIN, OR ITS APPURTENANCES, THE REPAIR THEREOF SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL REPAIRS SHALL BE DONE TO THE SATISFACTION OF THE DIVISION OF WATER.

**ALTERNATE PRESSURE TESTING DETAIL**

- NOT TO SCALE -

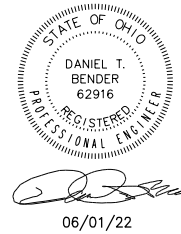
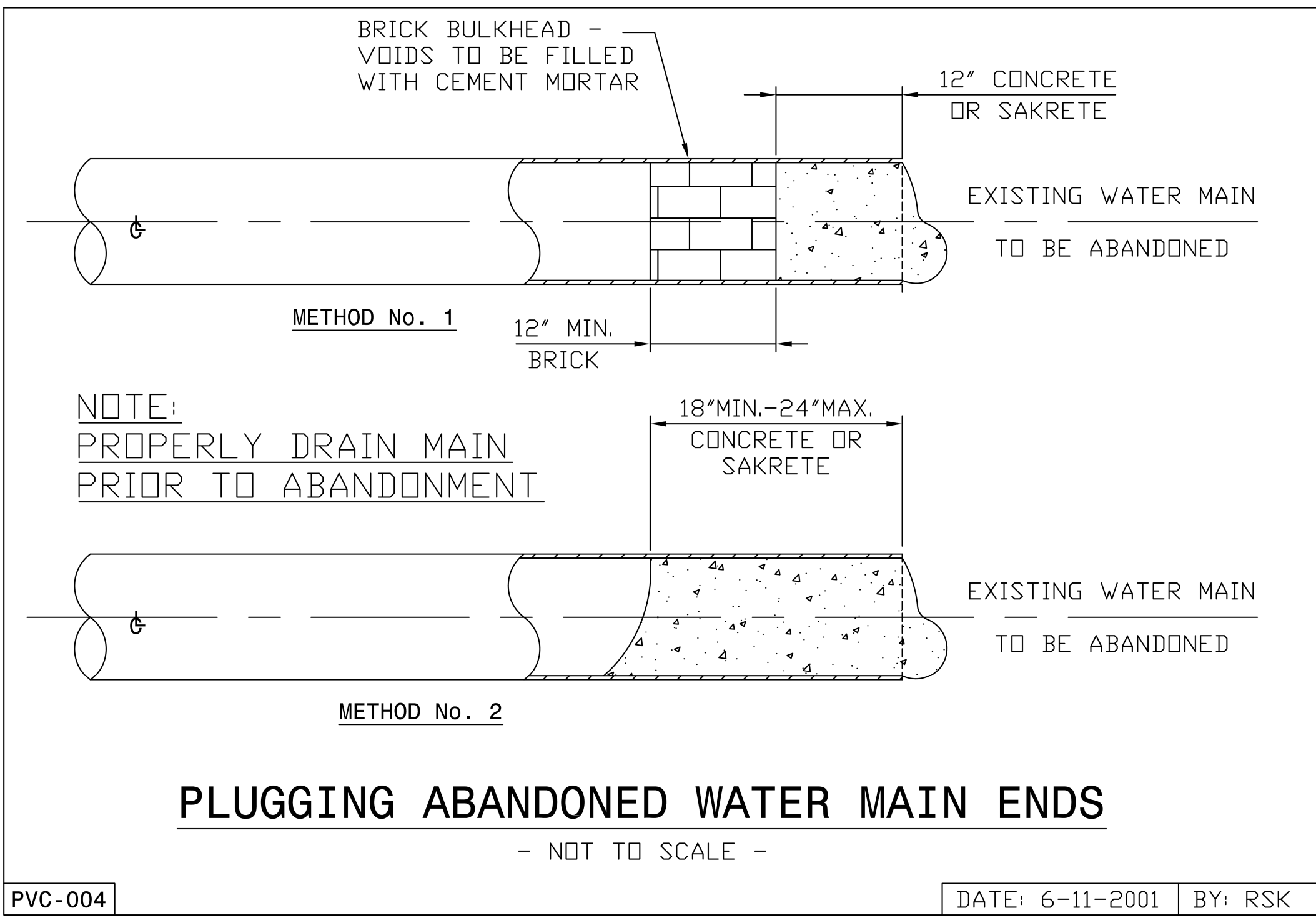
PVC-002

DATE: 6-11-2001 BY: RSK

STATE OF OHIO  
 DANIEL T. BENDER  
 62916  
 REGISTERED PROFESSIONAL ENGINEER  
 06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
25	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8233 Mahony Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 261	P. 445



<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
26	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8333 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 262	P. 445

CUY-77-00.42 PART 1

MODEL: 104983\_UD004\_PAPER SIZE: 17x11 (in) DATE: 7/3/2022 TIME: 11:33:58 AM USER: smccs:lin  
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\*CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE 'RETAINED' TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS 'C', METHOD 'B'.

THE DIVISION OF WATER WILL DETERMINE THE FIELD LOCATION OF THE CUT-IN-VALVE ASSEMBLY. THE DIVISION OF WATER WILL ALSO SET THE TIME OF INSTALLATION OF THE CUT-IN-VALVE ASSEMBLY.

THE CONTRACTOR SHALL DO ALL PIPE CUTTING AND INSTALLATION. HOWEVER, THE INSTALLATION OF THE CUT-IN-VALVE ASSEMBLY SHALL BE DONE UNDER THE SUPERVISION OF THE DIVISION OF WATER.

C.W.D. SQUARE HEAD RETAINED MECHANICAL JOINT BELL END GATE VALVE WITH VALVE BOX COMPLETE. (VALVE BOX NOT SHOWN HERE FOR CLARITY)

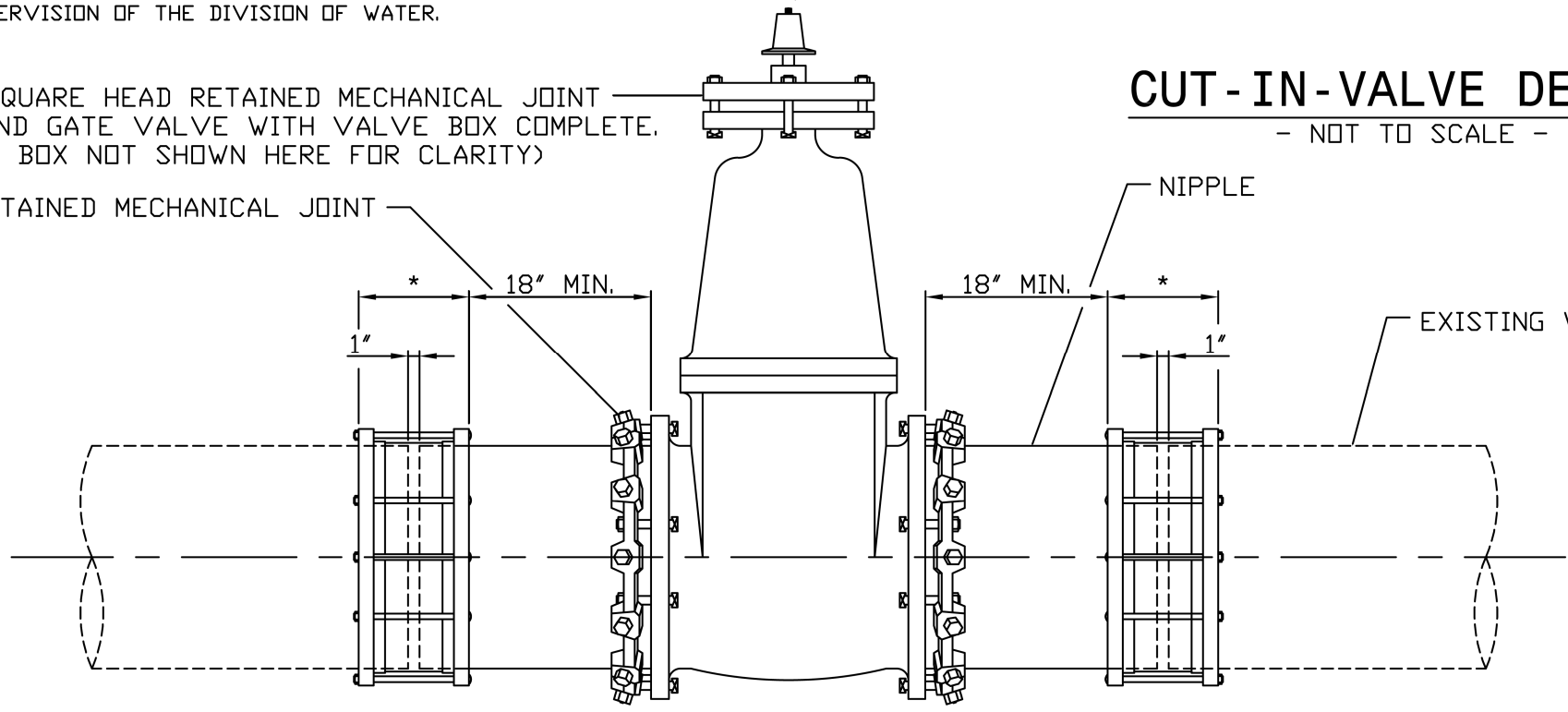
### CUT-IN-VALVE DETAIL

- NOT TO SCALE -

RETAINED MECHANICAL JOINT

NIPPLE

EXISTING WATER MAIN



NOTE:  
 BEFORE CUTTING EXISTING WATER MAIN, THE NIPPLES SHALL BE CONNECTED TO THE MECHANICAL JOINT BELL END GATE VALVE. AFTER CUTTING PIPE, FINAL CONNECTIONS SHALL BE MADE WITH COUPLINGS/SOLID SLEEVES AS SPECIFIED.

PVC-005

DATE: 6-11-2001 BY: RSK

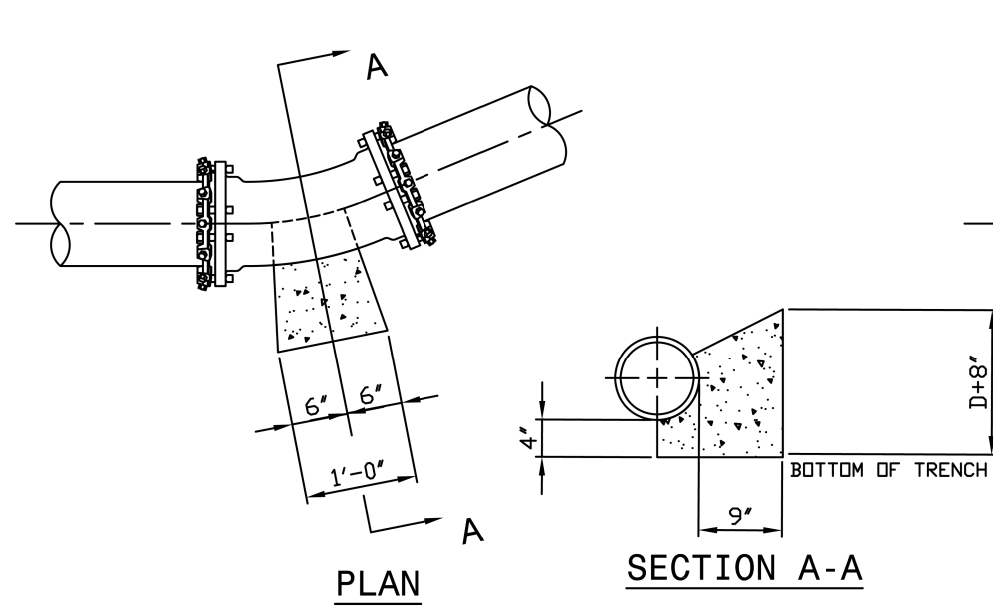


06/01/22

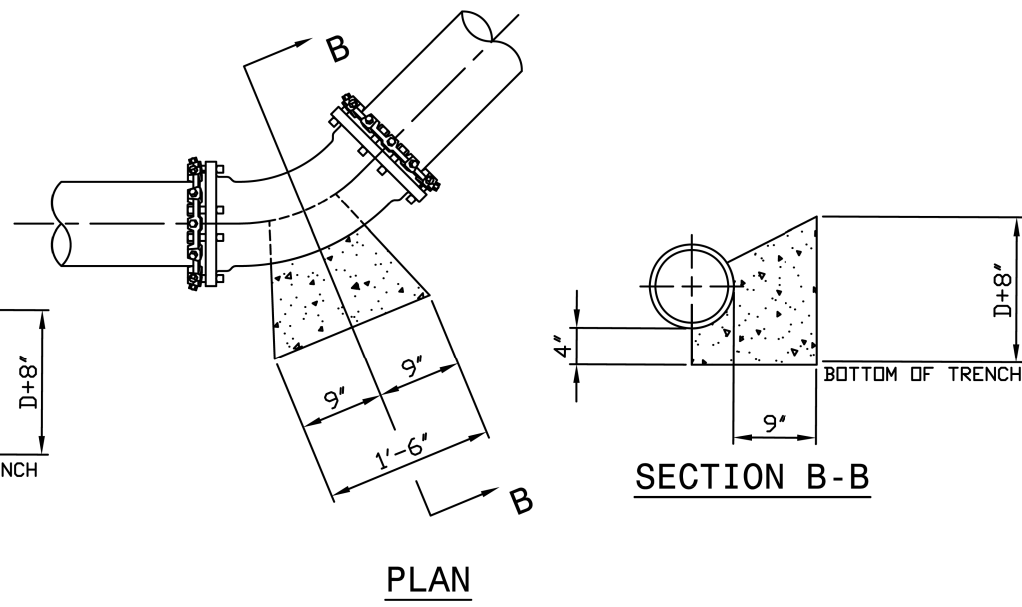
<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
27	44
DESIGN AGENCY	
EUTHENICS 8333 Mahoning Dr., Cleveland, OH 44138	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 263	P. 445

WATER WORK DETAILS



(22-1/2 DEGREE) BEND

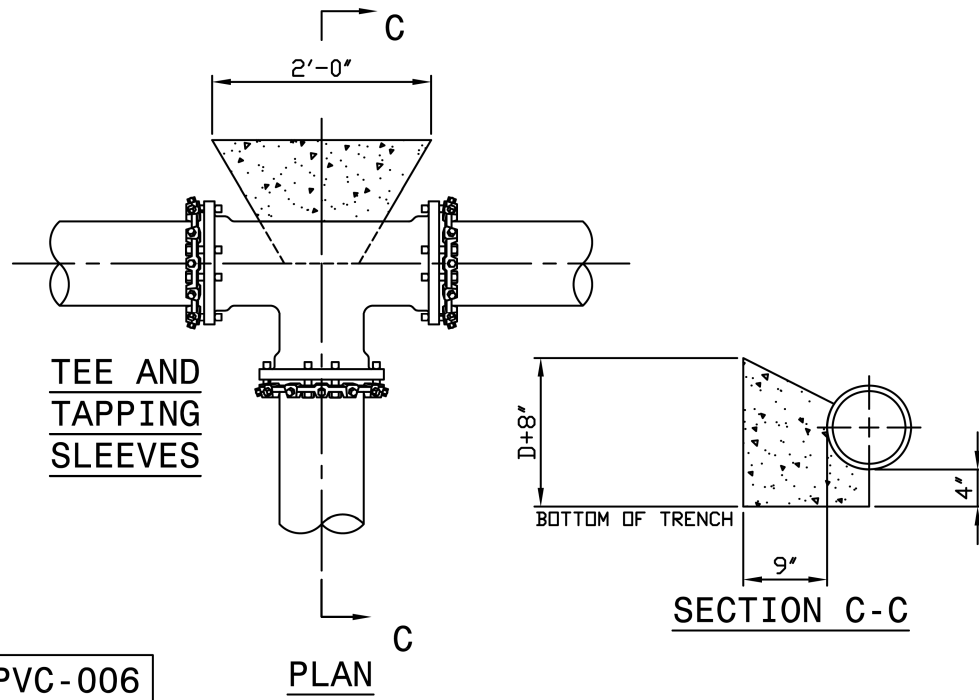


(45 DEGREE) BEND  
 TYPICAL THRUST BLOCK DETAIL  
 FOR HORIZONTAL DEFLECTION  
 FOR PIPE UP TO 16" DIAMETER

- NOT TO SCALE -  
 D = PIPE DIAMETER

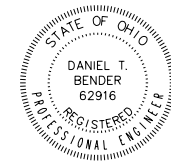
- NOTE 1: ALL DIMENSIONS SHOWN HEREON ARE MINIMUM; THRUST BLOCK SHALL BE POURED TO UNDISTURBED EARTH.
- NOTE 2: ALL CONCRETE FOR THRUST BLOCKS SHALL BE CLASS "C" HAVING 4,000 PSI 28 DAY COMPRESSIVE STRENGTH.
- NOTE 3: DO NOT COVER BOLTS WITH CONCRETE ON MECHANICAL JOINTS.
- NOTE 4: USE FORMS WHEN POURING CONCRETE TO MAINTAIN SHAPE AND DIMENSIONS OF THRUST BLOCKS.

DATE: 6-11-2001 BY: RSK



TEE AND TAPPING SLEEVES

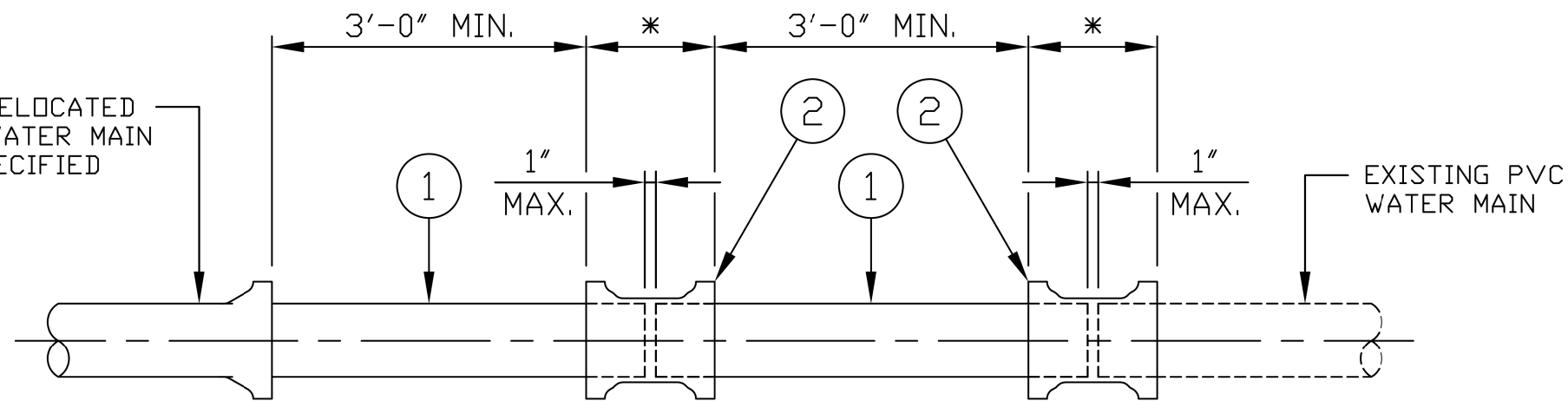
PVC-006



06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
28	44
DESIGN AGENCY	
EUTHENICS 6233 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 264	P. 445



**SLEEVE-IN INSTALLATION DETAIL**

- NOT TO SCALE -

- 1) PLAIN END x PLAIN END PVC PIPE AS SPECIFIED (CUT TO SUIT).
- 2) \*CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.  
  
 COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.  
  
 MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).  
  
 THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.
- 3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

PVC-007

DATE: 6-11-2001 BY: RSK



06/01/22

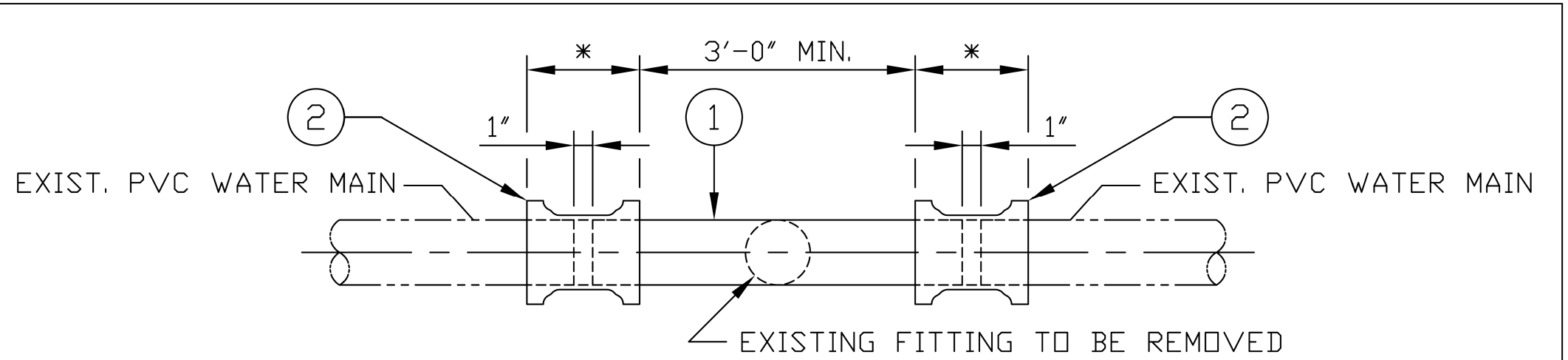
<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
29	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8333 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 265	P. 445



CUY-77-00.42 PART 1

MODEL: 104983\_UD007\_PAPERSIZE: 17x11 (in.) DATE: 10/6/2023 TIME: 11:24:57 AM USER: esmccaslin  
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**SPOOL PIECE INSTALLATION DETAIL**

NOT TO SCALE

- 1) PLAIN END x PLAIN END PVC C-900 PIPE AS SPECIFIED (CUT TO SUIT).
- 2) \*CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

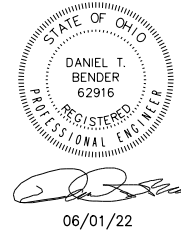
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

- 3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

PVC-008

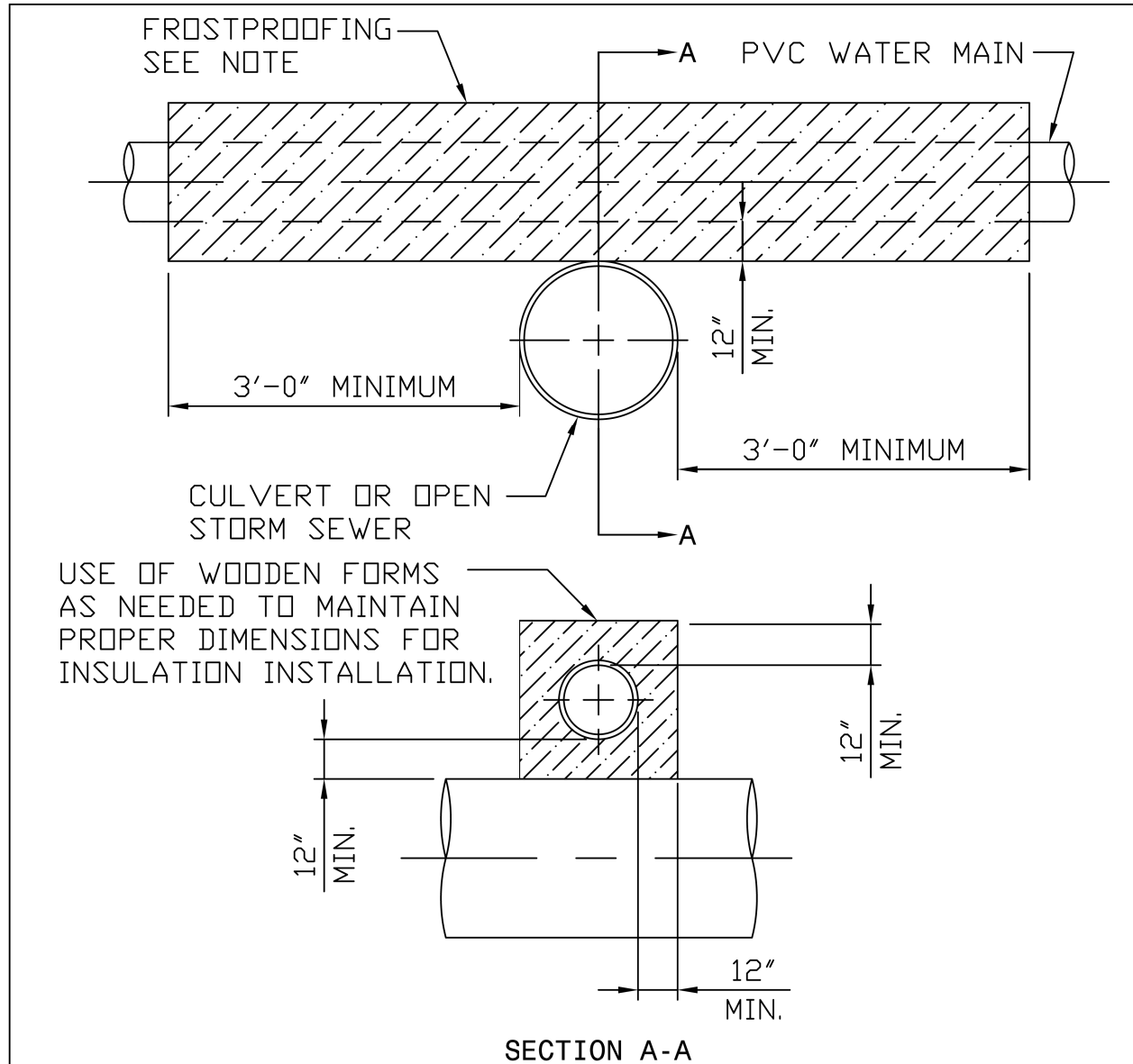
DATE: 6-11-2001 BY: RSK



<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
30	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6233 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 266	P. 445

WATER WORK DETAILS



MINIMUM ONE (1) FOOT FROSTPROOFING INSULATION ENVELOPE REQUIRED WITH WATER MAIN LAID WITH LESS THAN FIVE (5) FT. COVER; CROSSING OVER STORM SEWERS 24" AND LARGER; OR CROSSING UNDER OPEN END CULVERTS, OR OTHERWISE DIRECTED BY C.W.D.

*IN NO CASE SHALL THE MAINS BE LAID WITH LESS THAN 3'-6" OF COVER IN UNPAVED AREAS & 3'-0" TO BOTTOM OF SLAB IN PAVED AREAS.*

NOTE:  
 COMPACTED "WITCOLITE" INSULATION AS MANUFACTURED BY PIONEER PRODUCTS, DIVISION OF WITCO CHEMICAL COMPANY, INC. OR "GILSULATE 500 XR" AS MANUFACTURED BY AMERICAN THERMAL PRODUCTS, INC.

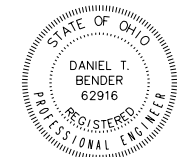
**TYPICAL FROSTPROOFING DETAIL**

- NOT TO SCALE -

PVC-009

DATE: 6-11-2001

BY: RSK



*[Signature]*  
 06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
31	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6233 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 267	P. 445

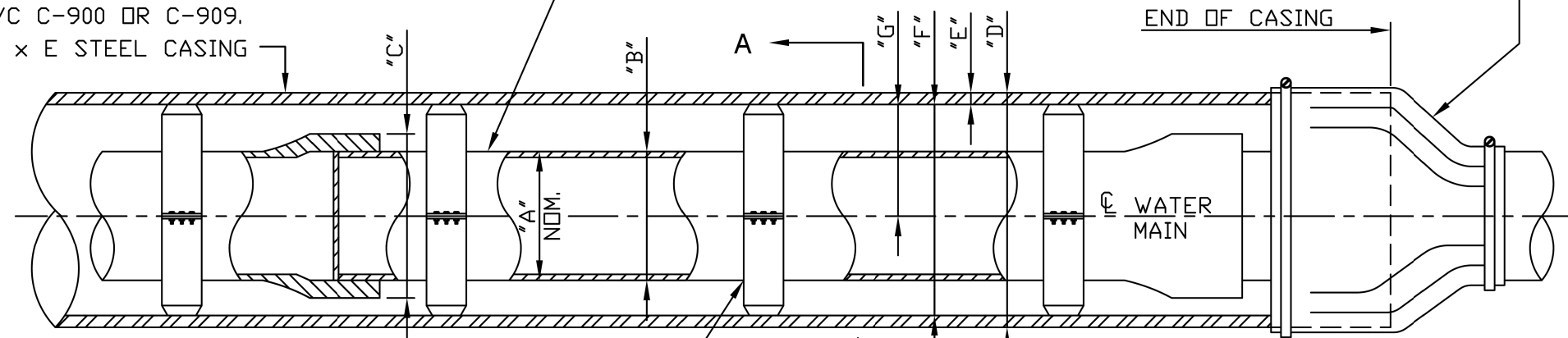
CUY-77-00.42 PART 1

MODEL: 104983\_UD009\_PAPER SIZE: 17x11 (in.) DATE: 10/2/2022 TIME: 11:50:10 AM USER: eshaccasin  
 F:\Jobs\1162-Miller\_Road Interchange\104983-03-Addendum\Water Main Material Revision\CWD Standard Details\104983\_UD009.dgn

DUCTILE IRON CLASS 52 CEMENT LINED  
 BOLTLESS RESTRAINED PUSH-ON JOINT PIPE  
 (TYPE I NEW CONSTRUCTION)  
 (TYPE II EXISTING CONSTRUCTION) OR  
 PVC C-900 OR C-909.

D x E STEEL CASING

WRAP AROUND RUBBER END SEALS ARE TO BE USED FOR SINGLE  
 CARRIER PIPES, OR MOLDED END SEALS FOR CLUSTER CARRIER  
 PIPES. ALL FASTNERS ARE TO BE STAINLESS STEEL. BRICK  
 BULKHEADS ARE NOT ALLOWED.

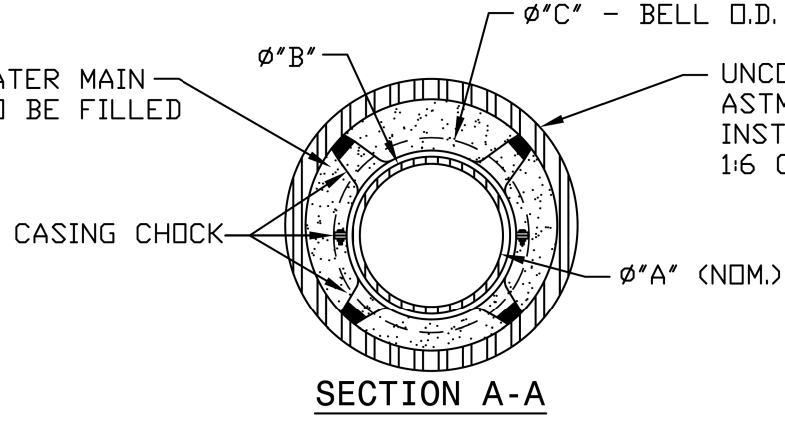


**- CASING SPACER INSTALLATION -**

THREE CASING SPACER PER 18FT. OR 20FT. PIPE JOINTS ARE  
 TO BE USED FOR MAXIMUM CARRIER PIPE SUPPORT; ONE BEHIND  
 THE BELL, ONE AT THE SPIGOT END MAKE-UP LINE, AND ONE  
 CENTERED BETWEEN THE AFOREMENTIONED TWO SPACERS.  
 CASING SPACERS SHOULD CENTER & RESTRAIN THE CARRIER PIPE.  
 WOODEN SKIDS ARE NOT ALLOWED.

A	B	C*	D	E	F	G
8"	9.05"	11.89"	16"	3"	15 1/4"	8.00"
12"	13.20"	16.35"	20"	3"	19 1/4"	10.00"
16"	17.40"	20.84"	24"	3"	23"	12.00"

SPACE BETWEEN WATER MAIN  
 AND STEEL PIPE TO BE FILLED  
 WITH SAND.



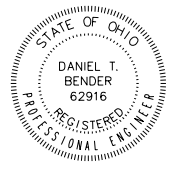
UNCOATED - UNPROTECTED STEEL CASING  
 ASTM A-53-89a (AWWA SPEC. C-200-91)  
 INSTALLED BY JACKING OR BORING METHOD.  
 1:6 GROUT IF ORDERED AROUND CASING.

**- CASING SPACER DETAIL -**

CASING SPACERS ARE TO BE STAINLESS STEEL, OR POLYMER  
 COATED CARBON STEEL. STAINLESS STEEL IS NOT ALLOWED IF  
 GROUTING IS REQUIRED. SPACER BAND WIDTHS ARE TO BE 8"  
 CARRIER PIPES THROUGH 24" AND 21" FOR 26" AND LARGER.  
 RUNNERS ARE TO BE GLASS-FILLED POLYMER PLASTIC AND  
 LINER IS TO BE EPDM OR PVC.

**NOTES:**

1. CONTRACTOR'S FAILURE TO MAINTAIN THE CASING PIPE ON THE LINE AND GRADE AS SHOWN OR DIRECTED, RESULTING IN THE USE OF ADDITIONAL PIPE AND/OR FITTINGS TO MAKE CONNECTIONS TO EXISTING WATER MAIN WILL BE CAUSE FOR REJECTION OF CASING INSTALLATION.
- \*2. OUTSIDE DIAMETER OF BELL OF BOLTLESS RESTRAINED PIPE MAY VARY WITH MANUFACTURE, THEREFORE, CONTRACTOR SHALL VERIFY D.D. OF BELL AND INCREASE SIZE OF STEEL CASING AS REQUIRED.



06/01/22

PVC-016 CASING DETAIL No. 2 END OF CASING AND CASING CHOCK DETAIL DATE: 1-21-2010 BY: RSK

WATER WORK DETAILS

**3rd. HIGH SERVICE DISTRICT**

DEPARTMENT OF PUBLIC UTILITIES  
 DIVISION OF WATER  
 CLEVELAND, OHIO

DESIGNER: TDP  
 REVIEWER: DTB 03/01/22

SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77  
 CITY OF BRECKSVILLE

PROJECT ID: 104983  
 SCALE: AS SHOWN NO.

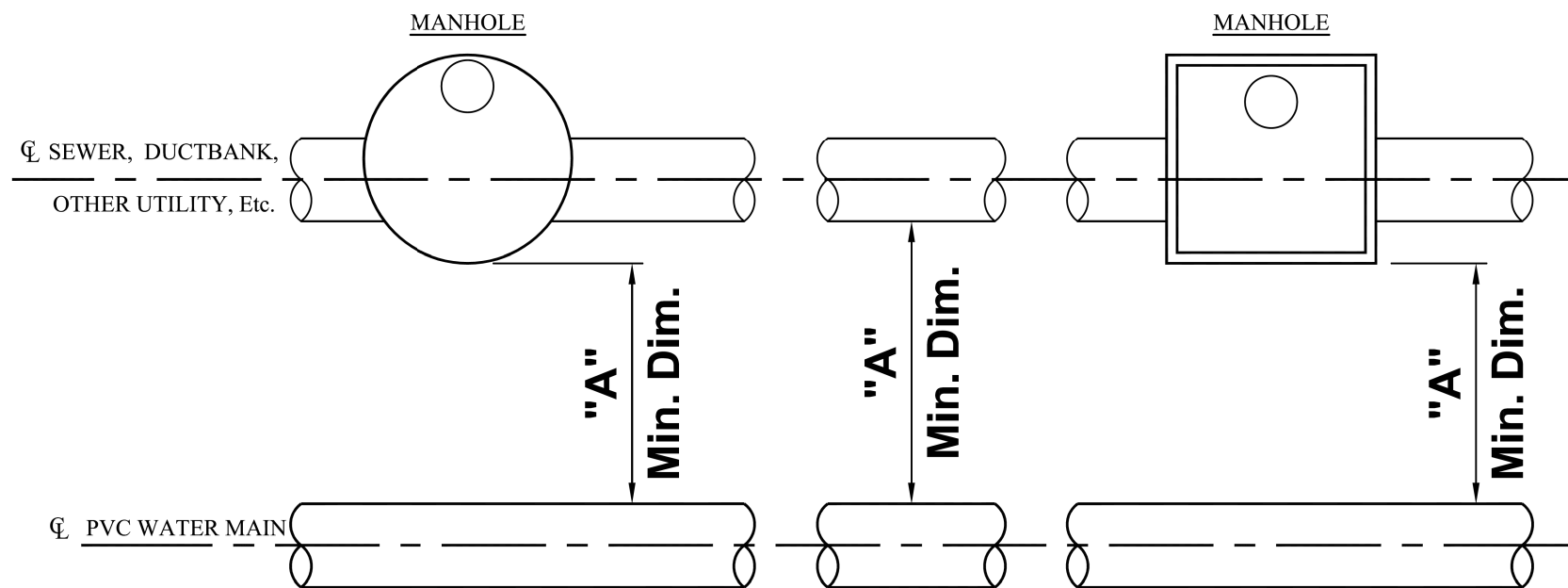
SUBSET	TOTAL
32	44

DESIGN AGENCY: EUTHENICS  
 8333 Mahoning Dr., Cleveland, OH 44138

DESIGNER: TDP

REVIEWER: DTB 03/01/22

SHEET	TOTAL
P. 268	P. 445



**PLAN VIEW**  
 - SEE STD-018 FOR PROFILE VIEW -

HORIZONTAL CLEARANCE	STORM SEWER	SANITARY SEWER	GAS, DUCTBANK, OTHER UTILITY, Etc.
"A"	10'-0" MIN.	10'-0" MIN.	5'-0" MIN.

**HORIZONTAL CLEARANCE FOR UTILITIES**

NOT TO SCALE

PVC-017

DATE: 12-29-2016

BY: FSR



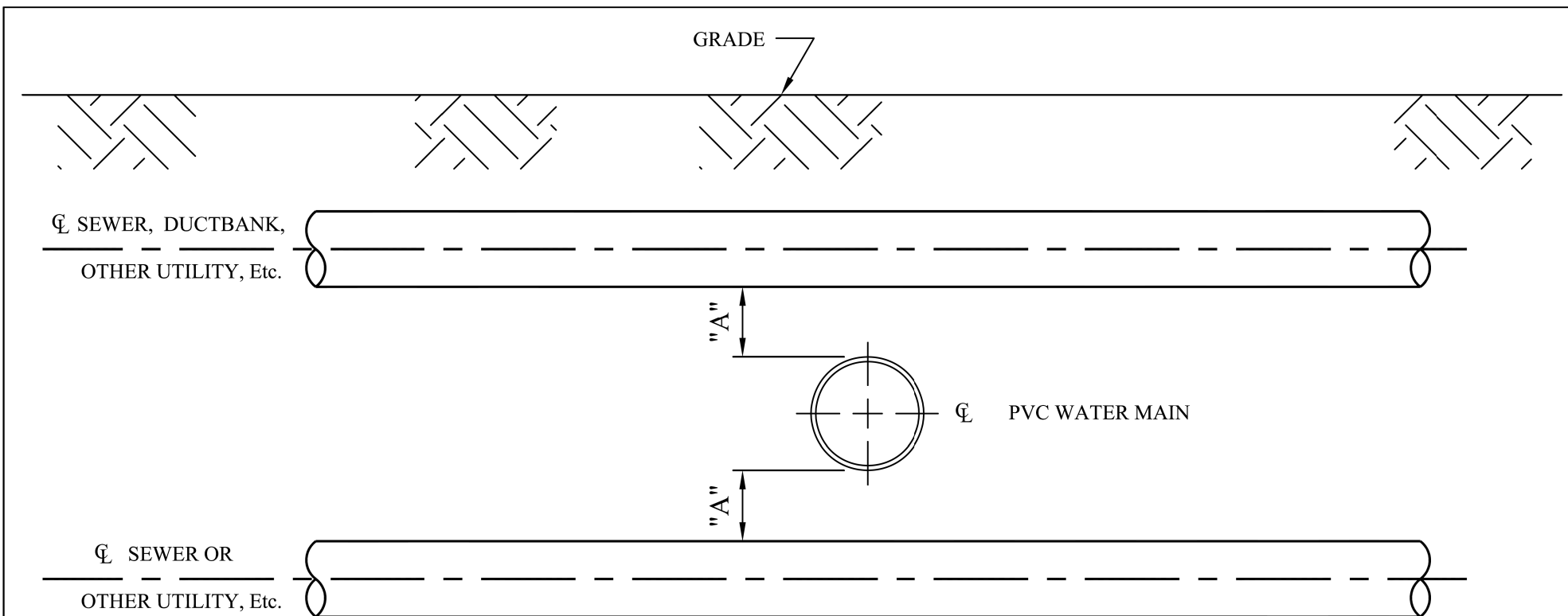
*[Signature]*  
 06/01/22

**3rd. HIGH SERVICE DISTRICT**  
 DEPARTMENT OF PUBLIC UTILITIES  
 DIVISION OF WATER  
 CLEVELAND, OHIO

SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77  
 CITY OF BRECKSVILLE

SCALE: AS SHOWN NO.

SUBSET	TOTAL
33	44
DESIGN AGENCY	
EUTHENICS <small>8233 Mahony Dr., Cleveland, OH 44138</small>	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 269	P. 445



**PROFILE VIEW**  
 - SEE PVC-017 FOR PLAN VIEW -

VERTICAL CLEARANCE	SANITARY SEWER LESS THAN 24"	SANITARY SEWER 24" & LARGER	STORM SEWER, DUCTBANK, GAS, OTHER UTILITY LESS THAN 24"	STORM SEWER, DUCTBANK, GAS, OTHER UTILITY 24" & LARGER	REMARKS
"A"	18" Min.	18" Min.	18" Min.	18" Min.	IF CANNOT ACHIEVE MIN. CLEARANCE WATER MAIN TO BE LOWERED

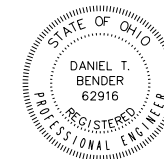
**VERTICAL CLEARANCE FOR UTILITIES**

NOT TO SCALE

PVC-018

DATE: 12-29-2019

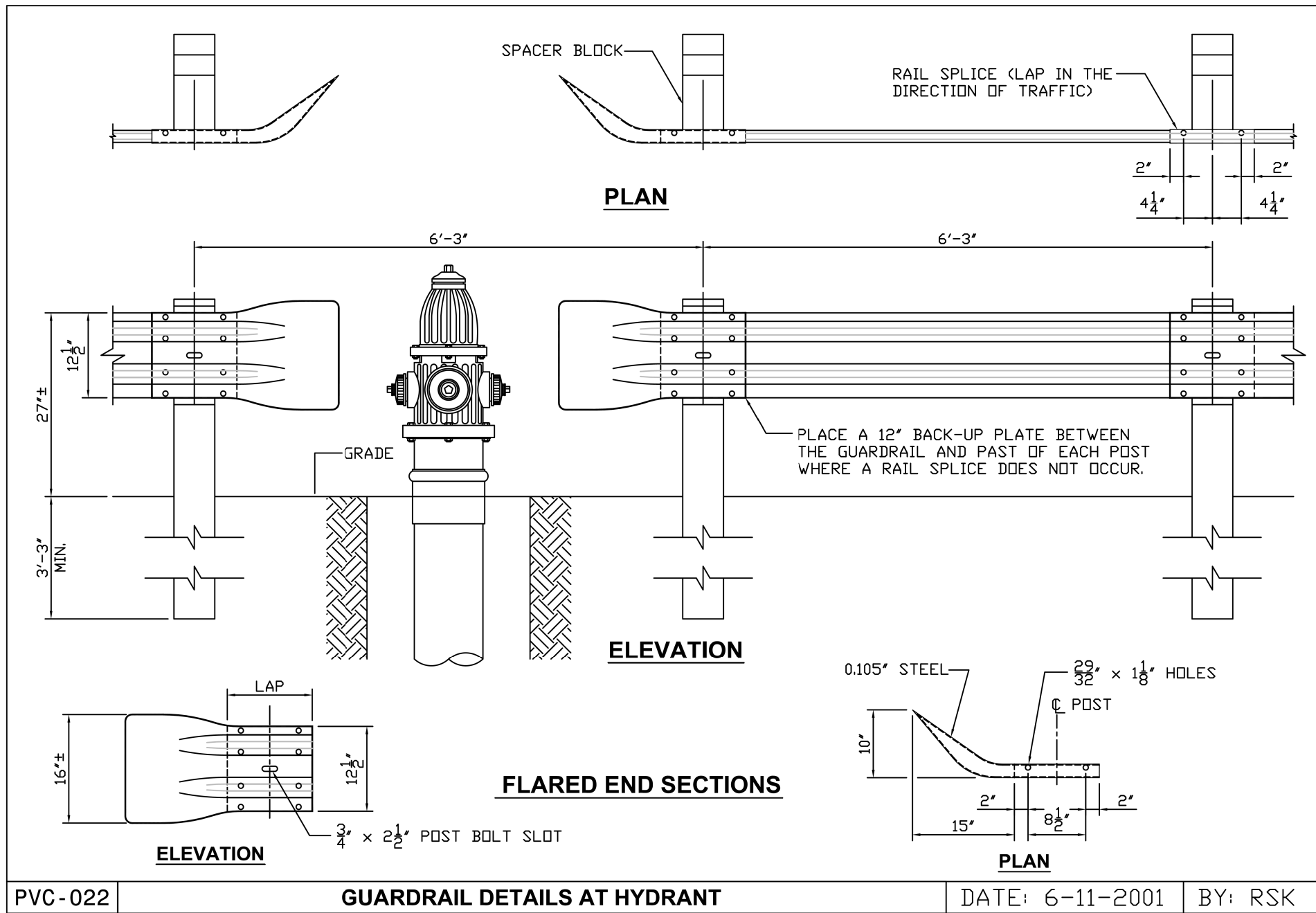
BY: FSR



*[Signature]*  
 06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
34	44
DESIGN AGENCY	
<b>EUTHENICS</b> <small>8233 Mahoning Dr., Cleveland, OH 44135</small>	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 270	P. 445



PVC-022

**GUARDRAIL DETAILS AT HYDRANT**

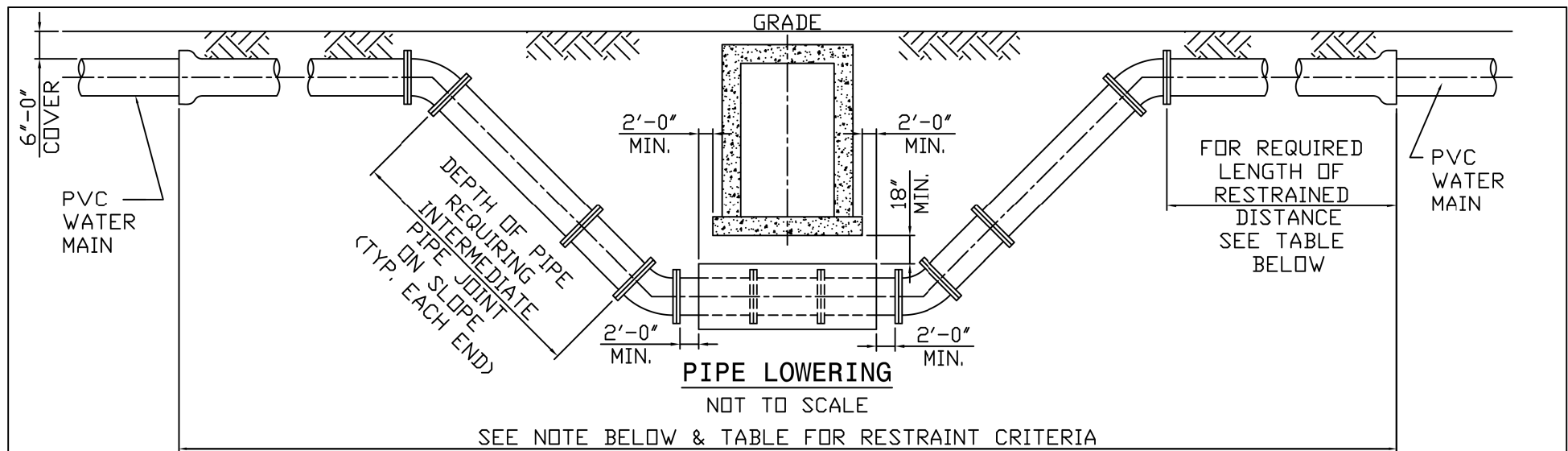
DATE: 6-11-2001 BY: RSK



06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
35	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6233 Mahony Dr., Cleveland, OH 44138	
DESIGNER	
TDP	
REVIEWER	
DTB	03/01/22
PROJECT ID	
104983	
SHEET	TOTAL
P. 271	P. 445

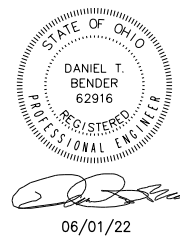


TO LOWER WATER MAIN TO CLEAR OBSTACLE WHERE DEPTH OF PIPE LOWERING REQUIRES AN INTERMEDIATE JOINT ON SLOPE THE ENTIRE OFFSET SHALL HAVE DUCTILE IRON CLASS 52 BOLTLESS RESTRAINED PUSH-ON JOINT PIPE & FITTINGS OR AWWA C-900 RJ PIPE. JOINT RESTRAINT SHALL EXTEND BEYOND TOP VERTICAL BEND TO THE LIMITS SHOWN IN TABLE.  
 ① CALCULATIONS FOR RESTRAINED LENGTHS INCLUDE 75 PSI FOR TESTING.

DIAMETER	BEND	STATIC PRESSURE ①	* RESTRAINED LENGTHS
8"	11°15'	0 to 275 PSI	ONE (1)
	22°30'	0 to 250 PSI	ONE (1)
		251 to 275 PSI	TWO (2)
	45°	0 to 125 PSI	ONE (1)
126 to 275 PSI		TWO (2)	
12"	11°15'	0 to 275 PSI	ONE (1)
	22°30'	0 to 165 PSI	ONE (1)
		216 to 275 PSI	TWO (2)
	45°	0 to 65 PSI	ONE (1)
		66 to 215 PSI	TWO (2)
		216 to 275 PSI	THREE (3)
16"	11°15'	0 to 275 PSI	ONE (1)
	22°30'	0 to 115 PSI	ONE (1)
		116 to 275 PSI	TWO (2)
	45°	0 to 45 PSI	ONE (1)
		46 to 165 PSI	TWO (2)
		166 to 275 PSI	THREE (3)

PVC-L01

DATE: 6-11-2001 BY: RSK

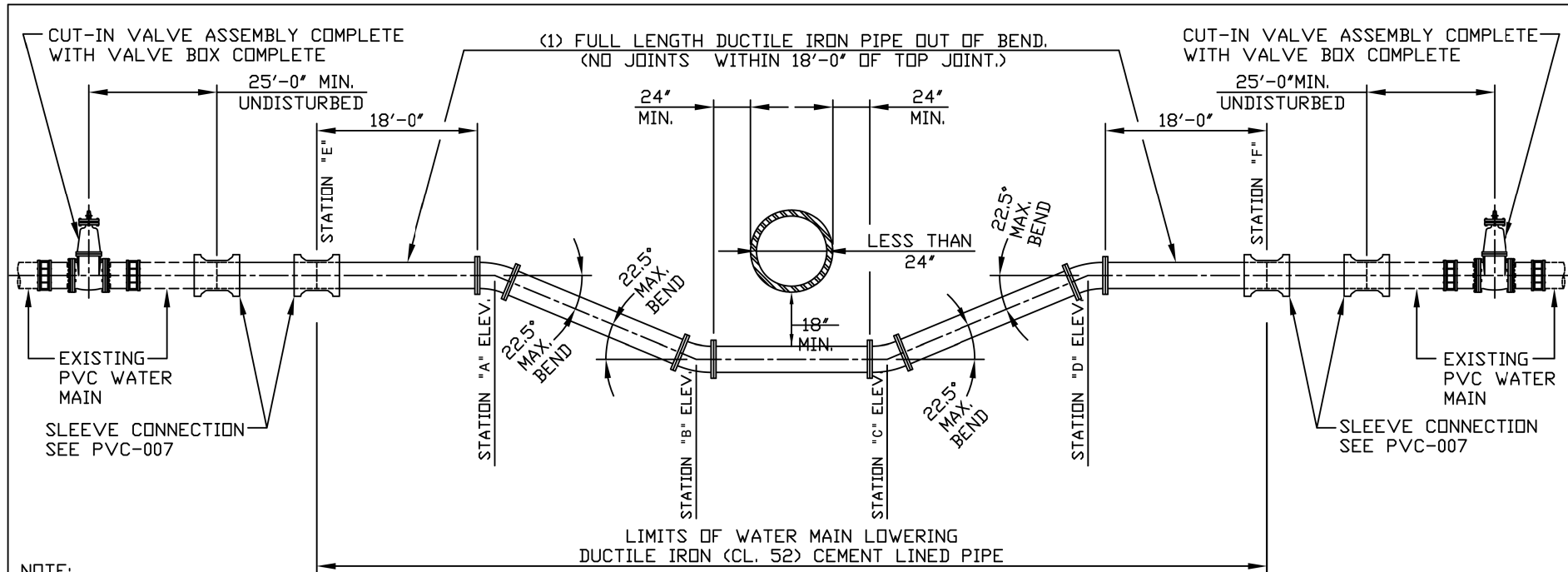


**3rd. HIGH SERVICE DISTRICT**  
 DEPARTMENT OF PUBLIC UTILITIES  
 DIVISION OF WATER  
 CLEVELAND, OHIO

SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77  
 CITY OF BRECKSVILLE

SCALE: AS SHOWN NO.

SUBSET	TOTAL
36	44
DESIGN AGENCY	EUTHENICS 8333 Millbrook Dr., Cleveland, OH 44138
DESIGNER	TDP
REVIEWER	DTB
PROJECT ID	104983
SHEET	TOTAL
P. 272	P. 445



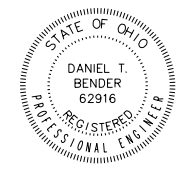
- NOTE:
- 1) WATER MAIN LOWERING SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED RETAINED MECHANICAL JOINT FITTINGS.
  - 2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS "A" & "B" AND/OR "C" & "D" THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS ALL HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE II.
  - 3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.
  - 4) WHERE EXISTING WATER MAIN IS SIX (6)-INCHES IN DIAMETER THE PIPE LOWERING SHALL BE MADE WITH PIPE AND FITTINGS NO LESS THAN EIGHT (8)-INCH IN DIAMETER WITH REDUCERS INSTALLED AT STATIONS "E" AND "F". THE REDUCERS SHALL BE RETAINED MECHANICAL JOINT WITH SMALL END OF REDUCER PLAIN END FOR CONNECTION WITH SLEEVES OR COMPRESSION COUPLINGS.
  - 5) ALL EXISTING WATER SERVICE CONNECTIONS BETWEEN THE CUT-IN-VALVE ASSEMBLIES SHALL BE MAINTAINED BY "TEMPORARY SERVICE CONNECTIONS" PROVIDED AND MAINTAINED BY THE CONTRACTOR.
  - 6) EXISTING WATER SERVICE CONNECTIONS NEEDED TO BE RETAPPED AND RECONNECTED WILL ONLY BE PERMITTED BETWEEN STATIONS "A" AND "E" AND STATIONS "D" AND "F". NO RETAPPING OF SERVICE CONNECTIONS WILL BE ALLOWED BETWEEN STATIONS "A" AND "D".

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS LESS THAN 24" IN DIAMETER OR WIDTH FOR "EXISTING CONSTRUCTION"

- NOT TO SCALE -

PVC-L02

DATE: 3-4-2002 BY: RSK



06/01/22

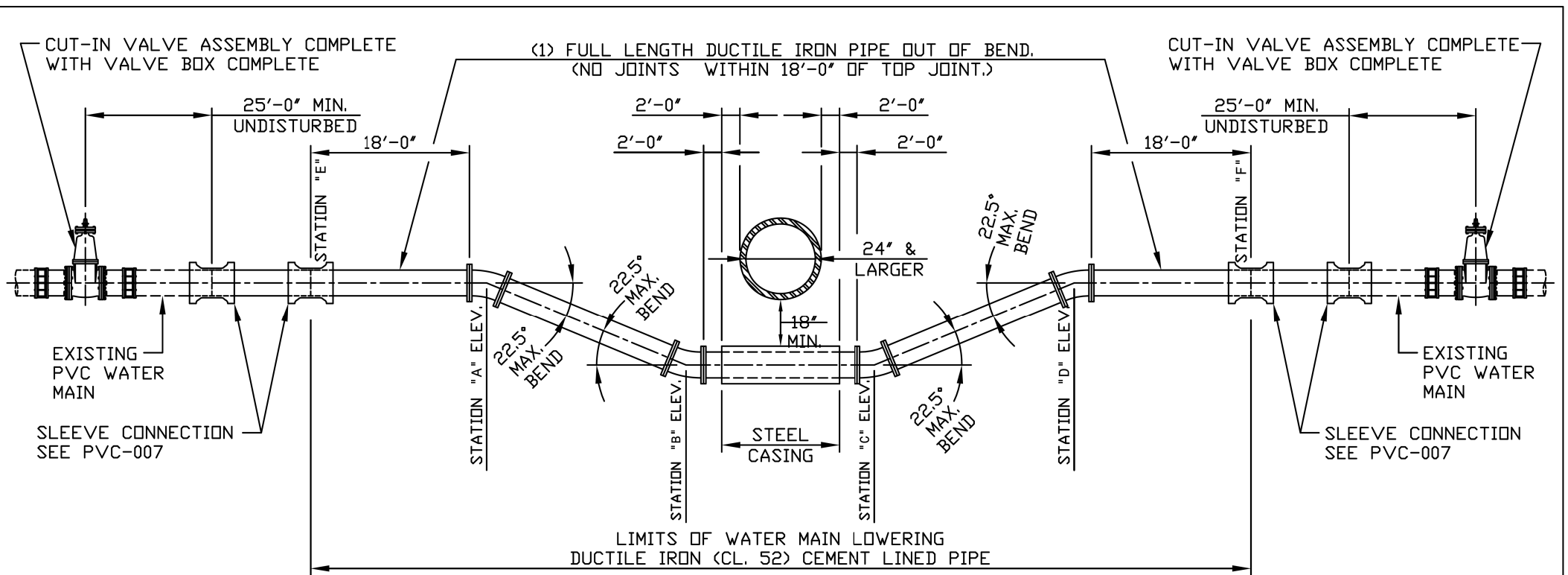
<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
37	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6233 Mahony Dr., Cleveland, OH 44138	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 273	P. 445



CUY-77-00.42 PART 1

MODEL: 104983 UD015 PAPERSIZE: 17x11 (in.) DATE: 10/23/2022 TIME: 12:16:37 PM USER: esmccaslin  
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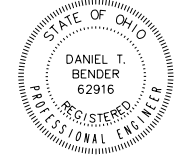
- NOTE:
- 1) WATER MAIN LOWERING SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED FUSION BONDED EPOXY COATED RETAINED MECHANICAL JOINT FITTINGS.
  - 2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS "A" & "B" AND/OR "C" & "D" THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS ALL HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE II.
  - 3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II.
  - 4) WHERE EXISTING WATER MAIN IS SIX (6)-INCHES IN DIAMETER THE PIPE LOWERING SHALL BE MADE WITH PIPE AND FITTINGS NO LESS THAN EIGHT (8)-INCH IN DIAMETER WITH REDUCERS INSTALLED AT STATIONS "E" AND "F". THE REDUCERS SHALL BE RETAINED MECHANICAL JOINT WITH SMALL END OF REDUCER PLAIN END FOR CONNECTION WITH SLEEVES OR COMPRESSION COUPLINGS.
  - 5) ALL EXISTING WATER SERVICE CONNECTIONS BETWEEN THE CUT-IN-VALVE ASSEMBLIES SHALL BE MAINTAINED BY "TEMPORARY SERVICE CONNECTIONS" PROVIDED AND MAINTAINED BY THE CONTRACTOR.
  - 6) EXISTING WATER SERVICE CONNECTIONS NEEDED TO BE RETAPPED AND RECONNECTED WILL ONLY BE PERMITTED BETWEEN STATIONS "A" AND "E" AND STATIONS "D" AND "F". NO RETAPPING OF SERVICE CONNECTIONS WILL BE ALLOWED BETWEEN STATIONS "A" AND "D".

DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS 24" & LARGER IN DIAMETER OR WIDTH FOR "EXISTING CONSTRUCTION"

- NOT TO SCALE -

PVC-L03

DATE: 3-4-2002 BY: RSK



06/01/22

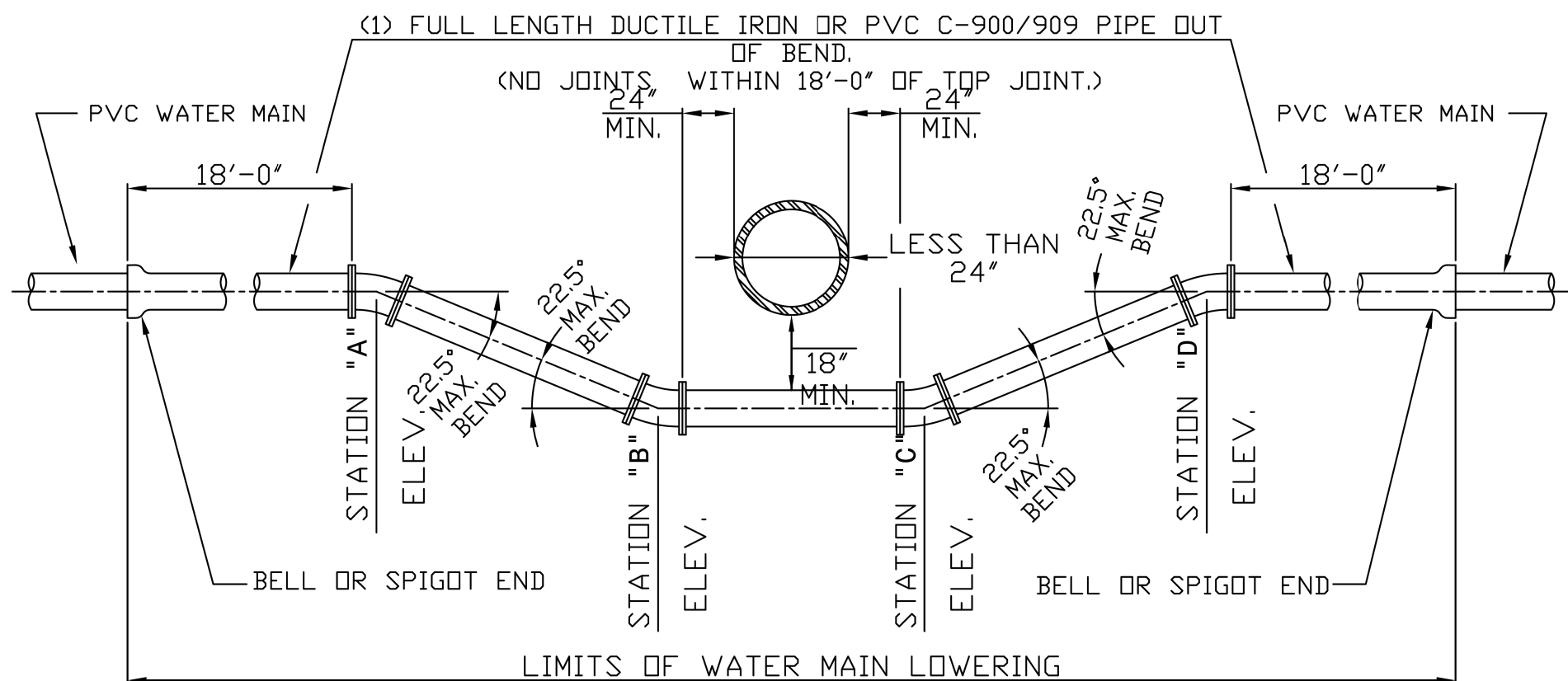
<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
38	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6233 Mahoning Dr.   Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 274	P. 445

WATER WORK DETAILS

CUY-77-00-42 PART 1

MODEL: 104983\_UD016 PAPER SIZE: 17x11 (in.) DATE: 10/2/2022 TIME: 12:19:30 PM USER: esmccaslin  
 F:\Jobs\1162-Miller\_Road\Perchange\104983\03-Contracts\03-Addendum\Water Main Material Revision\CWD Standard Details\104983\_UD016.dgn



**NOTE:**

- 1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED RETAINED MECHANICAL JOINT FITTINGS.
- 2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS "A" & "B" AND/OR "C" & "D" THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS ALL HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE I OR CERTA-LOK™ RESTRAINED JOINT SYSTEM BY CERTAINTEED.
- 3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", AND PIPE JOINTS ARE AS INDICATED IN NOTE "1" ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II OR CERTA-LOK™ RESTRAINED JOINT SYSTEM BY CERTAINTEED.
- 4) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN "B" AND "C" AND PIPE JOINTS ARE AS INDICATED IN NOTE "2" ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE I CERTA-LOK™ RESTRAINED JOINT SYSTEM BY CERTAINTEED.

**DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS  
 LESS THAN 24" IN DIAMETER OR WIDTH FOR "NEW CONSTRUCTION"**

PVC-L04

- NOT TO SCALE -

DATE: 11-1-09

BY: DR



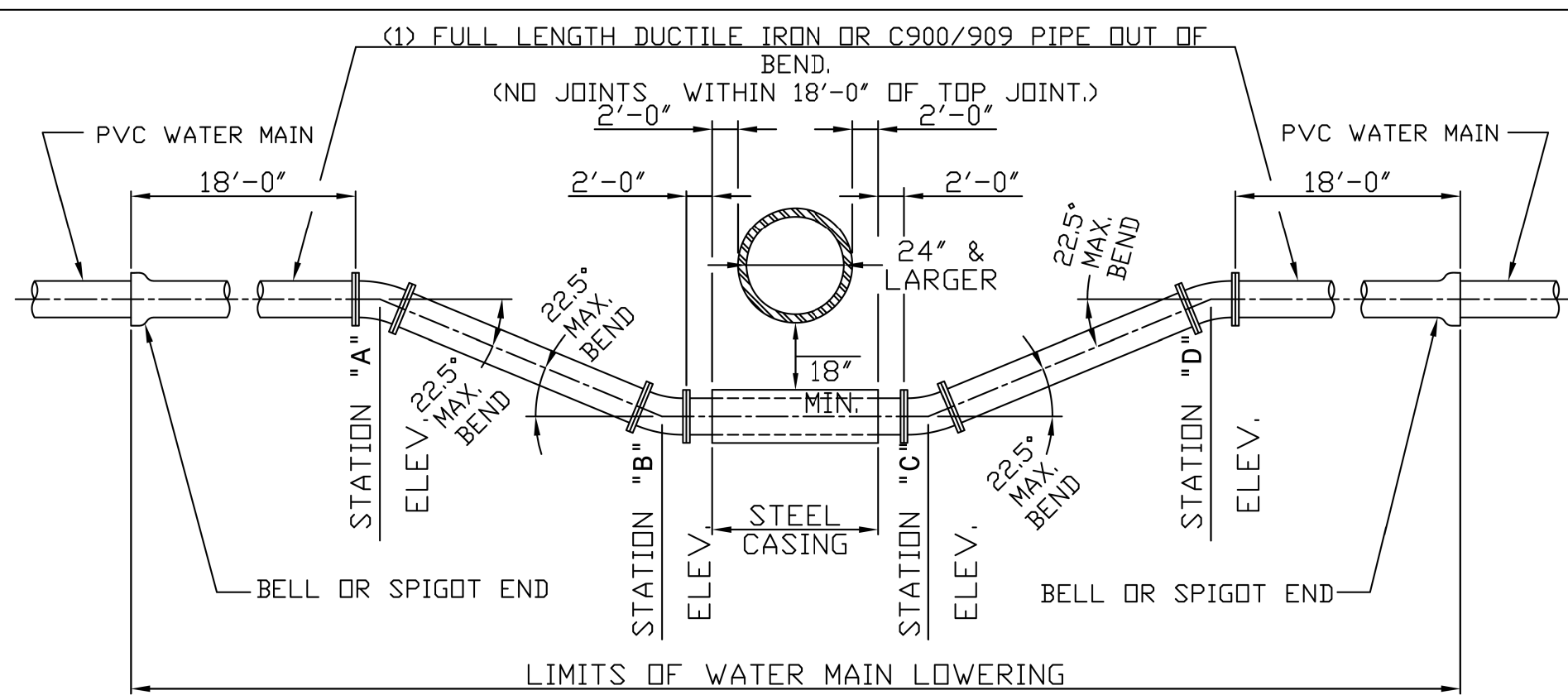
*Daniel T. Bender*  
 06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
39	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6233 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 275	P. 445

WATER WORK DETAILS

CUY-77-00-02 PART 1  
 MODEL: 104983\_UD017\_PAPERSIZE: 17x11 (in.) DATE: 10/23/2022 TIME: 12:22:17 PM USER: esmccaslin  
 F:\Jobs\1162-Miller\_Road\_Interchange\104983\03-Addendum\Water Main Material Revision\CWD Standard Details\104983\_UD017.dgn



**NOTE:**

- 1) WATER MAIN SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PUSH-ON JOINT PIPE WITH RETAINED MECHANICAL JOINT DUCTILE IRON CLASS 350, CEMENT LINED RETAINED MECHANICAL JOINT FITTINGS.
- 2) WHERE DEPTH OF LOWERING REQUIRES AN INTERMEDIATE JOINT BETWEEN STATIONS "A" & "B" AND/OR "C" & "D" THE ENTIRE LOWERING SHALL BE MADE WITH DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED PIPE AND DUCTILE IRON CLASS 350, CEMENT LINED FITTINGS ALL HAVING BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE I OR CERTA-LOK™ RESTRAINED JOINT SYSTEM BY CERTAINTED.
- 3) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN STATIONS "B" & "C", AND PIPE JOINTS ARE AS INDICATED IN NOTE "1" ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE II OR CERTA-LOK™ RESTRAINED JOINT SYSTEM BY CERTAINTED.
- 4) WHERE LENGTH OF LOWERING UNDER OBSTRUCTION(S) REQUIRES AN INTERMEDIATE JOINT ONLY BETWEEN "B" AND "C" AND PIPE JOINTS ARE AS INDICATED IN NOTE "2" ABOVE, THAT INTERMEDIATE JOINT(S) SHALL BE MADE WITH A BOLTLESS RESTRAINED PUSH-ON JOINT, TYPE I CERTA-LOK™ RESTRAINED JOINT SYSTEM BY CERTAINTED.

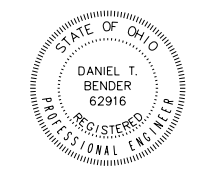
**DETAIL FOR WATER MAIN LOWERING UNDER OBSTRUCTIONS**  
**24" & LARGER IN DIAMETER OR WIDTH FOR "NEW CONSTRUCTION"**

PVC-L05

- NOT TO SCALE -

DATE: 11-1-09

BY: DR

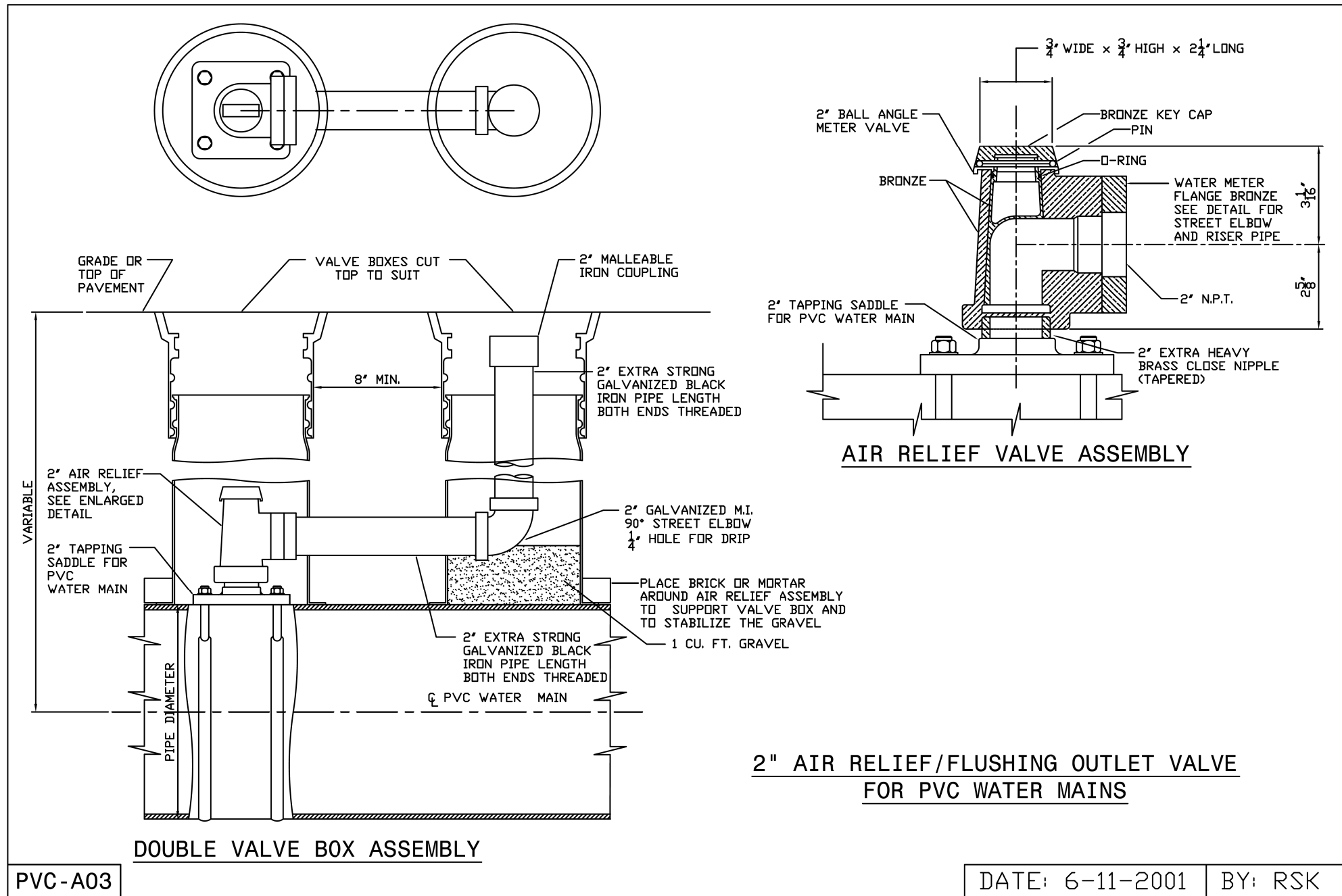


06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
40	44
DESIGN AGENCY	
<b>EUTHENICS</b> 8333 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 276	P. 445

WATER WORK DETAILS



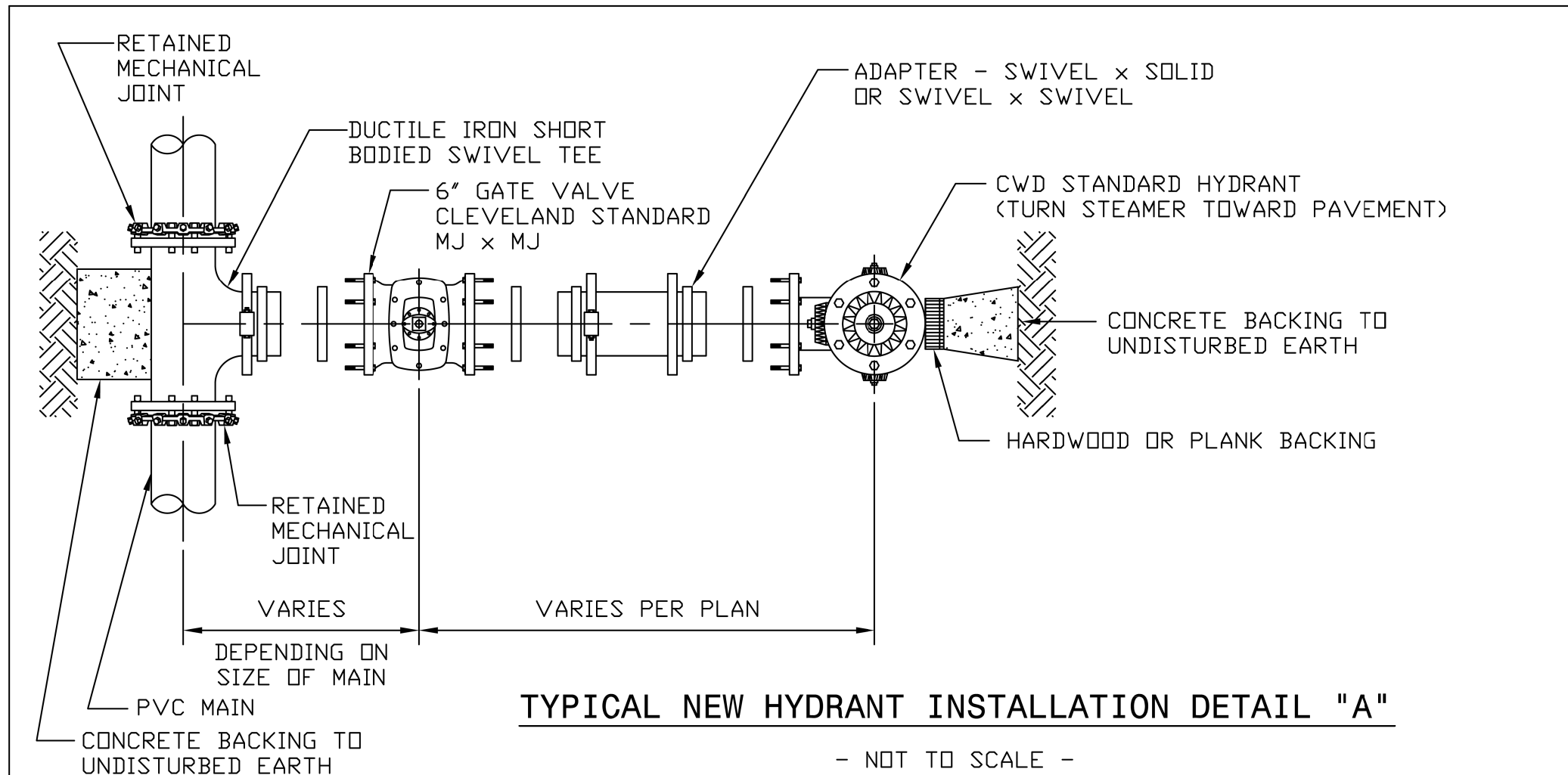
STATE OF OHIO  
 DANIEL T. BENDER  
 62916  
 PROFESSIONAL ENGINEER  
 06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
41	44
DESIGN AGENCY	
EUTHENICS 6233 Mahoning Dr., Cleveland, OH 44135	
DESIGNER	
TDP	
REVIEWER	
DTB 03/01/22	
PROJECT ID	
104983	
SHEET	TOTAL
P. 277	P. 445

CUY-77-00.42

MODEL: Sheet PAPER: SIZE: 17x11 (in.) DATE: 10/3/2022 TIME: 12:28:42 PM USER: esmccaslin  
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**TYPICAL NEW HYDRANT INSTALLATION DETAIL "A"**

- NOT TO SCALE -

NOTE: ALL MATERIAL SHALL BE DUCTILE IRON (CL. 52) CEMENT LINED PIPE.

IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-1-5/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

PVC-H09

DATE: 3-4-2002 BY: RSK



06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT : 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

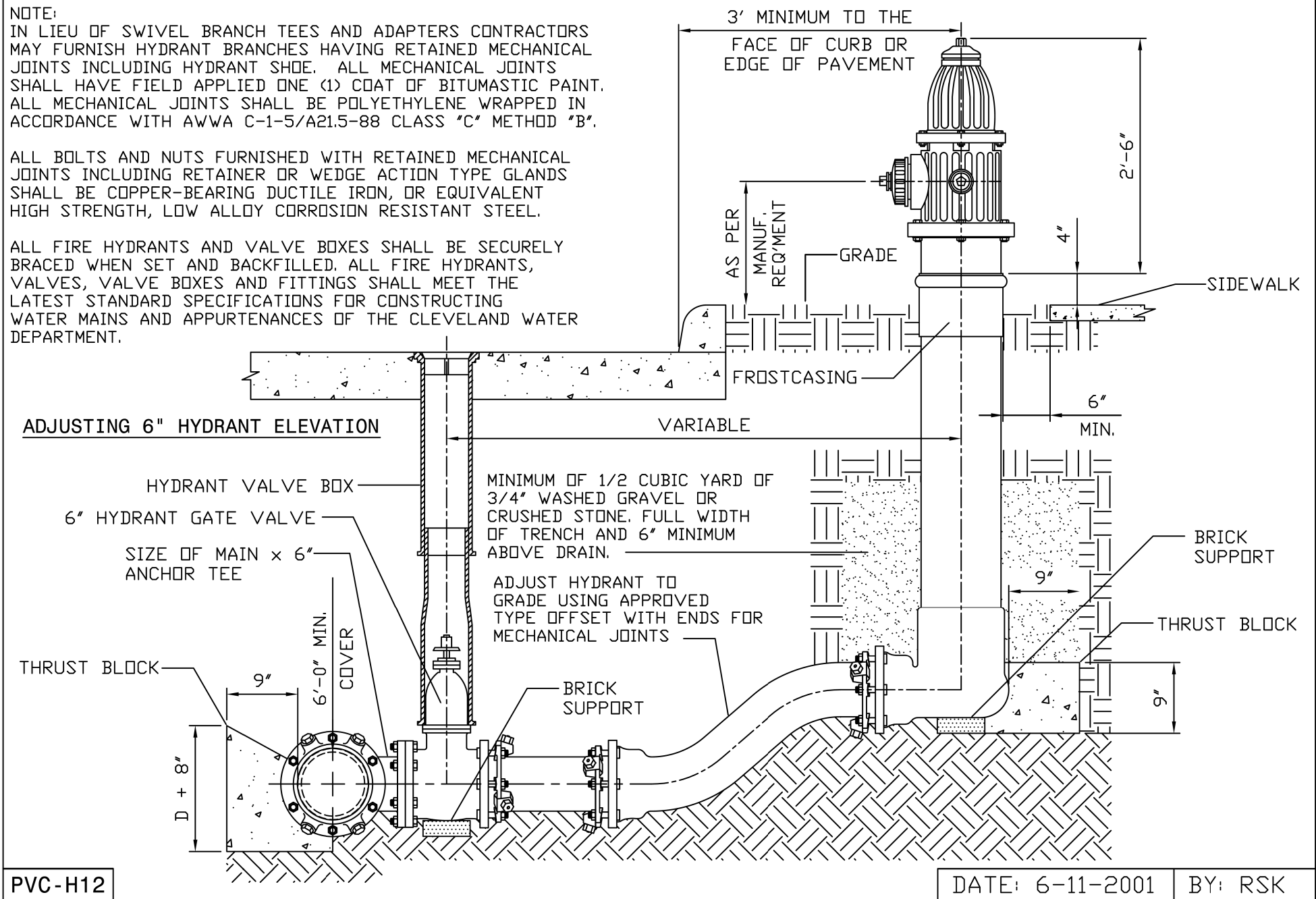
SUBSET	TOTAL
42	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6232 Mahoning Dr.   Cleveland, OH 44135	
DESIGNER	
FTS	
REVIEWER	
DTB 05-20-22	
PROJECT ID	
104983	
SHEET	TOTAL
P.278	P.445

WATER WORK DETAILS

**NOTE:**  
 IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-1-5/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

ALL FIRE HYDRANTS AND VALVE BOXES SHALL BE SECURELY BRACED WHEN SET AND BACKFILLED. ALL FIRE HYDRANTS, VALVES, VALVE BOXES AND FITTINGS SHALL MEET THE LATEST STANDARD SPECIFICATIONS FOR CONSTRUCTING WATER MAINS AND APPURTENANCES OF THE CLEVELAND WATER DEPARTMENT.



PVC-H12

DATE: 6-11-2001 BY: RSK

STATE OF OHIO  
 DANIEL T. BENDER  
 62916  
 REGISTERED PROFESSIONAL ENGINEER  
 06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT: 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

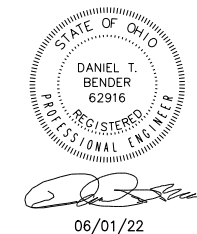
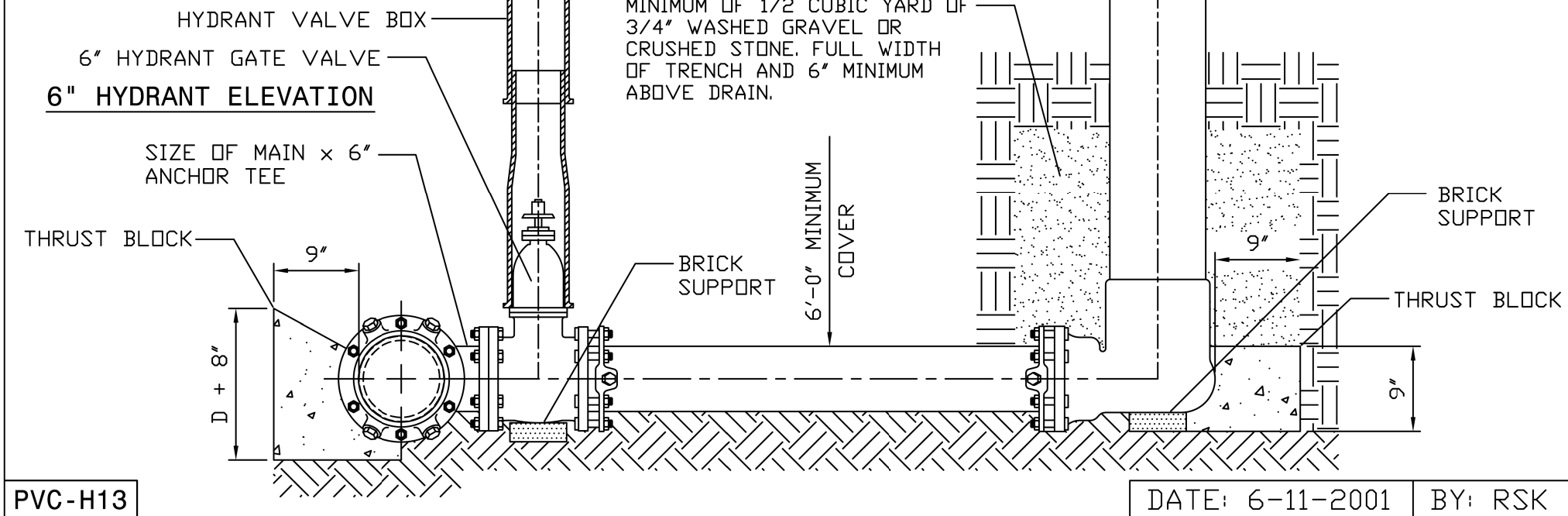
SUBSET	TOTAL
43	44
DESIGN AGENCY	
<b>EUTHENICS</b> EES Mahan Co.   Cleveland, OH 44135	
DESIGNER	
FTS	
REVIEWER	
DTB 05-20-22	
PROJECT ID	
104983	
SHEET	TOTAL
P.279	P.445

**NOTE:**  
 IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-1-5/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.

ALL FIRE HYDRANTS AND VALVE BOXES SHALL BE SECURELY BRACED WHEN SET AND BACKFILLED. ALL FIRE HYDRANTS, VALVES, VALVE BOXES AND FITTINGS SHALL MEET THE LATEST STANDARD SPECIFICATIONS FOR CONSTRUCTING WATER MAINS AND APPURTENANCES OF THE CLEVELAND WATER DEPARTMENT.

**NOTE:**  
 SEE TYPICAL NEW HYDRANT INSTALLATION PVC-H09, PVC-H10 OR PVC-H11

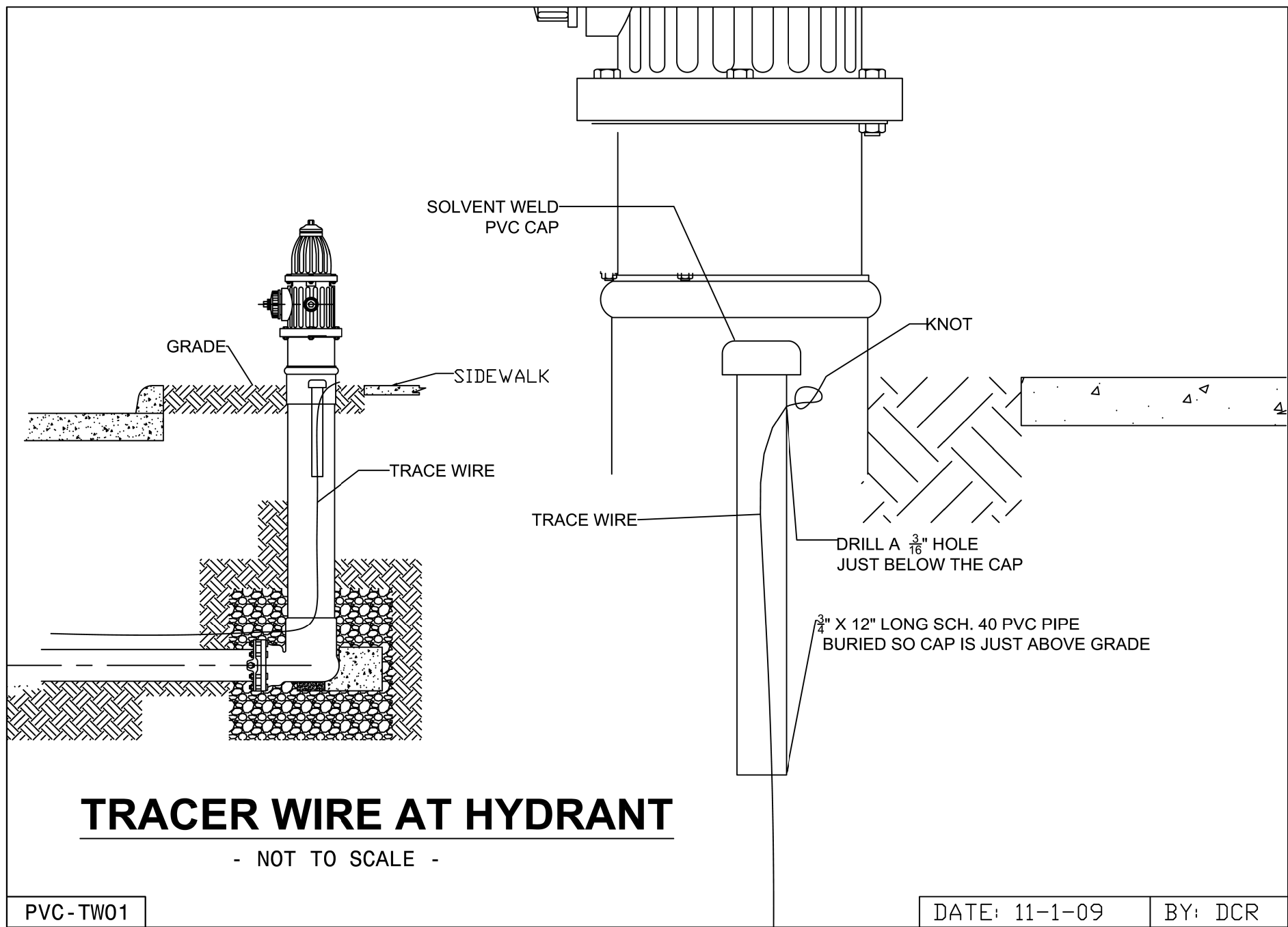


<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT : 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
44	44
DESIGN AGENCY	
<b>EUTHENICS</b> 6233 Millbank Dr., Cleveland, OH 44135	
DESIGNER	
FTS	
REVIEWER	
DTB 05-20-22	
PROJECT ID	
104983	
SHEET	TOTAL
P.280	P.445

CUY-77-00.42

MODEL: Sheet PAPER: 17x11 (in.) DATE: 10/4/2022 TIME: 8:14:17 AM USER: esmccaslin  
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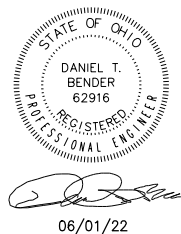
# TRACER WIRE AT HYDRANT

- NOT TO SCALE -

PVC-TW01

DATE: 11-1-09

BY: DCR



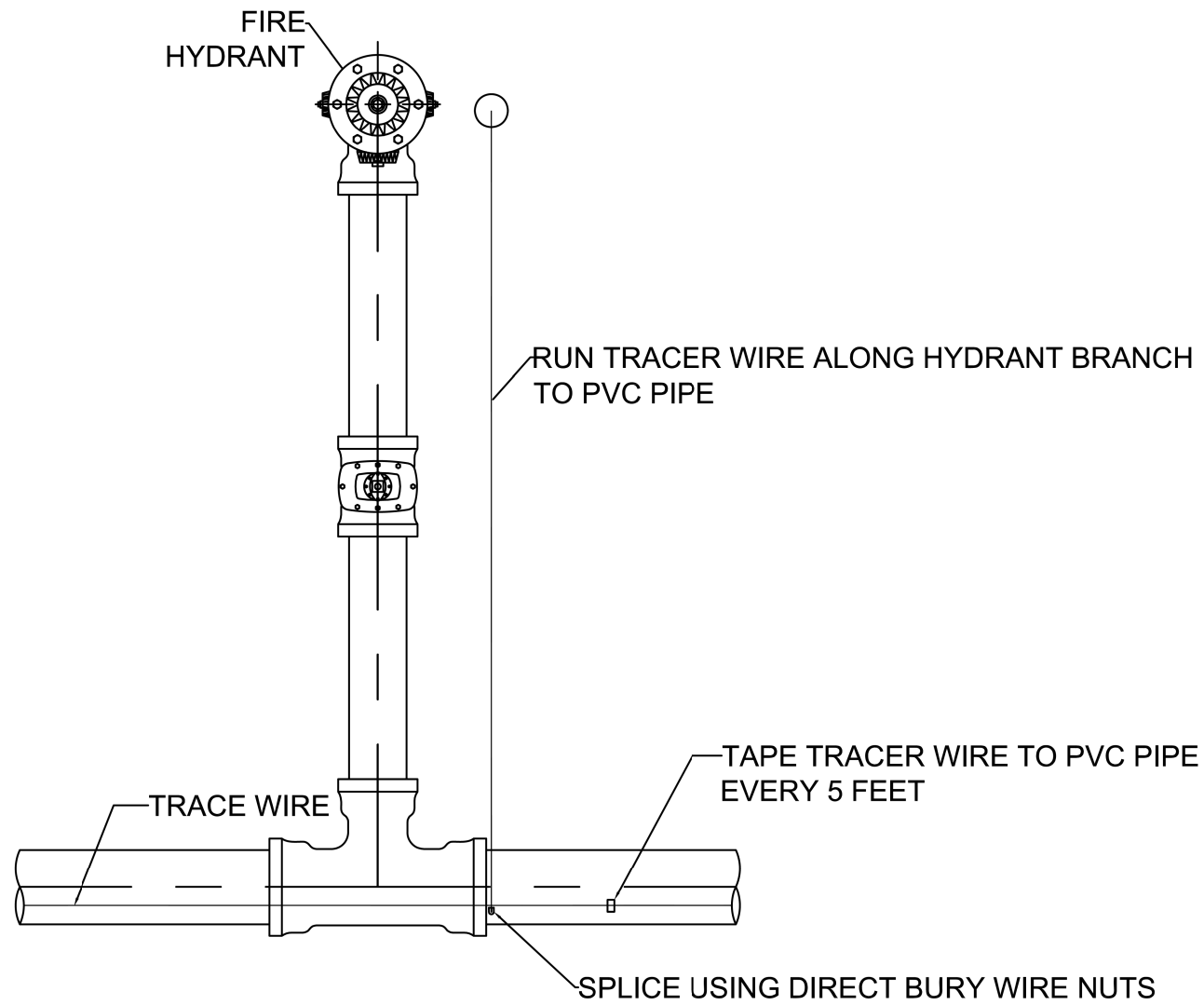
06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT : 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
44	44
DESIGN AGENCY	
<b>EUTHENICS</b> EESH Mahant Dr.   Cleveland, OH 44135	
DESIGNER	
ESM	
REVIEWER	
DTB 10-04-22	
PROJECT ID	
104983	
SHEET	TOTAL
P.280A	P.445

WATER WORK DETAILS





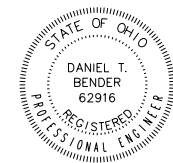
# TRACER WIRE AT HYDRANT TEE

- NOT TO SCALE -

PVC-TW02

DATE: 11-1-09

BY: DCR



*[Signature]*  
06/01/22

## 3rd. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES  
DIVISION OF WATER  
CLEVELAND, OHIO

SUBJECT : 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77  
CITY OF BRECKSVILLE

SCALE: AS SHOWN

NO.

WATER WORK DETAILS

SUBSET	TOTAL
44	44

DESIGN AGENCY

**EUTHENICS**  
1623 Millard Dr. | Cleveland, OH 44115

DESIGNER

ESM

REVIEWER

DTB 10-04-22

PROJECT ID

104983

SHEET

TOTAL

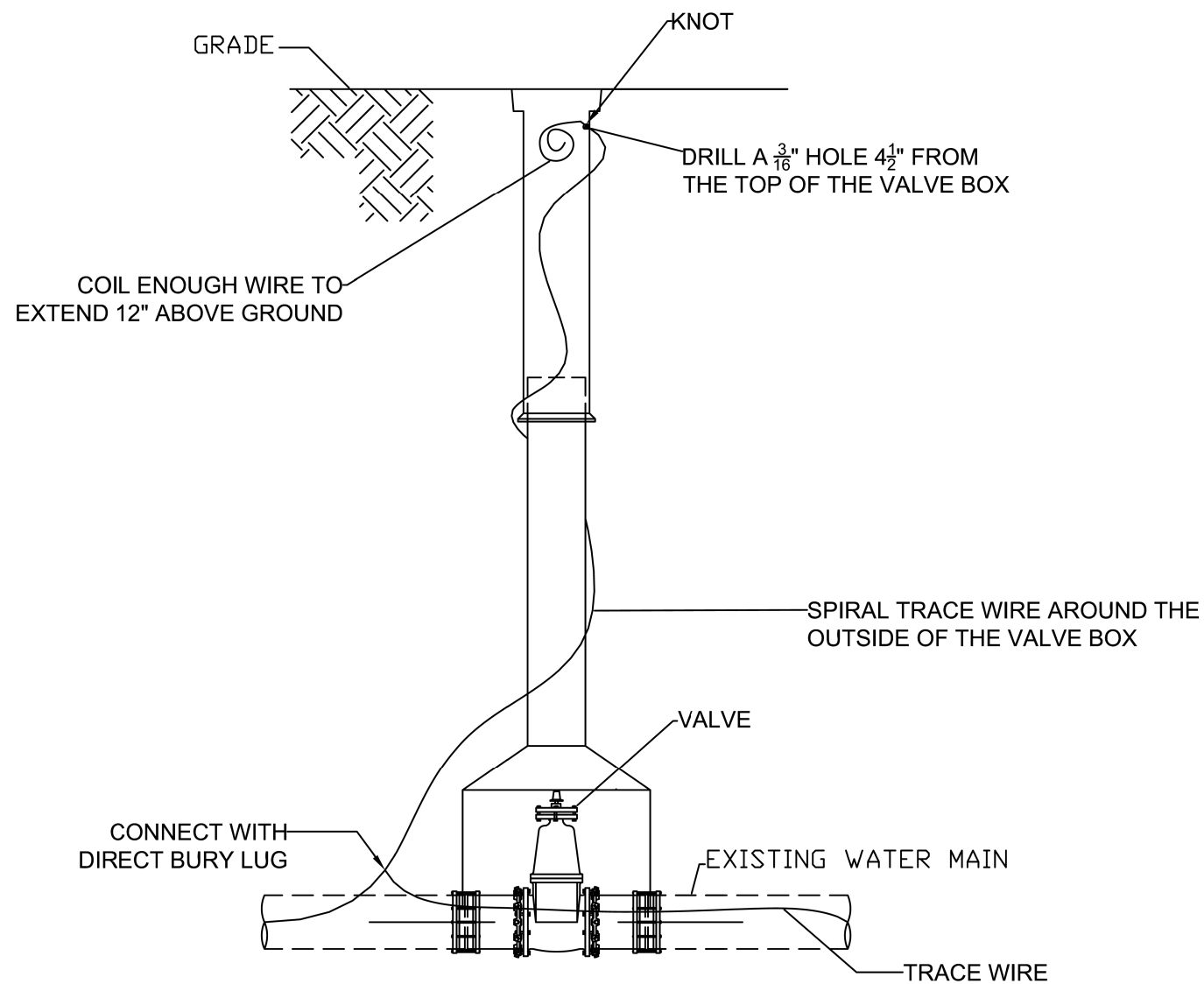
P.280B | P.445

CUY-77-00.42

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CUY-77-00.42

MODEL: Sheet PAPER SIZE: 17x11 (in.) DATE: 10/4/2022 TIME: 8:19:16 AM USER: esmccaslin  
F:\Jobs\1162-Miller Road Interchange\104983\900-Contracts\03-Addendum\Water Main Material Revision\CWD Standard Details\104983\_UD021C.dgn



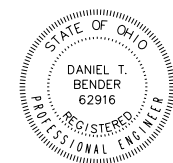
# TRACER WIRE AT LINE VALVE BOX

- NOT TO SCALE -

PVC-TW03

DATE: 11-1-09

BY: DCR



*[Signature]*  
06/01/22

<b>3rd. HIGH SERVICE DISTRICT</b>	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO	
SUBJECT : 12" WATER MAIN ALONG MILLER ROAD AT I.R. 77 CITY OF BRECKSVILLE	
SCALE: AS SHOWN	NO.

SUBSET	TOTAL
44	44
DESIGN AGENCY	
<b>EUTHENICS</b> 1623 Millard Dr., Cleveland, OH 44135	
DESIGNER	
ESM	
REVIEWER	
DTB 10-04-22	
PROJECT ID	
104983	
SHEET	TOTAL
P.280C	P.445

WATER WORK DETAILS