

# REPAIR PLANS FOR BROWNLIE ROAD BRIDGE OVER ABRAMS RUN

UPPER MERION TOWNSHIP  
MONTGOMERY COUNTY, PENNSYLVANIA

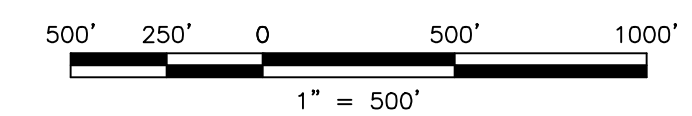
UTILITY USER LIST ACT NUMBER 287 OF 1974 AS AMENDED	
<b>UPPER MERION TOWNSHIP WASTEWATER MANAGEMENT (SANITARY)</b> 175 W. VALLEY FORGE RD. KING OF PRUSSIA, PA 19406 CONTACT: DANIEL LEGERTON PH: (610) 275-1534	<b>AT&amp;T</b> 2315 SALEM RD., F11 CONYERS, GA 30013 CONTACT: NANCY SPENCE EMAIL: NSPENCE@EMS.ATT.COM
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<b>UPPER MERION TOWNSHIP</b> 175 W. VALLEY FORGE RD. KING OF PRUSSIA, PA 19406 CONTACT: TODD LACHENMAYER PH: (610) 275-9025	<b>COMCAST FIBER</b> 1004 CORNERSTONE BLVD. DOWNINGTOWN, PA 19335 CONTACT: LEE MCGARRITY EMAIL: LEE_MCGARRITY@CABLE.COMCAST.COM
<b>COMCAST CABLE</b> 1004 CORNERSTONE BLVD. DOWNINGTOWN, PA 19335 CONTACT: LEE MCGARRITY EMAIL: LEE_MCGARRITY@CABLE.COMCAST.COM	<b>WILLIAMS GAS PIPELINE TRANSCO</b> 99 FARBER RD. PRINCETON, NJ 08540 PH: (609) 951-0900
<b>AQUA PENNSYLVANIA INC.</b> 762 W. LANCASTER AVE. BRYN MAWR, PA 19010 CONTACT: STEVE PIZZI EMAIL: SBPIZZI@AQUAAMERICA.COM PH: (484) 525-1402	
LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE NOT WARRANTED AS TO EXACTNESS. CONTRACTOR SHALL DETERMINE EXACT LOCATION AND DEPTH OF UTILITIES PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND OTHER APPLICABLE LAWS.	



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ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 2018270849-000 WAS PLACED FOR DESIGN PURPOSES ON 10/24/18.

KEY MAP  
LIMIT OF PROJECT IS 113 LF (0.021 MILES)  
**PREPARED BY**  
**RUSSELL G. BENNER, P.E.**  
LICENSED PROFESSIONAL ENGINEER



**APPLICANT/OWNER**  
UPPER MERION TOWNSHIP  
175 WEST VALLEY FORGE ROAD  
KING OF PRUSSIA, PA 19406-1802  
TEL: (610) 265-2600

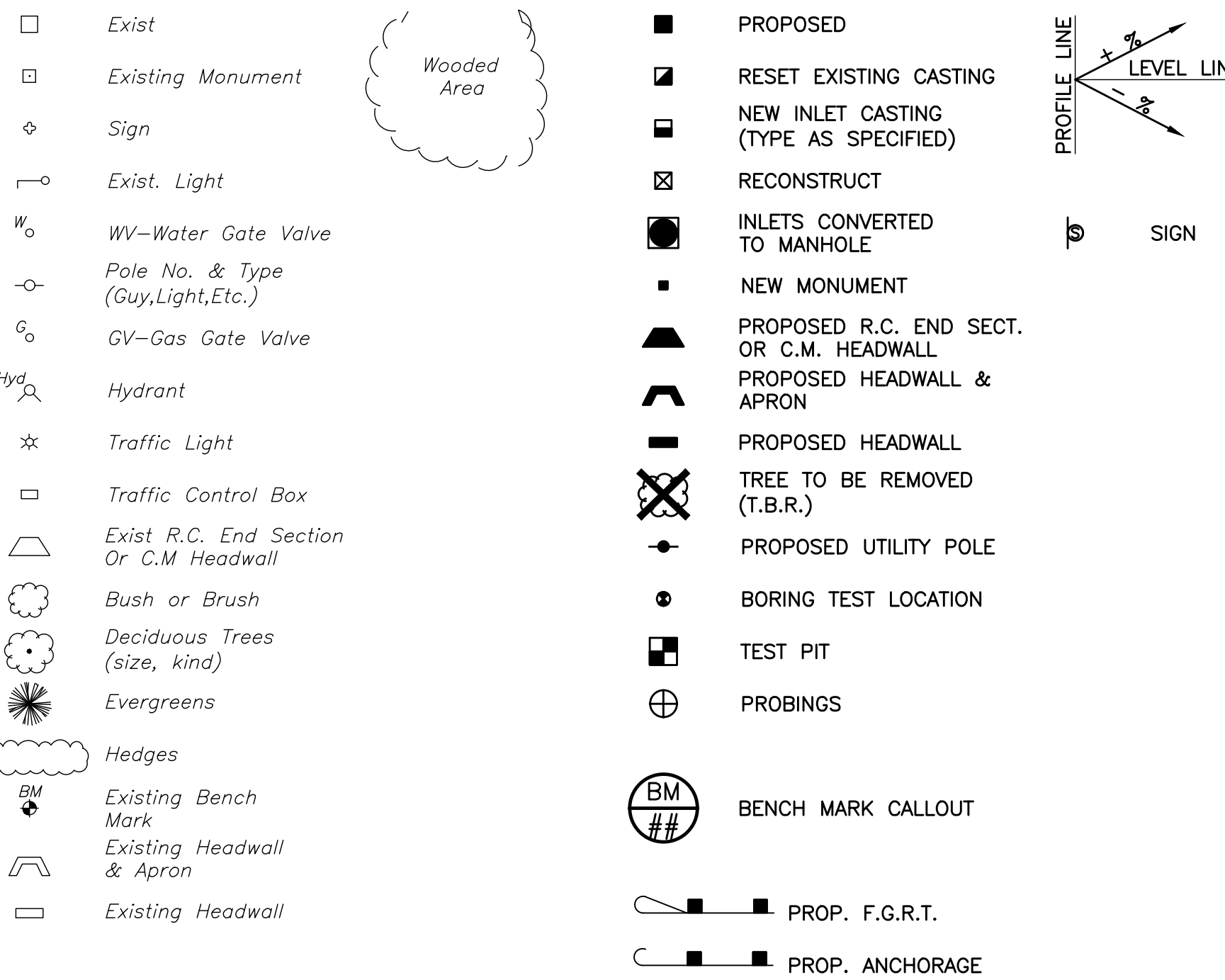
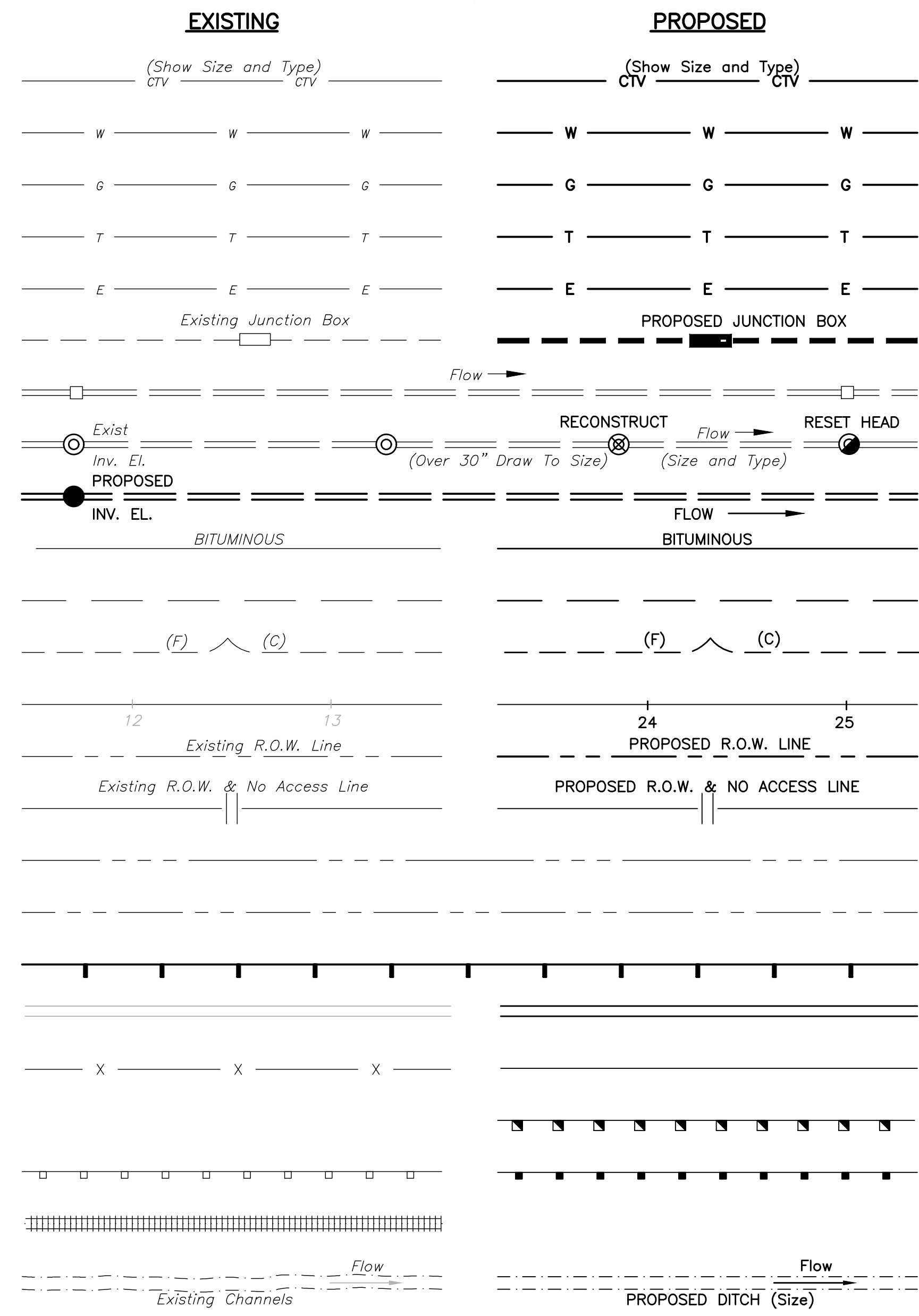
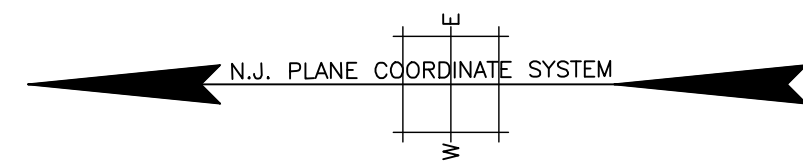


PROJECT INFORMATION: FILE PATH: G:\Projects\WRO\0414\Plans\ LAST SAVED DATE AND TIME: 21-Aug-2023, 10:06AM LAST SAVE BY: WMC@ure

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# STANDARD LEGEND



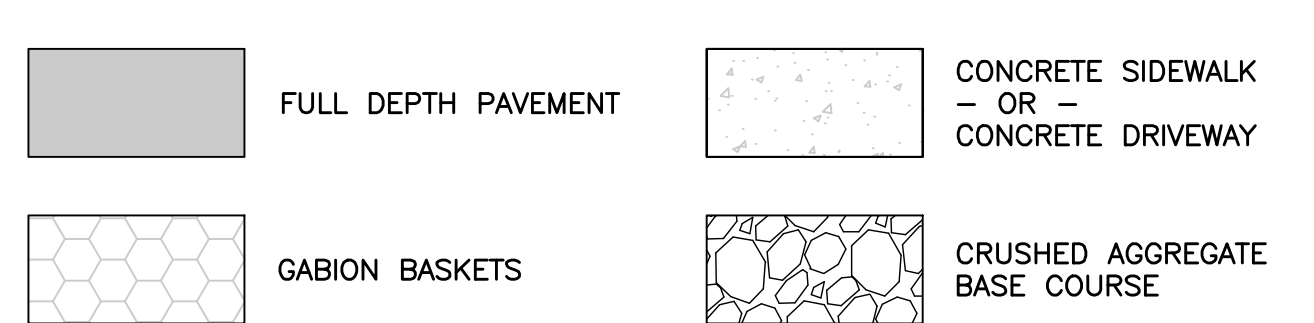
# ABBREVIATIONS:

A.D.	ALGEBRAIC DIFFERENCE	GUT	GUTTER	PVI	POINT OF VERTICAL INTERSECTION
ACC	ASPHALT CEMENT CONCRETE	GV	GAS VALVE	PVT	POINT OF VERTICAL TANGENCY
ACI	AMERICAN CONCRETE INSTITUTE	H.P.	HIGH POINT	R	RADIUS
ADA	AMERICANS WITH DISABILITIES ACT	HC, HCR	HANDICAP RAMP	R.C.E.S.	REINFORCED CONCRETE END SECTION
AGG.	AGGREGATE	HMA	HOT MIX ASPHALT	R.O.W.	RIGHT OF WAY
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	HORIZ	HORIZONTAL	R.R.S.P.	RIP RAP STONE PROTECTION
APPROX.	APPROXIMATE, APPROXIMATELY	HP	HIGH POINT	RCES	REINFORCED CONCRETE CULVERT PIPE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	IN	INCHES	RCP	REINFORCED CONCRETE END SECTION
AVG.	AVERAGE	INV	INVERT	RD	ROAD
B	BOTTOM	JCP&L	JERSEY CENTRAL POWER & LIGHT	REIN.	REINFORCED
BCT	BREAKAWAY CABLE TERMINAL	K	RATE OF VERTICAL CURVATURE	RF	REAR FACE
BIT	BITUMINOUS	L.O.M.	LIMIT OF MILLING	RMC	RIGID METALLIC CONDUIT
BL	BASELINE	L.O.P.	LIMIT OF PAVING	RNMC	RIGID NONMETALLIC CONDUIT
BM	BENCHMARK	L.P.	LOW POINT	ROW	RIGHT OF WAY
BO	BOTTOM OF	LC	LOCKING COVER	RPM	RAISED PAVEMENT MARKER
BW, BOW	BOTTOM OF WALL	LF	LINEAR FEET	RT	RIGHT
C	CUT	LFD	LIMIT OF DISTURBANCE	S	SOUTH
COC	CENTER OF CURVE	LDM	LIMIT OF MILLING	S.C.F.	SEDIMENT CONTROL FENCE
C.R.	COUNTY ROUTE	LDP	LIMIT OF PAVING	S.O.D.	SUBBASE OUTLET DRAIN
CRV. CTR.	CURVE CENTER	LP	LOW POINT	SB	SUBBOUND
CC, C TO C	CENTER-TO-CENTER	LS	LOW POINT	SCD	SOIL CONSERVATION DISTRICT
CCA	CHROMATED COPPER ARSENATE	LS	SQUARE FEET	SE	SOUTH
CF	CUBIC FEET	LT	LEFT	SF	SQUARE FEET
CFS	CUBIC FEET PER SECOND	MAX	MAXIMUM	SHLDR	SHOULDER
CIP	CAST IN PLACE, CAST IRON PIPE	MH	MANHOLE	SHT	SHEET
CJ	CONTROL JOINT	MHHW	MEAN HIGH HIGH WATER	SHWT	SEASONAL HIGH WATER TABLE
CL	CENTERLINE	MHW	MEAN HIGH WATER	Sl&A	STRUCTURE INVENTORY AND APPRAISAL
CLF	CHAIN LINK FENCE	MIN	MINIMUM	SOD	SUBBASE OUTLET DRAIN
CMP	CORRUGATED METAL PIPE	MLW	MEAN LOW WATER	SO	SQUARE
COE	U.S. ARMY CORPS OF ENGINEERS	MLW	MEAN LOW WATER	STA	STATION
CONC	CONCRETE	MP	MIDPOINT	STAB	STABILIZED
COV.	COVER	MPH	MILES PER HOUR	SURF	SURFACE
CP	COUNTY POINT	MPT	MAINTANANCE AND PROTECTION OF TRAFFIC	SW	SOUTHWEST
CR	COUNTY ROUTE	MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES	SW, SDWK	SIDEWALK
CRSE	COURSE	N	NORTH, NUMBER	SY	SQUARE YARDS
CY	CUBIC YARDS	NAD	NORTH AMERICAN DATUM	T	TOP, TELEPHONE
DC	DEPRESSED CURB	NAV'D	NORTH AMERICAN DATUM DATUM	T.B.R.	TO BE REMOVED
DEP, NJDEP	NEW JERSEY DEPARTMENT OF	NE	NORTHEAST	T.G.	TOP OF GRATE
DGA	DENSE GRADED AGGREGATE	NE	NORTHBOUND	TAN	TANGENT
DIA	DIAMETER	NE	NORTHEAST	TBA	TO BE ABANDONED
DIP	DUCTILE IRON PIPE	NE	NORTHEAST	TBR	TO BE REMOVED
DOT, NJDOT	NEW JERSEY DEPARTMENT OF TRANSPORTATION	NGVD	NATIONAL GEODETIC VERTICAL DATUM	TC	TOP OF CURB
DWS	DETECTABLE WARNING SURFACE	NTS	NOT TO SCALE	TEMP	TEMPORARY
DWY	DRIVEWAY	NW	NORTHWEST	TG	TOP OF GRATE
E	EAST	OC	ON CENTER	THK	THICK
E.C.	EDGE OF CONCRETE	P	PROPERTY LINE	THK	THICK
EB	EASTBOUND	P.G.L.	PROFILE GRADE LINE	TS	TOP OF
EC	EDGE OF CONCRETE, EPOXY COATED	PAVT, PVMT	PAVEMENT	TW, TOW	TOP OF WALL
EF	EACH FACE	PC	POINT OF CURVATURE	TYP	TYPICAL
ELEV	ELEVATION	PCC	POINT OF COMPOUND CURVATURE,	U.E.H.	USE EXISTING HEAD
EP	EDGE OF PAVEMENT	PE	PROFESSIONAL ENGINEER	UN	UNIT
EX, EXIST	EXISTING	PE	PROFESSIONAL ENGINEER	UP	UTILITY POLE
EXP JT	EXPANSION JOINT	PED	PEDESTRIAN	VAR	VARIES, VARIABLE
F	FILL	PGL	PROFILE GRADE LINE	VC	VERTICAL CURVE
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	PI	POINT OF INTERSECTION	VERT	VERTICAL
FERT	FERTILIZER, FERTILIZING	PK	MASONRY NAIL	VMS	VARIABLE MESSAGE SIGN
FF	FRONT FACE	PL	PROPERTY LINE	W	WATER, WEST
FNMC	FLEXIBLE NONMETALLIC CONDUIT	POL	POINT ON LINE	WB	WESTBOUND
FO	FIBER OPTIC	PP	PETROLEUM PIPELINE	WP	WORKING POINT
FTG	FOOTING	PROP	PROPOSED	WS	WATER SURFACE
G	GAS	PROWAG	PROPOSED ACCESSIBILITY GUIDELINES	WSE, WSEL	WATER SURFACE ELEVATION
GIS	GEOGRAPHIC INFORMATION SYSTEM	PSE&G	PUBLIC SERVICE ELECTRIC AND GAS	WV	WATER VALVE
GPS	GLOBAL POSITIONING SYSTEM	PSF	POUNDS PER SQUARE FOOT	WWM	WELDED WIRE MESH
GR, GRT	GRATE	PSI	POUNDS PER SQUARE INCH		
GRD	GRADE, GRADED	PT	POINT OF TANGENCY		
		PVC	POINT OF VERTICAL CURVATURE		

# GENERAL NOTES

- LOCATIONS OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL UTILITY LOCATIONS IN THE FIELD PRIOR TO EXCAVATION.
- THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATIONS OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR SHALL VERIFY THEIR LOCATION AND COMPLETENESS PRIOR TO THE BEGINNING OF WORK. NO WORK SHALL BEGIN UNTIL THE CONTRACTOR PROVIDES THE ENGINEER WITH THE CONFIRMATION NUMBER OBTAINED FROM THE ONE-CALL SYSTEM IN ACCORDANCE WITH THE UNDERGROUND FACILITY PROTECTION ACT.
- THE CONTRACTOR SHALL PROTECT ALL SURVEY CONTROL POINT MARKS FROM DAMAGE AND SHALL ESTABLISH OFFSET POINTS AS REQUIRED FOR ITS WORK.
- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE SOIL EROSION AND SETTLEMENT CONTROL STANDARDS IN PENNSYLVANIA. ALL SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO GROUND DISTURBANCE.
- ONLY PAY ITEMS LISTED IN THE PROPOSAL ARE APPLICABLE TO THIS PROJECT. PAY ITEMS NOT IN THE PROPOSAL WILL NOT BE USED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARINATING DRIVEWAY ACCESS AT ALL LOCATIONS THROUGHOUT THE DURATION OF THE PROJECT.
- CLEARING WITHIN THE PROJECT LIMITS SHALL INCLUDE THE REMOVAL OF ALL TREES AND BRUSH, WHETHER SHOWN ON THE PLANS INDIVIDUALLY OR NOT. NO TREES ARE TO BE REMOVED UNTIL VERIFIED IN THE FIELD BY THE ENGINEER. NO SEPARATE PAYMENT WILL BE MADE FOR TREE AND/OR SHRUB TRIMMING OR REMOVAL.

# HATCH PATTERNS



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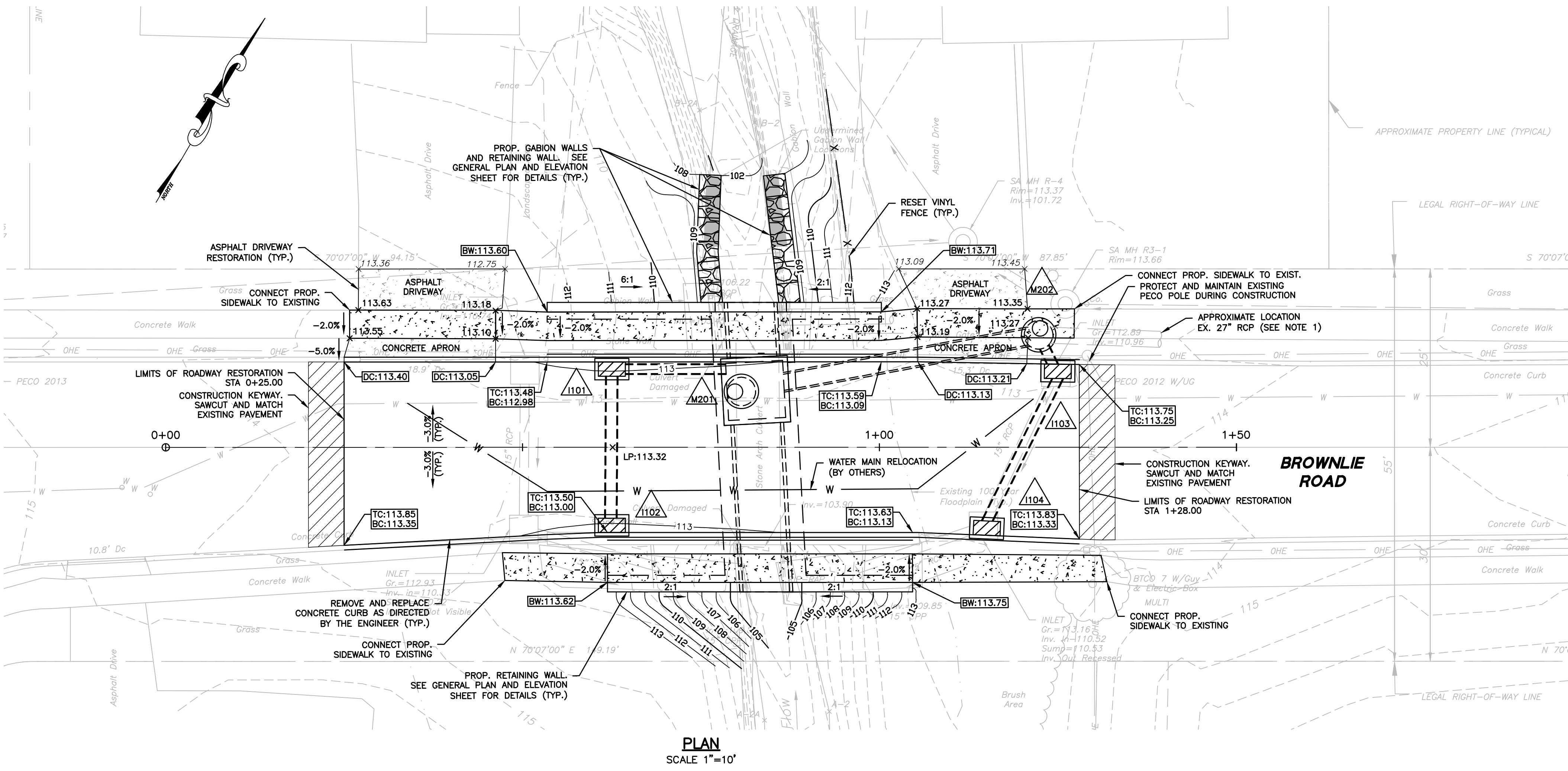
<b>RUSSELL G. BENNER, P.E.</b> LICENSED PROFESSIONAL ENGINEER	COMMONWEALTH OF PENNSYLVANIA LICENSE NO. 032051E
<b>BRIDGE REPAIR PLANS</b> <b>BROWNIE ROAD BRIDGE</b> UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA	<b>LEGEND, ABBREVIATIONS AND GENERAL NOTES</b>
<p>                 YOUR GOALS. OUR MISSION.                  74 WEST BROAD STREET, SUITE 300                  BETHLEHEM, PA 18018                  TEL 610-625-2999                  FAX 610-625-2969                  www.landmassociates.com             </p>	
DESIGNED BY: MDH CHECKED BY: RGB DRAWN BY: MDH DATE: JULY 2020 SCALE: AS SHOWN PROJ. NO.: MRON-00414	DRAWING: <b>LEG-1</b> SHEET: <b>2</b> OF <b>17</b>

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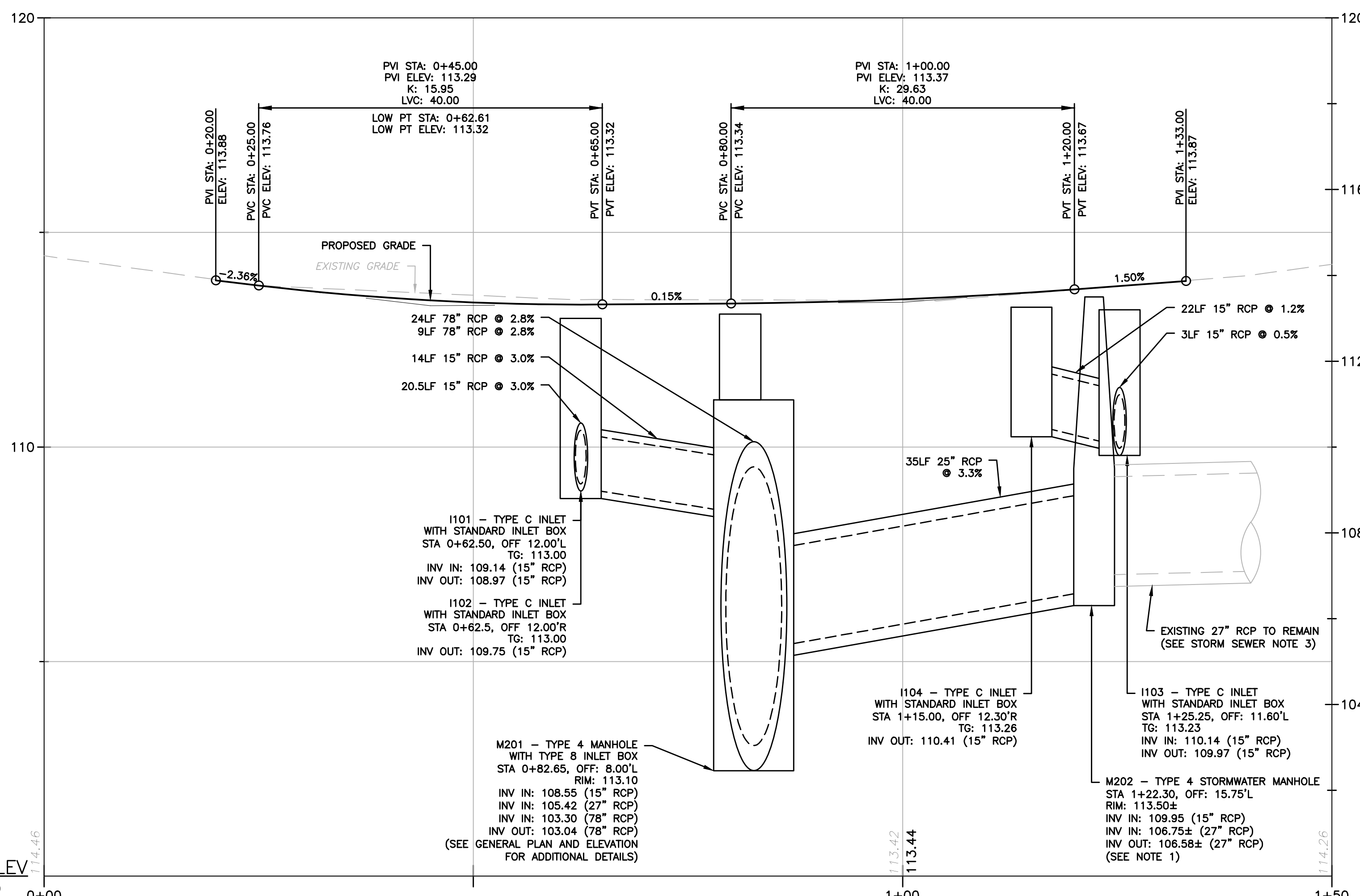


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PLAN  
 SCALE 1"=10'



PROFILE  
 SCALE 1"=10' (HORIZONTAL)  
 1"=2' (VERTICAL)

GRADING NOTES

- VERTICAL DATUM IS NAVD 1988 AND ESTABLISHED BY OBSERVATIONS REFERENCED TO THE NGS CORRS NETWORK.
- THE MINIMUM SLOPE IN GRASSED AREAS SHALL NOT BE LESS THAN 2% AND THE MINIMUM IN PAVED AREAS SHOULD NOT BE LESS THAN 1% UNLESS OTHERWISE NOTED.
- RUNOFF FROM IMPERVIOUS AREAS SHALL NOT BE DIRECTED INTO THE SANITARY SEWER OR ONTO ADJACENT PROPERTIES. WHERE POSSIBLE, RUNOFF SHALL BE DIRECTED TO THE NEAREST PUBLIC RIGHT-OF-WAY OR STORM WATER CONVEYANCE SYSTEM.
- WALLS IN EXCESS OF 30" IN HEIGHT REQUIRE A SAFETY FENCE A MINIMUM OF 42" IN HEIGHT. REFER TO DETAIL SHEETS.
- PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
- THE CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS (INCLUDING DEP, ETC) FOR ALL OFF-SITE HALL AND/OR BORROW SITES. CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING WORK.
- EXISTING INLETS AND STORM SEWER SHOWN TO BE FILLED W/DEBRIS SHALL BE CLEANED AND FLUSHED. NEW INLETS AND PIPES SHALL BE CHECKED FOR SILT/DEBRIS AFTER CONSTRUCTION AND FLUSHED/CLEANED IF NECESSARY.
- DEPTH OF EXISTING UTILITIES IN PORTIONS OF THE SITE ARE UNKNOWN. WHERE EXISTING UTILITIES ARE TO REMAIN AND ARE FOUND TO HAVE INADEQUATE GROUND COVER AFTER FINAL PROPOSED GRADES HAVE BEEN ESTABLISHED, THE DESIGN ENGINEER SHALL BE CONTACTED IMMEDIATELY AND PRIOR TO FURTHER CONSTRUCTION ACTIVITIES IN THE AREA OF SAID CONFLICT.
- ALL DESIGNERS AND CONTRACTORS UTILIZING THIS PLAN AND THE INFORMATION CONTAINED THEREON ARE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF PENNSYLVANIA ACT 287. LOCATION OF EXISTING AND PROPOSED UNDERGROUND UTILITIES AND FACILITIES SHOWN ON THE DRAWINGS HAVE BEEN DEVELOPED FROM INFORMATION MADE AVAILABLE. COMPLETENESS AND ACCURACY OF LOCATION AND DEPTH OF UTILITIES AND FACILITIES CANNOT BE GUARANTEED. THE CONTRACTOR IS TO VERIFY THE DEPTH AND LOCATION OF ALL UTILITIES AND FACILITIES BEFORE THE START OF WORK. UTILIZE HAND EXCAVATION AS REQUIRED. WORK IS ALSO TO BE DONE IN ACCORDANCE WITH THE STANDARDS OF THE UTILITY COMPANIES WHOSE FACILITIES ARE IN THE PROXIMITY OF THE WORK. OTHER UTILITIES MAY BE REQUIREMENTS OF PENNSYLVANIA ACT 38 (1991). THE CONTRACTOR SHALL VERIFY THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776, AT LEAST 3 DAYS PRIOR TO EXCAVATION.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL CODES, AND ALL REGULATIONS UNDERGOING UTILITIES AND FACILITIES SHOWN ON THE DRAWINGS HAVE BEEN DEVELOPED FROM INFORMATION MADE AVAILABLE. COMPLETENESS AND ACCURACY OF LOCATION AND DEPTH OF UTILITIES AND FACILITIES CANNOT BE GUARANTEED. THE CONTRACTOR IS TO VERIFY THE DEPTH AND LOCATION OF ALL UTILITIES AND FACILITIES BEFORE THE START OF WORK. UTILIZE HAND EXCAVATION AS REQUIRED. WORK IS ALSO TO BE DONE IN ACCORDANCE WITH THE STANDARDS OF THE UTILITY COMPANIES WHOSE FACILITIES ARE IN THE PROXIMITY OF THE WORK. OTHER UTILITIES MAY BE REQUIREMENTS OF PENNSYLVANIA ACT 38 (1991). THE CONTRACTOR SHALL VERIFY THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776, AT LEAST 3 DAYS PRIOR TO EXCAVATION.
- CONTRACTORS SHALL HAVE ALL REQUIRED SUBMITTAL APPROVALS PRIOR TO BEGINNING WORK OR ORDERING MATERIALS.
- CONTRACTORS SHALL VERIFY ALL DIMENSIONS, INVERTS, ELEVATIONS, AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH THE WORK. DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY, PROCEDURES, MEANS AND METHODS, SEQUENCING, AND COORDINATION.
- ALL WORK SHALL BE PERFORMED BY QUALIFIED, EXPERIENCED PERSONNEL.
- CONTRACTOR SHALL NOTIFY THE OWNER OF PREEXISTING CONDITIONS OF DETERIORATION IN AREAS OF WORK THAT ARE UNCOVERED OR EXPOSED DURING THE WORK.
- FIELD CHANGES REQUIRE PRIOR ENGINEERING REVIEW AND WRITTEN CONFIRMATION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR TO ANY SIDEWALKS, LAWN, TREES, PAVING, AND OTHER IMPROVEMENTS DISTURBED OR DAMAGED BY DEMOLITION ACTIVITIES PROPOSED HEREIN.
- CONTRACTOR SHALL PROVIDE PROPER TEMPORARY BRACING AND SHORING OF ALL CONSTRUCTION TO REMAIN OR DEMOLITION WORK IN PROGRESS.
- CONTRACTOR SHALL PROVIDE LAYOUT, LINE AND GRADE UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL NOTIFY THE OWNER OF ANY DISCREPANCIES WITHIN THE DRAWINGS, SPECIFICATIONS, CODES OR STANDARDS FOR CORRECTIVE ACTION PRIOR TO START OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF VEHICULAR AND PEDESTRIAN TRAFFIC. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH LOCAL, PENNDOT & OSHA REGULATIONS.
- CONTRACTOR SHALL PROVIDE PROTECTION FOR EXISTING UTILITIES UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ANY UTILITY LINE INTERRUPTION AT NO ADDITIONAL CONSTRUCTION COST. THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION AND SUPPORT FOR ALL UTILITIES EXPOSED DURING CONSTRUCTION, OR IF TEST PITS REVEAL POTENTIAL CONFLICT, ENGINEER SHALL BE NOTIFIED SO THAT ELEVATIONS AND LOCATIONS (WHERE NECESSARY) OF AFFECTED UTILITIES CAN BE OBTAINED TO FACILITATE NECESSARY DESIGN ADJUSTMENTS.
- EXISTING UTILITIES SHOWN ARE BASED ON AVAILABLE DATA. DUE TO THE POTENTIAL LACK OF COMPLETE OR ACCURATE DATA REGARDING EXISTING ON-SITE AND OFF-SITE UTILITIES, THE CONTRACTOR SHALL ASSESS AVAILABLE DATA, SHALL REQUEST UTILITY COMPANY MARKOUTS, SHALL COORDINATE WITH AFFECTED UTILITY COMPANIES, AND SHALL DIG TEST PITS AT ALL PROPOSED UTILITY CROSSING LOCATIONS SO THAT ELEVATIONS CAN BE TAKEN TO ASSESS POTENTIAL CONFLICTING PIPES/UTILITIES PRIOR TO ANY PROPOSED UTILITY CONSTRUCTION. IF UNEXPECTED UTILITY LOCATIONS OR ELEVATIONS OR PIPE CONFLICTS ARE ENCOUNTERED DURING CONSTRUCTION, OR IF TEST PITS REVEAL POTENTIAL CONFLICT, ENGINEER SHALL BE NOTIFIED SO THAT ELEVATIONS AND LOCATIONS (WHERE NECESSARY) OF AFFECTED UTILITIES CAN BE OBTAINED TO FACILITATE NECESSARY DESIGN ADJUSTMENTS.
- UNLESS SPECIFIED ELSEWHERE IN THE PLANS OR A MANUAL OF TECHNICAL SPECIFICATIONS FOR THE PROJECT, ALL TOPSOIL TO BE USED ON SITE, WHETHER STOCKPILED FROM EXISTING ON-SITE SOILS OR IMPORTED MATERIAL, SHALL MEET THE MINIMUM QUALITY STANDARDS FOR TOPSOIL AS STIPULATED IN THE PA001 SPECIFICATIONS, MANUAL, SECTION 950. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING SAMPLES TO A QUALIFIED MATERIALS LABORATORY FOR ANALYSIS AND FOR PROVIDING THE RESULTS TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL BEFORE PLACING ANY TOPSOIL.
- THE CONTRACTOR SHALL VERIFY THE DEPTH AND LOCATION OF THE EXISTING STORM SEWER AT PROPOSED MANHOLE MOST PRIOR TO CONSTRUCTION OF THE IMPROVEMENT. ADJUST THE FINAL LOCATION AND INVERT ELEVATION AS NEEDED.

STORM SEWER NOTES

- ALL STORM CONVEYANCE PIPE SHALL BE REINFORCED CONCRETE PIPE, UNLESS OTHERWISE SPECIFIED.
- IF A CONFLICT ARISES DURING THE INSTALLATION OF ANY PART OF THE STORM SEWER SYSTEM THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY IN WRITING.
- THE CONTRACTOR SHALL VERIFY THE DEPTH AND LOCATION OF THE EXISTING STORM SEWER AT PROPOSED MANHOLE MOST PRIOR TO CONSTRUCTION OF THE IMPROVEMENT. ADJUST THE FINAL LOCATION AND INVERT ELEVATION AS NEEDED.

BRIDGE REPAIR PLANS

NO.	BY	DATE	REVISIONS
1	WCM, DRF	6/22/23	REV PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW

RUSSELL G. BENNER, P.E.  
 LICENSED PROFESSIONAL ENGINEER

DATE

COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. 032051E

BRIDGE REPAIR PLANS  
 BROWNIE ROAD BRIDGE  
 UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

**T&M AND ASSOCIATES**

YOUR GOALS. OUR MISSION.  
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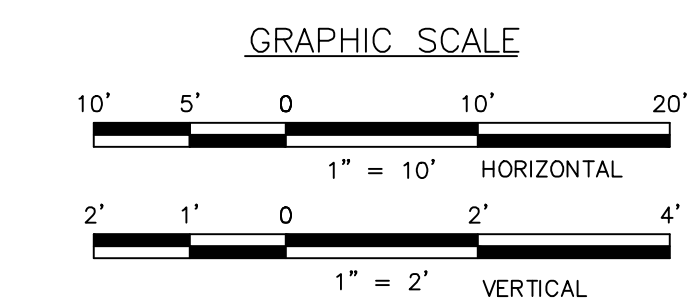
DESIGNED BY: WCM  
 CHECKED BY: WCM  
 DRAWN BY: RCB  
 DATE: JULY 2020  
 SCALE: AS SHOWN  
 PROJ. NO.: MRON-00414

DRAWING: DRN 1  
 SHEET: 3  
 OF: 17

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 20182970849-000 WAS PLACED FOR DESIGN PURPOSES ON 10/24/18.

**Pennsylvania 811**

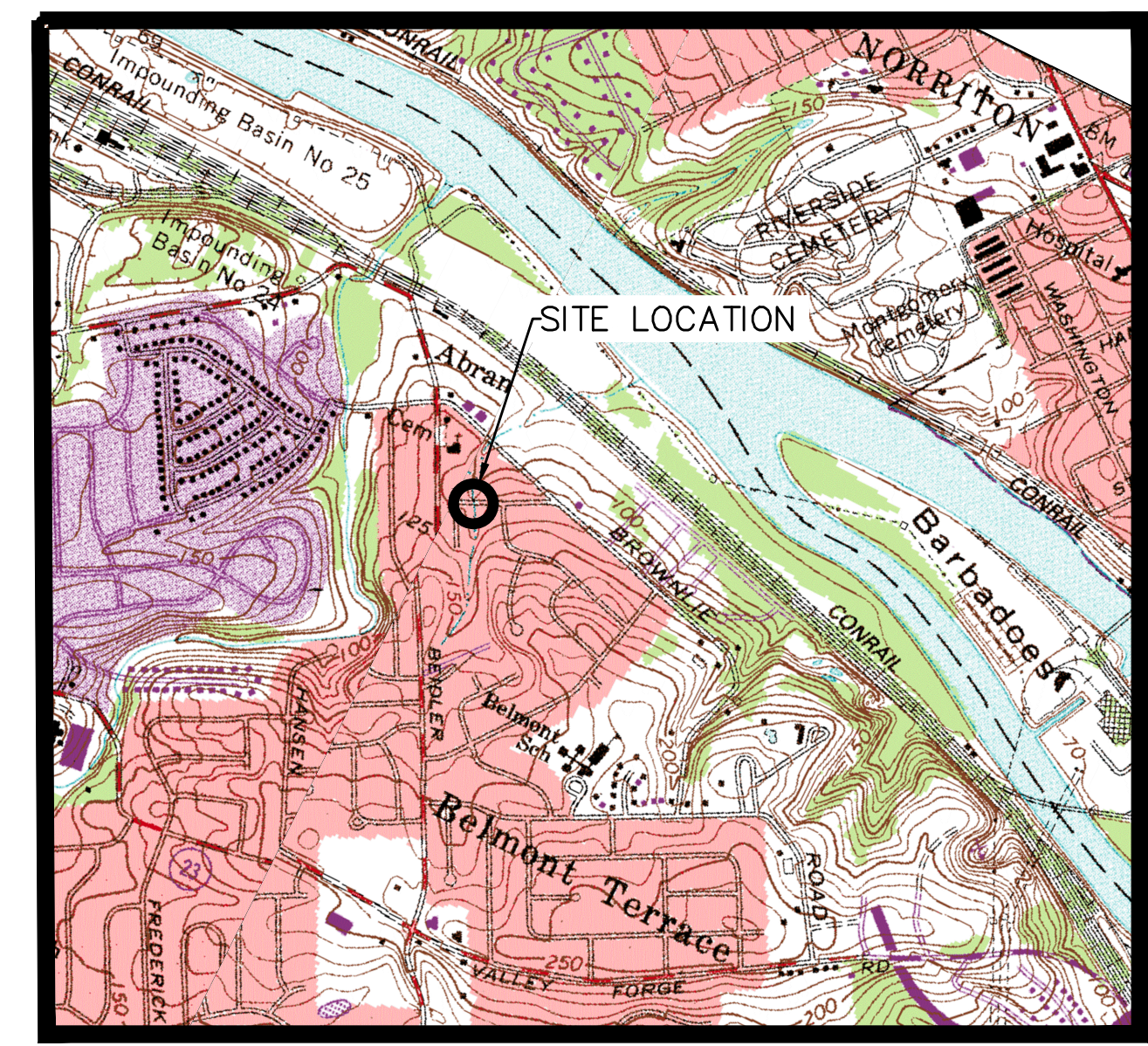
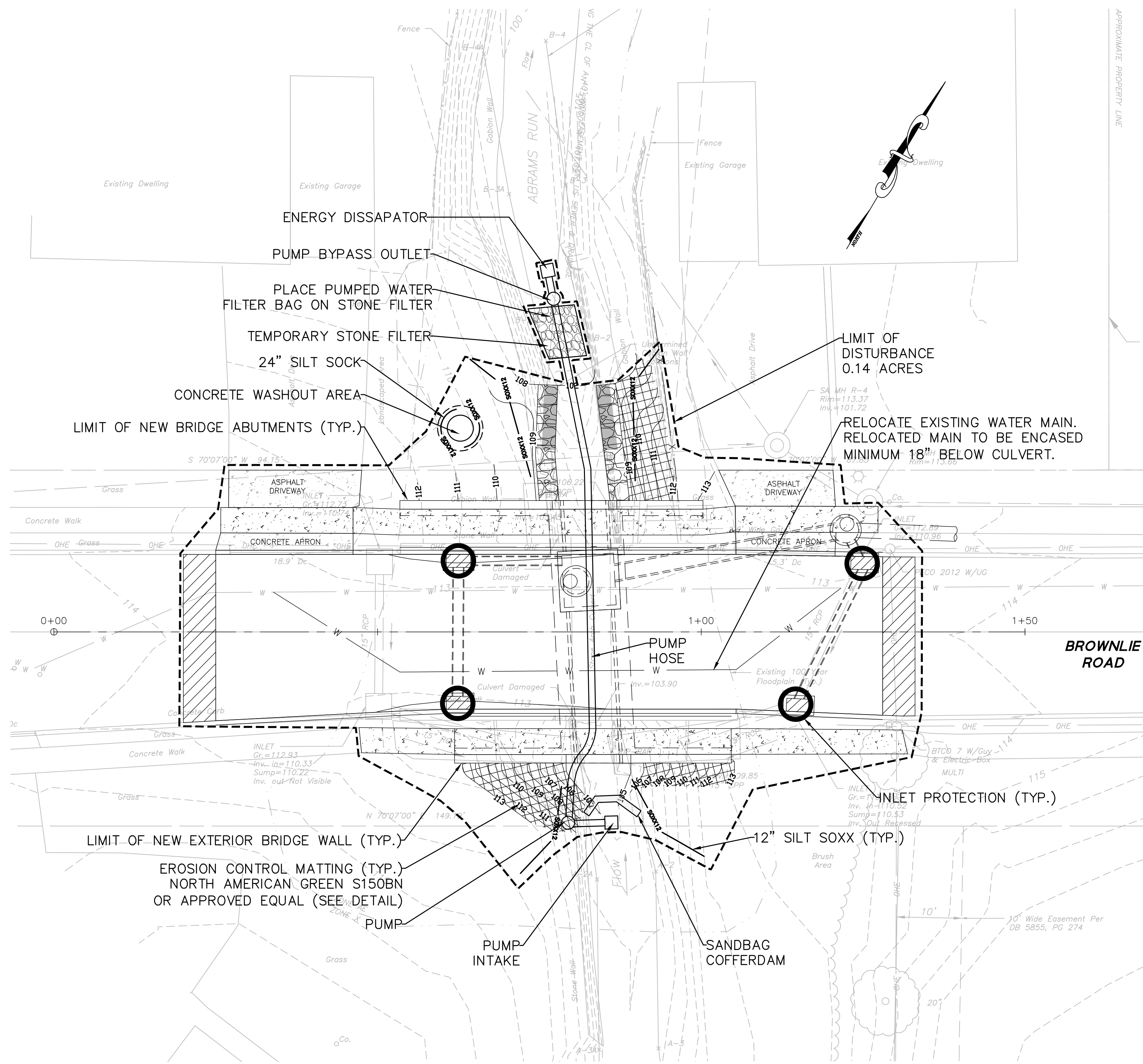
CALL BEFORE YOU DIG





PROJECT INFORMATION:  
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 LAST SAVE BY: WMC/rlc

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LOCATION MAP  
1" = 1000'

**CONSTRUCTION SEQUENCE**

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. THE MONTGOMERY COUNTY CONSERVATION DISTRICT SHOULD BE NOTIFIED AT LEAST 3 DAYS PRIOR TO THE START OF THE CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE PA ONE CALL SYSTEM AT LEAST 3 DAYS PRIOR TO STARTING CONSTRUCTION.

DURING PERIODS OF DRY WEATHER, ABRAMS RUN HAS MINIMAL FLOW IN THIS PROJECT AREA. ALL WORK IS TO BE PERFORMED WHEN THE WATERCOURSE IS DRY AND NO PRECIPITATION IS ANTICIPATED.

1. INSTALL THE EROSION AND SEDIMENTATION CONTROLS AS DEPICTED ON PLAN SHEET 2.
  - 1A. THE CONTRACTOR SHALL BE PREPARED TO SHIFT SILT SOXX AS NECESSARY DURING THE COURSE OF CONSTRUCTION TO PREVENT SEDIMENTATION AS NEEDED.
  2. INSTALL THE PUMP BYPASS SYSTEM.
  3. REMOVE THE EXISTING STONE CULVERT.
  4. REPLACE CULVERT AND PLACE GROUT BAGS AT UNDERMINED GABION WALL LOCATION. ALL STAGING OF MATERIALS IS TO OCCUR ON BROWNIE ROAD. NO EQUIPMENT SHALL DRIVE ON THE VEGETATION SURROUNDING THE EXISTING BROWNIE ROAD BRIDGE. GROUT BAGS ARE TO BE FILLED FROM A TRUCK SITUATED ON BROWNIE ROAD.
  5. IF NECESSARY SPREAD TOP SOIL AND SEED ON ANY DISTURBED GRASS AREAS. INSTALL NAGS75 MATTING ON ANY DISTURBED GRASS AREAS LOCATED ON A SLOPE.
  6. REMOVE THE PUMP BYPASS SYSTEM AND EROSION AND SEDIMENTATION CONTROLS.
- NOTE: ALL STAGING WILL OCCUR FROM BROWNIE ROAD. A STREET SWEEPER SHALL BE ON STANDBY IF ANY DEBRIS ACCUMULATES ON BROWNIE ROAD.

**LEGEND**

EXISTING	PROPOSED	EXISTING	PROPOSED
101	102	SILT SOXX	SOXX12
100	RIGHT-OF-WAY	LIMIT OF DISTURBANCE	
EDGE OF PAVEMENT	UTILITY POLES	INLET PROTECTION	
STORM SEWER	SANITARY SEWER	BRIDGE ABUTMENT	
POTABLE WATER	WETLAND BOUNDARY	EXTERIOR BRIDGE WALL	

**Pennsylvania 811**

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 20182970849-000 WAS PLACED FOR DESIGN PURPOSES ON 10/24/18.

NO.	BY	DATE	REVISIONS
1	WCM, DRF	6/22/23	REV. PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW

**RUSSELL G. BENNER, P.E.**  
 LICENSED PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. 132051E

**BRIDGE REPAIR PLANS**  
 BROWNIE ROAD BRIDGE  
 UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

**SOIL EROSION AND SEDIMENTATION CONTROL PLAN**

**YOUR GOALS. OUR MISSION.**  
 74 WEST BROAD STREET,  
 SUITE 300  
 BETHLEHEM, PA 18018  
 TEL 610-625-2999  
 FAX 610-625-2969  
 www.landmassociates.com

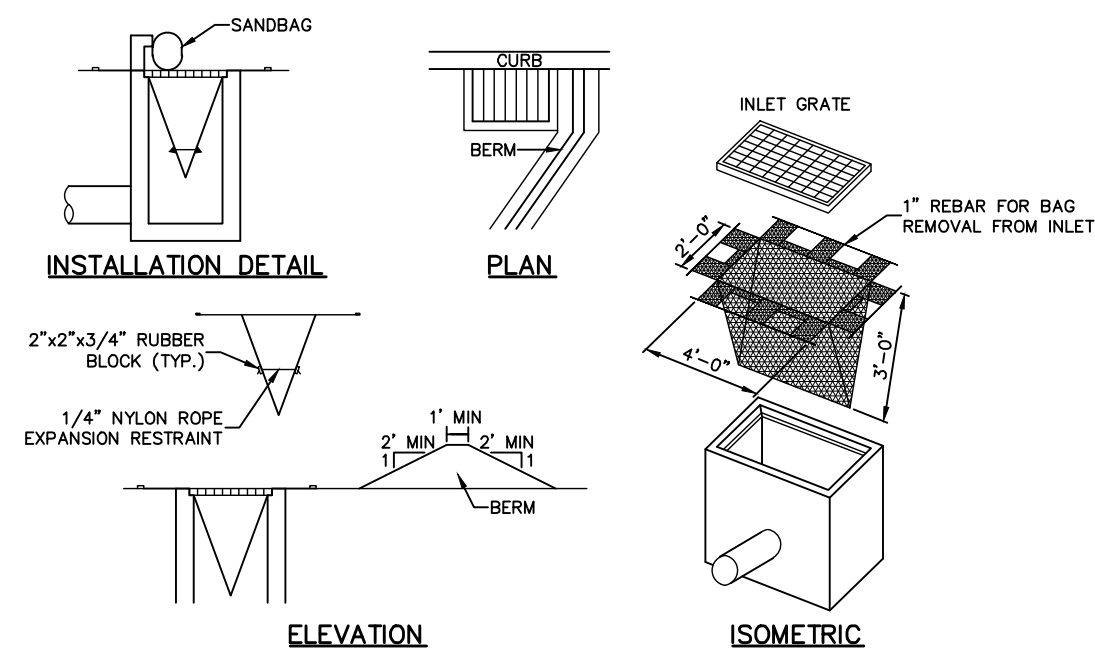
OFFICES LOCATED IN:  
 DELAWARE, INDIANA, KENTUCKY,  
 MASSACHUSETTS, MICHIGAN, NEW JERSEY,  
 OHIO AND PENNSYLVANIA

DESIGNED BY	MDH	DRAWING	SEP-1
CHECKED BY	MDH	RGB	SHEET
DRAWN BY	MDH		
DATE	JULY 2020		
SCALE	AS SHOWN		
PROJ. NO.	MRON-00414		



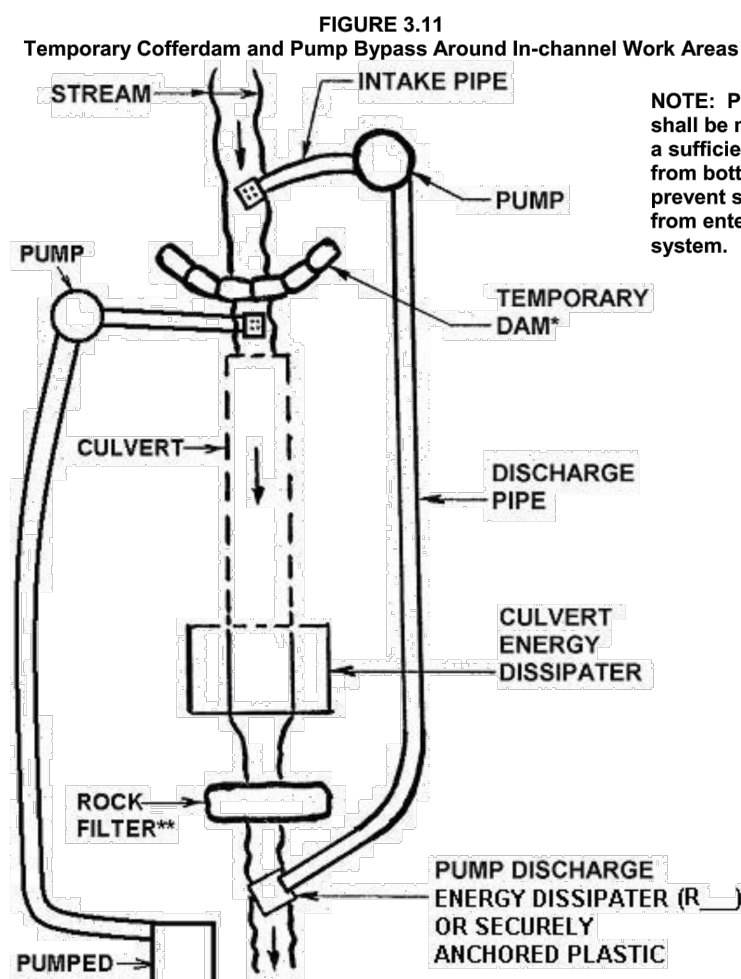
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 LAST SAVED DATE AND TIME: 30 Aug 2023, 11:00AM  
 LAST SAVE BY: WMC:clure

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- NOTES:
1. MAXIMUM DRAINAGE AREA = 1/2 ACRE
  2. SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT IF INLETS UTILIZING INLET PROTECTION ARE NOT DRAINING TO A SEDIMENT TRAP OR BASIN.
  3. INLET PROTECTION IS NOT REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS REQUIRED FOR ALL INSTALLATIONS.
  4. EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED.
  5. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
- DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

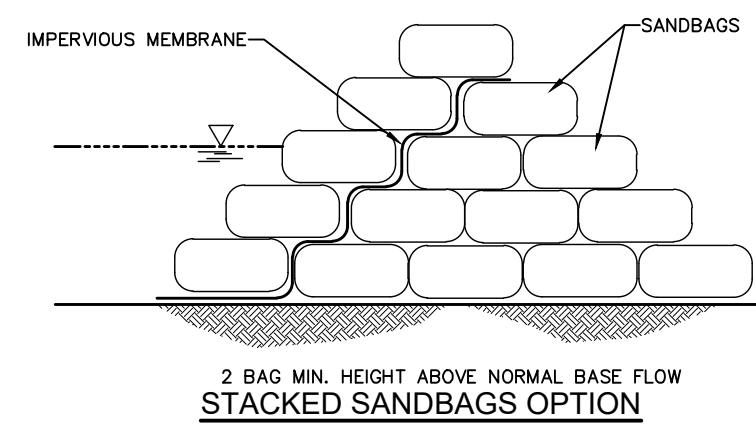
**FILTER BAG INLET PROTECTION FOR CURBED ROADWAY**  
 NOT TO SCALE



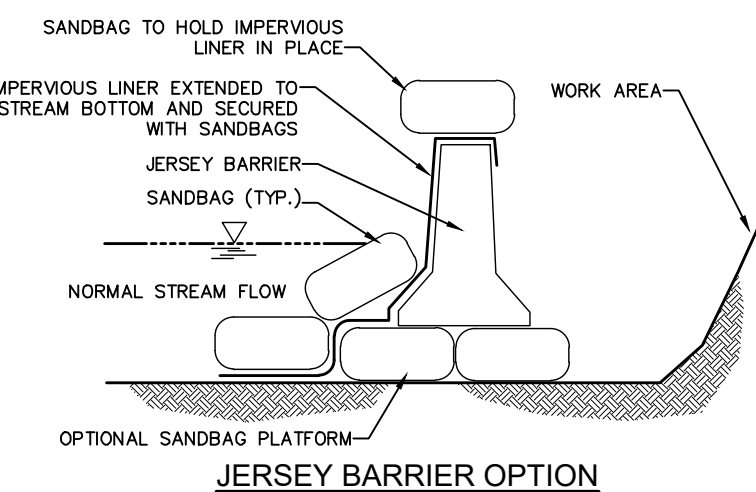
NOTE: Pump intake shall be maintained a sufficient distance from bottom to prevent sediment from entering the system.

- \* Sandbags (Standard Construction Detail #3-15), Jersey barriers (Figure 3.13) or other non-erosive material, no earth fill. Do not excavate a sump for the pump intake.
- \*\* See Standard Construction Detail # 4-14. For low gradient channels, the rock filter may be replaced by an impervious cofferdam to prevent backflow into the work area.

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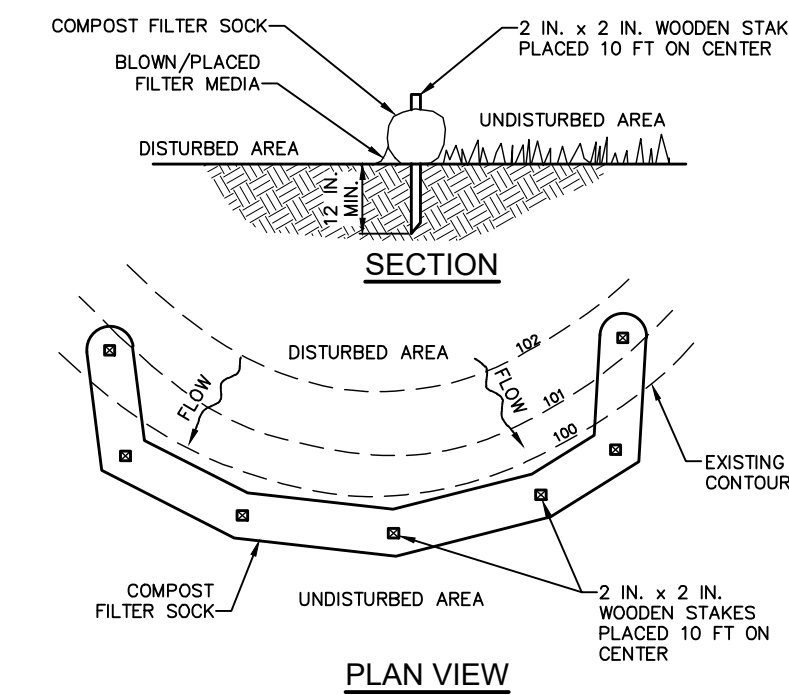


STANDARD CONSTRUCTION DETAIL #3-15  
 SANDBAG DIVERSION DAM OR COFFERDAM  
 NOT TO SCALE



JERSEY BARRIER OPTION

STANDARD CONSTRUCTION DETAIL #4-1  
 COMPOST FILTER SOCK  
 NOT TO SCALE

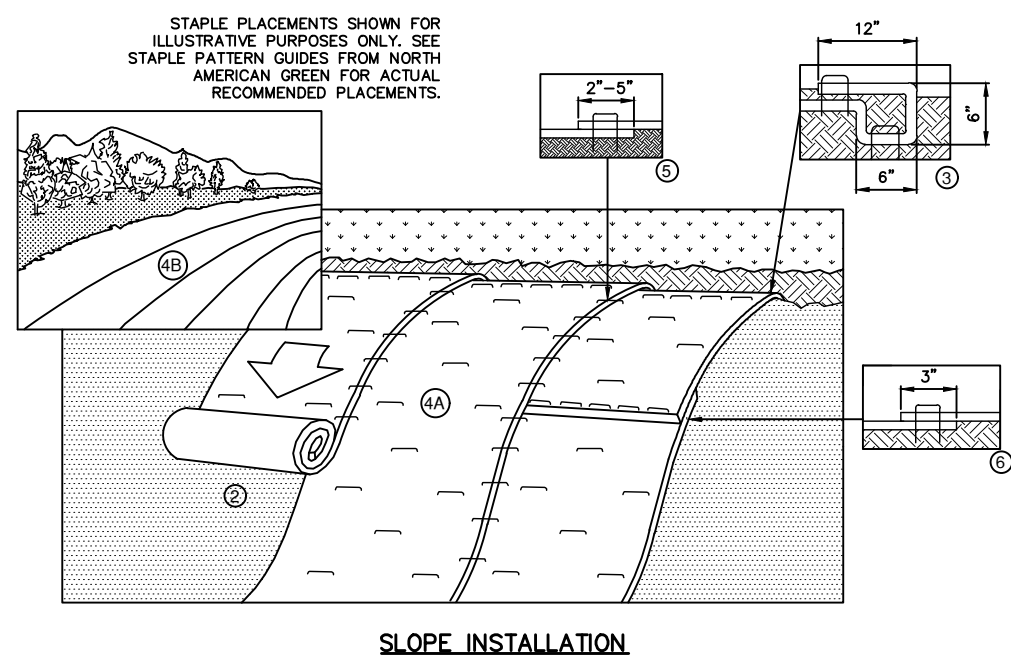


PLAN VIEW

NOTES:

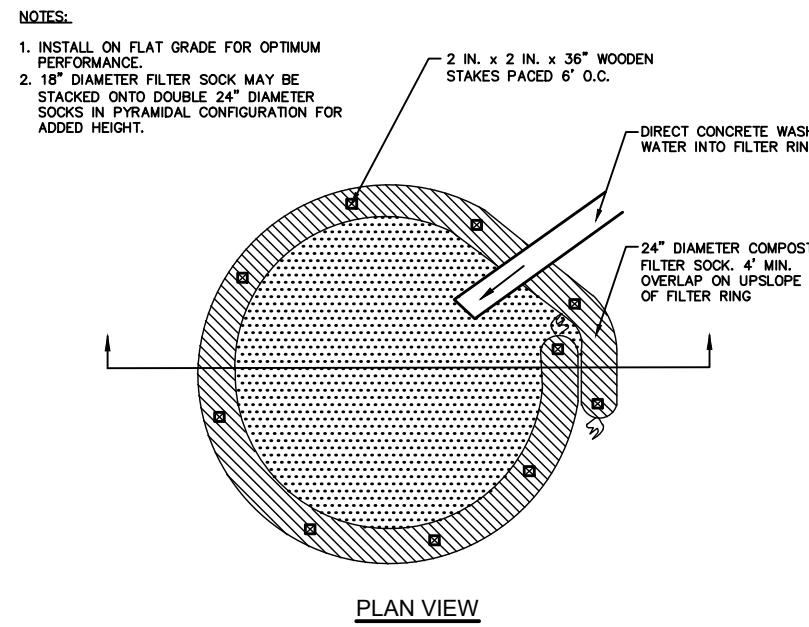
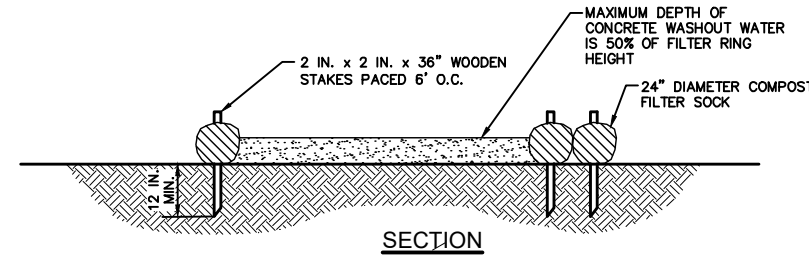
- SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.
- COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
- COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS. PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

STANDARD CONSTRUCTION DETAIL #4-1  
 COMPOST FILTER SOCK  
 NOT TO SCALE

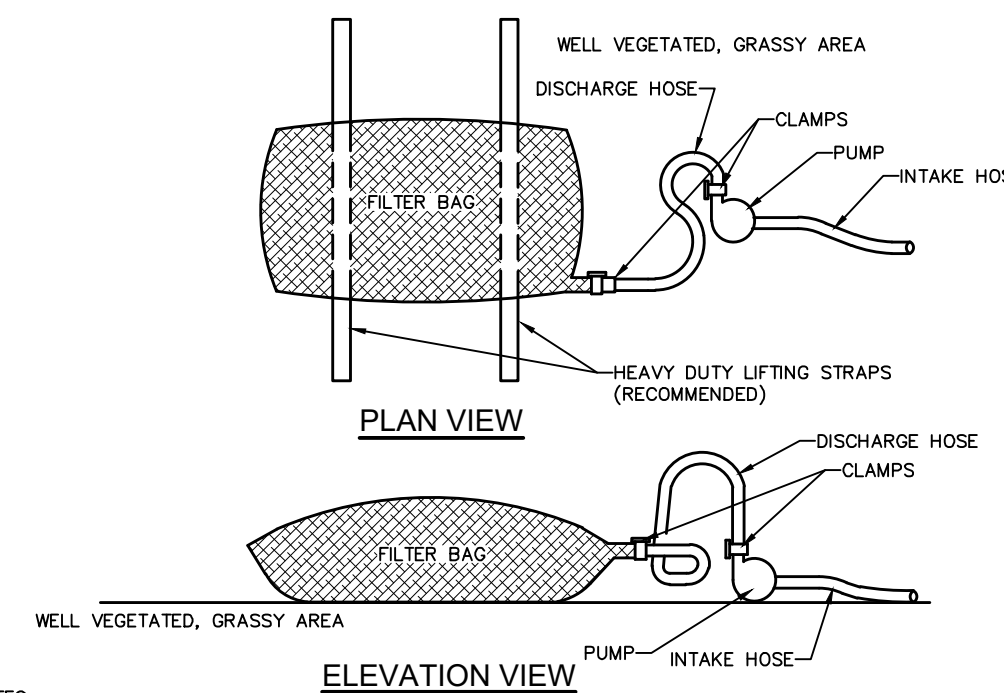


- STAPLE PLACEMENTS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEE STAPLE PATTERN GUIDES FROM NORTH AMERICAN GREEN FOR ACTUAL RECOMMENDED PLACEMENTS.
- NOTES:
1. NORTH AMERICAN GREEN OR APPROVED EQUAL.
  2. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIMC, FERTILIZER, AND SEED.
  3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 4\"/>

**EMBANKMENT STABILIZATION/INSTALLATION GUIDELINES**  
 NOT TO SCALE



TYPICAL COMPOST SOCK  
 CONCRETE WASHOUT INSTALLATION  
 NOT TO SCALE



NOTES:

- LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:
- | PROPERTY                 | TEST METHOD | MINIMUM STANDARD |
|--------------------------|-------------|------------------|
| AVG. WIDE WIDTH STRENGTH | ASTM D-4884 | 60 LB/IN         |
| GRAB TENSILE             | ASTM D-4832 | 205 LB           |
| PUNCTURE                 | ASTM D-4833 | 110 LB           |
| MULLEN BURST             | ASTM D-3786 | 350 PSI          |
| UV RESISTANCE            | ASTM D-4355 | 70%              |
| AGS % RETAINED           | ASTM D-4781 | 80 SIEVE         |
- A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.
  - BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS, WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.
  - NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HO OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.
  - THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.
  - THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.
  - FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL #3-16  
 PUMPED WATER FILTER BAG  
 NOT TO SCALE

**PENNSYLVANIA NATURAL DIVERSITY INVENTORY NOTE:**  
 A PNDI SEARCH WAS PERFORMED FOR THIS PROJECT, THE RESULTS OF WHICH INDICATED THAT THERE WAS A POTENTIAL IMPACT TO THREATENED OR ENDANGERED SPECIES. THE PENNSYLVANIA FISH AND BOAT COMMISSION WAS PROVIDED WITH ALL NECESSARY INFORMATION FOR REVIEW AND DETERMINED THAT NO IMPACT IS ANTICIPATED.

**PROJECT SCHEDULE NOTE:**  
 IT IS ANTICIPATED THAT THE CONSTRUCTION WILL BEGIN IN EARLY SPRING 2019 AND BE COMPLETED BY LATE SUMMER 2019.

**DISTURBED AREA NOTE:**  
 THE TOTAL SITE AREA DISTURBED BY THE PROJECT IS 0.08 ACRES

**E&S STANDARD NOTES:**  
 THE PERMIT BOUNDARY IS DEFINED AS THE LIMIT OF DISTURBANCE BOUNDARY.  
 THERE IS NO ANTICIPATED POTENTIAL FOR POLLUTION BECAUSE OF GEOLOGIC OR SOIL CONDITIONS

NO.	BY	DATE	REVISIONS
1	WCM, DRF	6/22/23	REV PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW

**RUSSELL G. BENNER, P.E.**  
 LICENSED PROFESSIONAL ENGINEER

DATE: \_\_\_\_\_  
 COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. 032051E

**BRIDGE REPAIR PLANS**  
**BROWNIE ROAD BRIDGE**  
 UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

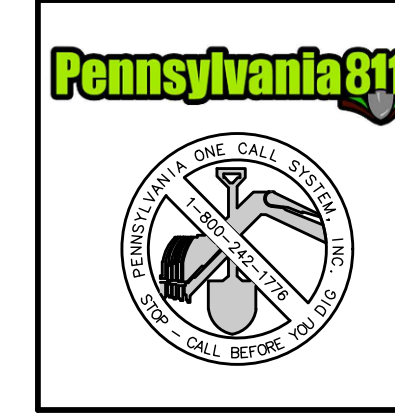
**SOIL EROSION AND SEDIMENTATION CONTROL DETAILS**

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DESIGNED BY: MDH  
 CHECKED BY: RGH  
 DRAWN BY: MDH  
 DATE: JULY 2020  
 SCALE: AS SHOWN  
 PROJ. NO.: MRON-00414

DRAWING: **SED-1**  
 SHEET: **5**  
 OF **17**



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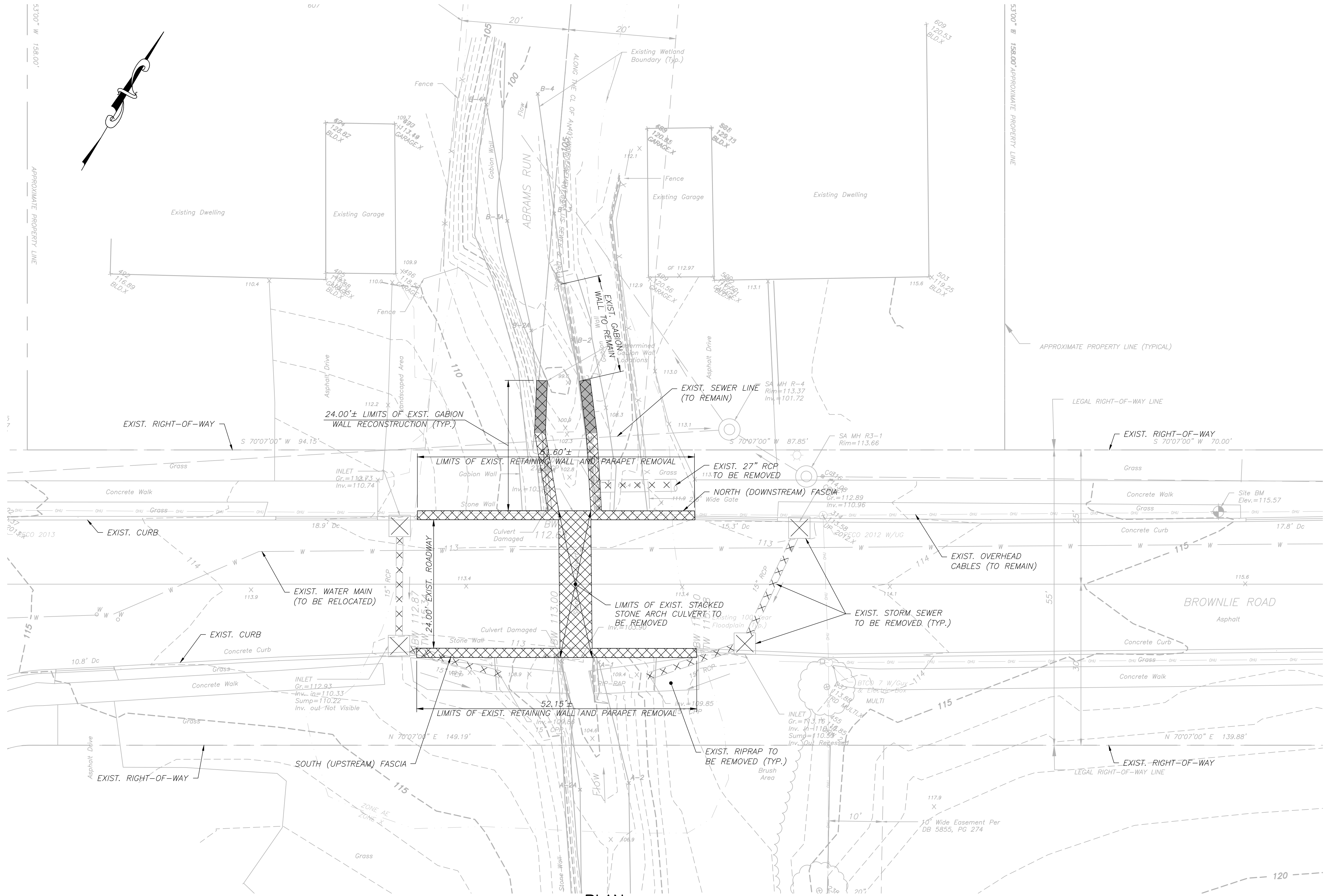






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 LAST SAVE BY: CStechura

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PLAN  
 SCALE: 1" = 10'

**SUGGESTED DEMOLITION & CONSTRUCTION SEQUENCE:**

1. INSTALL MPT AS PER PLANS.
2. INSTALL STREAM BYPASS PUMPS.
3. DEMOLISH EXISTING STORM SEWER.
4. DEMOLISH NORTH AND SOUTH RETAINING WALLS.
5. DEMOLISH UNDERMINED GABION BASKETS IN THE DOWNSTREAM CHANNEL.
6. REMOVE EXISTING STONE ARCH CULVERT.
7. RELOCATE EXISTING WATER UTILITY.
8. INSTALL PROPOSED 78" RCP PIPE CULVERT.
9. CONSTRUCT RETAINING WALLS.
10. INSTALL PROPOSED STORM SEWER.
11. BACKFILL EXCAVATION.
12. INSTALL NEW GABION BASKETS IN THE DOWNSTREAM CHANNEL.
13. CONSTRUCT SIDEWALKS, DRIVEWAYS AND PARAPETS.

**DEMOLITION NOTES:**

1. THE EXISTING NORTH AND SOUTH RETAINING WALLS, STONE ARCH CULVERT, AND PORTIONS OF THE GABION BASKETS ALONG THE DOWNSTREAM SIDE OF THE CULVERT SHALL BE DEMOLISHED IN THEIR ENTIRETY AND REMOVED FROM THE SITE. THE COST OF THE REMOVAL AND DISPOSAL OF THE EXISTING BRIDGE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE PAY ITEM "REMOVAL OF EXISTING CULVERT".
2. THE EXISTING CULVERT STRUCTURE PRESENTED HEREON IS FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT BE COMPLETE OR ALL INCLUSIVE. THE INFORMATION SHOWN ON THIS DRAWING SHALL NOT BE CONSTRUED IN ANY WAY AS A WAIVER FOR THE BIDDER TO CONDUCT SUCH INDEPENDENT INVESTIGATION AND EXAMINATION AS DEEMED NECESSARY TO ASCERTAIN THE EXTENT OF THE REMOVAL WORK. THE BIDDERS SHALL VISIT THE BRIDGE SITE BEFORE SUBMITTING THEIR BIDS.
3. BYPASS PUMPS FOR REMOVAL OF THE EXISTING STRUCTURE AND ALL MEANS NECESSARY TO MAINTAIN STREAM FLOW SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE PAY ITEMS "CLEARING AND GRUBBING" AND "REMOVAL OF EXISTING CULVERT".
4. **STREAM PROTECTION:**
  - A. NO STREAM DIVERSIONS OR BLOCKING OF THE STREAM IS PERMITTED DURING REMOVAL OF THE EXISTING RETAINING WALLS AND CULVERT. NO HEAVY EQUIPMENT ACTIVITY WILL BE PERMITTED IN THE STREAM. ALL HEAVY EQUIPMENT ACTIVITIES WILL BE LOCATED AT OR BEHIND THE EXISTING STRUCTURE LIMITS AND ANY WORK REQUIRED IN THE STREAM SHALL BE DONE BY HAND.
  - B. THE CONTRACTOR SHALL EXECUTE HIS/HER WORK IN SUCH A MANNER AND TAKE SUCH PRECAUTIONS AS NECESSARY TO PROHIBIT THE FALLING OF DEBRIS INTO THE STREAM. THE METHODS OF PROTECTION PROPOSED BY THE CONTRACTOR SHALL BE APPROVED BY THE ENGINEER AND THE COST SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE PAY ITEM "REMOVAL OF EXISTING CULVERT".
5. THIS DRAWING IS INTENDED TO SHOW THE LIMITS OF COMPONENTS TO BE DEMOLISHED AND PRESENT ONLY GENERAL INFORMATION REGARDING THE EXISTING STRUCTURE. FOR MORE IN DEPTH INFORMATION THE CONTRACTOR SHALL VERIFY THE ACCURACY OF THE INFORMATION SHOWN WITH FIELD MEASUREMENTS. NECESSARY ADJUSTMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BY THE CONTRACTOR.
6. EXERCISE EXTREME CARE DURING DEMOLITION OF THE EXISTING TO AVOID DAMAGE TO ANY PORTION OF THE EXISTING STRUCTURES TO REMAIN. ANY DAMAGE SUSTAINED BY THE STRUCTURE IS TO BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE DEMOLITION METHODS, PROCEDURES AND SAFEGUARDS TO BE USED FOLLOWING THE GENERAL GUIDELINES PRESENTED IN THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUBMIT A METHOD OF DEMOLITION INCLUDING DETAILED DEMOLITION DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL 30 DAYS PRIOR TO DEMOLITION. PROVIDE ANY LIMITATIONS AS REQUIRED ON DEMOLITION CALCULATIONS, IF NEEDED, SHALL BE SUBMITTED SHOWING THAT THE EXISTING STRUCTURE IS STABLE DURING ALL PHASES OF THE DEMOLITION. ALL PLANS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF PENNSYLVANIA.
8. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES AND VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND AND AERIAL UTILITIES PRIOR TO ANY DEMOLITION WORK. EXISTING UTILITIES TO BE RELOCATED SHALL BE DONE SO AFTER ANY REMOVAL ACTIVITY. EXISTING UTILITIES TO REMAIN SHALL BE PROTECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY OWNERS. SEE ROADWAY IMPROVEMENT PLANS AND TRAFFIC CONTROL PLANS FOR WORK RELATED TO EXISTING AND PROPOSED UTILITIES.
9. ALL REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE DISPOSED OF OFF-SITE AS PER THE SPECIFICATIONS.

**EXISTING STRUCTURE PLANS:**

1. THE INFORMATION SHOWN ON THE PLANS FOR THE EXISTING STRUCTURE IS NOT PART OF THE PLANS, PROPOSAL, OR CONTRACT AND IS NOT TO BE CONSIDERED A BASIS FOR COMPUTATION OF THE UNIT PRICES USED FOR BIDDING PURPOSES. THERE IS NO EXPRESSED OR IMPLIED AGREEMENT THAT INFORMATION IS CORRECTLY SHOWN. THE BIDDER IS NOT TO RELY ON THIS INFORMATION, BUT IS TO ASSUME THE POSSIBILITY THAT CONDITIONS AFFECTING THE COST AND/OR QUANTITIES OF WORK TO BE PERFORMED MAY DIFFER FROM THOSE INDICATED.

**REFERENCES:**

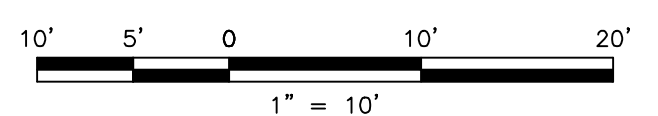
1. FOR ADDITIONAL INFORMATION ABOUT THE SITE, SEE DWG. EX-1.
2. FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE DWG. LEG-1.
3. FOR UTILITY NOTES AND GENERAL PLAN AND ELEVATION, SEE DWG. GPE-1.

**LEGEND:**

DENOTES EXISTING STRUCTURE TO BE DEMOLISHED, "REMOVAL OF EXISTING CULVERT"

**Pennsylvania 811**

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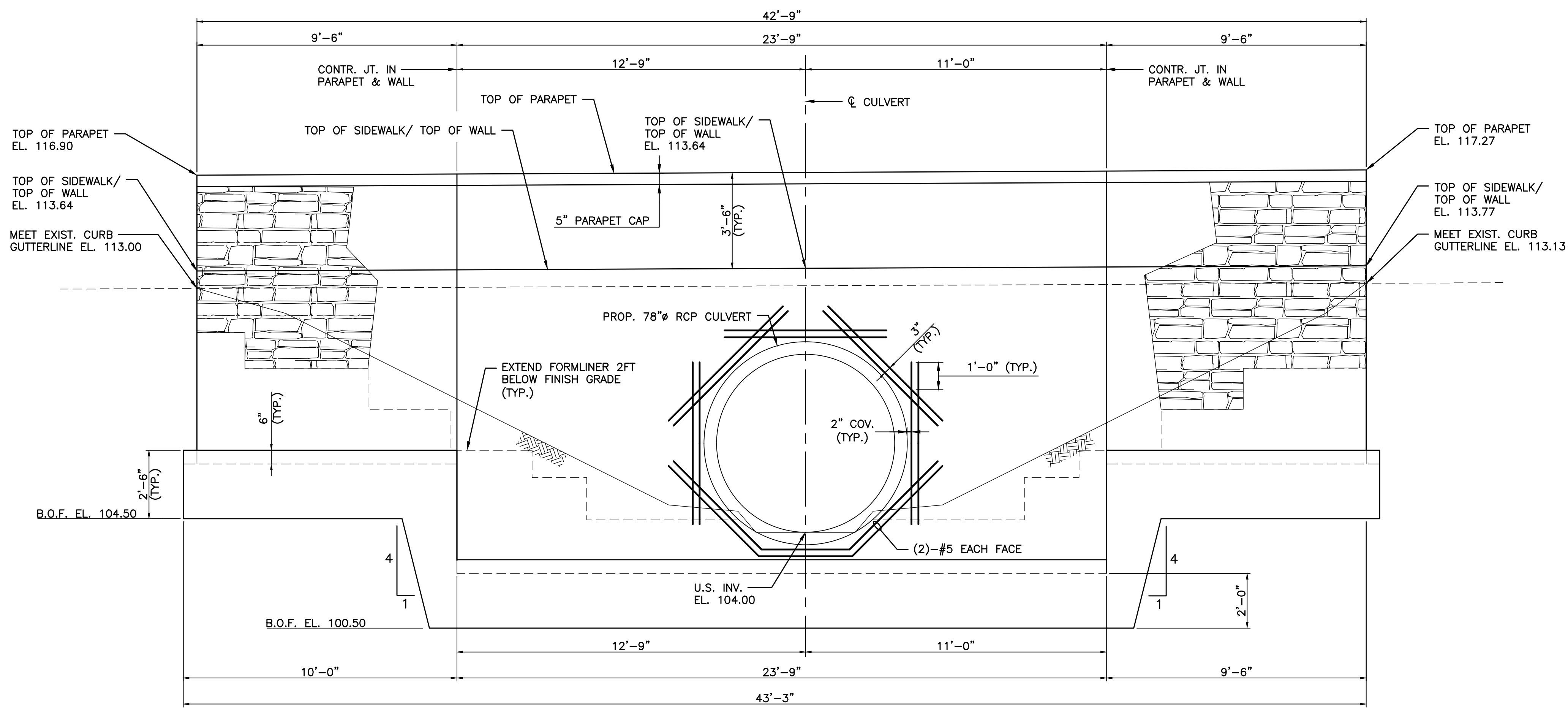


	8/4/23 6/22/23 REVISIONS NO. BY DATE
	2 WCM DRF 1 WCM DRF NO. BY DATE
<b>DARREN R. FERLAZZO, P.E.</b> LICENSED PROFESSIONAL ENGINEER	
COMMONWEALTH OF PENNSYLVANIA LICENSE NO. FE078046 08/20/2023 DATE	
<b>BRIDGE REPAIR PLANS</b> <b>BROWNIE ROAD BRIDGE</b> UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA	<b>DEMOLITION PLAN</b>
YOUR GOALS. OUR MISSION. 74 WEST BROAD STREET, SUITE 300 BETHLEHEM, PA 18018 TEL 610-625-2999 FAX 610-625-2969 www.landmassassociates.com	
OFFICES LOCATED IN: DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA	
DESIGNED BY: CRS CHECKED BY: HG DRAWN BY: CRS DATE: JULY 2020 SCALE: AS SHOWN PROJ. NO.: MRON-00414	DRAWING <b>DEM-1</b> SHEET <b>7</b> OF 17

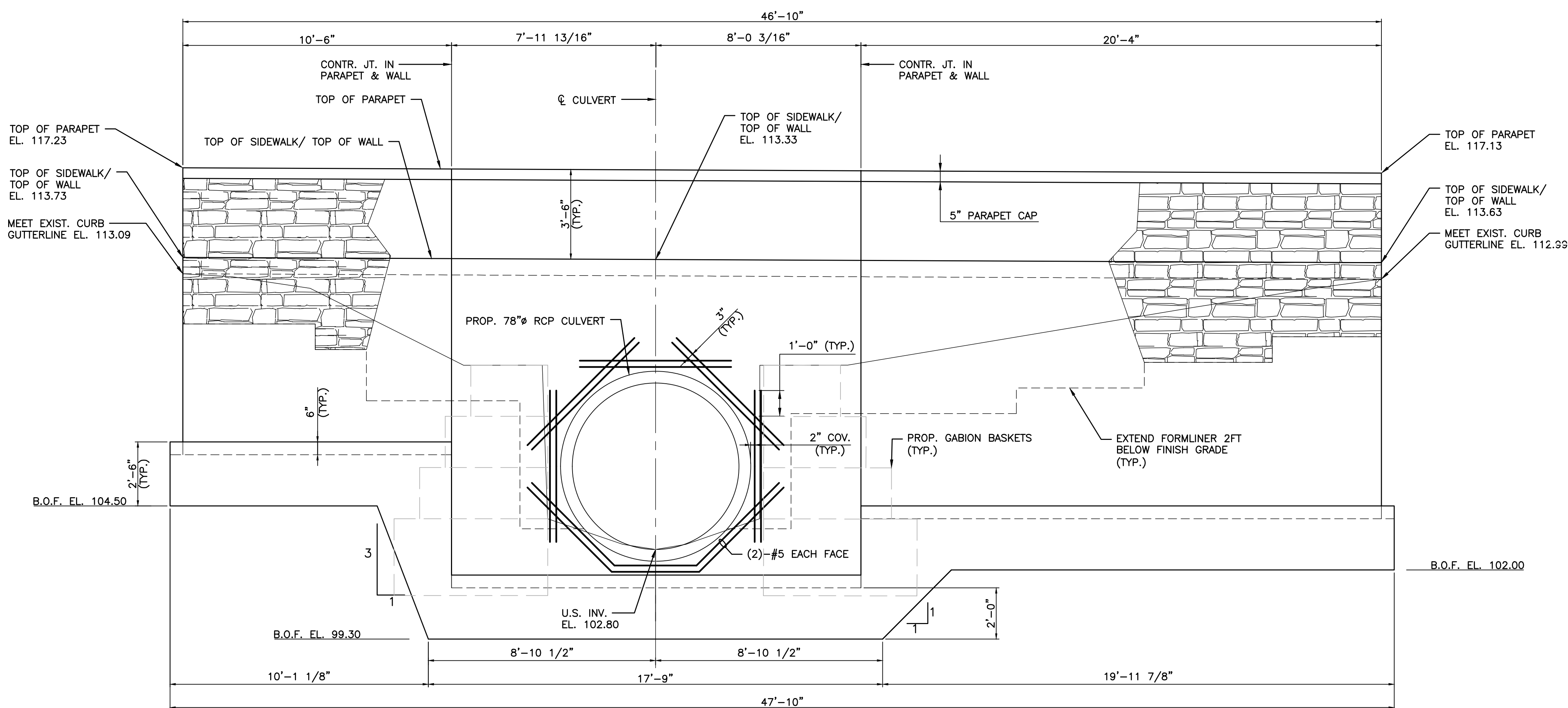


PROJECT INFORMATION:  
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 LAST SAVE BY: CStechura

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**SOUTH WALL FASCIA ELEVATION**  
 SCALE: 3/8" = 1'-0"  
 (LOOKING NORTH)

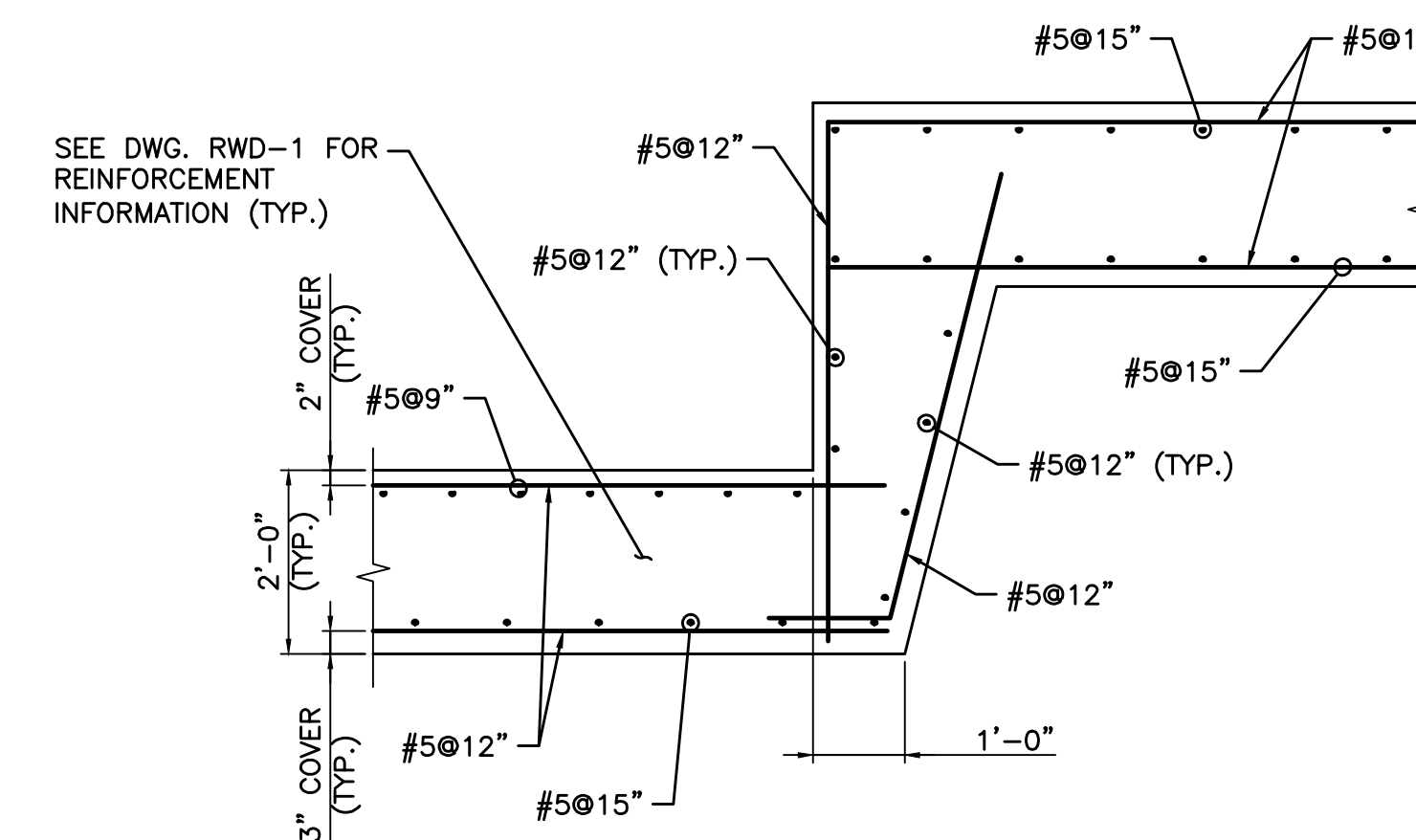


**NORTH WALL FASCIA ELEVATION**  
 SCALE: 3/8" = 1'-0"  
 (LOOKING SOUTH)

FORMLINER SPECIFICATIONS	
CUSTOMROCK PATTERN #12021 ASHLAR	
MAXIMUM RELIEF	1 1/2"
AVERAGE RELIEF	1 1/4"
LINER THICKNESS (INCLUDES INTERNAL PLYWOOD BACKING)	2 1/2"
STONE SIZE	2"x5" - 10"x20"

**FORMLINER NOTES:**

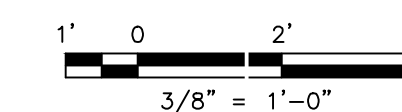
- #12021 "ASHLAR" BY CUSTOM-ROCK FORMLINERS OR APPROVED EQUAL.
- ALL PRECAST UNITS SHALL RECEIVE CONCRETE SURFACE STAIN ON SURFACES EXPOSED TO VIEW AND AS SHOWN ON DWG. GPE-1. STAIN SHALL BE A TWO-COMPONENT SILANE/ACRYLIC SEALER MANUFACTURED BY NOX-CRETE PRODUCTS GROUP, OMAHA, NE., OR APPROVED EQUAL. CONTRACTOR SHALL PROVIDE COLOR SAMPLES TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING. "DRYSTACK" PATTERN SHALL RECEIVE MULTIPLE COLORS.
- REFER TO SUPPLEMENTAL SPECIFICATION SECTION 1001.02 AND 1001.03 FOR FURTHER INFORMATION REGARDING ARCHITECTURAL SURFACE TREATMENT AND CONCRETE STAIN ON TEST PANELS AND PRODUCTION UNITS.
- THE MANUFACTURER SHALL SUBMIT A SHOP DRAWING IN ACCORDANCE WITH SUBSECTION 1001.03 OF THE SPECIFICATIONS WHICH DETAILS END OF PANEL CUTOFFS AND CAST-IN-PLACE SEGMENTS.
- PATTERN, COLOR AND CONCRETE STAINING SHALL BE CONSISTENT THROUGHOUT THE PROJECT WORK AREA. SUBMIT METHOD OF COLORIZING FOR PRECAST AND CAST-IN-PLACE MEMBERS IN ACCORDANCE WITH SUBSECTION 1001.03 OF THE SPECIFICATIONS.
- CONTRACTOR SHALL PROVIDE SURFACE FINISH AND STAIN ON THE TEST PANEL IN ACCORDANCE WITH SUBSECTION 1001.03 OF THE SPECIFICATIONS.



**TYPICAL STEP FOOTING DETAIL**  
 SCALE: 1/2" = 1'-0"

**REFERENCES:**

- FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE DWG. LEG-1.
- FOR GENERAL PLAN AND ELEVATION, SEE DWG. GPE-1.
- FOR TYPICAL WALL AND PARAPET SECTIONS, SEE DWG. RWD-1.
- FOR GABION WALL DETAILS, SEE DWG. GWD-1.



**Pennsylvania 811**

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NO.	BY	DATE	REVISIONS
1	WCM, DRF	08/20/2023	ADDED SOIL BORING LOCATIONS AND TABLE
2	WCM	08/20/2023	REV. PER PERIODIC 5/26/23 STRUCTURAL ADEQUACY REVIEW



**DARREN R. FERLAZZO, P.E.**  
 LICENSED PROFESSIONAL ENGINEER  
 COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. FE078046  
 DATE: 08/20/2023

**BRIDGE REPAIR PLANS**  
**BROWNIE ROAD BRIDGE**  
 UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

**RETAINING WALL ELEVATIONS**

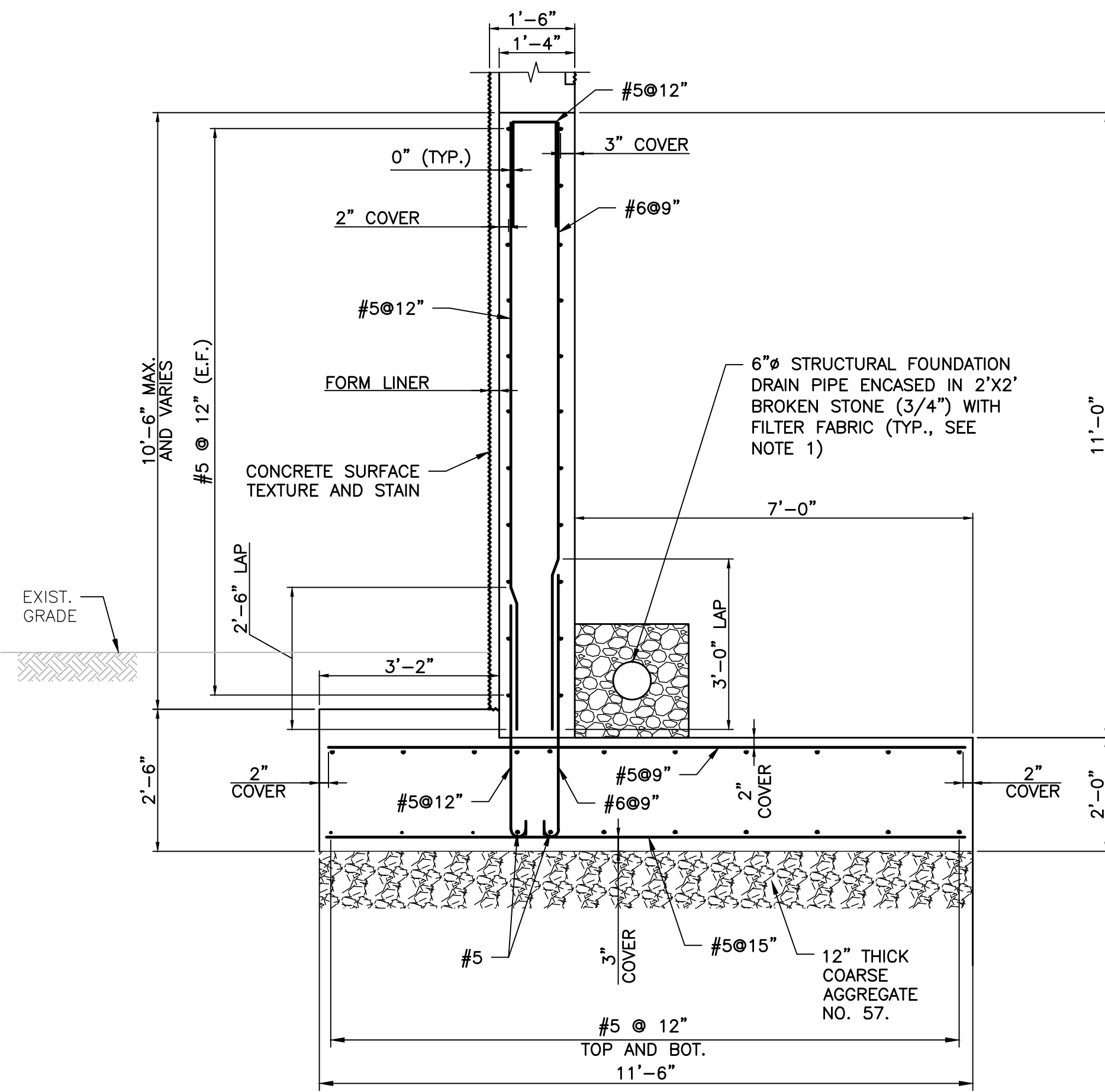
**AND**

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 74 WEST BROAD STREET,  
 SUITE 300  
 BETHLEHEM, PA 18018  
 TEL 610-625-2999  
 FAX 610-625-2969  
 www.landmassociates.com

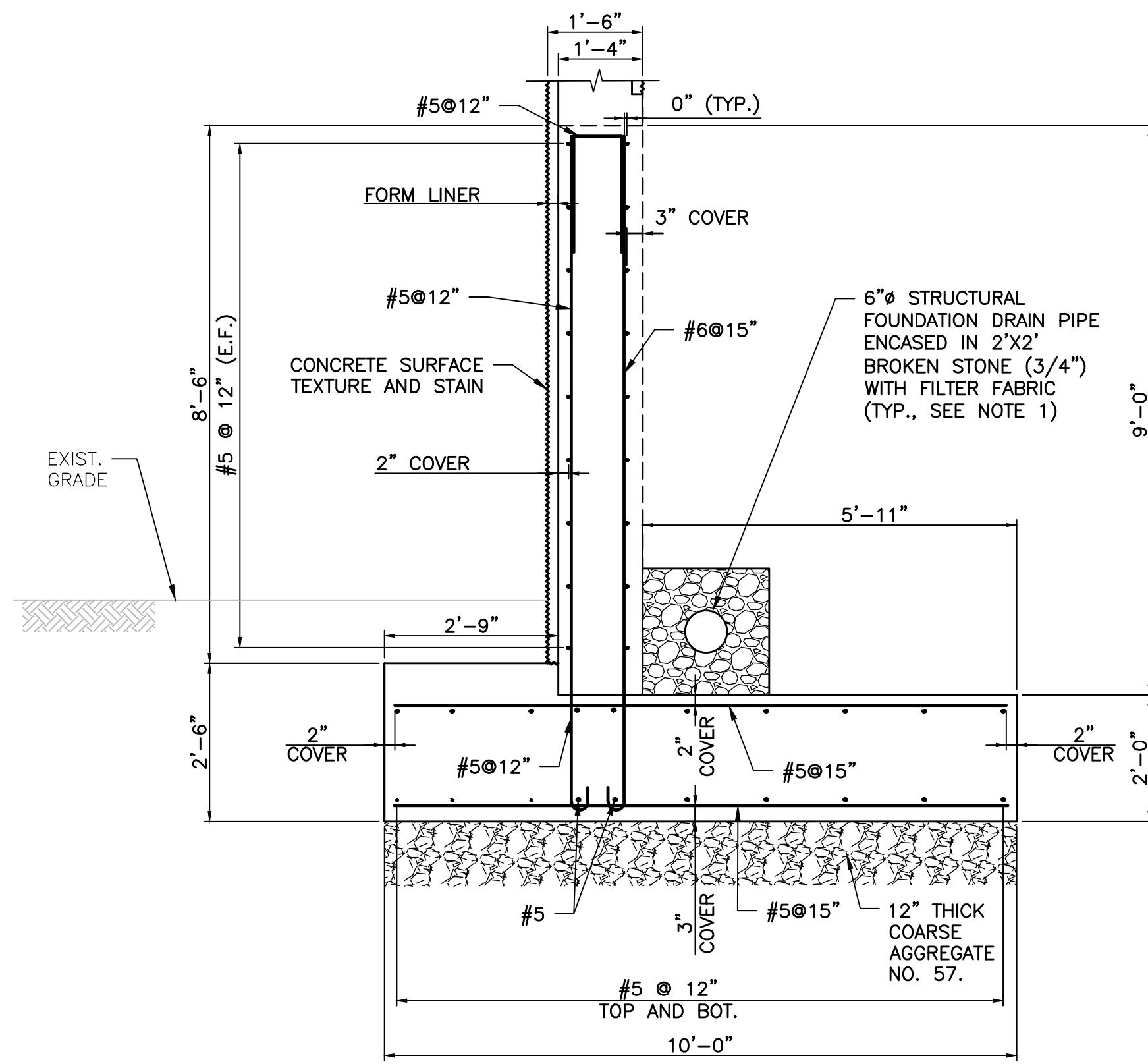
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DESIGNED BY	CRS	DRAWING	ELE-1
CHECKED BY	HG	SHEET	8
DRAWN BY	CRS	DATE	JULY 2020
SCALE	AS SHOWN	PROJ. NO.	MRON-00414

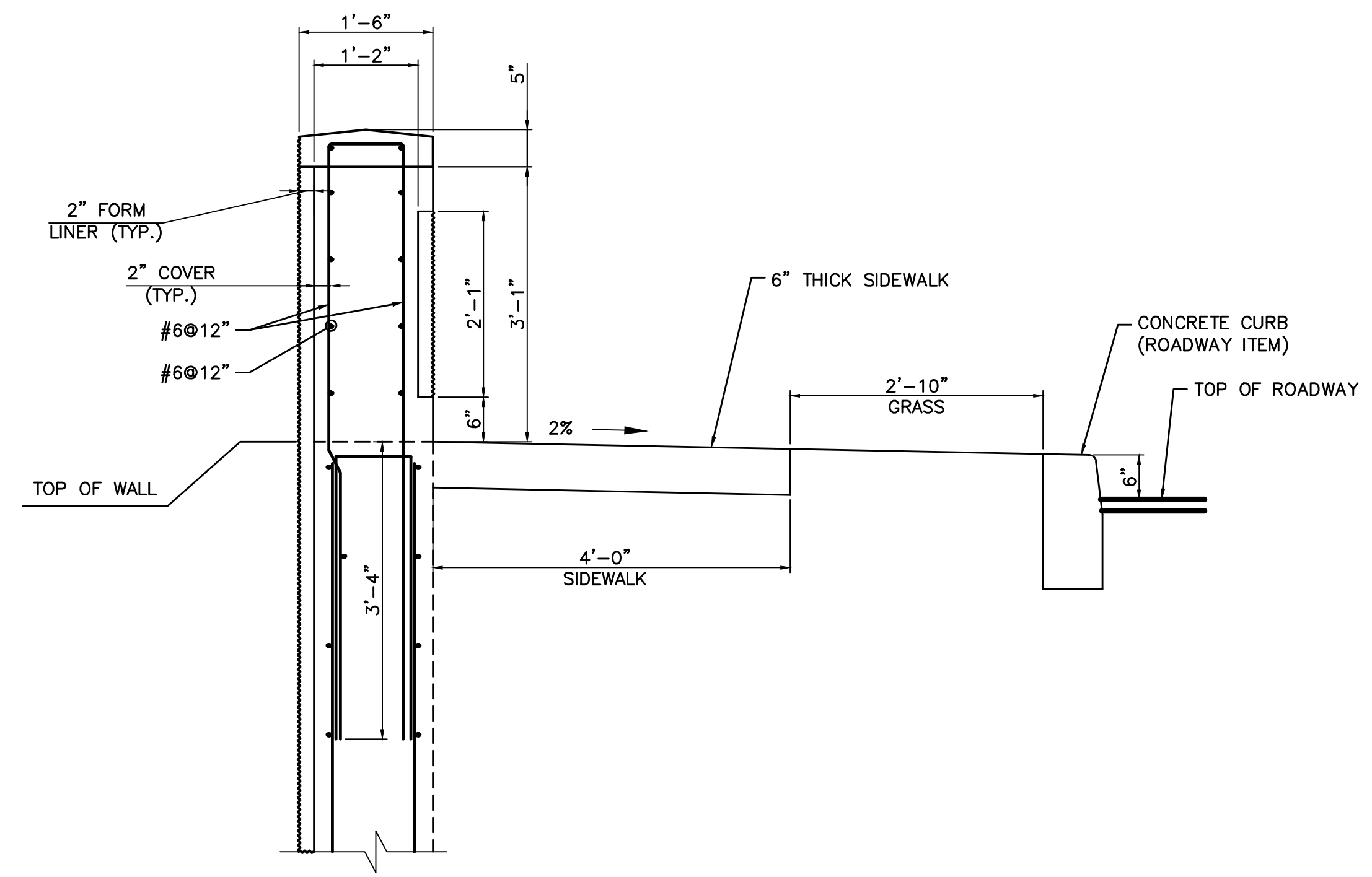




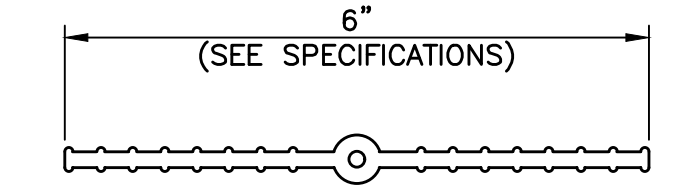
TYPICAL WINGWALL SECTION - 11 FT. HIGH  
SCALE: 1/2" = 1'-0"



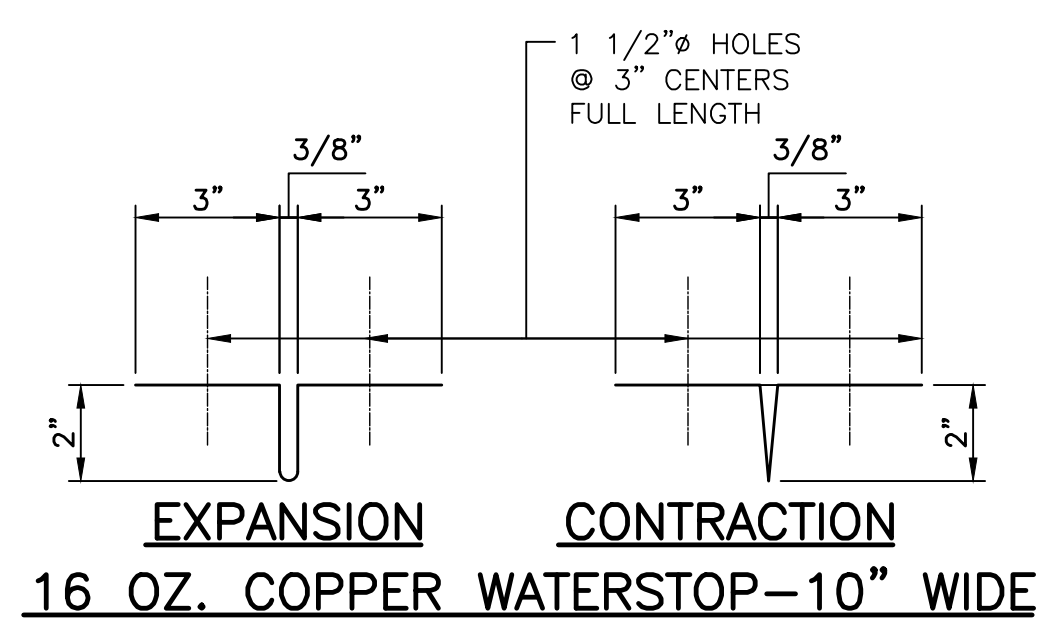
TYPICAL WINGWALL SECTION - 9 FT. HIGH  
SCALE: 1/2" = 1'-0"



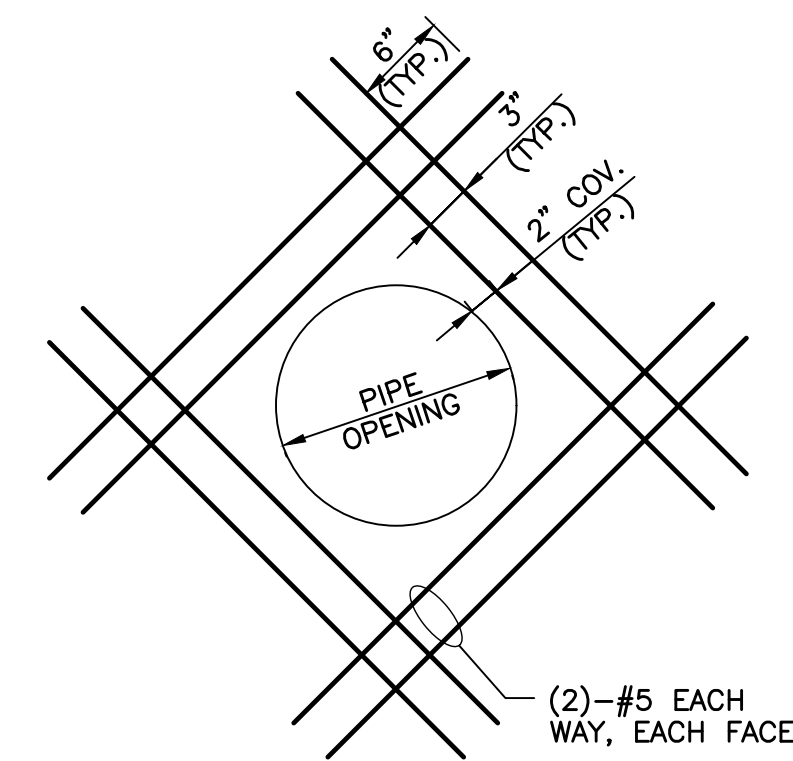
TYPICAL PARAPET SECTION  
SCALE: 3/4" = 1'-0"



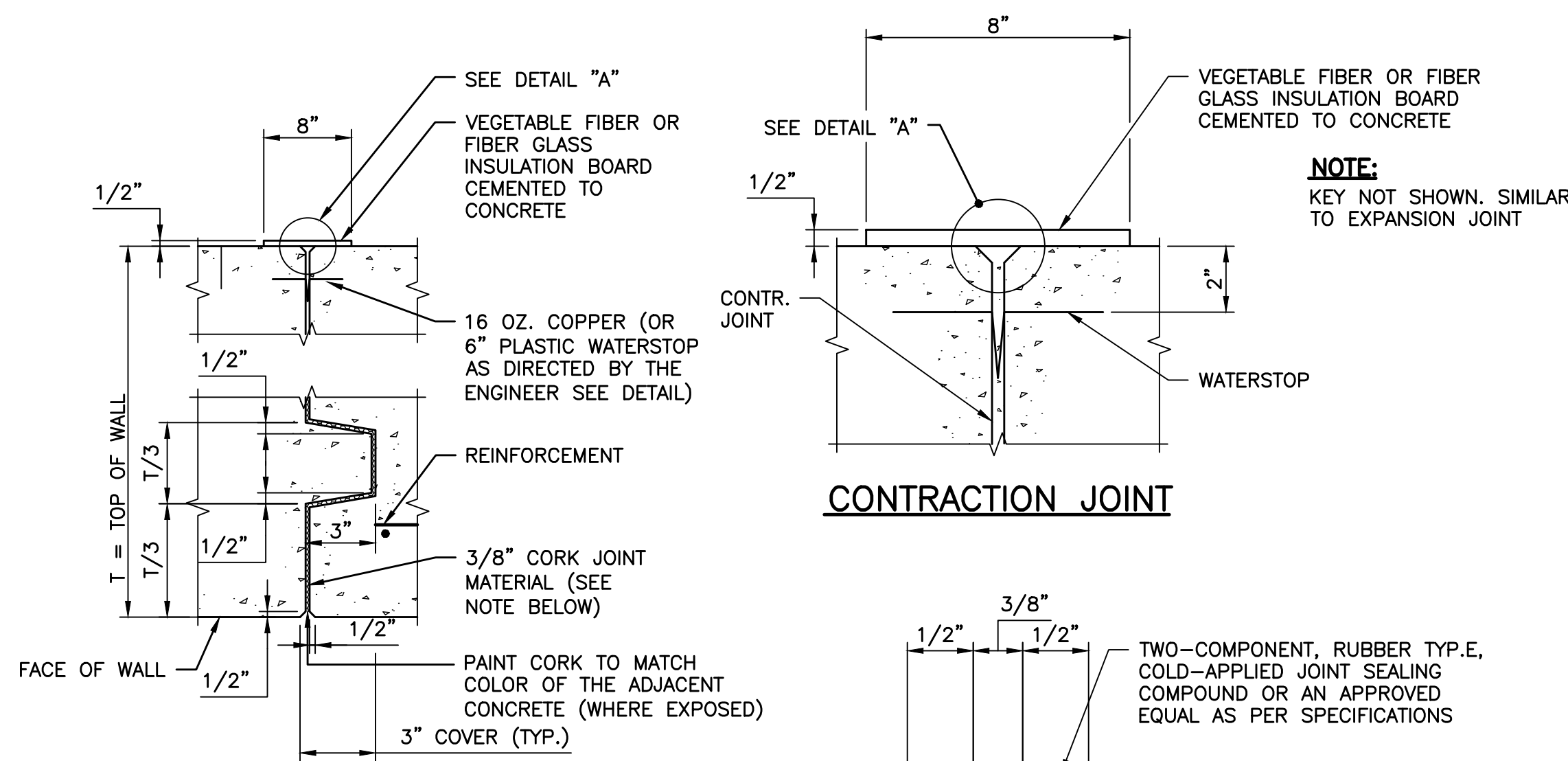
PLASTIC WATERSTOP DETAIL



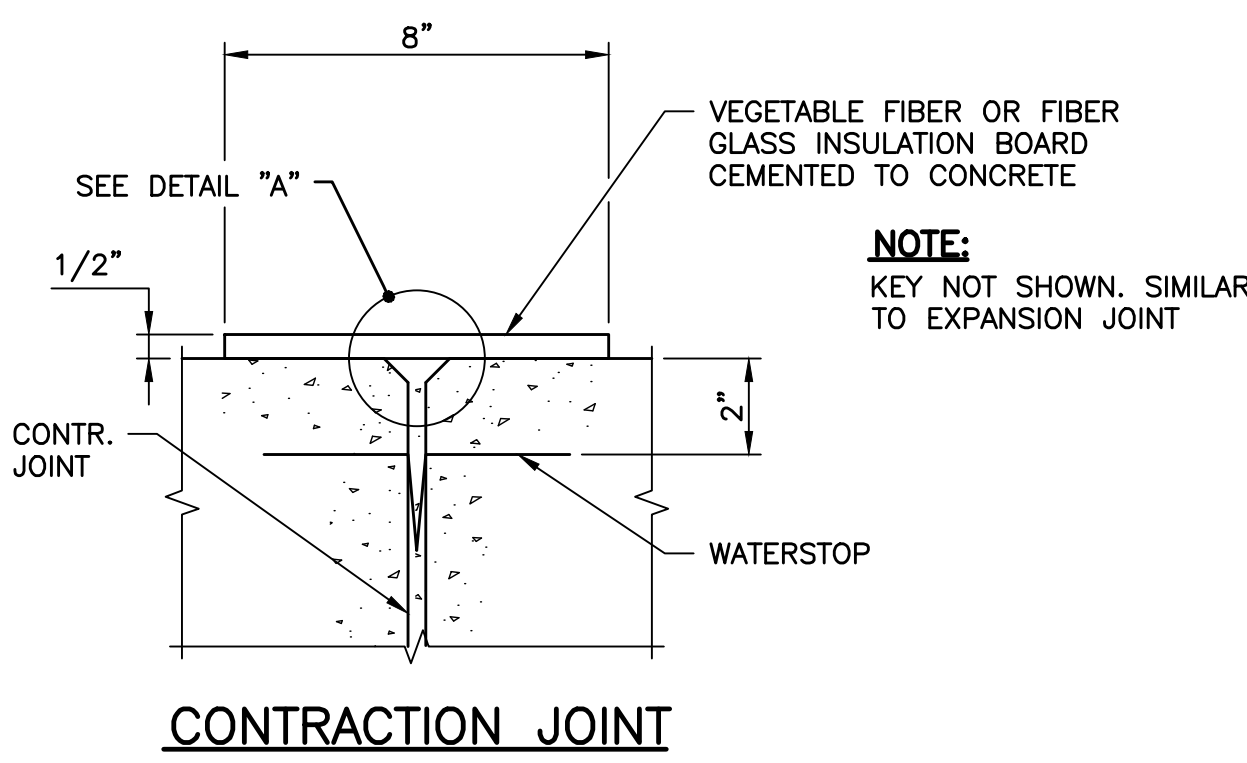
EXPANSION CONTRACTION  
16 OZ. COPPER WATERSTOP-10" WIDE  
WATERSTOP DETAILS  
N.T.S.



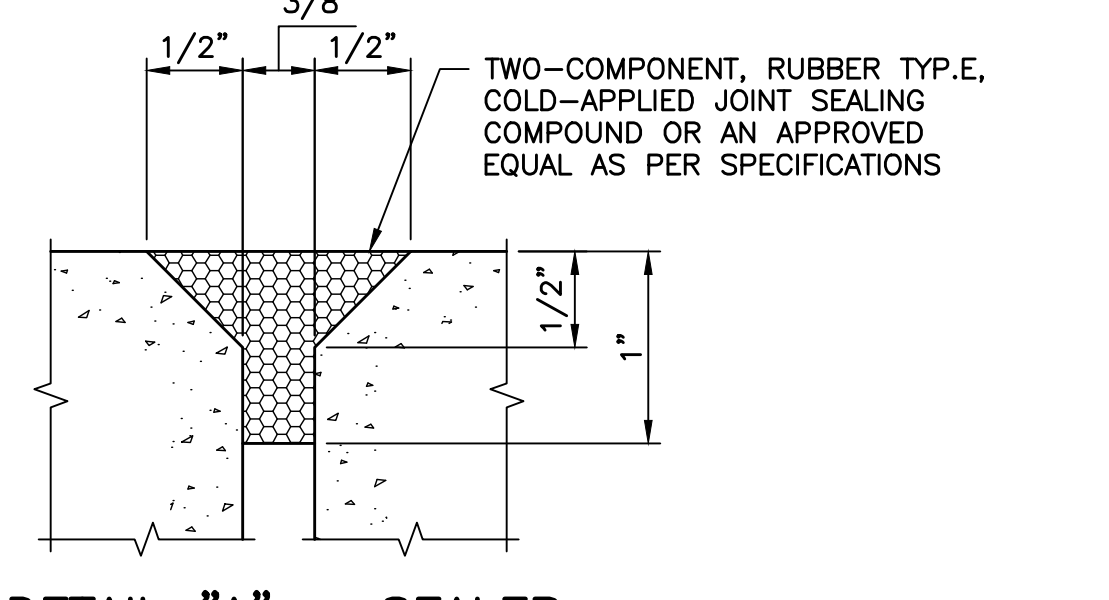
HEADWALL REINFORCEMENT AROUND  
6" PIPE OPENING  
SCALE: 1" = 1'-0"



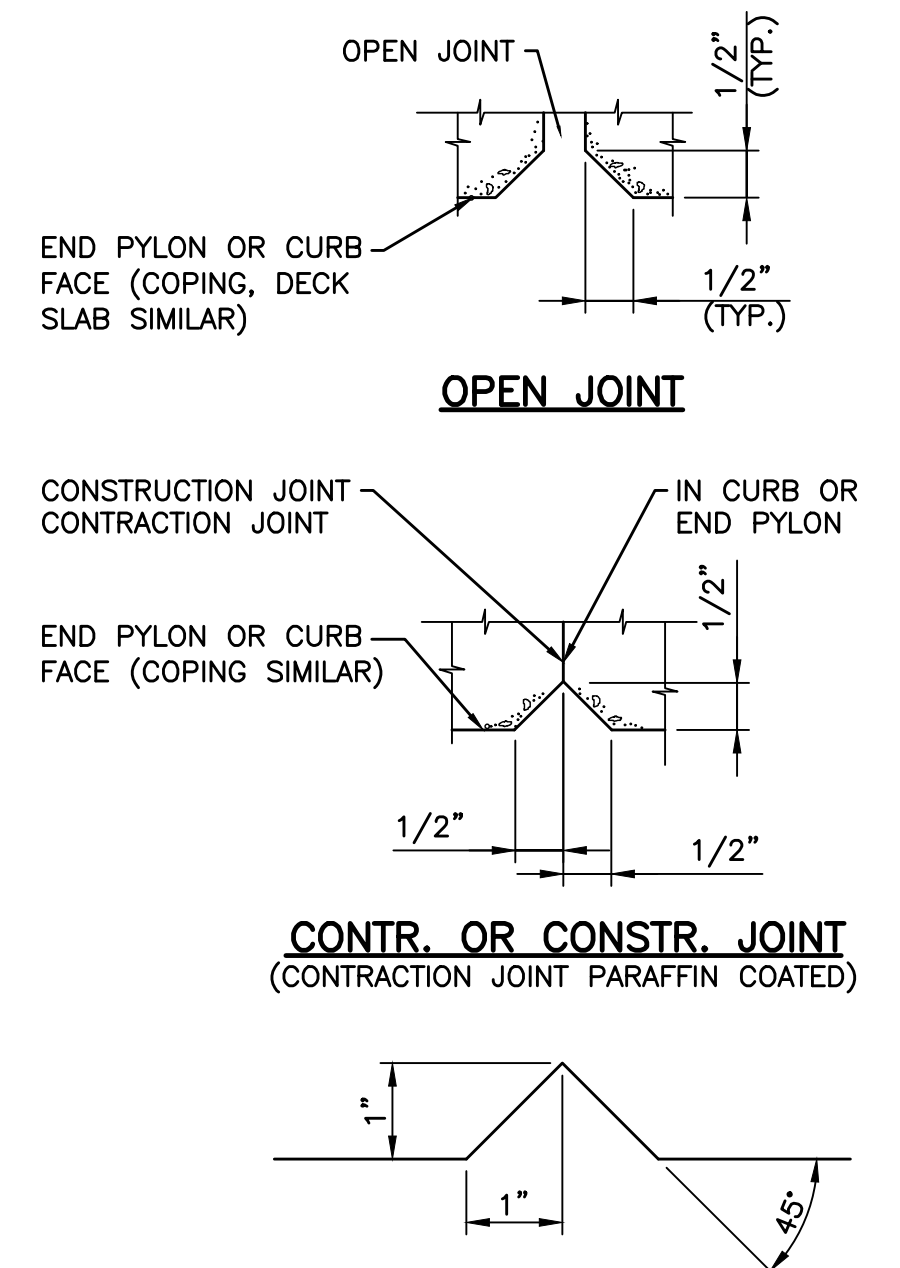
SECTION THROUGH EXPANSION JOINT



CONTRACTION JOINT



DETAIL "A" - SEALER



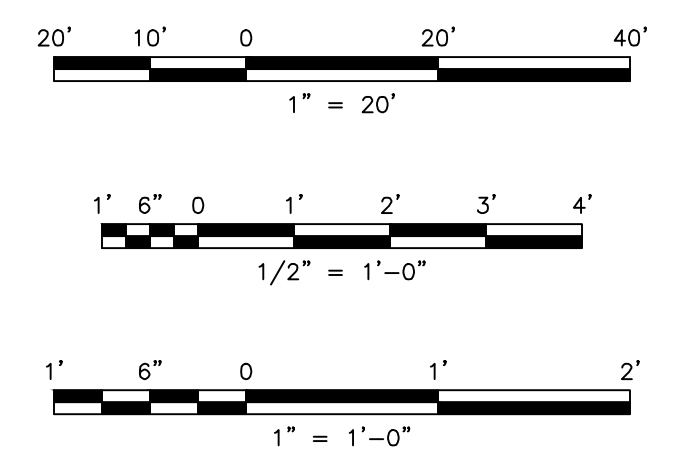
1" X 1" V-GROOVE DETAIL  
PARAPET JOINT DETAILS  
N.T.S.

- JOINT NOTES:**
- CORK JOINT MATERIAL: CONFORMING TO AASHTO SPECIFICATIONS, DESIGNATION M153, TYP.E 2, WHERE JOINT IS NOTED AS EXPANSION JOINT.
  - CONTRACTION JOINTS: SHALL BE TIGHT AND SHALL BE PARAFFIN COATED, DISCONTINUE KEY AND WATERSTOP 6" BELOW TOP OF WALL.
  - REINFORCING STEEL TO DISCONTINUE AT CONTRACTION & EXPANSION JOINTS. PROVIDE 3" COVER HORIZONTALLY.

JOINT AND KEY DETAILS  
N.T.S.

- NOTES:**
- UNDERDRAIN NOTES:
    - UNDERDRAIN PIPE SHALL BE PERFORATED HIGH DENSITY POLYETHYLENE PIPE.
    - THE COST FOR THE GEOTEXTILE AND STONE POCKET SHALL BE IN THE PAYMENT FOR "6" PIPE UNDERDRAIN, TYPE 1 BACKFILL."

- REFERENCES:**
- FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE DWG. LEG-1.
  - FOR GENERAL PLAN AND ELEVATION, SEE DWG. GPE-1.
  - FOR RETAINING WALL ELEVATIONS, SEE DWG. ELE-1.



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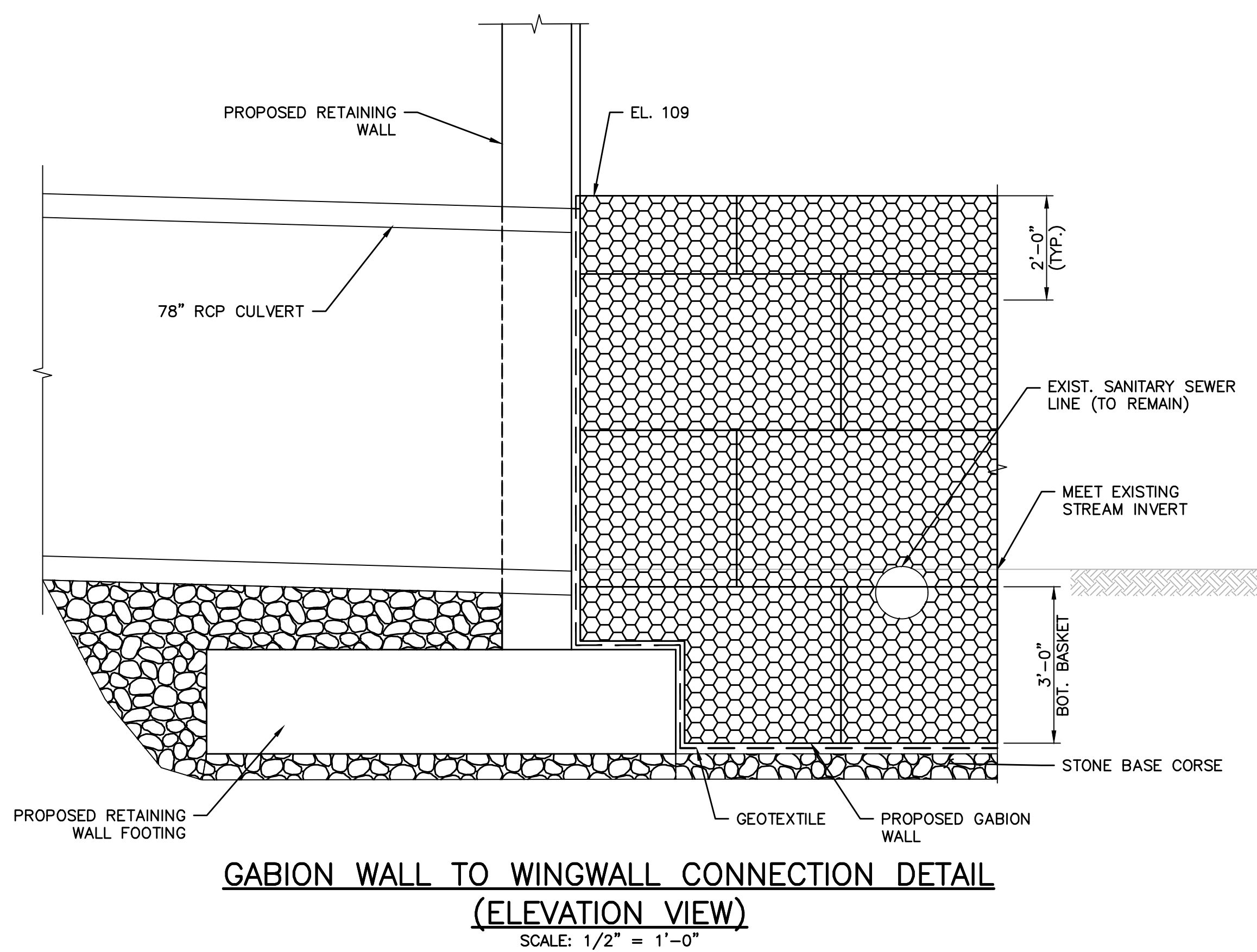
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 LAST SAVE BY: WMcIntire

		DATE: 08/30/2023 COMMONWEALTH OF PENNSYLVANIA LICENSE NO. FE078046
<b>DARREN R. FERLAZZO, P.E.</b> LICENSED PROFESSIONAL ENGINEER		UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA
<b>BRIDGE REPAIR PLANS</b> <b>BROWNIE ROAD BRIDGE</b>		<b>RETAINING WALL DETAILS</b>
DESIGNED BY: CRS CHECKED BY: HG DRAWN BY: CRS DATE: JULY 2020 SCALE: AS SHOWN PROJ. NO. MRON-00414	DRAWING: <b>RWD-1</b> SHEET: <b>9</b> OF <b>17</b>	REVISIONS NO. 1 BY: WCM, DRF DATE: 6/22/23 REV. PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW

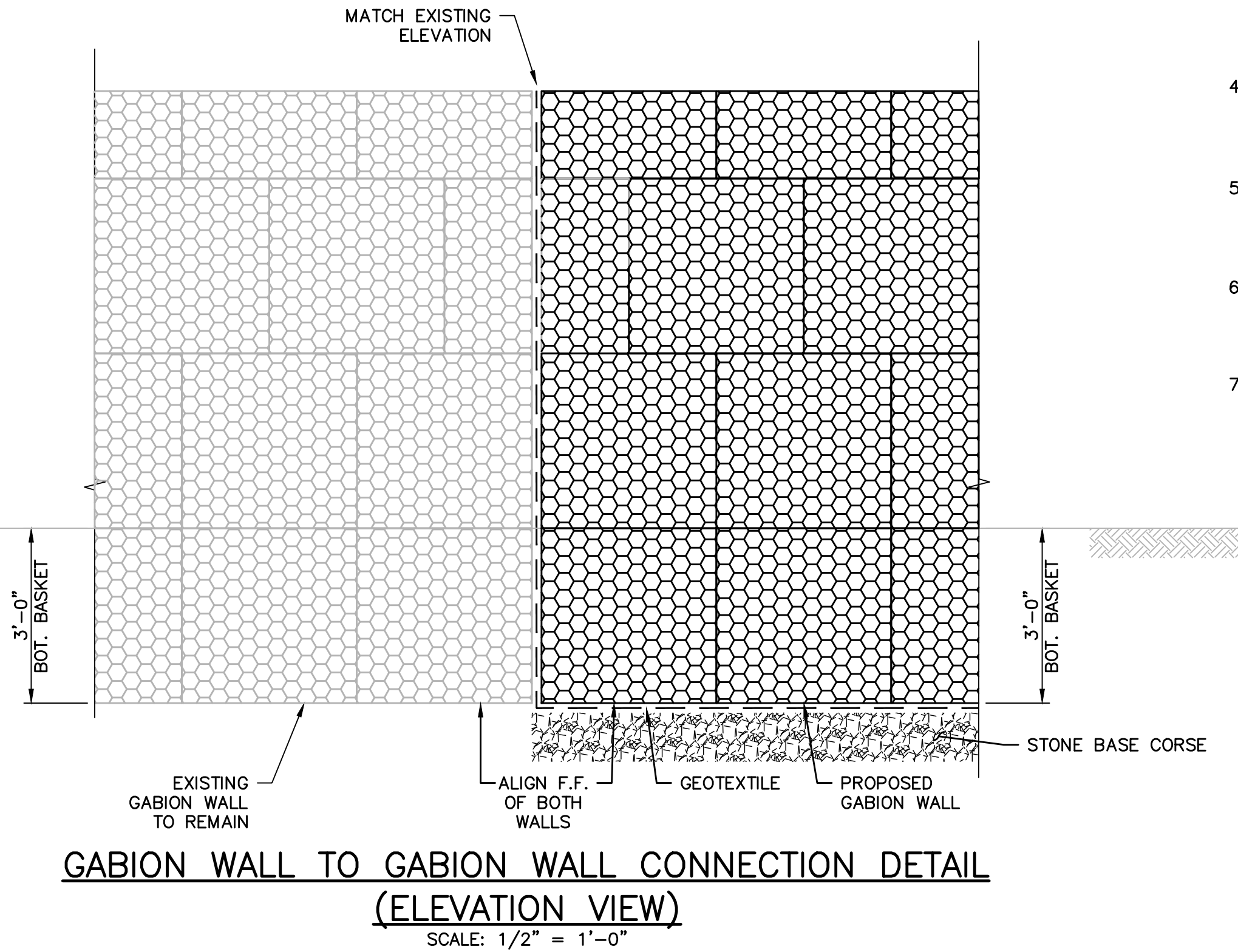


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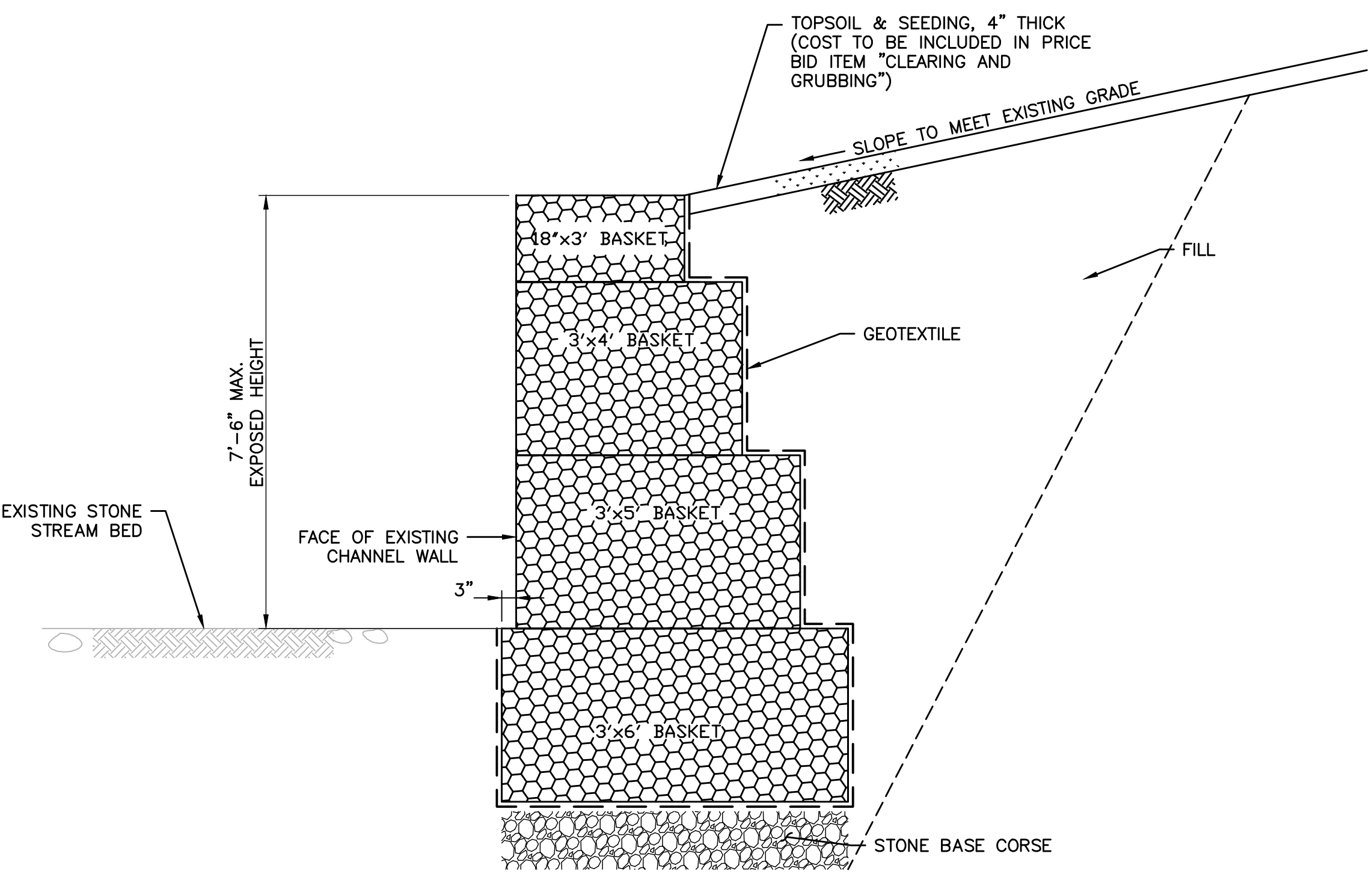
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 LAST SAVE BY: WMcClure



**GABION WALL TO WINGWALL CONNECTION DETAIL**  
 (ELEVATION VIEW)  
 SCALE: 1/2" = 1'-0"



**GABION WALL TO GABION WALL CONNECTION DETAIL**  
 (ELEVATION VIEW)  
 SCALE: 1/2" = 1'-0"



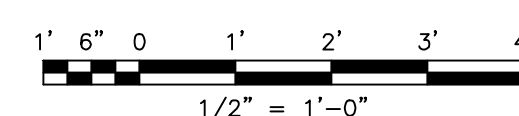
**GABION WALL DETAIL**  
 SCALE: 1/2" = 1'-0"

**GABION WALL NOTES:**

- GABION BASKETS/ MATTERESS WIRE MESH SHALL BE GALVANIZED STEEL AND PVC COATED UNITS (SIZE AS INDICATED ON THE SECTIONS) MANUFACTURED BY MACCAFERRI, INC., WILLIAMSPORT, MD, OR APPROVED EQUAL.
- ALL GABION BASKETS SHALL HAVE D50 = 4" TO 7" STONES FILLED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS. ALL STONES SHALL BE ANGULAR IN SHAPE AND CONFIGURATION. ALL STONES SHALL BE HAND STACKED IN THE BASKETS TO PROVE TIGHT SECURE FIT IN THE BASKET. DUMPING OF STONES IN THE BASKETS SHALL NOT BE PERMITTED.
- THE WIRE MESH SHALL BE GALVANIZED STEEL WIRE NO. 12 GAUGE WIRE CORE FOR HEIGHTS 12" OR OVER, THE MAXIMUM LINEAR DIMENSION OF THE MESH OPENING SHALL NOT EXCEED 4 1/2" AND THE MESH OPENING AREA SHALL NOT EXCEED 8 SQUARE INCHES.
- GEOTEXTILE USED SHALL BE MACCAFERRI MACTEX GEOTEXTILE MANUFACTURED BY MACCAFERRI, INC., WILLIAMSPORT, MD, OR APPROVED EQUAL. THERE SHALL BE NO SEPARATE PAYMENT FOR GEOTEXTILE. THE COST SHALL BE INCLUDED IN THE PAY ITEM FOR GABION WALLS.
- THE COST OF EXCAVATION AND REMOVAL OF SOIL AND/OR OBSTRUCTIONS REQUIRED TO CONSTRUCT ANY OF THE GABION PROTECTION SHALL BE INCLUDED IN THE VARIOUS GABION PROTECTION PAY ITEMS IN THE PROPOSAL AND WILL NOT BE MEASURED FOR PAYMENT.
- THE COST OF GABION CUTOFF WALL SHALL BE INCLUDED IN THE PAY ITEM FOR GABION WALLS.

**REFERENCES:**

- FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE DWG. LEG-1.
- FOR GENERAL PLAN AND ELEVATION, SEE DWG. GPE-1.
- FOR RETAINING WALL ELEVATIONS, SEE DWG. ELE-1.
- FOR TYPICAL WALL AND PARAPET SECTIONS, SEE DWG. RWD-1



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NO.	BY	REVISIONS	DATE
2	WCM	ADDED SOIL BORING LOCATIONS AND TABLE	8/1/23
1	WCM, DRF	REV. PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW	6/22/23

**DARREN R. FERLAZZO, P.E.**  
 LICENSED PROFESSIONAL ENGINEER

08/30/2023 DATE

COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. FE078046

**BRIDGE REPAIR PLANS**

**BROWNIE ROAD BRIDGE**

UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

**GABION WALL DETAILS**

**AND**

**YOUR GOALS. OUR MISSION.**  
 74 WEST BROAD STREET, SUITE 300  
 BETHLEHEM, PA 18018  
 TEL 610-625-2999  
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DESIGNED BY: CRS

CHECKED BY: HG

DRAWN BY: CRS

DATE: JULY 2020

SCALE: AS SHOWN

PROJ. NO.: MRON-00414

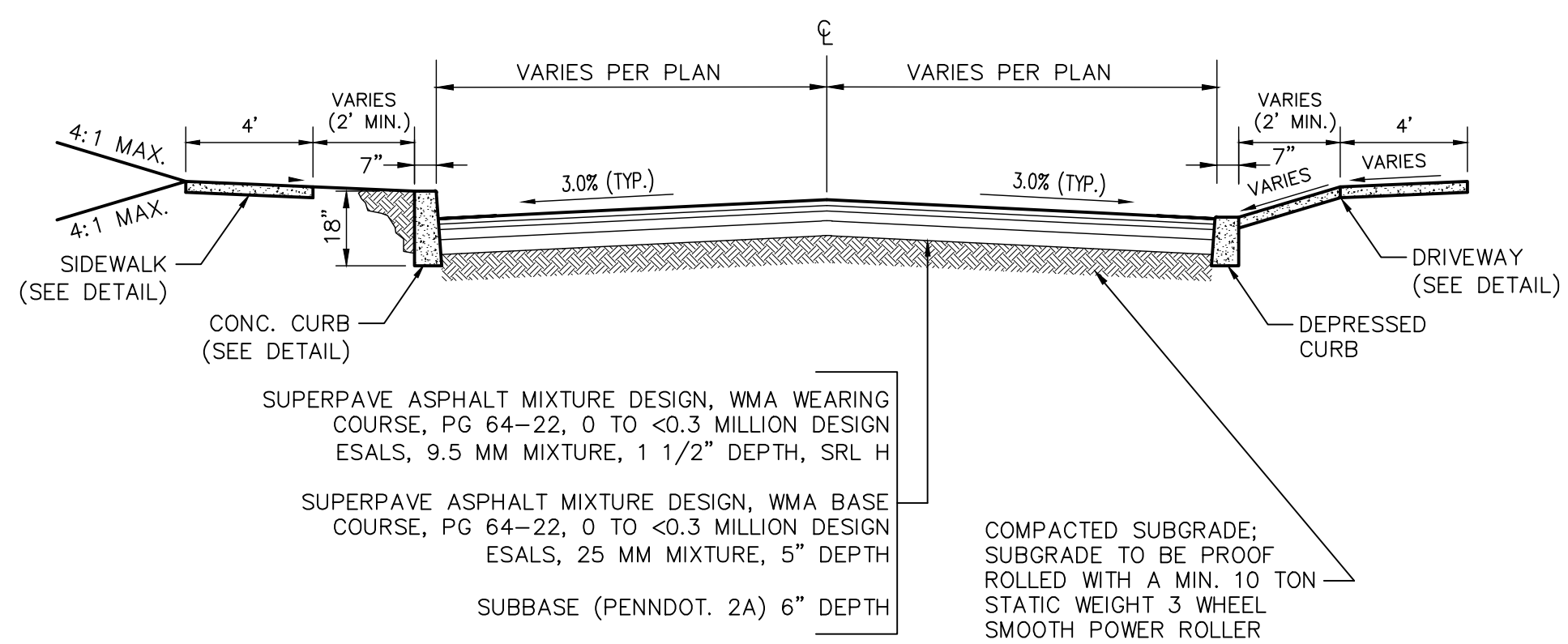
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SHEET: **10**

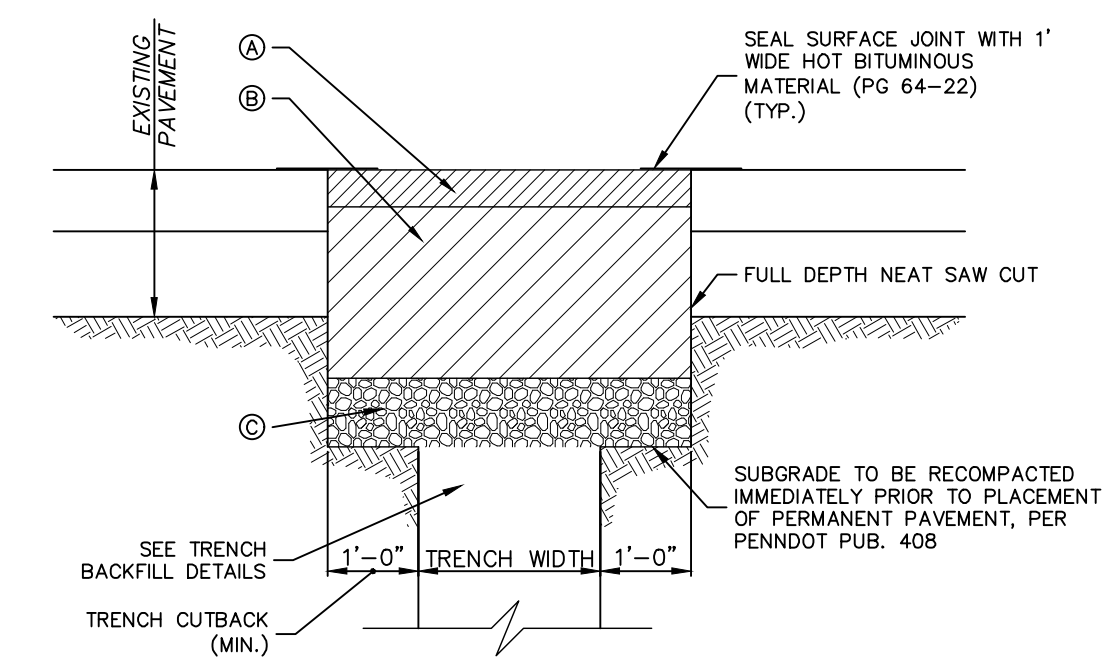
OF **17**



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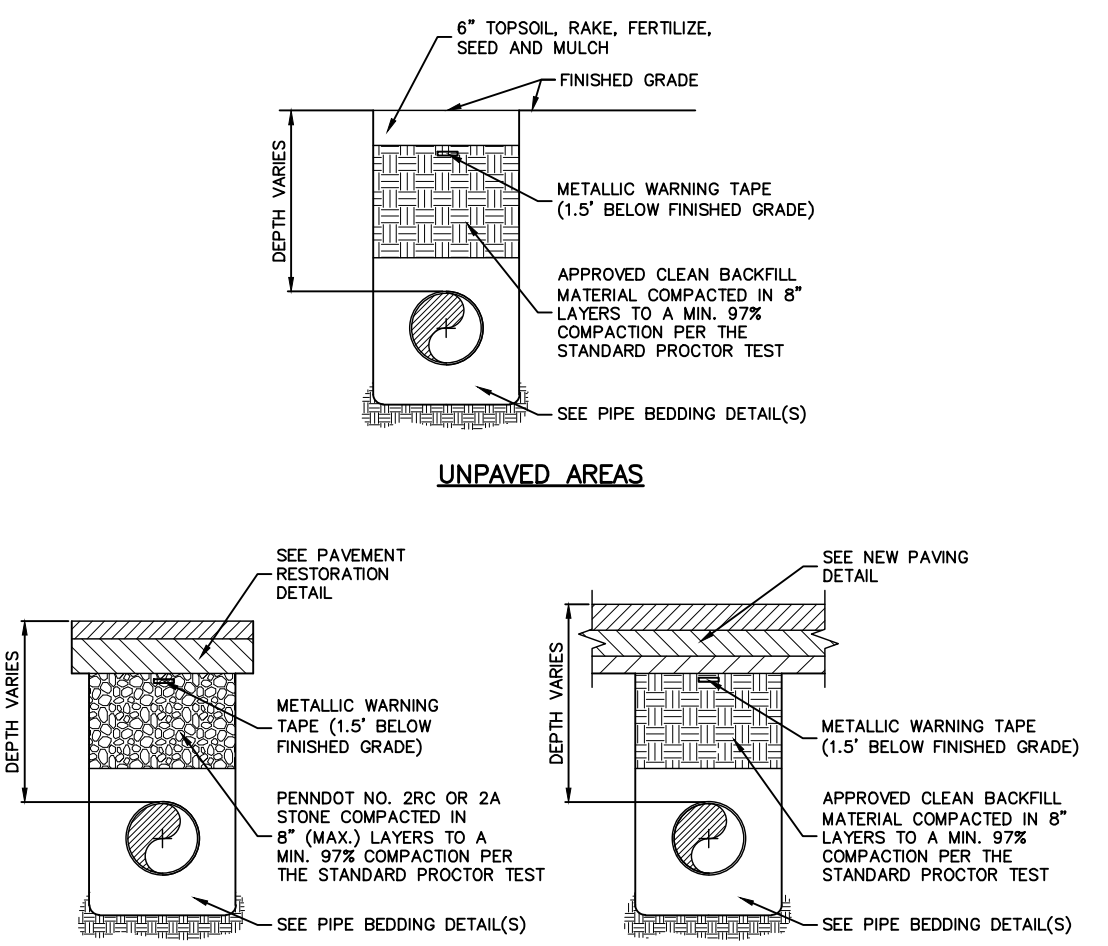


- NOTES:
- (1) SUBGRADE TO BE SHAPED AND COMPACTED PRIOR TO PLACING SUBBASE.
  - (2) GUTTER TO BE SEALED ONE FOOT OUT AND ONE INCH UP ON FACE OF CURB WITH AC-20.

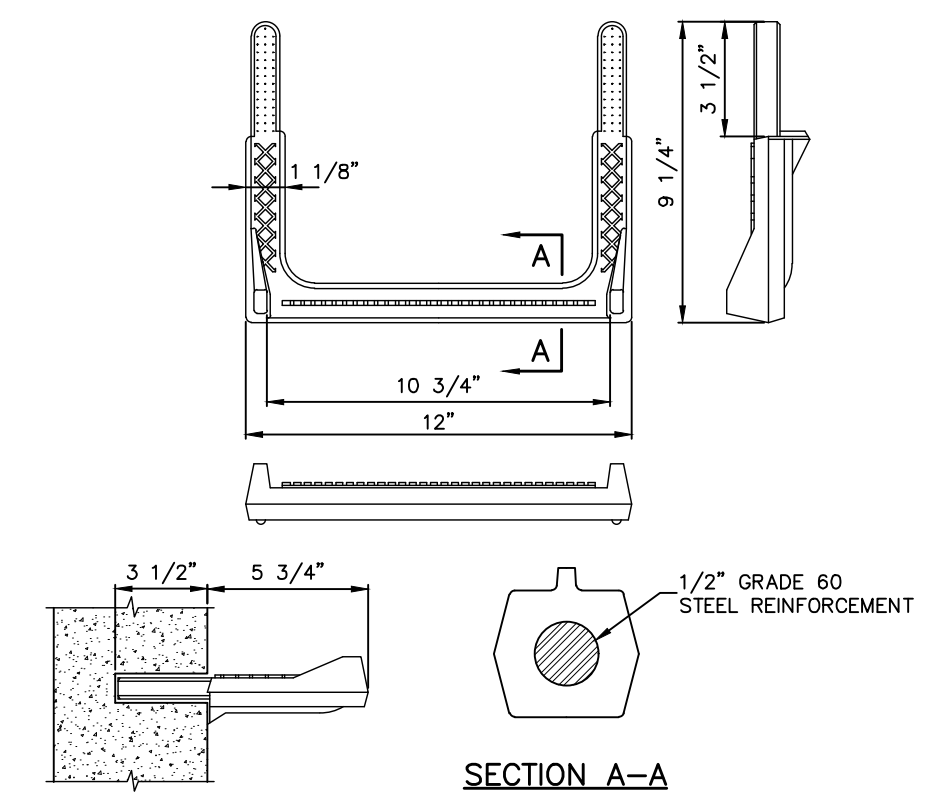


- NOTES:
- EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS STATED IN PENNDOT PUB. 408, SECT. 401.3(f).
  - TACK COAT MATERIAL SHALL BE APPLIED TO THE ENTIRE SURFACE PRIOR TO APPLICATION OF THE WEARING SURFACE UNLESS WAIVED BY PENNDOT.
  - ALL MATERIAL AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408, LATEST REVISION.
  - IF WORK IS COMPLETED WITHIN PENNDOT RIGHT OF WAY, SPECIAL CONDITIONS OF THE HIGHWAY OCCUPANCY PERMIT SHALL SUPERCEDE THIS DETAIL.
  - REFER TO TYPICAL STREET CROSS SECTION FOR DESCRIPTIONS OF A,B,C AND D.

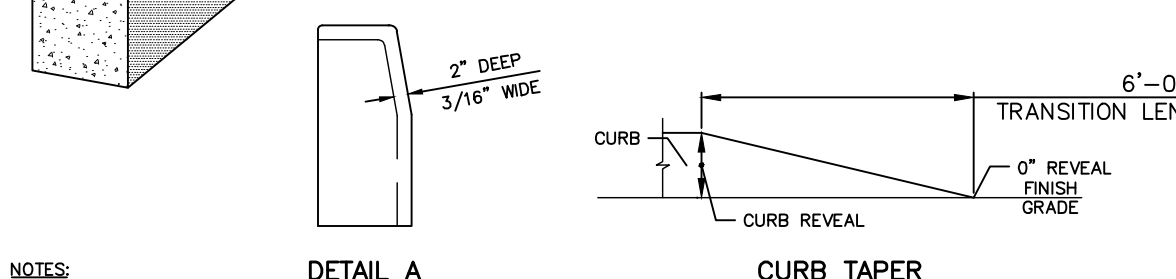
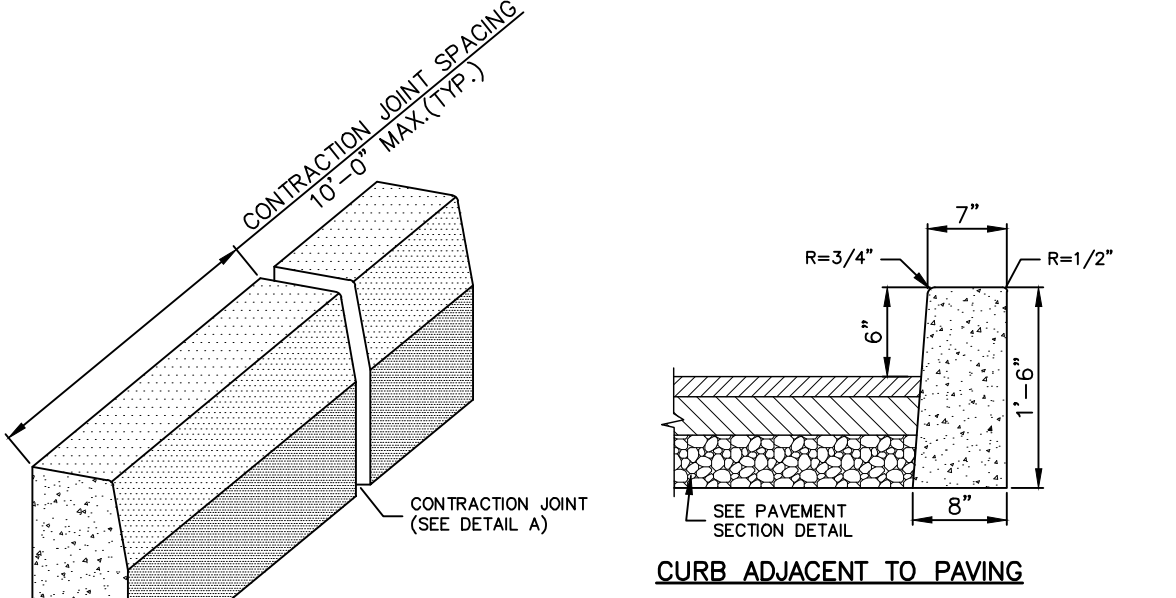
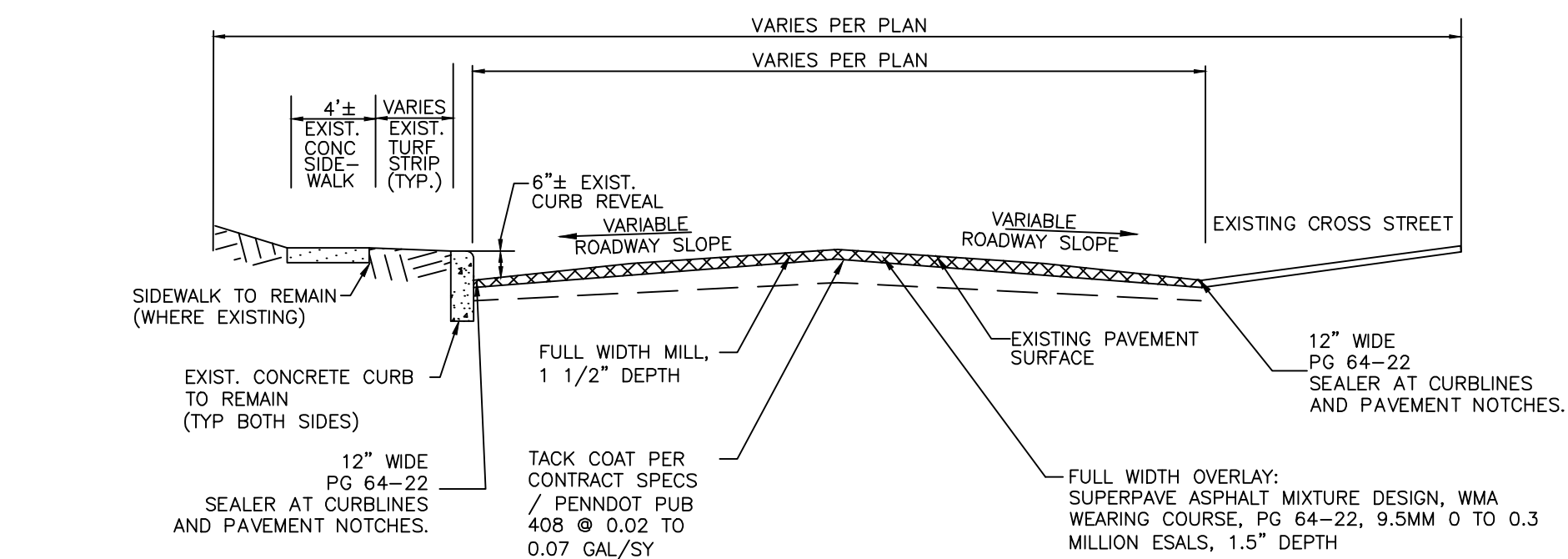
- (A) SUPERPAVE ASPHALT MIXTURE DESIGN, WMA WEARING COURSE, PG 64-22, 0 TO 0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2" DEPTH, SRL H  
 (B) SUPERPAVE ASPHALT MIXTURE DESIGN, WMA BASE COURSE, PG 64-22, 0 TO 0.3 MILLION DESIGN ESALS, 25 MM MIXTURE, 5" DEPTH  
 (C) SUBBASE (PENNDOT. 2A) 6" DEPTH



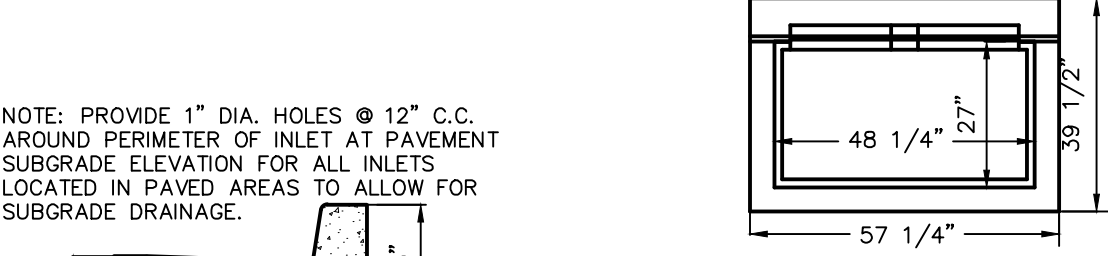
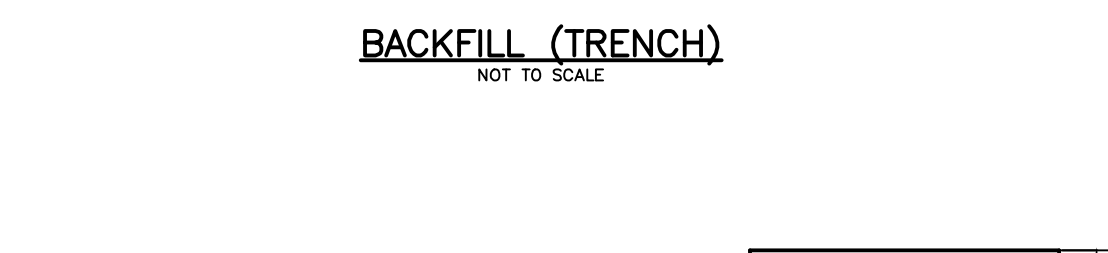
- NOTES:
- TRENCH COMPACTION TO BE TESTED, AT THE DEVELOPER'S EXPENSE, IN ACCORDANCE WITH PENNDOT PUB 408, LATEST REVISION, AS REQUIRED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.
  - CLEAN FILL MUST BE APPROVED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION PRIOR TO PLACEMENT IN THE TRENCH.
  - AREAS AROUND MANHOLES, INLETS, AND OTHER APPURTENANCES SHALL BE HAND COMPACTED AS DIRECTED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.
  - NO SLAG MATERIAL PERMITTED.
  - IF WATER IS ENCOUNTERED IN THE EXCAVATION TRENCH, AASHTO #57 AGGREGATE MUST BE USED.
  - ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408 AND 67 PA CODE SECTION 459.
  - UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO COLLECT IN EXCAVATED TRENCHES. ANY WATER IN THE TRENCHES SHALL BE REMOVED THROUGH A PUMPED WATER FILTER BAG.



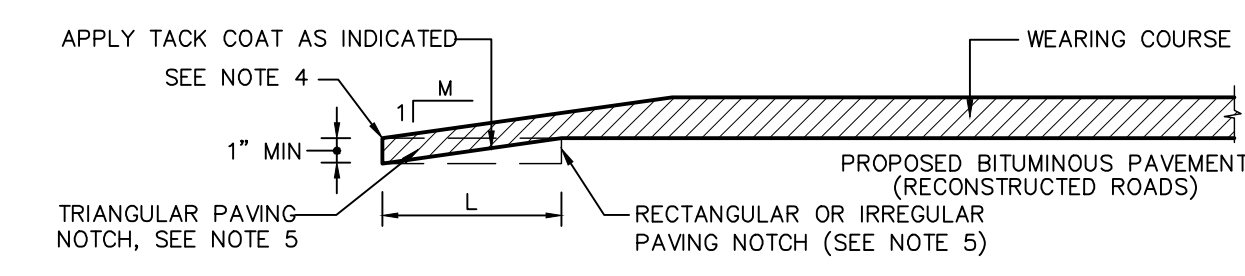
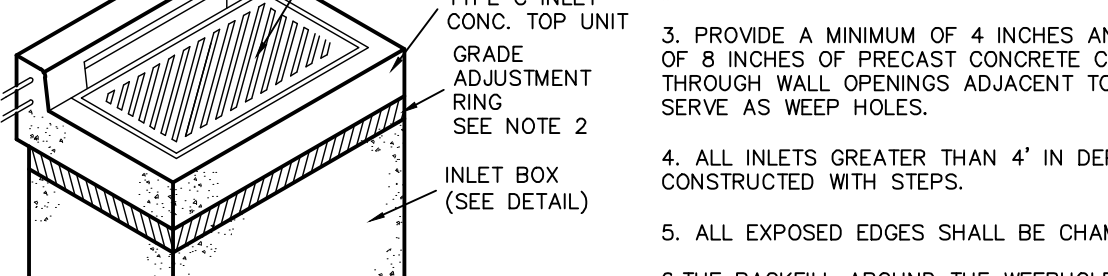
- NOTES:
- STEPS FOR ALL MANHOLES AND INLETS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC MODEL NO. PS-4-B AS MANUFACTURED BY M.A. INDUSTRIES INC. OR APPROVED EQUAL.
  - THE PORTION TO BE EMBEDDED IN THE CONCRETE SHALL BE IN ACCORDANCE WITH THE LATEST O.S.H.A. STANDARDS (3 1/2" MINIMUM EMBEDMENT).
  - ALL MANHOLE STEPS TO MEET OR EXCEED ASTM AND O.S.H.A. STANDARDS.
  - VERTICAL SPACING OF STEPS TO BE 1'.



- NOTES:
- CONCRETE SHALL BE 3000 PSI COMPRESSIVE STRENGTH.
  - A PREMOULDED BITUMINOUS-IMPERVED ONE-HALF-INCH (1/2") EXPANSION JOINT SHALL BE PLACED BETWEEN SECTIONS OF CURBING AT INTERVALS OF NOT MORE THAN 30 FEET AND AT THE END OF THE WORK DAY.
  - FLEXIBLE FORMS SHALL BE REQUIRED FOR ALL CURB RADI WITH A RADIUS OF LESS THAN 150 FEET.
  - WHERE THE SUBGRADE IS SOFT OR SPONGY, AS DETERMINED BY THE MUNICIPAL ENGINEER, A LAYER OF CRUSHED STONE NOT LESS THAN 4" THICKNESS SHALL BE PLACED UNDER THE CURB.
  - CURBS SHALL BE CONSTRUCTED IN 10 FOOT LENGTHS.
  - AC-20 OR EQUAL GUTTER/PAVEMENT JOINT SEALER TO BE PROVIDED 1 FOOT OUT AND 1" UP FACE OF CURB.

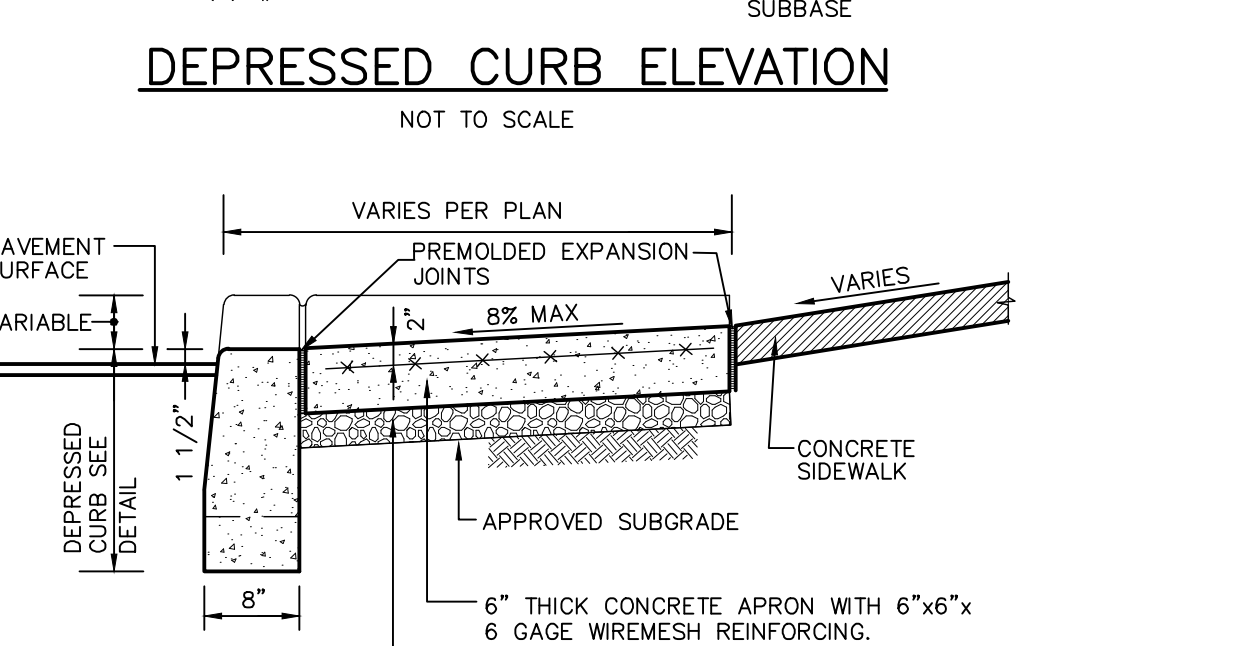
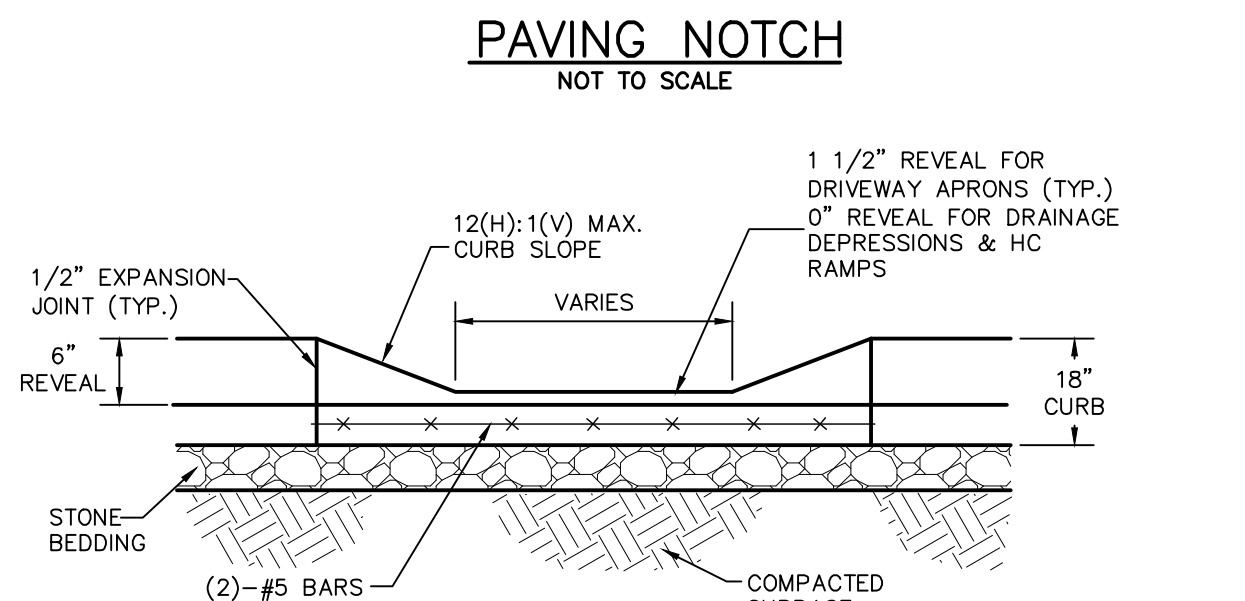


- NOTE: PROVIDE 1" DIA. HOLES @ 12" C.C. AROUND PERIMETER OF INLET AT PAVEMENT SUBGRADE ELEVATION FOR ALL INLETS LOCATED IN PAVED AREAS TO ALLOW FOR SUBGRADE DRAINAGE.
- NOTES:
- CONSTRUCT IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECT. 605, FOR INLET ASSEMBLIES.
  - PROVIDE (HS-25 LOADING) BICYCLE-SAFE, STRUCTURAL STEEL GRATE AS DETAILED IN PENNDOT RC-34, SHEET 3 OF 10
  - PROVIDE A MINIMUM OF 4 INCHES AND A MAXIMUM OF 8 INCHES OF PRECAST CONCRETE COLLARS WITH THROUGH WALL OPENINGS ADJACENT TO SUBGRADE TO SERVE AS WEEP HOLES.
  - ALL INLETS GREATER THAN 4' IN DEPTH SHALL BE CONSTRUCTED WITH STEPS.
  - ALL EXPOSED EDGES SHALL BE CHAMFERED 1"x1".
  - THE BACKFILL AROUND THE WEEPHOLES SHALL NOT BE SLOTTED; I.E. PLACE CLEAN STONE WITHOUT SCREENING THE VOIDS TO ALLOW WATER TO ENTER WEEPHOLES.
  - THE MANUFACTURER OF THE INLETS SHALL BE INCLUDED ON THE PENNDOT LIST OF APPROVED MANUFACTURERS OF PRECAST CONCRETE PRODUCTS, OR SHALL HAVE A LICENSED ENGINEER CERTIFY THAT THE INLETS CAN SUPPORT AN HS-25 LOADING.

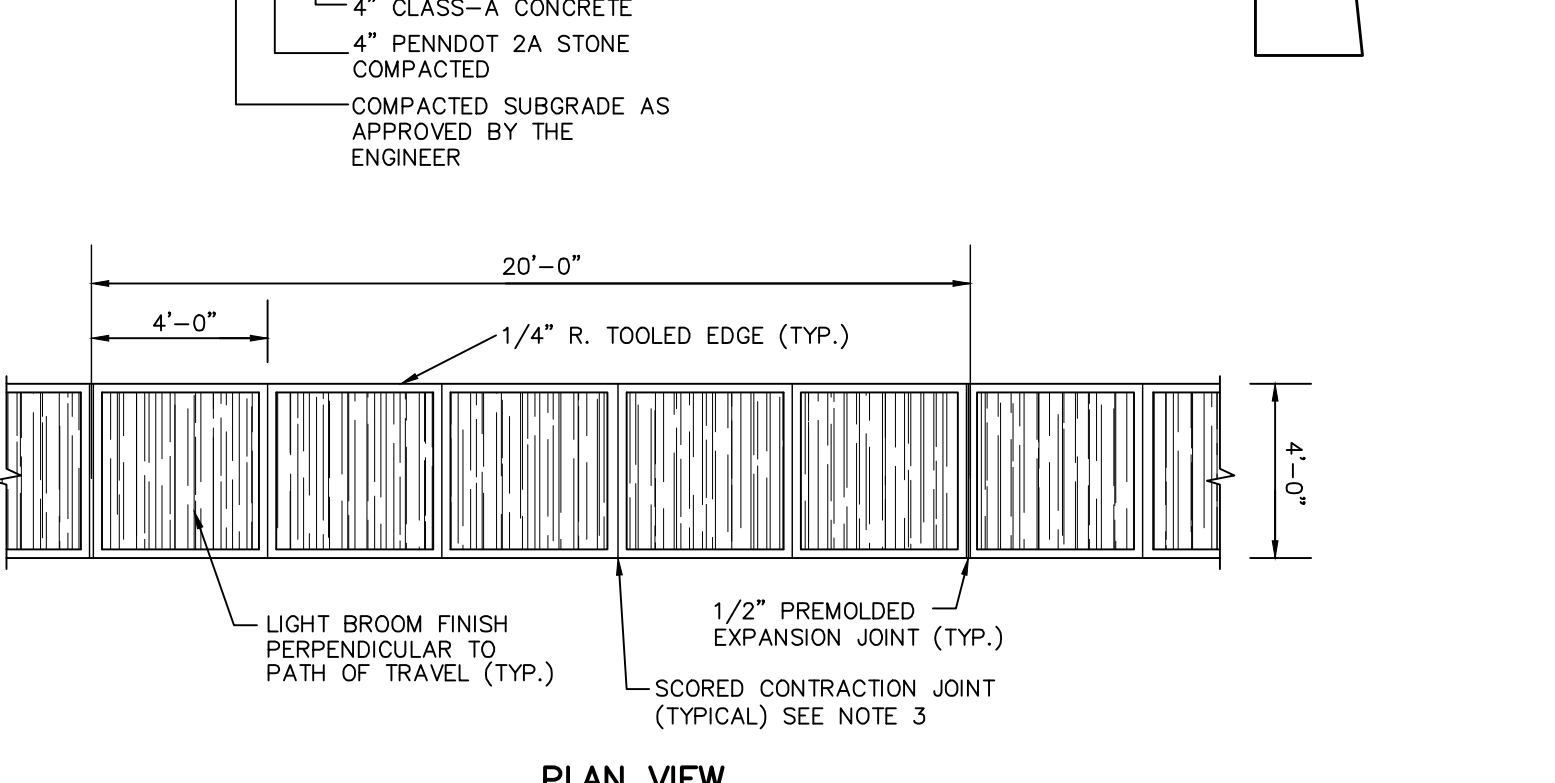
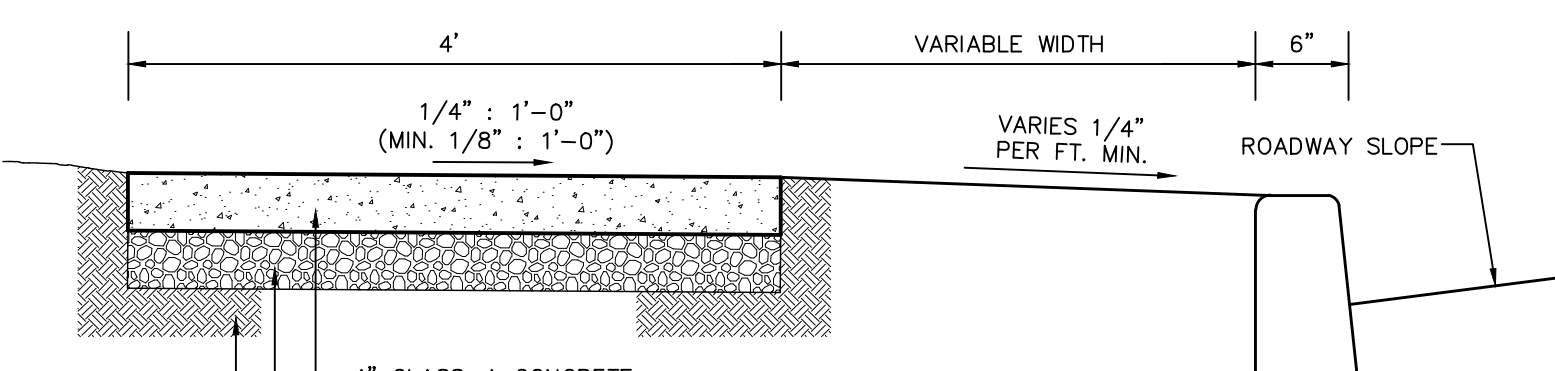


- NOTES:
- SEAL EDGE AS SPECIFIED IN PUBLICATION 408, SECTION 401.3 (j) 3.
  - USE HIGHER APPROPRIATE CRITERIA IF A CROSS STREET HAS A FUNCTIONAL CLASSIFICATION OF COLLECTORS AND LOCAL ROADS OR HIGHER.
  - USE 95TH PERCENTILE SPEED, IF AVAILABLE. OTHERWISE, USE THE POSTED SPEED.
  - PLACE EDGE FLUSH WITH EXISTING PAVEMENT AND SEAL AS SPECIFIED IN PUBLICATION 408, SECTION 401.3 (j) 3.
  - USE OF A TRIANGULAR PAVING NOTCH, AS SHOWN, IS PREFERRED. HOWEVER, THE NOTCH MAY BE RECTANGULAR OR IRREGULAR AS LONG AS THE MINIMUM DIMENSIONAL REQUIREMENTS ARE MET.

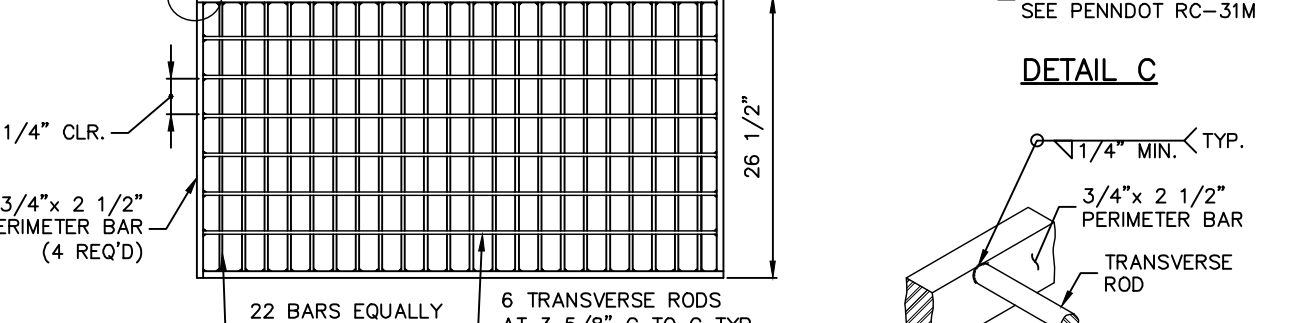
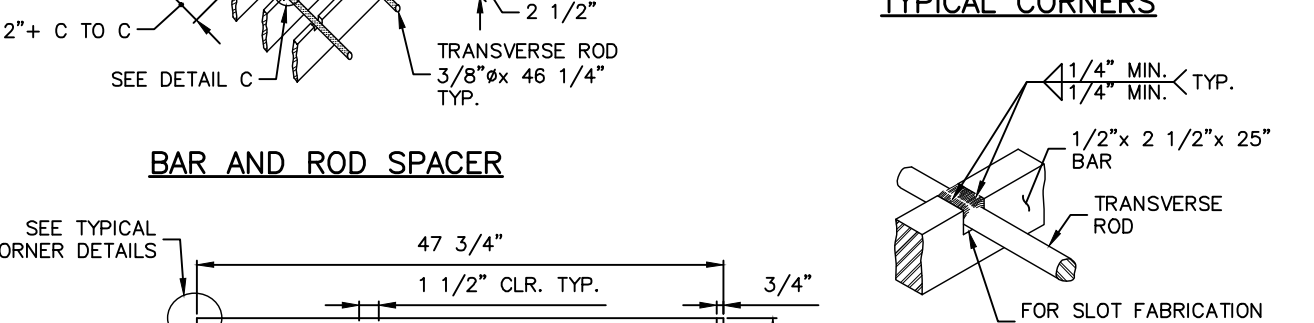
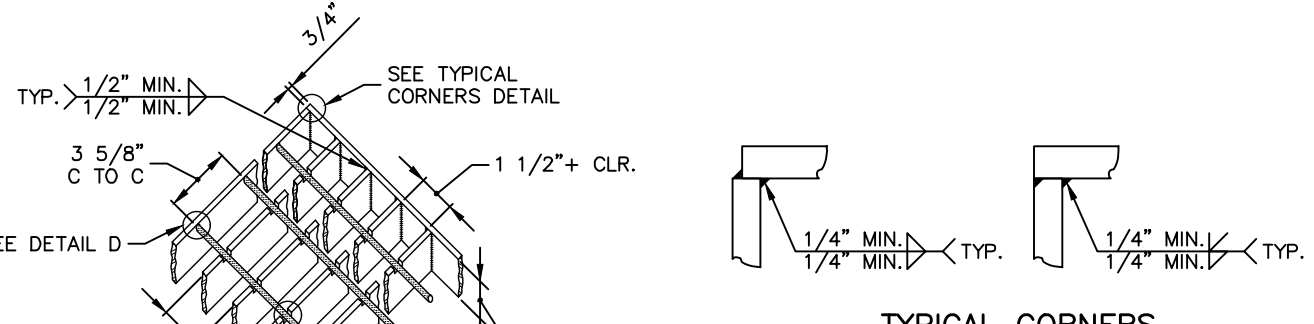
FUNCTIONAL CLASSIFICATION	SLOPE = M (MAX.)	PAVING NOTCH = L (MINIMUM)
ARTERIALS > 45 MPH, SEE NOTE 3	1" IN 10'	10'
COLLECTORS AND LOCAL ROADS	1" IN 5'	5'



- NOTE: CLASS A CEMENT CONCRETE



- NOTES:
- ALL CONSTRUCTION, MATERIALS, METHODS OF CONSTRUCTION AND CONTROL OF WORK TO BE GOVERNED BY THE CURRENT EDITION OF PENNDOT SPECIFICATIONS, PUBLICATION 408.
  - PLACE 1/2" PREMOLDED EXPANSION JOINT MATERIAL FOR THE FULL DEPTH OF THE SIDEWALK AT 20' INTERVALS, OPPOSITE EXPANSION JOINTS IN ADJACENT CURB, BETWEEN THE SIDEWALK AND CURB AND BETWEEN THE SIDEWALK AND ANY RIGID STRUCTURES.
  - FORM TRANSVERSE CONSTRUCTION JOINTS AT 4 FOOT INTERVALS, APPROXIMATELY 1/8" WIDE AND AT LEAST 1" DEEP.

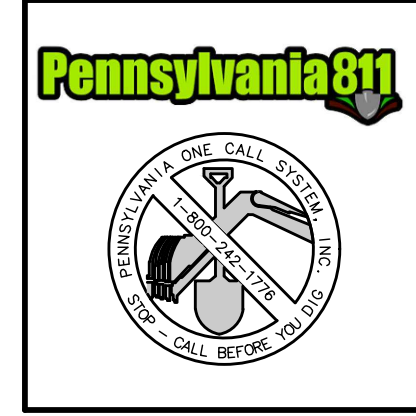


- NOTES:
- ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72-M (RC-34M), LATEST REVISION.



NOTE: PENNDOT FORM 408 AND PENNDOT RC DRAWINGS SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS BY REFERENCE. IN THE INSTANCE WHERE THERE IS A CONFLICT BETWEEN THE CONTRACT PLANS AND SPECIFICATIONS AND PENNDOT FORM 408 AND PENNDOT RC DRAWINGS, THE MORE STRINGENT STANDARD SHALL APPLY UNLESS WAIVED BY THE ENGINEER. ALL FINAL INTERPRETATIONS OF THE CONTRACT DOCUMENTS WILL BE MADE SOLELY BY THE ENGINEER. IN THE EVENT A CONFLICT EXISTS WHICH MAY AFFECT THE CONTRACTOR'S BID, THE CONTRACTOR SHALL SUBMIT THE ISSUE TO THE ENGINEER A MINIMUM OF 5 DAYS PRIOR TO THE BID OPENING TO RECEIVE CLARIFICATION.

NOTE: CONTRACTOR SHALL PERFORM THE ADJUSTMENT OF ANY UTILITY VALVE BOX, MANHOLES, OR ANY OTHER DEVICE, ETC. REQUIRED AS A RESULT OF GRADE CHANGES WITHIN THE CARTWAY OR LAWN OR WALK AREAS. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE AFFECTED UTILITY.



ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 20182970849-000 WAS PLACED FOR DESIGN PURPOSES ON 10/24/18.

NO.	BY	DATE	REVISIONS
1	WCM, DRF	6/22/23	REV. PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW

RUSSELL G. BENNER, P.E.  
 LICENSED PROFESSIONAL ENGINEER  
 COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. 032051E

BRIDGE REPAIR PLANS  
 BROWNIE ROAD BRIDGE  
 UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

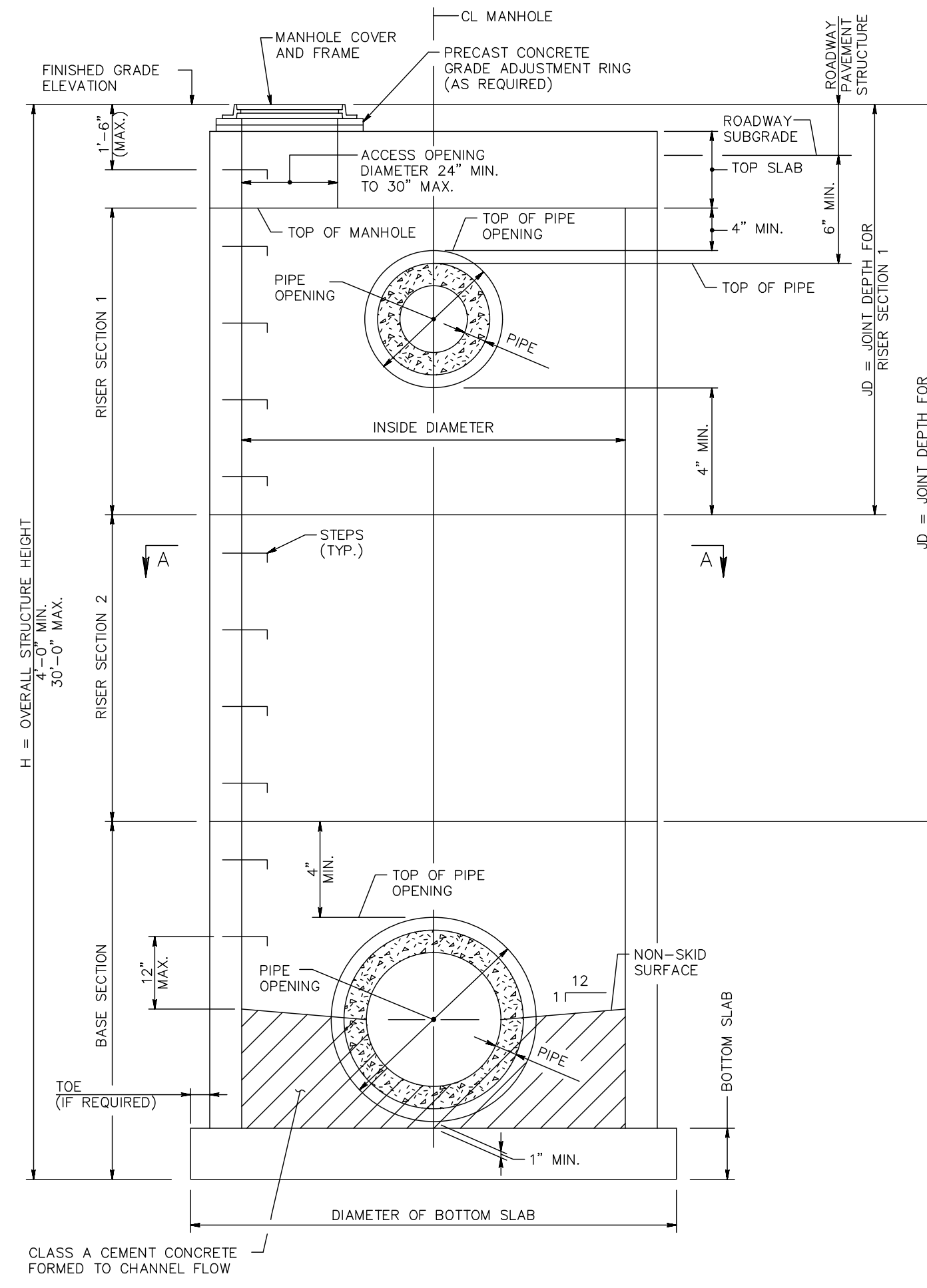
**AND**  
 YOUR GOALS. OUR MISSION.  
 74 WEST BROAD STREET,  
 SUITE 300  
 BETHLEHEM, PA 18018  
 TEL 610-625-2999  
 FAX 610-625-2969  
 www.landmassociates.com

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CHECKED BY	RGB	CSD-1
DRAWN BY	WGB	SHEET
DATE	JULY 2020	11
SCALE	AS SHOWN	OF 17
PROJ. NO.	MRON-00414	

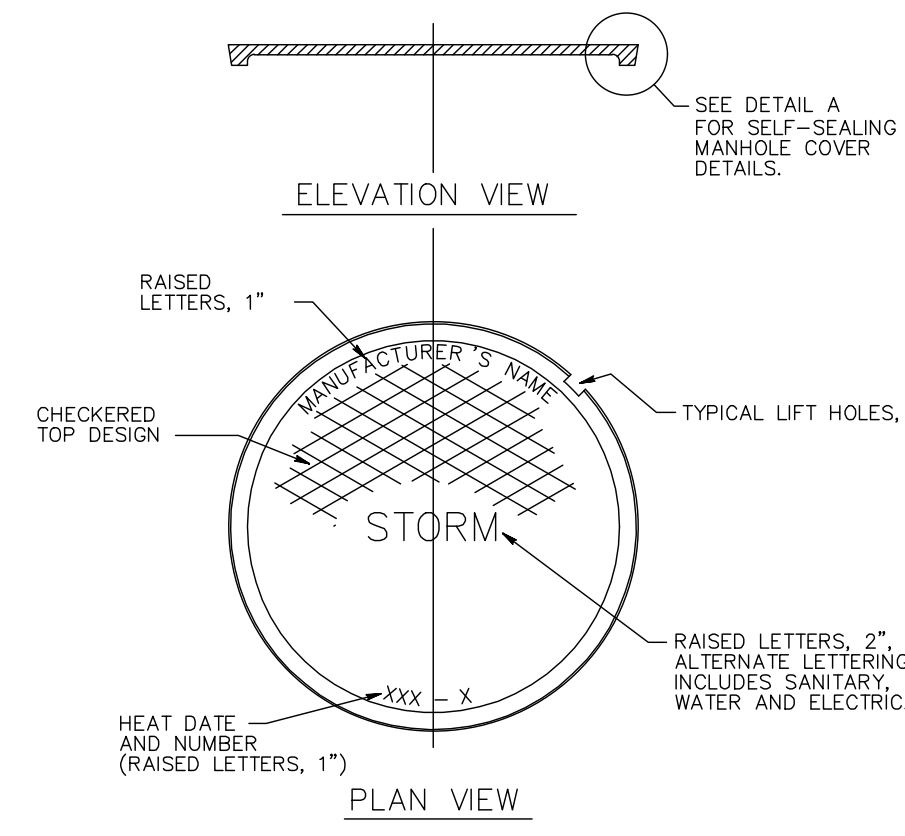


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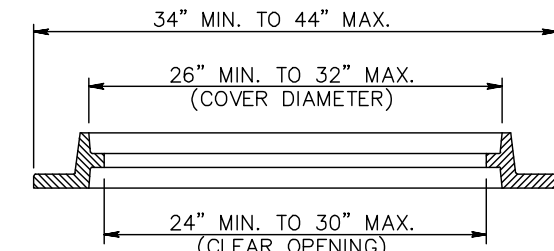
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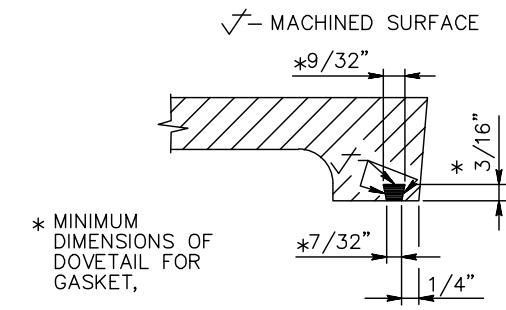
**MANHOLE ASSEMBLY**



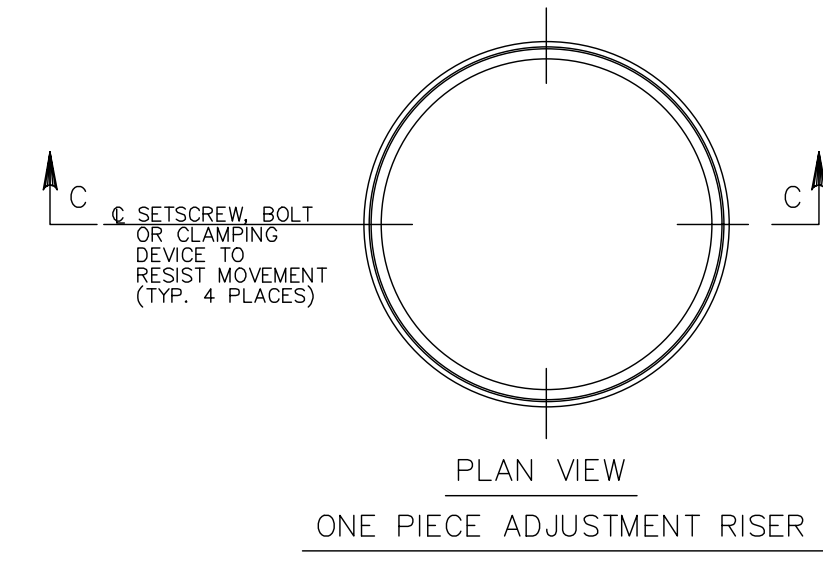
**CAST IRON MANHOLE COVER (PLATEN COVER)**



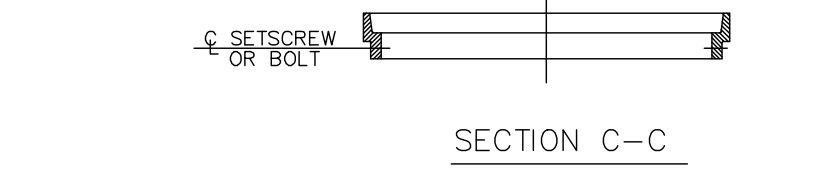
**ELEVATION VIEW OF MANHOLE FRAME**



**DETAIL A GASKET SEALING SYSTEM**

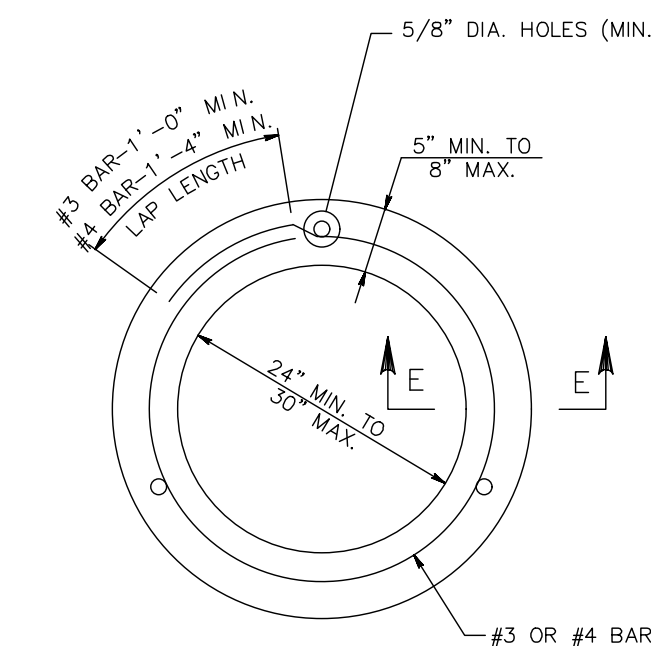


**ONE PIECE ADJUSTMENT RISER**

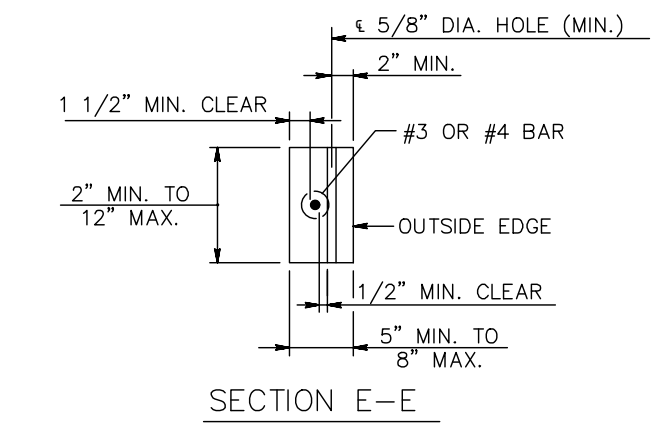


**MULTI-PIECE ADJUSTMENT RISER**

**STRUCTURAL STEEL ADJUSTMENT RISERS**



**PLAN VIEW**



**SECTION E-E**

**PRECAST CONCRETE GRADE ADJUSTMENT RING**

NO.	BY	REVISIONS	DATE
1	WCM, DRF	REV PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW	6/22/23

**RUSSELL G. BENNER, P.E.**  
 LICENSED PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. 032051E

DATE

**BRIDGE REPAIR PLANS**

**BROWNIE ROAD BRIDGE**

UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

**CONSTRUCTION DETAILS**

74 WEST BROAD STREET, SUITE 300  
 BETHLEHEM, PA 18018  
 TEL 610-625-2999  
 FAX 610-625-2969  
 www.landmassociates.com

OFFICES LOCATED IN:  
 DELAWARE, INDIANA, KENTUCKY,  
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 OHIO AND PENNSYLVANIA

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DESIGNED BY	WCM	DRAWING	CSD-2
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DRAWN BY	WCM	PROJ. NO.	MRON-00414
DATE	JULY 2020	OF	17
SCALE	AS SHOWN		





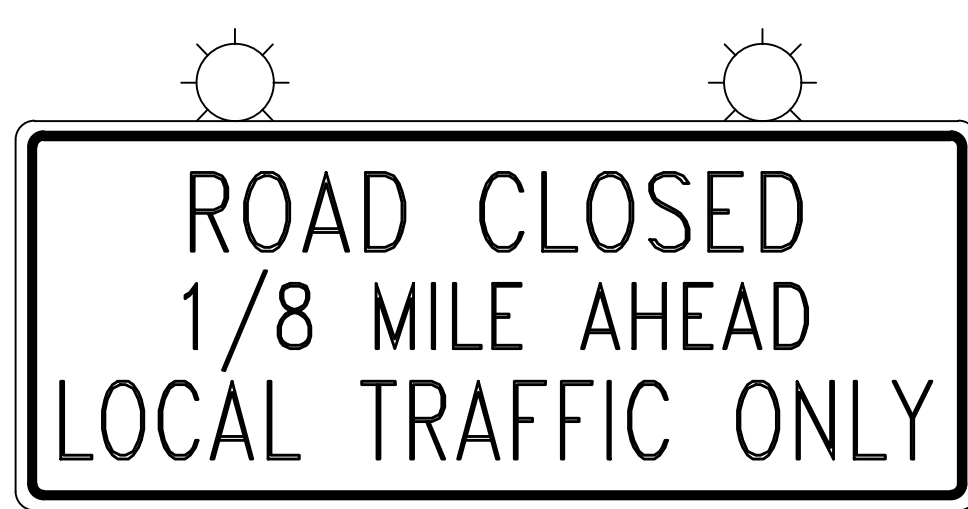


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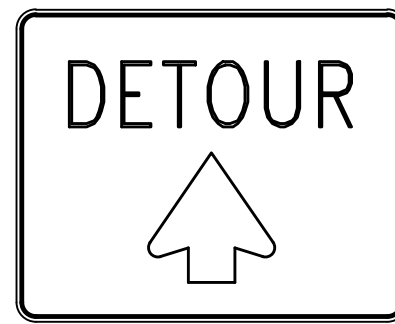
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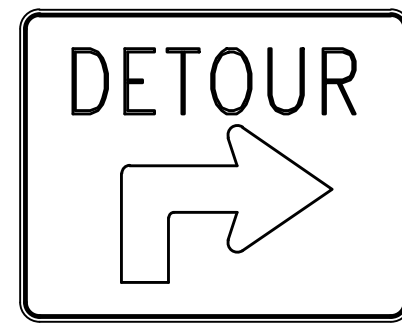
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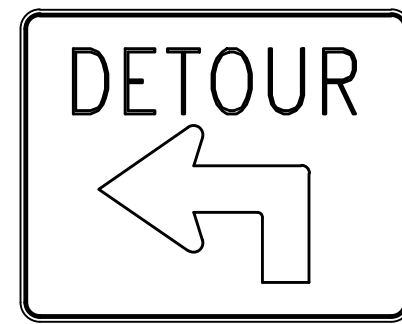
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 M4-10R  
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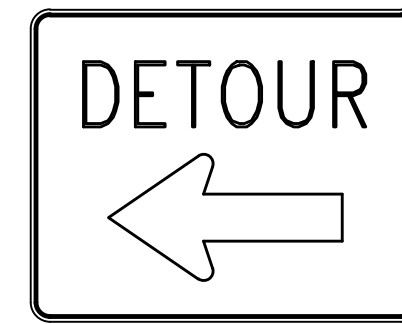
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 M4-9S  
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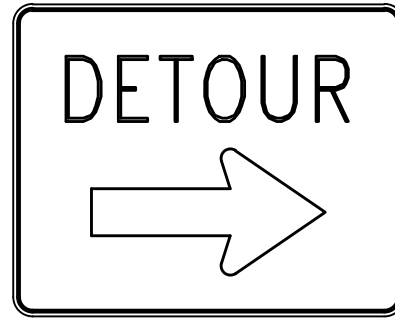
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SP-1  
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 ⑤



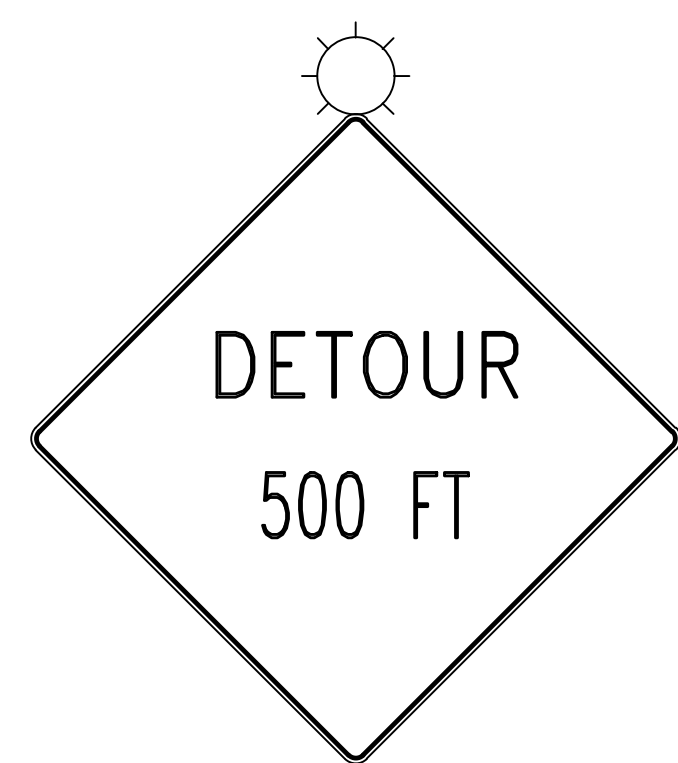
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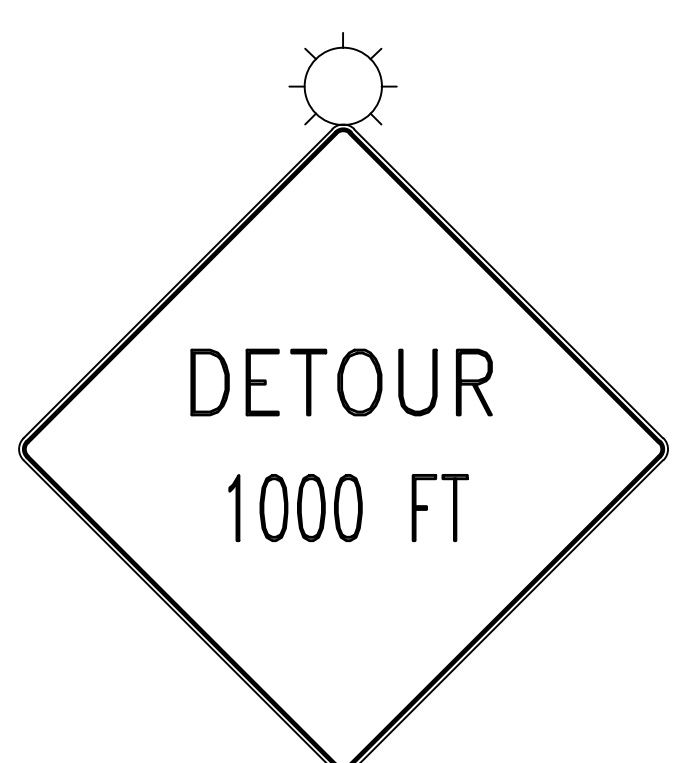
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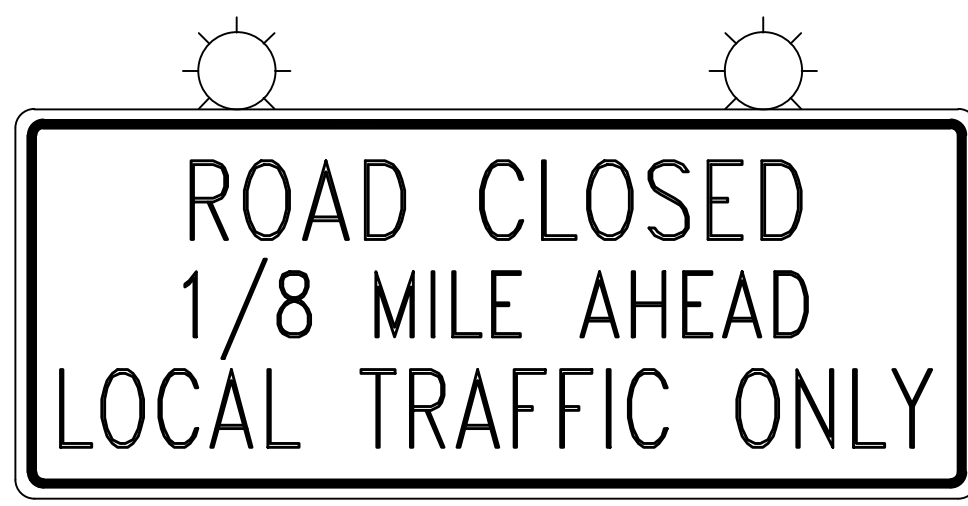
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W20-2  
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 W30-1-1  
 ⑨



W20-2  
 36"x36"  
 W30-1-2  
 ⑩



R11-3A  
 60"x30"  
 M4-10L  
 48"x18"  
 ⑪



ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL  
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 NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF  
 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH  
 OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR  
 TO START OF WORK. SERIAL NO. 20182970849-000  
 WAS PLACED FOR DESIGN PURPOSES ON 10/24/18.

NO.	BY	REVISIONS	DATE
1	WCM, DRF	REV. PER PENNDOT 5/26/23 STRUCTURAL ADEQUACY REVIEW	6/22/23

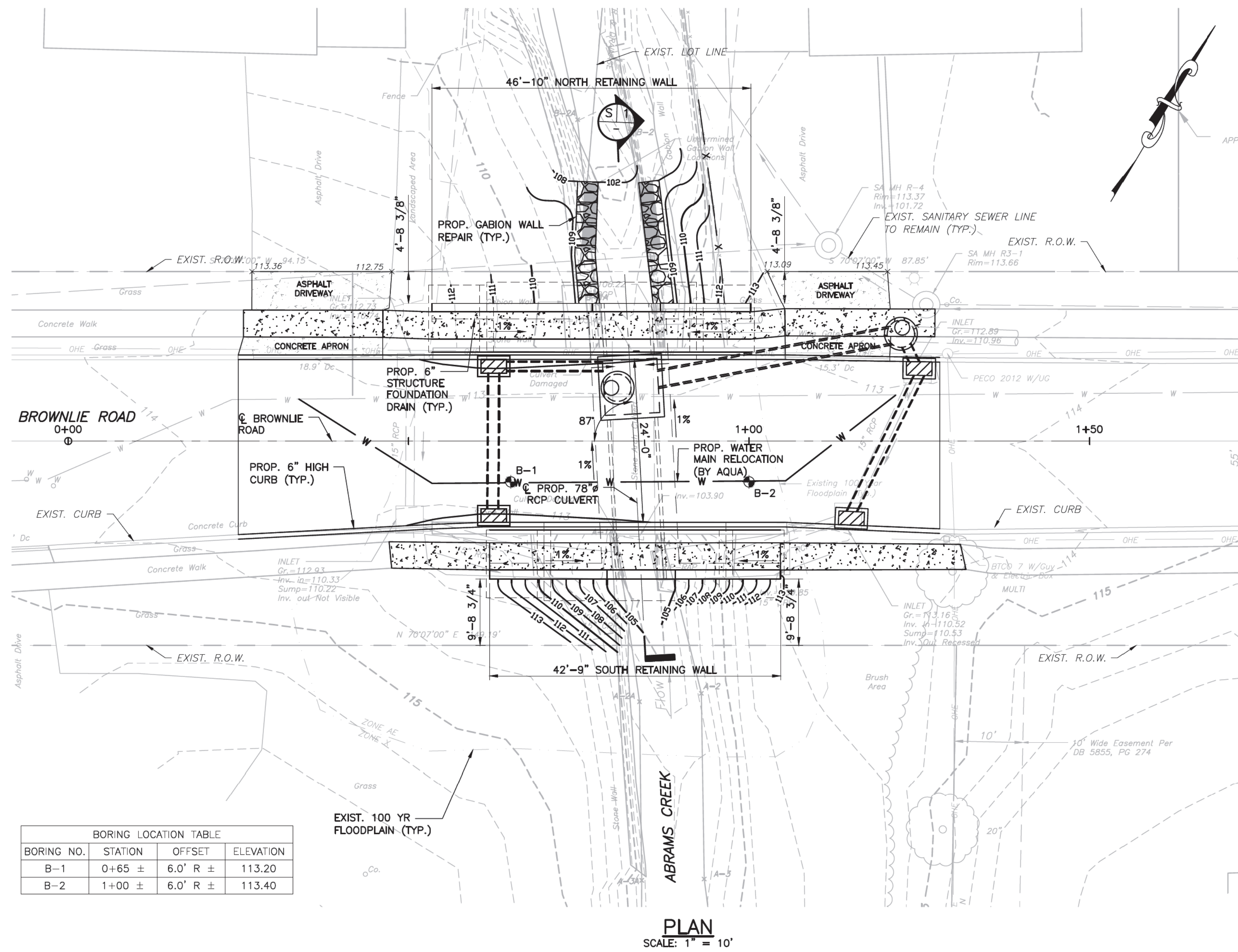
RUSSELL G. BENNER, P.E.  
 LICENSED PROFESSIONAL ENGINEER  
 COMMONWEALTH OF PENNSYLVANIA  
 LICENSE NO. 032051E  
 DATE

BRIDGE REPAIR PLANS  
 BROWNLIE ROAD BRIDGE  
 UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA  
 MAINTENANCE AND PROTECTION OF  
 TRAFFIC PLAN

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CHECKED BY	RGB	SHEET	14
DRAWN BY	WCM	OF	17
DATE	JULY 2020		
SCALE	AS SHOWN		
PROJ. NO.	MRON-00414		





BORING LOCATION TABLE			
BORING NO.	STATION	OFFSET	ELEVATION
B-1	0+65 ±	6.0' R ±	113.20
B-2	1+00 ±	6.0' R ±	113.40

PLAN  
SCALE: 1" = 10'

FOUNDATION NOTES

1. MAXIMUM ALLOWABLE POST CONSTRUCTION SETTLEMENT IS ONE INCH.
2. MAXIMUM ALLOWABLE BEARING PRESSURE IS 1,500 PSF (IBC TABLE 1806.2, CLAYS AND SILTS).
3. DESIGN FOUNDATIONS USING THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD IN ACCORDANCE WITH AASHTO LRFD BRIDGE SPECIFICATIONS AND AS SUPPLEMENTED BY PENNDOT DESIGN MANUAL, PART 4.
4. MAINTAIN A MINIMUM ONE FOOT OF COVER OVER THE TOE OF THE FOOTINGS. THE MINIMUM FOOTING EMBEDMENT DUE TO FROST POTENTIAL IS 3.25 FEET.
5. THE BOTTOM OF FOOTING ELEVATION (BFE) RANGES FROM 99.3 FEET FOR THE NORTH WALL AND 100.5 FEET FOR THE SOUTH WALL.
6. THE FOUNDATION EXCAVATION SHALL BE INSPECTED BY THE DISTRICT GEOTECHNICAL ENGINEER. PERFORM FORM ALL EXCAVATION IN ACCORDANCE WITH SPECIAL PROVISION CLASS 3 EXCAVATION. ANY SOFT, LOOSE, OR OTHERWISE UNSUITABLE SOIL SHALL BE OVER-EXCAVATED TO A FIRM STRATUM AND REPLACED WITH COMPACTED 2A COARSE AGGREGATE OR APPROVED EQUAL.
7. THE FOUNDATIONS MAY BE ORDERED BY THE REPRESENTATIVE TO BE AT ANY ELEVATION OR ANY DIMENSION TO PROVIDE A PROPER FOUNDATION.
8. DIVERT ALL SURFACE RUNOFF AWAY FROM SUBSTRUCTURE EXCAVATIONS, OVER-EXCAVATIONS, AND FOUNDATION CONSTRUCTION TO PREVENT DEGRADATION OF FOUNDATION SUBGRADE.
9. PROVIDE ADEQUATE DEWATERING METHODS DURING EXCAVATION AND FOUNDATION CONSTRUCTION SUCH THAT THE EXCAVATION IS REASONABLY DRY FOR INSPECTION AND CONSTRUCTION.
10. EXCAVATE ACCORDING TO CURRENT OSHA OR OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS AND IN ACCORDANCE WITH SPECIAL PROVISION TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM. PROVIDE TEMPORARY SHORING OF EXCAVATED AREAS AS NECESSARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE STABILITY OF ALL EXCAVATIONS. A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA MUST PERFORM THE DESIGN OF TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEMS, EXCAVATION SLOPING, AND/OR BENCHING. CONSIDER FINAL CONDITIONS AND ALL CONSTRUCTION CONDITIONS, AS WELL AS ANY OTHER APPLICABLE DESIGN SURCHARGES. REEVALUATE THE TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM AND DEWATERING DESIGNS IF ACTUAL CONDITIONS ENCOUNTERED DIFFER FROM THOSE ANTICIPATED. USE THE FOLLOWING SOIL PARAMETERS FOR TEMPORARY EXCAVATION SUPPORT DESIGN:

FRICITION ANGLE, DEG.	30
MOIST UNIT WEIGHT, PCF	120
SATURATED UNIT WEIGHT, PCF	125
EFFECTIVE COHESION, PSF	0
GROUNDWATER ELEVATION, FT	105.7 (BORING B-1)
UNDRAINED SHEAR STRENGTH	N/A
ROCK MASS SHEAR STRENGTH, TSF	BEDROCK NOT ENCOUNTERED

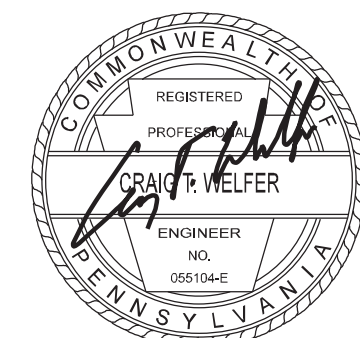
11. REMOVE THE EXISTING STRUCTURE ENTIRELY WITHIN THE PROPOSED STRUCTURE FOOTPRINT, SO THAT IT DOES NOT INTERFERE WITH THE PROPOSED STRUCTURE AND TO A DEPTH OF 2.0 FEET BELOW FINAL GRADE OUTSIDE THE PROPOSED STRUCTURE FOOTPRINT.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION

MONTGOMERY COUNTY

BROWNLIE ROAD (LOCAL ROAD)  
OVER ABRAMS RUN  
78" RCP CULVERT

STRUCTURE BORINGS ( 1 OF 3 )

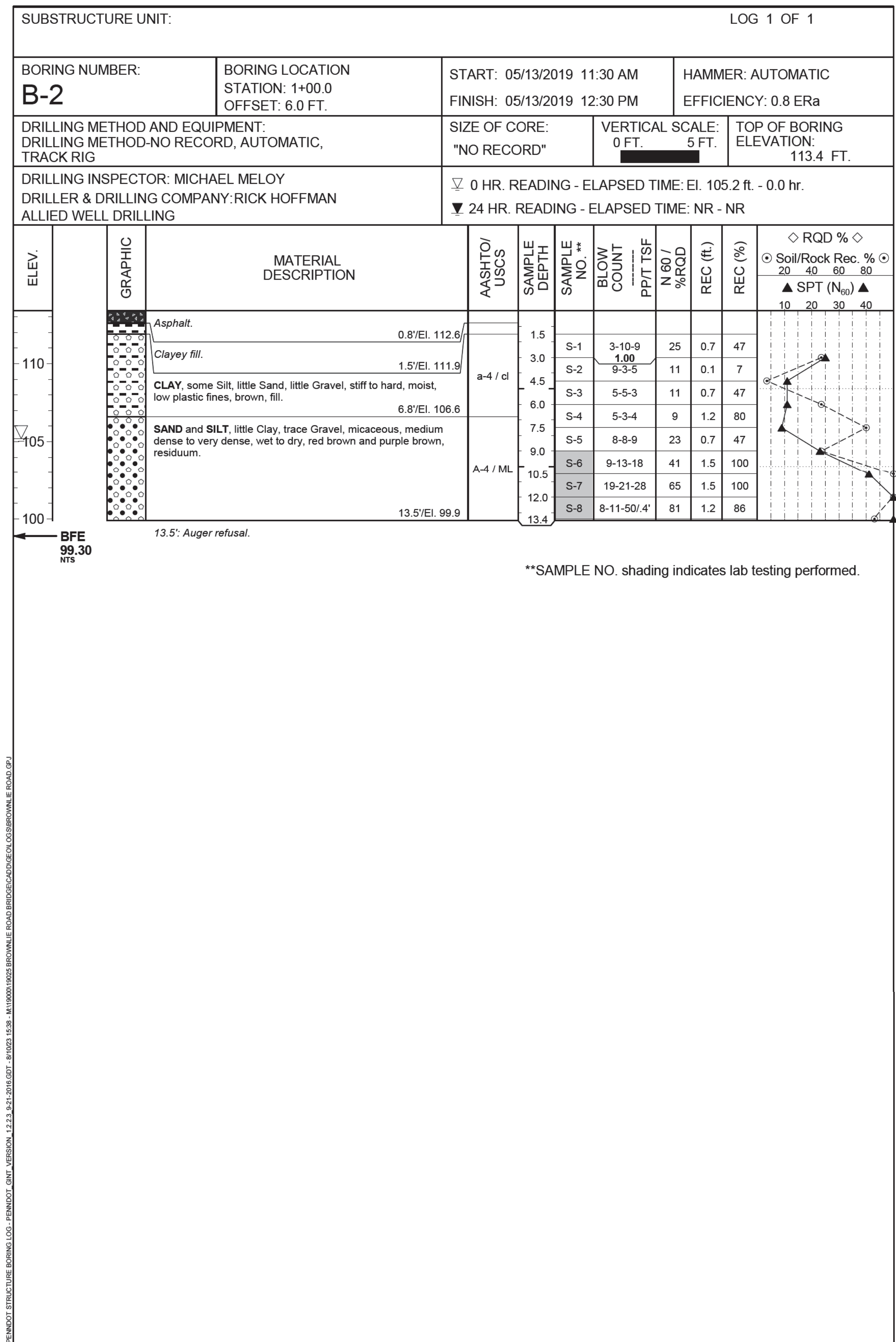
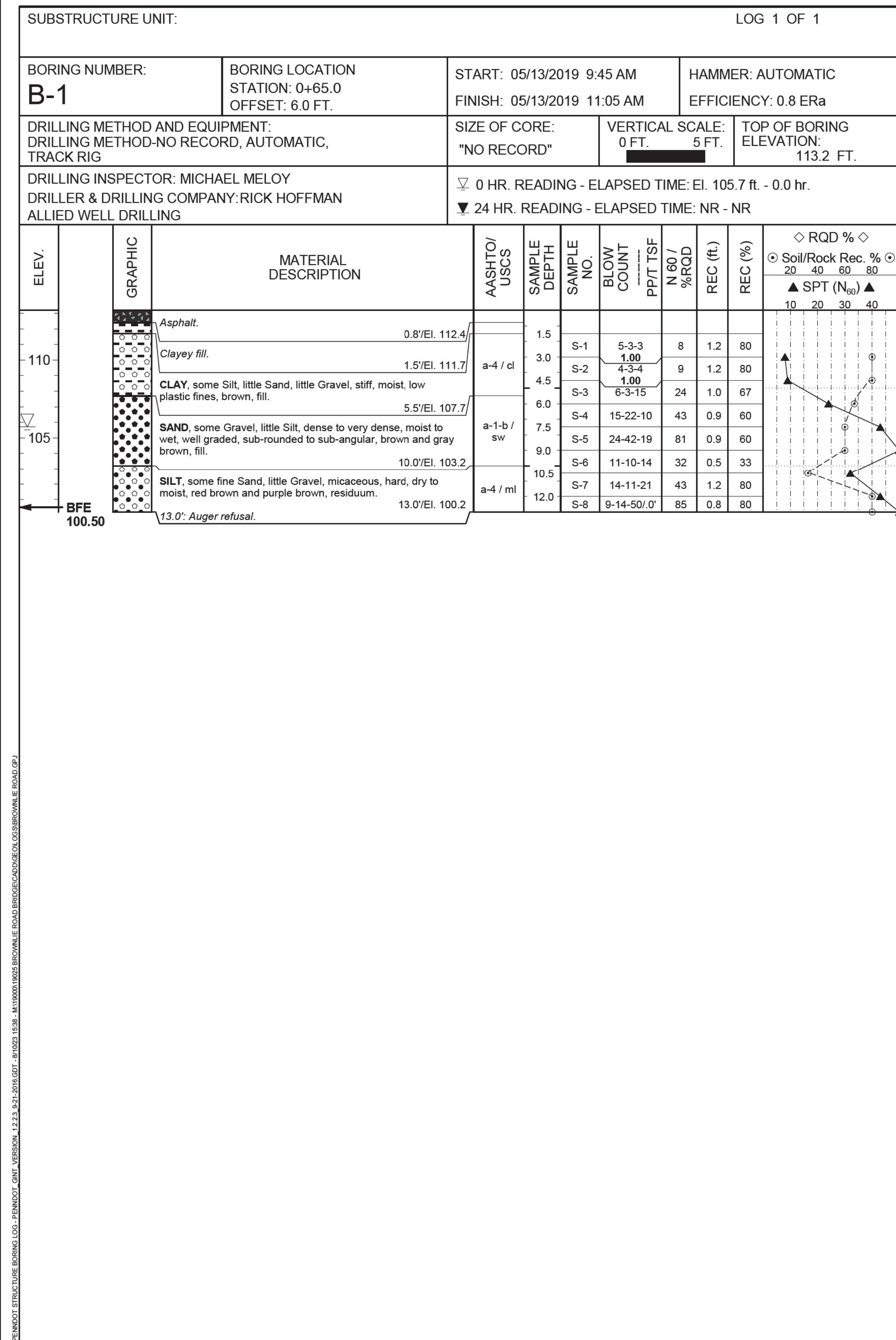


DISTRICT GEOTECHNICAL ENGINEER DATE S - XXXXX

SHEET 15 OF 17

10/10/24 AM  
 8/24/2023  
 m:\river\inghouse  
 #N19000\19025\_Brownlie\_Road\_Bridge\Cadd\Geo\Linens\Brownlie\_Road\_Structure\_Borings.dgn





**GENERAL NOTES**

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

FOR ADDITIONAL SOIL AND ROCK DESCRIPTIONS SEE PUBLICATION 222.

THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SUBSURFACE CONDITIONS MAY DIFFER FROM THE CONDITIONS REPORTED AT THE SPECIFIC LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE OF CONDITIONS AT THE BORING LOCATIONS.

**LEGEND**

- PP POCKET PENETROMETER
- T TORVANE
- NTS NOT TO SCALE
- BFE BOTTOM OF FOOTING ELEVATION

THE DESCRIPTIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.

THE SUBSURFACE EXPLORATION DATA THAT ARE PRESENTED ON THESE DRAWINGS (INCLUDING BORING LOGS, EARTH SAMPLES, ROCK CORES, CLASSIFICATION OF MATERIALS AND DEPTH OF BORINGS) ACCURATELY REPRESENT THE CONDITIONS ENCOUNTERED BY THE TEST BORING PROGRAM AT EACH BORING LOCATION.

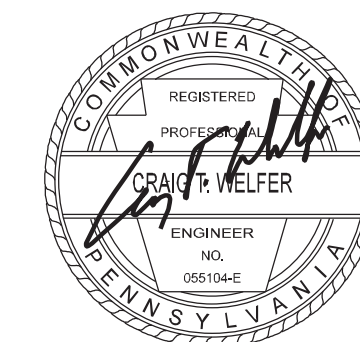
*Craig F. Welfer*  
 GEOTECHNICAL ENGINEER/ENGINEERING GEOLOGIST  
 8/10/2023  
 DATE:

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION

MONTGOMERY COUNTY

BROWNLIE ROAD (LOCAL ROAD)  
OVER ABRAMS RUN  
78" RCP CULVERT

STRUCTURE BORINGS ( 2 OF 3 )





10:12:55 AM  
 8/24/2023  
 mliver\inghouse  
 #119000\19025\_Brownlie\_Road\_Bridge\Cadd\Geo\Linens\Brownlie\_Road\_Structure\_Borings.dgn

**LABORATORY TEST SUMMARY - SOILS**

BORING NUMBER	STATION & OFFSET	SAMPLE #	TEST DEPTH (FT.)	NATURAL MOISTURE %	% GRAIN SIZE DISTRIBUTION (AASHTO)							CLASSIFICATION		PLASTICITY PARAMETERS			SHEAR STRENGTH					
					GRAVEL %	SAND %	COARSE SAND %	FINE SAND %	FINES %	SILT %	CLAY %	AASHTO	USCS	S.G.	LIQUID LIMIT	PLASTIC LIMIT	P. I.	C (TSF)	φ (DEG.)	C' (TSF)	φ' (DEG.)	TEST METHOD
B-2	1+00.0 6 ft.	S-6 to 8	9.0 to 13.4	12.1	2.2	43.8	6.2	37.6	54.0	43.7	10.4	A-4	ML	2.65	NP	NP	NP					

**GENERAL NOTES**

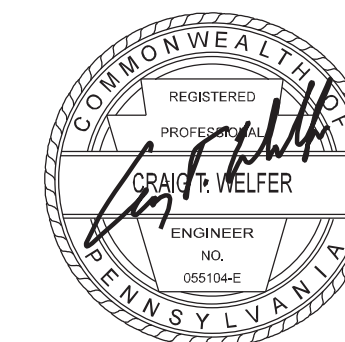
THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

FOR ADDITIONAL SOIL AND ROCK DESCRIPTIONS SEE PUBLICATION 222.

THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SUBSURFACE CONDITIONS MAY DIFFER FROM THE CONDITIONS REPORTED AT THE SPECIFIC LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE OF CONDITIONS AT THE BORING LOCATIONS.

**LEGEND**

- PP POCKET PENETROMETER
- T TORVANE
- NTS NOT TO SCALE
- BFE BOTTOM OF FOOTING ELEVATION



COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	
MONTGOMERY COUNTY	
BROWN LIE ROAD (LOCAL ROAD) OVER ABRAMS RUN 78" RCP CULVERT	
<b>STRUCTURE BORINGS ( 3 OF 3 )</b>	
DATE _____	SHEET <u>17</u> OF <u>17</u> <b>S - XXXXX</b>