

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION

REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY

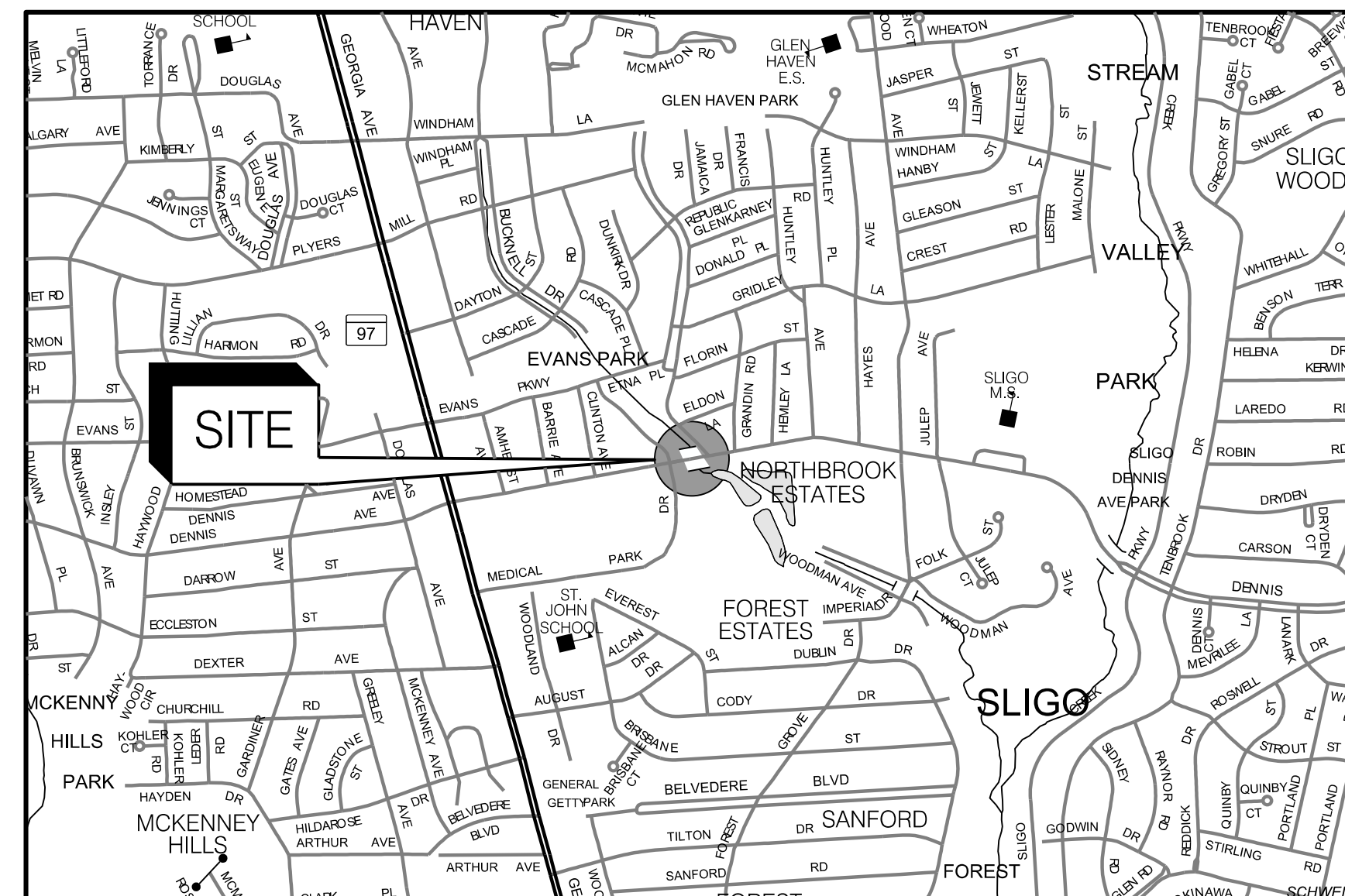
C. I. P. NO. 501701 SHA CONTRACT NO. M0178ZM1 F.A.P. NO. STBG-3(534)E

TREE CANOPY REQUIREMENTS TABLE	
To be completed by the consultant and placed on the first sheet of the Sediment Control / Stormwater Management plan set for all projects.	
Exempt: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If exempt under Section 55-5 of the Code, please check the applicable exemption category below.	
Total Property Area 71,305 square feet	Total Disturbed Area 71,305 square feet
Shade Trees Required 27	Shade Trees Proposed to be Planted 0
Fee in Lieu (Trees Required - Trees Planted) x \$250 = \$ 6,750	
Required Number of Shade Trees	
Area (sq. ft.) of the Limits of Disturbance	Number of Shade Trees Required
FROM TO	
1 6,001	3
6,001 8,001	6
8,001 12,001	9
12,001 14,001	12
14,001 40,000	15
If the square footage of the limits of disturbance is more than 40,000, then the number of shade trees required must be calculated using the following formula: (Number of Square Feet in Limits of Disturbance + 40,000) x 15	
EXEMPTION CATEGORIES:	
<input type="checkbox"/> 55-5(a) any activity that is subject to Article II of Chapter 22A; <input type="checkbox"/> 55-5(b) any commercial logging or timber harvesting operation with an approved exemption from Article II of Chapter 22A; <input type="checkbox"/> 55-5(f) any activity conducted by the County Parks Department; <input type="checkbox"/> 55-5(g) routine or emergency maintenance of an existing stormwater management facility, including an existing access road, if the person performing the	<input type="checkbox"/> maintenance has obtained all required permits; <input type="checkbox"/> 55-5(h) any stream restoration project if the person performing the work has obtained all necessary permits; <input type="checkbox"/> 55-5(i) cutting or clearing any tree to comply with applicable provisions of any federal, state, or local law governing safety of dams; <input type="checkbox"/> OTHER: Specify per Section 55-5 of the Code.

RELATED REQUIRED PERMITS					
Management plan set for all projects					
IT IS THE RESPONSIBILITY OF PERMITEE/OWNER OF THIS SITE TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ISSUANCE OF THE APPROVED SEDIMENT CONTROL PERMIT:					
TYPE OF PERMIT	REQ'D	NOT REQ'D	PERMIT #	EXPIRATION DATE	WORK RESTRICTION DATES
MCDCPS Floodplain District	X		393881		
MCDCPS Floodplain Delineation Study	X		286863		
Sediment Control	X		285774	TBD	MARCH 1 - JUNE 15 (STREAM CLOSURE)
MCDCPS Stormwater Management Concept	X		285550	N/A	N/A
WATERWAYS/WETLAND(S)					
a. Corps of Engineers	X		104387	TBD	MARCH 1 - JUNE 15 (STREAM CLOSURE)
b. MDE	X		21-NT-3013	TBD	MARCH 1 - JUNE 15 (STREAM CLOSURE)
c. MDE Water Quality Certification	X		21-NT-3013	TBD	
MDE Dam Safety		X			
DNR Roadside Tree Care Permit	X		2022-0521	Approval Date 07/22/2022	
DPS Roadside Tree Protection Plan	X		TBD	Approval Date	
**N.P.D.E.S. Notice of Intent	X				DATE FILED
FEMA CLOMR	X		**20-03-0441R	N/A	
**FEMA LOMR (Required Post Construction)	X				
OTHERS (Please List):					
a. MNCPPC FCPE	X		42020101E	2/6/2025	
b. WSSC	X		RR8756A21	TBD	
* A copy of the approved Roadside Trees Protection Plan must be delivered to the Sediment Control Inspector at the Preconstruction meeting.					
**When a Notice of Intent is required, the sediment control permit may not be issued until confirmation of authorization under the MDE's 20-CP permit has been submitted to DPS.					
***It is anticipated that MC DEP's Wheaton Branch Flood Mitigation Project will be constructed after this project is completed. One single CLOMR is approved and one single LOMR will be performed for both projects per FEMA instruction.					

INDEX OF SHEETS

SHEET NO.	MCDCPS SCDFM SHEET NO.	MCDCPS FILE NAME	PLAN SHEET	SHEET NO.	MCDCPS SCDFM SHEET NO.	MCDCPS FILE NAME	PLAN SHEET
1	1	SC0004.pdf	TITLE SHEET	44			WING WALL I TYPICAL SECTION
2	2	SC0004a.pdf	ABBREVIATIONS AND LEGEND SHEET	45			WING WALL I TYPICAL SECTION
3			ROADWAY TYPICAL SECTIONS AND DETAILS	46			WING WALL I LAGGING PANEL LAYOUT
4			ROADWAY TYPICAL SECTIONS AND DETAILS	47			WING WALL II PLAN AND ELEVATION
5			CURB LAYOUT & DETAILS	48			WING WALL III TYPICAL SECTION
6			GEOMETRY PLAN	49			WING WALL II LAGGING PANEL LAYOUT
7			ROADWAY PLAN	50			CAST-IN-PLACE FACING DETAILS
8			ROADWAY PROFILE	51			LAGGING PANEL DETAILS
9			DETOUR PLAN	52			WING WALL III ELEVATION
10			DETOUR DETAIL PLAN	53			WING WALL III TYPICAL SECTION
11			STORMWATER MANAGEMENT PLAN	54			WING WALL IV ELEVATION
12			DRAINAGE PROFILES AND SCHEDULE	55			WING WALL IV TYPICAL SECTION
13			DRAINAGE DETAILS	56			CULVERT CROSS SECTION
14			DRAINAGE DETAILS	57			PARAPET ELEVATIONS
15			DRAINAGE DETAILS	58			MOMENT SLAB TYPICAL SECTIONS
16			STREAM RESTORATION PLAN	59			NOSE CONE DETAILS
17	3	SC0009.pdf	EROSION AND SEDIMENT CONTROL PHASE 1	60			MOMENT SLAB PLAN
18	4	SC0010.pdf	EROSION AND SEDIMENT CONTROL PHASE 2	61			RIPRAP APRON FOR SCOUR PROTECTION LAYOUT PLAN
19	5	SC0011.pdf	EROSION AND SEDIMENT CONTROL PHASE 3	62			BORING LOGS AND DRIVE TESTS
20	6	SC0012.pdf	EROSION AND SEDIMENT CONTROL PHASE 4	63			BORING LOGS AND DRIVE TESTS
21	7	SC0013.pdf	EROSION AND SEDIMENT CONTROL PHASE 5	64			BORING LOGS AND DRIVE TESTS
22	8	SC0014.pdf	EROSION AND SEDIMENT CONTROL NOTES	65			BORING LOGS AND DRIVE TESTS
23	9	SC0015.pdf	EROSION AND SEDIMENT CONTROL NOTES & SEQUENCE OF CONSTRUCTION	66			STANDARD DETAILS - 1
24	10	SC0016.pdf	EROSION AND SEDIMENT CONTROL DETAILS	67			STANDARD DETAILS - 2
25	11	SC0017.pdf	EROSION AND SEDIMENT CONTROL DETAILS	68			STANDARD DETAILS - 3
26			GENERAL PLAN AND ELEVATION	69			STANDARD DETAILS - 4
27			ARCH CULVERT PROFILE	70			SIGNING AND MARKING PLAN
28			ABUTMENT AND PIER GEOMETRIC AND FOOTING LAYOUT	71			LANDSCAPE PLAN
29			ABUTMENT AND PIER PILE LAYOUT	72			LANDSCAPE DETAILS
30			ABUTMENT A PLAN AND ELEVATION	73			LIGHTING PLAN
31			ABUTMENT B PLAN AND ELEVATION	74			LIGHTING SPECIFICATIONS
32			ABUTMENT TYPICAL SECTION	75			TEMPORARY TRAFFIC CONTROL PLAN FOR WATER AND SEWER RELOCATION
33			ABUTMENT A FOOTING REINFORCING DETAIL	76			WATER AND SEWER RELOCATION - TITLE SHEET
34			ABUTMENT B FOOTING REINFORCING DETAIL	77			WATER AND SEWER RELOCATION - PLAN
35			ABUTMENT A REINFORCEMENT DETAILS	78			WATER AND SEWER RELOCATION - SEWER PROFILE
36			ABUTMENT B REINFORCEMENT DETAILS	79			WATER AND SEWER RELOCATION - WATER MAIN PROFILE
37			PIER 1 PLAN & ELEVATION	80			WATER AND SEWER RELOCATION - WATER MAIN PROFILE
38			PIER 2 PLAN & ELEVATION	81			WATER AND SEWER RELOCATION - SEQUENCE OF CONSTRUCTION
39			PIER TYPICAL SECTION	82			WATER AND SEWER RELOCATION - SEQUENCE OF CONSTRUCTION
40			PIER 1 FOOTING REINFORCING DETAIL	CS-1 TO CS-2			CROSS SECTIONS
41			PIER 2 FOOTING REINFORCING DETAIL				
42			PIER STEM REINFORCEMENT				
43			WING WALL I PLAN AND ELEVATION				



VICINITY MAP
SCALE: 1" = 100'

DESIGN DATA		
YEAR	2019	2039
DESIGN SPEED	30 mph	30 mph
24 HR A.D.T.	14,614	17,383
% HEAVY TRUCKS A.D.T.	5%	5%
D.H.V.	NOT PROVIDED	NOT PROVIDED
% HEAVY TRUCKS D.H.V.	NOT PROVIDED	NOT PROVIDED
D.D.	NOT PROVIDED	NOT PROVIDED
FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL	

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS ARE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 35190 EXPIRATION DATE 06/22/2024

HOUNG LI, P.E. DATE

DEVELOPER'S / BUILDER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE OF A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.

DATE JOSE THOMMANA
ACTING CHIEF, DIVISION OF
TRANSPORTATION ENGINEERING

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", MONTGOMERY COUNTY PERMITTING SERVICES EXECUTIVE REGULATIONS 5-90, 7-02AM AND 36-90, AND MONTGOMERY COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION "STORM DRAIN CRITERIA" DATED AUGUST, 1988.

DATE MELISSA M. RYDER
MD. REGISTRATION NO. 40772

CERTIFICATION OF THE QUANTITIES*

I HEREBY CERTIFY THAT THE ESTIMATED TOTAL AMOUNTS OF EXCAVATION AND FILL AS SHOWN ON THESE PLANS HAS BEEN COMPUTED TO BE 6,270 CUBIC YARDS OF EXCAVATION, AND 1,820 CUBIC YARDS OF FILL AND THAT THE TOTAL AREA TO BE DISTURBED AS SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE 70,483 SQUARE FEET OR 1.62 ACRES.

DATE HOUNG LI
* EXCLUDING THE EARTHWORK FOR UTILITY RELOCATION AND MAINTENANCE OF STREAM FLOW

DRAINAGE STATEMENT

I UNDERSTAND THAT DPS APPROVAL OF THIS SEDIMENT CONTROL/STORMWATER MANAGEMENT PLAN IS FOR DEMONSTRATED COMPLIANCE WITH REQUIRED ENVIRONMENTAL RUNOFF TREATMENT STANDARDS. THIS DPS SEDIMENT CONTROL/STORMWATER MANAGEMENT PLAN APPROVAL DOES NOT RELIEVE ME OF PROFESSIONAL RESPONSIBILITY. I HAVE ANALYZED THE PROPOSED DESIGN FOR SEDIMENT CONTROL PERMIT NO. 285774 AND HEREBY CERTIFY THAT, BASED UPON MY BACKGROUND, TRAINING AND EXPERIENCE, I HAVE DETERMINED THAT THE PROPOSED IMPROVEMENTS SHOWN ON THIS PLAN MEET RELEVANT LAWS AND REGULATIONS. I FURTHER ACKNOWLEDGE THAT I HAVE ANALYZED THE POST DEVELOPMENT DRAINAGE PATTERNS FOR THIS PROJECT FROM THE STANDPOINT OF MY RESPONSIBILITIES UNDER CURRENT MARYLAND LAW AND HAVE DETERMINED THAT IF PERMISSION IS REQUIRED FROM ADJACENT PROPERTY OWNERS, I HAVE OBTAINED IT AND HAVE MADE COPIES OF THOSE PERMISSIONS AVAILABLE TO DPS.

ENGINEER'S SIGNATURE DATE
HOUNG LI
PRINTED NAME

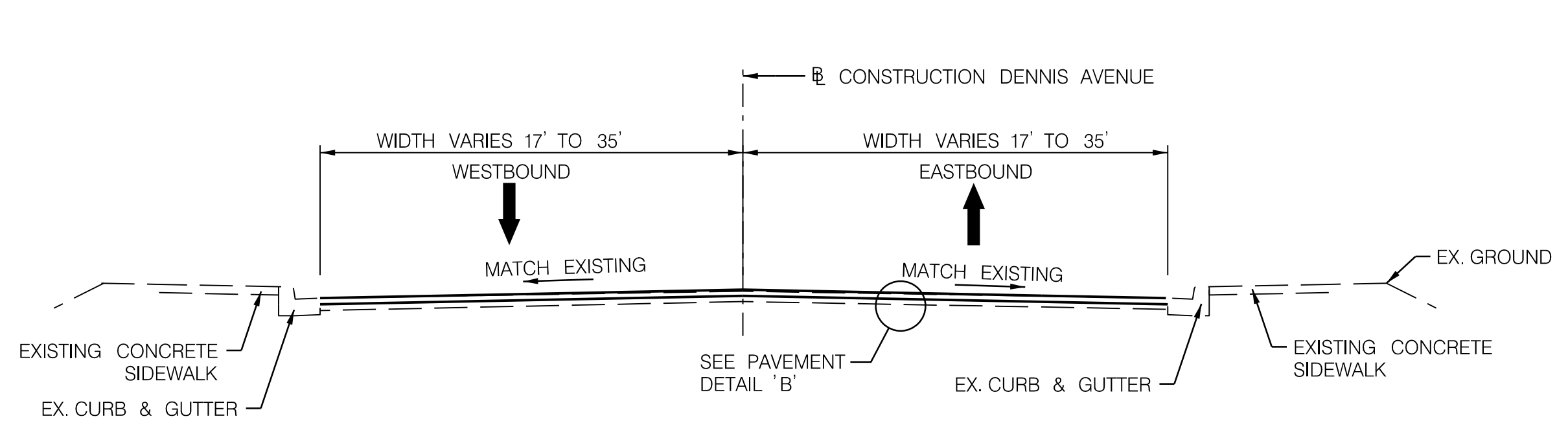
TECHNICAL REVIEW OF SEDIMENT CONTROL	ADMINISTRATIVE REVIEW	DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design or its effects uphill or downhill properties.	SEAL:
REVIEWED DATE	REVIEWED DATE		
TECHNICAL REVIEW OF STORMWATER MANAGEMENT	SMALL LOT DRAINAGE APPROVAL	285774 SEDIMENT CONTROL PERMIT NO. 285550	
REVIEWED DATE	REVIEWED DATE	SM. FILE NO. NO STORMWATER MANAGEMENT NO WAIVERS	
MCDCPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.		NOTE: MCDCPS APPROVAL DOES NOT NEGATE THE NEED FOR A MDE'S ACCESS PERMIT.	
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND		TITLE SHEET	
RECOMMENDED FOR APPROVAL		REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
Chief, Design Section APPROVED	Date	SCALE: AS SHOWN	DATE: APRIL 2024
Chief, Division of Transportation Engineering	Date	Designed By: <u>BSW</u>	Drawn By: <u>BSB</u> Checked By: <u>HL</u>
Project No.: 501701		SHEET 1 OF 82	

GPI
Greenspan Pedersen Inc.
11000 Broken Land Parkway, Suite 500
Columbia, MD 21044
Tel: 410.880.3055

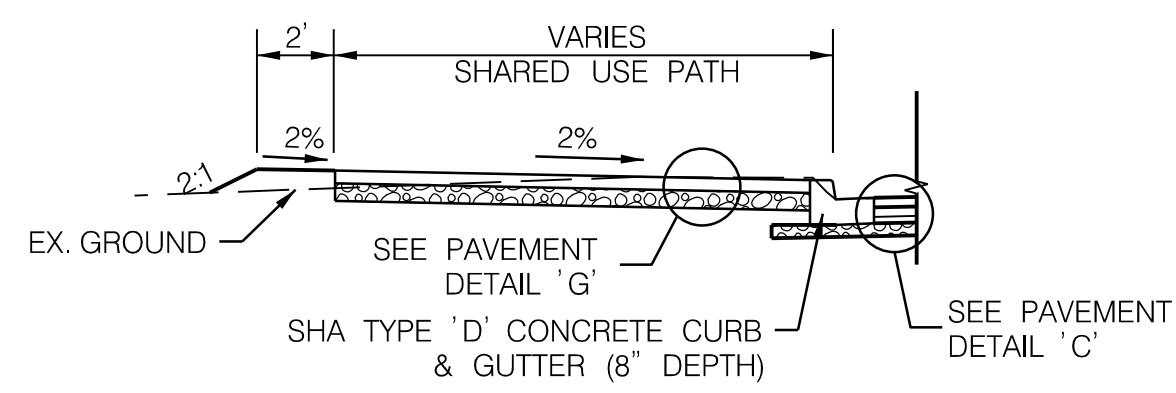
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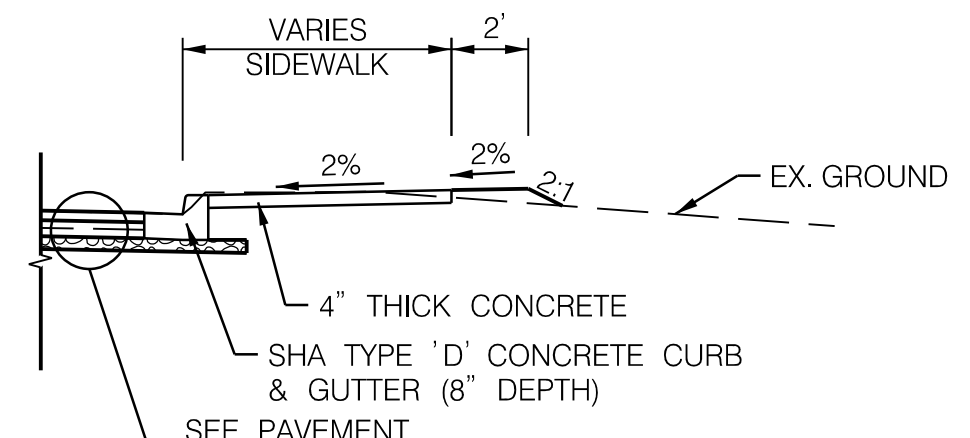
OWNER/ADDRESS: DEPARTMENT OF TRANSPORTATION BRUCE JOHNSTON 100 EDISON PARK DRIVE GAITHERSBURG, MARYLAND 240-777-7221	CONTACT: DIVISION OF TRANSPORTATION ENGINEERING TRANSPORTATION CONSTRUCTION 240-777-7210 TRANSPORTATION PLANNING & DESIGN 240-777-7221
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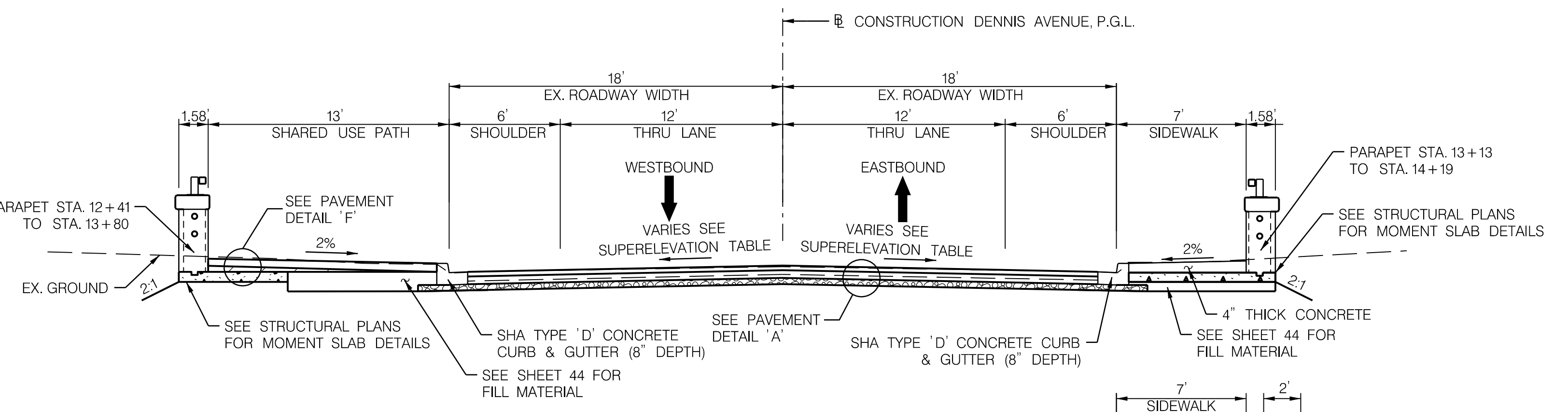
TYPICAL SECTION
STA. 11+25 TO STA. 12+00
NOT TO SCALE



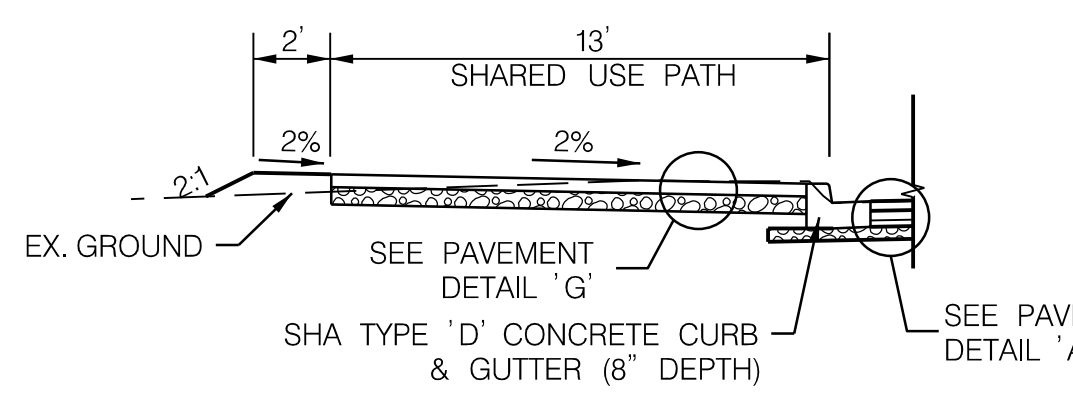
STA. 11+85 TO STA. 12+00
NOT TO SCALE



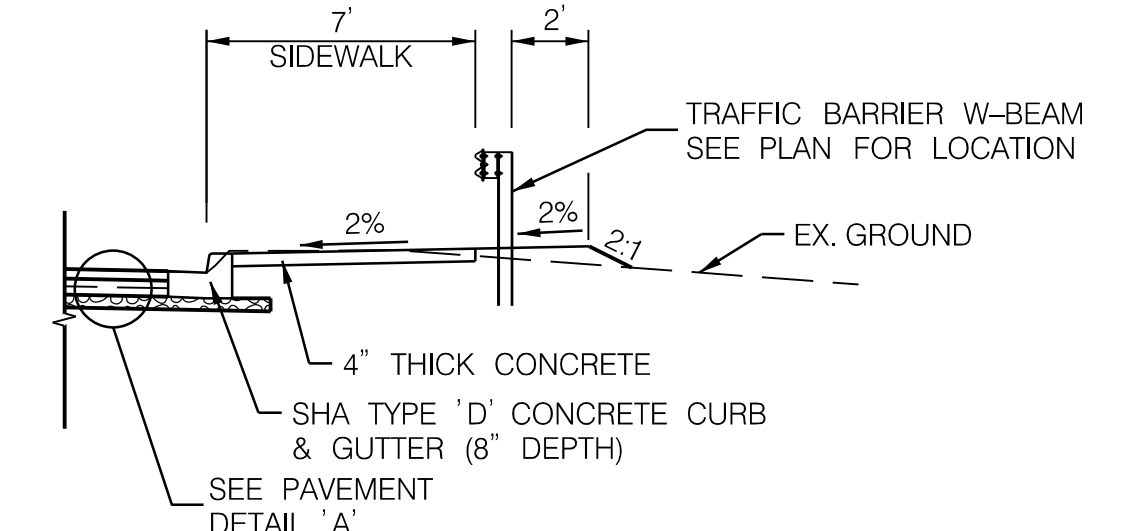
STA. 11+92 TO STA. 12+00
NOT TO SCALE



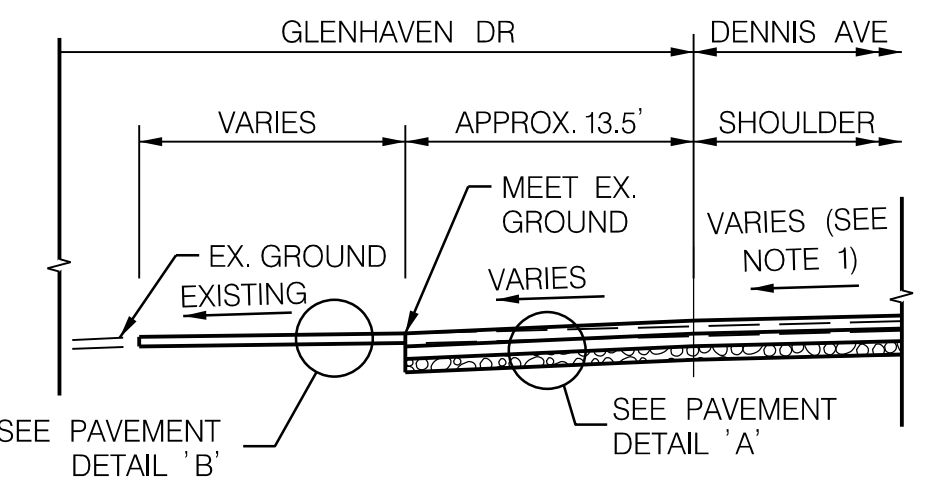
TYPICAL SECTION
STA. 12+41 TO STA. 13+34
NOT TO SCALE



STA. 13+80 TO STA. 13+97
NOT TO SCALE

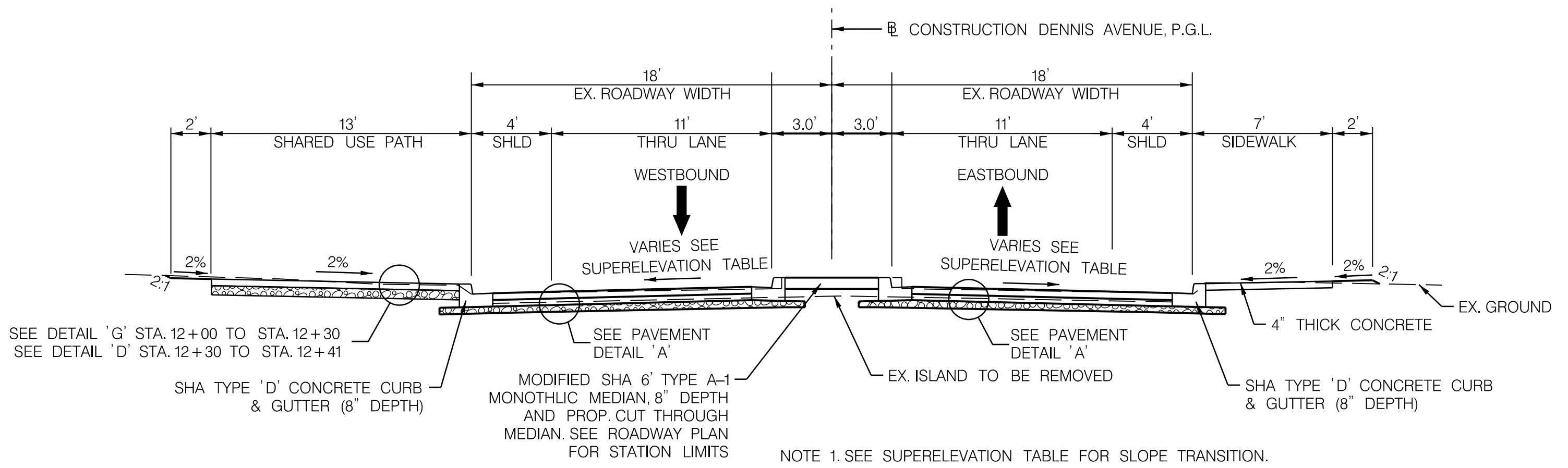


STA. 12+41 TO STA. 13+13
STA. 14+19 TO STA. 14+34
NOT TO SCALE



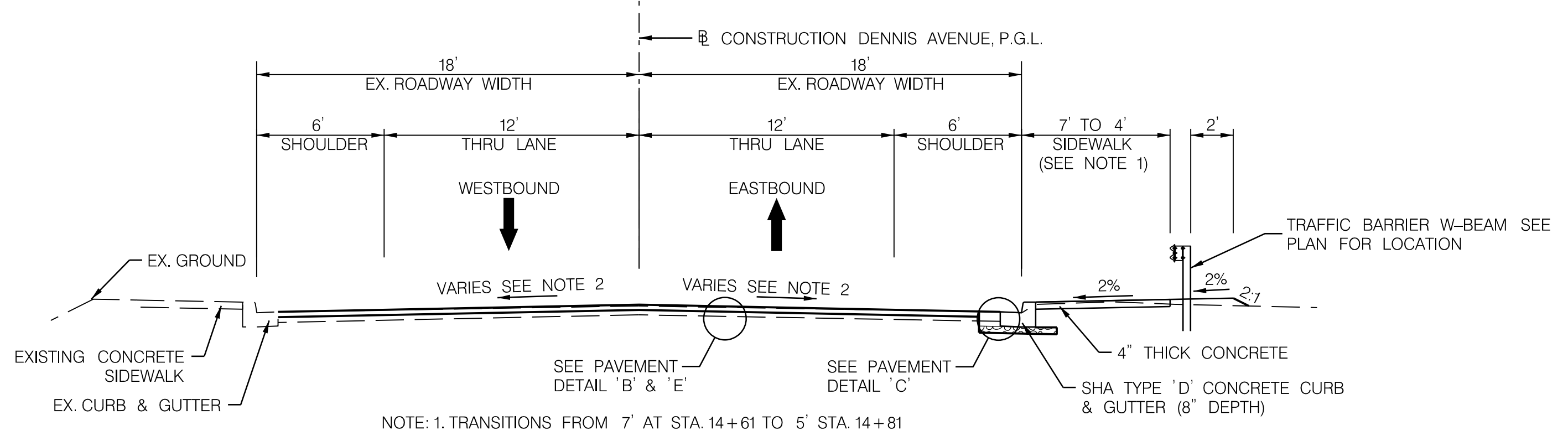
TYPICAL SECTION
STA. 13+97 TO STA. 14+34
NOT TO SCALE

NOTE 1. SEE SUPERELEVATION TABLE FOR SLOPE TRANSITION



TYPICAL SECTION
STA. 12+00 TO STA. 12+41
NOT TO SCALE

NOTE 1. SEE SUPERELEVATION TABLE FOR SLOPE TRANSITION.



TYPICAL SECTION
STA. 14+34 TO STA. 15+25
NOT TO SCALE

NOTE: 1. TRANSITIONS FROM 7' AT STA. 14+61 TO 5' STA. 14+81

NOTE 2: FROM STATION 14+34 TO STATION 14+50 SEE SUPERELEVATION TABLE.
FROM STATION 14+50 TO STATION 14+81 CROSS SLOPE VARIES PROVIDING POSITIVE DRAINAGE FROM PROPOSED ELEVATION AT BASELINE OF CONSTRUCTION TO PROPOSED CURB FLOW LINE ELEVATION. SEE CURB LAYOUT SHEET.
FROM STATION 14+81 TO STATION 15+25 CROSS SLOPE VARIES PROVIDING POSITIVE DRAINAGE FROM PROPOSED ELEVATION AT BASELINE OF CONSTRUCTION TO EXISTING CURB FLOW LINE.

DENNIS AVENUE SUPERELEVATION TABLE					
STATION	DESCRIPTION	ROADWAY LEFT		ROADWAY RIGHT	
		CROSS SLOPE (%)	FACTORS FT/FT	CROSS SLOPE (%)	FACTORS FT/FT
12+00	BEGIN S.E. TRANSITION	EX. (~-4.40%)	C=0.037	EX. (~-3.00%)	C=0.037
12+27	NORMAL CROWN - END S.E. TRANSITION (RT.)	-3.38%		-2.00%	
12+65	NORMAL CROWN - END S.E. TRANSITION (LT.)	-2.00%		-2.00%	
13+88	BEGIN S.E. TRANSITION	-2.00%	C=0.037	-2.00%	C=0.037
14+50	MEET EXISTING - END S.E. TRANSITION	EX. (~-4.30%)		EX. (~-4.30%)	

TOPSOIL AND PERMANENT VEGETATION NOTES:

- SLOPES 2:1 AND STEEPER: PLACE FURNISHED TOPSOIL 2 IN. DEPTH, TURFGRASS ESTABLISHMENT AND TYPE A SSM, UNLESS OTHERWISE NOTED.
- SLOPE 4:1 AND FLATTER THAN 2:1: PLACE FURNISHED TOPSOIL 4 IN., DEPTH, TURFGRASS ESTABLISHMENT, AND TYPE A SSM, UNLESS OTHERWISE NOTED.
- AREAS FLATTER THAN 4:1: PLACE FURNISHED TOPSOIL 4 IN., DEPTH, TURFGRASS ESTABLISHMENT, UNLESS OTHERWISE NOTED.

GPI
Greeman-Pedersen, Inc.
11000 Broken Land Parkway, Suite 500
Columbia, MD 21044
Tel: 410.880.3055

JOINT VENTURE

WBCM
Designing Infrastructure for Tomorrow

OWNER/ADDRESS:
DEPARTMENT OF TRANSPORTATION
BRUCE JOHNSTON
100 EDISON PARK DRIVE
GAITHERSBURG, MARYLAND
240-777-7221

CONTACT:
DIVISION OF TRANSPORTATION ENGINEERING
TRANSPORTATION CONSTRUCTION
240-777-7210
TRANSPORTATION PLANNING & DESIGN
240-777-7221

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: _____ Drawn By: _____ Checked By: _____

ROADWAY TYPICAL SECTIONS
AND DETAILS

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: APRIL 2024

Project No.: 501701 SHEET 3 OF 82

PLOTTED: Friday, March 29, 2024 AT 08:36 AM
FILE: N:\2021\07\10\2020_BCS_20144E_SIA_Hwy_Sr_Eng_Senior\Task_06_Dennis_Avenue_Bridge\CADD\Plot\Road_DennisAve.dgn

TH #	STATION	OFFSET	NORTH	EAST	EX. GRD. ELEV.	COVER	UTILITY	DESC.
1	12+40	26 RT	495036.1833	1300779.9838	315.89	1.98	COMM.	VAULT
1A	12+42	27 RT	495035.6910	1300782.7663	315.92	1.53	CATV	0.5" CABLE
2	13+70	56 LT	495140.1328	1300893.9100	312.62	N/A	NO UTILITY FOUND	N/A
2A	13+74	56 LT	495140.8668	1300897.8024	313.58	N/A	NO UTILITY FOUND	N/A
3	12+97	29 RT	495042.6671	1300836.6789	315.25	4.16	STORM	36" CONC. PIPE
3A	13+02	28 RT	495044.8137	1300842.1955	315.17	12.90	COMM.	DUCTBANK
6	14+17	29 RT	495064.2838	1300954.6445	313.11	9.52	COMM.	DUCTBANK
7	14+74	30 RT	495073.5561	1301011.7021	312.19	5.75	COMM.	DUCTBANK
8	12+06	3 LT	495058.6506	1300741.6855	316.37	5.50	WATER	12" IRON PIPE
9	11+98	34 LT	495087.5885	1300728.8697	316.35	2.91	FIBER OPTIC	UNKNOWN SIZE
9A	11+97	35 LT	495088.5090	1300727.3879	316.32	4.46	COMM.	(3) 4.5" CONDUITS
10	12+46	51 LT	495113.0234	1300772.8106	316.42	5.29	FIBER OPTIC	(5) 2" CONDUITS
11	12+62	52 LT	495116.9731	1300787.8242	316.08	N/A	NO UTILITY FOUND	N/A
11A	12+54	52 LT	495115.4177	1300780.2829	316.19	N/A	NO UTILITY FOUND	N/A
11B	12+50	51 LT	495113.8223	1300776.2668	316.34	6.86	FIBER OPTIC	(6) 2"
12	14+08	66 LT	495156.2802	1300929.4744	311.48	4.30	WATER	6" IRON
13	13+21	61 LT	495135.4902	1300844.9011	309.59	N/A	NO UTILITY FOUND	N/A
14	13+81	54 LT	495139.8951	1300905.3510	313.42	4.57	FIBER OPTIC	(6) 2"
16	13+87	28 RT	495059.9420	1300924.9836	313.35	4.95	STORM	24" CONCRETE
16A	13+89	29 RT	495059.8870	1300927.5650	313.12	10.55	COMM.	DUCTBANK

LIMIT OF WORK
GLENHAVEN DRIVE
STA. 100 + 00
(MEET EXISTING)

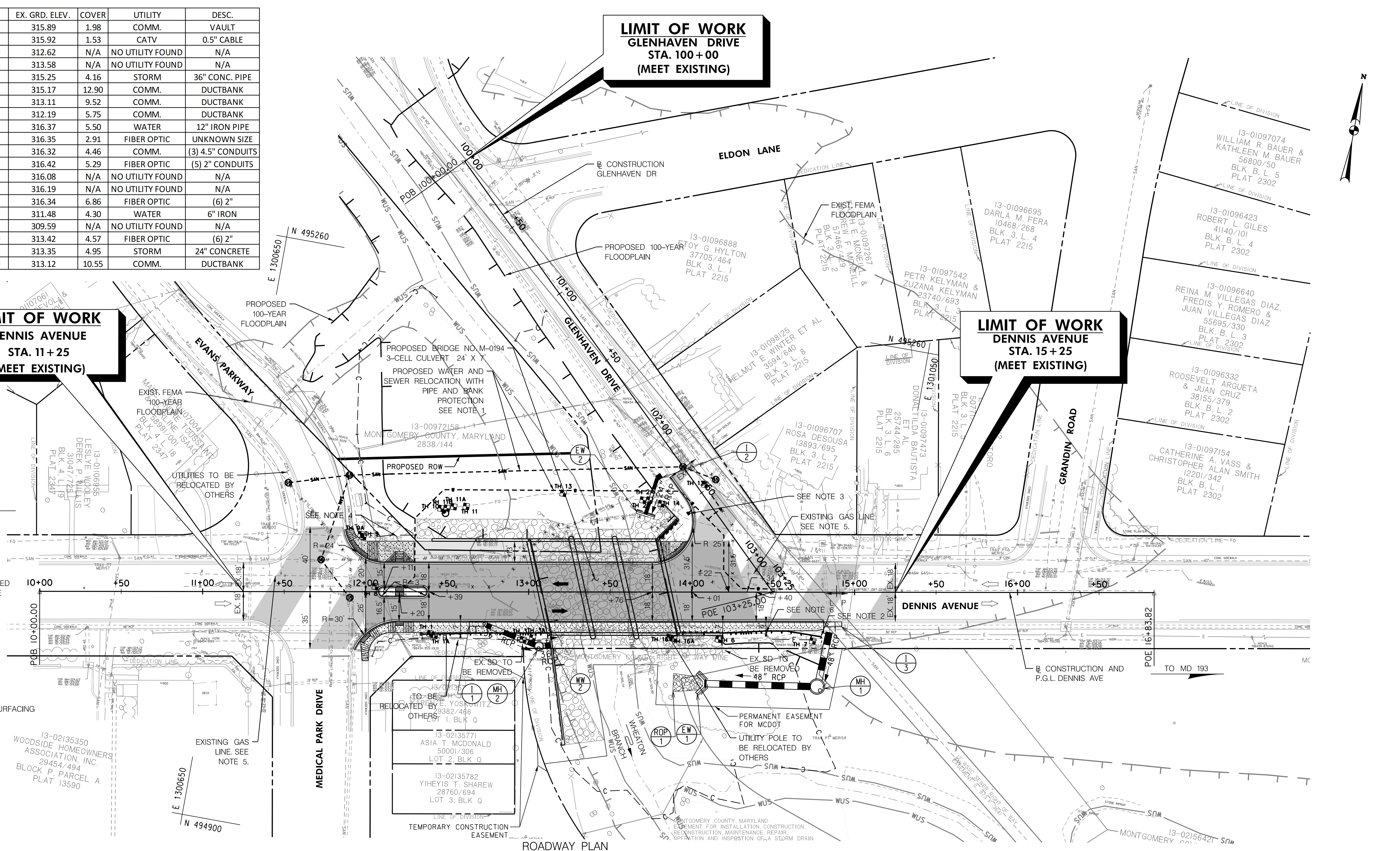
LIMIT OF WORK
DENNIS AVENUE
STA. 11 + 25
(MEET EXISTING)

LIMIT OF WORK
DENNIS AVENUE
STA. 15 + 25
(MEET EXISTING)

- NOTES:
- SEE SHEET 76 THRU 82 FOR WATER AND SEWER RELOCATION PLANS.
 - CONTRACTOR SHALL USE CAUTION WHEN INSTALLING W-BEAM GUARDRAIL POSTS ADJACENT TO PROPOSED 48" RCP.
 - PROPOSED FIRE HYDRANT TO BE INSTALLED. SEE SHEET 77.
 - EXISTING FIBER OPTIC VAULTS TO REMAIN.
 - EXISTING GAS LINE TO BE ABANDONED BETWEEN STATION 11+51 AND STATION 14+38. SEE SHEETS 17 AND 18.
 - POST SPACING FOR THRIE BEAM AND W-BEAM TO BE PLACED TO AVOID IMPACT TO EXISTING UTILITY POLE BARRIER TO BE STIFFENED ALONG LOCATION INFRONT OF UTILITY POLE.

LEGEND

- FULL DEPTH PAVEMENT
- PAVEMENT MILLING AND RESURFACING
- SIDEWALK
- WATERS OF THE US
- PROPOSED TRAFFIC BARRIER
- SHARED-USE PATH
- X X X UTILITY TO BE REMOVED
- // // // UTILITY TO BE ABANDONED



ROADWAY PLAN
 SCALE: 1" = 30'

MODIFIED 6" CONCRETE MONOLITHIC MEDIAN TYPE A-1, 8" DEPTH, 6" CURB HEIGHT (MDOT SHA STD.645.01)	
STA. 12+08* TO STA. 12+38* INCLUDES CUT THROUGH MEDIAN OPENING (MDOT SHA STD. 655.21)	30 L.F.
*NOSE DOWN OVER 4 FEET	

4 INCH CONCRETE SIDEWALK	
STA. 11+93 TO STA. 14+81 RT.	1,811 S.F.
SHARED USE PATH	
STA. 11+88 TO STA. 13+97 LT.	2,437 S.F.

STANDARD TYPE D CURB AND GUTTER 12" GUTTER PAN 6" DEPTH (MDOT SHA STD.620.02-01)	
STA. 11+88* TO STA. 13+87 LT.*	266 L.F.
STA. 11+93* TO STA. 14+81 RT.*	295 L.F.
* TIE TO EXISTING CURB AND GUTTER	

MILLING ASPHALT PAVEMENT 2.5 INCH TO 4 INCH DEPTH	
STA. 11+25 TO STA. 12+00	472 S.Y.
STA. 14+34 TO STA. 15+25	493 S.Y.

TRAFFIC BARRIER W-BEAM USING 6 FOOT POST (MDOT SHA STD.605.23)	
STA. 14+56 TO STA. 14+79 RT.	23 L.F.
TRAFFIC BARRIER THRIE BEAM ANCHORAGE AT BRIDGE END POST (MDOT SHA STD.605.41)	
STA. 13+12 RT.	1 EA.
STA. 14+19 RT.	1 EA.

TRAFFIC BARRIER W-BEAM ONE-SIDED DOWNSTREAM END TREATMENT (TYPE C) (MDOT SHA STD.605.03)	
STA. 12+37 RT.	1 EA.
TRAFFIC BARRIER W-BEAM ONE-SIDED DOWNSTREAM END TREATMENT (TYPE K) (MDOT SHA STD.605.10)	
STA. 14+79 RT.	1 EA.

SEAL:	
-------	--

DETECTABLE WARNING SURFACE	
STA. 11+96 LT.	28 S.F.
STA. 12+00 RT.	14 S.F.
STA. 12+21 LT.	10 S.F.
STA. 12+21 RT.	10 S.F.
STA. 12+21 RT.	10 S.F.
STA. 12+21 RT.	10 S.F.
STA. 13+93 LT.	25 S.F.

CLASS IIRIPRAP OUTLET	
STA. 13+89 TO STA. 14+07 RT.	20 S.Y.
CLASS IIRIPRAP APRON FOR SCOUR PROTECTION	
STA. 12+31 TO STA. 14+19	1812 TONS

SIDEWALK RAMPS SEE SHEET 5	
STA. 11+96 22' LT.	SEE DETAIL A
STA. 12+00 28' RT.	SEE DETAIL C
STA. 12+21 18' LT.	SEE DETAIL A
STA. 12+21 2' LT.	SEE DETAIL B
STA. 12+21 2' RT.	SEE DETAIL B
STA. 12+21 18' RT.	SEE DETAIL C
STA. 13+93 23' LT.	SEE DETAIL D

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 Columbia, MD 21044
 Tel: 410.850.3055

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CONTACT:
 DIVISION OF TRANSPORTATION ENGINEERING
 TRANSPORTATION CONSTRUCTION
 240-777-7210
 TRANSPORTATION PLANNING & DESIGN
 240-777-7221

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By:	Drawn By:
Checked By:	

ROADWAY PLAN	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: AS SHOWN	DATE: APRIL 2024
Project No. : 501701	SHEET 7 OF 82

PLOTTED: Friday, March 29, 2024 AT 08:38 AM
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TEMPORARY TRAFFIC CONTROL SIGN TABLE (CONT.)

SYMBOL	M.U.T.C.D. DESIGNATION	MESSAGE	SIZE	QUANTITY	COLOR	
					BACKGROUND	CHARACTERS
13	W11-1(1)		36" X 36"	4	FLUORESCENT ORANGE	BLACK
14	R9-9		30" X 18"	5	WHITE	BLACK
15	R11-2		48" X 30"	5	WHITE	BLACK
16	M4-9B(1)(L)		48" X 24"	2	WHITE	BLACK
17	M4-9B(1)(R)		48" X 24"	1	WHITE	BLACK
18	R9-11(L)		36" X 48"	3	WHITE	BLACK
19	R9-11(R)		36" X 48"	2	WHITE	BLACK
20	W14-2		36" X 36"	1	FLUORESCENT ORANGE	BLACK
21	R11-3		24" X 24"	1	WHITE	BLACK
22	W16-7pL		24" X 12"	2	FLUORESCENT ORANGE	BLACK
23	W16-7pR		24" X 12"	2	FLUORESCENT ORANGE	BLACK
24	R5-3		24" X 24"	2	WHITE	BLACK
A	PORTABLE VARIABLE MESSAGE SIGN (PVMS) SCREEN 1 & 2			2	PVMS	

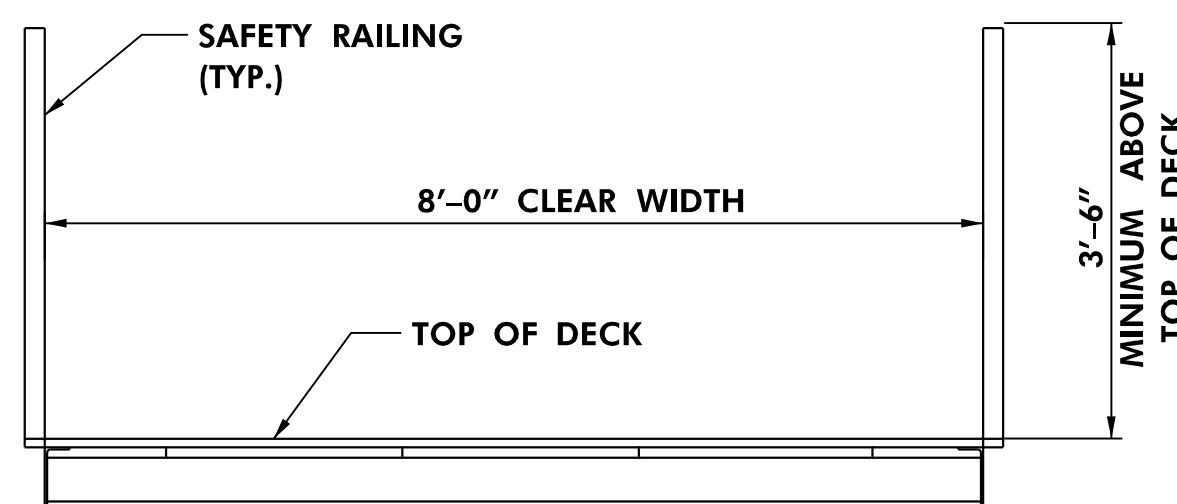
PORTABLE VARIABLE MESSAGE SIGN SHALL BE PLACED IN ACCORDANCE WITH SHA STANDARD MD 104.01-22 TWO (2) WEEKS PRIOR TO CLOSURE. SEE NOTE B AND GENERAL NOTE 6 ON SHEET 9 REGARDING APPROVED MESSAGES.

NOTES:

- A. SEE SHEET 9 OF 82 FOR ADDITIONAL SIGNS.
- B. PVMS MESSAGES ARE RECOMMENDATIONS ONLY; THE CONTRACTOR SHALL COORDINATE WITH MCDOT TRAFFIC ENGINEERING AND OPERATIONS FOR PVMS MESSAGES.

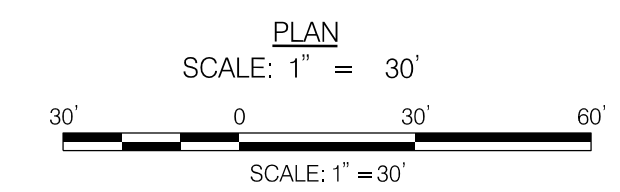
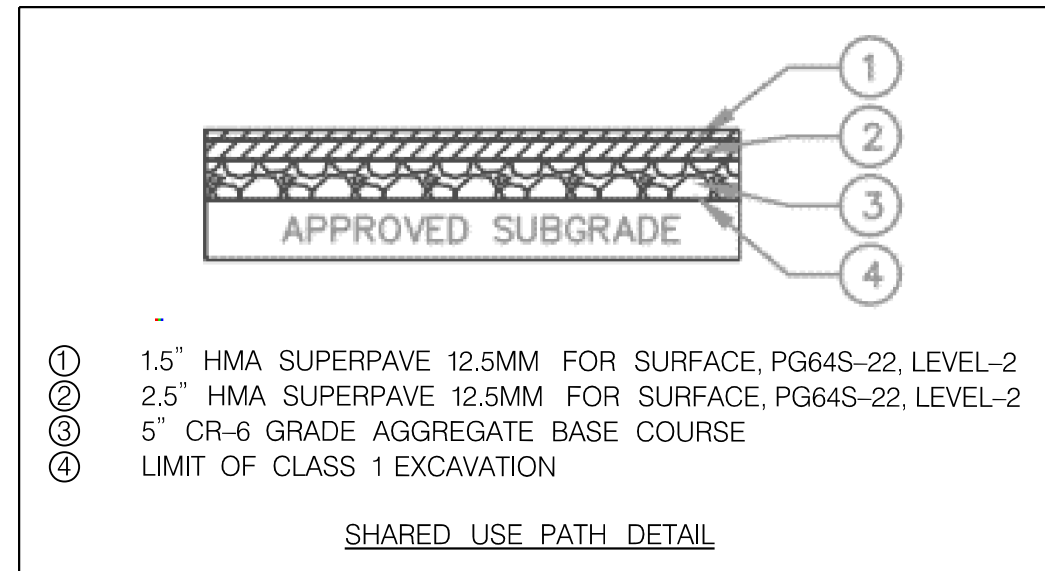
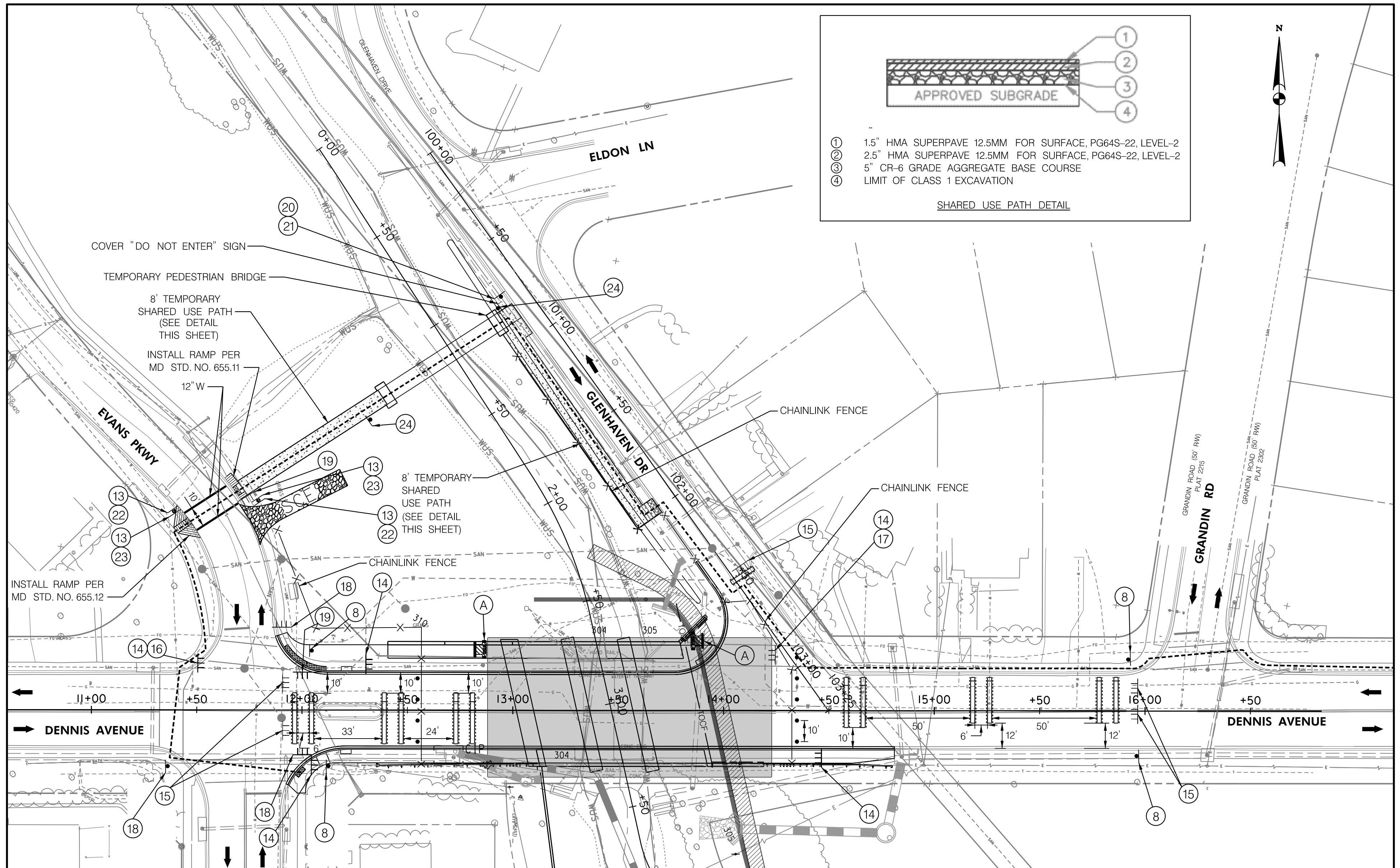
TEMPORARY PEDESTRIAN BRIDGE NOTES

- PEDESTRIAN BRIDGE DIMENSIONS AND DETAILS SHOWN ON THIS SHEET ARE FOR BIDDING PURPOSES ONLY. THE CONTRACTOR SHALL COORDINATE WITH THE BRIDGE FABRICATOR TO DETERMINE ALL DETAILS, LOCATE BEARINGS, SET SEAT ELEVATIONS, AND SET OTHER NECESSARY DIMENSIONS AS PART OF THE REQUIRED SHOP DRAWINGS SUBMISSIONS.
- THE LOWEST BOTTOM CHORD ELEVATIONS SHALL EXCEED THE 2-YEAR STORM ELEVATION OF 313.46.
- FOR ADDITIONAL TEMPORARY PEDESTRIAN BRIDGE REQUIREMENTS, SEE SPECIAL PROVISION 400.



TYPICAL SECTION
SCALE: N.T.S

TEMPORARY PEDESTRIAN BRIDGE



LEGEND

	SIGN
	PVMS
	TEMPORARY CONCRETE BARRIER
	TYPE III BARRICADE
	6' TEMPORARY CHAINLINK FENCE
	TRAFFIC FLOW ARROW
	CHANNELIZING DRUMS
	WORK AREA
	PEDESTRIAN DETOUR ROUTE
	12 IN. WHITE PAVEMENT MARKING TAPE (12" W)
	BITUMINOUS CONCRETE SUP

SEQUENCE OF CLOSURE

- RELOCATE UTILITIES AND DRAINAGE PIPES UTILIZING THE TEMPORARY TRAFFIC CONTROL STANDARDS ON SHEET 75.
- PLACE PORTABLE VARIABLE MESSAGE SIGNS (A) ALERTING THE PUBLIC OF THE CLOSURE AT THREE (3) TO FIVE (5) DAYS PRIOR TO THE ROAD CLOSURE FOR A MAXIMUM OF FOURTEEN (14) DAYS.
- TEMPORARY PEDESTRIAN BRIDGE, SIDEWALK AND SIGNING MUST BE IN PLACE PRIOR TO IMPLEMENTING DENNIS AVENUE CLOSURE.
- PLACE TYPE III BARRICADES AND TEMPORARY TRAFFIC CONTROL SIGNS FOR THE DENNIS AVENUE ROAD DETOUR IN ACCORDANCE WITH THE DETOUR PLAN AND/OR AS DIRECTED BY THE ENGINEER.
- PROCEED WITH CONSTRUCTION OF ALL PROPOSED WORK.
- CONSTRUCT FINAL SIDEWALKS UTILIZING THE TEMPORARY TRAFFIC CONTROL STANDARD TCP-107.01.
- AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY SIGNS, BARRICADES, BARRIERS AND TEMPORARY PEDESTRIAN BRIDGE AND OPEN DENNIS AVENUE TO TRAFFIC.
- MILL AND OVERLAY ROAD AND INSTALL FINAL PAVEMENT MARKINGS UTILIZING THE TEMPORARY TRAFFIC CONTROL STANDARDS ON SHEET 75.

MONTGOMERY COUNTY, MARYLAND
Division of Traffic Engineering and Operations
APPROVED

FOR: MOT/TC/P/DETOUR PLAN
BY: *Stella Agbiniacion*
03/18/2024 Date



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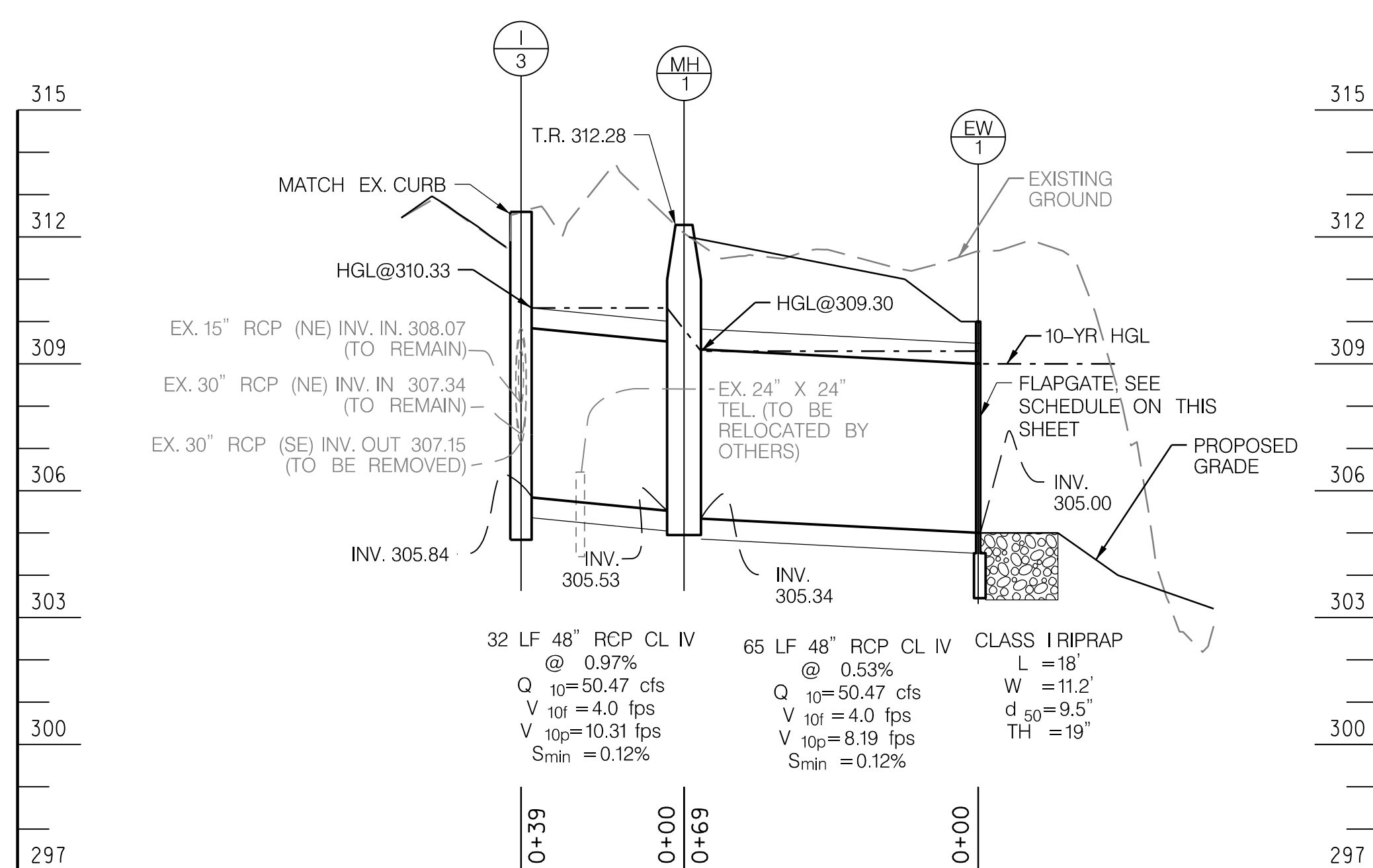
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240-777-7221

CONTACT:
DIVISION OF TRANSPORTATION ENGINEERING
TRANSPORTATION CONSTRUCTION
240-777-7210
TRANSPORTATION PLANNING & DESIGN
240-777-7221

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: _____	Drawn By: _____
Checked By: _____	

DETOUR DETAIL PLAN	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: AS SHOWN	DATE: FEBRUARY 2024
Project No.: 501701	SHEET 10 OF 82



STORM DRAIN PROFILE I-3 TO EW-1

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

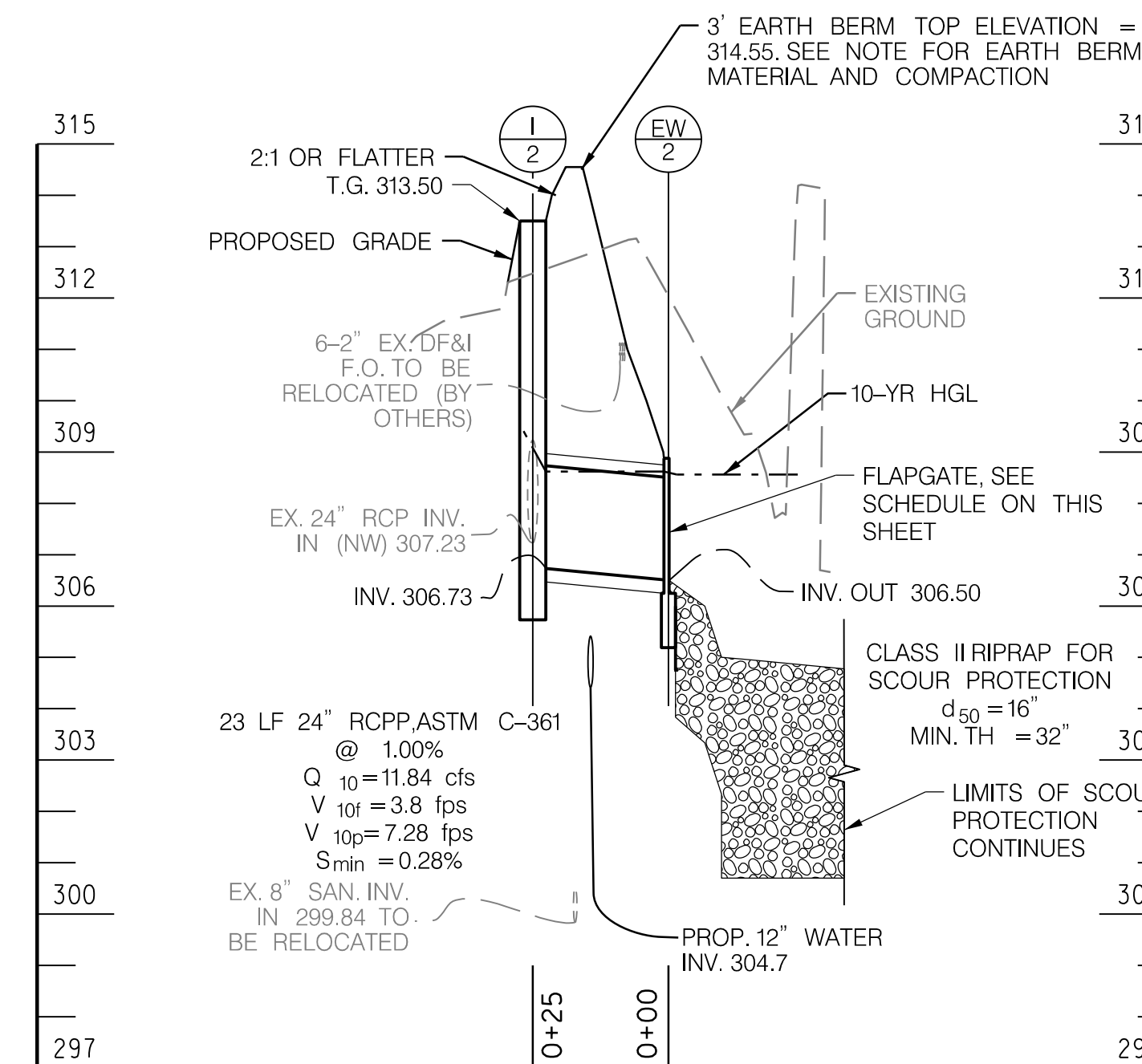
FLAP GATE SCHEDULE			
LOCATION	OUTFALL PIPE	FLAPGATE DIAMETER	DETAIL
EW-1	48" RCP	60"	SEE SHEET DD-2
EW-2	24" RCPP	36"	SEE SHEET DD-2
WW-2	36" RCP	42"	SEE SHEET DD-3

RIPRAP OUTLET PROTECTION SCHEDULE *					
NO.	LOCATION	CLASS	LENGTH L _a (FT)	WIDTH W (FT)	QUANTITY (S.Y.)
ROP-1	EW-1	I	18.0	11.2	18.2

* SEE SHEET DD-1

BOTTOM CUTOFF WALL SCHEDULE	
LOCATION	LENGTH (FT)
ROP-1	11.2

SIDE CUTOFF WALL SCHEDULE	
LOCATION	LENGTH (FT)
ROP-1	15.3



STORM DRAIN PROFILE I-2 TO EW-2

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

NOTE:
EARTH BERM MATERIAL AND COMPA SHALL FOLLOW THE CONSTRUCTION SPECIFICATIONS SECTION OF APPEND OF 2000 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL

DRAINAGE STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP EL. (APPROX.)	DETAIL NO.
MH-1	96" PRECAST MANHOLE	STA. 14+77, 58.0' RT.	305.53	305.34	312.28	MD-384.09*
MH-2	60" PRECAST "A" MANHOLE	STA. 13+06, 33.4' RT.	305.69	305.59	314.54	MC-510.01*
I-1	PRECAST SQUARE COG INLET 10' 1	STA. 12+71, 18.1' RT.	309.60	306.25	315.26	MD 374.51*
I-2	STD. YARD INLET	STA. 13+80, 71.0' LT.	307.23	306.73	313.50	MD 381.01*
I-3	PRECAST SQUARE COG INLET 10' 1	STA. 14+85, 18.1' RT.	308.07	305.84	MATCH EX. CURB	MD 374.51*
EW-1	STD. PRECAST HEAD WALL B-48**	STA. 14+08, 56.2' RT.	-	305.00	-	MD 352.01*
EW-2	STD. PRECAST TYPE C ENDWALL FOR 36" RCP **	STA. 13+72, 47.6' LT.	-	306.50	-	MD 354.01*
WW-2	WING WALL II**		-	305.50	-	SEE SHTS S-22

* SEE SHEET DD-1 FOR DETAILS.
1 BASE AND RISER UNIT TO BE 6'X6'.
** CONTRACTOR SHALL UPGRADE TO LARGER END WALLS TO ENSURE PROPER INSTALLATION OF FLAPGATES AND ADJUST GRADE NEAR OUTFALLS FOR PROPER PIVOT RADIIAS NEEDED IN END WALLS AND WING WALLS BEFORE ORDERING MATERIALS. SEE FLAPGATE DETAILS FOR PIVOT RADII.

DRAINAGE PIPE SCHEDULE				
FROM STRUCT.	TO STRUCT.	SIZE (IN.)	TYPE	LENGTH (FT.)
I-3	MH-1	48	RCP CL IV	32
MH-1	EW-1	48	RCP CL IV	65
I-2	EW-2	24	RCPP, ASTM C-361	23
I-1	MH-2	36	RCP CL IV	32
MH-2	WW-2	36	RCP CL IV	5

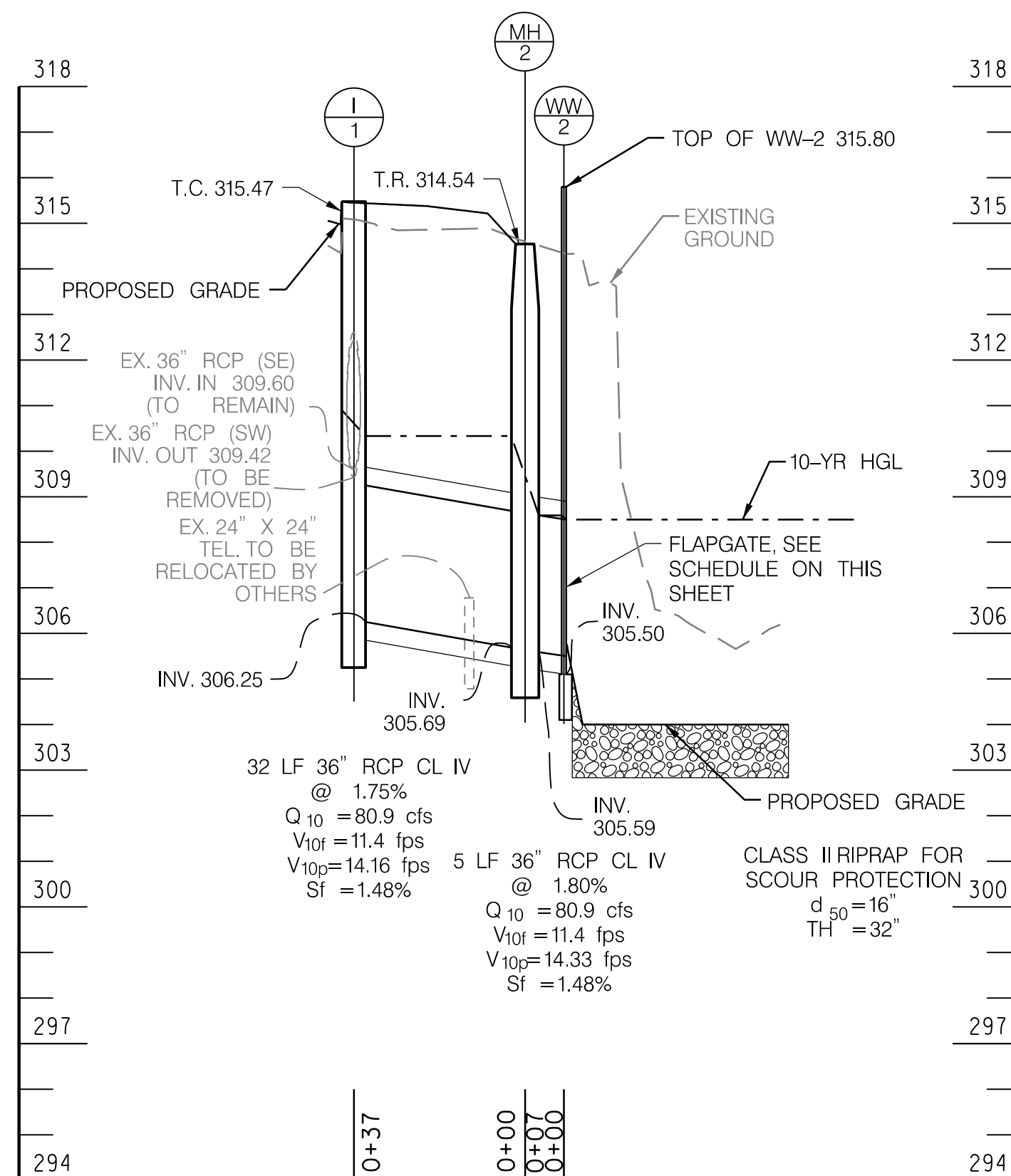
- DRAINAGE STRUCTURE LOCATIONS:
SEE DRAINAGE STRUCTURE SCHEDULES AND THE FOLLOWING FOR STRUCTURE LOCATIONS:
- STATIONS FOR SHA PRECAST STD. CIRCULAR COG/COG INLETS ARE GIVEN TO THE GEOMETRIC CENTER OF THE STRUCTURE, OFFSETS ARE GIVEN TO THE FACE OF CURB, TOP ELEVATIONS ARE GIVEN TO THE TOP OF THE CURB (T.C.)
 - STATIONS AND OFFSETS FOR SHA STD. YARD INLETS ARE GIVEN TO THE GEOMETRIC CENTER OF THE STRUCTURE. TOP ELEVATIONS ARE GIVEN TO THE TOP OF THE GRATE (T.G.)
 - STATIONS AND OFFSETS OF MONTGOMERY COUNTY "A" MANHOLE AND SHA PRECAST MANHOLE ARE GIVEN TO THE GEOMETRIC CENTER OF THE STRUCTURE. TOP ELEVATIONS ARE GIVEN TO THE TOP OF RIM (T.R.)
 - STATIONS AND OFFSETS OF SHA PRECAST ENDWALLS ARE GIVEN TO FRONT FACE OF THE END WALLS.
 - STATIONS AND OFFSETS OF WING WALLS ARE GIVEN TO THE FRONT FACE OF THE OPENING FOR THE OUTFALLING PIPE.
 - STATIONS, OFFSETS, AND TOP ELEVATIONS OF EXISTING DRAINAGE STRUCTURES ARE GIVEN ACCORDING TO THE SAME RULES APPLIED TO PROPOSED STRUCTURES OF THE SAME CATEGORIES.

EXISTING DRAINAGE STRUCTURE TO BE REMOVED SCHEDULE

LOCATION	TYPE
STA. 12+71, 18.1' RT.	INLET
STA. 13+19, 37.6' RT.	END SECTION
STA. 13+75, 45.7' RT.	END SECTION
STA. 13+85, 37.0' RT.	MANHOLE
STA. 13+92, 55.0' LT.	MANHOLE
STA. 14+85, 18.1' RT.	INLET

EXISTING DRAINAGE PIPES TO BE REMOVED SCHEDULE

LOCATION	LF
STA. 12+71, 18.1' RT. TO STA. 13+19, 37.6' RT.	49
STA. 13+67, 40.7' RT. TO STA. 13+80, 71.0' LT.	130
STA. 13+75, 45.7' RT. TO STA. 14+85, 18.1' RT.	112
STA. 13+80, 71.0' LT. TO STA. 13+92, 55.0' LT.	17



STORM DRAIN PROFILE I-1 TO WW-2

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

SD-1

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240-777-7210
TRANSPORTATION PLANNING & DESIGN
240-777-7221

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

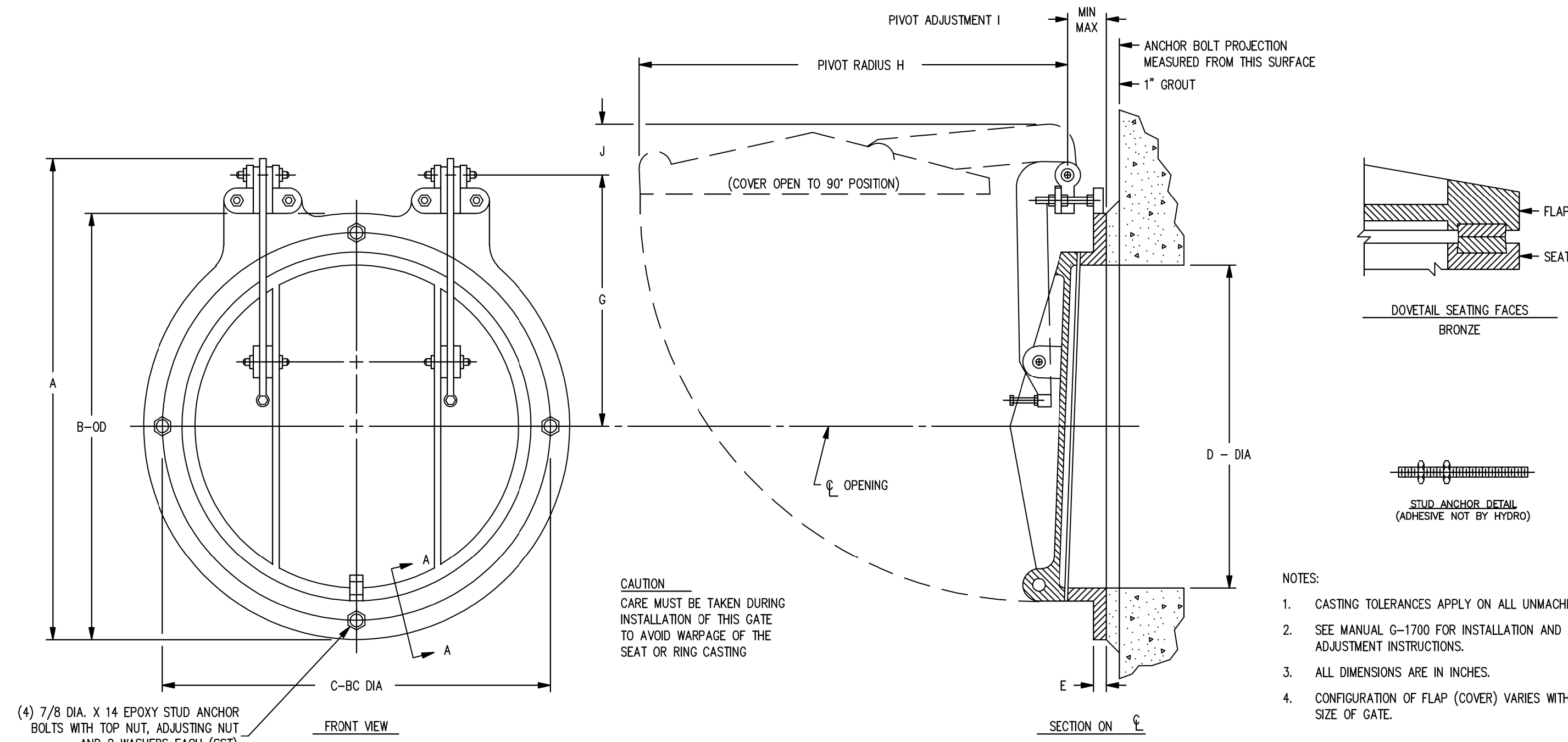
Designed By: _____ Drawn By: _____ Checked By: _____

DRAINAGE PROFILES AND SCHEDULE

REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: APRIL 2024

Project No. : 501701 SHEET 12 OF 82



(4) 7/8 DIA. X 14 EPOXY STUD ANCHOR BOLTS WITH TOP NUT, ADJUSTING NUT AND 2 WASHERS EACH (SS1). EMBED 10 (H4S14022L)

DIMENSIONAL DATA									
DIA	A	B	C	E	G	H	J	MAXIMUM	MINIMUM
42	58 3/4	53	49 1/2	1 1/8	31	53 1/2±	4 5/8±	3 3/8	2

EMBEDMENTS	MATERIAL DESCRIPTION	CODE	ASTM SPECIFICATION	GATE ASSEMBLY	MATERIAL DESCRIPTION	CODE	ASTM SPECIFICATION
STUD ANCHOR BOLTS	STAINLESS STEEL	(L)	A276, TYPE 304	SEAT AND COVER	CAST IRON	(A)	A126, CLASS B
ANCHOR BOLT NUTS	STAINLESS STEEL	(L)	F594, ALLOY GROUP 1	SEATING FACES (SEAT)	SILICON BRONZE	(J)	B98, ALLOY 651
				SEATING FACES (COVER)	SILICON BRONZE	(J)	B98, ALLOY 651
				PIVOT LUGS	DUCTILE IRON	(X)	A536, GRADE 80-55-06
				LINKS	DUCTILE IRON	(X)	A536, GRADE 80-55-06
				BUSHINGS	BRONZE	(E)	B584, ALLOY 932
				HINGE PINS	STAINLESS STEEL	(P)	A276, TYPE 316
				FASTENERS	STAINLESS STEEL	(P)	F593 (BOLTS), ALLOY GROUP 2 (316) F594 (NUTS), ALLOY GROUP 2 (316)

**42-INCH HEAVY DUTY FLAP GATE
HYDROGATE SERIES 50C (CAST IRON) FLAT BACK SEAT,
ADJ. UPPER PIVOT OR EQUIVALENT DETAIL (WW-2)**

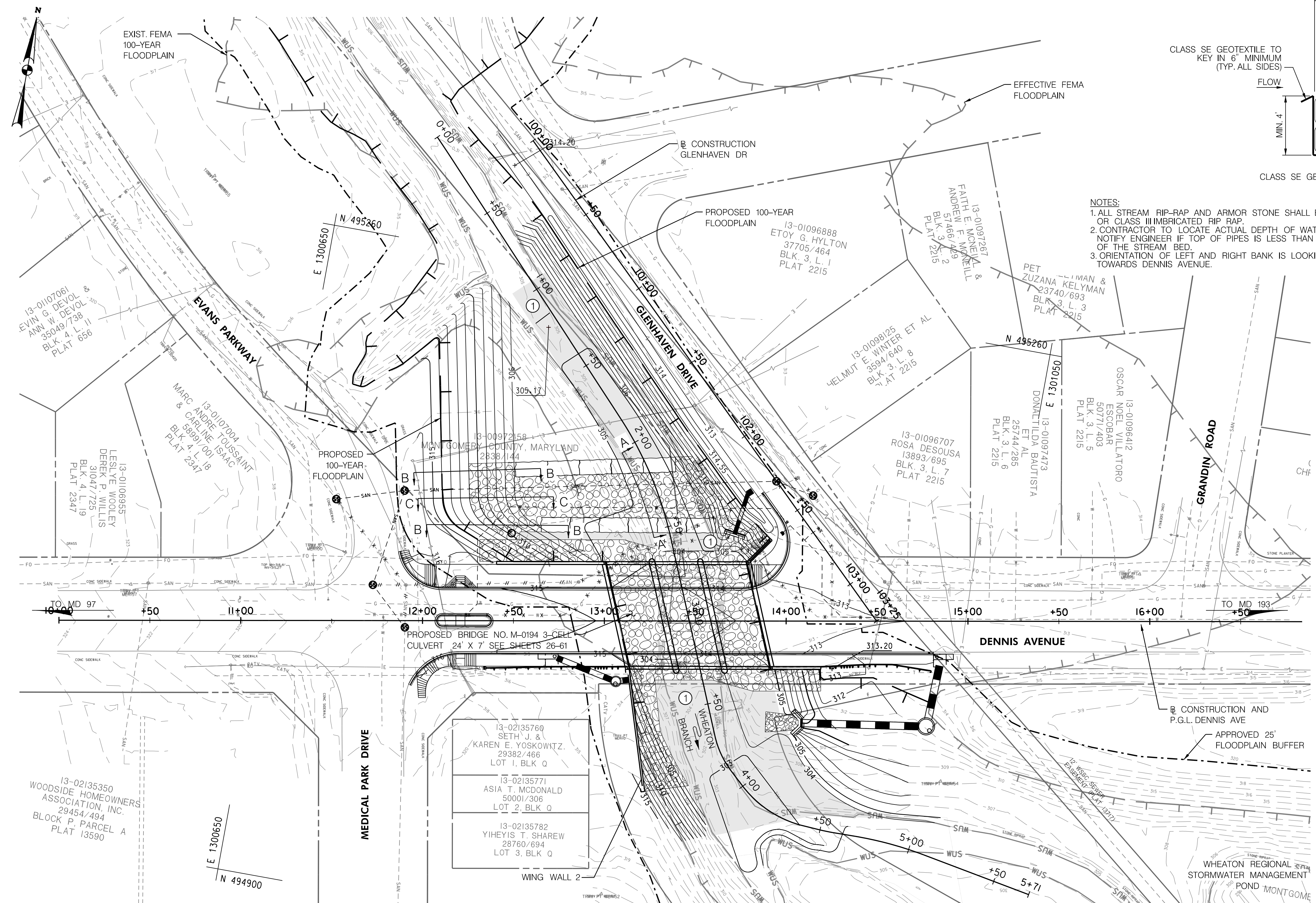
(NOT TO SCALE)

DESIGN CHECK IS PERFORMED EXCLUSIVELY ON DIMENSIONS AND HYDRAULIC OPENING FOR HYDROGATE OR EQUIVALENT FLAP GATE SYSTEM.

SEAL:

PLOTTED: Friday, March 29, 2024 AT 08:39 AM
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GPI Greeman-Pederson, Inc. 11000 Broken Land Parkway, Suite 500 Columbia, MD 21044 Tel: 410.880.3055 JOINT VENTURE WBCM Designing Infrastructure for Tomorrow®	OWNER/ADDRESS: DEPARTMENT OF TRANSPORTATION BRUCE JOHNSTON 100 EDISON PARK DRIVE GAITHERSBURG, MARYLAND 240-777-7221 CONTACT: DIVISION OF TRANSPORTATION ENGINEERING TRANSPORTATION CONSTRUCTION 240-777-7210 TRANSPORTATION PLANNING & DESIGN 240-777-7221	MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL Chief, Design Section _____ Date _____ APPROVED Chief, Division of Transportation Engineering _____ Date _____ Design By: _____ Drawn By: _____ Checked By: _____	DRAINAGE DETAILS REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH) SCALE: AS SHOWN DATE: APRIL 2024 Project No.: 501701 SHEET 15 OF 82
	NO. REVISION DATE BY		



PLAN
SCALE: 1" = 30'

- BED STABILITY MIX NOTES:**
1. STREAM BED MATERIAL (SBM1) SHOULD BE HARVESTED PRIOR TO CHANNEL GRADING FOR REUSE AND USED IN UPPER 12" OF BED STABILITY MIX (BSM).
 2. BSM MATERIALS SHALL CONSIST OF CLEAN NATURAL MATERIALS (I.E. NO CONCRETE, ASPHALT, STONE DUST, ETC.).
 3. MATERIALS SHOULD BE WELL MIXED PRIOR TO IN-STREAM PLACEMENT, INSTALLED IN 18" (MAX.) LIFTS, AND WASHED TO PROMOTE SURFACE FLOW.
 4. PLACE SBM1 INTO EACH LIFT TO LOCK-IN MATERIAL AND ESTABLISH SURFACE FLOW AT BASEFLOW CONDITIONS.
 5. BSM LIFTS SHOULD BE PRESSED/TRACKED INTO STREAM CHANNEL TO ENSURE STABILITY AND SMOOTH TRANSITIONS.
 6. COMMON BORROW MAY BE PERMITTED TO BE INCORPORATED INTO LOWER LIFTS OF BSM AND SILICA SAND IN UPPER LAYERS IF WASHED-IN SBM1 DOES NOT SEAL BSM.
 7. INSTALLED BSM SHOULD BE CHECKED AND AUGMENTED AS NEEDED ONCE BASEFLOW CONDITIONS ARE OBSERVED AND FOLLOWING STORM EVENTS.
 8. ALTERNATIVE BSM TYPES MAY BE SUBMITTED BY DESIGN TEAM FOR SITE SPECIFIC APPROVAL BY ENGINEER.
 9. PERCENTAGES LISTED ARE BY VOLUME. ACTUAL CONTENT OF EACH COMPONENT MAY VARY 5% UP OR DOWN.
 10. TOTAL DEPTH OF BSM IS 24".

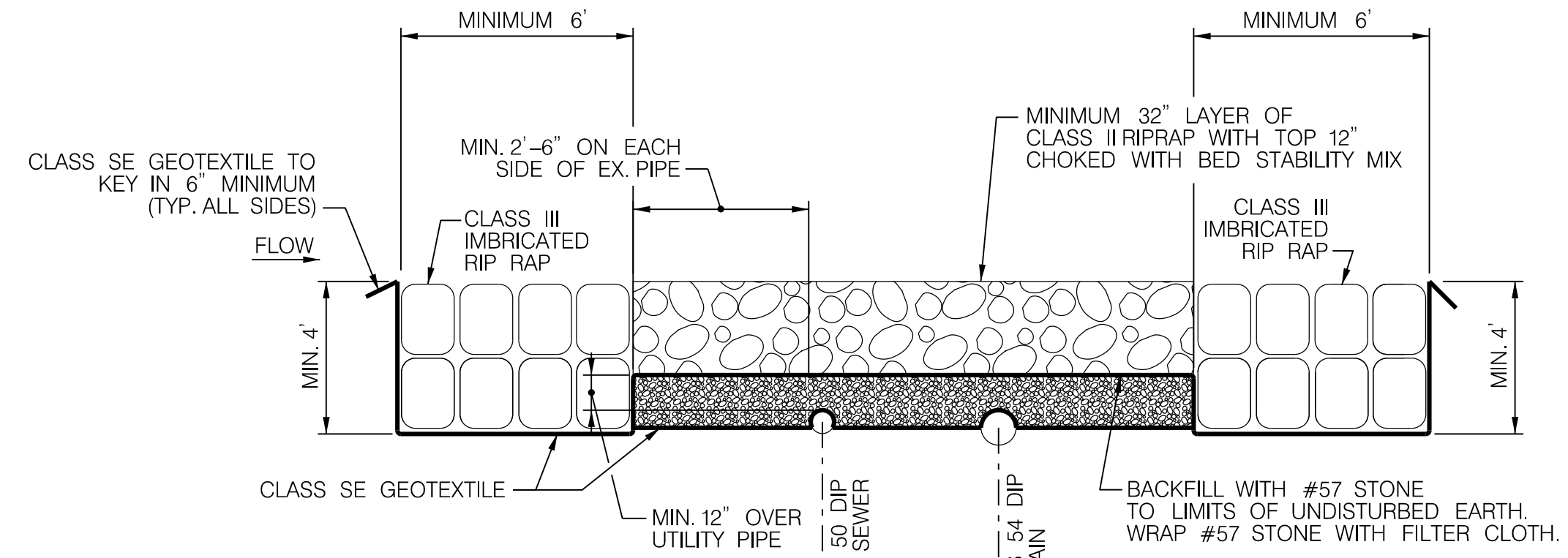
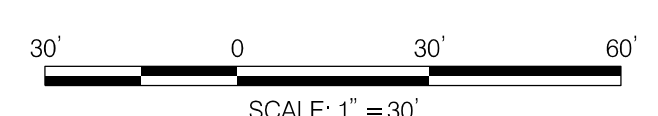
① BED STABILITY MIX (BSM)

% MIX	MATERIAL	%
	SHA CLASS 0 RIPRAP	10%
	SHA CLASS I RIPRAP	30%
	SHA CLASS II RIPRAP	40%
	STREAM BED MATERIAL (SBM1)	20%

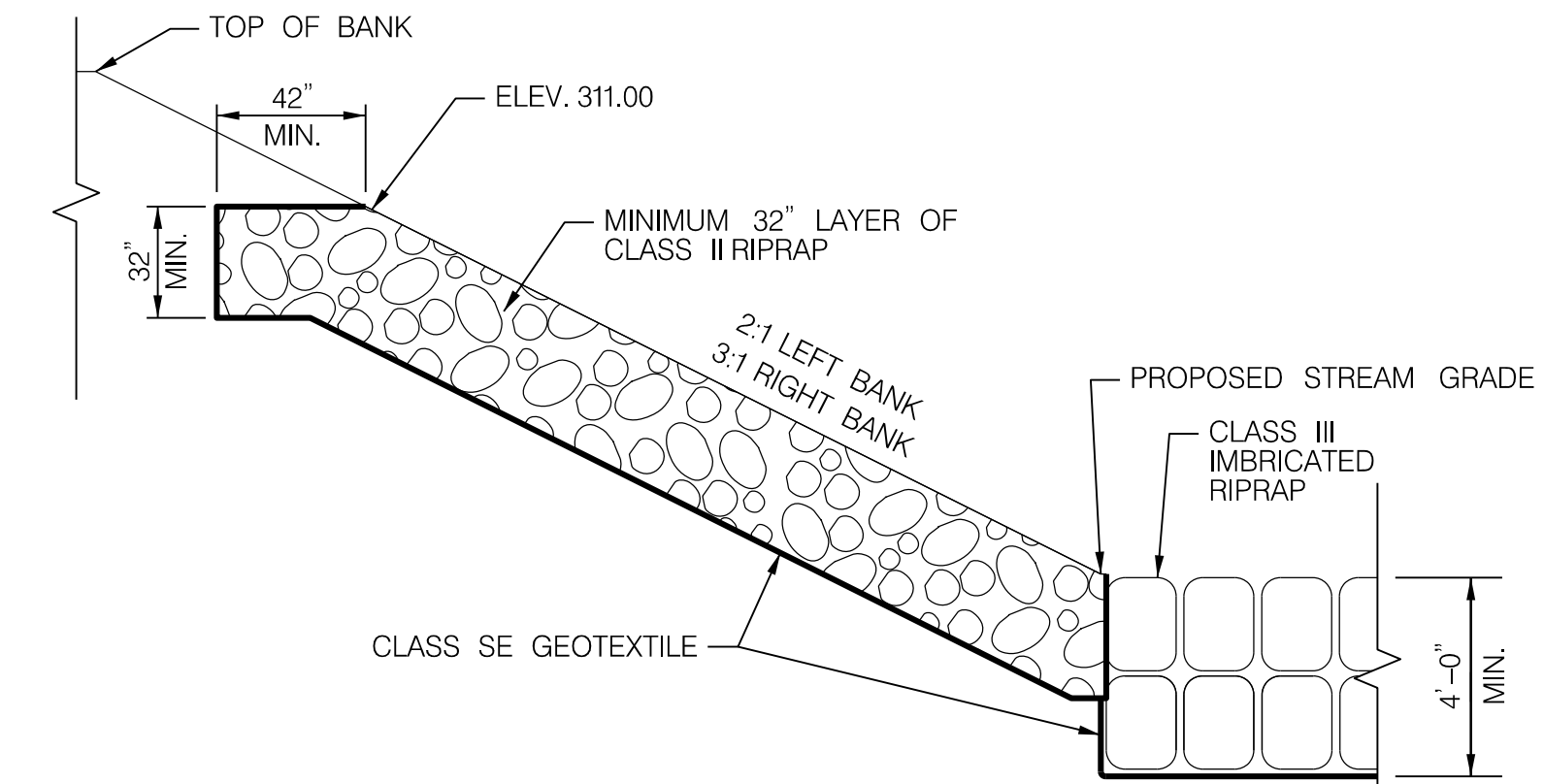
STREAMBED MATERIAL (SBM1)

% MIX	MATERIAL	%
	CLASS 0 RIPRAP	5%
	NO. 57 AGGREGATE	15%
	BANK RUN GRAVEL - SUBBASE	80%

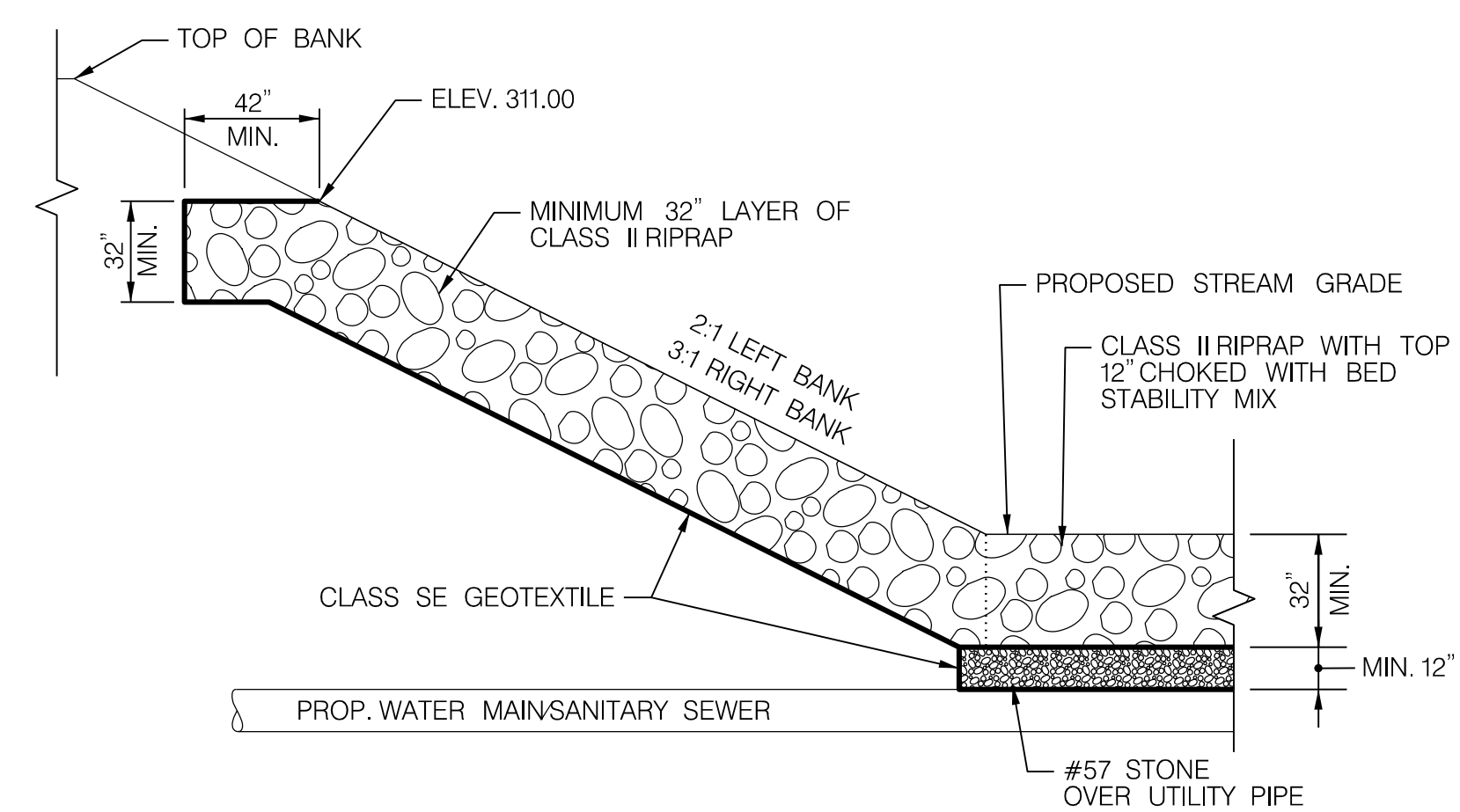
- LEGEND**
- ① BED STABILITY MIX (BSM)
 - CLASS II RIPRAP
 - CLASS I RIPRAP
 - 100 YEAR FLOODPLAIN
 - WUS WATERS OF THE US



SECTION A-A
NTS



SECTION B-B
(TYPICAL BOTH BANKS)
STA. 2+09.80 TO 2+18.60 AND STA. 2+45.00 TO 2+53.40
NTS



SECTION C-C
(TYPICAL BOTH BANKS)
STA. 2+18.60 TO 2+45.00
NTS

SEAL:

SR-1

GPI
Greeman-Pedersen, Inc.
11000 Broken Land Parkway, Suite 500
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Tel: 410.880.3055

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NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

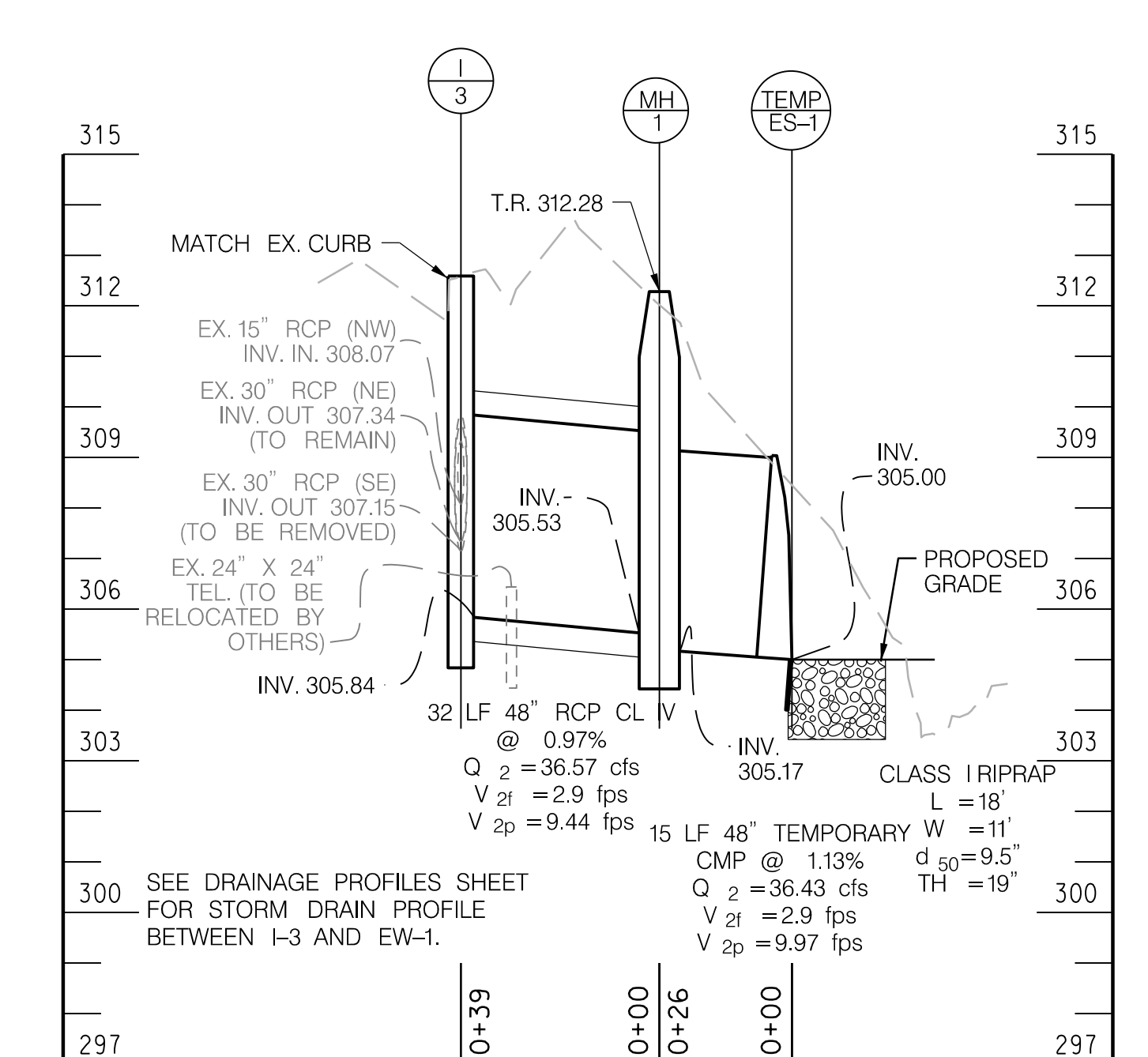
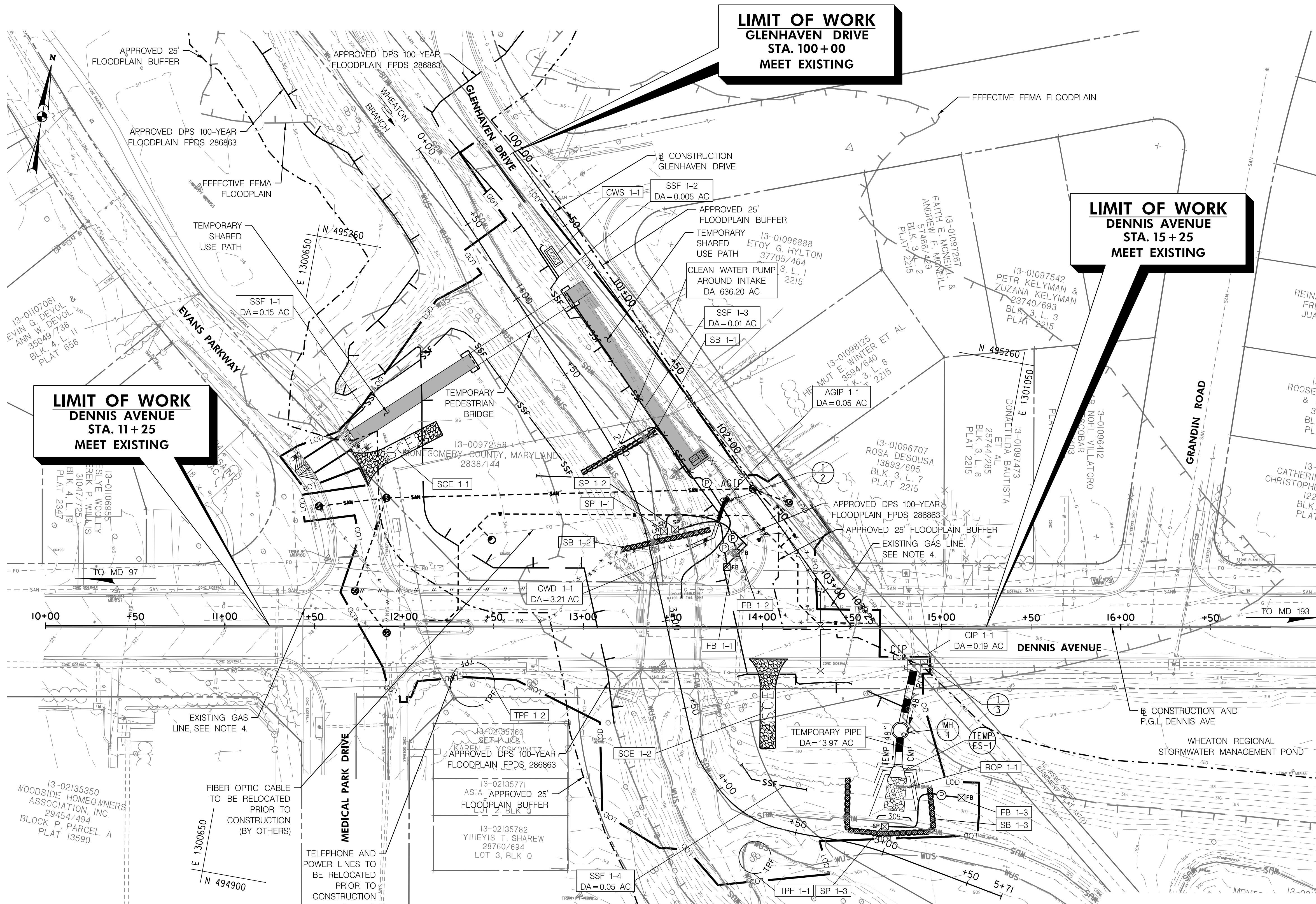
Designed By: _____ Drawn By: _____ Checked By: _____

STREAM RESTORATION PLAN

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: APRIL 2024

Project No.: 501701 SHEET 16 OF 82



MH-1 TO TEMPORARY ES-1 PROFILE
SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

SAND BAG DIVERSION SB 1-1 TOP ELEV. = 311.8± BOTTOM ELEV. = 305.5± 48 L.F. SB 1-2 TOP ELEV. = 311.5± BOTTOM ELEV. = 304.4± 51 L.F. SB 1-3 TOP ELEV. = 308.0± BOTTOM ELEV. = 303.3± 103 L.F.	RIPRAP OUTLET PROTECTION ROP 1-1 23 SY.
CURB INLET PROTECTION CIP 1-1 1 EA.	TEMPORARY END SECTION TEMP. ES-1 1 EA.
SUMP PIT SP 1-1 1 EA. SP 1-2 1 EA. SP 1-3 1 EA.	TEMPORARY PIPE 48" CMP 15 L.F.
SUPER SILT FENCE SSF 1-1 210 L.F. SSF 1-2 55 L.F. SSF 1-3 112 L.F. SSF 1-4 41 L.F.	CLEAR WATER DIVERSION PIPE CWD 1-1 (21" HDPE) 1 EA.
STABILIZED CONSTRUCTION ENTRANCE SCE 1-1 1 EA. SCE 1-2 1 EA.	TEMPORARY PEDESTRIAN BRIDGE TPB 1-1 1 EA.
ONSITE CONCRETE WASHOUT STRUCTURE CWS 1-1* 1 EA.	AT GRADE INLET PROTECTION AGIP 1-1 1 EA.

PLAN - PHASE 1: RELOCATION OF WATER MAIN AND SEWER MAIN
SCALE: 1" = 30'

- NOTES:
- SEE SC NOTES & DETAILS AND SOC SHEET FOR SEQUENCE OF CONSTRUCTION.
 - WHEATON BRANCH IS A USE 1 AND INSTREAM WORK IS PROHIBITED FROM MARCH 1ST THROUGH JUNE 15TH, UNLESS WITH WRITTEN PERMISSION FROM MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 - TEMPORARY PEDESTRIAN BRIDGE SHALL BE IN PLACE FOR A MAXIMUM OF 180 DAYS.
 - ABANDONED GAS LINE TO BE REMOVED BETWEEN STATION 15+51 TO STATION 14+38. CONTRACTOR TO CONTACT WASHINGTON GAS PRIOR TO REMOVAL OF ABANDONED GAS LINE AND RELOCATION OF WATER MAIN AND SEWER PIPE.

LEGEND

	LIMIT OF DISTURBANCE		TEMPORARY SHARED USE PATH
	STABILIZED CONSTRUCTION ENTRANCE		EXISTING CONTOURS
	SUPER SILT FENCE		PROPOSED CONTOURS
	SUMP PIT		WATERS OF THE US
	FILTER BAG		TREE LINES
	CURB INLET PROTECTION		TREE PROTECTION FENCE
	SAND BAG DIKE		EXISTING UTILITY TO BE REMOVED
	ONSITE CONCRETE WASHOUT STRUCTURE		EXISTING UTILITY TO BE ABANDONED

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240-777-7221

CONTACT:
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TRANSPORTATION CONSTRUCTION
240-777-7210
TRANSPORTATION PLANNING & DESIGN
240-777-7221

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By:	Drawn By:
Checked By:	

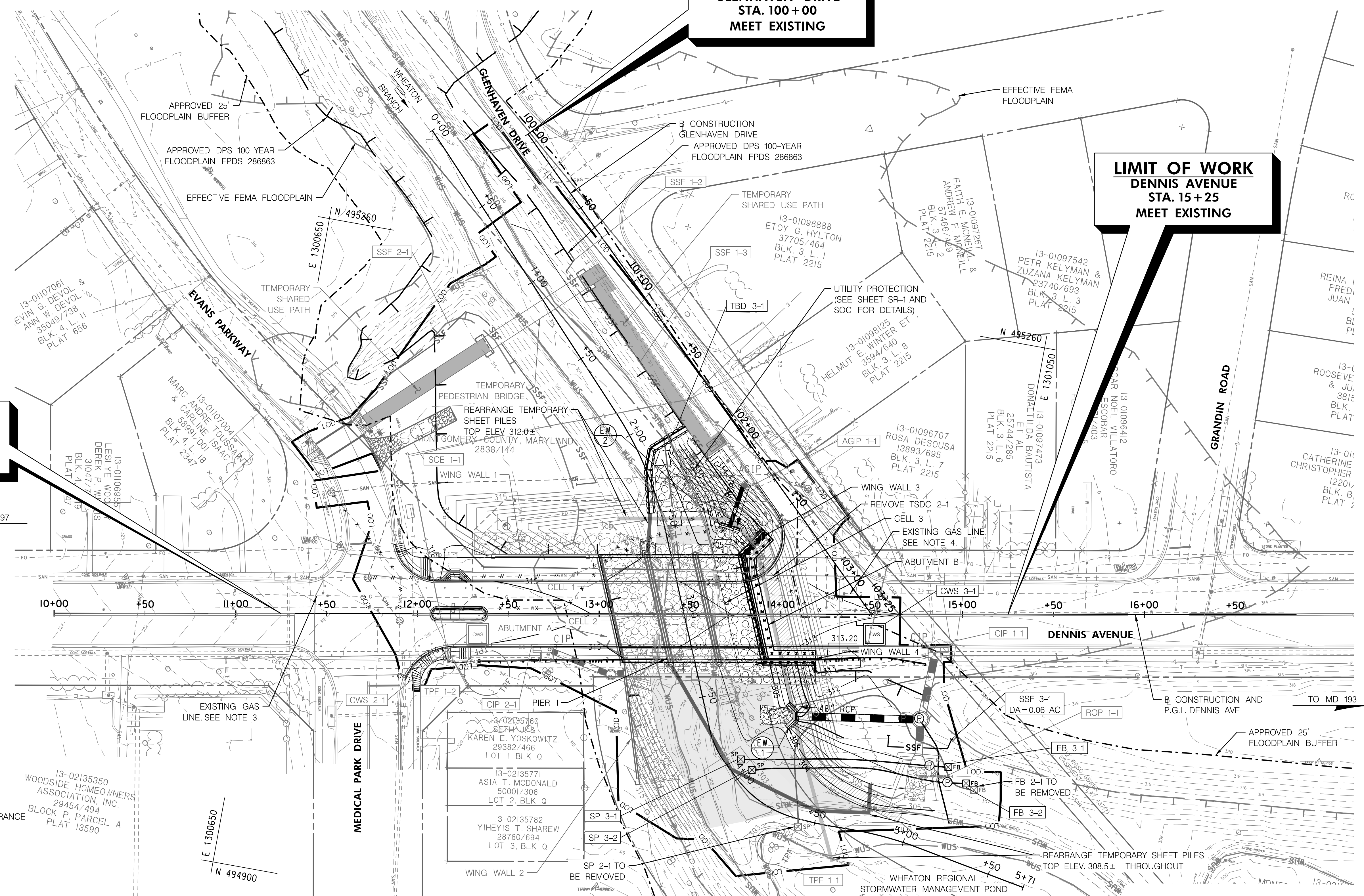
EROSION AND SEDIMENT CONTROL PHASE 1	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: AS SHOWN	DATE: APRIL 2024
Project No.: 501701	SHEET 17 OF 82

PLOTTED: Friday, March 29, 2024 AT 08:49 AM
FILE: N:\2023\170170200_BCS_20144E_SIA_Hwy_Shr_Eng_Services\Task_06_Dennis_Avenue_Design\CADD\Submittal\DWG\SP101_DennisAve.dwg

**LIMIT OF WORK
GLENHAVEN DRIVE
STA. 100+00
MEET EXISTING**

**LIMIT OF WORK
DENNIS AVENUE
STA. 15+25
MEET EXISTING**

**LIMIT OF WORK
DENNIS AVENUE
STA. 11+25
MEET EXISTING**



- NOTES:**
- SEE SC NOTES & DETAILS AND SOC SHEET FOR SEQUENCE OF CONSTRUCTION.
 - CONTRACTOR TO REMOVE TEMPORARY SHEET PILES IN FULL OR CUT TWO FEET BELOW THE PROPOSED STREAM INVERT WHEN NO LONGER NEEDED.
 - WHEATON BRANCH IS A USE 1 AND INSTREAM WORK IS PROHIBITED FROM MARCH 1ST THROUGH JUNE 15TH, UNLESS WITH WRITTEN PERMISSION FROM MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 - ABANDONED GAS LINE TO BE REMOVED BETWEEN STATION 15+51 TO STATION 14+38. CONTRACTOR TO CONTACT WASHINGTON GAS PRIOR TO REMOVAL OF ABANDONED GAS LINE AND EXCAVATION FOR ABUTMENT B.

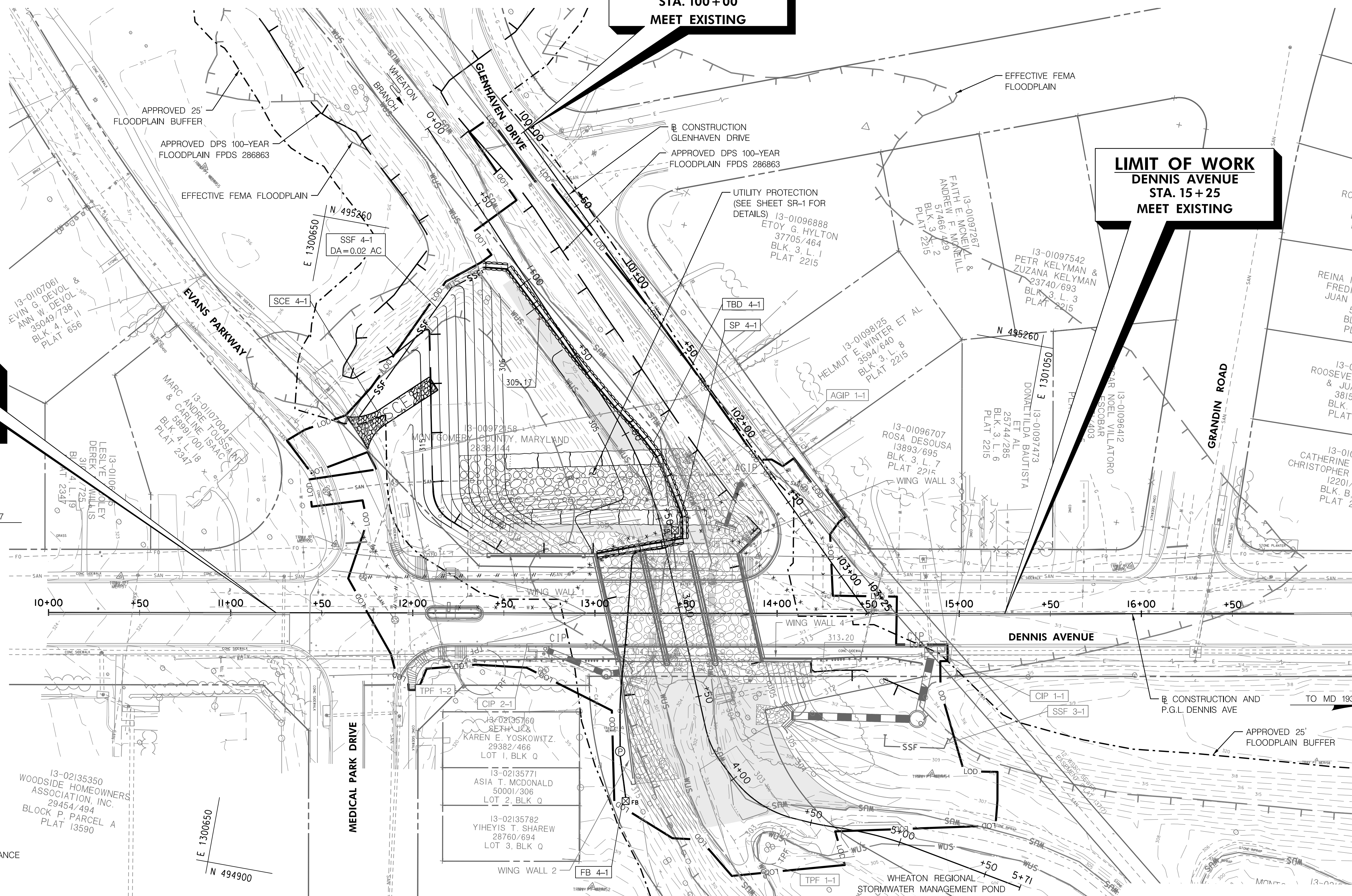
FILTER BAG	
FB 3-1	1 EA.
FB 3-2	1 EA.
SUMP PIT	
SP 3-1	1 EA.
SP 3-2	1 EA.
SUPER SILT FENCE	
SSF 3-1	45 L.F.
TEMPORARY BARRIER DIVERSION	
TBD 3-1	60 L.F.
ONSITE CONCRETE WASHOUT STRUCTURE	
CWS 3-1	1 EA.

- LEGEND**
- LOD LIMIT OF DISTURBANCE
 - SCE STABILIZED CONSTRUCTION ENTRANCE
 - SSF SUPER SILT FENCE
 - SP SUMP PIT
 - FB FILTER BAG
 - CIP CURB INLET PROTECTION
 - SAND BAG DIKE
 - TEMPORARY BARRIER DIVERSION
 - CWS ONSITE CONCRETE WASHOUT STRUCTURE
 - TEMPORARY SHARED USE PATH
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - TPF TREE PROTECTION FENCE
 - BED STABILITY MIX
 - EXISTING UTILITY TO BE REMOVED
 - EXISTING UTILITY TO BE ABANDONED

PLAN - PHASE 3: INSTALLATION OF ABUTMENT B AND WING WALL 3 & 4 AND ROADWAY CONSTRUCTION
SCALE: 1" = 30'

PLOTTED: Friday, March 29, 2024 AT 08:49 AM
FILE: N:\2024\1701701\2024_BCS_201442E_SIA_Hwy_Shr_Eng_Section\Task_06_Dennis_Avenue_Bridge\CADD\2024-SP01_DennisAvenue.dwg

GPI <small>Groomman-Pederson, Inc.</small> 11000 Broken Land Parkway, Suite 500 Columbia, MD 21044 Tel: 410.880.3055 JOINT VENTURE WBCM <small>Designing Infrastructure for Tomorrow</small>	OWNER/ADDRESS: DEPARTMENT OF TRANSPORTATION BRUCE JOHNSTON 100 EDISON PARK DRIVE GAITHERSBURG, MARYLAND 240-777-7221 CONTACT: DIVISION OF TRANSPORTATION ENGINEERING TRANSPORTATION CONSTRUCTION 240-777-7210 TRANSPORTATION PLANNING & DESIGN 240-777-7221	MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL Chief, Design Section _____ Date _____ APPROVED Chief, Division of Transportation Engineering _____ Date _____ Designed By: _____ Drawn By: _____ Checked By: _____	EROSION AND SEDIMENT CONTROL PHASE 3 REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH) SCALE: AS SHOWN DATE: APRIL 2024 Project No.: 501701 SHEET 19 OF 82
	NO. _____ REVISION _____ DATE _____ BY _____	SEAL: _____	



LIMIT OF WORK
GLENHAVEN DRIVE
STA. 100+00
MEET EXISTING

LIMIT OF WORK
DENNIS AVENUE
STA. 15+25
MEET EXISTING

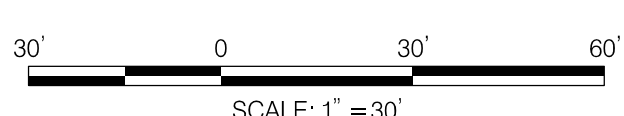
LIMIT OF WORK
DENNIS AVENUE
STA. 11+25
MEET EXISTING

- NOTES:**
- SEE SC NOTES & DETAILS AND SOC SHEET FOR SEQUENCE OF CONSTRUCTION.
 - WHEATON BRANCH IS A USE 1 AND INSTREAM WORK IS PROHIBITED FROM MARCH 1ST THROUGH JUNE 15TH, UNLESS WITH WRITTEN PERMISSION FROM MARYLAND DEPARTMENT OF THE ENVIRONMENT.

- LEGEND**
- LOD LIMIT OF DISTURBANCE
 - SCE STABILIZED CONSTRUCTION ENTRANCE
 - SP SUMP PIT
 - FB FILTER BAG
 - TEMPORARY BARRIER DIVERSION
 - 300 EXISTING CONTOURS
 - 300 PROPOSED CONTOURS
 - WUS WATERS OF THE US
 - TREE LINES
 - TPF TREE PROTECTION FENCE
 - BED STABILITY MIX
 - UTILITY PROTECTION
 - EXISTING UTILITY TO BE REMOVED
 - EXISTING UTILITY TO BE ABANDONED

SUMP PIT	
SP 4-1	1 EA.
SUPER SILT FENCE	
SSF 4-1	107 L.F.
STABILIZED CONSTRUCTION ENTRANCE	
SCE 4-1	1 EA.
TEMPORARY BARRIER DIVERSION	
TBD 4-1	243 L.F.
FILTER BAG	
FB 4-1	1 EA.

PLAN - PHASE 4: IN-STREAM WORK, RIGHT BANK AND CHANNEL GRADING
 SCALE: 1" = 30'



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CONTACT:
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 TRANSPORTATION CONSTRUCTION
 240-777-7210
 TRANSPORTATION PLANNING & DESIGN
 240-777-7221

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
 DEPARTMENT OF TRANSPORTATION
 GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
 APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: _____ Drawn By: _____ Checked By: _____

EROSION AND SEDIMENT CONTROL PHASE 4

REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: APRIL 2024

Project No.: 501701 SHEET 20 OF 82

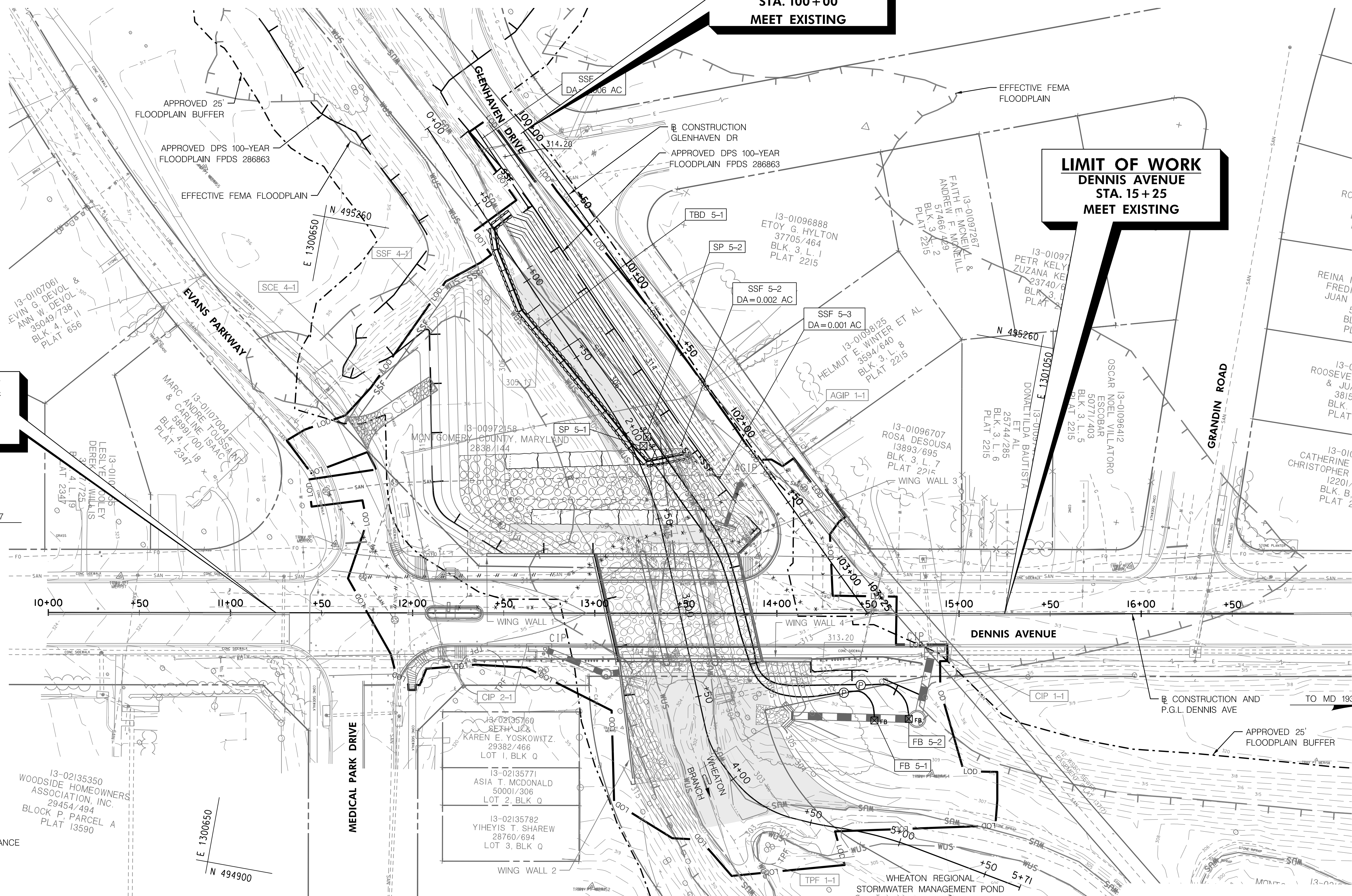
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SEAL:

**LIMIT OF WORK
DENNIS AVENUE
STA. 11+25
MEET EXISTING**

**LIMIT OF WORK
GLENHAVEN DRIVE
STA. 100+00
MEET EXISTING**

**LIMIT OF WORK
DENNIS AVENUE
STA. 15+25
MEET EXISTING**



NOTES:

- SEE SC NOTES & DETAILS AND SOC SHEET FOR SEQUENCE OF CONSTRUCTION.
- WHEATON BRANCH IS A USE 1 AND INSTREAM WORK IS PROHIBITED FROM MARCH 1ST THROUGH JUNE 15TH, UNLESS WITH WRITTEN PERMISSION FROM MARYLAND DEPARTMENT OF THE ENVIRONMENT.

LEGEND

- LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE
- SUMP PIT
- FILTER BAG
- CURB INLET PROTECTION
- TEMPORARY BARRIER DIVERSION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- WATERS OF THE US
- TREE LINES
- TREE PROTECTION FENCE
- BED STABILITY MIX
- UTILITY PROTECTION
- EXISTING UTILITY TO BE REMOVED
- EXISTING UTILITY TO BE ABANDONED

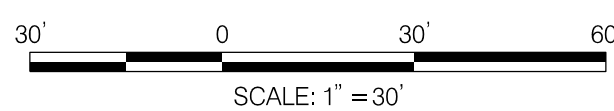
TEMPORARY BARRIER DIVERSION	
TBD 5-1	192 L.F.

FILTER BAG	
FB 5-1	1 EA.
FB 5-2	1 EA.

SUMP PIT	
SP 5-1	1 EA.
SP 5-2	1 EA.

SUPER SILT FENCE	
SSF 5-1	53 L.F.
SSF 5-2	13 L.F.
SSF 5-3	17 L.F.

PLAN - PHASE 5: IN-STREAM WORK, LEFT BANK GRADING
SCALE: 1" = 30'



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CONTACT:
DIVISION OF TRANSPORTATION ENGINEERING
TRANSPORTATION CONSTRUCTION
TRANSPORTATION PLANNING & DESIGN
240-777-7221

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: _____ Drawn By: _____ Checked By: _____

**EROSION AND SEDIMENT CONTROL
PHASE 5**

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: APRIL 2024

Project No.: 501701 SHEET 21 OF 82

SEAL:

STANDARD EROSION AND SEDIMENT CONTROL NOTES

1. THE PERMITTEE SHALL NOTIFY THE DEPARTMENT OF PERMITTING SERVICES (DPS) FORTY-EIGHT (48) HOURS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE DEPARTMENT, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN THEM OR THEIR REPRESENTATIVE, THEIR ENGINEER AND AN AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT.
2. THE PERMITTEE MUST OBTAIN INSPECTION AND APPROVAL BY DPS AT THE FOLLOWING POINTS:
 - A. AT THE REQUIRED PRE-CONSTRUCTION MEETING.
 - B. FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES AND PRIOR TO ANY OTHER LAND DISTURBING ACTIVITY.
 - C. DURING THE INSTALLATION OF A SEDIMENT BASIN OR STORMWATER MANAGEMENT STRUCTURE AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN). NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION IS MANDATORY.
 - D. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).
 - E. PRIOR TO FINAL ACCEPTANCE.
3. THE PERMITTEE SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE. SHALL HAVE THEM INSPECTED AND APPROVED BY THE DEPARTMENT PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES, AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM THE DEPARTMENT.
4. THE PERMITTEE SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED PUBLIC THOROUGHFARES. ALL MATERIALS DEPOSITED ONTO PUBLIC THOROUGHFARES SHALL BE REMOVED IMMEDIATELY.
5. THE PERMITTEE SHALL INSPECT PERIODICALLY AND MAINTAIN CONTINUOUSLY IN EFFECTIVE OPERATING CONDITION. ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM THE DEPARTMENT, THE PERMITTEE IS RESPONSIBLE FOR IMMEDIATELY REPAIRING OR REPLACING ANY SEDIMENT CONTROL MEASURES WHICH HAVE BEEN DAMAGED OR REMOVED BY THE PERMITTEE OR ANY OTHER PERSON.
6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
 - A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERMETER DIKES, SWALES, DITCHES, PERMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 HORIZONTAL TO 1 VERTICAL (3H:1V) AND
 - B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
7. THE PERMITTEE SHALL APPLY SOIL, SEED, AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS WITHIN SEVEN (7) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED ON THAT AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. ACTIVE CONSTRUCTION AREAS, SUCH AS BORROW OR FILL AREAS, ROADWAY IMPROVEMENTS, AND AREAS WITHIN FIFTY (50) FEET OF A BUILDING UNDER CONSTRUCTION MAY BE EXEMPT FROM THIS REQUIREMENT, PROVIDED THAT EROSION AND SEDIMENT CONTROL MEASURES ARE INSTALLED AND MAINTAINED TO PROTECT THOSE AREAS.
8. PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE PERMITTEE SHALL STABILIZE ALL CONTRIBUTORY DISTURBED AREAS WITH REQUIRED SOIL AMENDMENTS AND TOPSOIL, USING SOD OR AN APPROVED PERMANENT SEED MIXTURE AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHEN THE SOIL DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED WITHIN SEVEN (7) CALENDAR DAYS OF ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, AN APPROVED TEMPORARY SEED AND STRAW ANCHORED MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE COMPLETED PRIOR TO THE FOLLOWING APRIL 15.
9. THE SITE PERMIT, WORK, MATERIALS, APPROVED SC/S/M PLANS, AND TEST REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF MONTGOMERY COUNTY.
10. SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO LOWER THE WATER DOWN SLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF CUT AND FILL SLOPES UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED, AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. MECHANICAL DEVICES MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.
11. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITHIN 3 CALENDAR DAYS OF ESTABLISHMENT WITH SOD OR SEED WITH AN APPROVED EROSION CONTROL MATTING OR BY OTHER APPROVED STABILIZATION MEASURES.
12. SEDIMENT CONTROL DEVICES SHALL BE REMOVED, WITH PERMISSION OF THE DEPARTMENT, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR PERMANENT STABILIZATION SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.
13. NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 SHALL BE PERMITTED IN LAWN MAINTENANCE AREAS OR ON RESIDENTIAL LOTS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON-MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.
14. THE PERMITTEE SHALL INSTALL A SPLASHBLOCK AT THE BOTTOM OF EACH DOWNSPOUT UNLESS THE DOWNSPOUT IS CONNECTED BY A DRAIN LINE TO AN ACCEPTABLE OUTLET.
15. FOR FINISHED GRADING, THE PERMITTEE SHALL PROVIDE ADEQUATE GRADIENTS SO AS TO PREVENT WATER FROM STANDING ON THE SURFACE OF LAWNS MORE THAN TWENTY-FOUR (24) HOURS AFTER THE END OF A RAINFALL, EXCEPT IN DESIGNATED DRAINAGE COURSES AND SWALE FLOW AREAS, WHICH MAY DRAIN AS LONG AS FORTY-EIGHT (48) HOURS AFTER THE END OF A RAINFALL.
16. SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A BUILDING WHICH IS EXISTING OR UNDER CONSTRUCTION. NO BUILDING MAY BE CONSTRUCTED WITHIN 20 FEET OF A SEDIMENT TRAP OR BASIN.
17. ALL INLETS IN NON-SUMP AREAS SHALL HAVE ASPHALT BERMS INSTALLED AT THE TIME OF BASE PAVING ESTABLISHMENT.
18. THE SEDIMENT CONTROL INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SEDIMENT CONTROL MEASURES, AS DEEMED NECESSARY.
19. ALL TRAP ELEVATIONS ARE RELATIVE TO THE OUTLET ELEVATION, WHICH MUST BE ON EXISTING UNDISTURBED GROUND.
20. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
21. SEDIMENT TRAPS/BASINS SHALL BE CLEANED OUT AND RESTORED TO THE ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO THE POINT OF ONE-HALF (1/2) THE WET VOLUME OF THE TRAP/BASIN (1/4 THE WET STORAGE DEPTH FOR ST-III) OR WHEN REQUIRED BY THE SEDIMENT CONTROL INSPECTOR.
22. SEDIMENT REMOVED FROM TRAPS/BASINS SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN.
23. ALL SEDIMENT BASINS AND TRAPS MUST BE SURROUNDED WITH A WELDED WIRE SAFETY FENCE. THE FENCE MUST BE AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN TWO INCHES IN WIDTH AND FOUR INCHES IN HEIGHT, WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED IN GOOD CONDITION AT ALL TIMES.
24. NO EXCAVATION IN THE AREAS OF EXISTING UTILITIES IS PERMITTED UNLESS THEIR LOCATION HAS BEEN DETERMINED. CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK.
25. OFF-SITE SPOIL OR BORROW AREAS MUST HAVE PRIOR APPROVAL BY DPS.
26. SEDIMENT TRAP/BASIN DEWATERING FOR CLEANOUT OR REPAIR MAY ONLY BE DONE WITH THE DPS INSPECTOR'S PERMISSION. THE INSPECTOR MUST APPROVE THE DEWATERING METHOD FOR EACH APPLICATION. THE FOLLOWING METHODS MAY BE CONSIDERED:
 - A. PUMP DISCHARGE MAY BE DIRECTED TO ANOTHER ON-SITE SEDIMENT TRAP OR BASIN, PROVIDED IT IS OF SUFFICIENT VOLUME AND THE PUMP INTAKE IS FLOATED TO PREVENT AGITATION OR SUCTION OF DEPOSITED SEDIMENTS; OR
 - B. THE PUMP INTAKE MAY UTILIZE A REMOVABLE PUMPING STATION AND MUST DISCHARGE INTO AN UNDISTURBED AREA THROUGH A NON-EROSIVE OUTLET; OR
 - C. THE PUMP INTAKE MAY BE FLOATED AND DISCHARGE INTO A DIRT BAG (1/2 OZ. NON-WOVEN FABRIC) OR APPROVED EQUIVALENT, LOCATED IN AN UNDISTURBED BUFFER AREA.

B.4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION: USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE: TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES: ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION; SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING; SEEDING AND MULCHING; TEMPORARY STABILIZATION; AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY: STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPARATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.

SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT: INSPECT SEEDBED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUND COVER.

1. IF AN AREA HAS LESS THAN 40 PERCENT GROUND COVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
2. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUND COVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
3. IF AN AREA HAS BETWEEN 94 AND 100 PERCENT GROUND COVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.

4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE 8.6.

B.4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

DEFINITION: ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE: TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES: ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA:

- A. INCREMENTAL STABILIZATION - CUT SLOPES
 1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
 2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
 - A. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
 - B. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
 - C. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - D. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

B.4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND AMENDMENTS

DEFINITION: THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES: WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA:

- A. SOIL PREPARATION
 1. TEMPORARY STABILIZATION
 - A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPER MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 - A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - I. SOIL PH BETWEEN 6.0 AND 7.0.
 - II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

B.4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

- A. SEEDING
 1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NET IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS WHICH USUALLY USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 2. APPLICATION
 - A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. LIME USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B.4-4 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND AMENDMENTS

DEFINITION: THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES: WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA:

- A. SOIL PREPARATION
 1. TEMPORARY STABILIZATION
 - A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPER MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 - A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - I. SOIL PH BETWEEN 6.0 AND 7.0.
 - II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

B.4-5 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

- A. SEEDING
 1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NET IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS WHICH USUALLY USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 2. APPLICATION
 - A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. LIME USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B.4-6 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

- A. SEEDING
 1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NET IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS WHICH USUALLY USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 2. APPLICATION
 - A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. LIME USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B.4-7 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

- A. SEEDING
 1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NET IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS WHICH USUALLY USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 2. APPLICATION
 - A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. LIME USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B.4-8 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

- A. SEEDING
 1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NET IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS WHICH USUALLY USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 2. APPLICATION
 - A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. LIME USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B.4-9 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

- A. SEEDING
 1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SE

SEQUENCE OF CONSTRUCTION

- PRIOR TO THE CLEARING OF ANY TREES, INSTALLING SEDIMENT CONTROL MEASURES, OR GRADING, A PRECONSTRUCTION MEETING MUST BE CONDUCTED ON-SITE WITH THE MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES (MCDPS) SEDIMENT CONTROL INSPECTOR AT 240-777-0311 (48 HOURS NOTICE), THE OWNER'S REPRESENTATIVE, AND THE SITE ENGINEER. IN ORDER FOR THE MEETING TO OCCUR, THE APPLICANT MUST PROVIDE ONE PAPER SET OF APPROVED SEDIMENT CONTROL PLANS TO THE MCDPS SEDIMENT CONTROL INSPECTOR AT THE PRECONSTRUCTION MEETING. IF NO PLANS ARE PROVIDED, THE MEETING SHALL NOT OCCUR AND WILL NEED TO BE RESCHEDULED PRIOR TO COMMENCING ANY WORK.
 - THE LIMIT OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO CLEARING OF TREES, INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES.
 - PER JOINT PERMIT, FOLLOW BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS AS SHOWN ON THIS SHEET.
- PHASE 1 – RELOCATION OF WATER MAIN AND SEWER MAIN**
- DIRECT TRAFFIC AWAY FROM DENNIS AVENUE, GLENHAVEN DRIVE, AND EVANS PARKWAY TO RELOCATE WSSC WATER AND SEWER LINE PER MOT PLAN. INSTALL SCE 1-1 AND SSF 1-1.
 - PRIOR TO INSTALLING WATER MAIN IN STREAM, INSTALL SB 1-1, SB 1-2, SP 1-1, SP 1-2, FB 1-1, FB 1-2 AND ASSOCIATED PUMP AROUNDS PER PLAN. PUMP AREA DRY, BEGIN RELOCATING WATER MAIN PER SUGGESTED SEQUENCE OF CONSTRUCTION ON WSSC WATER AND SEWER RELOCATION SHEETS. INSTALL WATER LINE, AND STABILIZE STREAM BANKS.
 - COMPLETE INSTALLATION OF WATER MAIN, WITH APPROVAL FROM MCDPS INSPECTOR, REMOVE SB 1-1, SB 1-2, SP 1-1, SP 1-2, FB 1-1, FB 1-2, AND ASSOCIATED PUMP AROUNDS. PROVIDE TEMPORARY STABILIZATION WITHIN UNPAVED AREAS AND ASPHALT UTILITY PATCH IN ROADWAYS.
 - PRIOR TO INSTALLING SEWER MAIN IN STREAM, REINSTALL SB 1-1, SB 1-2, SP 1-1, SP 1-2, FB 1-1, FB 1-2, AND ASSOCIATED PUMP AROUNDS PER PLAN. PUMP AREA DRY, BEGIN RELOCATING SEWER MAIN PER SUGGESTED SEQUENCE OF CONSTRUCTION ON WSSC WATER AND SEWER RELOCATION SHEETS. INSTALL SEWER LINE, AND STABILIZE STREAM BANKS.
 - COMPLETE INSTALLATION OF SEWER MAIN, WITH APPROVAL FROM MCDPS INSPECTOR, REMOVE SB 1-1, SB 1-2, SP 1-1, SP 1-2, FB 1-1, FB 1-2, AND ASSOCIATED PUMP AROUNDS. PROVIDE TEMPORARY STABILIZATION WITHIN UNPAVED AREAS AND ASPHALT UTILITY PATCH IN ROADWAYS.

NOTE 1: CONTRACTOR HAS THE OPTION TO INSTALL WATER MAIN AND SEWER MAIN WITHIN WHEATON BRANCH AT THE SAME TIME. NOTE 2: INSTALL UTILITY PROTECTION FOR THE RELOCATED WATER AND SEWER MAINS TO THE EXTENT PRACTICABLE IN THIS STAGE. SEE PHASES 3 AND 4 FOR THE COMPLETION OF THEIR INSTALLATION. THE CONTRACTOR SHALL PROTECT THE RELOCATED WATER AND SEWER MAINS THROUGHOUT CONSTRUCTION. SEE SHEET SR-1 FOR UTILITY PROTECTION DETAILS.

- ESTABLISH MAINTENANCE OF TRAFFIC ON GLENHAVEN DRIVE PER PLAN.
- CLEAR AND GRADE FOR INSTALLATION OF SEDIMENT CONTROL DEVICES AT THE SOUTH SIDE OF DENNIS AVENUE BRIDGE. INSTALL SCE 1-2, CIP 1-1, TPF 1-1, SSF 1-4, SB 1-3, FB 1-3, AND ASSOCIATED PUMP PER PLAN. OBTAIN APPROVAL FROM THE MCDPS INSPECTOR BEFORE PROCEEDING WITH ADDITIONAL CLEARING, GRUBBING, OR GRADING.
- CONSTRUCT PROPOSED STORM DRAIN SYSTEM FROM 1-3 TO TEMP ES-1 FROM DOWNSTREAM TO UPSTREAM. PROVIDE TEMPORARY STABILIZATION AT THE END OF EACH WORK DAY. INSTALL TEMPORARY RIPRAP APRON AT TEMP ES-1.
- CONSTRUCT 1-2 AND INSTALL CWD 1-1 TO WHEATON BRANCH. INSTALL AGIP 1-1.
- INSTALL SSF 1-2, SSF 1-3, AND CWS 1-1. CONSTRUCT TEMPORARY PEDESTRIAN BRIDGE AND TEMPORARY SHARED PATH PER PLAN AND SPECIFICATIONS.
- WITH APPROVAL FROM MCDPS INSPECTOR, REMOVE SCE 1-2, CWS 1-1, SSF 1-4, SP 1-3, FB 1-3, ASSOCIATED PUMP AROUND, AND SB 1-3.

PHASE 2 – DEMOLITION OF EXISTING BRIDGE AND INSTALLATION OF ABUTMENT A AND WING WALLS 1 & 2

- ESTABLISH VEHICULAR DETOUR AND CLOSE DENNIS AVENUE PER MOT PLAN.
- PERFORM EXISTING BRIDGE DECK DEMOLITION. CONTRACTOR SHALL ENSURE THAT THE BRIDGE DECK REMOVAL PROCESS DOES NOT ALLOW ANY DEBRIS TO FALL INTO THE WATERWAY. ALL DEBRIS SHALL BE TRANSPORTED TO AN APPROVED DISPOSAL SITE, DURING THE REMOVAL PROCESS, IF ANY EARTH DISTURBANCE OCCURRED, THE AREA SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
- INSTALL CWS 2-1, DURING A 3-DAY NOAA FORECAST DRY PERIOD, INSTALL TEMPORARY SHEET PILES, TEMPORARY STREAM DIVERSION CHANNEL 2-1, SP 2-1, AND ASSOCIATED PUMP AROUND PER PLAN. SHORTEN CWD 1-1 TO OUTFALL INTO TEMPORARY STREAM DIVERSION CHANNEL 2-1. OBTAIN APPROVAL FROM THE MCDPS INSPECTOR BEFORE PROCEEDING WITH FURTHER CLEARING, GRUBBING, OR GRADING.
- DEWATER AREA AROUND EXISTING BRIDGE ABUTMENTS AND REMOVE EXISTING BRIDGE ABUTMENTS AND ANY CONCRETE AND RIPRAP WITHIN THE STREAM.
- EXCAVATE FOR THE INSTALLATION OF PROPOSED CULVERT FOOTERS AND WING WALL 1. REMOVE EXISTING INLET AT STA. 12+72, 22.4' RT. AND CONNECT CWD 2-1 WITH EXISTING STORM DRAIN PIPE THERE PER PLAN TO DIVERT CLEAN WATER.
- FORM AND POUR FOOTERS FOR THE CULVERT CELLS AND WING WALL 1.
- CONSTRUCT WING WALL 1 AND ABUTMENT A PER PLAN.
- CONSTRUCT WING WALL 2 AND PROVIDE PERMANENT STABILIZATION IN FRONT OF WING WALL 2. WING WALL 2 CAN BE CONSTRUCTED CONCURRENTLY WITH THE FORMING AND POURING OF THE CULVERT FOOTERS AND WING WALL 1.
- GRADE DOWNSTREAM OF CULVERT CELLS INTO WHEATON REGIONAL SWM POND, AND PROVIDE FINAL STABILIZATION. INSTALL BSM AND CLASS II RIPRAP APRON FOR SCOUR PROTECTION PER PLAN. CWD 2-1 IS TO BE MOVED AS NECESSARY FOR GRADING.
- DURING A 3-DAY NOAA FORECAST DRY PERIOD, INSTALL 1-1, STORM DRAIN PIPES FROM 1-1 TO WING WALL 2 PER PLAN. CONNECT CWD 2-1 TO THE STORM DRAIN PIPE. PLACE CIP 2-1 AROUND 1-1.
- PLACE CULVERT ARCHES FOR CELLS 1 AND 2 AND CONSTRUCT HEADWALLS TO JOINT AT PIER 2. BACKFILL AROUND CELL 1 AND CELL 2.

PHASE 3 – INSTALLATION OF ABUTMENT B AND WING WALLS 3 & 4 AND ROADWAY CONSTRUCTION

- DURING A 3-DAY NOAA FORECAST DRY PERIOD AND WITH APPROVAL FROM MCDPS INSPECTOR, REARRANGE PHASE 2 TEMPORARY SHEET PILES AT THE NORTH SIDE OF THE BRIDGE FOR PHASE 3 PER PLAN. REARRANGE PHASE 2 TEMPORARY SHEET PILES AT THE SOUTH SIDE OF THE BRIDGE FOR PHASE 3 PER PLAN. REMOVE SP 2-1, FB 2-1, AND ASSOCIATED PUMP. INSTALL TBD 3-1, CWS 3-1, SP 3-1, SP 3-2, FB 3-1, FB 3-2, AND ASSOCIATED PUMP AROUNDS PER PLAN.
- ALLOW STREAM TO FLOW THROUGH CULVERT CELL 1.
- WITH APPROVAL FROM MCDPS INSPECTOR, REMOVE THE TEMPORARY STREAM DIVERSION CHANNEL 2-1 AND ANY REMAINING TEMPORARY SHEET PILES. INSTALL SSF 3-1 PER PLAN.
- CONSTRUCT ABUTMENT B, WING WALL 3 AND WING WALL 4. BACK FILL AROUND ABUTMENT B AND BOTH WING WALLS.
- INSTALL EW-2 AND PIPES BETWEEN EW-2 AND 1-2. CONTINUE INSTALLING UTILITY PROTECTION PER PLAN. INSTALL EW-1, CLASS I RIPRAP APRON, AND PIPE BETWEEN EW-1 AND MH-1. SEAL THE OPENING IN MH-1 TO TEMPORARY PIPE. REMOVE TEMPORARY PIPE, TEMPORARY ES-1, AND TEMPORARY RIPRAP APRON, BACK FILL AND GRADE THE AREA PER PLAN, AND PROVIDE SAME DAY STABILIZATION.
- INSTALL CLASS II RIPRAP APRON FOR SCOUR PROTECTION PER PLAN. GRADE IN FRONT OF WING WALLS 3 AND 4 AND PROVIDE PERMANENT STABILIZATION.
- PLACE CULVERT ARCHES FOR CELL 3 AND COMPLETE INSTALLATION OF HEADWALLS. COMPLETE BACKFILLING AROUND CULVERT CELLS.
- WITH APPROVAL FROM MCDPS INSPECTOR, REMOVE TEMPORARY SHEET PILES, TBD 3-1, CWS 2-1, CWS 3-1, SP 3-1, SP 3-2, FB 3-1, FB 3-2, AND ASSOCIATED PUMP AROUNDS. INSTALL CLASS II RIPRAP APRON FOR SCOUR PROTECTION IN FRONT AT BULL NOSE OF PIER 1 AND BSM PER PLAN.
- CONSTRUCT ROADWAY, SIDEWALK, AND PARAPETS ALONG DENNIS AVENUE PER PLAN.
- INSTALL TRAFFIC BARRIER AT BRIDGE APPROACHES AND ATTACH TO PARAPETS PER PLAN.
- GRADE AND CONSTRUCT PAVEMENT ALONG DENNIS AVENUE PER PLAN.
- INSTALL CURB AND GUTTER ALONG GLENHAVEN DRIVE PER PLAN.
- UPON APPROVAL OF ENGINEER AND MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION (MCDOT), REMOVE TRAFFIC CONTROLS AND OPEN DENNIS AVENUE TO VEHICULAR AND PEDESTRIAN TRAFFIC.
- WITH APPROVAL OF MCDOT AND THE MCDPS INSPECTOR, REMOVE TEMPORARY SHARED PATH, TEMPORARY PEDESTRIAN BRIDGE OVER WHEATON BRANCH, SCE 1-1, SSF 1-2, AND SSF 1-3.

PHASE 4: IN-STREAM WORK – RIGHT BANK AND CHANNEL GRADING

- INSTALL SCE 4-1 AND SSF 4-1 PER PLAN.
- DURING A 3-DAY NOAA FORECAST DRY PERIOD, INSTALL TBD 4-1, SP 4-1, FB 4-1, AND ASSOCIATED PUMP AROUND.
- EXCAVATE RIGHT BANK OF STREAM UPSTREAM TO DENNIS AVENUE PER PLAN, AND COMPLETE INSTALLATION OF UTILITY PROTECTION FOR WSSC RELOCATED WATER AND SEWER MAINS. INSTALL BSM PER PLAN, GRADE STREAM AND RIGHT BANK PER PLAN AND PROVIDE PERMANENT STABILIZATION. STABILIZED CONSTRUCTION ENTRANCE IS TO BE REMOVED AS NEEDED FOR BANK GRADING.
- WITH APPROVAL OF THE MCDPS INSPECTOR REMOVE SSF 3-1, TBD 4-1, SP 4-1, FB 4-1, AND ASSOCIATED PUMP AROUND.

PHASE 5: IN-STREAM WORK – LEFT BANK GRADING

- DURING A 3-DAY NOAA DRY FORECAST INSTALL SSF 5-1, SSF 5-2, SSF 5-3, TBD 5-1, SP 5-1, FB 5-1, AND ASSOCIATED PUMP AROUND.
- COMPLETE INSTALLATION OF BSM AND GRADING OF STREAM AND LEFT BANK UPSTREAM TO DENNIS AVENUE BRIDGE. PROVIDE PERMANENT STABILIZATION.
- WITH WRITTEN APPROVAL OF THE MCDPS INSPECTOR AND DURING A 3-DAY NOAA FORECAST DRY PERIOD, REMOVE SCE 4-1, TPF 1-1, SSF 4-1, SSF 5-1, SSF 5-2, SSF 5-3, TBD 5-1, SP 5-1, FB 5-1, AND ASSOCIATED PUMP AROUND.
- REMOVE CIP 1-1, CIP 2-1, AND AGIP 1-1 AND FLUSH STORM DRAIN PIPES. APPLY REMAINDER OF PAVEMENT AS NEEDED. REMOVE ANY REMAINING EROSION AND SEDIMENT CONTROL MEASURES.

NOTE 3: PERMITTEE TO OBTAIN WRITTEN APPROVAL FROM MCDPS INSPECTOR PRIOR TO THE REMOVAL OF ANY SEDIMENT CONTROL DEVICES.
NOTE 4: ALL STORM DRAIN PIPES SHALL BE FLUSHED AFTER CONTRIBUTING DRAINAGE AREA TO STRUCTURES ARE STABILIZED.

B.4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE: TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR LESS. IF A LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA:

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.4. FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.4 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.

2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

PLANT SPECIES	SEEDING RATE LB/AC	SEEDING DEPTH (INCHES)	RECOMMENDED SEEDING DATES BY PLANT HARDNESS ZONE 6B
COOL-SEASON GRASSES			
BARLEY (HORDEUM VULGARE)	96	1.0	MAR 1 TO MAY 15; AUG 1 TO OCT 15
OATS (Avena sativa)	72	1.0	MAR 1 TO MAY 15; AUG 1 TO OCT 15
WHEAT (TRITICUM AESTIVUM)	120	1.0	MAR 1 TO MAY 15; AUG 1 TO OCT 15
CERIAL RYE (SECALE CEREALE)	112	1.0	MAR 1 TO MAY 15; AUG 1 TO OCT 15
WARM-SEASON GRASSES			
FOXTAIL MILLET (SETARIA ITALICA)	30	0.5	MAY 16 TO JUL 31

B.4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE: TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA:

A. SEED MIXTURES

1. GENERAL USE

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.

C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.

D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3.5 POUNDS PER 1000 SQUARE FEET (50 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

2. TURFGRASS MIXTURES

A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.

B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT, IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.

II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE; FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.

III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.

IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE; FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1.5 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:
SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".

CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDNESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 6B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 7A, 7B)

D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1.5 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL ROSE NO DIFFICULTY.

E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH 1/2 TO 1 INCH DEPTH ON SOIL TEXTURES UNLESS THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

B.4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION CONT.

PERMANENT SEEDING SUMMARY

SPECIES	HARDNESS ZONE 6B - SEED MIXTURE 4	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P ₂ O ₅	K ₂ O	
DEERTONGUE (DICHTANTHELIUM)		15	MARCH 1 TO MAY 15, MAY 16 TO JUNE 15	1/4-1/2IN	45 POUNDS PER AC (1 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)
CREeping RED FESCUE (FESTUCA RUBRA VAR. RUBRA)		20	MARCH 1 TO MAY 15, MAY 16 TO JUNE 15	1/4-1/2IN				
VIRGINIA WILD RYE (ELLYMUS VIRGINICUS)		5	MARCH 1 TO MAY 15, MAY 16 TO JUNE 15	1/4-1/2IN				

B. SOD:

1. GENERAL SPECIFICATIONS

A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST INCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.

D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.

B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILES OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.

4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.

6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.

7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF FLOODEING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.

8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARY IMPACTED AREAS.

9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

- USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
- USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
- USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.

10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.

11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

CONCRETE WASHING NOTES

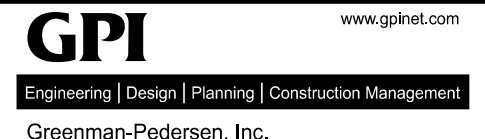
1. LOOSE PIECES OF DRIED GROUT AND DUST SHALL BE REMOVED FROM THE WORK AREA AFTER CEMENTITIOUS MATERIALS ARE CURED.

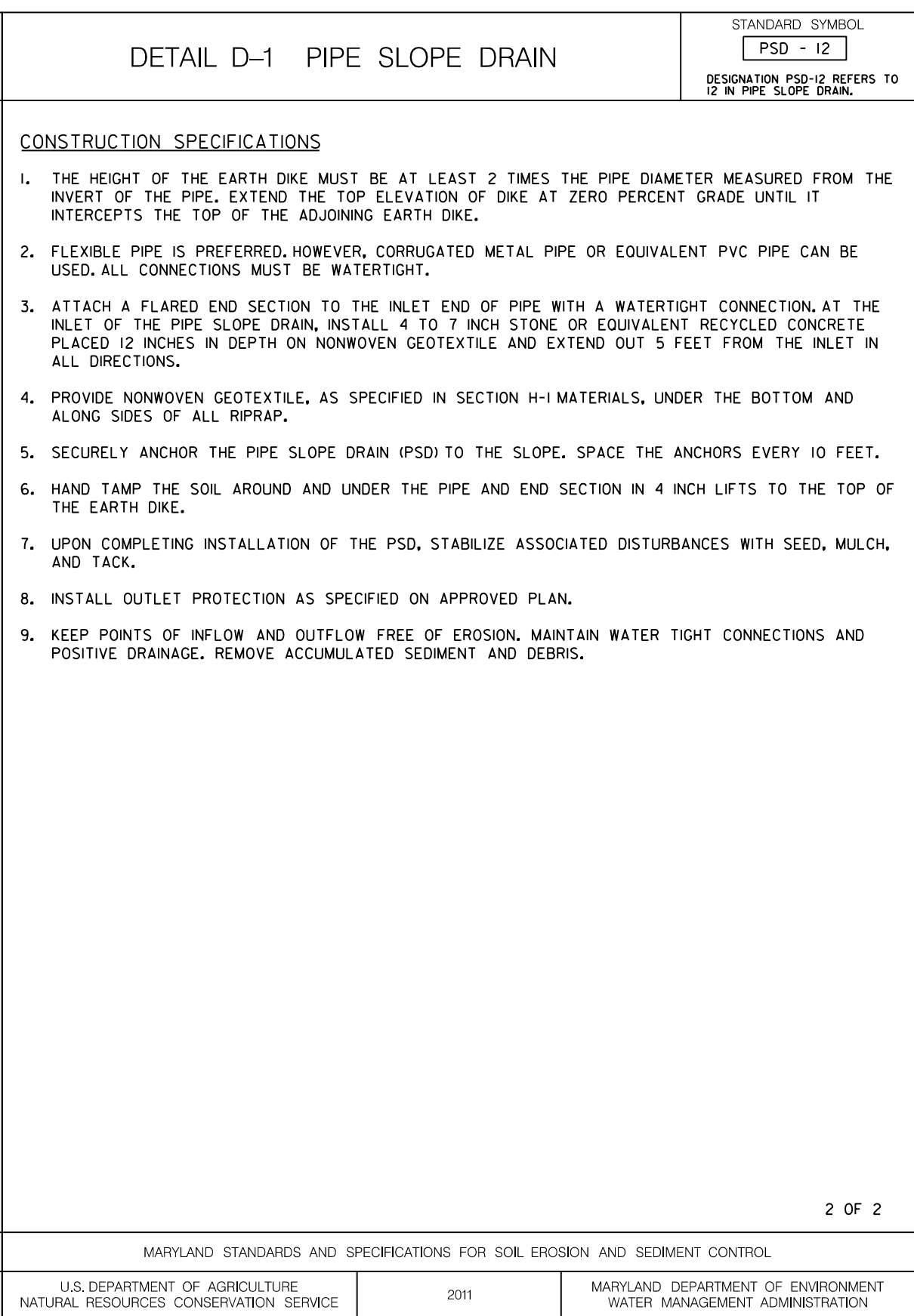
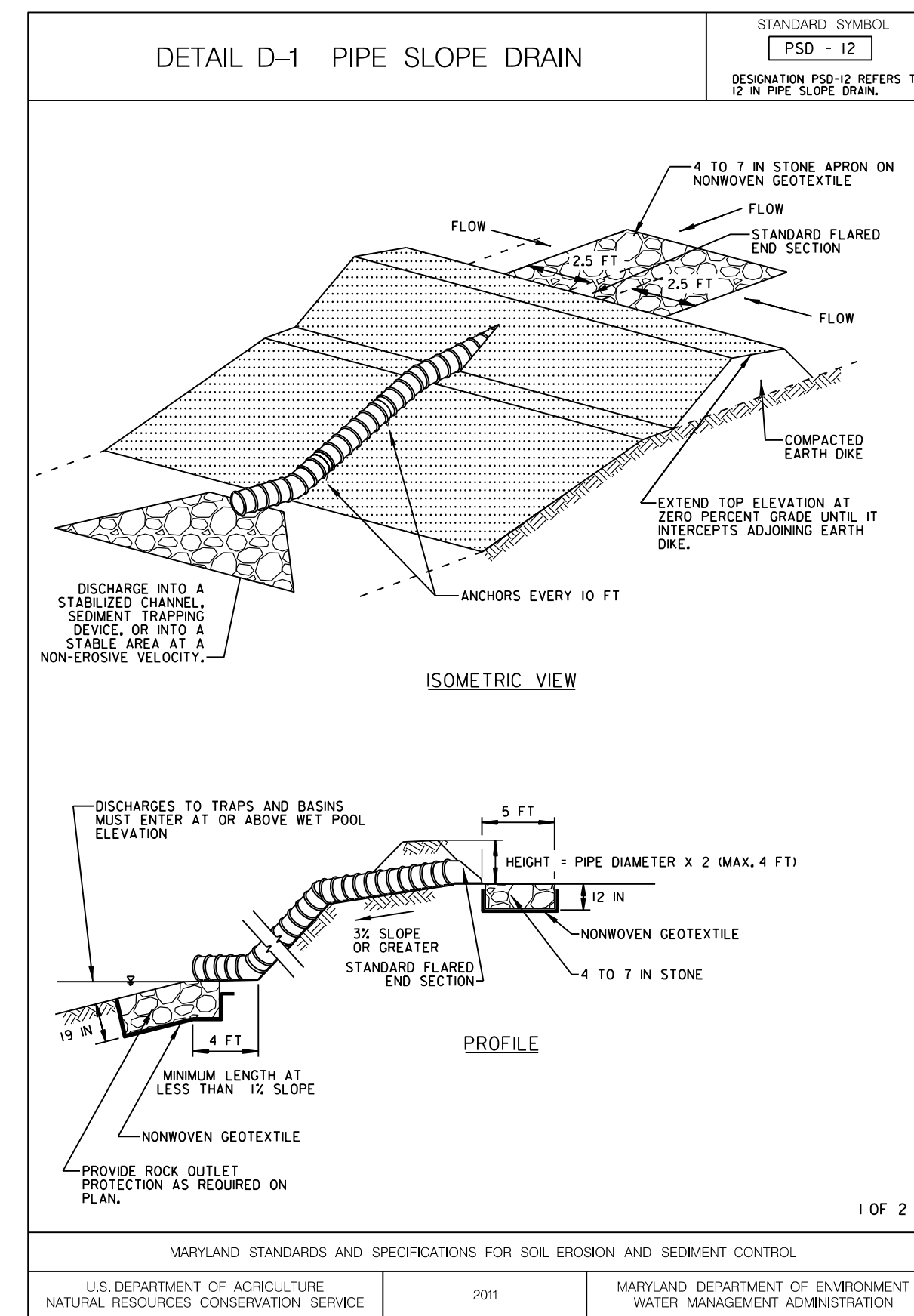
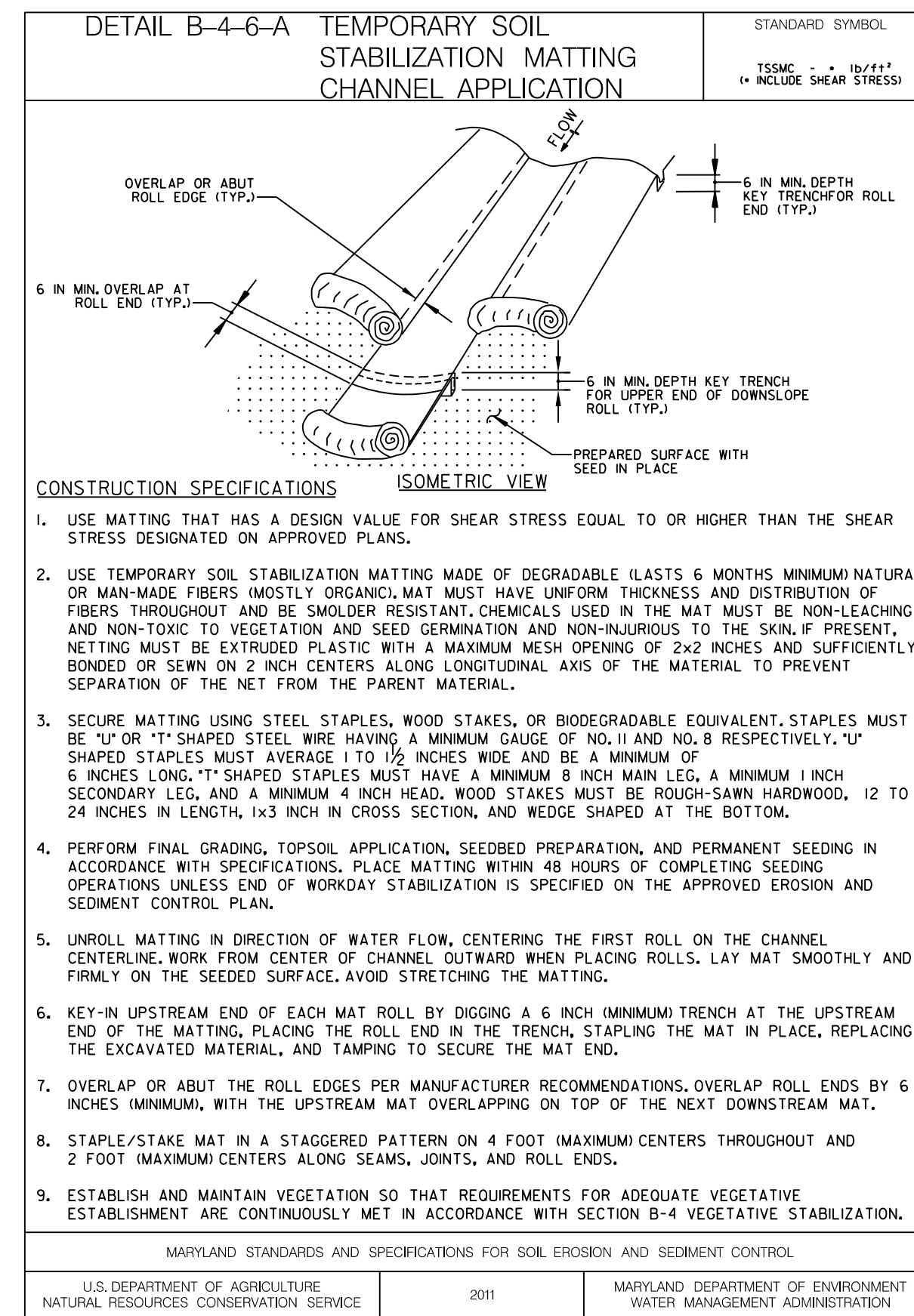
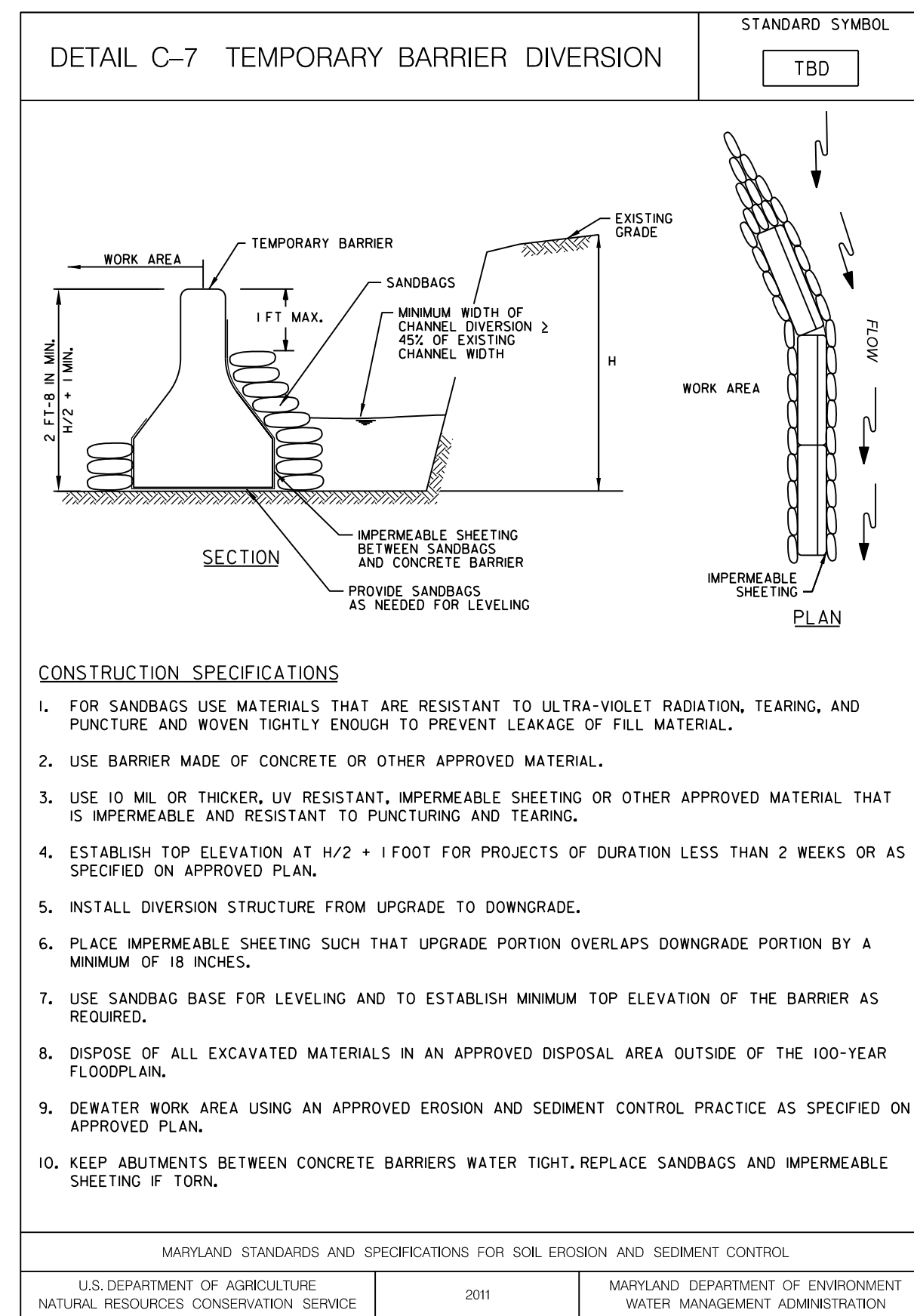
2. WASH CURED CEMENTITIOUS SURFACES AND PUMP WASH WATER TO A FILTER BAG SET ON BURLAP BAGS OF WETTED PEAT. FILL BURLAP BAGS WITH PEAT WETTED WITH WATER AT A VOLUMETRIC RATIO THREE PARTS PEAT TO ONE PART WATER. BURLAP BAGS SHALL BE PLACED TO FORM A 4 INCH MINIMUM THICK LAYER OF PEAT.

GENERAL RESPONSIBILITY NOTES

- THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL REQUIRED PERMITS, RIGHT, AND/OR RIGHT-OF-WAY. REFERENCE TO THE DISCHARGE FROM THE SEDIMENT AND EROSION CONTROL PRACTICES, STORMWATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORM WATER ONTO OR ACROSS AND GRADING OR OTHER WORK TO BE PERFORMED ON ADJACENT OR DOWNSTREAM PROPERTIES AFFECTED BY THIS PLAN.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) THREE CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND B) SEVEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. THE INPLACE SEDIMENT CONTROL MEASURES WILL BE MAINTAINED ON A CONTINUING BASIS UNTIL THE SITE IS PERMANENTLY STABILIZED AND ALL PERMIT REQUIREMENTS ARE MET.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING, OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE; AND
- APPROVAL SHALL BE REQUESTED UPON FINAL STABILIZATION OF ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES BEFORE REMOVAL OF CONTROLS.
- DISTURBED SURFACE AREA = 1.64 AC
VOLUME OF SPILL WATER = 6-27.2 CY
VOLUME OF BORROW MATERIAL = 1,820 CY
- SOIL TYPES:
GLENELG-URBAN LAND COMPLEX, 0 TO 8% SLOPES, HSG B
HARBORO SILT LOAM, 0 TO 3% SLOPES, FREQUENTLY FLOODED, HSG D
- THE COMPUTED VALUES SHOULD NOT BE USED FOR BIDDING PURPOSES.

SEAL:

 <p>GPI Geotechnical Design Planning Construction Management Grooman-Pederson, Inc. 11000 Broken Lands Parkway, Suite 500 Columbia, MD 21044 Tel: 410.880.3055</p>	<p>OWNER/ADDRESS: DEPARTMENT OF TRANSPORTATION BRUCE JOHNSTON 100 EDISON PARK DRIVE GAITHERSBURG, MARYLAND 240-777-7221</p> <p>CONTACT: DIVISION OF TRANSPORTATION ENGINEERING TRANSPORTATION CONSTRUCTION 240-777-7210 TRANSPORTATION PLANNING & DESIGN 240-777-7221</p>	<p>MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND</p>				<p>EROSION AND SEDIMENT CONTROL NOTES & SEQUENCE OF CONSTRUCTION</p>	
		<p>RECOMMENDED FOR APPROVAL</p> <p>Chief, Design Section _____ Date _____</p> <p>Chief, Division of Transportation Engineering _____ Date _____</p> <p>Designed By: _____ Drawn By: _____ Checked By: _____</p>				<p>REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)</p> <p></p>	



MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

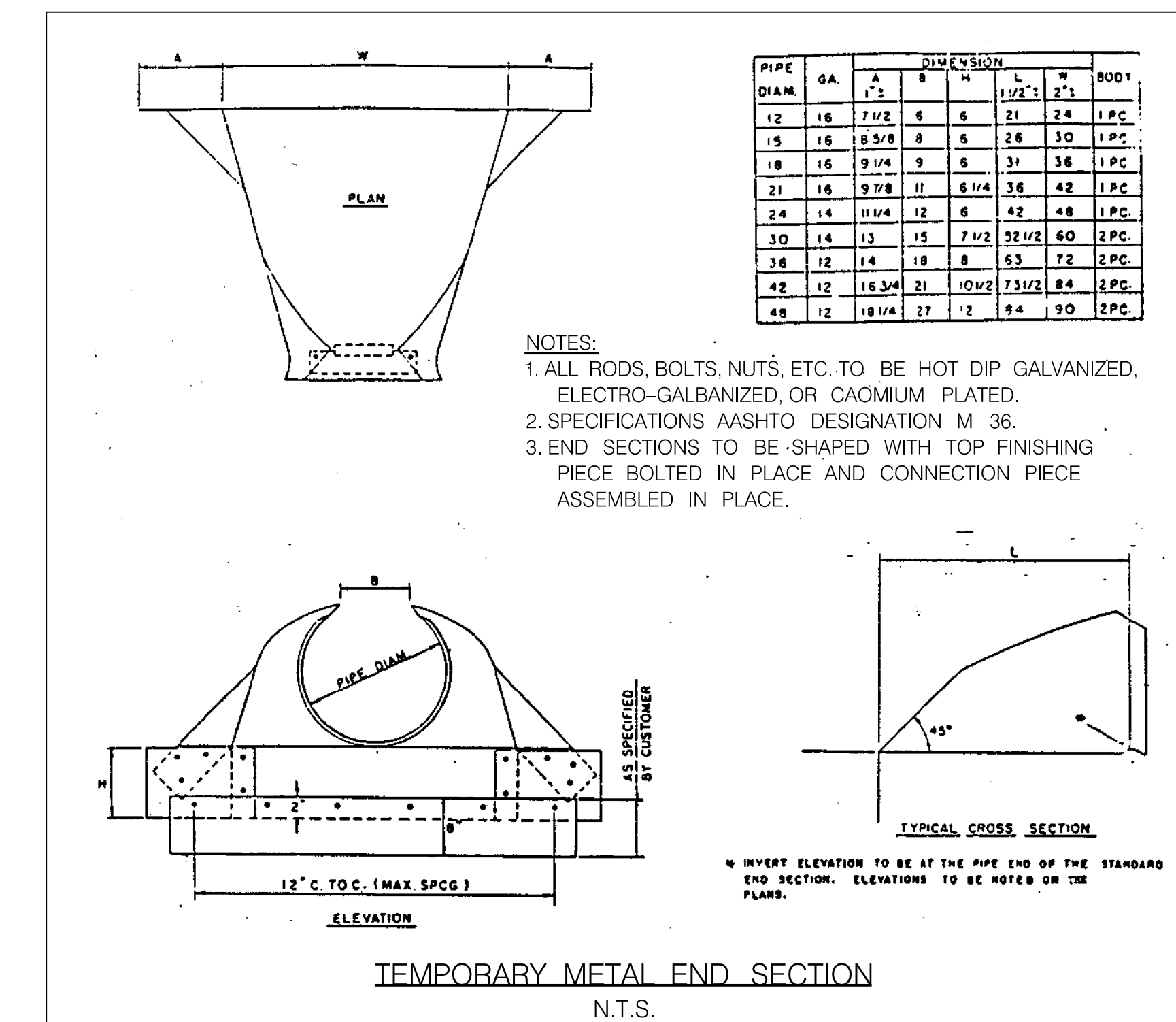
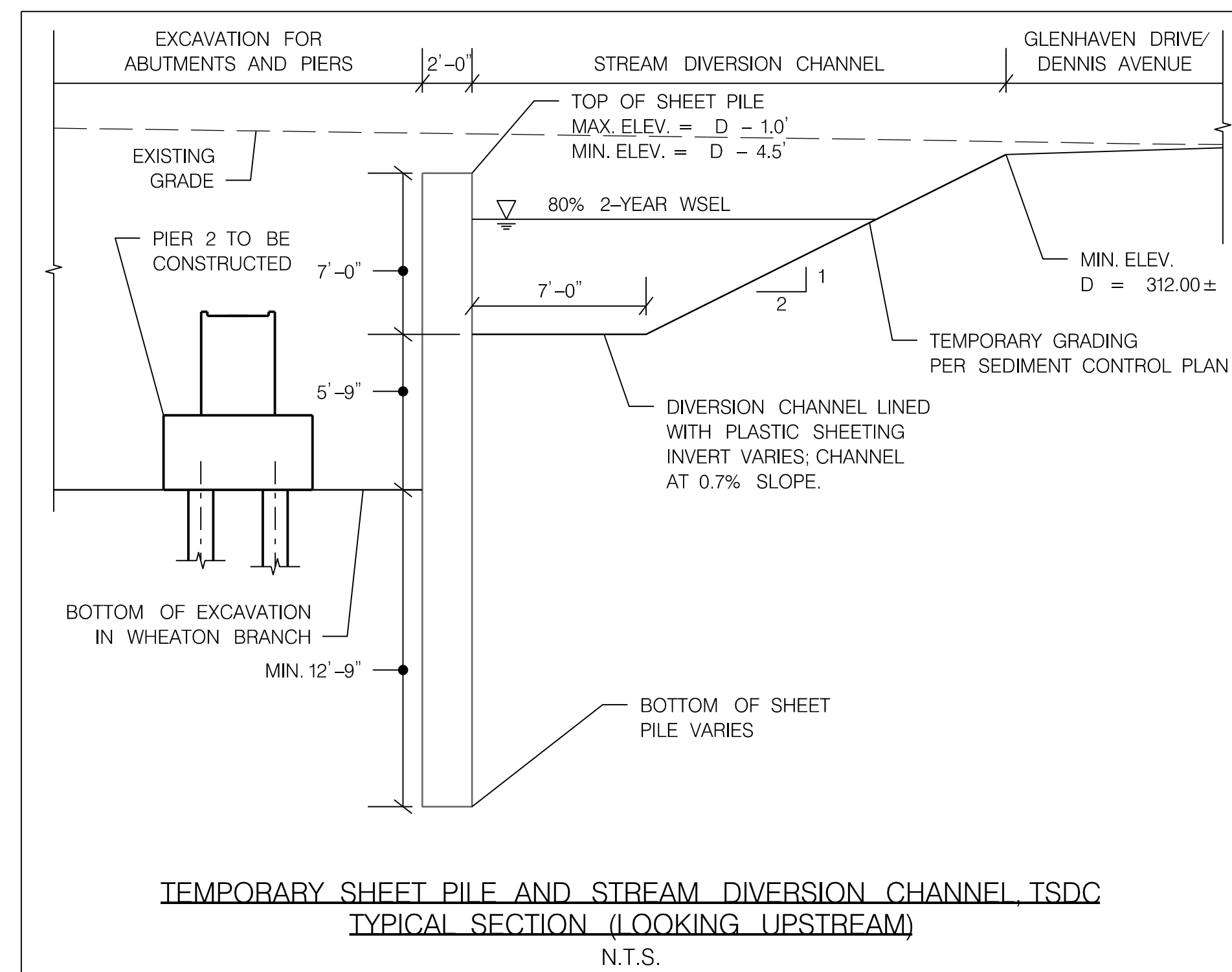
IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should take out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

MGWC 1.2: PUMP-AROUND PRACTICE

- Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).
- All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
- A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas should be regraded and revegetated as per the planting plan.



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Columbia, MD 21044
Tel: 410.880.3055

JOINT VENTURE

TWBCM
Designing Infrastructure for Tomorrow

OWNER/ADDRESS:
DEPARTMENT OF TRANSPORTATION
BRUCE JOHNSTON
100 EDISON PARK DRIVE
GAITHERSBURG, MARYLAND
240-777-7221

CONTACT:
DIVISION OF TRANSPORTATION ENGINEERING
TRANSPORTATION CONSTRUCTION
240-777-7210
TRANSPORTATION PLANNING & DESIGN
240-777-7221

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: _____ Drawn By: _____ Checked By: _____

EROSION AND SEDIMENT CONTROL DETAILS

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: APRIL 2024

Project No.: 501701 SHEET 25 OF 82

GENERAL NOTES

SPECIFICATIONS: MDOT SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JULY 2022.

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION, DATED 2020.

LOADING: HL-93

LOADING RESTRICTIONS: THERE ARE RESTRICTIONS FOR PLACING EQUIPMENT AND MATERIALS ON EXISTING AND NEW STRUCTURE(S). REFER TO SECTION TC 6.14.

CONCRETE: CONCRETE COMPRESSIVE STRENGTH FOR DESIGN SHALL BE:
 $f'_c = 3000$ PSI FOR ELEMENTS USING MIX NOS. 3 AND 4
 $f'_c = 4000$ PSI FOR ELEMENTS USING MIX NO. 6

ALL CONCRETE SHALL BE MIX NO. 3 (3500 PSI) UNLESS NOTED OTHERWISE. DRILLED SHAFT CONCRETE SHALL BE MIX NO. 4 (3500 PSI). PRECAST CONCRETE SHALL BE MIX NO. 6 (4500 PSI). LEVELING PADS SHALL BE MIX NO. 1 (2500 PSI). MOMENT SLAB AND PARAPET CONCRETE SHALL BE MIX NO. 6 (4500 PSI).

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60, WITH A YIELD STRENGTH FOR DESIGN OF $f_y = 60$ KSI

ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS.

REINFORCING STEEL SHALL BE EPOXY COATED WHEN NOTED WITH AN EP IN THE PLANS.

MINIMUM COVER FOR ANY BAR SHALL BE 2" EXCEPT FOR THE FOLLOWING LOCATIONS:

LOCATION	CLEAR COVER
BOTTOM AND SIDES OF ALL FOOTINGS, MOMENT SLABS, AND DRILLED SHAFTS	3 IN.

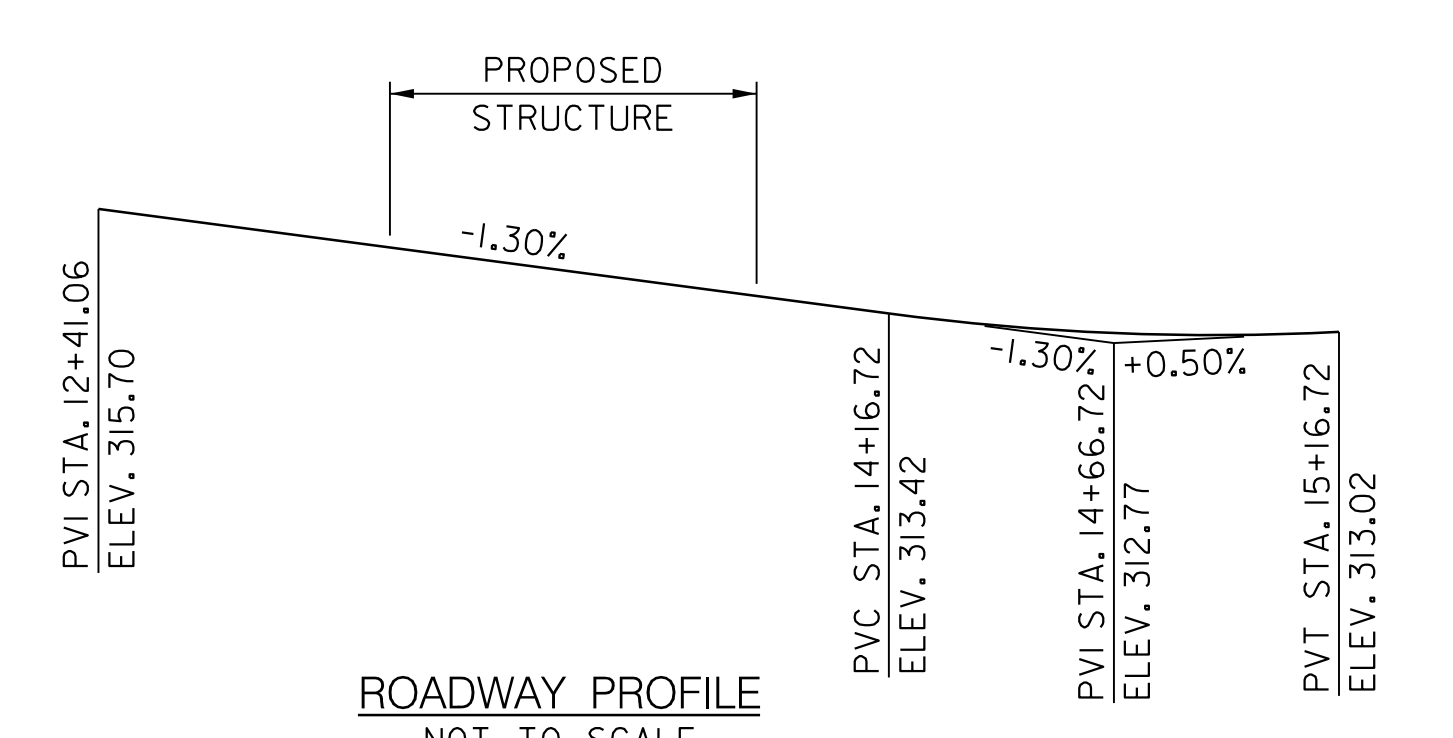
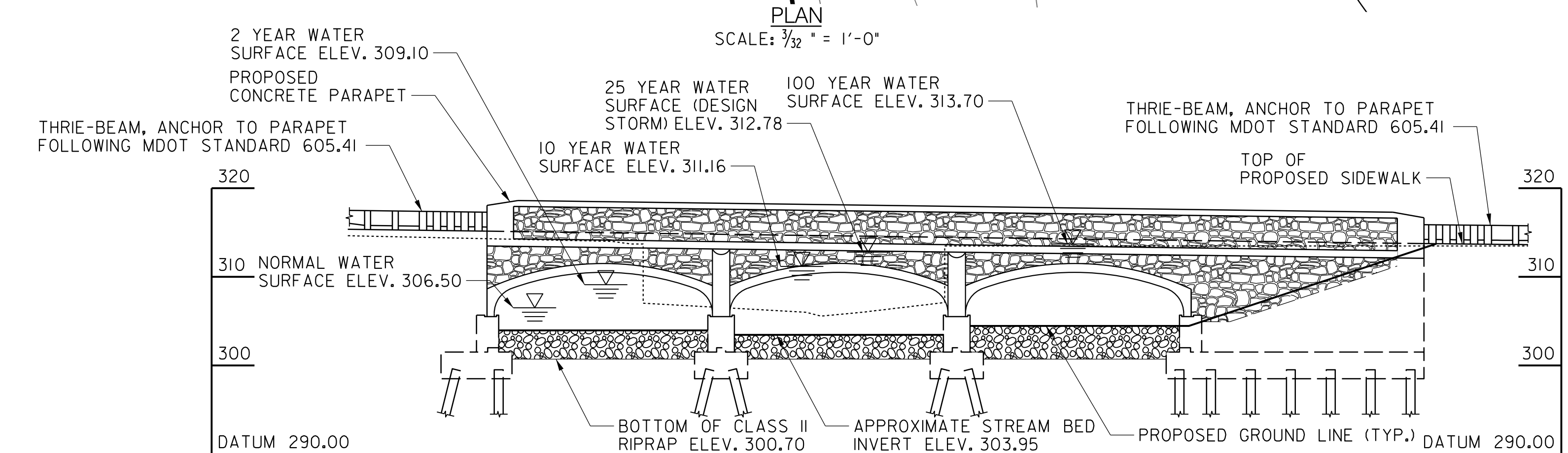
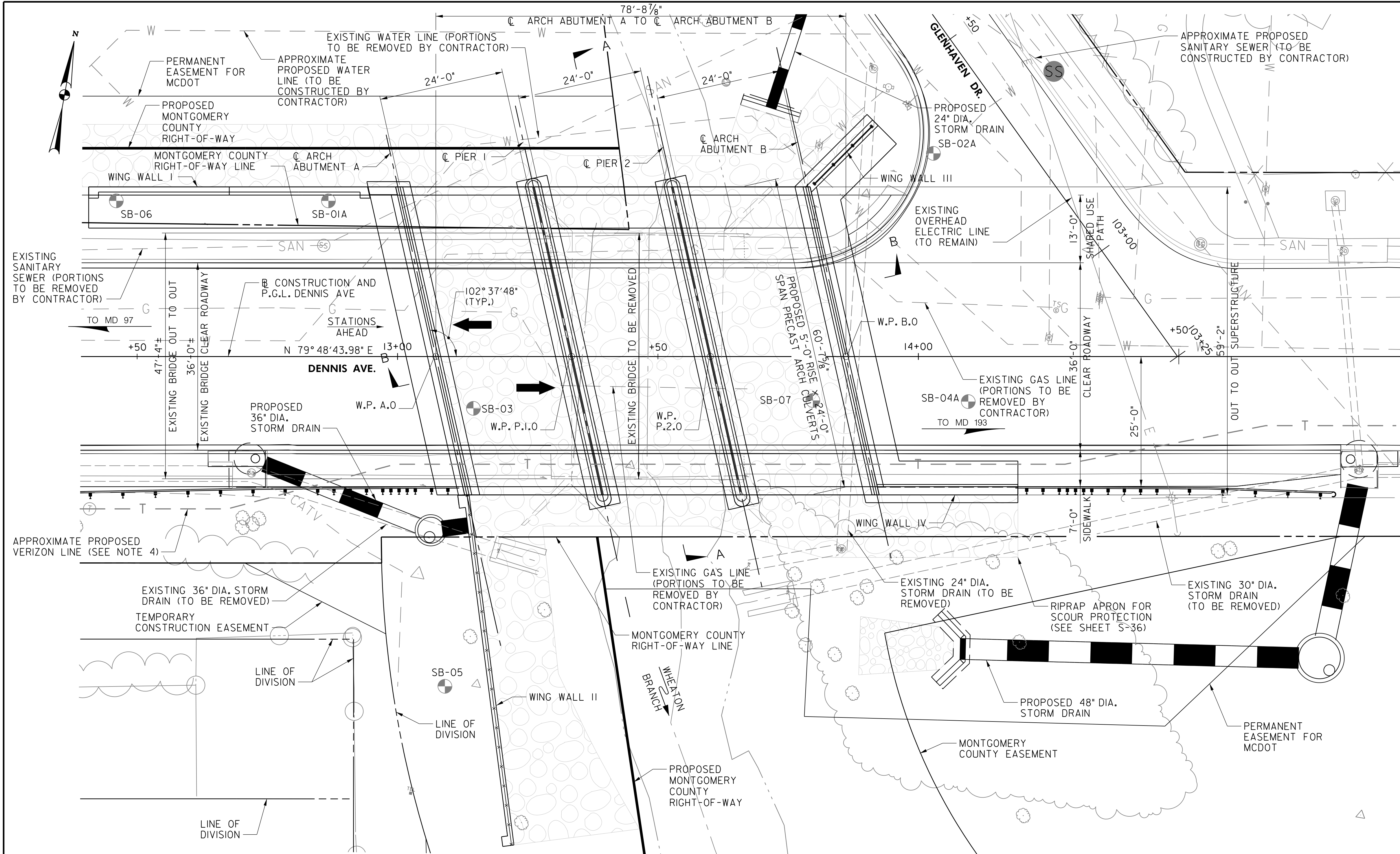
FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

STRUCTURAL STEEL: NEW STRUCTURAL STEEL SHALL CONFORM TO A 709, GRADE 50.

EXISTING STRUCTURE: ALL DIMENSIONS AFFECTED BY THE GEOMETRY AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR BEFORE ANY MATERIAL IS ORDERED OR FABRICATED OR CONSTRUCTION BEGINS.

NOTES:

- FOR SECTION A-A, SEE DWG. NO. S-2.
- FOR SECTION B-B, SEE DWG. NO. S-3I.
- EXISTING BRIDGE NOT SHOWN IN ELEVATION FOR CLARITY.
- CONTRACTOR SHALL CONSTRUCT PROPOSED VERIZON CONDUITS ALONG BRIDGE AS SHOWN ON SHEET S-2. PROPOSED CONDUITS SHALL BE INSTALLED FROM STA. 13+05 TO 14+20. INSTALLATION OF PROPOSED VERIZON LINES INSIDE CONDUITS WILL BE DONE BY OTHERS.



S-1



PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
 DEPARTMENT OF TRANSPORTATION
 GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
 APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: NM Checked By: MWM

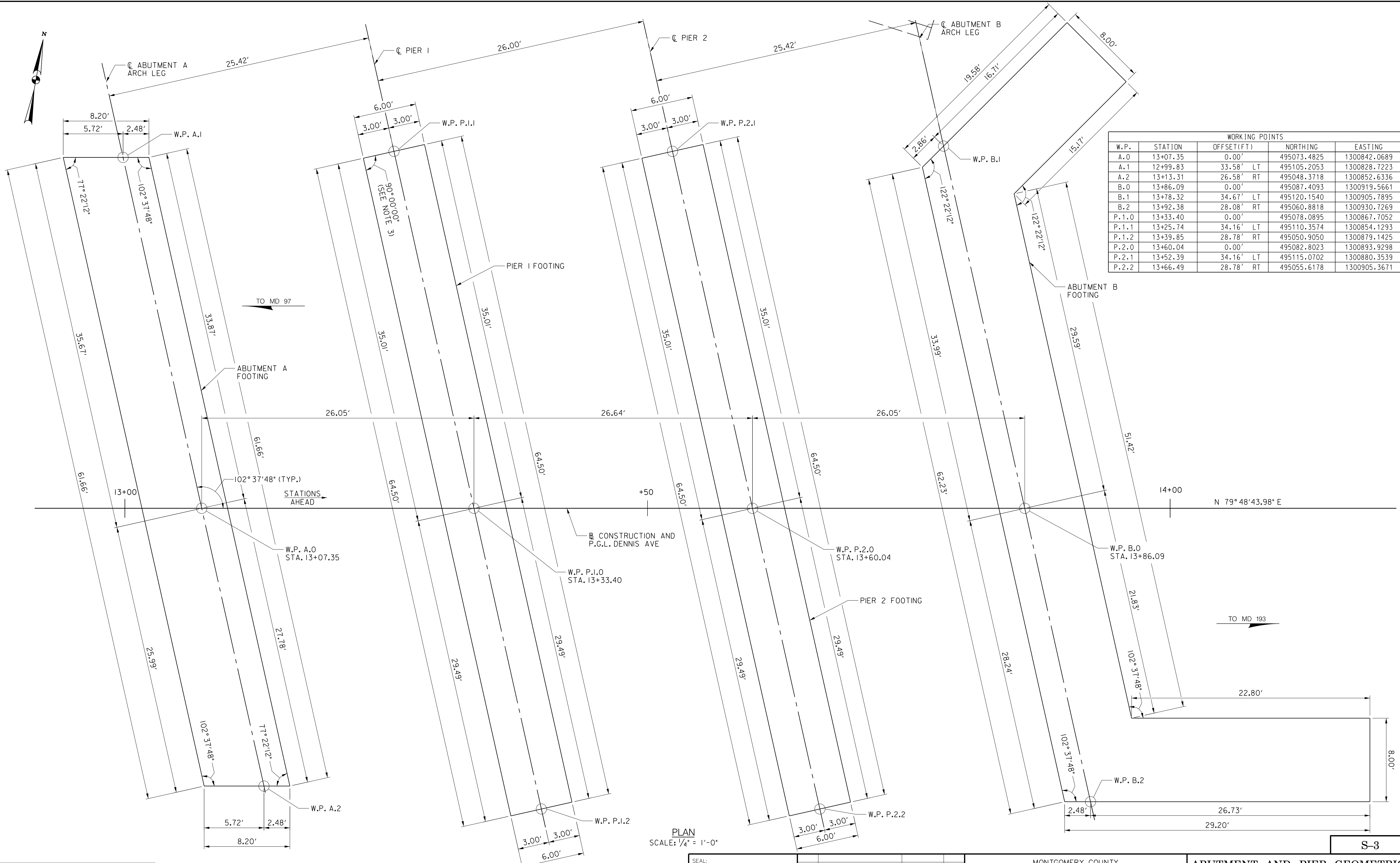
GENERAL PLAN AND ELEVATION

REPLACEMENT OF BRIDGE NO. M-0194
 ON DENNIS AVENUE OVER SLIGO CREEK
 TRIBUTARY (WHEATON BRANCH)

SCALE: 3/32" = 1'-0" DATE: AUGUST, 2023

Project No.: 501701 SHEET 26 OF 82

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WORKING POINTS				
W.P.	STATION	OFFSET (FT)	NORTHING	EASTING
A.0	13+07.35	0.00'	495073.4825	1300842.0689
A.1	12+99.83	33.58' LT	495105.2053	1300828.7223
A.2	13+13.31	26.58' RT	495048.3718	1300852.6336
B.0	13+86.09	0.00'	495087.4093	1300919.5661
B.1	13+78.32	34.67' LT	495120.1540	1300905.7895
B.2	13+92.38	28.08' RT	495060.8818	1300930.7269
P.1.0	13+33.40	0.00'	495078.0895	1300867.7052
P.1.1	13+25.74	34.16' LT	495110.3574	1300854.1293
P.1.2	13+39.85	28.78' RT	495050.9050	1300879.1425
P.2.0	13+60.04	0.00'	495082.8023	1300893.9298
P.2.1	13+52.39	34.16' LT	495115.0702	1300880.3539
P.2.2	13+66.49	28.78' RT	495055.6178	1300905.3671

PLAN
SCALE: 1/4" = 1'-0"

- NOTES:
- FOR ABUTMENT AND PIER PILE LAYOUT PLAN, SEE DWG. NO. S-4.
 - FOR ABUTMENT A AND B PLAN AND ELEVATIONS, SEE DWG. NOS. S-5 AND S-6 RESPECTIVELY.
 - ALL ANGLES ARE 90°00'00" UNLESS NOTED OTHERWISE.

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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

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GAITHERSBURG, MARYLAND

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Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

ABUTMENT AND PIER GEOMETRIC AND FOOTING LAYOUT

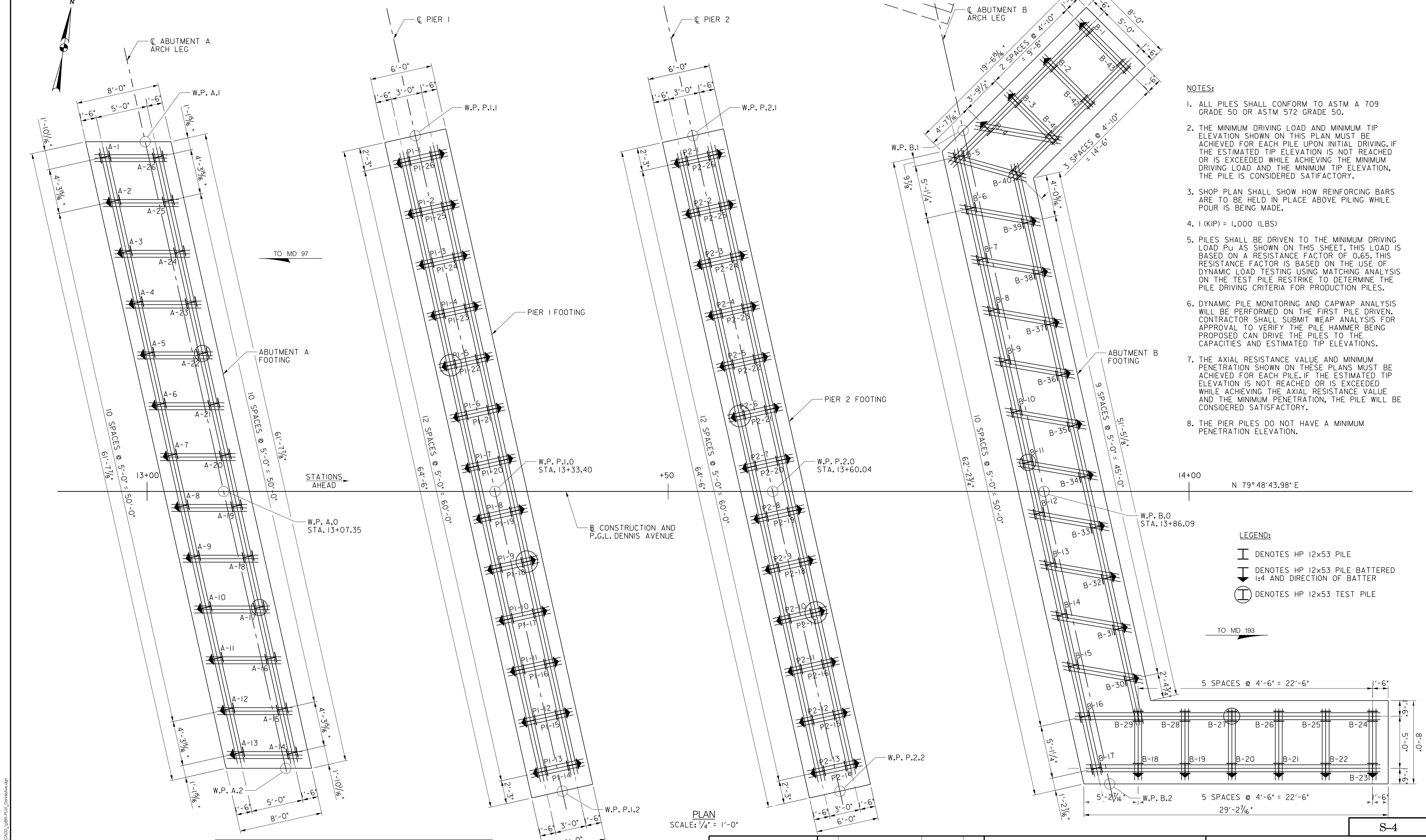
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)

SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

Project No.: 501701 SHEET 28 OF 82



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- NOTES:**
- ALL PILES SHALL CONFORM TO ASTM A 709 GRADE 50 OR ASTM 572 GRADE 50.
 - THE MINIMUM DRIVING LOAD AND MINIMUM TIP ELEVATION SHOWN ON THIS PLAN MUST BE ACHIEVED FOR EACH PILE UPON INITIAL DRIVING. IF THE ESTIMATED TIP ELEVATION IS NOT REACHED OR IS EXCEEDED WHILE ACHIEVING THE MINIMUM DRIVING LOAD AND THE MINIMUM TIP ELEVATION, THE PILE IS CONSIDERED SATISFACTORY.
 - SHOP PLAN SHALL SHOW HOW REINFORCING BARS ARE TO BE HELD IN PLACE ABOVE PILING WHILE POUR IS BEING MADE.
 - 1 (KIP) = 1,000 (LBS)
 - PILES SHALL BE DRIVEN TO THE MINIMUM DRIVING LOAD P_u AS SHOWN ON THIS SHEET. THIS LOAD IS BASED ON A RESISTANCE FACTOR OF 0.65. THIS RESISTANCE FACTOR IS BASED ON THE USE OF DYNAMIC LOAD TESTING USING MATCHING ANALYSIS ON THE TEST PILE RESTRIKE TO DETERMINE THE PILE DRIVING CRITERIA FOR PRODUCTION PILES.
 - DYNAMIC PILE MONITORING AND CAPWAP ANALYSIS WILL BE PERFORMED ON THE FIRST PILE DRIVEN. CONTRACTOR SHALL SUBMIT WEAP ANALYSIS FOR APPROVAL TO VERIFY THE PILE HAMMER BEING PROPOSED CAN DRIVE THE PILES TO THE CAPACITIES AND ESTIMATED TIP ELEVATIONS.
 - THE AXIAL RESISTANCE VALUE AND MINIMUM PENETRATION SHOWN ON THESE PLANS MUST BE ACHIEVED FOR EACH PILE. IF THE ESTIMATED TIP ELEVATION IS NOT REACHED OR IS EXCEEDED WHILE ACHIEVING THE AXIAL RESISTANCE VALUE AND THE MINIMUM PENETRATION, THE PILE WILL BE CONSIDERED SATISFACTORY.
 - THE PIER PILES DO NOT HAVE A MINIMUM PENETRATION ELEVATION.

- LEGEND:**
- ⊩ DENOTES HP 12x53 PILE
 - ⊩ DENOTES HP 12x53 PILE BATTERED 1:4 AND DIRECTION OF BATTER
 - ⊕ DENOTES HP 12x53 TEST PILE

PILE DATA				
SUBSTRUCTURE UNIT	MINIMUM TIP ELEVATION	ESTIMATED TIP ELEVATION	DESIGN LOAD (KIPS)	MINIMUM DRIVING LOAD P_u (KIPS)
ABUTMENT A	EL. 283.00	EL. 274.00	175	270
PIER 1	N/A	EL. 274.00	200	310
PIER 2	N/A	EL. 276.50	200	310
ABUTMENT B	EL. 275.00	EL. 270.50	175	270
WINGWALL III&IV	EL. 275.00	EL. 270.50	175	270

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 LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

MONTGOMERY COUNTY
 DEPARTMENT OF TRANSPORTATION
 GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
 APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

ABUTMENT AND PIER PILE LAYOUT

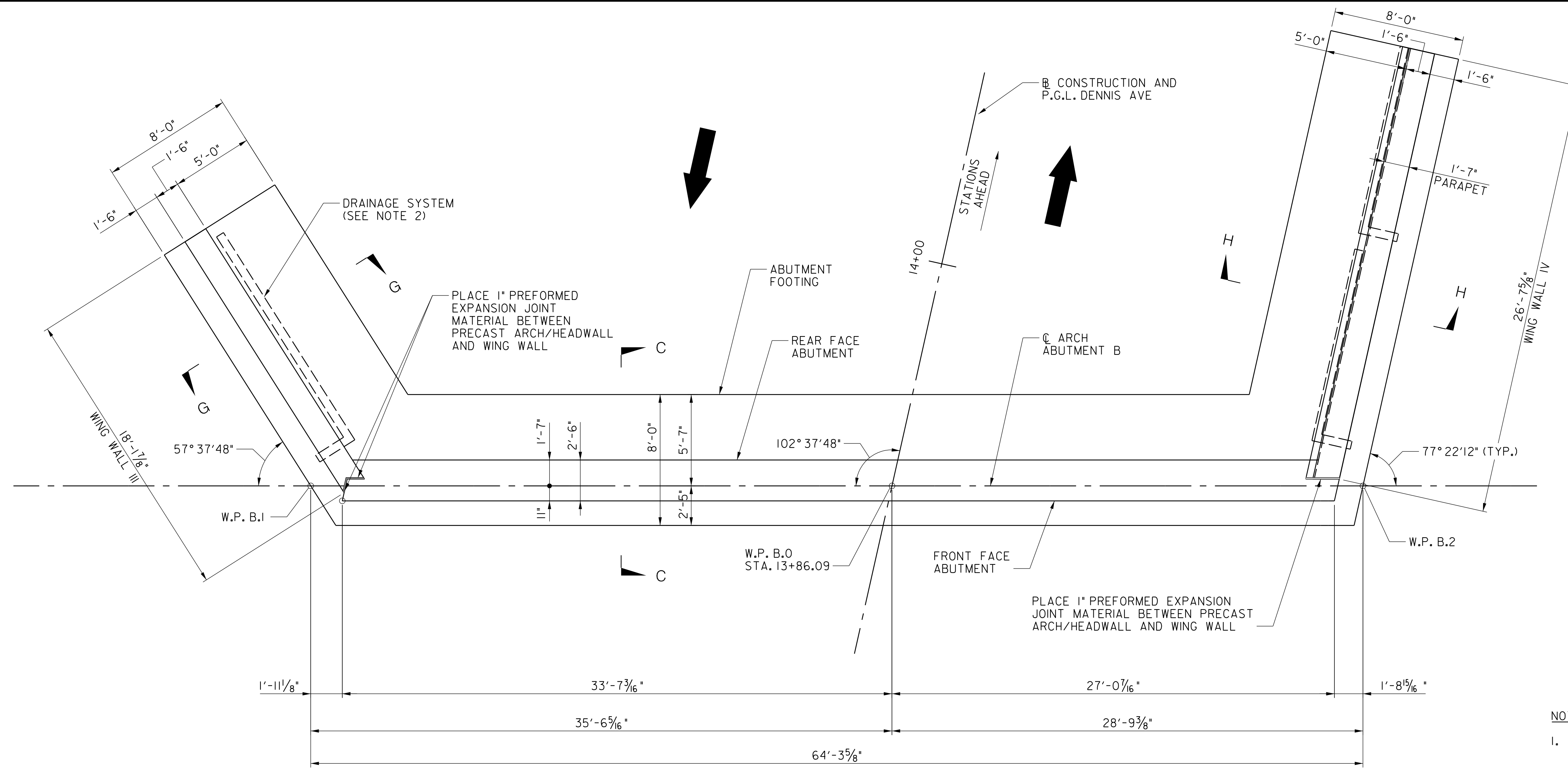
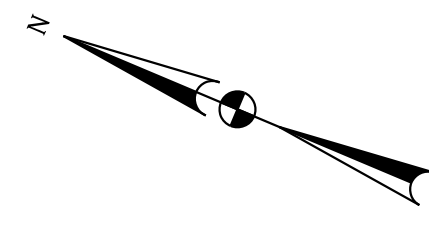
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)

SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

Project No.: 501701 SHEET 29 OF 82



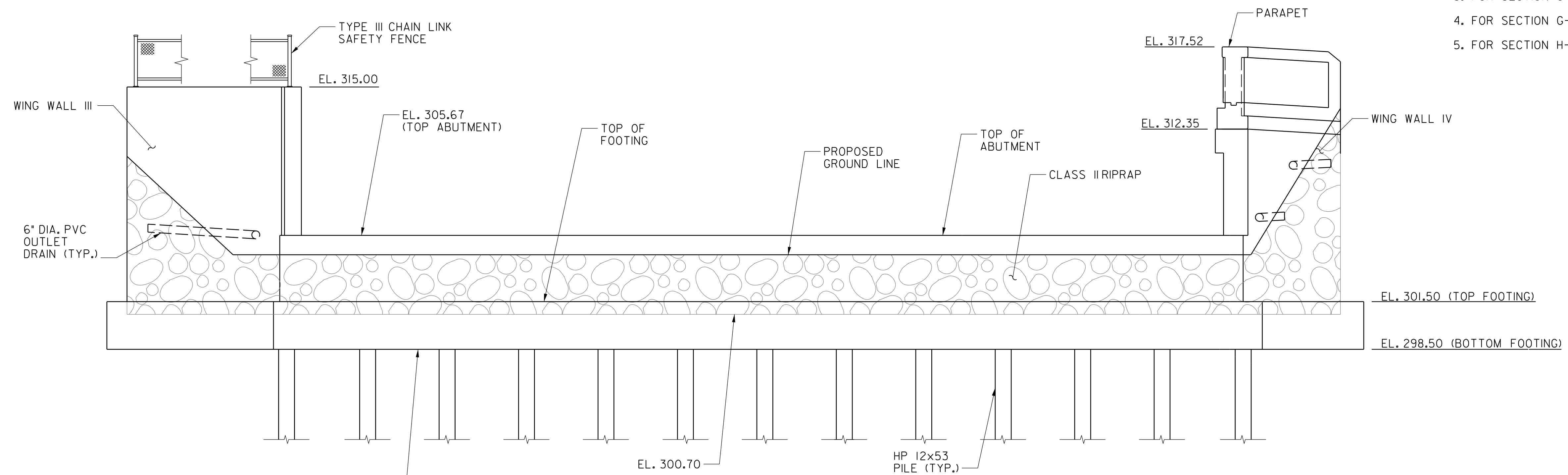
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ABUTMENT B - PLAN
SCALE: 1/4" = 1'-0"

NOTES:

- PILES BELOW WING WALLS NOT SHOWN IN ELEVATION FOR CLARITY.
- FOR DRAINAGE SYSTEM DETAILS FOR WING WALLS, SEE DETAIL SUB-DR-203 ON DWG. NO. 41.
- FOR SECTION C-C, SEE DWG. NO. S-7.
- FOR SECTION G-G, SEE DWG. NO. S-28.
- FOR SECTION H-H, SEE DWG. NO. S-30.



ABUTMENT B - ELEVATION
SCALE: 1/4" = 1'-0"

S-6



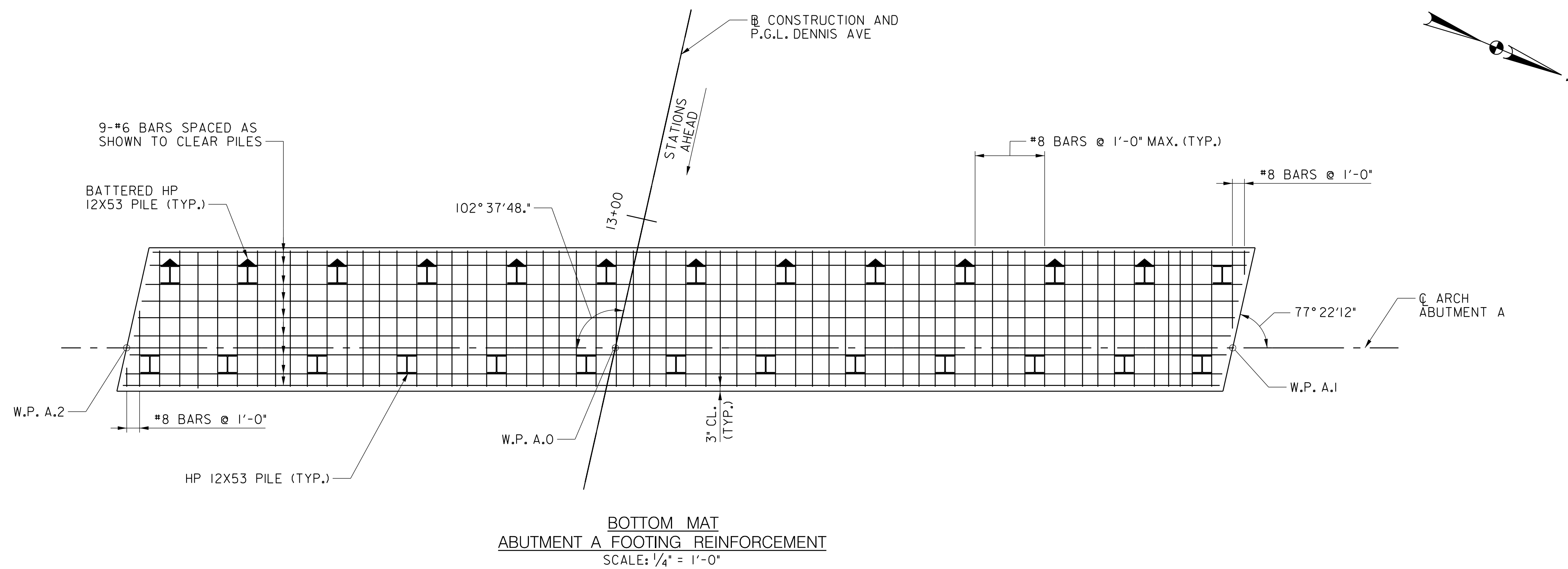
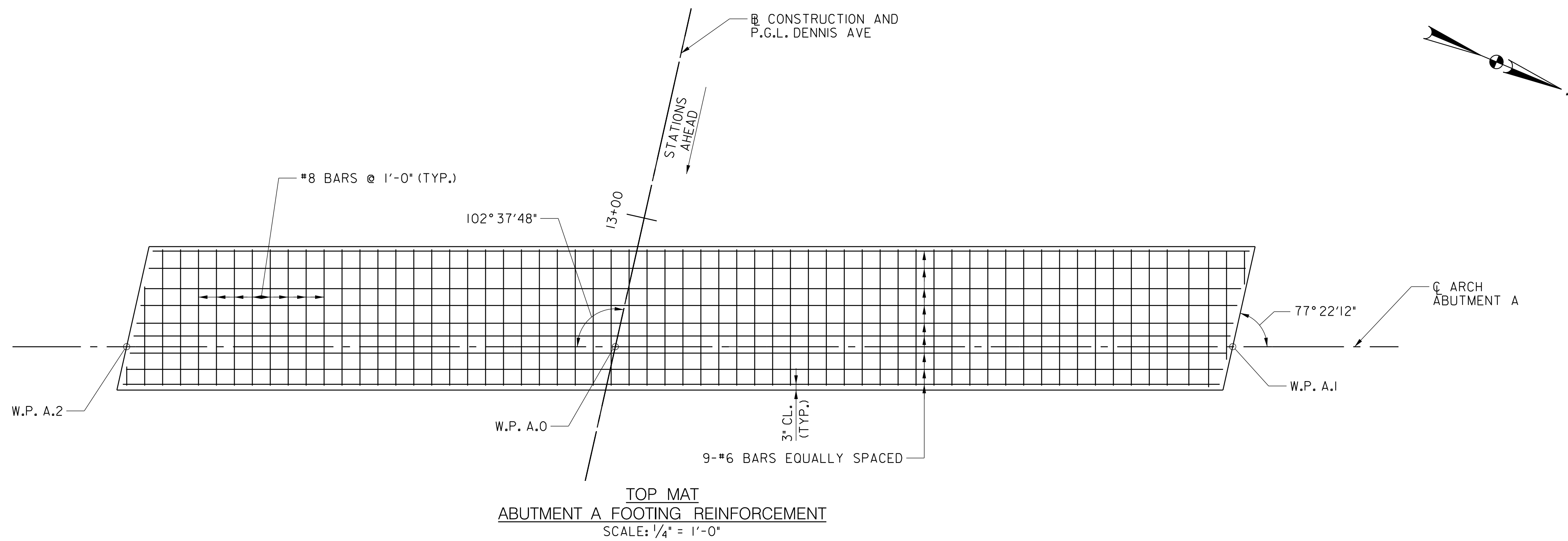
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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

ABUTMENT B PLAN AND ELEVATION	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 1/4" = 1'-0"	DATE: AUGUST, 2023
Project No.: 501701	SHEET 31 OF 82

PLOTTED: 8/10/2023 2:09:25 PM
 FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbr\489-Dennis_Avg.dgn



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

SEAL:				
NO.	REVISION	DATE	BY	

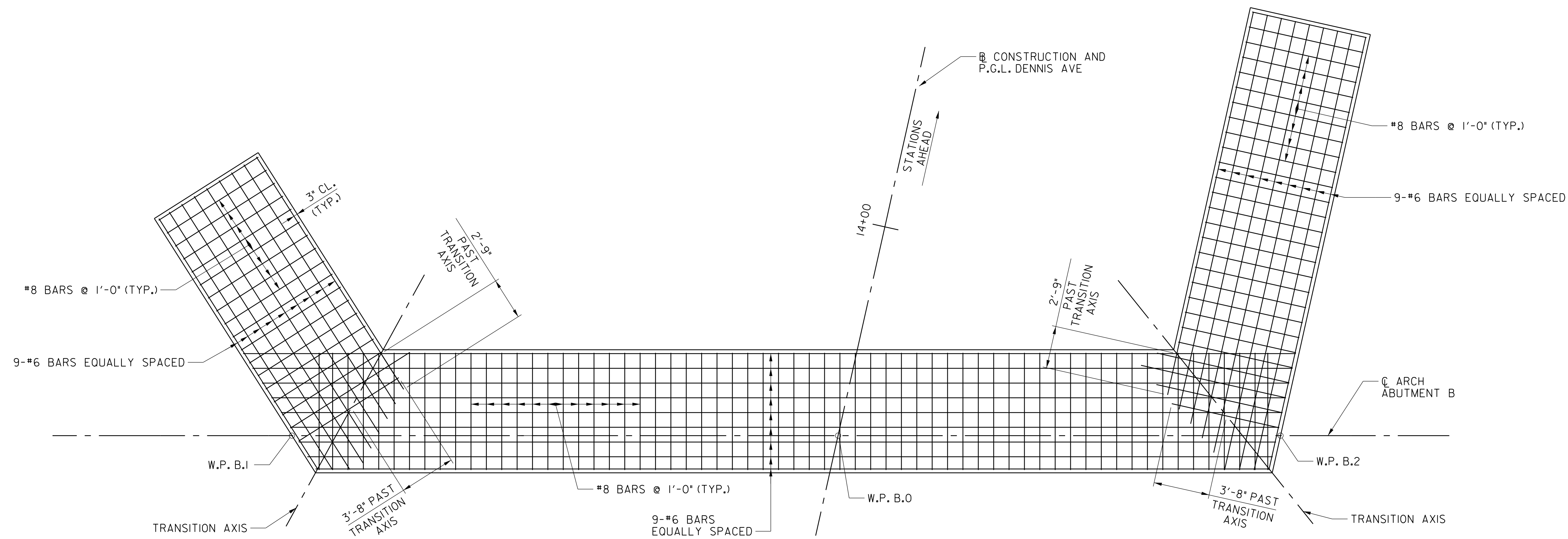
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

ABUTMENT A
FOOTING REINFORCING DETAIL

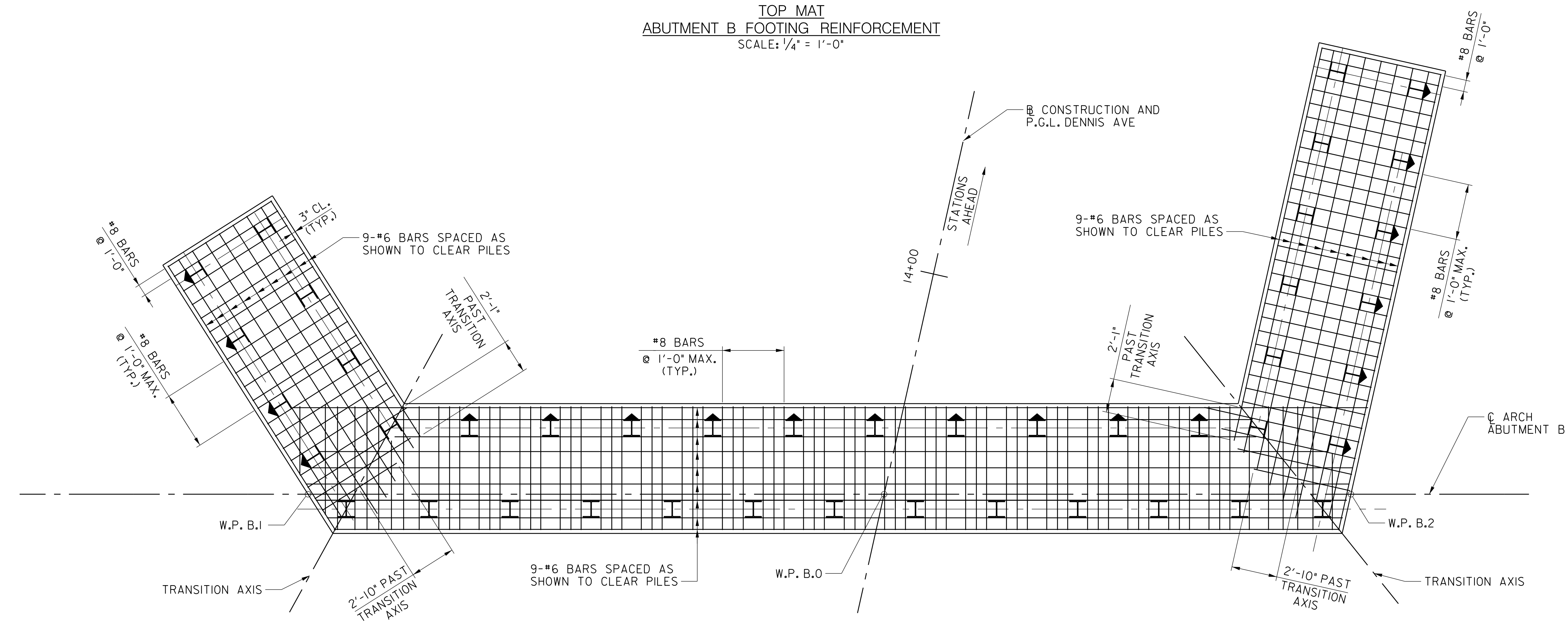
REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

Project No. : 501701 SHEET 33 OF 82



TOP MAT
 ABUTMENT B FOOTING REINFORCEMENT
 SCALE: 1/4" = 1'-0"



BOTTOM MAT
 ABUTMENT B FOOTING REINFORCEMENT
 SCALE: 1/4" = 1'-0"

S-9



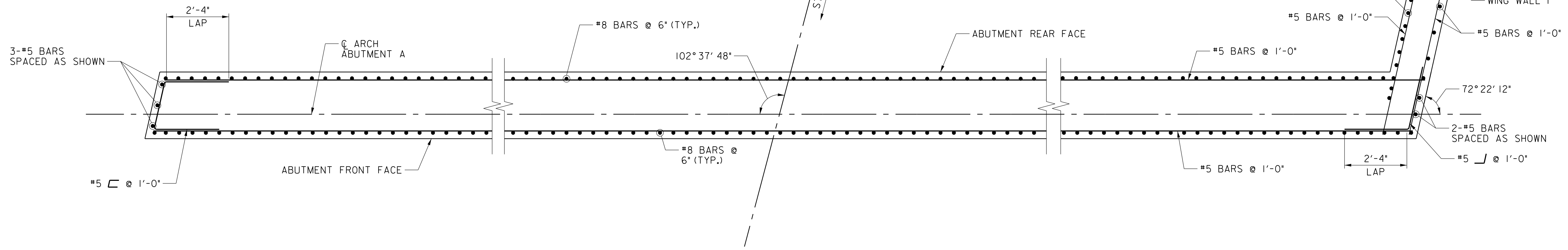
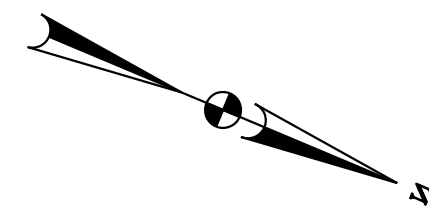
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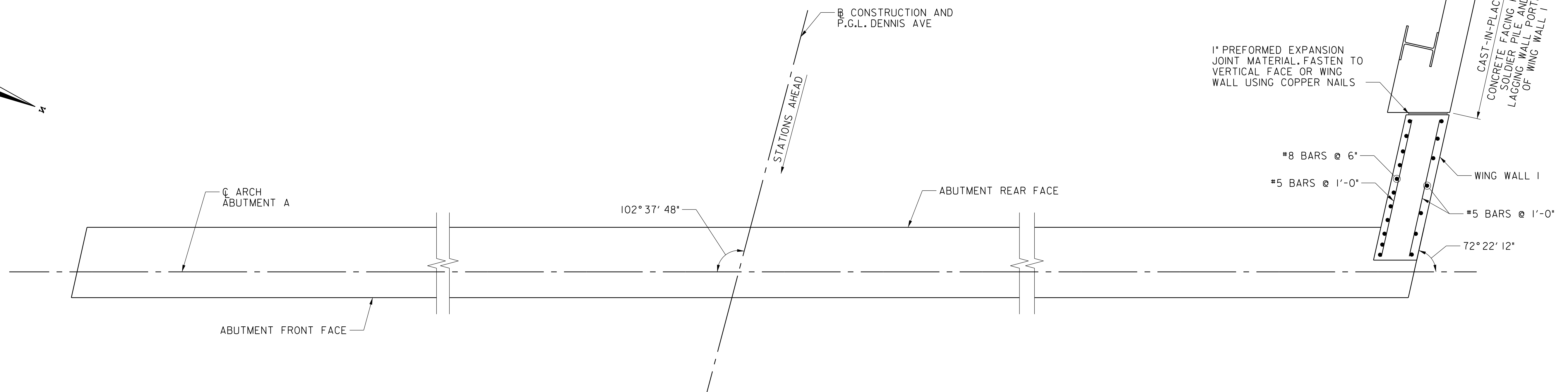
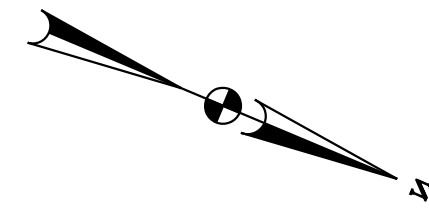
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

ABUTMENT B FOOTING REINFORCING DETAIL	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 1/4" = 1'-0"	DATE: AUGUST, 2023
Project No. : 501701	SHEET 34 OF 82

PLOTTED: 8/10/2023 2:09:29 PM
 FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbrn=4502_DennisAve.dgn



ABUTMENT A STEM REINFORCEMENT
BELOW ABUTMENT SEAT
SCALE: 1/2" = 1'-0"



ABUTMENT A STEM REINFORCEMENT
ABOVE ABUTMENT SEAT
SCALE: 1/2" = 1'-0"

S-10



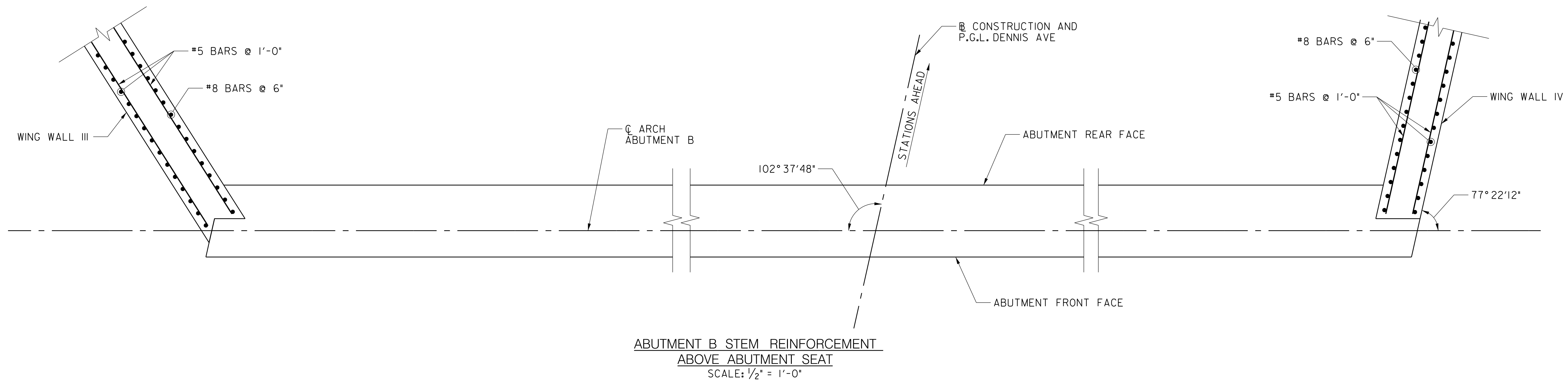
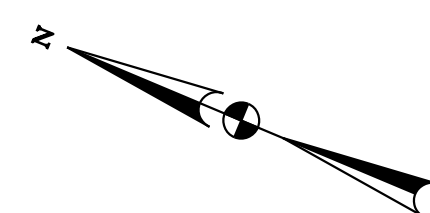
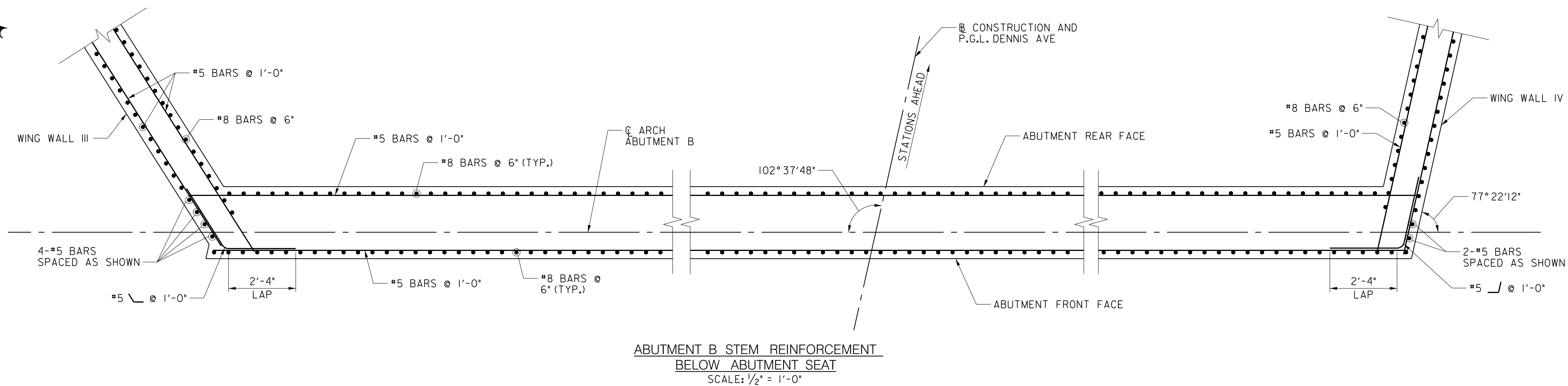
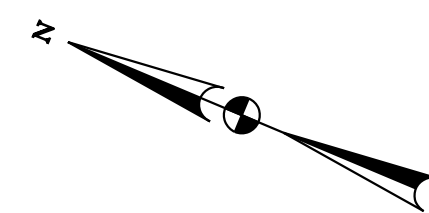
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MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

ABUTMENT A REINFORCEMENT DETAILS	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 1 / 2" = 1'-0"	DATE: AUGUST, 2023
Project No.: 501701	SHEET 35 OF 82

PLOTTED: 8/10/2023 2:09:30 PM
FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbr\4382_DennisAve.dgn



S-11



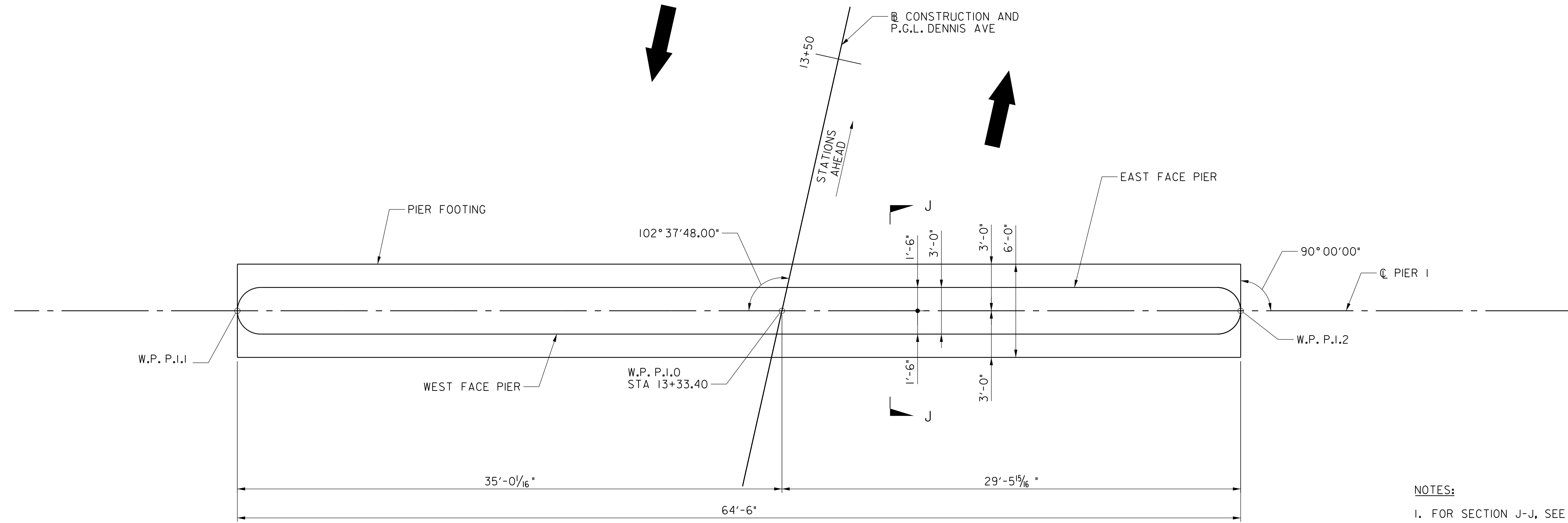
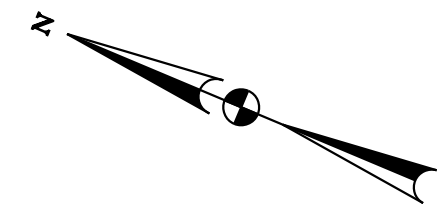
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RECOMMENDED FOR APPROVAL	
Chief, Design Section	_____ Date _____
APPROVED	
Chief, Division of Transportation Engineering	_____ Date _____
Designed By: <u>ZK</u>	Drawn By: <u>ZK</u> Checked By: <u>MWM</u>

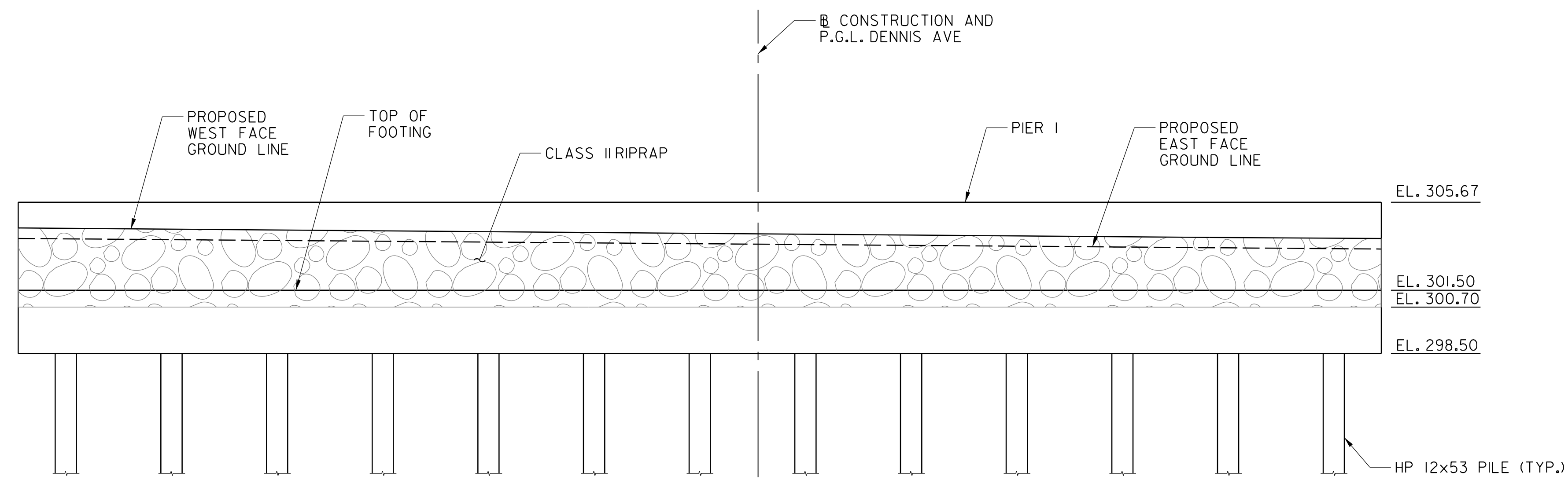
ABUTMENT B REINFORCEMENT DETAILS	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 1 / 2" = 1'-0"	DATE: AUGUST, 2023
Project No. : 501701	SHEET 36 OF 82

PLOTTED: 8/10/2023 2:05:30 PM
FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbrn-081_DennisAve.dgn



PIER 1 - PLAN
SCALE: 1/4" = 1'-0"

NOTES:
1. FOR SECTION J-J, SEE DWG. NO. S-14.



PIER 1 - ELEVATION
SCALE: 1/4" = 1'-0"

DATUM EL. 290.00



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MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

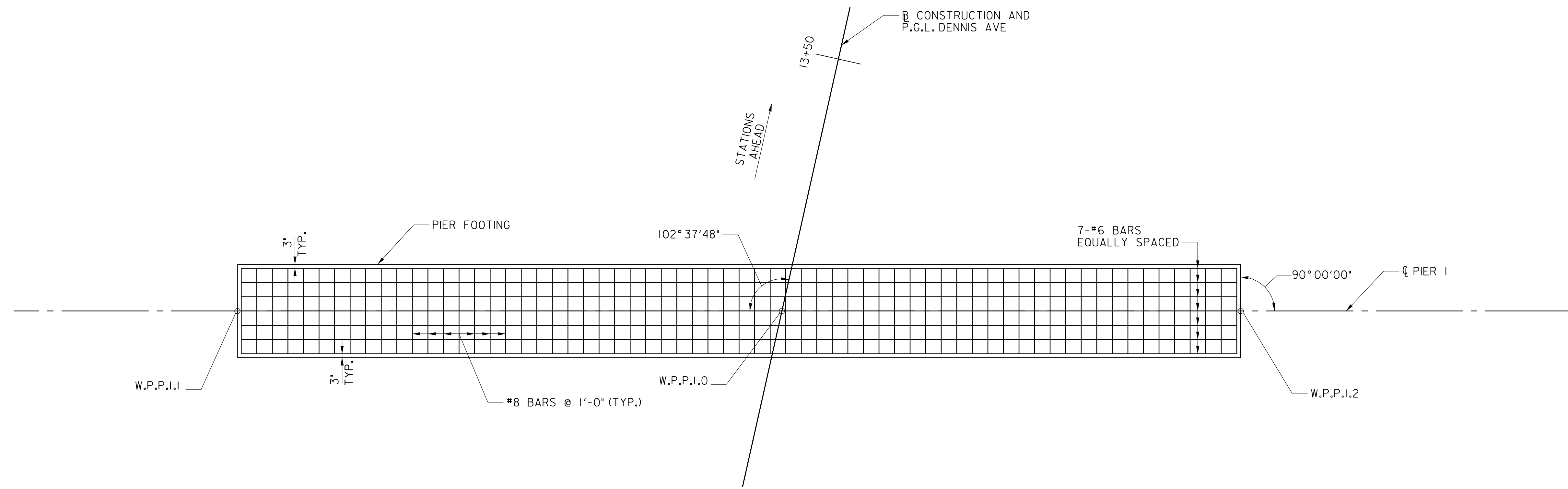
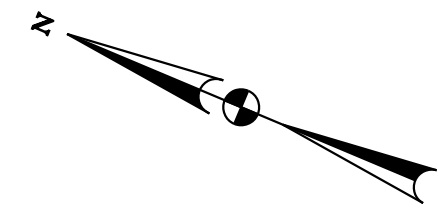
PIER 1 PLAN & ELEVATION

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

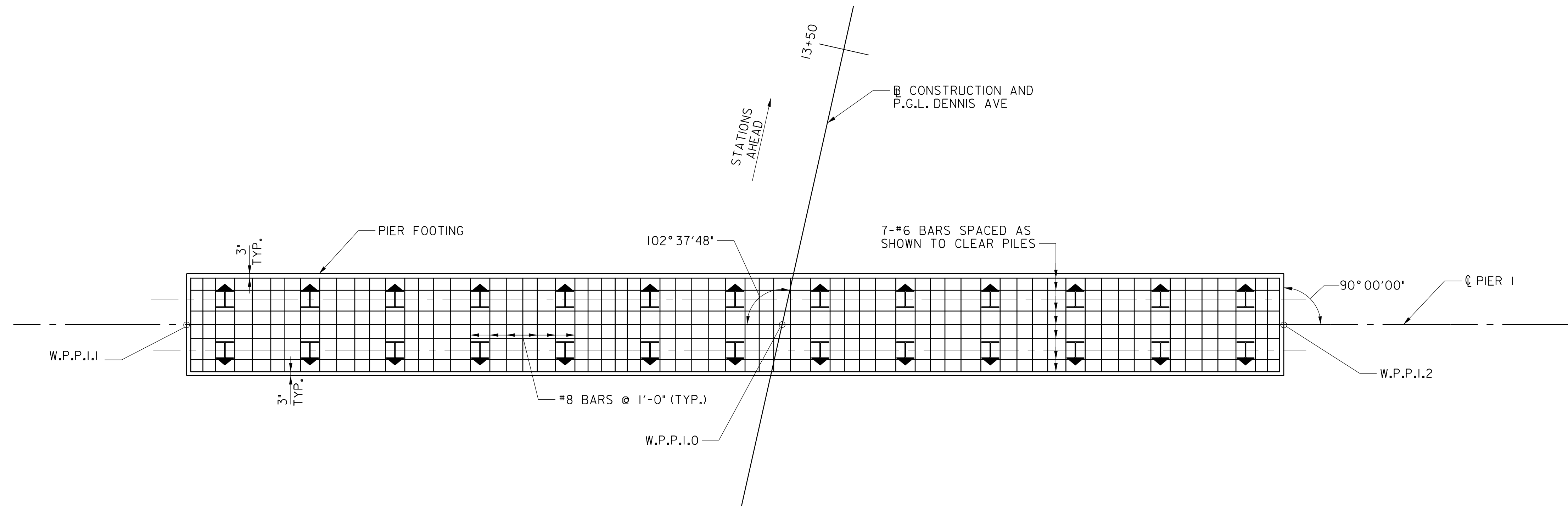
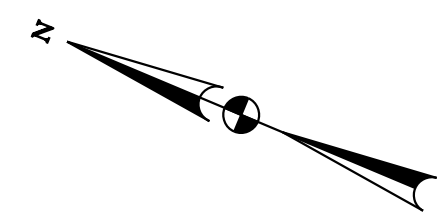
SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

Project No. : 501701 SHEET 37 OF 82

PLOTTED: 8/10/2023 2:05:32 PM
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PIER 1 TOP MAT PLAN
SCALE: 1/4" = 1'-0"



PIER 1 BOTTOM MAT PLAN
SCALE: 1/4" = 1'-0"



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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

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NO.	REVISION
	DATE
	BY

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Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
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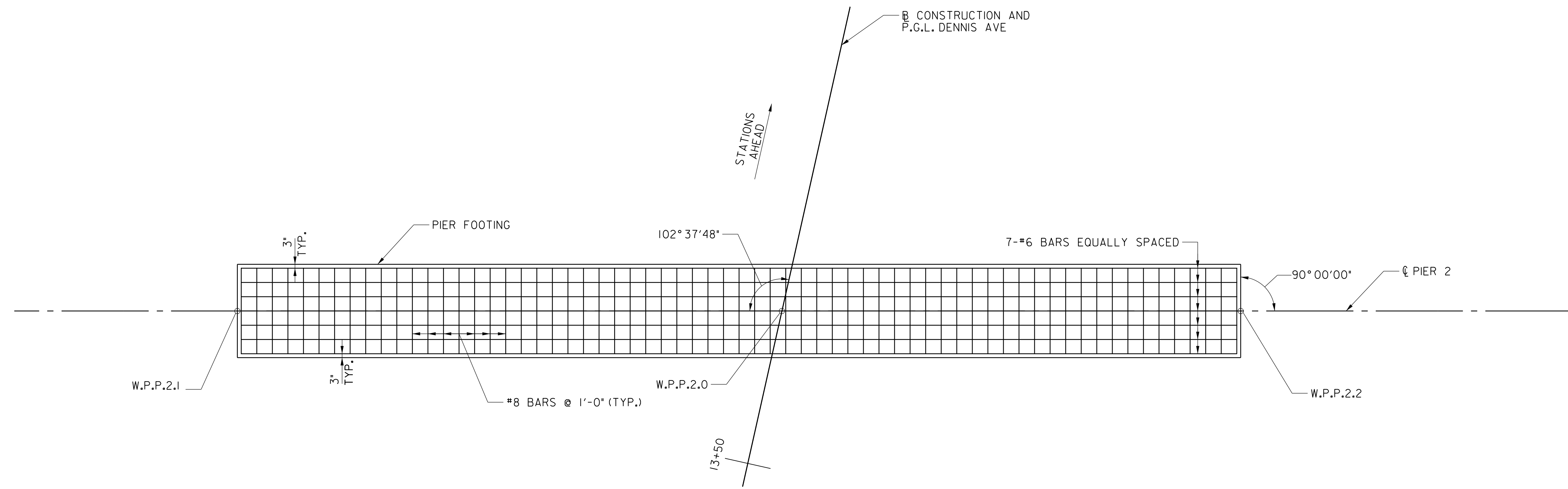
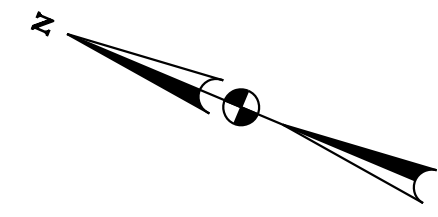
**PIER 1 FOOTING REINFORCING
DETAIL**

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

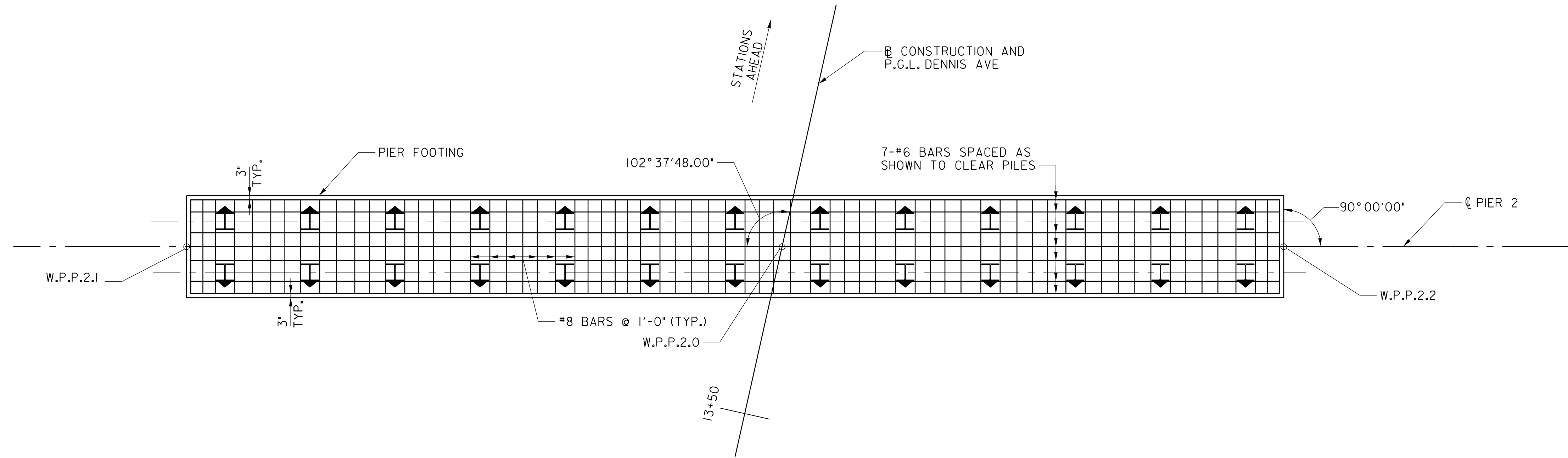
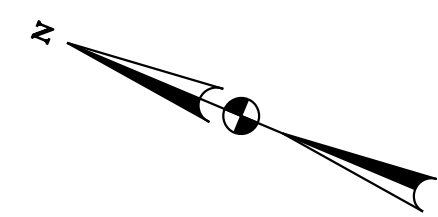
SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

Project No. : 501701 SHEET 40 OF 82

PLOTTED: 8/10/2023 2:05:35 PM
FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbr-rf92_dennisa.dwg



PIER 2 TOP MAT PLAN
SCALE: 1/4" = 1'-0"



PIER 2 BOTTOM MAT PLAN
SCALE: 1/4" = 1'-0"



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MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
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Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
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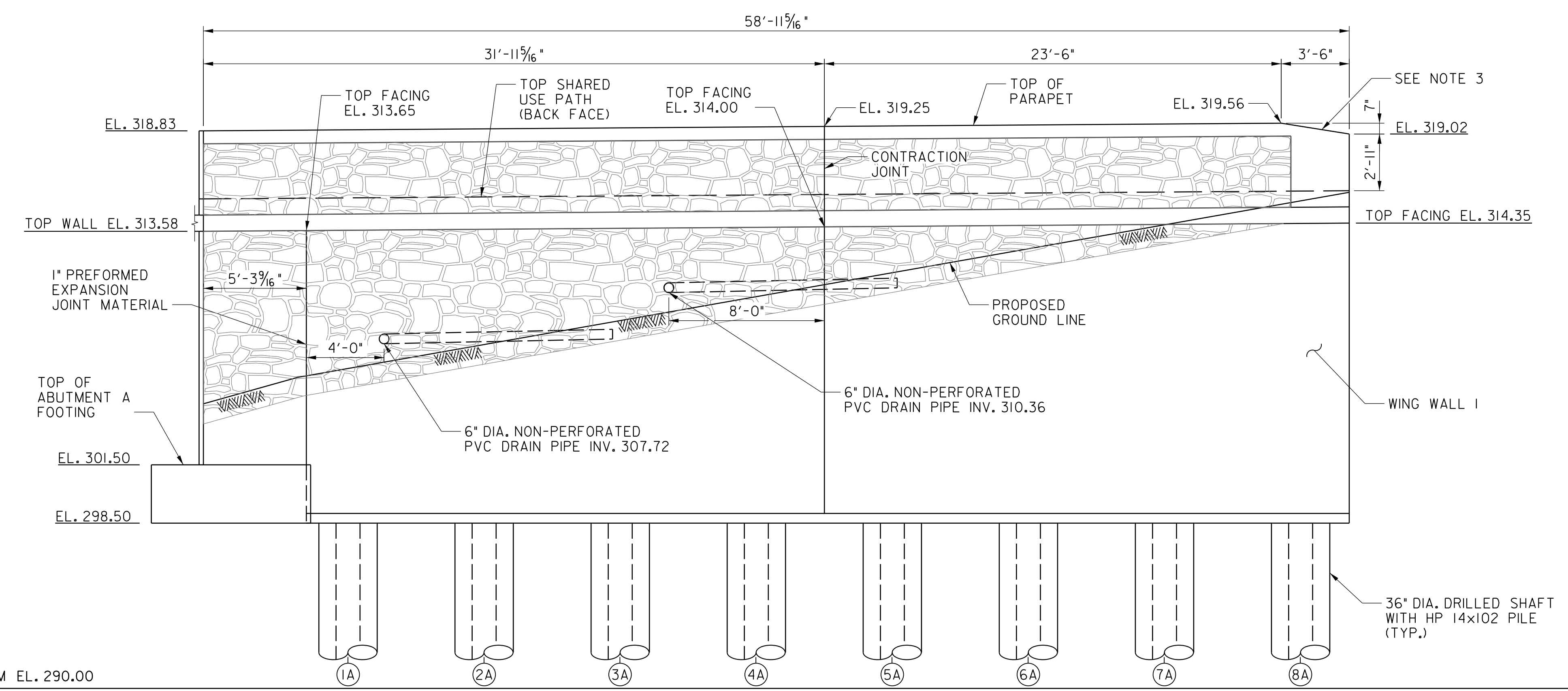
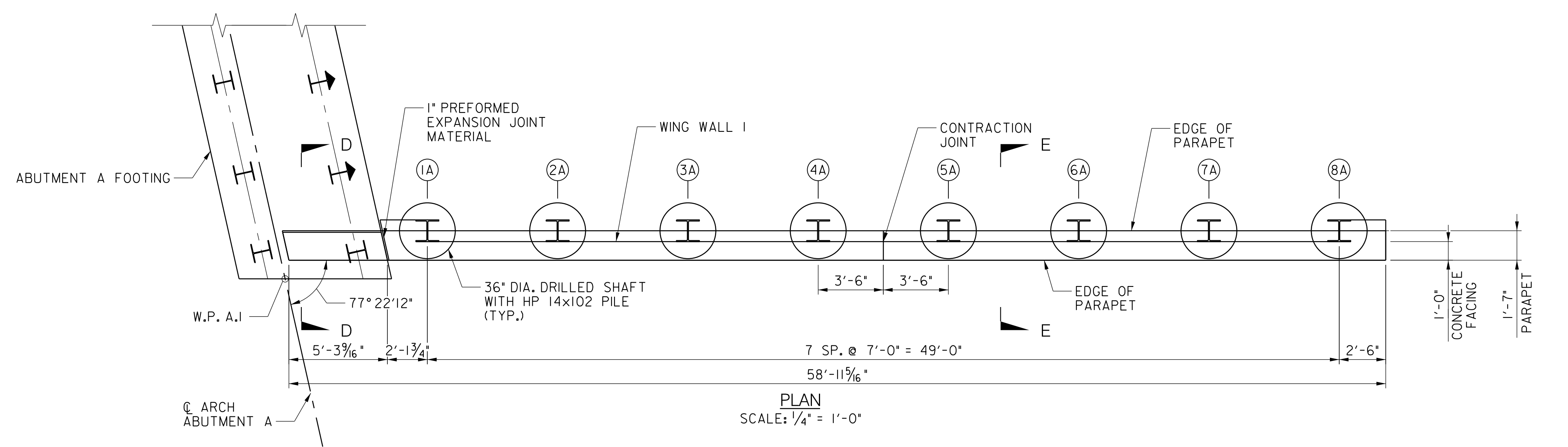
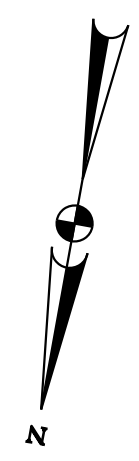
PIER 2 FOOTING REINFORCING DETAIL

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

Project No. : 501701 SHEET 41 OF 82

PLOTTED: 8/10/2023 2:05:36 PM
FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbr\Rebar\PIER 2\Rebar.dgn



- NOTES:
1. FOR EXPANSION JOINT IN PARAPET AND MOMENT SLAB, SEE DWG. NO. S-33.
 2. FOR EXPANSION JOINT IN WALL FACING, SEE DWG. NO. S-25.
 3. FOR DETAILS AT END POST, SEE DETAIL SUB-EP(SW)-101 ON DWG. NO. S-41.
 4. FOR SECTION D-D, SEE DWG. NO. S-19.
 5. FOR SECTION E-E, SEE DWG. NO. S-20.

WING WALL 1 DRILLED SHAFT AND PILE LOCATION TABLE		
NO	NORTHING	EASTING
1A	495101.3104	1300821.6569
2A	495100.0723	1300814.7673
3A	495098.8342	1300807.8776
4A	495097.5960	1300800.9880
5A	495096.3579	1300794.0984
6A	495095.1198	1300787.2087
7A	495093.8817	1300780.3191
8A	495092.6435	1300773.4295

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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

SEAL:

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

WING WALL 1
PLAN AND ELEVATION

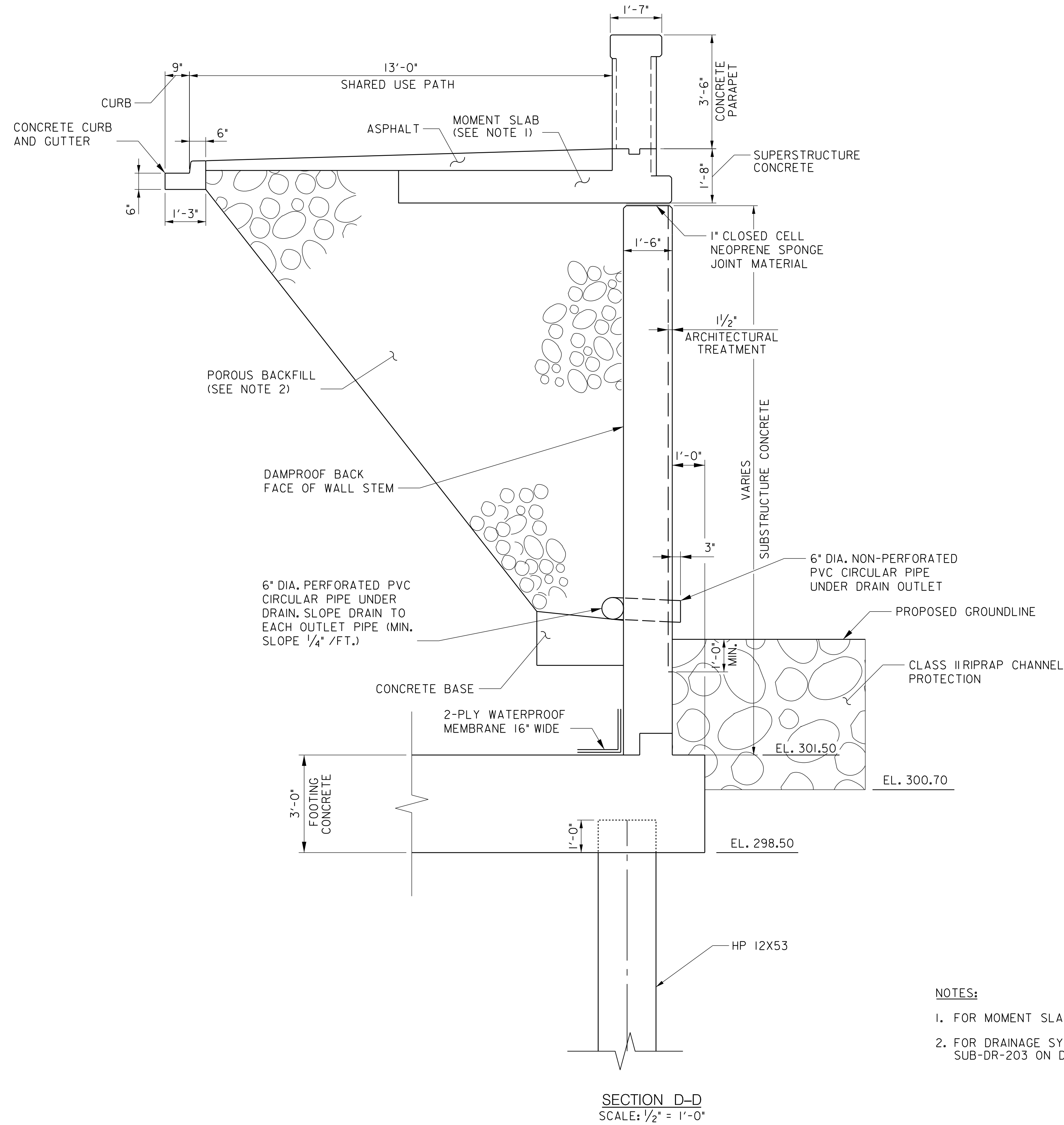
REPLACEMENT OF BRIDGE NO. M-0194
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TRIBUTARY (WHEATON BRANCH)

SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

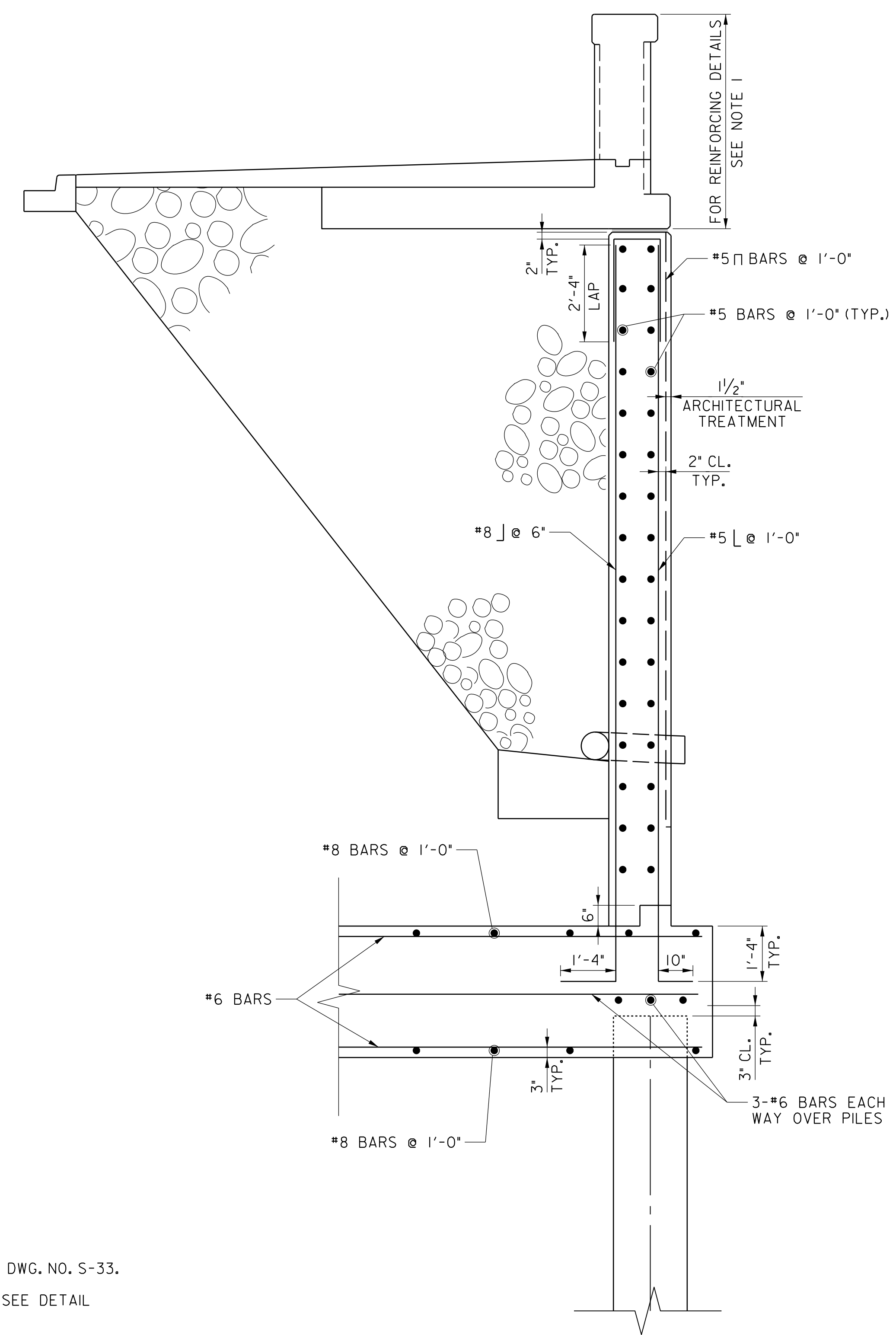
Project No.: 501701 SHEET 43 OF 82



PLOTTED: 8/10/2023 2:05:38 PM
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SECTION D-D
SCALE: 1/2" = 1'-0"



SECTION D-D REINFORCING DETAILS
SCALE: 1/2" = 1'-0"

- NOTES:
1. FOR MOMENT SLAB DETAILS, SEE DWG. NO. S-33.
 2. FOR DRAINAGE SYSTEM DETAILS, SEE DETAIL SUB-DR-203 ON DWG. NO. S-41.



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NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
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GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

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APPROVED

Chief, Division of Transportation Engineering _____ Date _____

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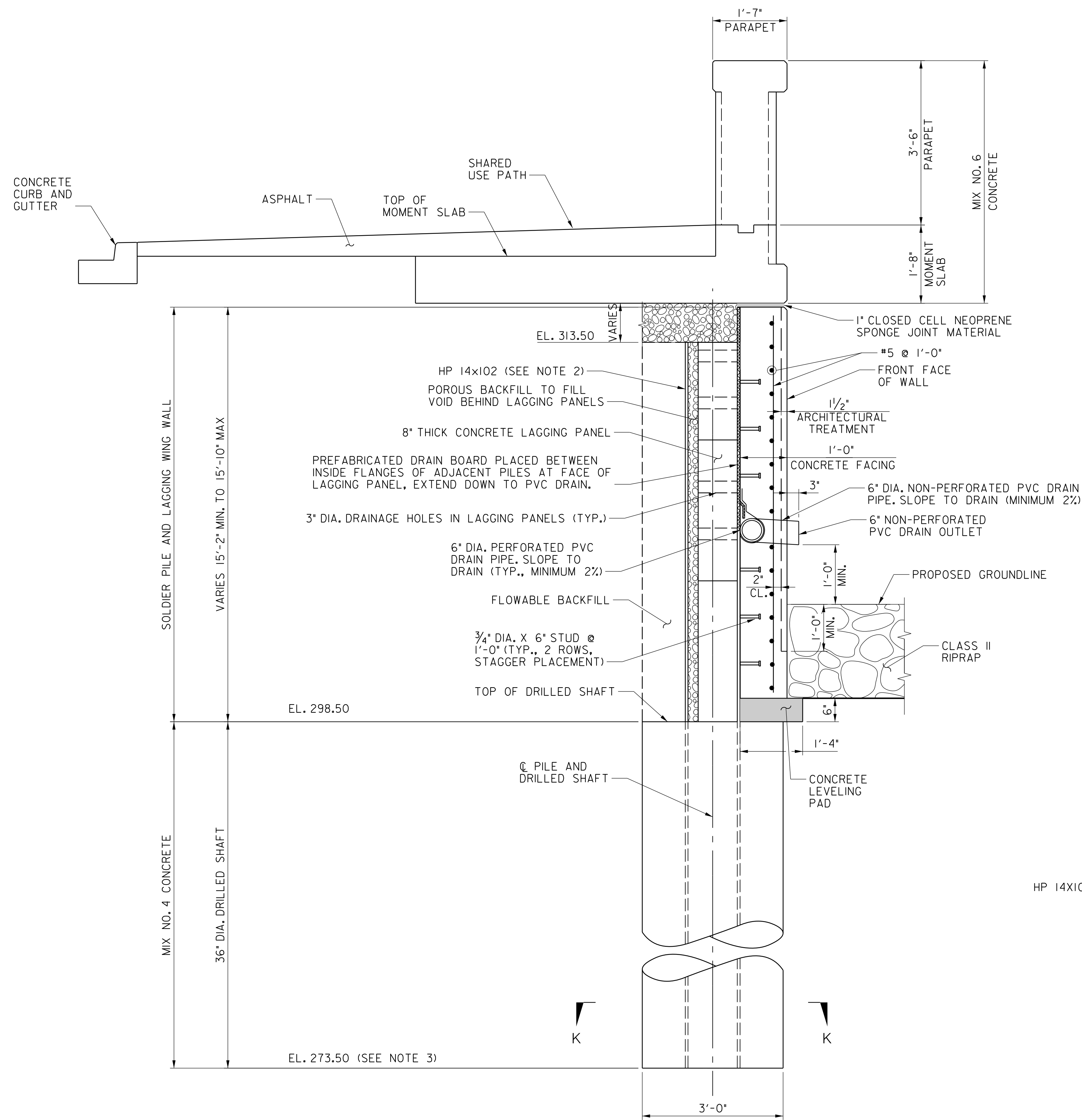
WING WALL I TYPICAL SECTION

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

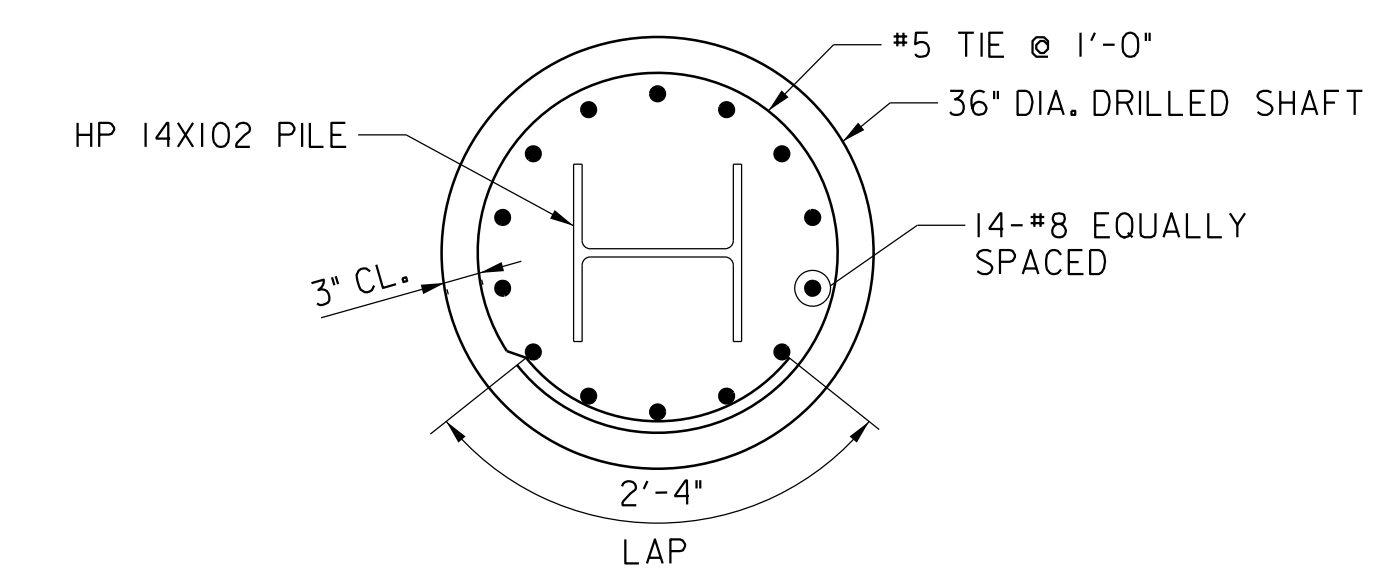
SCALE: 1/2" = 1'-0" DATE: AUGUST, 2023

Project No.: 501701 SHEET 44 OF 82

PLOTTED: 8/11/2023 2:09:40 PM
FILE: P:\Projects\1751175162_Dennis_Ave\Structures\CADD\gbrt\Typical\WingWall.dwg



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



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

SUGGESTED SEQUENCE OF CONSTRUCTION:

1. BENCH TOP OF SLOPE TO PROVIDE A LEVEL SURFACE FOR DRILL RIG FOR DRILLED SHAFTS.
2. DRILL HOLES FOR DRILLED SHAFT. ROCK MAY BE ENCOUNTERED DURING DRILLING OPERATIONS. MEASUREMENT AND PAYMENT FOR DRILLING DRILLED SHAFTS THROUGH ROCK SHALL BE PAID USING A SEPERATE PAY ITEM THAN DRILLING THROUGH SOIL. SEE SPECIAL PROVISIONS.
3. SET THE PILES IN THE DRILLED HOLES. SET THE REINFORCING CAGE IN THE DRILLED SHAFT.
4. FILL THE DRILLED HOLE WITH MIX NO. 4 (3,500 PSI) CONCRETE TO THE INDICATED TOP OF DRILLED SHAFT ELEVATIONS. FILL THE REMAINDER OF THE HOLE WITH FLOWABLE FILL.
5. ONCE THE MIX NO. 4 CONCRETE HAS ATTAINED THE REQUIRED STRENGTH, BEGIN TO EXCAVATE AT THE FRONT OF THE WALL AND CHIP OUT FLOWABLE FILL AS REQUIRED TO START PLACEMENT OF LAGGING PANELS.
6. CONTINUE TO EXCAVATE SOIL AND CHIP OUT FLOWABLE FILL AS REQUIRED TO ALLOW LAGGING PANELS TO SLIDE DOWN BETWEEN SOLDIER PILE FLANGES AND TO ALLOW PLACEMENT OF ADJACENT LAGGING PANELS AS EXCAVATION PROCEEDS.
7. INSTALL DRAIN BOARD AND PVC DRAIN PIPE.
8. FILL THE OVER-EXCAVATED GAP BETWEEN EXCAVATION FACE AND LAGGING PANELS WITH POROUS BACKFILL.
9. POUR CONCRETE LEVELING PAD.
10. PLACE REINFORCING BARS FOR THE CAST-IN-PLACE REINFORCED CONCRETE FACING.
11. POUR CAST-IN-PLACE REINFORCED CONCRETE FACING ON THE CONCRETE LEVELING PAD. ENSURE THAT THE FRONT FACE OF THE C.I.P. FACING IS PLUMB.
12. POUR CONCRETE MOMENT SLAB AND PARAPET ON TOP OF THE WALL.

NOTES:

1. FOR PARAPET AND MOMENT SLAB DETAILS, SEE DWG. NO. S-33.
2. PAYMENT FOR THE HP 14X102 INCLUDING SHEAR STUDS FROM THE BOTTOM OF THE DRILLED SHAFT TO THE TOP ELEVATION SHALL NOT BE MEASURED BUT SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR SOLDIER PILE AND LAGGING WING WALL.
3. IF ROCK IS ENCOUNTERED AS DEFINED IN THE SPECIAL PROVISIONS DURING THE DRILLING OF THE DRILLED SHAFT HOLE, THE CONTRACTOR IS ONLY REQUIRED TO DRILL 2'-0" INTO ROCK IN LEIU OF EXTENDING THE DRILLED SHAFT TO EL. 273.50.
4. MOMENT SLAB SHALL BE MEASURED AND PAID USING SUPERSTRUCTURE CONCRETE PAY ITEM.



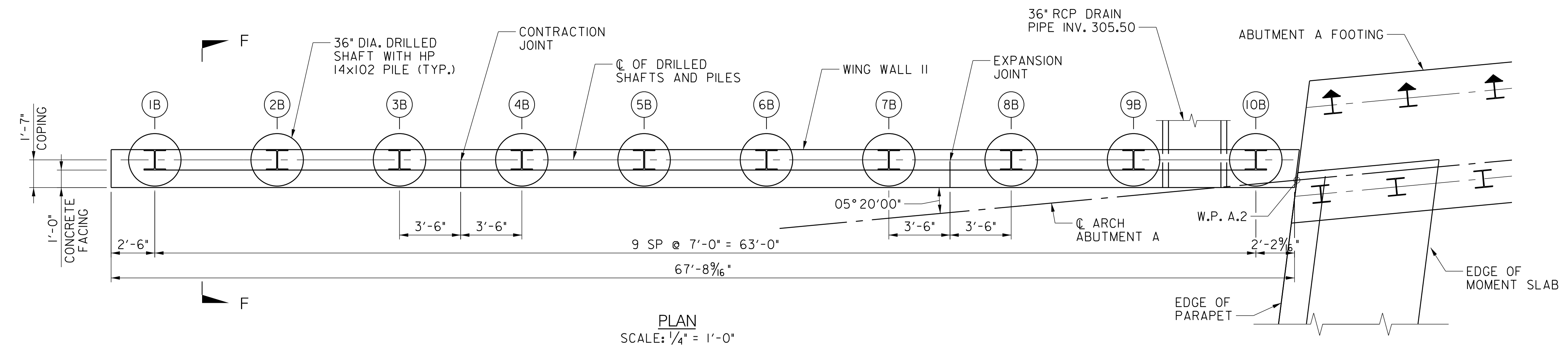
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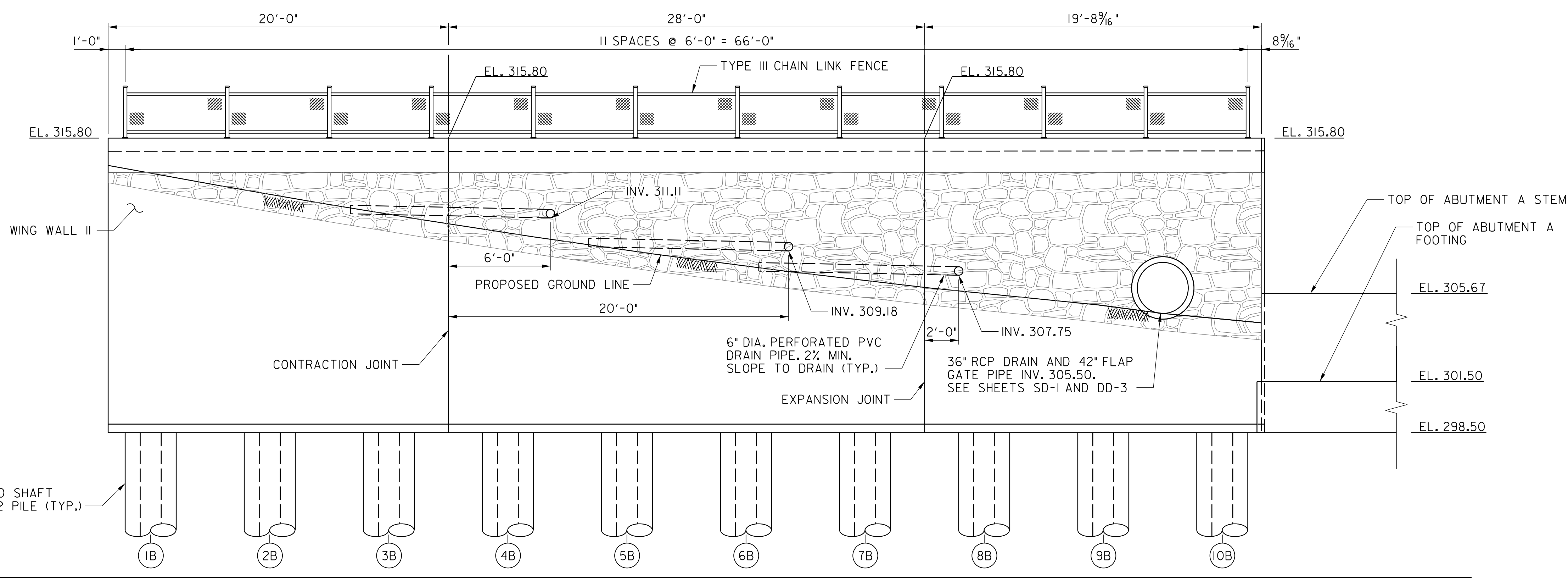
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

WING WALL I TYPICAL SECTION	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 3/4" = 1'-0"	DATE: AUGUST, 2023
Project No.: 501701	SHEET 45 OF 82

PLOTTED: 8/10/2023 2:05:39 PM
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PLAN
SCALE: 1/4" = 1'-0"



ELEVATION
SCALE: 1/4" = 1'-0"

NOTES:

1. FOR EXPANSION AND CONTRACTION JOINT IN WALL, SEE DWG. NO. S-25.
2. FOR SECTION F-F, SEE DWG. NO. S-23.
3. FOR TYPE III CHAIN LINK FENCE DETAILS, SEE DETAILS SUP-FR(FN)-301 AND SUP-FR(FN)-302 ON DWG. NO. S-14.

WING WALL 2 DRILLED SHAFT AND PILE LOCATION TABLE		
NO	NORTHING	EASTING
1B	494985.6912	1300871.1617
2B	494992.3677	1300869.0586
3B	494999.0443	1300866.9554
4B	495005.7209	1300864.8523
5B	495012.3975	1300862.7492
6B	495019.0741	1300860.6460
7B	495025.7507	1300858.5429
8B	495032.4273	1300856.4398
9B	495039.1039	1300854.3367
10B	495045.7805	1300852.2335

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GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

WING WALL II
PLAN AND ELEVATION

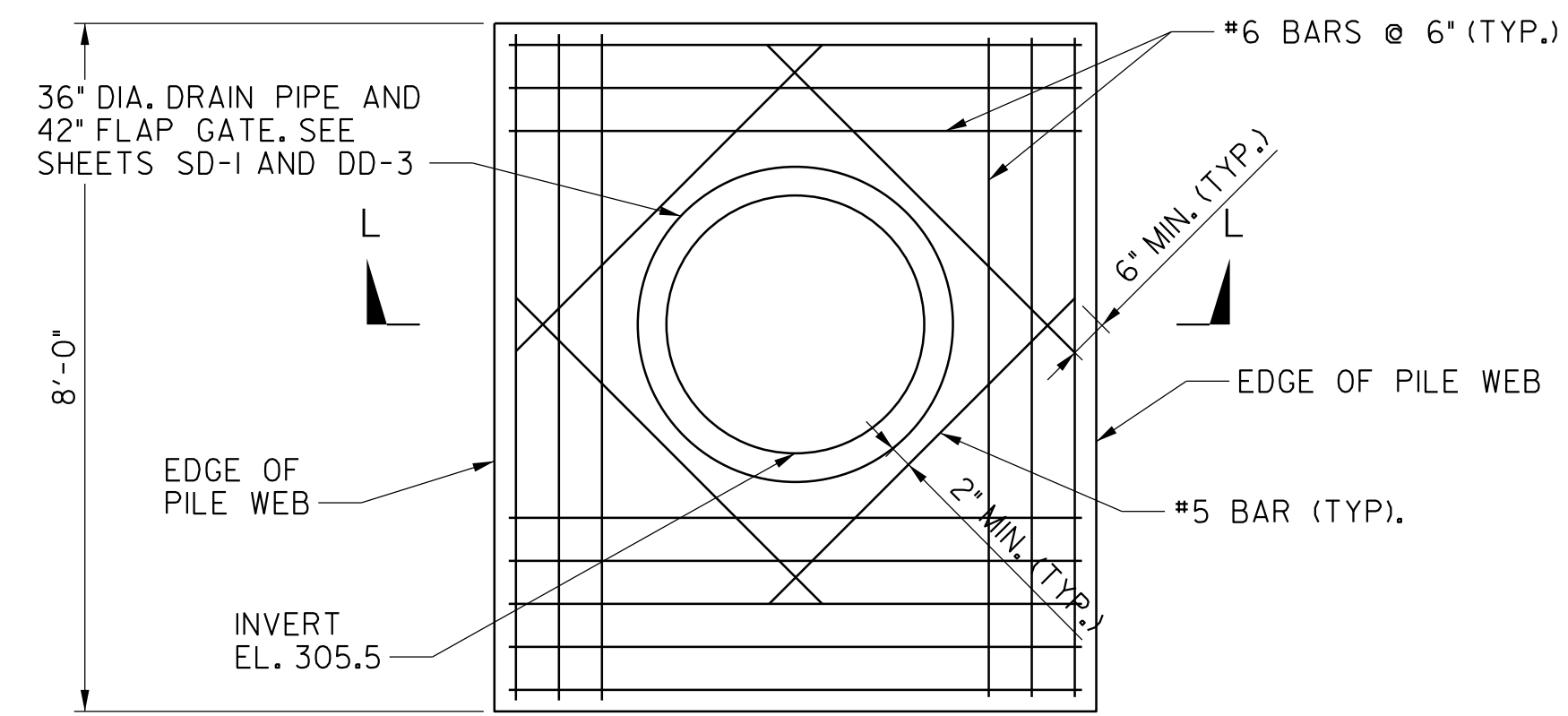
REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: 1/4" = 1'-0" DATE: AUGUST, 2023

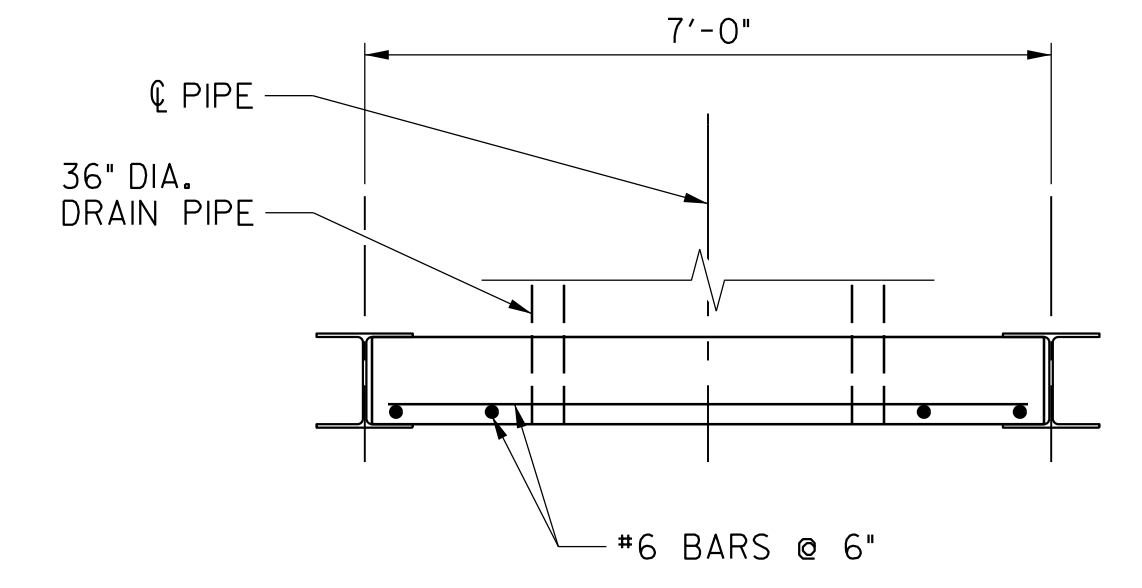
Project No.: 501701 SHEET 47 OF 82



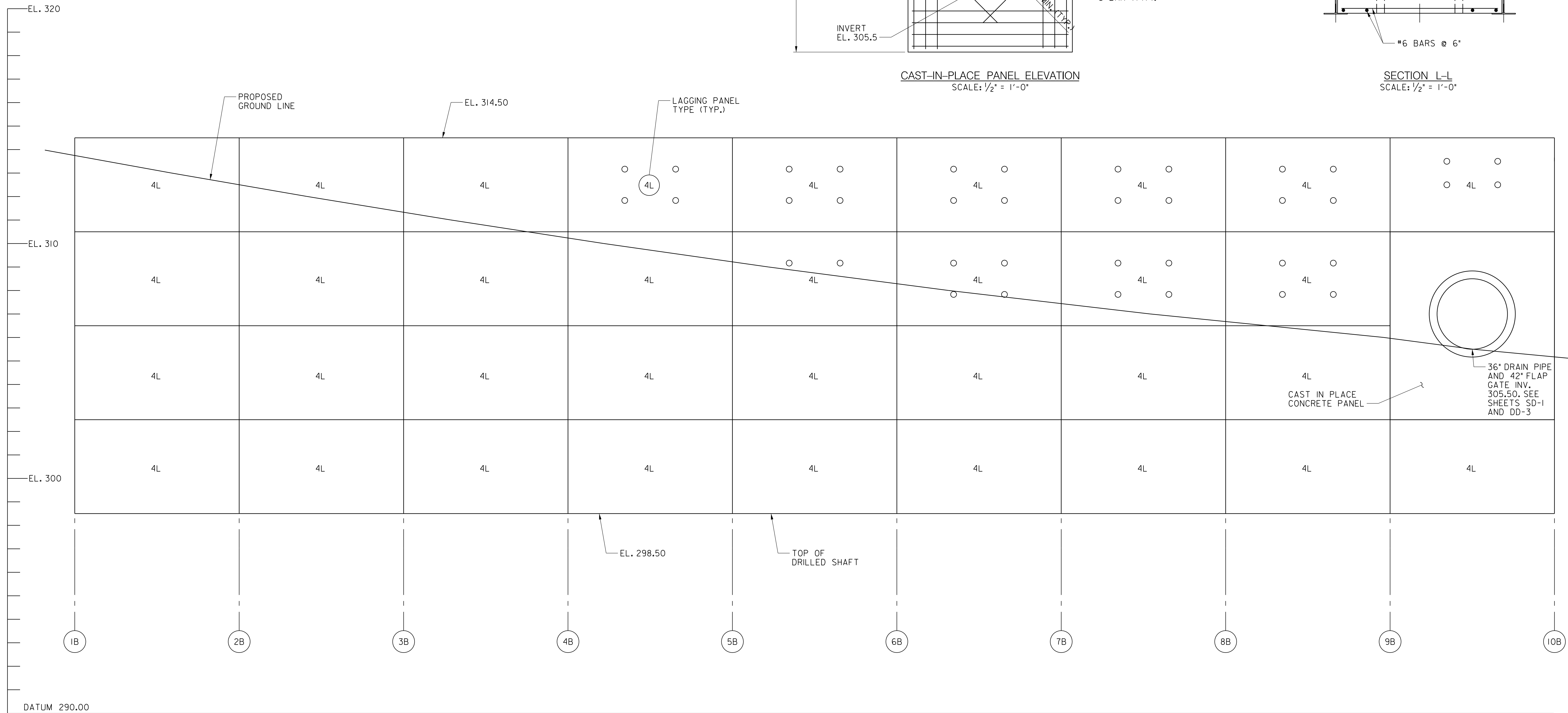
PLOTTER: 8/10/2023 2:09:42 PM
FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbr\WingWall2_Domain.dwg



CAST-IN-PLACE PANEL ELEVATION
SCALE: 1/2" = 1'-0"



SECTION L-L
SCALE: 1/2" = 1'-0"



LAGGING PANEL LAYOUT ELEVATION
SCALE: 1/2" = 1'-0"

S-24



NOTES:
1. FOR LAGGING PANEL DETAILS, SEE DWG. NO. S-26.

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

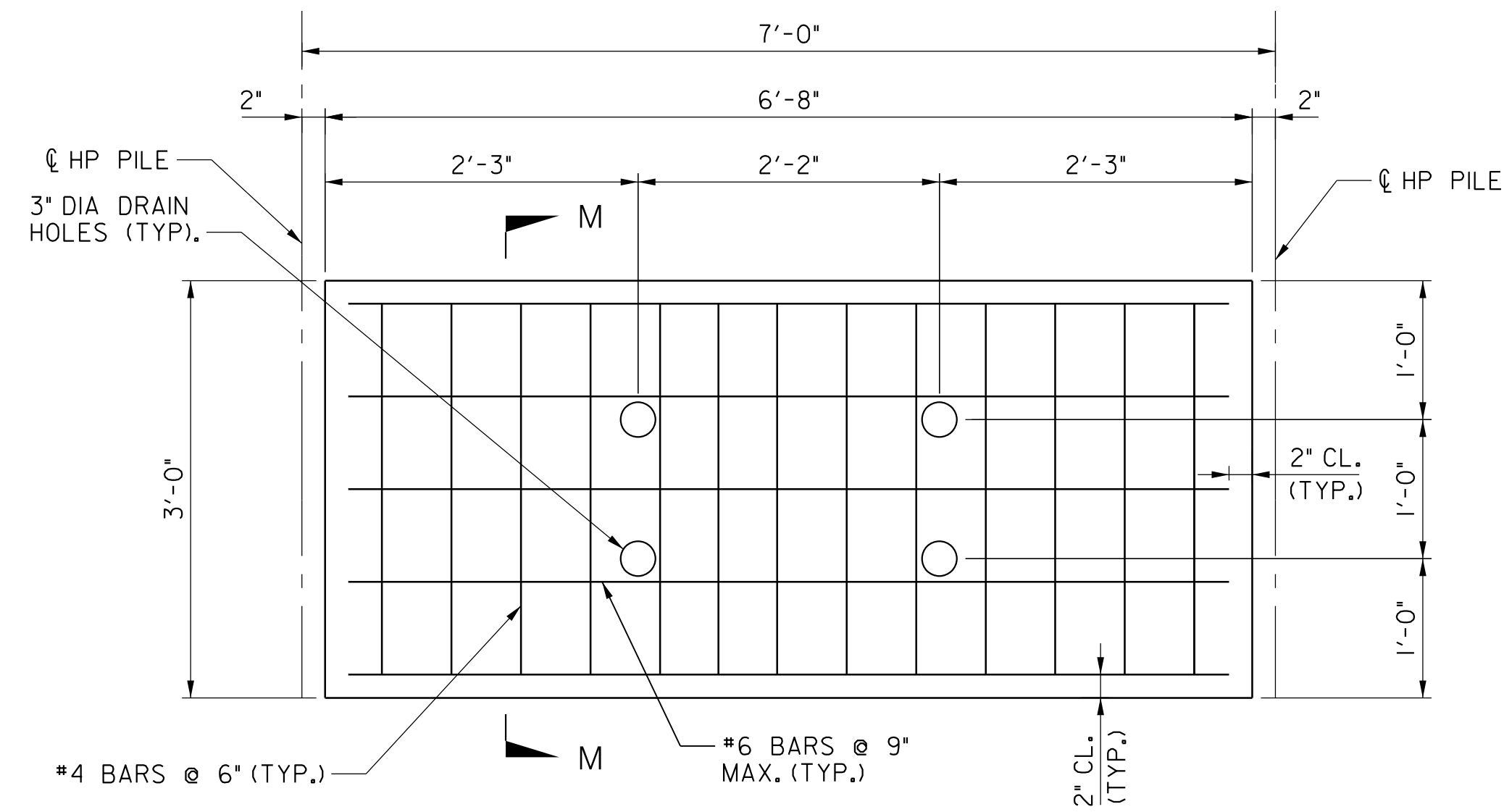
WING WALL II
LAGGING PANEL LAYOUT

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

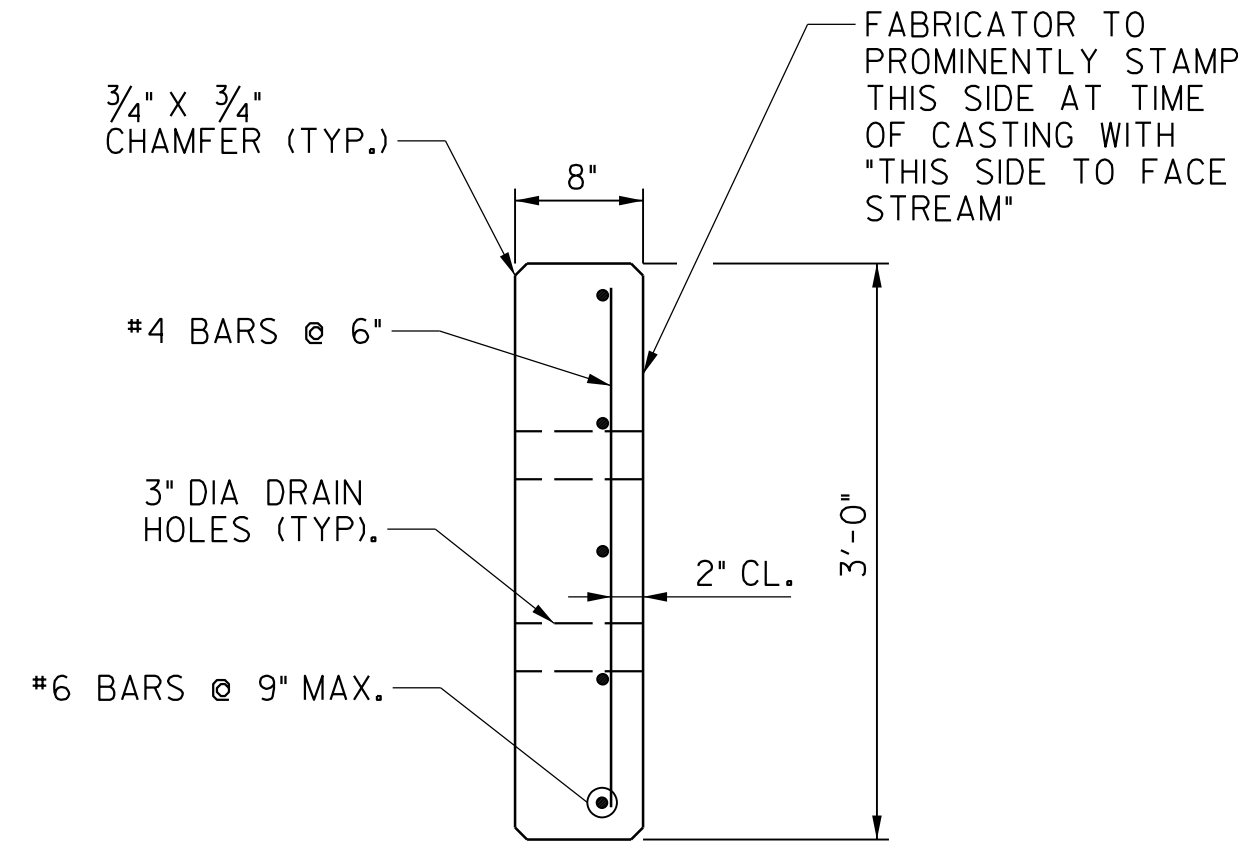
SCALE: 1/2" = 1'-0" DATE: AUGUST, 2023

Project No.: 501701 SHEET 49 OF 82

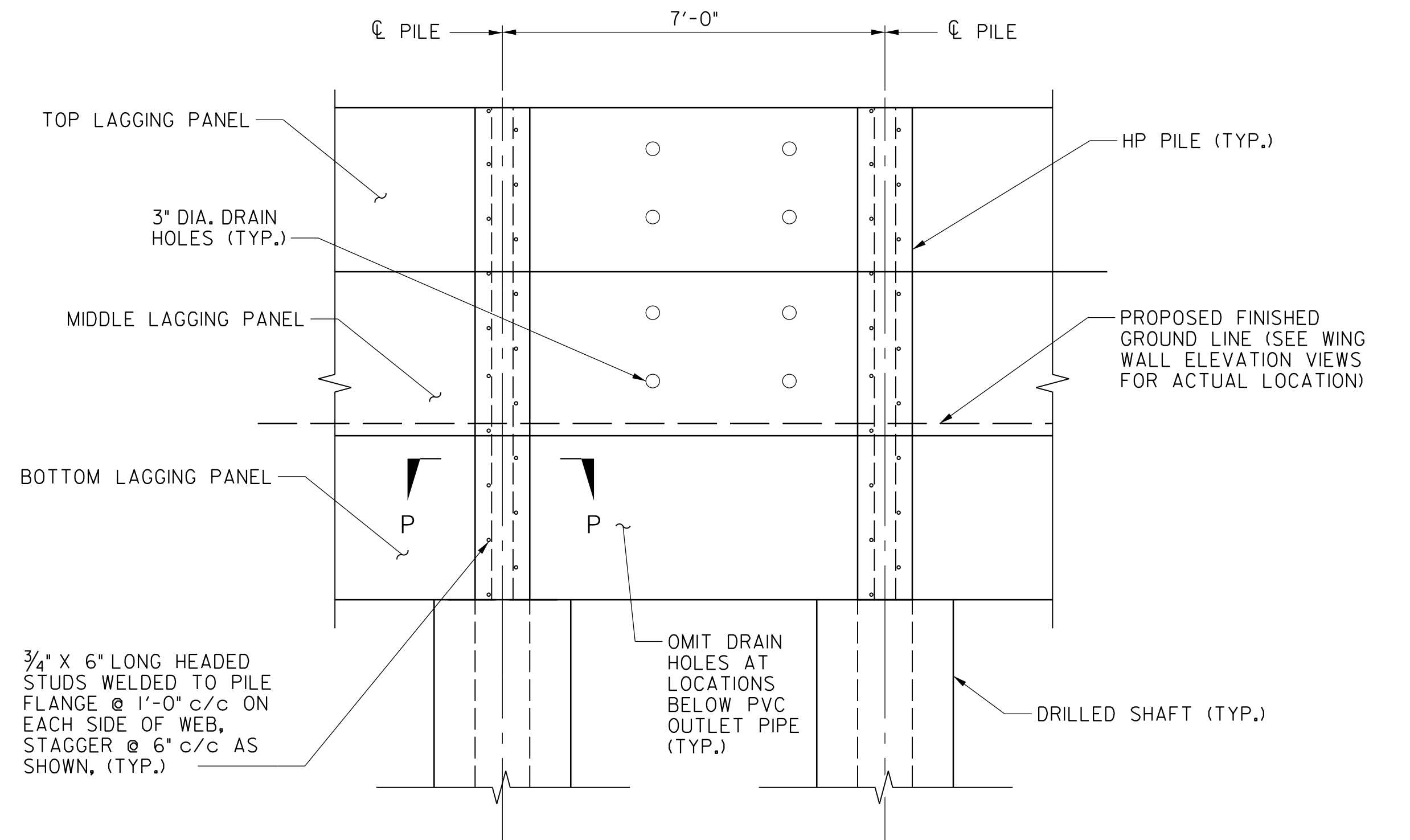
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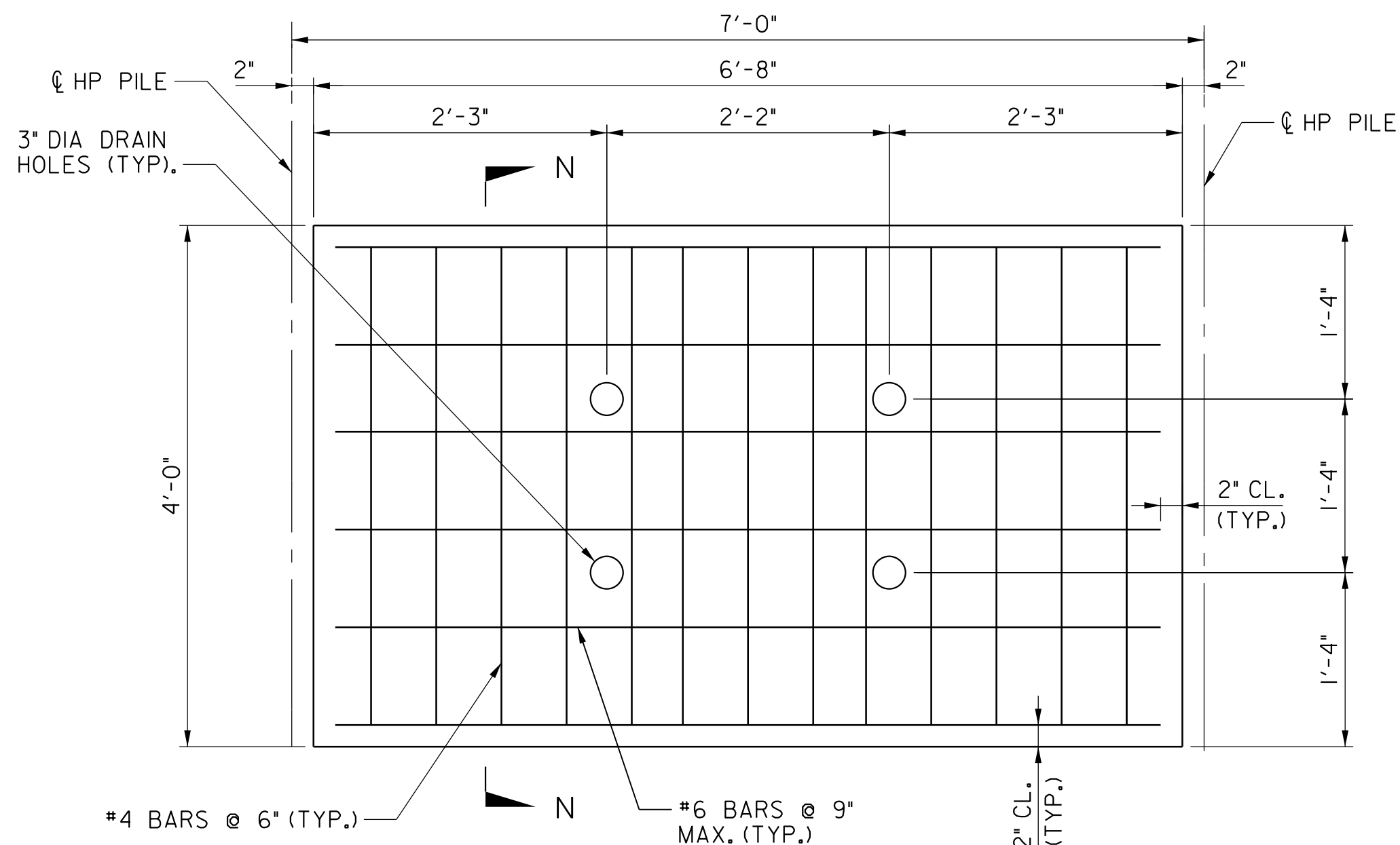
3L PRECAST CONCRETE LAGGING PANEL ELEVATION
SCALE: 1" = 1'-0"



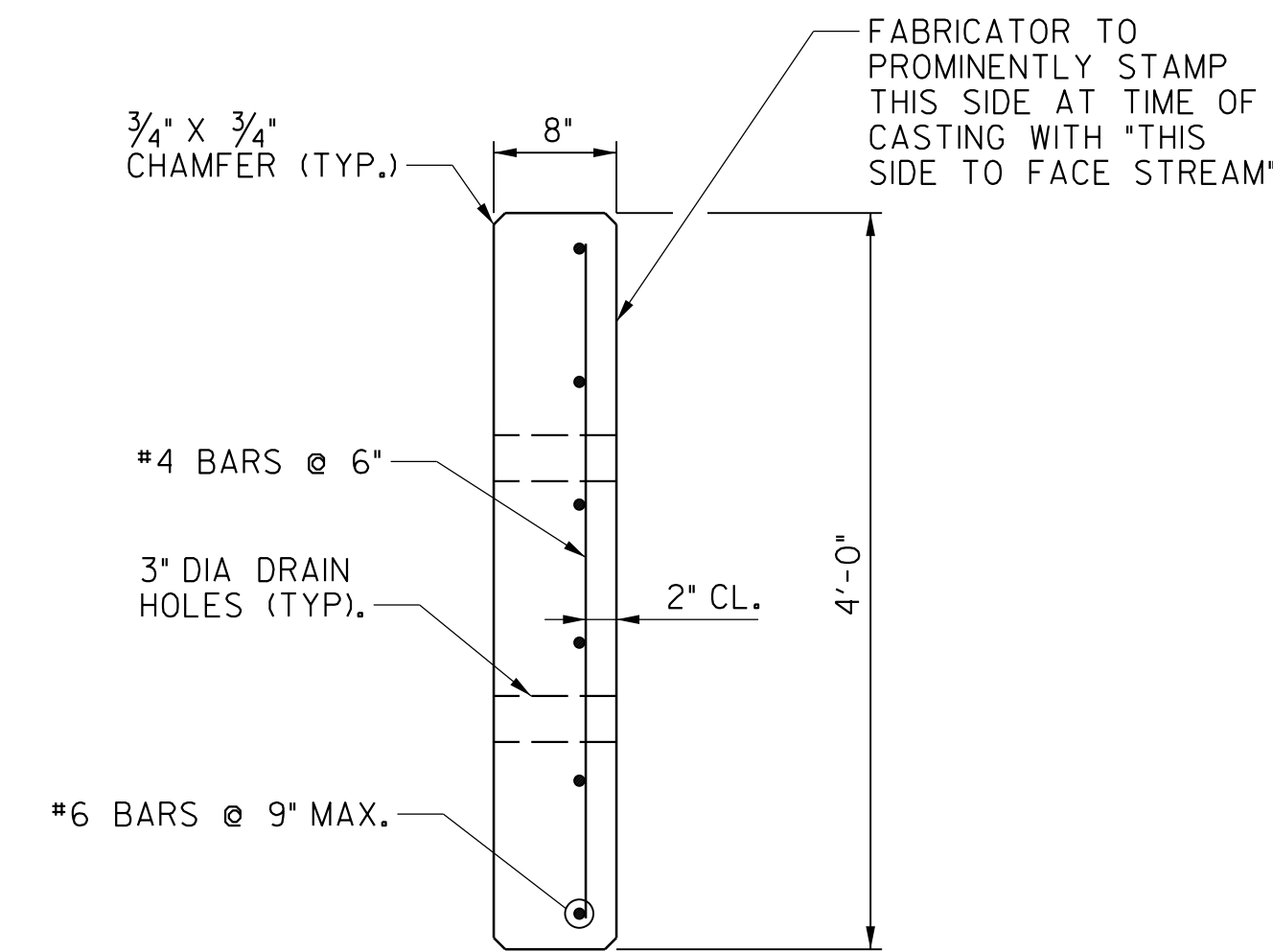
SECTION M-M
SCALE: 1" = 1'-0"



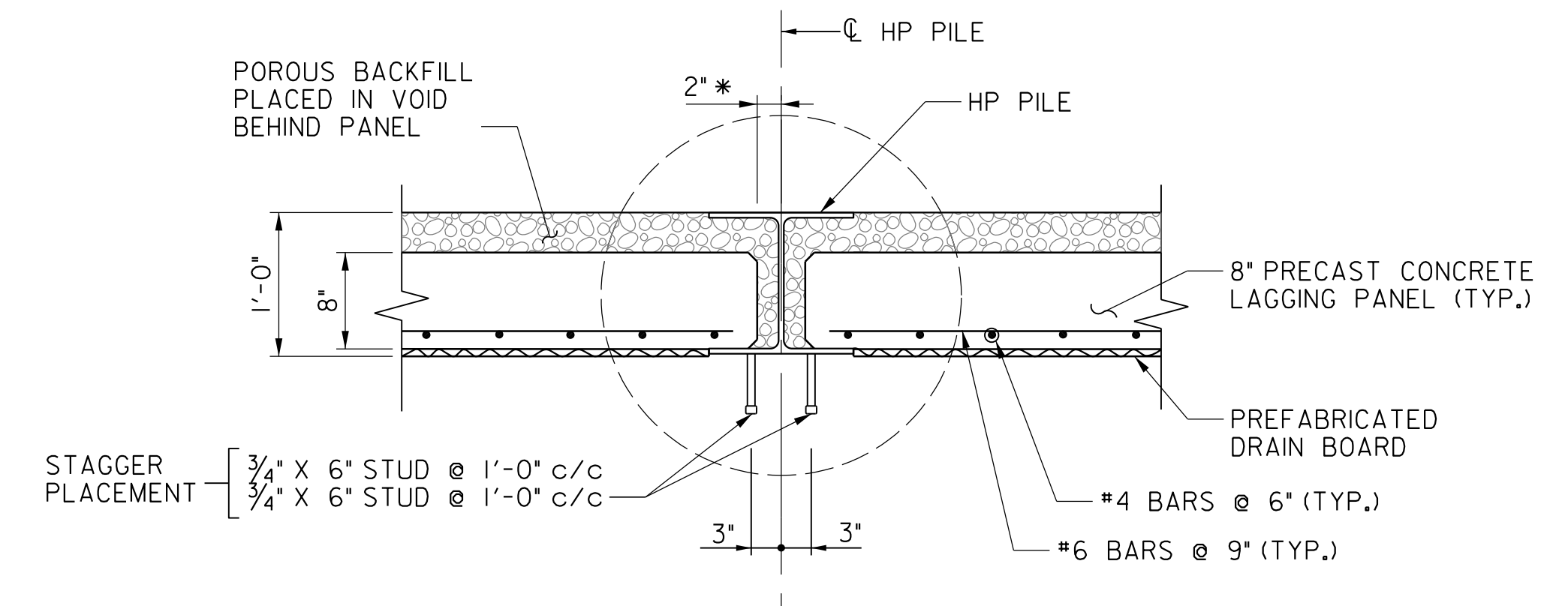
PART ELEVATION - LAGGING AND SOLDIER PILES
SCALE: 1/2" = 1'-0"



4L PRECAST CONCRETE LAGGING PANEL ELEVATION
SCALE: 1" = 1'-0"

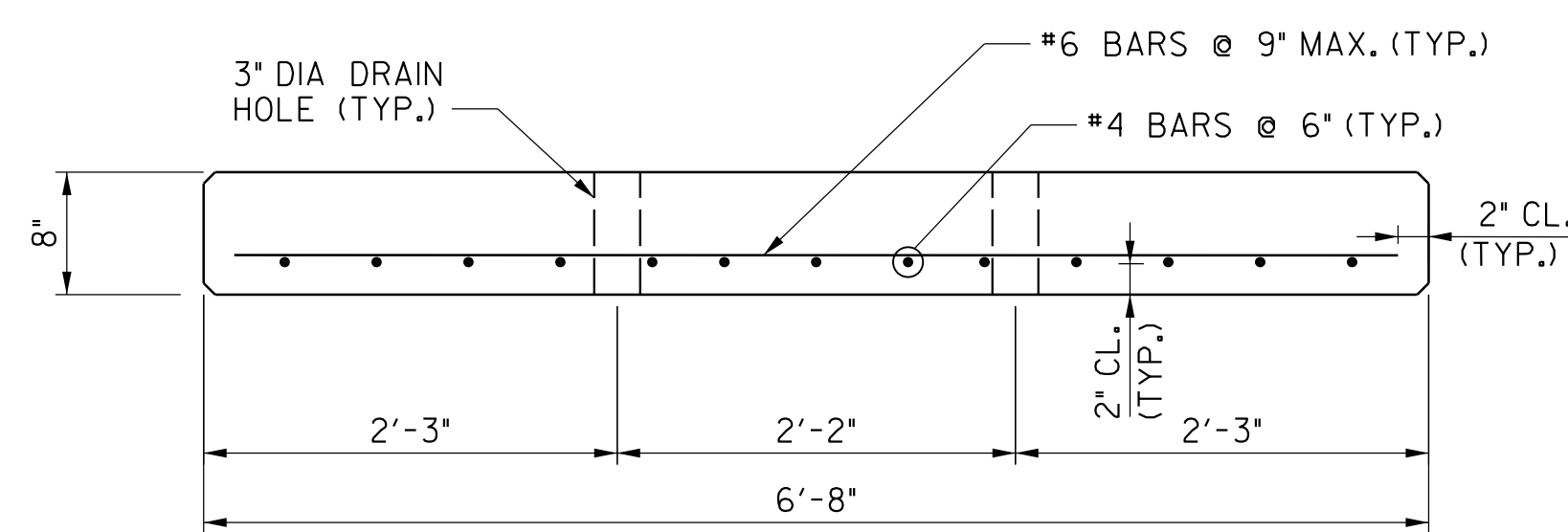


SECTION N-N
SCALE: 1" = 1'-0"



SECTION P-P
SCALE: 1" = 1'-0"

* LAGGING PANELS TO BE CENTERED BETWEEN PILES AS SHOWN TO PERMIT PLACEMENT OF POROUS BACKFILL



PLAN
SCALE: 1" = 1'-0"

NOTES:

- FABRICATOR SHALL PROVIDE LIFTING DEVICES FOR EACH LAGGING PANEL. LIFTING DEVICES SHALL NOT BE LOCATED AT DRAIN HOLES. TYPE AND SIZE OF LIFTING DEVICES SHALL BE APPROVED BY THE ENGINEER.



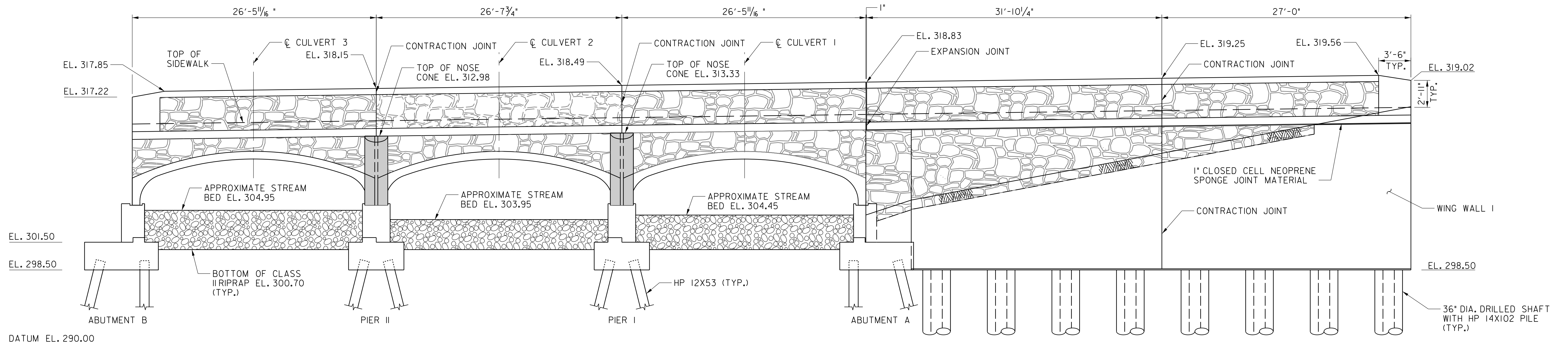
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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

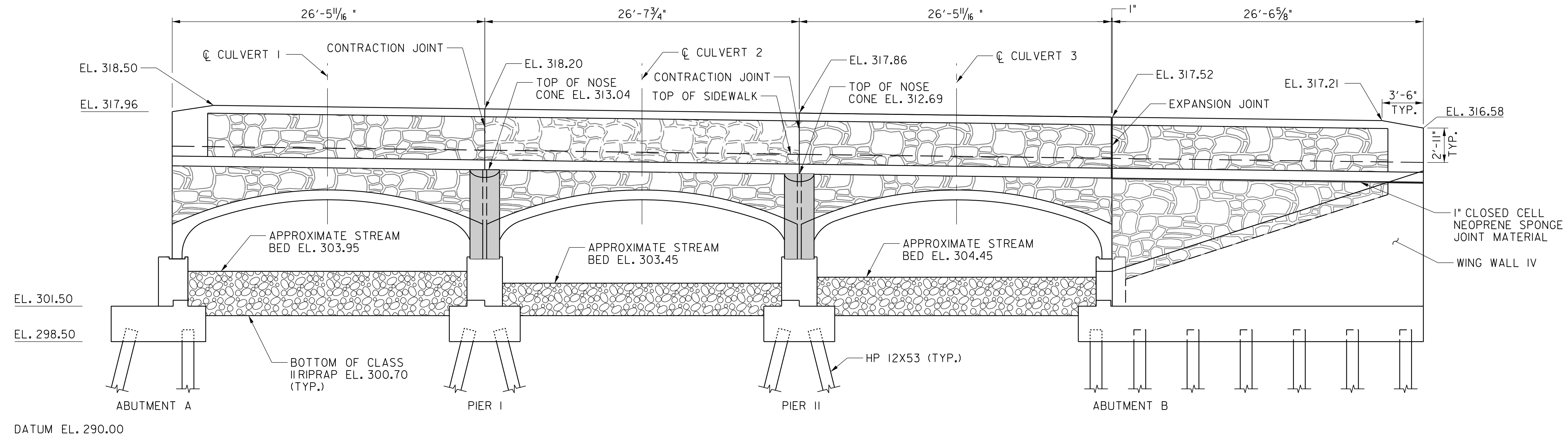
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

LAGGING PANEL DETAILS	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: AS SHOWN	DATE: AUGUST, 2023
Project No.: 501701	SHEET 51 OF 82

PLOT: 8/10/2023 2:09:45 PM FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbr-bc-020-DennisAve.dgn



NORTH SIDE ELEVATION
SCALE: 3/16" = 1'-0"



SOUTH SIDE ELEVATION
SCALE: 3/16" = 1'-0"

NOTES:

- FOR CONTRACTION JOINT AND EXPANSION JOINT DETAILS IN MOMENT SLAB AND PARAPET, SEE DWG. NO. S-33.



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 38931 EXPIRATION DATE: 12-22-2023

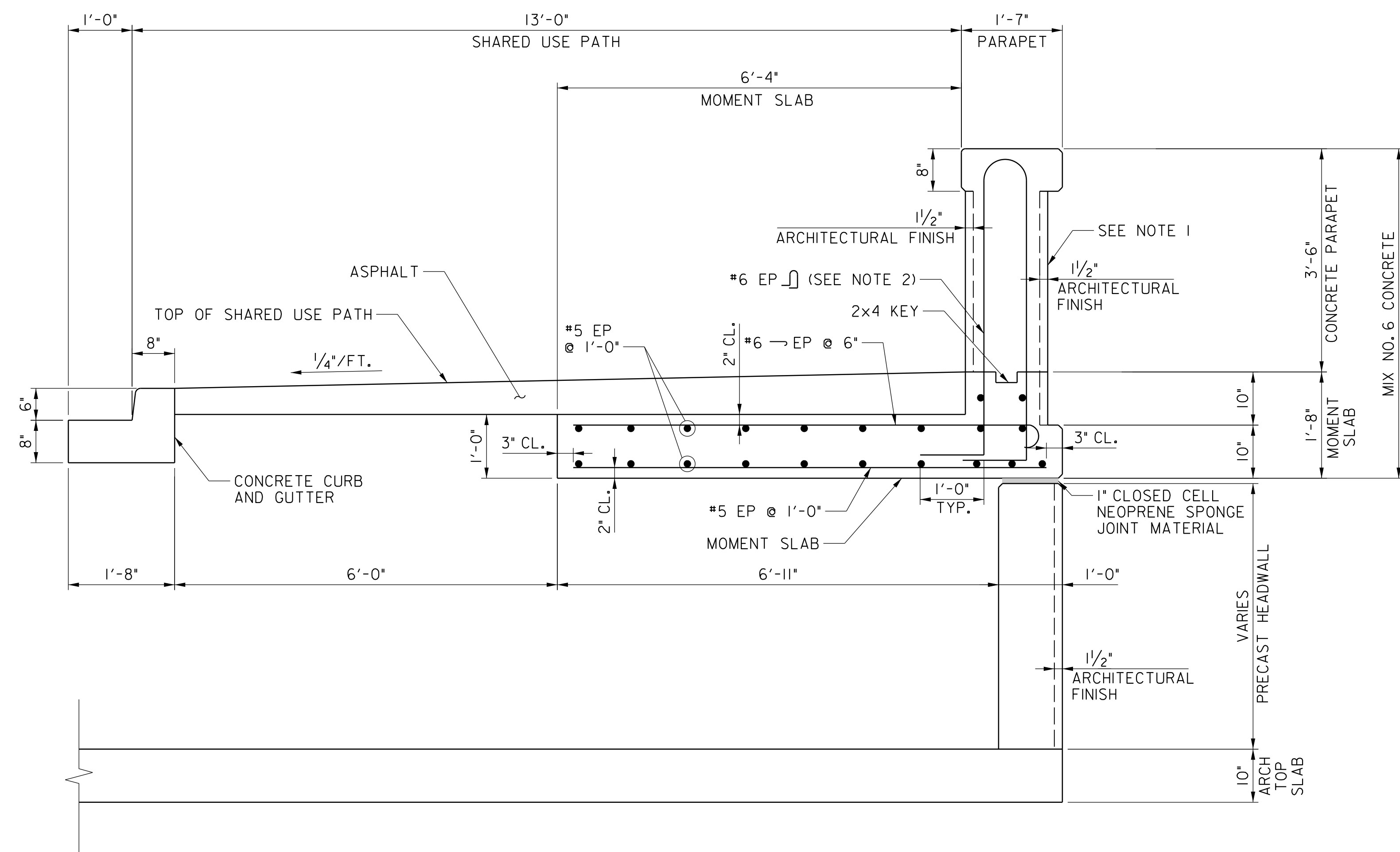
SEAL:				MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL				Date	
Chief, Design Section				Date	
APPROVED				Date	
Chief, Division of Transportation Engineering				Date	
Designed By: ZK				Drawn By: ZK	
				Checked By: MWM	
NO.	REVISION	DATE	BY		

PARAPET ELEVATIONS

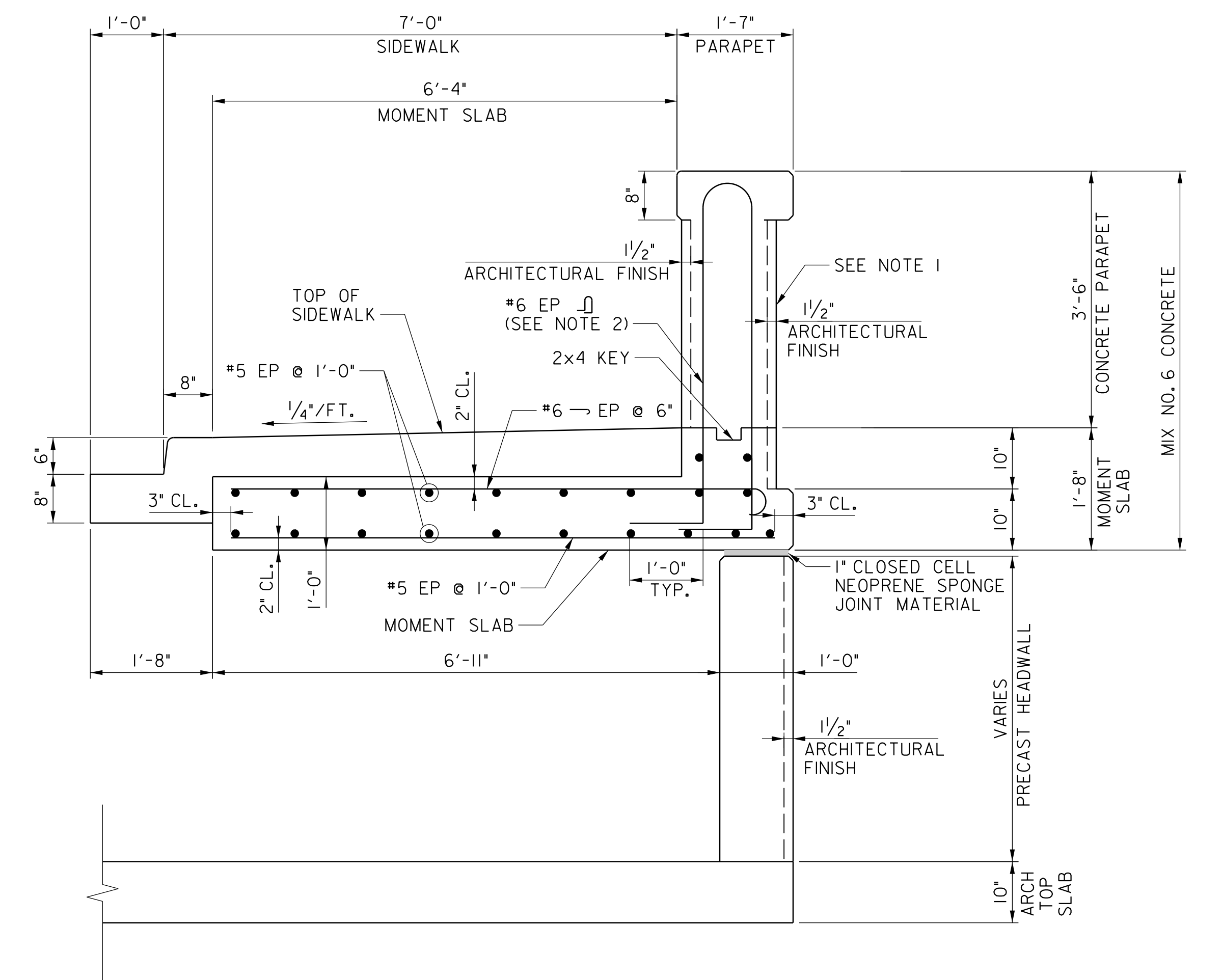
REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: 3/16" = 1'-0" DATE: AUGUST, 2023

Project No. : 501701 SHEET 57 OF 82



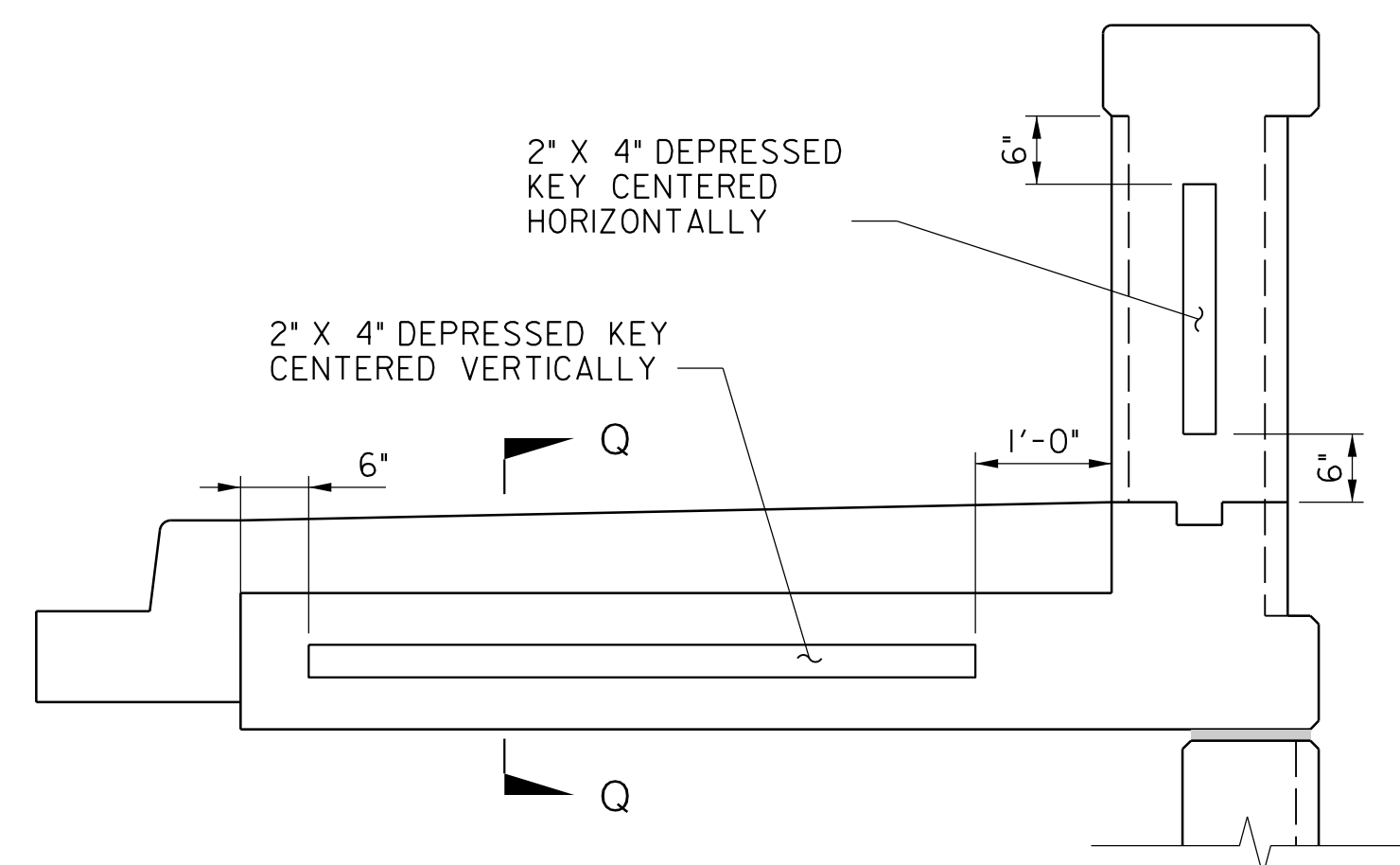
NORTH SIDE MOMENT SLAB TYPICAL SECTION
SCALE: 3/4" = 1'-0"



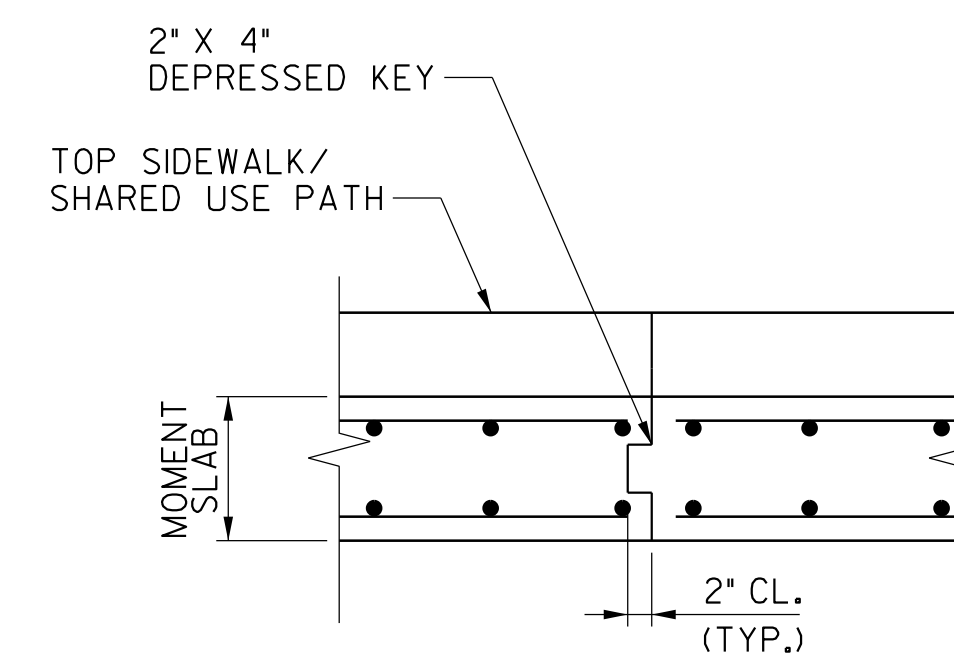
SOUTH SIDE MOMENT SLAB TYPICAL SECTION
SCALE: 3/4" = 1'-0"

NOTES:

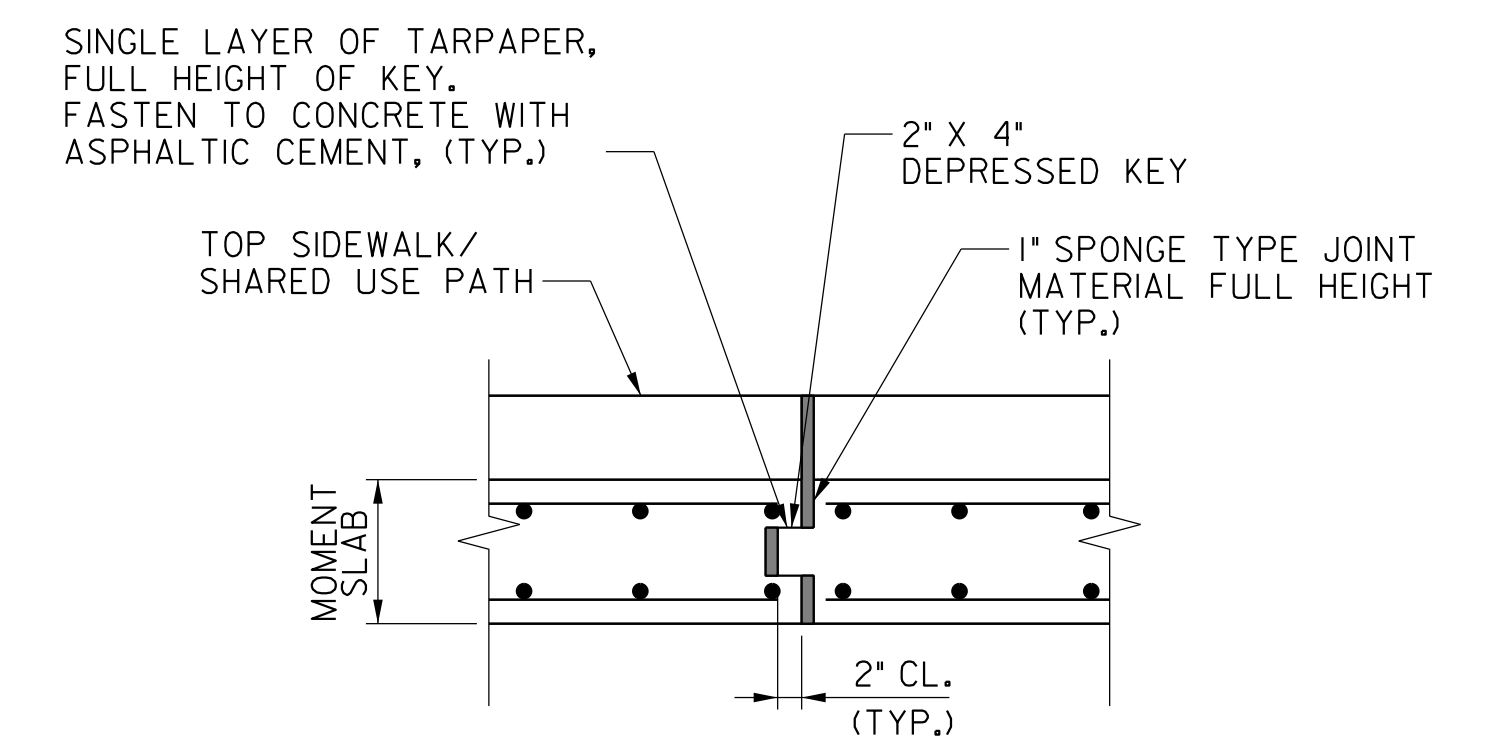
1. FOR PARAPET REINFORCING DETAIL ABOVE 2x4 KEY, SEE DETAIL SUB-EP(SW)-101 ON DWG. NO. S-41.
2. FOR #6 REINFORCING BAR SPACING AT END POST, SEE DETAIL SUB-EP(SW)-101 ON DWG. NO. S-41.
3. THE KEY SECTION SHOWN IS FOR SOUTH SIDE MOMENT SLAB AND PARAPET. NORTH SIDE MOMENT SLAB AND PARAPET KEY SECTIONS ARE SIMILAR.
4. MOMENT SLAB SHALL BE MEASURED AND PAID USING SUPERSTRUCTURE CONCRETE PAY ITEM.



DEPRESSED KEY SECTION AT EXP. AND CONT. JOINT
SCALE: 3/4" = 1'-0"



SECTION Q-Q
CONTRACTION JOINT
SCALE: 3/4" = 1'-0"



SECTION Q-Q
EXPANSION JOINT
SCALE: 3/4" = 1'-0"

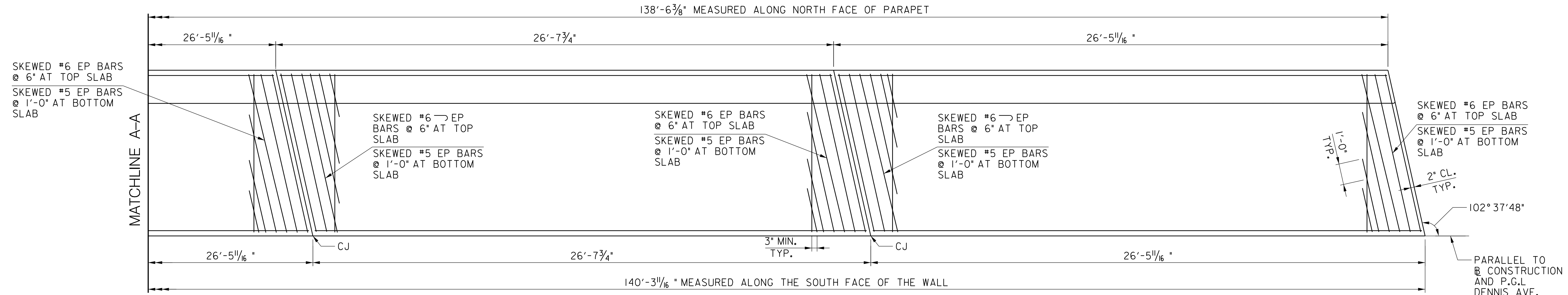
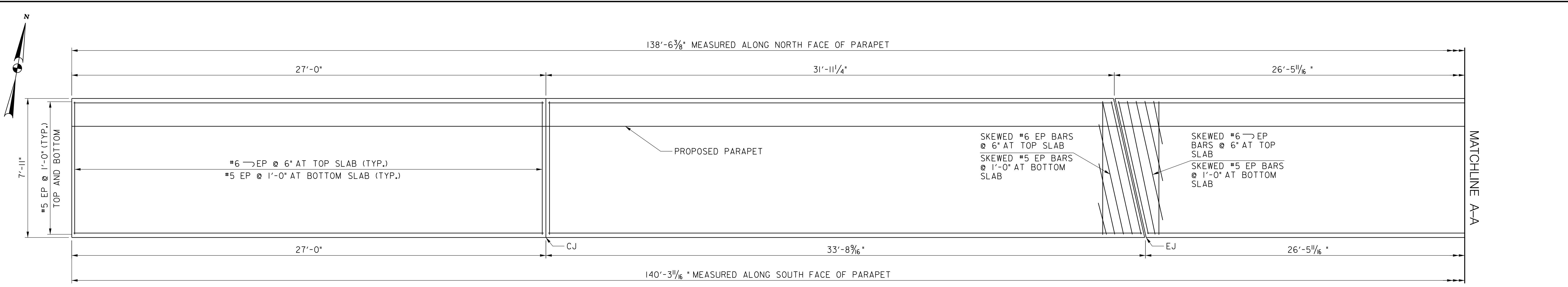


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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

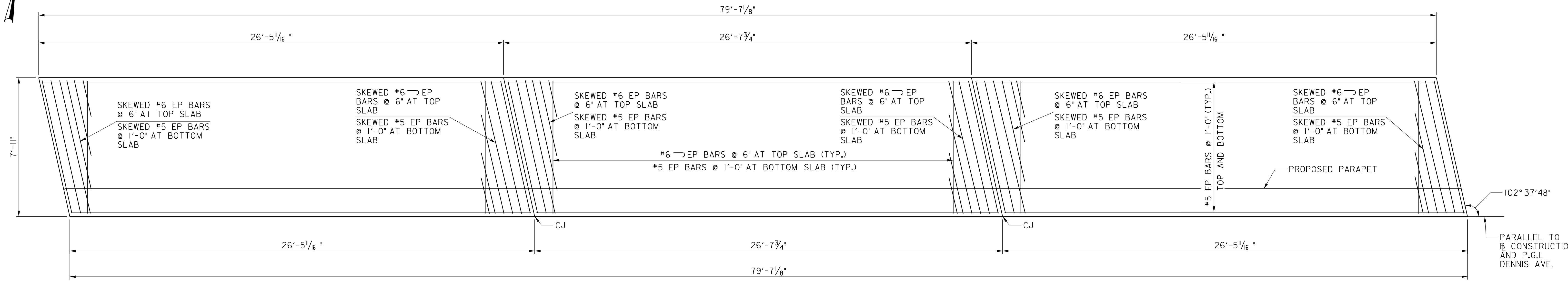
NO.	REVISION	DATE	BY

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

MOMENT SLAB TYPICAL SECTIONS	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 3/4" = 1'-0"	DATE: AUGUST, 2023
Project No.: 501701	SHEET 58 OF 82



NORTH MOMENT SLAB - PLAN
SCALE: 3/8" = 1'-0"



SOUTH MOMENT SLAB - PLAN
SCALE: 3/8" = 1'-0"

NOTES:
1. FOR EXPANSION AND CONTRACTION JOINT DETAILS IN MOMENT SLAB, SEE DWG. NO. S-33.



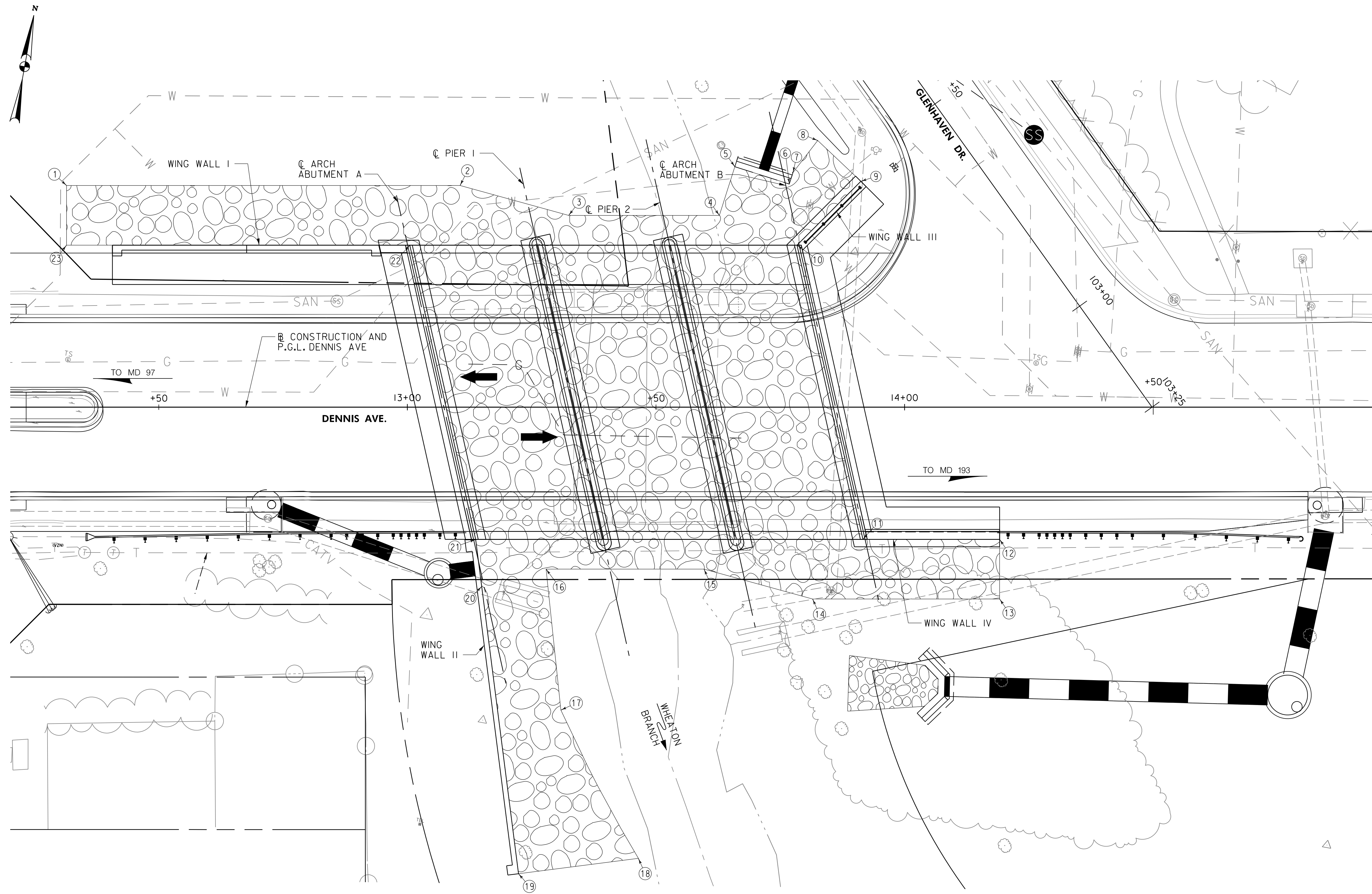
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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section APPROVED	Date
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

MOMENT SLAB PLAN	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 3/8" = 1'-0"	DATE: AUGUST, 2023
Project No. : 501701	SHEET 60 OF 82

PLOTTED: 8/10/2023 2:05:53 PM
FILE: P:\Projects\1751752\162 Dennis Ave\Structures\LOADING\Fig_DennisAve.dgn



PLAN
SCALE: 1/32" = 1'-0"

CLASS II RIPRAP FOR SCOUR PROTECTION LAYOUT TABLE		
NO	NORTHING	EASTING
1	495104	1300759
2	495118	1300837
3	495116	1300860
4	495121	1300890
5	495131	1300891
6	495130	1300902
7	495132	1300903
8	495140	1300907
9	495133	1300917
10	495118	1300906
11	495062	1300930
12	495067	1300957
13	495055	1300959
14	495049	1300922
15	495051	1300899
16	495045	1300868
17	495018	1300876
18	494991	1300897
19	494984	1300873
20	495039	1300856
21	495048	1300853
22	495104	1300830
23	495092	1300762

NOTES:

- ALL RIPRAP APRON FOR SCOUR PROTECTION SHALL BE CLASS II.
- RIPRAP IN FRONT OF WING WALLS SHALL BE 32" THICK (MINIMUM).



PROFESSIONAL CERTIFICATION:

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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: <u>ZK</u>	Drawn By: <u>NL</u>
Checked By: <u>MWM</u>	

RIPRAP APRON FOR SCOUR PROTECTION LAYOUT PLAN	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 3/32" = 1'-0"	DATE: AUGUST, 2023
Project No.: 501701	SHEET 61 OF 82

PLOTTED: 8/22/2023 4:55:42 PM FILE: P:\Projects\1751751616_Dennis_Ave\Structures\CADD\gbr\c-020_DennisAve.dwg

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 1 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-1A Station B/L

N: 495099.2587 E: 1300816.4817 Relocated?

Surface Elevation 315.0 Boring By E2CR, Inc

Date Started 10/3/19 Date Completed 10/3/19

Driller D. Blake
Rig Type CME-55
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core 1.375 IN
Size of Bit OD 3 IN
Core Barrel Type NQ-3
Auger Depth 32 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	
9.4	305.6			96	10/7/19

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
0.3	314.67	Top Soil and Rootmat 4.0'					
4.0	310.97	Moist, medium dense, light brown, orange-brown, tan, Clayey SAND, trace Gravel and decomposed Rock (SC) (FILL)	S-1	11-10-10	1.0-2.5	100.0%	Bulk Bag from 1.0' to 6.0' Grinding from 1.0' to 2.5'
5.5	309.47	Moist, medium dense, dark brown, dark gray, olive gray, Silty SAND, trace Gravel, Glass and Roots (SM) (FILL)	S-2	6-5-5	3.5-5.0	100.0%	
8.0	306.97	Moist, loose, dark gray, olive gray, dark brown, Silty SAND, trace decomposed Rock (SM)	S-3	7-3-3	6.0-7.5	100.0%	Grinding from 8.0' to 10.0'
12.0	302.97	Moist, medium dense, dark brown, dark gray, olive brown, Silty SAND, with Gravel (SM)	S-4	3-5-6	8.5-10.0	100.0%	Tip of spoon S-4 is wet
17.0	297.97	Moist, very stiff, gray, brown, tan, green, Silty SAND (SM) (decomposed Rock)	S-5	5-8-12	13.5-15.0	100.0%	
32.0	282.97	Moist, dense to very dense, gray, green, brown, orange, tan, Silty SAND (SM) (decomposed Rock)	S-6	8-15-23	18.5-20.0	100.0%	Hard drilling from 20.5'
35.0	279.97	Very strong, medium grained, moderately fractured, slightly weathered to unweathered, discolored to fresh, dark gray, dark brown, ROCK (GNEISS)	S-7	50'	23.5-25.0	00.0%	Wet cuttings from 25.0'
			S-8	5-7-32	28.5-30.0	53.3%	
			S-9	50'	32.0-32.0	00.0%	Chattering and very hard drilling from 31.5'
			R-1	RQD=43%	32.0-35.0	70.0%	Auger Refusal @ 32.0'
			R-2	RQD=0%		00.0%	

BOTTOM OF FTG 298.50
SCOUR ELEV. 296.14

ESTIMATED PILE TIP 274.00

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 2 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-1A Station B/L

N: 495099.2587 E: 1300816.4817 Relocated?

Surface Elevation 312.3 Boring By E2CR, Inc

Date Started 10/7/19 Date Completed 10/8/19

Driller D. Blake
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core 1.375 IN
Size of Bit OD 3 IN
Core Barrel Type NQ-3
Auger Depth 36.5 FT

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
37.8	277.17	Lost the inner barrel and the bit in the hole. No recovery for the run. (Continued) BORING TERMINATED AT 37.8'	R-2	RQD=0%	35.0-37.8	00.0%	Borehole left open for extended water reading.

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 1 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-2A Station B/L

N: 495128.7749 E: 1300929.1948 Relocated?

Surface Elevation 312.3 Boring By E2CR, Inc

Date Started 10/7/19 Date Completed 10/8/19

Driller D. Blake
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core 1.375 IN
Size of Bit OD 3 IN
Core Barrel Type NQ-3
Auger Depth 36.5 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	
11.8	300.5			18	10/8/19

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
0.8	311.51	Asphalt 9.0'					
1.0	311.26	Gravel Base 3.0'					Offset 21.0' East on Glenhaven Dr due to existing utilities
3.5	308.76	Blank Auger to 3.5'; cuttings similar to S-2					Chattering from 0.7' to 2.0'
5.5	306.76	Moist, loose, dark gray, dark brown, olive gray, Silty SAND, trace roots (SM) (FILL)	S-1	3-2-3	3.5-5.0	100.0%	
7.8	304.46	Moist, loose, dark gray, olive gray, black, dark brown, Silty SAND with organics and roots (SM)	S-2	3-1-2	6.0-7.5	100.0%	
12.0	300.26	Moist to wet, medium dense, dark brown, olive brown, grayish brown, Silty SAND, trace Gravel (SM)	S-3	5-8-8	8.5-10.0	100.0%	Chattering from 7.8' to 8.4'
17.0	295.26	Moist, medium dense, orange brown, dark brown, tan, Silty SAND, trace decomposed Rock (SM)	S-4	4-9-10	13.5-15.0	100.0%	S-4 spoon wet
		Moist, dense to very dense, orange brown, reddish brown, gray, tan, dark brown, Silty SAND (SM) (decomposed Rock)	S-5	8-12-20	18.5-20.0	100.0%	Chattering 20.5' to 22.0'
			S-6	6-13-19	23.5-25.0	100.0%	
			S-7	14-30-37	28.5-30.0	80.0%	
32.0	280.26	Moist, very dense, tan, orange brown, gray, Silty SAND (SM) (decomposed to highly weathered Rock)	S-8	22-22-25	33.5-35.0	80.0%	Hard drilling and chattering from 35.5'

BOTTOM OF FTG 298.50
SCOUR ELEV. 296.14

ESTIMATED PILE TIP 270.50

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 2 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-2A Station B/L

N: 495128.7749 E: 1300929.1948 Relocated?

Surface Elevation 312.3 Boring By E2CR, Inc

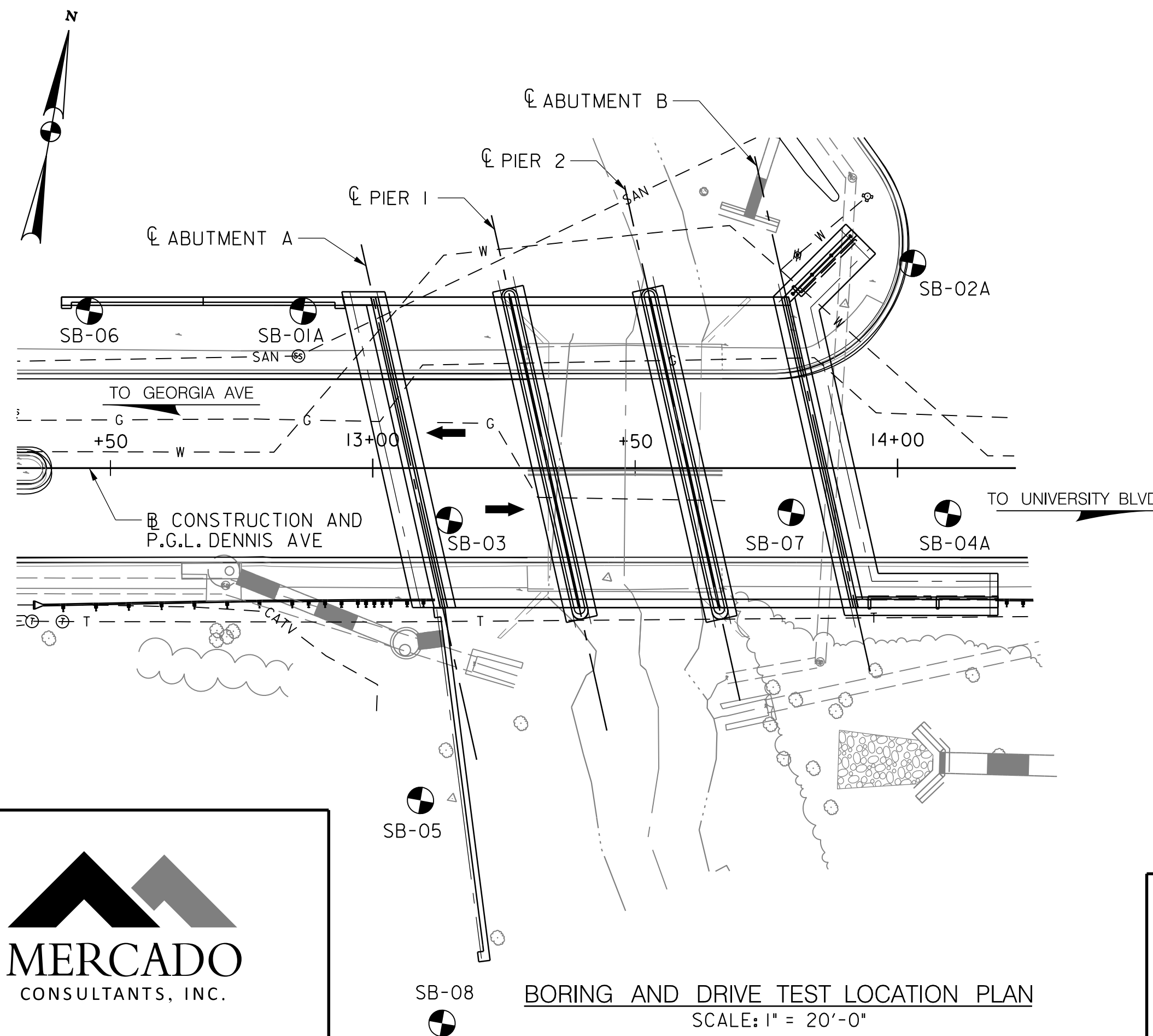
Date Started 10/7/19 Date Completed 10/8/19

Driller D. Blake
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core 1.375 IN
Size of Bit OD 3 IN
Core Barrel Type NQ-3
Auger Depth 36.5 FT

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
36.5	275.76	Very strong, fine grained, moderately fractured, moderately to slightly weathered, discolored to fresh, white, light gray, QUARTZ	S-9	50'	36.5-36.5	00.0%	Auger refusal @ 36.5
40.0	272.26	Strong, medium grained, moderately fractured, moderately to slightly weathered, discolored to fresh, white, light gray, QUARTZ	R-1	RQD=0%	36.5-40.0	45.7%	
45.0	267.26	Very strong, fine grained, moderately fractured, moderately to slightly weathered, discolored to fresh, white, light gray, QUARTZ	R-2	RQD=13%	40.0-45.0	49.2%	
50.0	262.26	Strong, medium grained, moderately fractured, moderately to slightly weathered, discolored to fresh, dark gray, black, dark brown, GNEISS BORING TERMINATED AT 50.0'	R-3	RQD=28%	45.0-50.0	70.0%	Grouted upon completion.

NOTES:

1. THE BORINGS AND DRIVE TESTS WERE TAKEN BETWEEN OCTOBER 3, 2019 AND OCTOBER 19, 2020 BY E2CR, INC.
2. THE BORING LOG SOIL SYMBOLS REFLECT ONLY MAJOR CONSTITUENTS, FOR MORE COMPLETE SOIL CHARACTERISTICS REFER TO SOIL DESCRIPTIVE TEXT.
3. N= BLOWS ON A 2 INCH OD SPLIT BARREL SAMPLING SPOON BY 140 LB. DRIVE-WEIGHT FALLING 30 INCHES INDICATING SUCCESSIVE 6 INCH INCREMENTS OF PENETRATION. IN LIEU OF BLOWS PER FOOT, PENETRATION LESS THAN 6 INCHES ARE INDICATED BY 50 BLOWS OVER THE NEAREST INCH.
4. BORING AND SAMPLING CONFORM TO AASHTO DESIGNATIONS T-206, T-225 AND T-306.
5. SOIL HAS BEEN CLASSIFIED VISUALLY BY THE DRILLER.
6. THE INFORMATION PROVIDED IN THE BORING LOGS IS TRUE AND ACCURATE SOLELY FOR THE SPECIFIC LOCATIONS FOR WHICH BORINGS WERE DRILLED AND SOIL PROPERTIES WERE ANALYZED. THE BORING LOGS ARE PRESENTED FOR INFORMATIONAL PURPOSES ONLY.



BORING AND DRIVE TEST LOCATION PLAN
SCALE: 1" = 20'-0"

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

SEAL:

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

BORING LOGS AND DRIVE TESTS

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: AUGUST, 2023

Project No.: 501701 SHEET 62 OF 82



SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 1 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-3 Station B/L

N: 495064.9565 E: 1300850.9264 Relocated?

Driller D. Blake
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 40.5 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	
10.0	303.8	32.2	282.4	0	10/4/19

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
0.8	313.88	Asphalt 9.0"					
1.1	313.53	Gravel Base 4.0"	S-1	3-3	1.0-2.5	100.0%	Bulk Bag from 1.0' to 6.0'
5.5	309.13	Moist, loose, brown, greenish brown, greenish gray, Silty SAND, trace Gravel and decomposed Rock (SM) (FILL)	S-2	3-5-11	3.5-5.0	100.0%	
9.5	305.13	Moist, medium stiff, dark gray, greenish gray, black, Silty SILT, trace roots and organics (ML)	S-3	4-3-3	6.0-7.5	100.0%	
12.0	302.63	Wet, medium dense, gray, brown, tan, poorly graded SAND with Silt and Gravel (SP-SM)	S-4	3-4-7	8.5-10.0	100.0%	S-4 two jars: S-4A top 12.0', S-4B bottom 6.0'
17.0	297.63	Moist, medium dense, brown, orange, gray, reddish brown, tan, Silty SAND, trace Gravel and decomposed Rock (SM)	S-5	4-5-9	13.5-15.0	100.0%	
26.0	288.63	Moist, medium dense to dense, white, gray, tan, brown, Silty SAND (SM) (decomposed Rock)	S-6	17-21-21	18.5-20.0	100.0%	
			S-7	6-10-14	23.5-25.0	100.0%	
			S-8	40-50"	28.5-30.0	33.3%	
			S-9	24-50"	33.5-35.0	46.7%	
							Hard drilling from 26.0'

BOTTOM OF FTG 298.50
SCOUR ELEV. 296.14

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 2 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-3 Station B/L

N: 495064.9565 E: 1300850.9264 Relocated?

Driller D. Blake
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 40.5 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	
9.9	303.5	31.0	282.4	0	10/7/19

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
40.5	274.13	Moist, very dense, dark gray, dark brown, tan, Silty SAND (SM) (highly weathered Rock) (Continued)	S-10	14-24-50"	38.5-40.0	66.7%	Auger refusal @ 40.5'
		BORING TERMINATED AT 40.5'	S-11	50.0"	40.5-40.5	00.0%	Grouted upon completion

ESTIMATED PILE TIP 274.00

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 1 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-4A Station B/L

N: 495083.0359 E: 1300944.2173 Relocated?

Driller E. Hill
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 43 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	
9.9	303.5	31.0	282.4	0	10/7/19

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
0.8	312.68	Asphalt 9.0"					
1.1	312.33	Gravel Base 4.0"	S-1	19-12-12	1.0-2.5	100.0%	Bulk bag from 1.0' to 6.0'
3.0	310.43	Moist, medium dense, yellow, orange, brown, tan, poorly graded SAND with Silt and pockets of Clay (SP-SM) (FILL)	S-2	6-6-5	3.5-5.0	33.3%	Chattering from 2.0' to 3.0'
9.0	304.43	Moist, medium dense, dark brown, dark gray, Silty SAND with Gravel (SM) (FILL)	S-3	4-5-9	6.0-7.5	16.7%	
12.0	301.43	Wet, very dense, orange, brown, tan, white, poorly graded GRAVEL with Silt and Sand (GP-GM)	S-4	18-32-20	8.5-10.0	46.7%	Chattering @ 9.0'
17.0	296.43	Moist, medium dense, dark brown, grayish brown, gray, dark reddish brown, Silty SAND, trace decomposed Rock (SM)	S-5	6-5-6	13.5-15.0	100.0%	Spoon S-4 wet @ 9.5'
22.0	291.43	Moist, medium dense, grayish brown, dark brown, orange brown, Silty SAND with decomposed Rock, trace highly weathered Rock (SM)	S-6	4-10-13	18.5-20.0	100.0%	
			S-7	5-12-18	23.5-25.0	100.0%	
			S-8	15-22-32	28.5-30.0	80.0%	
			S-9	11-11-26	33.5-35.0	86.7%	
							Hard drilling from 34.5'

BOTTOM OF FTG 298.50
SCOUR ELEV. 296.14

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO. Sheet Boring 2 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-4A Station B/L

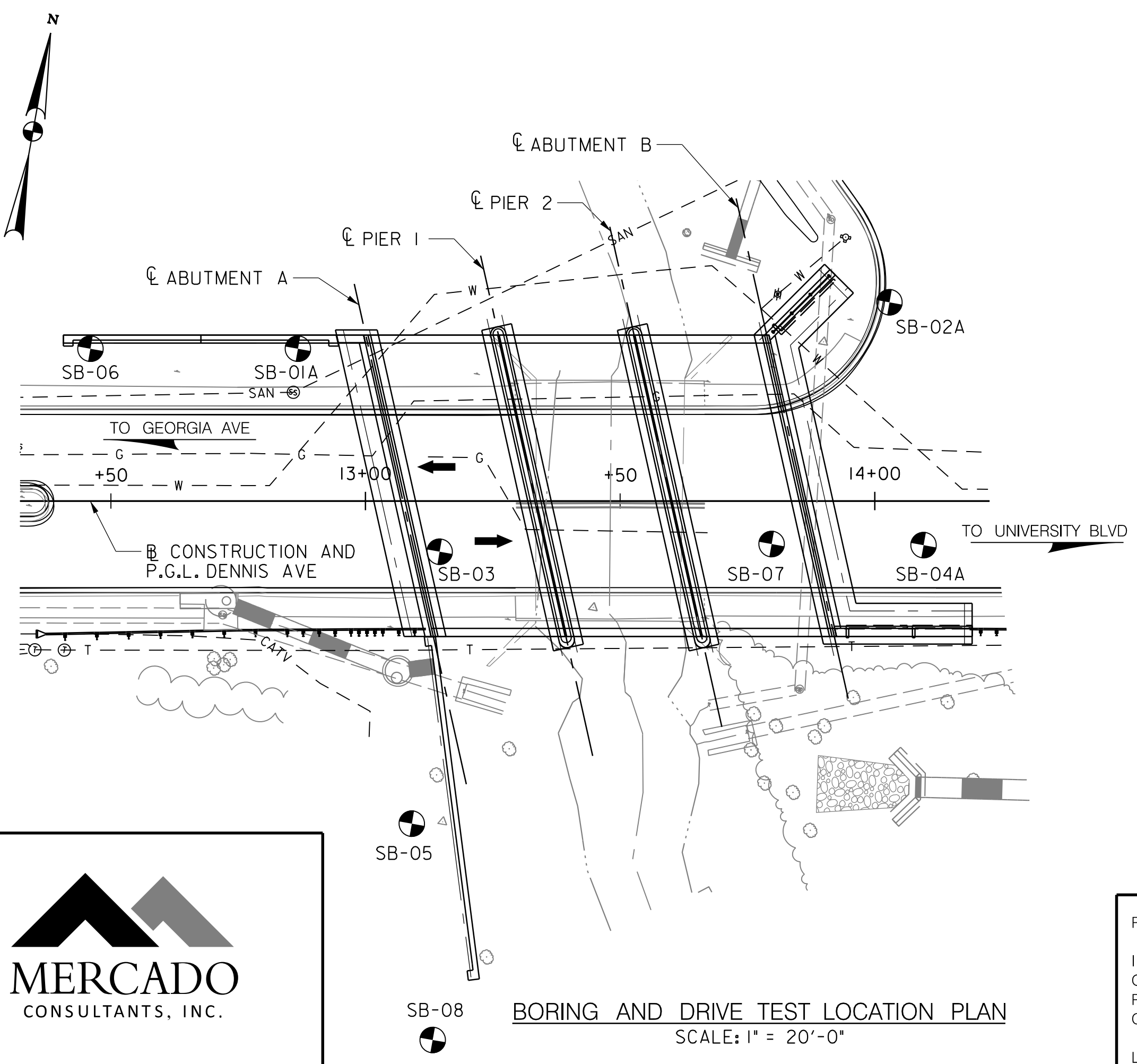
N: 495083.0359 E: 1300944.2173 Relocated?

Driller E. Hill
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 43 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	
37.0	276.43				

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
43.0	270.43	Moist, dense to very dense, orange brown, olive brown, gray, red, Silty SAND with Mica (SM) (decomposed to highly weathered Rock)	S-10	19-21-24	38.5-40.0	80.0%	
		BORING TERMINATED AT 43.0'	S-11	50.0"	43.0-43.0	00.0%	Chattering from 41.0'
							Auger refusal @ 43.0'. Grouted upon completion.

ESTIMATED PILE TIP 270.50



- NOTES:
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 - THE BORING LOG SOIL SYMBOLS REFLECT ONLY MAJOR CONSTITUENTS, FOR MORE COMPLETE SOIL CHARACTERISTICS REFER TO SOIL DESCRIPTIVE TEXT.
 - N= BLOWS ON A 2 INCH OD SPLIT BARREL SAMPLING SPOON BY 140 LB. DRIVE-WEIGHT FALLING 30 INCHES INDICATING SUCCESSIVE 6 INCH INCREMENTS OF PENETRATION, IN LIEU OF BLOWS PER FOOT, PENETRATION LESS THAN 6 INCHES ARE INDICATED BY 50 BLOWS OVER THE NEAREST INCH.
 - BORING AND SAMPLING CONFORM TO AASHTO DESIGNATIONS T-206, T-225 AND T-306.
 - SOIL HAS BEEN CLASSIFIED VISUALLY BY THE DRILLER.
 - THE INFORMATION PROVIDED IN THE BORING LOGS IS TRUE AND ACCURATE SOLELY FOR THE SPECIFIC LOCATIONS FOR WHICH BORINGS WERE DRILLED AND SOIL PROPERTIES WERE ANALYZED. THE BORING LOGS ARE PRESENTED FOR INFORMATIONAL PURPOSES ONLY.



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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

SEAL: _____

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

BORING LOGS AND DRIVE TESTS

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: AUGUST, 2023

Project No.: 501701 SHEET 63 OF 82

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SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO Sheet Boring 1 of 9

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-5 Station B/L

N: 495011.4458 E: 1300854.984 Relocated?

Driller D. Blake
Rig Type CME-55
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 40 FT

Surface Elevation 314.2 Boring By E2CR, Inc.
Date Started 9/30/19 Date Completed 9/30/19

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	
10.0	303.4	28.4	285.8	0	9/30/19

DEPTH IN FEET	ELEV. IN FEET	MATL.	SPOON SAMPLE NO.	BLOWS/ROD	DEPTH	RECOVERY	REMARKS
0.3	313.97						Top Soil and Rootmat 3.0'
		Moist, medium dense, orange brown, tan, reddish brown, Silty SAND, trace decomposed Rock (FILL)	S-1	9-13-13	1.0-2.5	93.3%	Bulk bag from 1.0' to 5.0'
5.5	308.72		S-2	2-8-13	3.5-5.0	100.0%	Grinding from 3.0' to 6.0'
8.0	306.22	Moist, medium dense, orange brown, reddish brown, Silty SAND with Gravel, trace decomposed Rock (SM)	S-3	4-8-10	6.0-7.5	100.0%	
		Moist, medium dense, dark brown, orange brown, Silty SAND with decomposed Rock, trace Gravel (SM)	S-4	2-7-5	8.5-10.0	80.0%	
12.0	302.22		S-5	7-10-9	13.5-15.0	100.0%	
		Moist, medium dense, dark brown, orange brown, reddish brown, tan, Silty SAND (SM) (decomposed Rock)	S-6	10-12-13	18.5-20.0	100.0%	
			S-7	23-31-33	23.5-25.0	100.0%	
22.0	292.22		S-8	14-31-50/4-5'	28.5-30.0	80.0%	Hard drilling from 29.5'
		Moist, very dense, olive green, brown, dark brown, orange brown, Silty SAND (SM) (decomposed to highly weathered Rock)	S-9	50/3"	33.5-35.0	16.7%	Wet cuttings from 32.0'

BOTTOM OF FTG 298.50
SCOUR ELEV. 296.14

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO Sheet Boring 2 of 9

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-5 Station B/L

N: 495011.4458 E: 1300854.984 Relocated?

Driller J. Chalk
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 43.1 FT

Surface Elevation 316.0 Boring By E2CR, Inc.
Date Started 10/19/20 Date Completed 10/20/20

DEPTH IN FEET	ELEV. IN FEET	MATL.	SPOON SAMPLE NO.	BLOWS/ROD	DEPTH	RECOVERY	REMARKS
40.0	274.22						ESTIMATED BOTTOM DRILLED SHAFT 273.50
		Moist, very dense, olive green, brown, dark brown, orange brown, Silty SAND (SM) (decomposed to highly weathered Rock) (Continued)	S-10	22-9-50/3"	38.5-40.0	53.3%	Auger refusal @ 40.0'; Grouted upon completion.
							BORING TERMINATED AT 40.0'

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO Sheet Boring 1 of 9

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-6 Station B/L

N: 495092.0547 E: 1300776.385 Relocated?

Driller J. Chalk
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 43.1 FT

Surface Elevation 316.0 Boring By E2CR, Inc.
Date Started 10/19/20 Date Completed 10/20/20

DEPTH IN FEET	ELEV. IN FEET	MATL.	SPOON SAMPLE NO.	BLOWS/ROD	DEPTH	RECOVERY	REMARKS
0.4	315.60						Top Soil and Rootmat 5.0'
		Moist, loose, reddish brown, orange, greenish brown, Silty SAND with Gravel (SM) (FILL)	S-1	4-5-4	1.0-2.5	100.0%	
4.0	312.02		S-2	3-1-3	3.5-5.0	100.0%	
5.5	310.52	Moist, medium stiff, dark gray, olive gray, greenish brown, Sandy Lean CLAY, trace Rock and Gravel (CL) (FILL)	S-3	3-8-8	6.0-7.5	100.0%	
8.0	308.02		S-4	9-10-11	8.5-10.0	100.0%	
		Moist, medium dense, greenish brown, greenish gray, dark gray, Silty SAND (SM)	S-5	9-7-7	13.5-15.0	100.0%	
12.0	304.02		S-6	5-9-9	18.5-20.0	100.0%	Spoon S-6 wet
		Moist, medium dense, greenish brown, greenish gray, Silty SAND (SM) (Saprolite)	S-7	50/4"	23.5-23.8	100.0%	
		Moist, very dense, tan, olive brown, Silty SAND with Rock fragments (SM) (decomposed Rock)	S-8	50/3.5"	28.5-28.8	58.8%	
			S-9	50/1"	33.5-33.8	100.0%	Hard drilling from 31.0'

BOTTOM OF FTG 298.50
SCOUR ELEV. 296.14

ESTIMATED BOTTOM DRILLED SHAFT 273.50

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO Sheet Boring 2 of 9

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

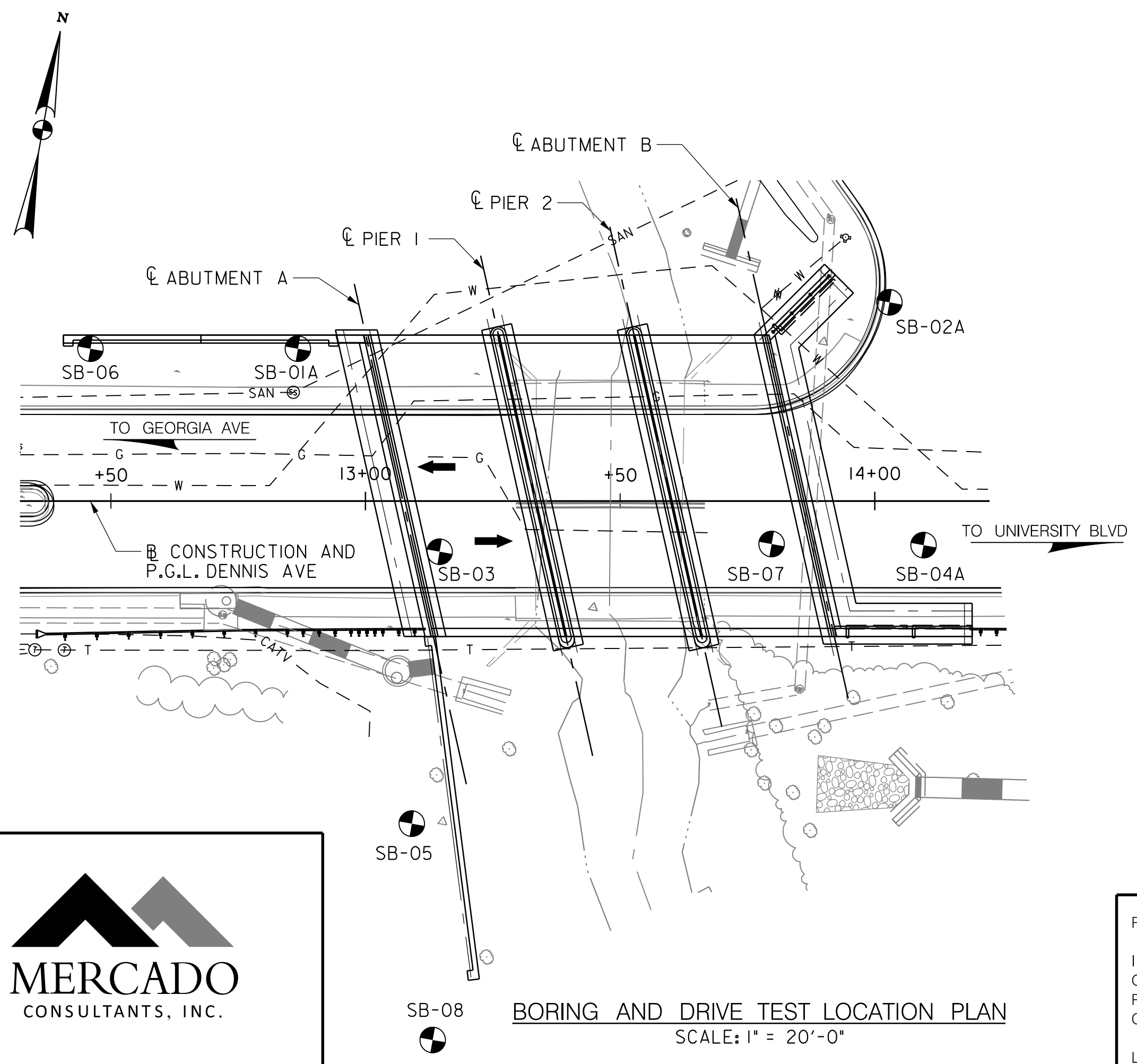
Boring No. SB-6 Station B/L

N: 495092.0547 E: 1300776.385 Relocated?

Driller J. Chalk
Rig Type CME-75
Drive Hammer Automatic LB
Casing Auger Size 3.25 IN
Size of Core IN
Size of Bit OD IN
Core Barrel Type
Auger Depth 43.1 FT

Surface Elevation 316.0 Boring By E2CR, Inc.
Date Started 10/19/20 Date Completed 10/20/20

DEPTH IN FEET	ELEV. IN FEET	MATL.	SPOON SAMPLE NO.	BLOWS/ROD	DEPTH	RECOVERY	REMARKS
43.1	272.92						ESTIMATED BOTTOM DRILLED SHAFT 273.50
		Moist, very dense, tan, olive brown, Silty SAND with Rock fragments (SM) (decomposed Rock) (Continued)	S-10	50/1"	38.5-38.8	00.0%	Chattering from 40.5'
							BORING TERMINATED AT 43.1'
							Backfilled upon completion



- NOTES:
- THE BORINGS AND DRIVE TESTS WERE TAKEN BETWEEN OCTOBER 3, 2019 AND OCTOBER 19, 2020 BY E2CR, INC.
 - THE BORING LOG SOIL SYMBOLS REFLECT ONLY MAJOR CONSTITUENTS, FOR MORE COMPLETE SOIL CHARACTERISTICS REFER TO SOIL DESCRIPTIVE TEXT.
 - N= BLOWS ON A 2 INCH OD SPLIT BARREL SAMPLING SPOON BY 140 LB. DRIVE-WEIGHT FALLING 30 INCHES INDICATING SUCCESSIVE 6 INCH INCREMENTS OF PENETRATION, IN LIEU OF BLOWS PER FOOT, PENETRATION LESS THAN 6 INCHES ARE INDICATED BY 50 BLOWS OVER THE NEAREST INCH.
 - BORING AND SAMPLING CONFORM TO AASHTO DESIGNATIONS T-206, T-225 AND T-306.
 - SOIL HAS BEEN CLASSIFIED VISUALLY BY THE DRILLER.
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LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

SEAL: MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

BORING LOGS AND DRIVE TESTS

REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: AUGUST, 2023

Project No.: 501701 SHEET 64 OF 82

PLOTTED: 8/11/2023 2:20:10 PM FILE: P:\Projects\17541754\06_Dennis_Ave\Structures\CADD\gbr\BoringLogs_DennisAve.dwg

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO

Sheet Boring 1 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-7 Station B/L

N: 495077.9729 E: 1300914.8139 Relocated?

Surface Elevation 313.6 Boring By E2CR, Inc

Date Started 10/15/20 Date Completed 10/15/20

Driller S. Lyons
Rig Type CME-75
Rig No.
Drive Hammer Automati LB
Casing Auger Size 3.25 IN
Size of Core 1.375 IN
Size of Bit OD 3 IN
Core Barrel Type NQ-3
Auger Depth 37.1 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
0.7	312.91	Asphalt 8.0"					
1.0	312.57	Gravel Base 4.0"					
2.0	311.57	Moist, medium dense, dark brown, greenish brown, dark gray, Silty SAND with Gravel and fine Sand (SM) (FILL)	S-1	9-6-4	1.0-2.5	100.0%	S-1 two jars: S-1A top 12.0", S-1B bottom 6.0"
3.0	310.57	Moist, medium dense, dark gray, Silty SAND with Gravel and fine Sand (SM) (FILL)	S-2	3-4-3	3.5-5.0	100.0%	
		Moist, loose, greenish gray, greenish brown, Silty SAND, trace Gravel (SM) (FILL)	S-3	3-1-2	6.0-7.5	100.0%	
		Moist, very loose, green, greenish gray, Silty SAND, trace Gravel (SM) (FILL)	S-4	1-1-2	8.5-10.0	100.0%	
14.3	299.27	Moist, medium dense, greenish brown, reddish brown, tan, Silty SAND (SM)	S-5	2-4-7	13.5-15.0	100.0%	
			S-6	4-7-8	18.5-20.0	100.0%	
22.0	291.57	Moist, dense, reddish brown, orange, greenish brown, Silty SAND (SM) (Saprolite)	S-7	5-16-28	23.5-25.0	100.0%	Tip of spoon wet at 24.0'
27.0	286.57	Moist, very dense, olive brown, reddish brown, tan, Silty SAND (SM)	S-8	33-38-50.5"	28.5-29.8	100.0%	Hard drilling from 29.0'
			S-9	50.1"	33.5-33.6	100.0%	Chattering from 32.0'

BOTTOM OF FTG 298.50

SCOUR ELEV. 296.14

ESTIMATED PILE TIP 270.50

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO

Sheet Boring 2 of 9

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-7 Station B/L

N: 495077.9729 E: 1300914.8139 Relocated?

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
37.1	276.47	Hard, dark brown, dark gray, gray, moderately to slightly weathered, extremely to slightly fractured, GNEISS	R-1	ROD=63%	37.1-40.6	100.0%	Auger refusal at 37.0 feet
40.6	272.97	Hard, gray, dark gray, moderately weathered to fresh, moderately fractured to sound, GNEISS	R-2	ROD=72%	40.6-45.6	100.0%	
45.6	267.97	BORING TERMINATED AT 45.6'					Tremie grouted boring upon completion

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO

Sheet Boring 1 of 2

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-8 Station B/L

N: 494970.3743 E: 1300866.5355 Relocated?

Surface Elevation 316.5 Boring By E2CR, Inc

Date Started 10/19/20 Date Completed 10/20/20

Driller J. Chalk
Rig Type CME-75
Rig No.
Drive Hammer Automati LB
Casing Auger Size 3.25 IN
Size of Core 1.375 IN
Size of Bit OD 3 IN
Core Barrel Type NQ-3
Auger Depth 40.3 FT

WATER TABLE		CAVE-IN		Time	Date
Depth (ft)	Elev (ft)	Depth (ft)	Elev (ft)	(hours)	

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
0.3	316.15	Top Soil and Rootmat 4.0"					
3.0	313.48	Moist, loose, reddish brown, orange, Silty SAND (SM) (FILL)	S-1	3-3-5	1.0-2.5	100.0%	
5.5	310.98	Moist, loose, tan, grayish brown, orange brown, Silty SAND (SM) (FILL)	S-2	3-3-3	3.5-5.0	100.0%	
		Moist, loose to medium dense, grayish brown, orange brown, tan, black, Silty SAND (SM)	S-3	4-5-5	6.0-7.5	100.0%	
12.0	304.48	Moist, medium dense, grayish brown, greenish brown, orange brown, tan, Silty SAND (SM)	S-4	4-4-5	8.5-10.0	100.0%	
			S-5	5-6-7	13.5-15.0	100.0%	
17.0	299.48	Moist, medium dense, greenish brown, grayish brown, tan, Silty SAND (SM) (Saprolite)	S-6	8-8-10	18.5-20.0	100.0%	
			S-7	7-10-12	23.5-25.0	100.0%	
			S-8	9-10-15	28.5-30.0	100.0%	
31.5	284.98	Moist, very dense, greenish brown, grayish brown, Silty SAND with Rock fragments (SM) (decomposed Rock)	S-9	19-50.1"	33.5-34.3	90.4%	Hard drilling from 31.5'

BOTTOM OF FTG 298.50

SCOUR ELEV. 296.14

ESTIMATED BOTTOM DRILLED SHAFT 273.50

SHA 73.0-46 MARYLAND STATE HIGHWAY ADMINISTRATION BORING LOG

Boring and Sampling Conforms to AASHTO

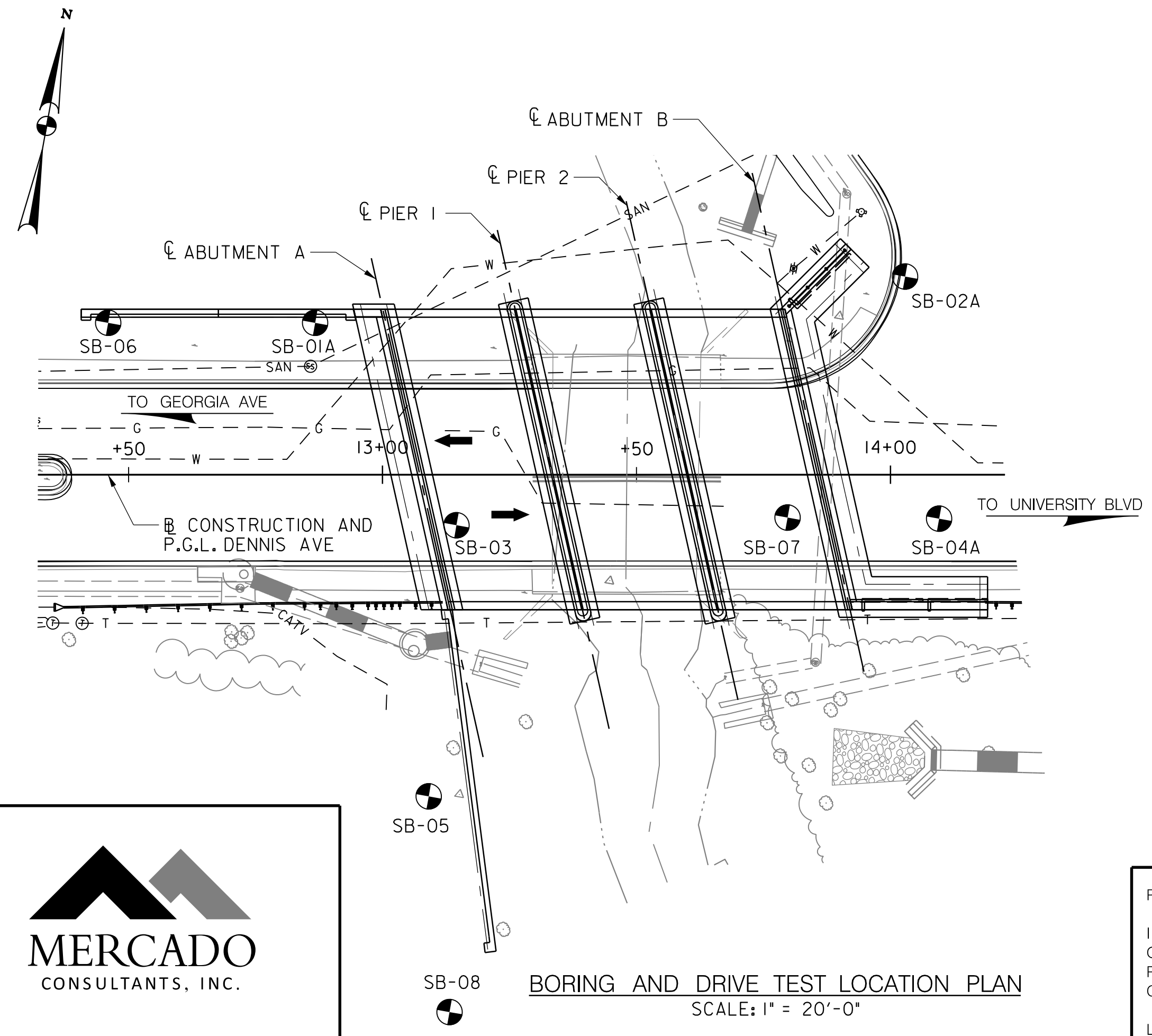
Sheet Boring 2 of 9

Contract No. MO178ZM1 Project Description Dennis Avenue Over Sligo Creek Tributary

Boring No. SB-8 Station B/L

N: 494970.3743 E: 1300866.5355 Relocated?

DEPTH IN FEET	ELEV. IN FEET	MATERIAL DESCRIPTION	SPOON			RECOVERY	REMARKS
			SAMPLE NO.	BLOWS/FOOT	DEPTH		
40.3	276.18	Moist, very dense, greenish brown, grayish brown, Silty SAND with Rock fragments (SM) (decomposed Rock) (Continued)	S-10	30-50.2"	36.5-39.2	86.6%	Chattering from 38.0' Verified auger refusal with spoon (50.0" with no recovery) Borehole left open for extended water reading; Backfilled after water reading



BORING AND DRIVE TEST LOCATION PLAN
SCALE: 1" = 20'-0"

- NOTES:
1. THE BORINGS AND DRIVE TESTS WERE TAKEN BETWEEN OCTOBER 3, 2019 AND OCTOBER 19, 2020 BY E2CR, INC.
 2. THE BORING LOG SOIL SYMBOLS REFLECT ONLY MAJOR CONSTITUENTS, FOR MORE COMPLETE SOIL CHARACTERISTICS REFER TO SOIL DESCRIPTIVE TEXT.
 3. N= BLOWS ON A 2 INCH OD SPLIT BARREL SAMPLING SPOON BY 140 LB. DRIVE-WEIGHT FALLING 30 INCHES INDICATING SUCCESSIVE 6 INCH INCREMENTS OF PENETRATION, IN LIEU OF BLOWS PER FOOT, PENETRATION LESS THAN 6 INCHES ARE INDICATED BY 50 BLOWS OVER THE NEAREST INCH.
 4. BORING AND SAMPLING CONFORM TO AASHTO DESIGNATIONS T-206, T-225 AND T-306.
 5. SOIL HAS BEEN CLASSIFIED VISUALLY BY THE DRILLER.
 6. THE INFORMATION PROVIDED IN THE BORING LOGS IS TRUE AND ACCURATE SOLELY FOR THE SPECIFIC LOCATIONS FOR WHICH BORINGS WERE DRILLED AND SOIL PROPERTIES WERE ANALYZED. THE BORING LOGS ARE PRESENTED FOR INFORMATIONAL PURPOSES ONLY.



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: ZK Checked By: MWM

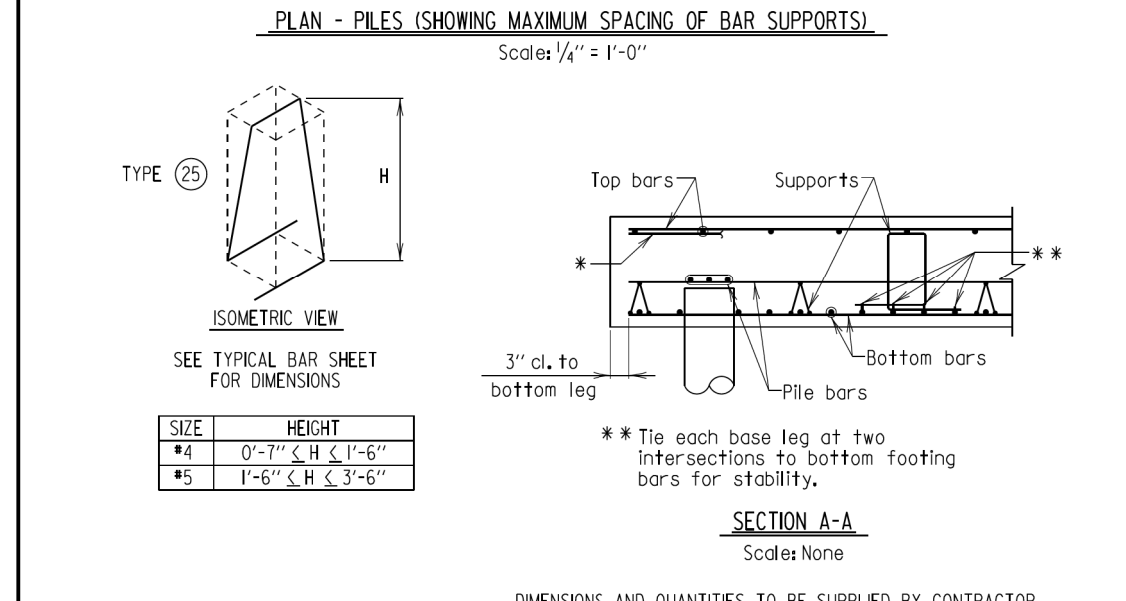
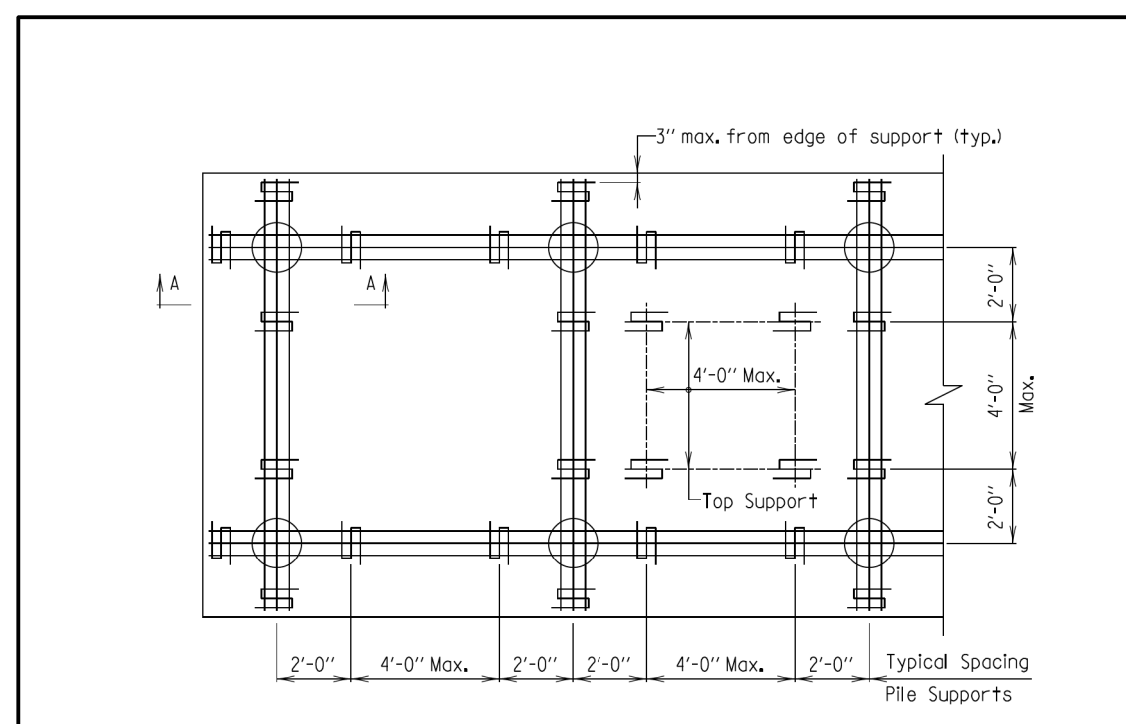
MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

BORING LOGS AND DRIVE TESTS

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: AUGUST, 2023

Project No.: 501701 SHEET 65 OF 82



Material Requires:

- 18# MA 1" x 3/4" x 1/4"
- For HP 10 Piles 2 Bars MB 1" x 3/4" x 1/4"
- For HP 12 Piles 2 Bars MB 1" x 3/4" x 1/4"
- For HP 14 Piles 2 Bars MB 1" x 3/4" x 1/4"
- 2 Bars MC 3" x 3/4" x 1/4"

Note A: End of weld to be smooth and flush with web cut, 1/4" min. effective throat.

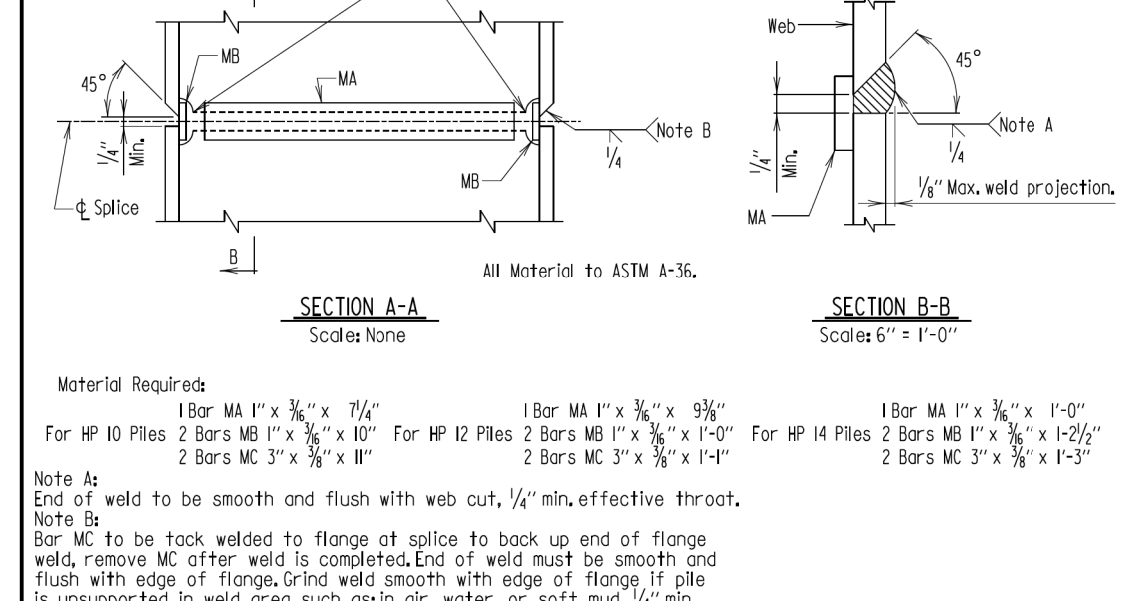
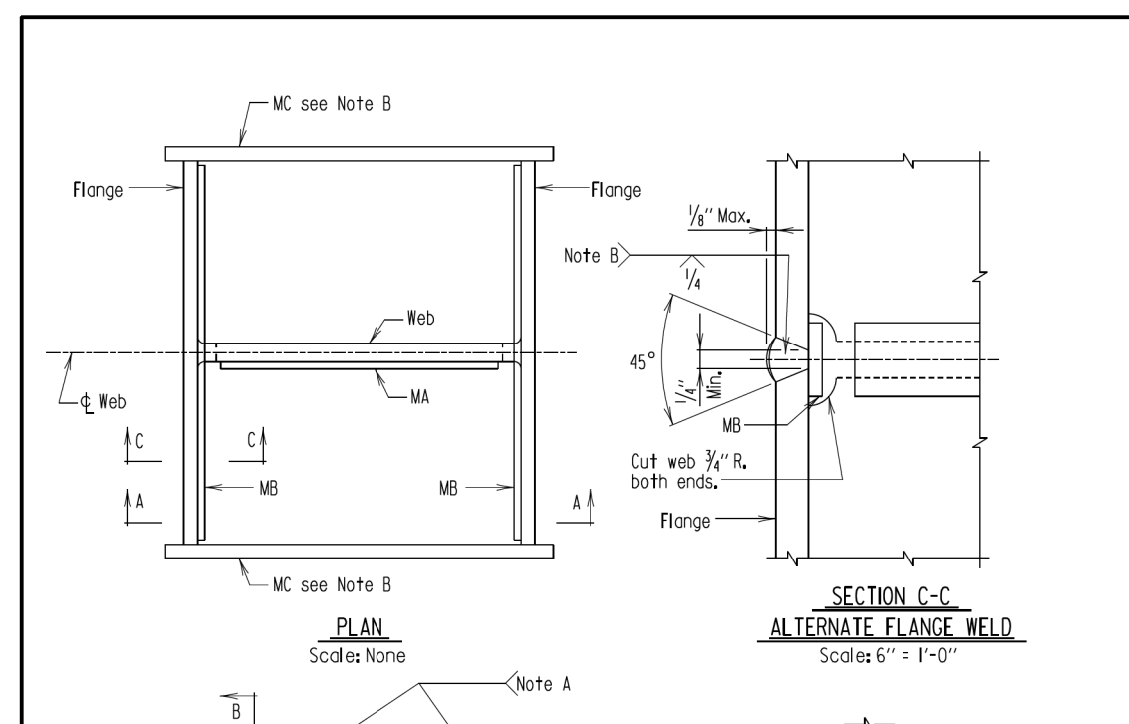
Note B: Bar MC to be track welded to flange of splice to back up end of flange weld. Remove MC after weld is completed. End of weld must be smooth and flush with edge of flange. End weld smooth with edge of flange. If pile is unsupported in weld area such as in air, water, or soft mud, 1/4" min. effective throat.

Note C: Cut welds cool to air temperature before driving piles.

Note D: No pile splicing to be allowed on any portion of pile that is to remain exposed or to be above finished groundline in completed structure.

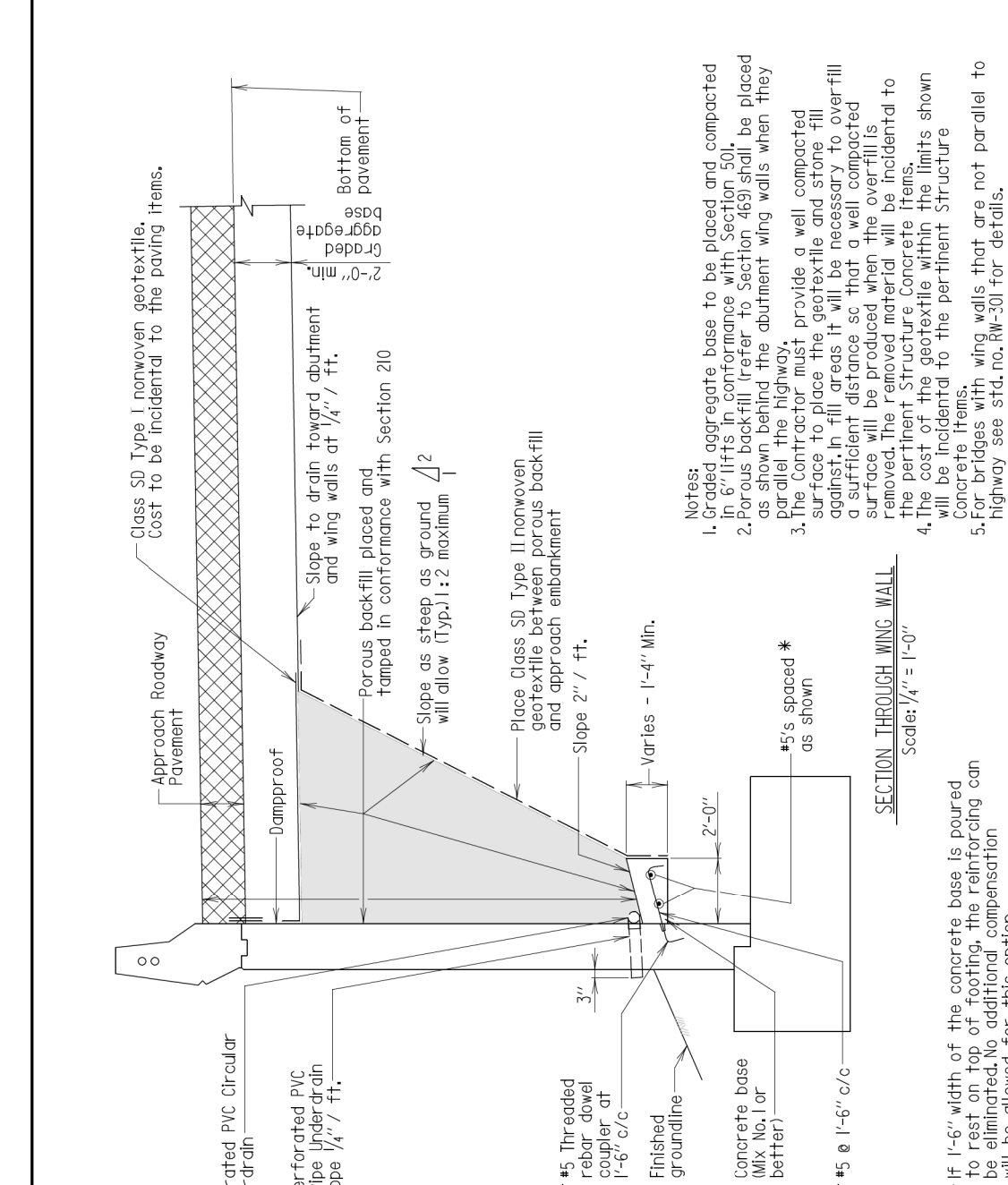
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DESIGNED BY	DATE: 02/22/2023
ISSUED BY	
SCALE	1:0

DETAIL NO. FND-PP-202 SHEET 1 OF 1



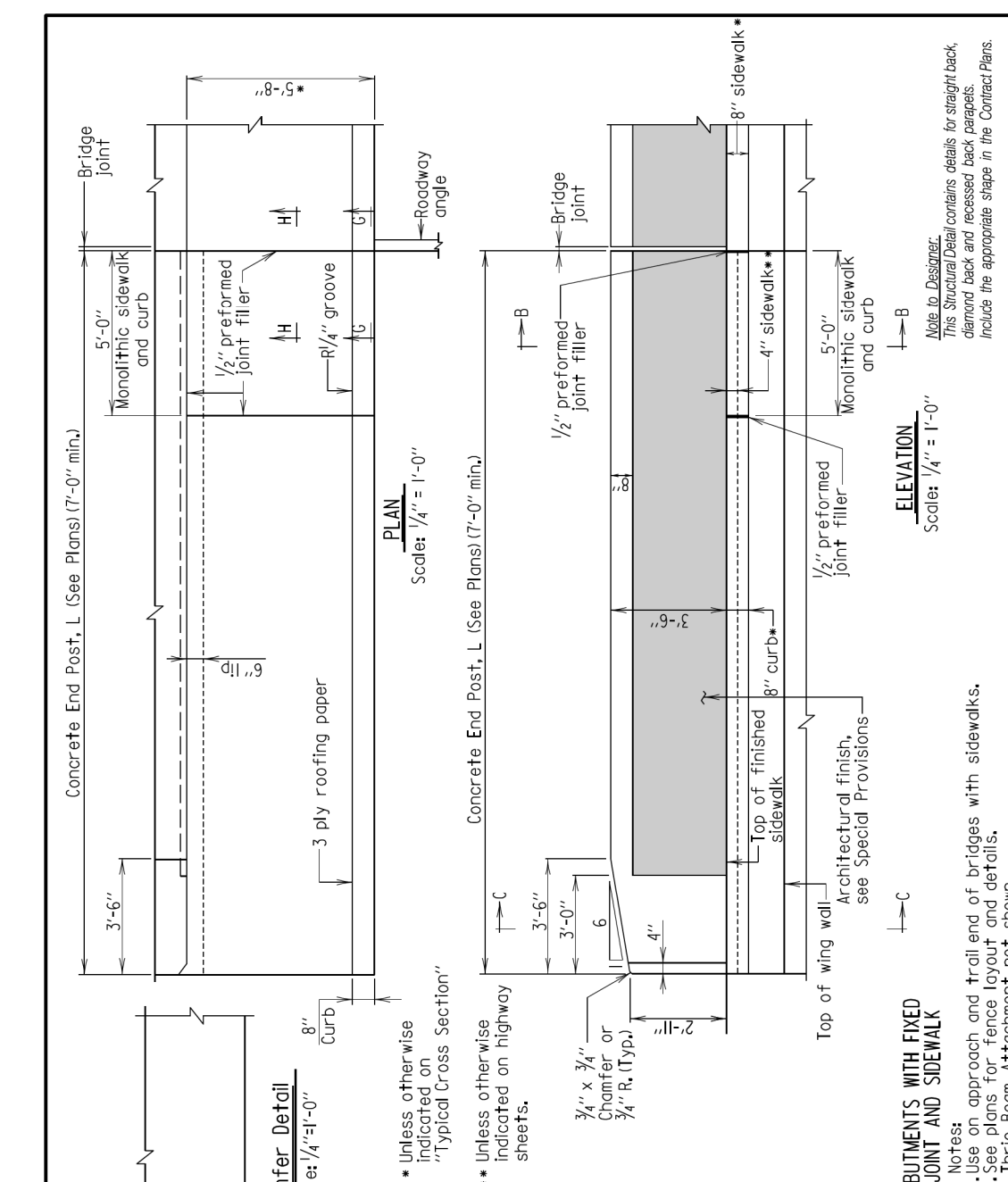
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DESIGNED BY	DATE: 02/22/2023
ISSUED BY	
SCALE	1:0

DETAIL NO. FND-PP-301 SHEET 1 OF 1



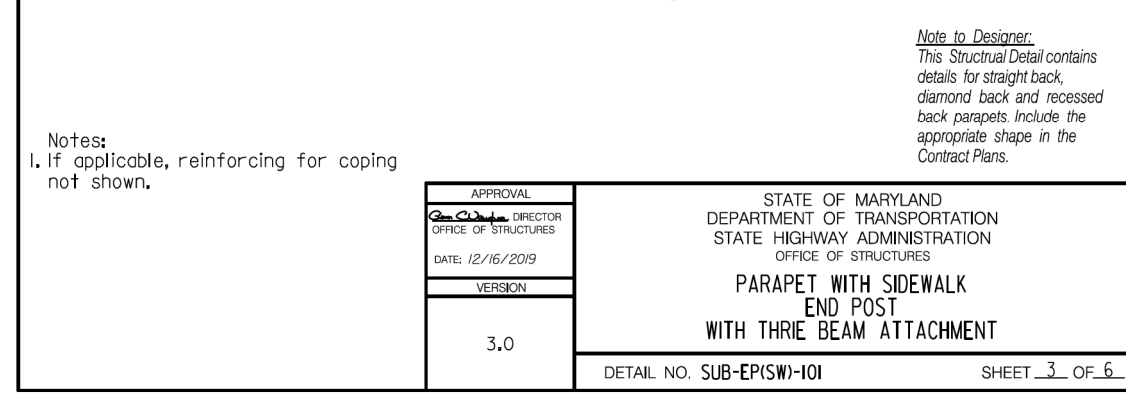
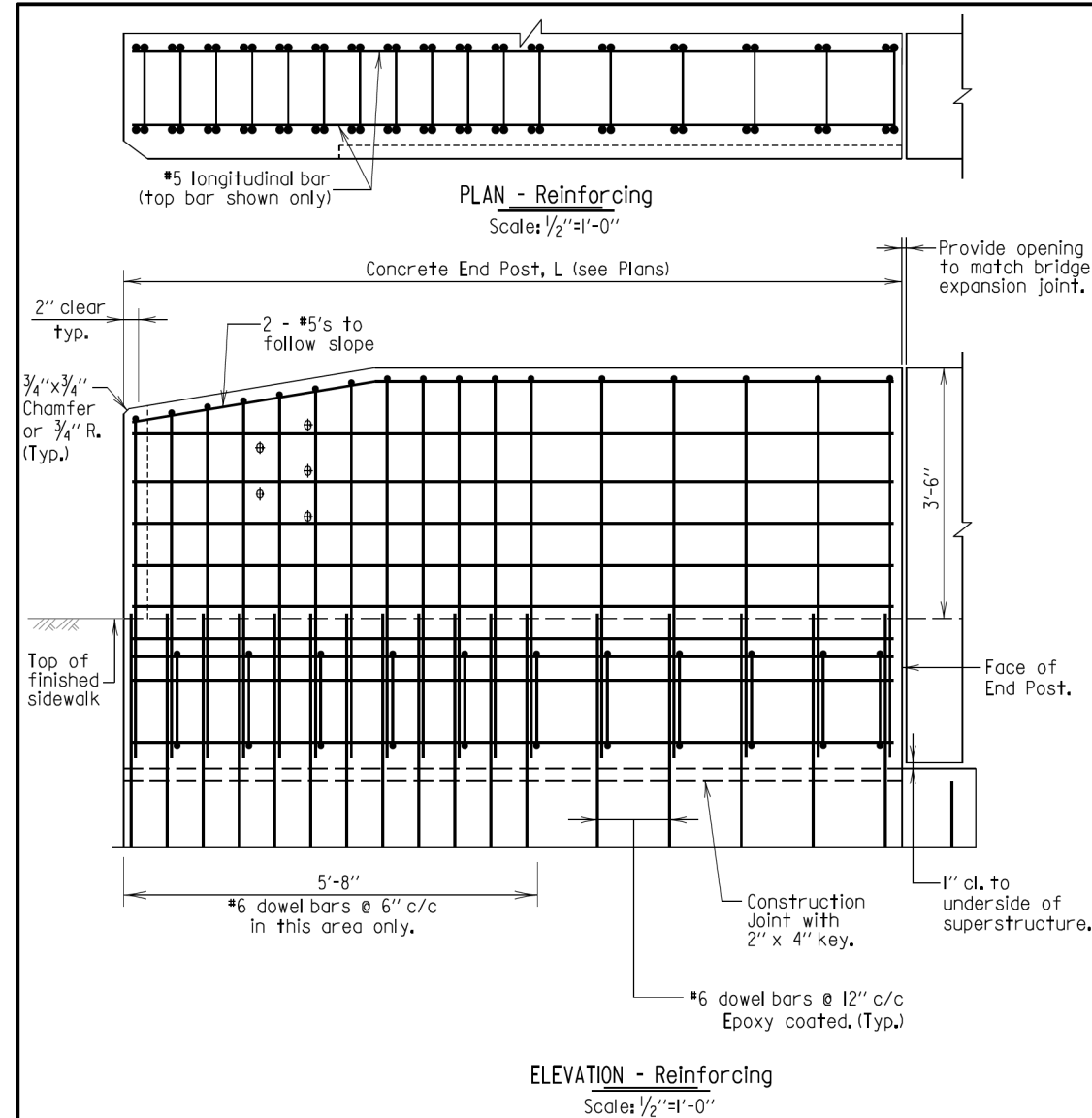
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DESIGNED BY	DATE: 02/22/2023
ISSUED BY	
SCALE	1:0

DETAIL NO. SUB-DR-203 SHEET 1 OF 1



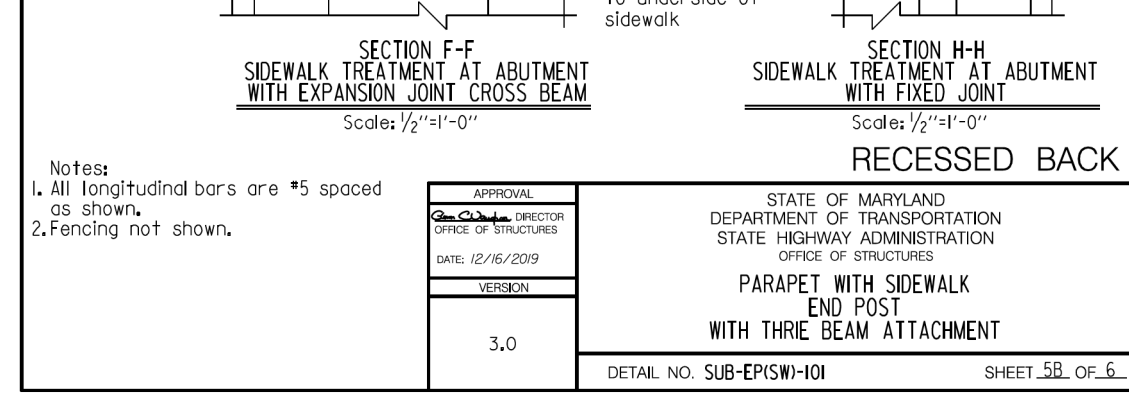
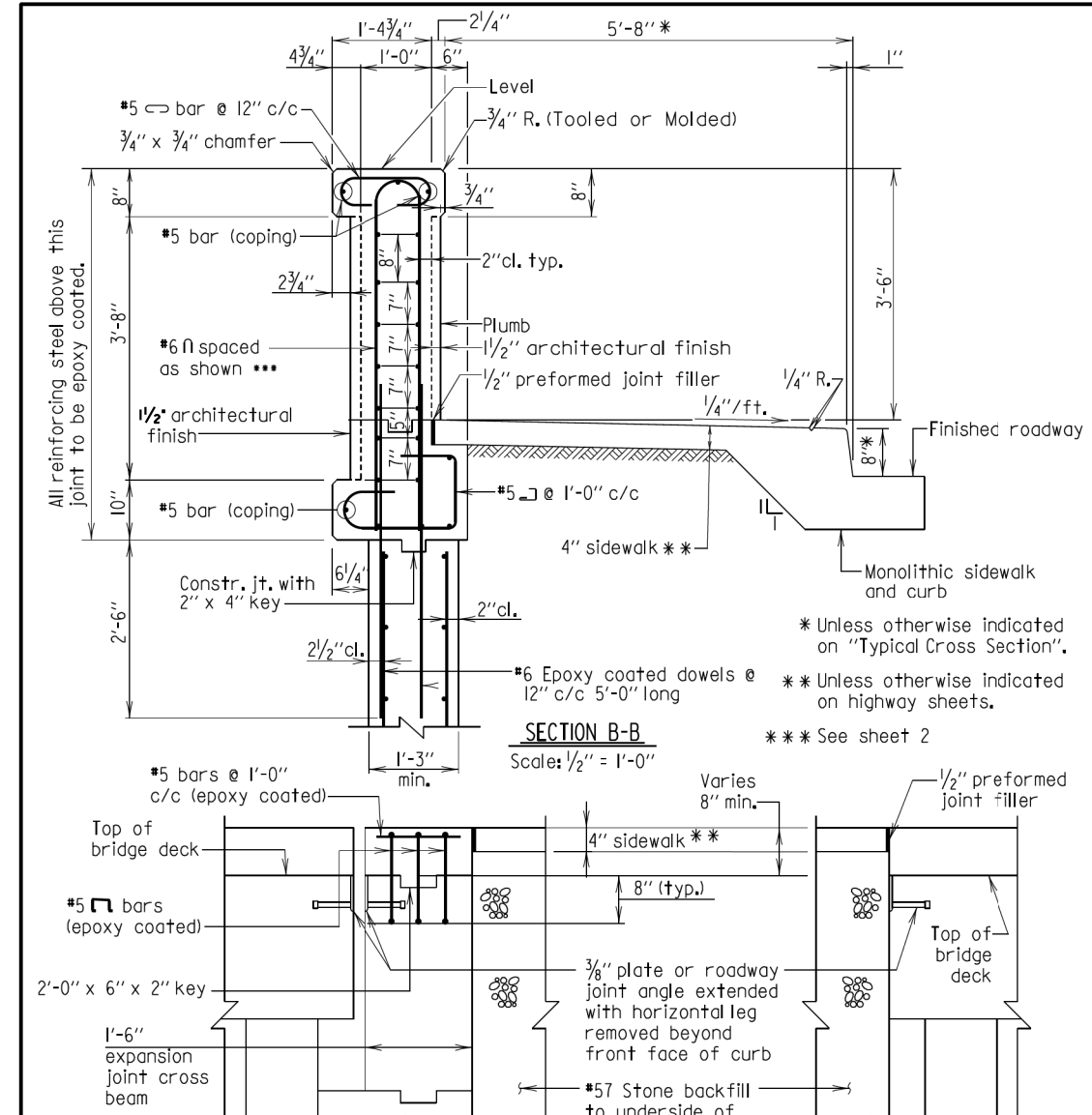
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DESIGNED BY	DATE: 02/22/2023
ISSUED BY	
SCALE	3:0

DETAIL NO. SUB-EP5M-101 SHEET 2 OF 6



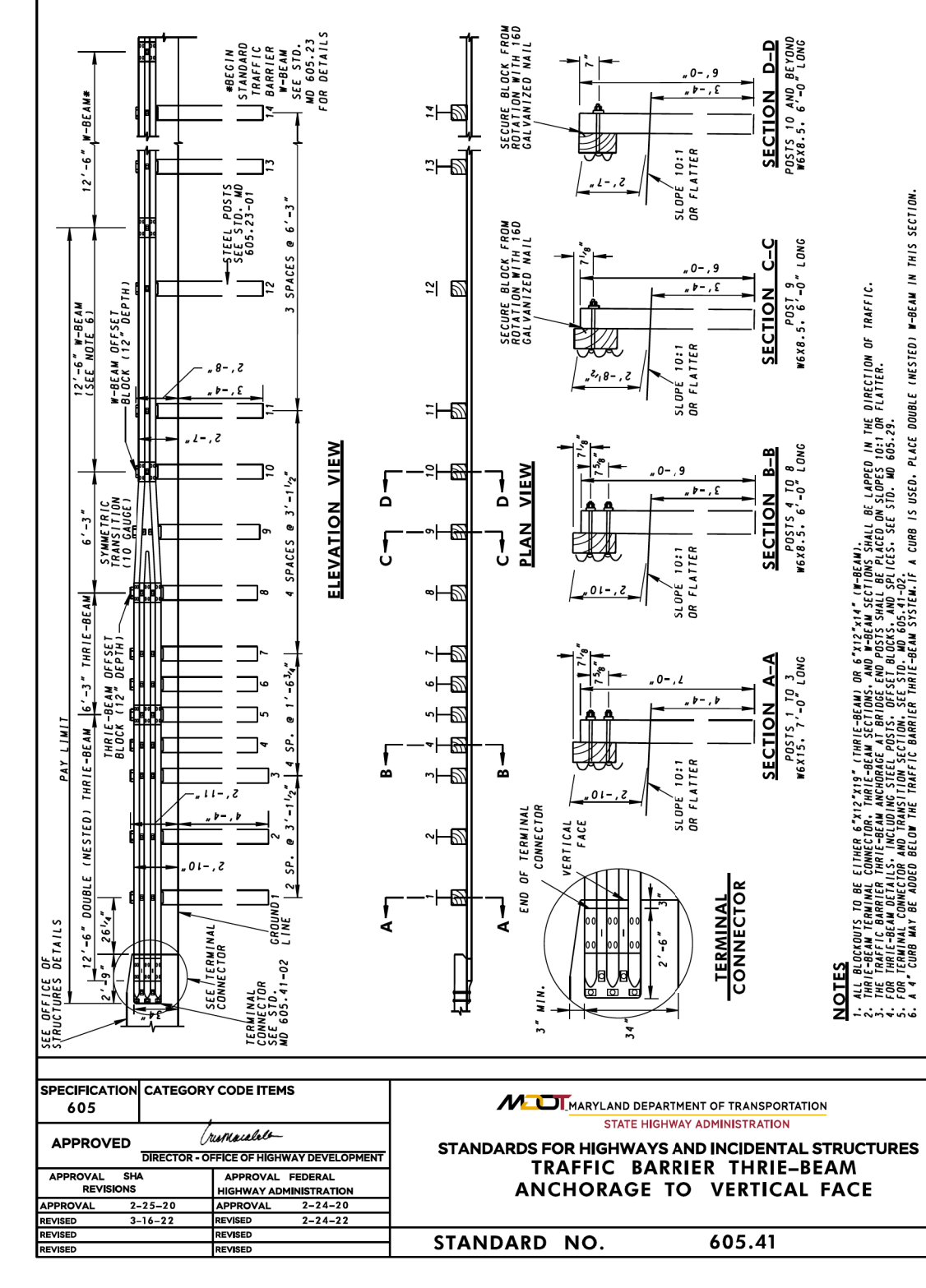
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DESIGNED BY	DATE: 02/22/2023
ISSUED BY	
SCALE	3:0

DETAIL NO. SUB-EP5M-101 SHEET 3 OF 6



APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DESIGNED BY	DATE: 02/22/2023
ISSUED BY	
SCALE	3:0

DETAIL NO. SUB-EP5M-101 SHEET 52 OF 6



APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DESIGNED BY	DATE: 02/22/2023
ISSUED BY	
SCALE	3:0

DETAIL NO. SUB-EP5M-101 SHEET 52 OF 6

PLOTED: 8/10/2023 2:02:24 PM FILE: P:\Projects\175A175A16.Dwg - Drawn: Ami Shrivastava, CAD: JBR-SDP, User: Ami Shrivastava



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: NL
Checked By: MWM	

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

STANDARD DETAILS - 1

REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: AS SHOWN DATE: AUGUST, 2023

Project No.: 501701 SHEET 66 OF 82

BAR SIZE	LOCATION CATEGORY A					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	2'-5"	3'-4"	2'-5"	2'-10"	2'-5"	2'-10"
#5	3'-1"	4'-0"	3'-0"	3'-10"	3'-0"	3'-7"
#6	4'-5"	5'-9"	3'-7"	4'-8"	3'-7"	4'-8"
#7	6'-0"	7'-10"	4'-6"	5'-11"	4'-2"	5'-5"
#8	7'-10"	10'-3"	5'-11"	7'-8"	4'-9"	6'-2"
#9	10'-0"	13'-0"	7'-6"	9'-9"	6'-0"	7'-10"
#10	-	-	9'-6"	12'-5"	7'-7"	9'-11"
#11	-	-	11'-8"	15'-3"	9'-4"	11'-4"

Location Category A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.

BAR SIZE	LOCATION CATEGORY B					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	1'-10"	2'-9"	1'-10"	2'-2"	1'-10"	2'-2"
#5	2'-5"	3'-7"	2'-4"	3'-5"	2'-4"	2'-9"
#6	3'-5"	5'-4"	2'-9"	4'-1"	2'-9"	4'-1"
#7	4'-8"	6'-11"	3'-6"	5'-3"	3'-2"	4'-9"
#8	6'-1"	9'-4"	4'-7"	6'-10"	3'-8"	5'-5"
#9	7'-8"	11'-6"	5'-9"	8'-8"	4'-8"	6'-9"
#10	-	-	7'-4"	10'-11"	5'-10"	8'-4"
#11	-	-	9'-0"	13'-6"	7'-2"	10'-0"

Location Category B - All bars not in Location Category A.

□ = Non-epoxy coated ■ = Epoxy coated

Notes

- When bar lap is not specified on the Plans, the above dimensions shall be used.
- These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
- These bar laps only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f_c = 4000$ psi.
- These bar laps assume cover of 2". Greater lap lengths will be required for cover less than 2".
- These bar laps are Class B splices required by analysis over the entire length of the lap splice and one-half or less of the total reinforcement is spliced within the required lap splice lengths. Class A splices are 1.0 times the development length, required by analysis over the entire length of the lap splice and one-half or less of the total reinforcement is spliced within the required lap splice lengths. Class A splices are 1.0 times the development length.
- Class A splices may be used when (a) the area of reinforcement provided is at least twice that required by analysis over the entire length of the lap splice and one-half or less of the total reinforcement is spliced within the required lap splice lengths. Class A splices are 1.0 times the development length.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO.3 (3500 P.S.I.) CONCRETE

DETAIL NO. REBAR-BL-101 SHEET 1 OF 1

BAR SIZE	LOCATION CATEGORY A					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	2'-11"	2'-8"	2'-11"	2'-6"	2'-11"	2'-6"
#5	2'-8"	3'-6"	2'-7"	3'-4"	2'-7"	3'-1"
#6	3'-10"	5'-0"	3'-4"	4'-0"	3'-4"	4'-0"
#7	5'-3"	6'-10"	3'-11"	5'-4"	3'-7"	4'-8"
#8	6'-10"	8'-11"	5'-11"	6'-8"	4'-11"	5'-4"
#9	8'-8"	11'-3"	6'-6"	8'-6"	5'-2"	6'-9"
#10	-	-	8'-3"	10'-9"	6'-7"	8'-7"
#11	-	-	10'-11"	13'-3"	8'-11"	10'-2"

Location Category A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.

BAR SIZE	LOCATION CATEGORY B					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	1'-7"	2'-5"	1'-7"	1'-11"	1'-7"	1'-11"
#5	2'-1"	3'-4"	2'-0"	3'-0"	2'-0"	2'-5"
#6	3'-0"	4'-5"	2'-5"	3'-7"	2'-5"	3'-7"
#7	4'-0"	6'-0"	3'-0"	4'-6"	2'-9"	4'-2"
#8	5'-3"	7'-10"	3'-11"	5'-11"	3'-2"	4'-9"
#9	6'-8"	10'-0"	5'-0"	7'-6"	4'-0"	6'-10"
#10	-	-	6'-4"	9'-6"	5'-11"	7'-2"
#11	-	-	7'-10"	11'-8"	6'-3"	9'-4"

Location Category B - All bars not in Location Category A.

□ = Non-epoxy coated ■ = Epoxy coated

Notes

- When bar lap is not specified on the Plans, the above dimensions shall be used.
- These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
- These bar laps only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f_c = 4000$ psi.
- These bar laps assume cover of 2". Greater lap lengths will be required for cover less than 2".
- These bar laps are Class B splices required by analysis over the entire length of the lap splice and one-half or less of the total reinforcement is spliced within the required lap splice lengths. Class A splices are 1.0 times the development length, required by analysis over the entire length of the lap splice and one-half or less of the total reinforcement is spliced within the required lap splice lengths. Class A splices are 1.0 times the development length.
- Class A splices may be used when (a) the area of reinforcement provided is at least twice that required by analysis over the entire length of the lap splice and one-half or less of the total reinforcement is spliced within the required lap splice lengths. Class A splices are 1.0 times the development length.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO.6 (4500 P.S.I.) CONCRETE

DETAIL NO. REBAR-BL-103 SHEET 1 OF 1

BAR SIZE	LOCATION CATEGORY A					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	1'-10"	2'-5"	1'-10"	2'-2"	1'-10"	2'-2"
#5	2'-5"	3'-1"	2'-4"	3'-0"	2'-4"	2'-9"
#6	3'-5"	4'-5"	2'-9"	3'-7"	2'-9"	3'-7"
#7	4'-8"	6'-11"	3'-6"	4'-7"	3'-2"	4'-2"
#8	6'-1"	7'-11"	4'-7"	5'-2"	3'-2"	4'-1"
#9	7'-8"	10'-0"	5'-9"	7'-6"	4'-8"	6'-0"
#10	-	-	7'-4"	9'-6"	5'-10"	7'-8"
#11	-	-	9'-0"	11'-9"	7'-2"	9'-5"

Location Category A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.

BAR SIZE	LOCATION CATEGORY B					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	1'-5"	2'-1"	1'-5"	1'-8"	1'-5"	1'-8"
#5	1'-10"	2'-9"	1'-9"	2'-8"	1'-9"	2'-4"
#6	2'-8"	3'-11"	2'-4"	3'-2"	2'-4"	3'-2"
#7	3'-7"	5'-4"	2'-8"	4'-0"	2'-6"	3'-8"
#8	4'-8"	7'-0"	3'-6"	5'-3"	2'-10"	4'-2"
#9	5'-11"	8'-10"	4'-5"	6'-8"	3'-7"	5'-4"
#10	-	-	5'-8"	8'-5"	4'-6"	6'-9"
#11	-	-	6'-11"	10'-4"	5'-7"	8'-4"

Location Category B - All bars not in Location Category A.

□ = Non-epoxy coated ■ = Epoxy coated

Notes

- When development length is not specified on the Plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
- These development lengths only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f_c = 4000$ psi.
- These development lengths assume cover of 2". Greater development lengths will be required for cover less than 2".
- The Excess Reinforcement Factor E_r is assumed to be 1.0 when calculating these dimensions. E_r was assumed to be 0 when calculating the Reinforcement Containment Factor.
- If depth of member does not allow bar development length indicated in Location Categories A and B then hooks shall be added to all bars not conforming as per D, E, and F per Det. No. REBAR-DL-201.
- If depth of member does not allow bar development length indicated in Location Categories A and B then hooks shall be added to all bars not conforming as per D, E, and F per Det. No. REBAR-DL-203.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO.3 (3500 P.S.I.) CONCRETE

DETAIL NO. REBAR-DL-101 SHEET 1 OF 1

BAR SIZE	LOCATION CATEGORY A					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	1'-7"	2'-4"	1'-7"	1'-11"	1'-7"	1'-11"
#5	2'-4"	2'-8"	2'-0"	2'-7"	2'-0"	2'-5"
#6	3'-0"	3'-10"	2'-5"	3'-4"	2'-5"	3'-4"
#7	4'-0"	5'-3"	3'-0"	3'-11"	2'-9"	3'-7"
#8	5'-3"	6'-10"	3'-11"	5'-2"	3'-2"	4'-1"
#9	6'-8"	8'-8"	5'-0"	6'-6"	4'-0"	5'-3"
#10	-	-	6'-4"	8'-3"	5'-11"	6'-7"
#11	-	-	7'-10"	10'-2"	6'-3"	8'-2"

Location Category A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.

BAR SIZE	LOCATION CATEGORY B					
	CENTER TO CENTER SPACING					
	3"	4"	5"	6"	7"	≥ 6"
#4	1'-3"	1'-10"	1'-3"	1'-6"	1'-3"	1'-6"
#5	1'-7"	2'-5"	1'-6"	2'-3"	1'-6"	1'-10"
#6	2'-3"	3'-5"	1'-10"	2'-9"	1'-10"	2'-9"
#7	3'-4"	4'-8"	2'-4"	3'-6"	2'-2"	3'-2"
#8	4'-0"	6'-0"	3'-0"	4'-6"	2'-5"	3'-8"
#9	5'-2"	7'-8"	3'-10"	5'-9"	3'-11"	4'-7"
#10	-	-	4'-11"	7'-4"	3'-11"	5'-10"
#11	-	-	6'-0"	9'-0"	4'-10"	7'-2"

Location Category B - All bars not in Location Category A.

□ = Non-epoxy coated ■ = Epoxy coated

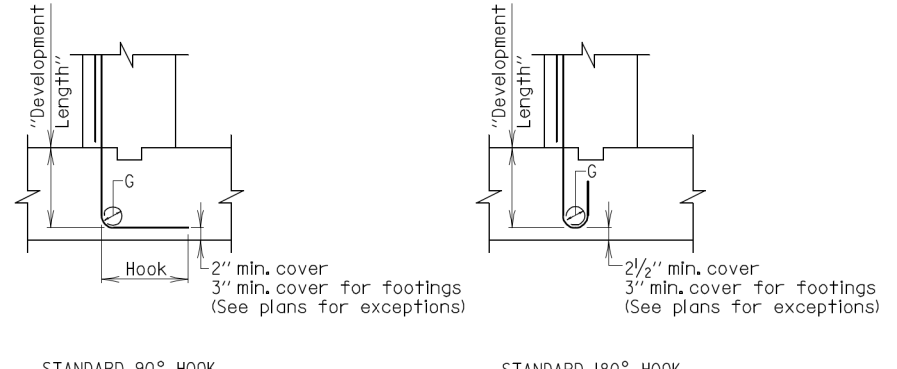
Notes

- When development length is not specified on the Plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
- These development lengths only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f_c = 4000$ psi.
- These development lengths assume cover of 2". Greater development lengths will be required for cover less than 2".
- The Excess Reinforcement Factor E_r is assumed to be 1.0 when calculating these dimensions. E_r was assumed to be 0 when calculating the Reinforcement Containment Factor.
- If depth of member does not allow bar development length indicated in Location Categories A and B then hooks shall be added to all bars not conforming as per D, E, and F per Det. No. REBAR-DL-201.
- If depth of member does not allow bar development length indicated in Location Categories A and B then hooks shall be added to all bars not conforming as per D, E, and F per Det. No. REBAR-DL-203.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO.6 (4500 P.S.I.) CONCRETE

DETAIL NO. REBAR-DL-103 SHEET 1 OF 1



BAR SIZE	LOCATION CATEGORY	D	E	F
#4	B	11"	9"	9"
#5	B	1'-2"	11"	11"
#6	B	1'-0"	1'-5"	1'-2"
#7	B	1'-2"	1'-8"	1'-4"
#8	B	1'-4"	1'-10"	1'-6"
#9	B	1'-6"	2'-1"	1'-8"
#10	B	1'-8"	2'-4"	1'-11"
#11	B	1'-10"	2'-7"	2'-4"

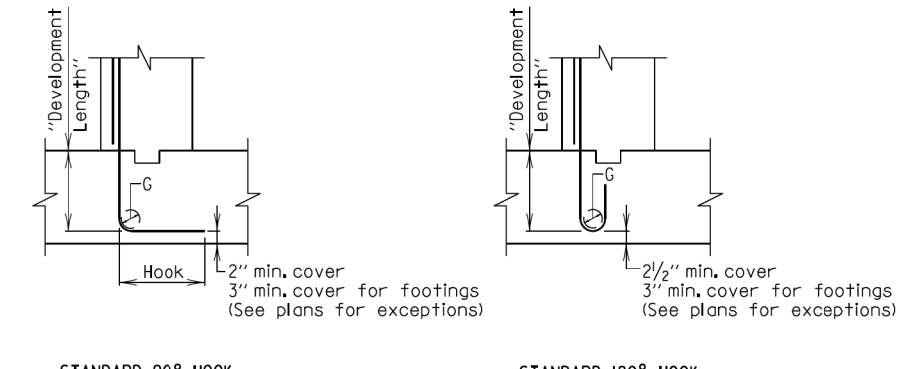
Notes

- When development length is not specified on the Plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
- These development lengths only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f_c = 4000$ psi.
- If depth of member does not allow bar development length indicated in Categories A, B, and C Std. No. REBAR-DL-101 then hook shall be added to all bars not conforming as per D, E & F.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

DEVELOPMENT LENGTH DIMENSIONS OF HOOKED BARS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING

DETAIL NO. REBAR-DL-201 SHEET 1 OF 1



BAR SIZE	LOCATION CATEGORY	D	E	F
#4	B	11"	9"	9"
#5	B	1'-0"	1'-0"	1'-0"
#6	B	1'-0"	1'-3"	1'-0"
#7	B	1'-0"	1'-0"	1'-2"
#8	B	1'-2"	1'-7"	1'-4"
#9	B	1'-4"	1'-10"	1'-6"
#10	B	1'-6"	2'-0"	1'-8"
#11	B	1'-7"	2'-3"	1'-10"

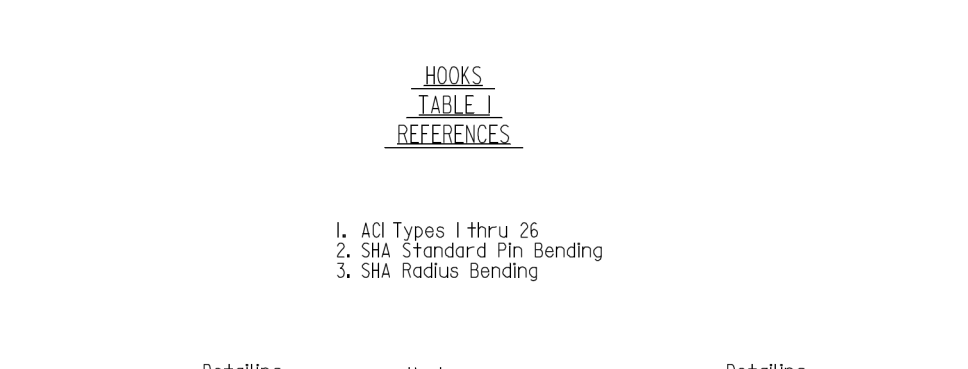
Notes

- When development length is not specified on the Plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
- These development lengths only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f_c = 4000$ psi.
- If depth of member does not allow bar development length indicated in Categories A, B, and C Std. No. REBAR-DL-103 then hook shall be added to all bars not conforming as per D, E & F.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

DEVELOPMENT LENGTH DIMENSIONS OF HOOKED BARS FOR GRADE 60 REINFORCING STEEL IN MIX NO.6 (4500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING

DETAIL NO. REBAR-DL-203 SHEET 1 OF 1



BAR SIZE	Finished hook diameter	180 - deg hook	90 - deg hook
#4	2 1/4"	4	4
#5	3 1/4"	7	5
#6	4 1/4"	8	6
#7	5 1/4"	10	7
#8	6 1/4"	11	8
#9	7 1/4"	13	9
#10	8 1/4"	15	10
#11	9 1/4"	17	12
#12	10 1/4"	20	14
#13	11 1/4"	23	16
#14	12 1/4"	26	18

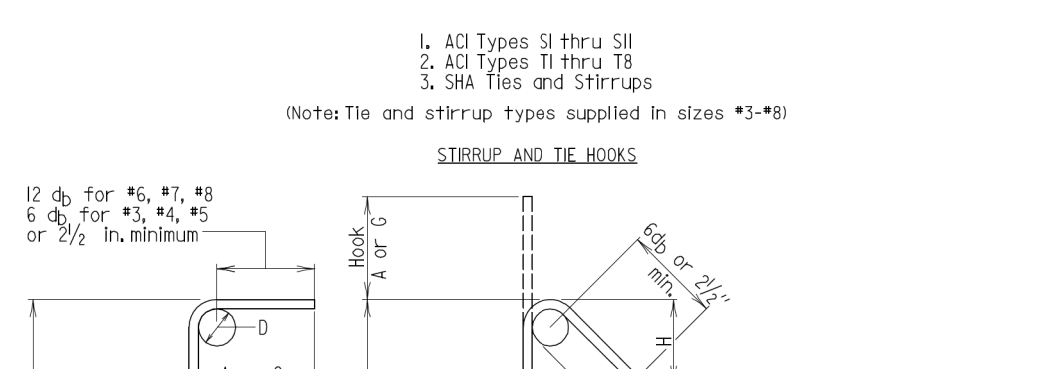
Notes

- AD Types I thru 26
- SHA Standard Pin Bending
- SHA Radius Bending

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

REINFORCING STEEL HOOK TABLES AND DIAGRAMS

DETAIL NO. REBAR-BB-102 SHEET 2 OF 2



BAR SIZE	Finished hook diameter	180 - deg hook	90 - deg hook
#4	2 1/4"	4	4
#5	3 1/4"	7	5
#6	4 1/4"	8	6
#7	5 1/4"	10	7
#8	6 1/4"	11	8
#9	7 1/4"	13	9
#10	8 1/4"	15	10
#11	9 1/4"	17	12
#12	10 1/4"	20	14
#13	11 1/4"	23	16
#14	12 1/4"	26	18

Notes

- AD Types I thru 26
- SHA Standard Pin Bending
- SHA Radius Bending

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES
DATE: 03/29/2023

REINFORCING STEEL HOOK TABLES AND DIAGRAMS

DETAIL NO. REBAR-BB-102 SHEET 2 OF 2



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

RECOMMENDED FOR APPROVAL
Chief, Design Section Date
APPROVED
Chief, Division of Transportation Engineering Date
Designed By: ZK Drawn By: NL Checked By: MWM

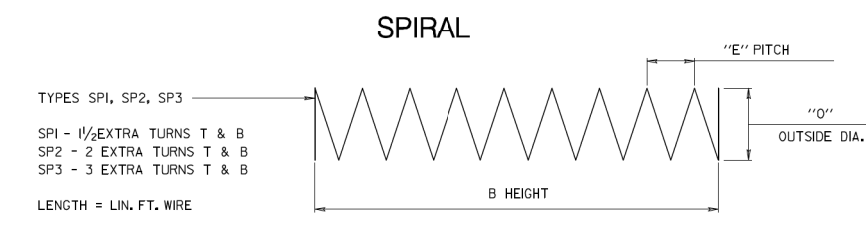
MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

STANDARD DETAILS - 3

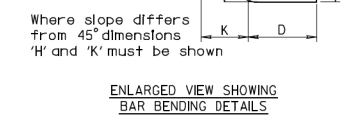
REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: NONE DATE: AUGUST, 2023
Project No.: 501701 SHEET 68 OF 82

TYPICAL BAR BENDS DETAILS AND NOTES



Unless otherwise noted diameter D is the same for all bends and hooks on a bar.



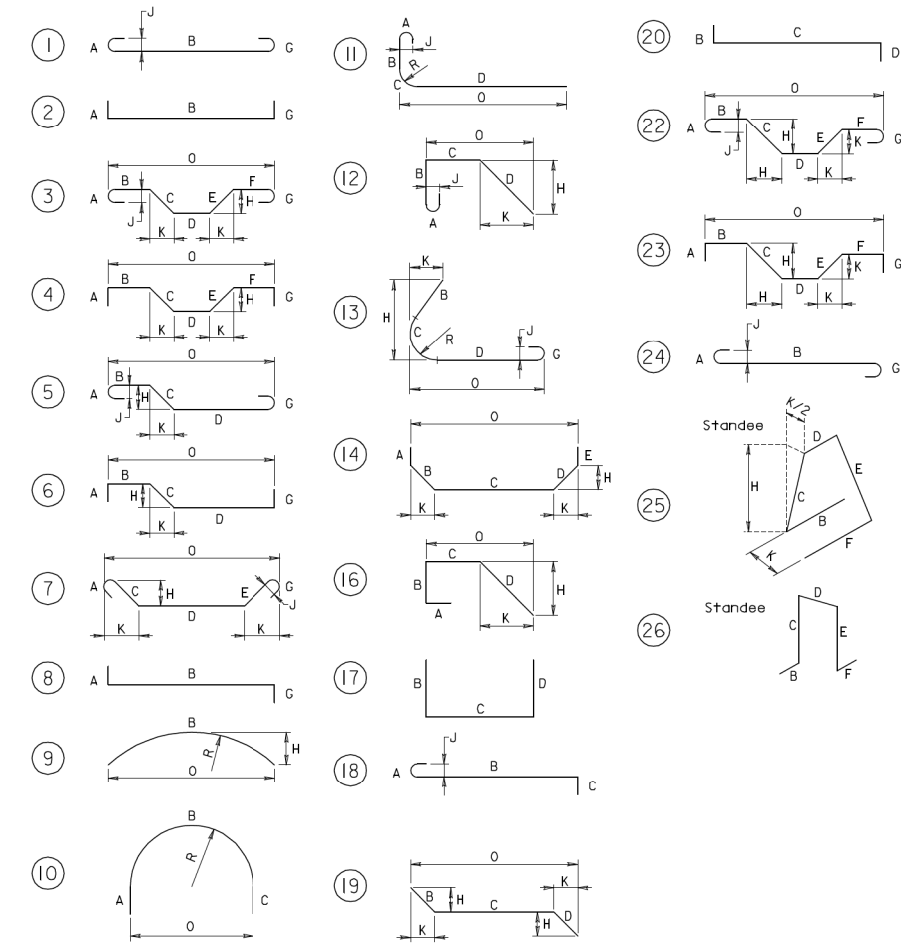
Notes:
1. All dimensions are cut-to-out of bar or to tangent points for 135° and 180° hooks.
2. If dimensions on 180° hooks to be shown only where necessary to restrict hook size, otherwise standard hooks are to be used.
3. Where a hook is not shown, it will be kept equal to or less than 4d on truss bars, where d can exceed 1/4" it should be shown.
4. An elevation or reference to be shown where necessary to fit within concrete.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have fits indicated.

NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES GENERAL NOTES
1.0	
DETAIL NO. REBAR-BB-101	SHEET 1 OF 1

ACI TYPICAL BAR BENDS STANDARD PIN BENDING

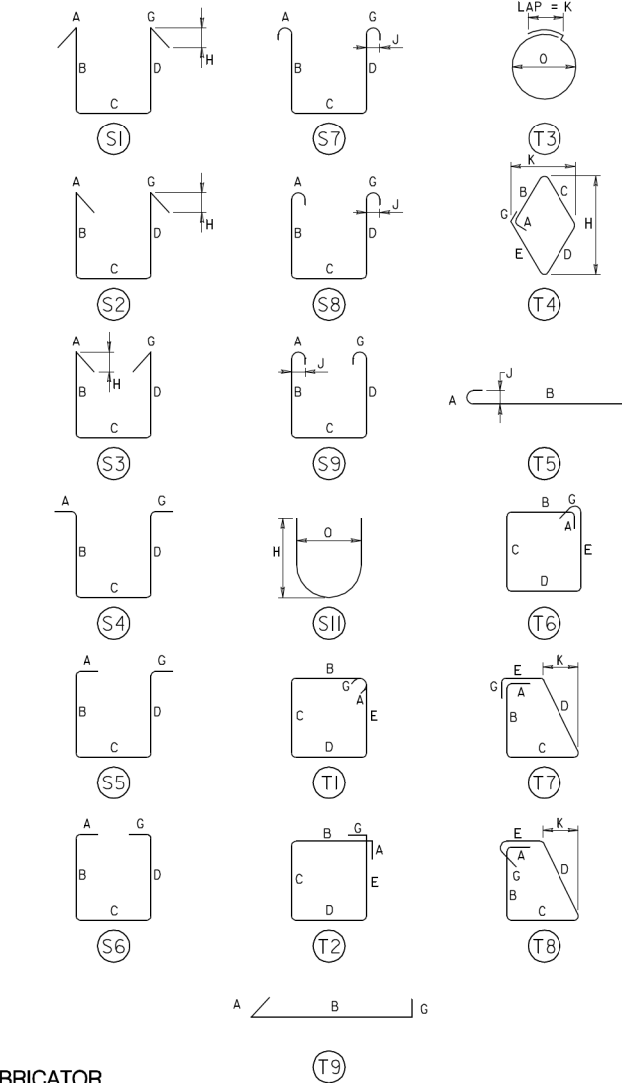


NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES ACI - STANDARD PIN BENDING
1.0	
DETAIL NO. REBAR-BB-101	SHEET 2 OF 3

ACI TYPICAL BAR BENDS TIES AND STIRRUPS

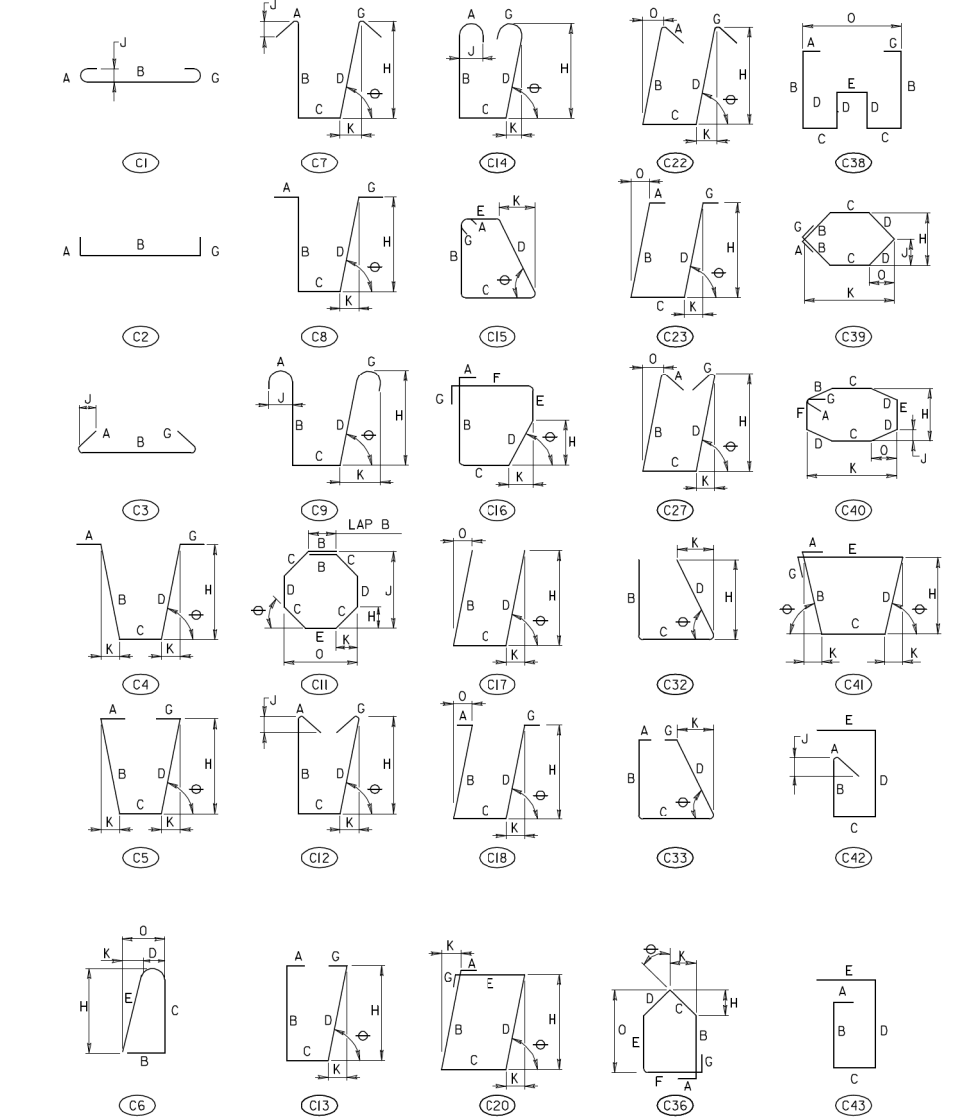


NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES ACI - TIES & STIRRUPS
1.0	
DETAIL NO. REBAR-BB-101	SHEET 3 OF 3

SHA TYPICAL BAR BENDS TIES AND STIRRUPS

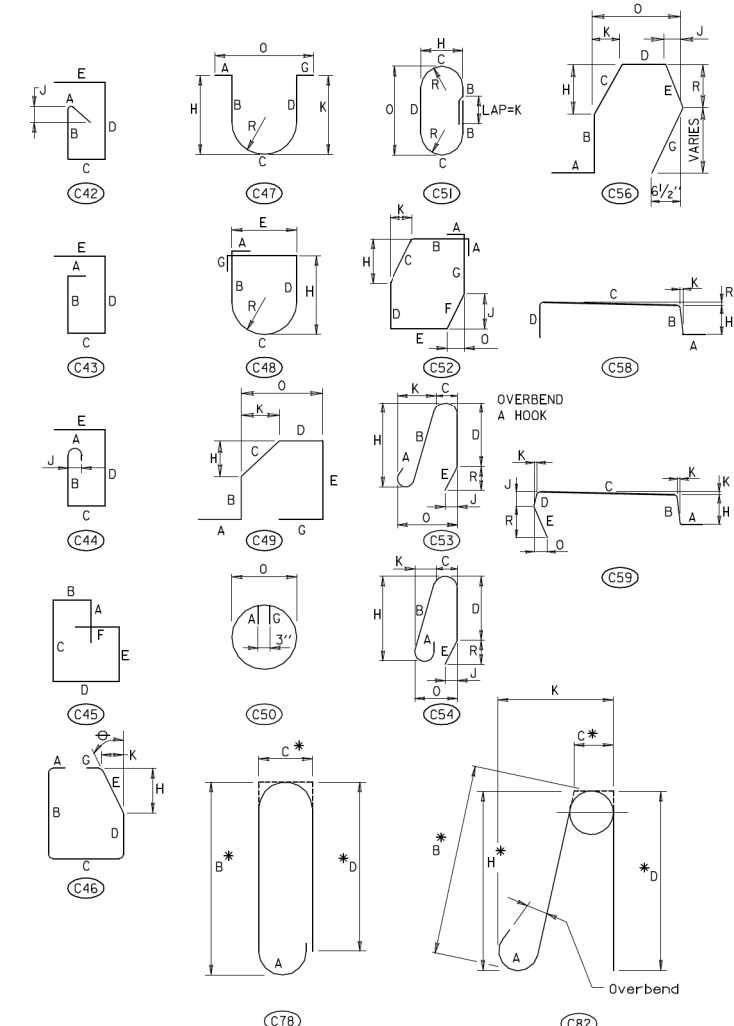


NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES SHA - TIES AND STIRRUPS
1.0	
DETAIL NO. REBAR-BB-101	SHEET 4 OF 5

SHA TYPICAL BAR BENDS TIES AND STIRRUPS

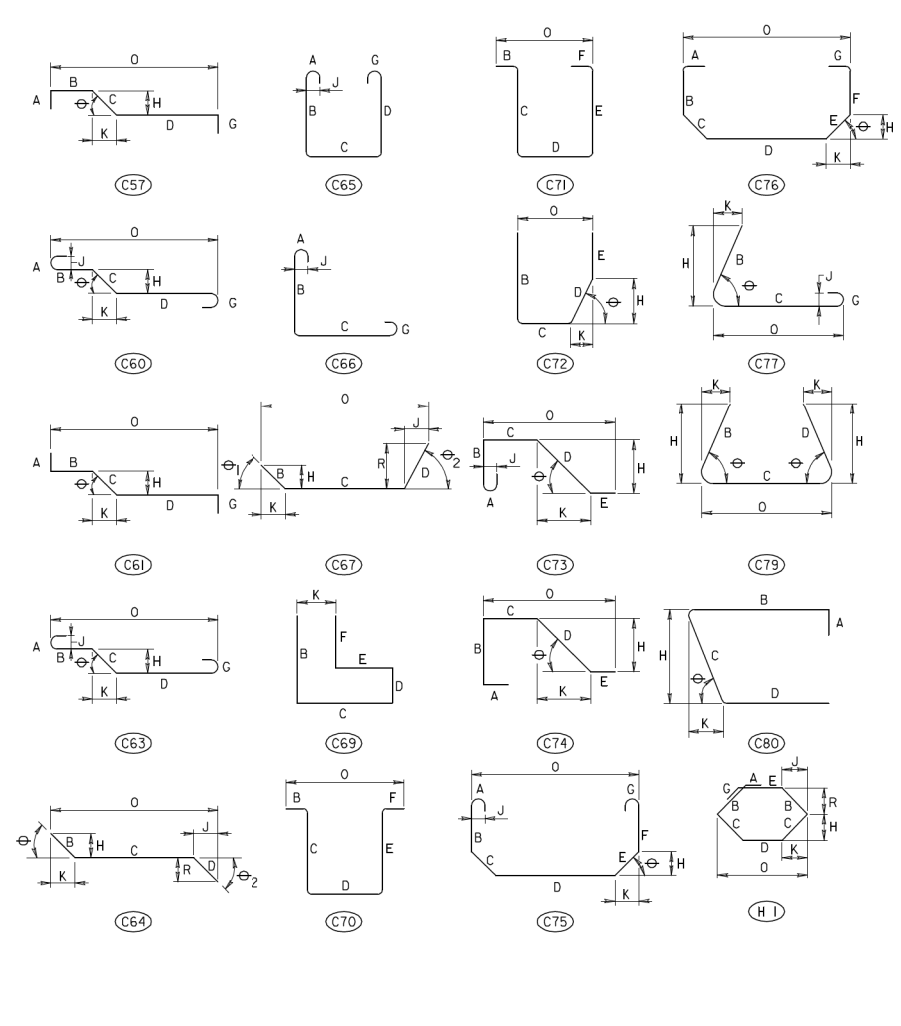


NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES SHA - TIES AND STIRRUPS
1.0	
DETAIL NO. REBAR-BB-101	SHEET 5 OF 5

SHA TYPICAL BAR BENDS STANDARD PIN BENDING

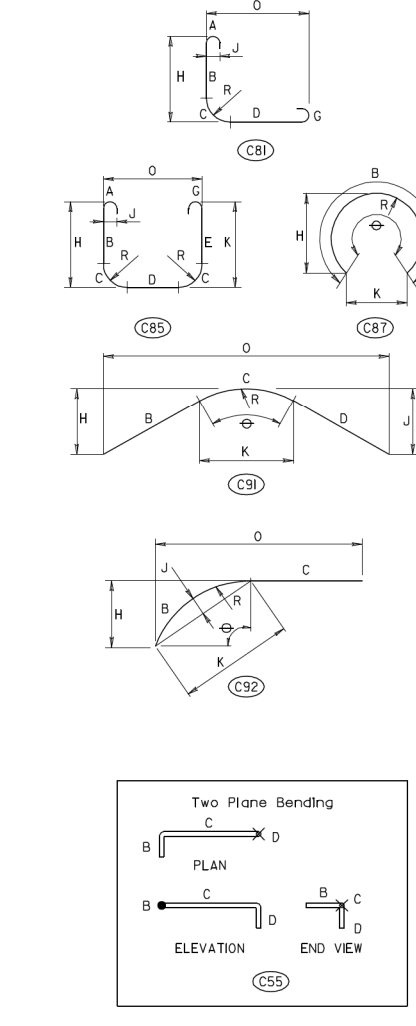


NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES SHA - STANDARD PIN BENDING
1.0	
DETAIL NO. REBAR-BB-101	SHEET 6 OF 8

SHA TYPICAL BAR BENDS RADIUS BENDING

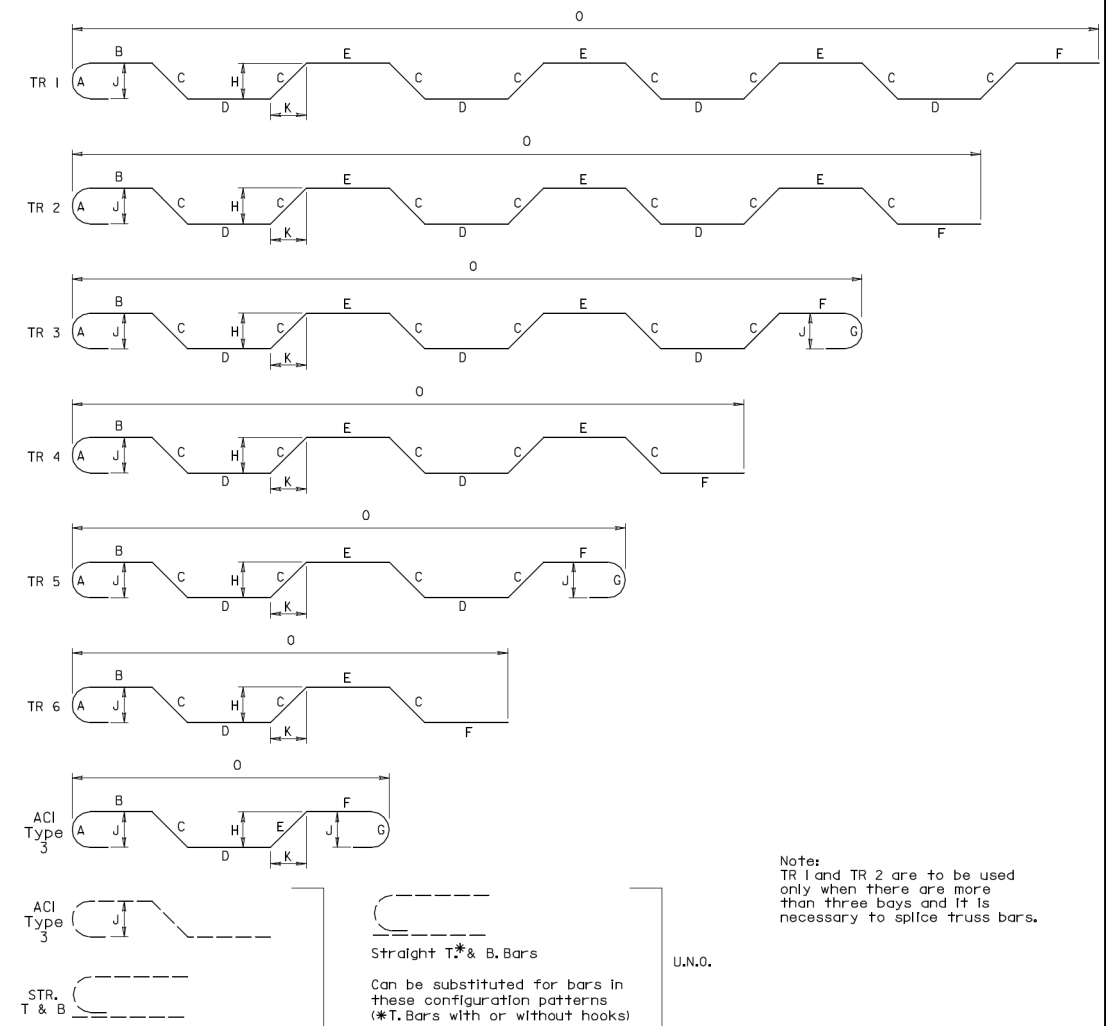


NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES SHA - RADIUS BENDING
1.0	
DETAIL NO. REBAR-BB-101	SHEET 7 OF 8

SHA TYPICAL BAR BENDS TRUSS BAR CONFIGURATIONS



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO TOLERANCE (+0) TOLERANCE (NORMAL ACI BENDING TOLERANCE)

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 02/15/2024	
VERSION	BAR BEND TYPES TRUSS BAR CONFIGURATIONS
1.0	
DETAIL NO. REBAR-BB-101	SHEET 8 OF 8



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section _____ Date _____
APPROVED

Chief, Division of Transportation Engineering _____ Date _____

Designed By: ZK Drawn By: NL Checked By: MWM

STANDARD DETAILS - 4

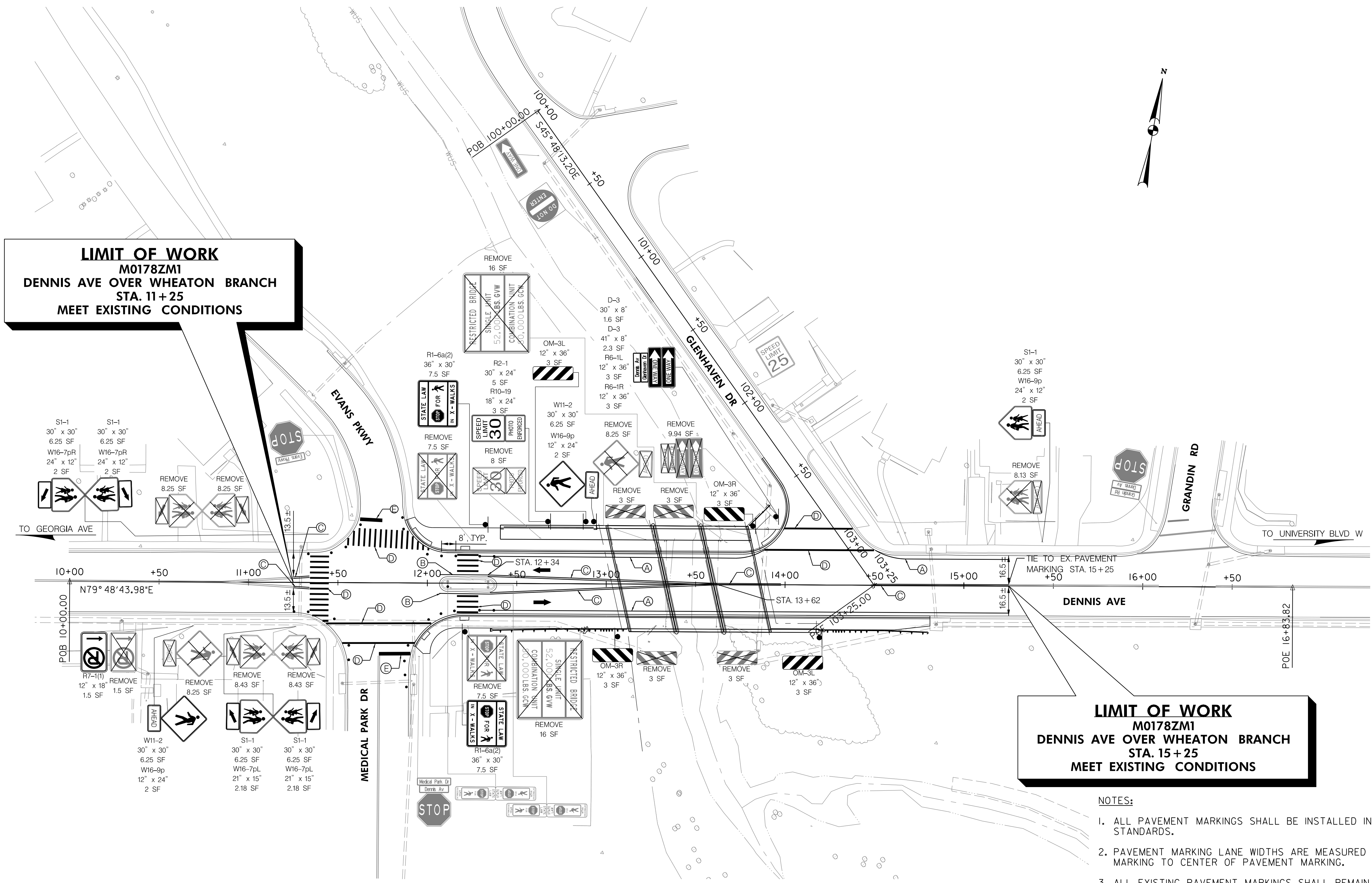
REPLACEMENT OF BRIDGE NO. M-0194
ON DENNIS AVENUE OVER SLIGO CREEK
TRIBUTARY (WHEATON BRANCH)

SCALE: NONE DATE: AUGUST, 2023

Project No.: 501701 SHEET 69 OF 82

LIMIT OF WORK
M0178ZM1
DENNIS AVE OVER WHEATON BRANCH
STA. 11+25
MEET EXISTING CONDITIONS

LIMIT OF WORK
M0178ZM1
DENNIS AVE OVER WHEATON BRANCH
STA. 15+25
MEET EXISTING CONDITIONS

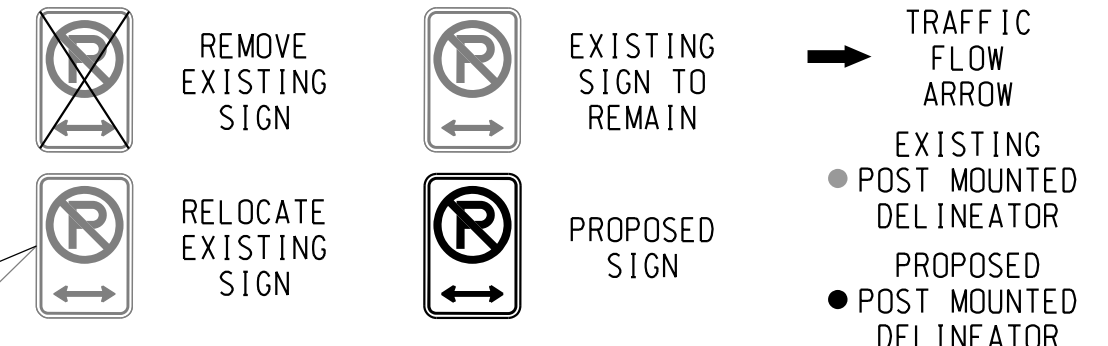


NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MDOT SHA STANDARDS.
2. PAVEMENT MARKING LANE WIDTHS ARE MEASURED FROM CENTER OF PAVEMENT MARKING TO CENTER OF PAVEMENT MARKING.
3. ALL EXISTING PAVEMENT MARKINGS SHALL REMAIN UNLESS NOTED ON THE PLAN.
4. WOOD SUPPORTS INSTALLED IN CONCRETE SHALL BE INSTALLED WITH SLEEVED FOUNDATIONS AS PER STANDARDS MD 812.05-01 AND MD 812.05-02.
5. ALL MATERIALS REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF WORK.
6. PAVEMENT MARKINGS SHALL BE INSTALLED PER THIS PLAN ONCE THE FINAL ROADWAY COURSE IS COMPLETE UNLESS OTHERWISE NOTED.
7. ALL PROPOSED SIGNS SHALL BE INSTALLED ON A SINGLE METAL TUBULAR POST AS SHOWN ON THESE PLANS.

SIGNING AND PAVEMENT MARKING LEGEND

- (A) 5 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS
- (B) 5 INCH YELLOW THERMOPLASTIC PAVEMENT MARKINGS
- (C) 5 INCH DOUBLE YELLOW THERMOPLASTIC PAVEMENT MARKINGS
- (D) 12 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS
- (E) 24 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS



PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO.: 38931 EXPIRATION DATE: 12-22-2023

NO.	REVISION	DATE	BY

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
RECOMMENDED FOR APPROVAL	
Chief, Design Section	Date
APPROVED	
Chief, Division of Transportation Engineering	Date
Designed By: ZK	Drawn By: ZK
Checked By: MWM	

SIGNING AND MARKING PLAN	
REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
SCALE: 1" = 30'	DATE: AUGUST, 2023
Project No.: 501701	SHEET 70 OF 82



PLOTTED: 8/10/2023 12:24:18 PM
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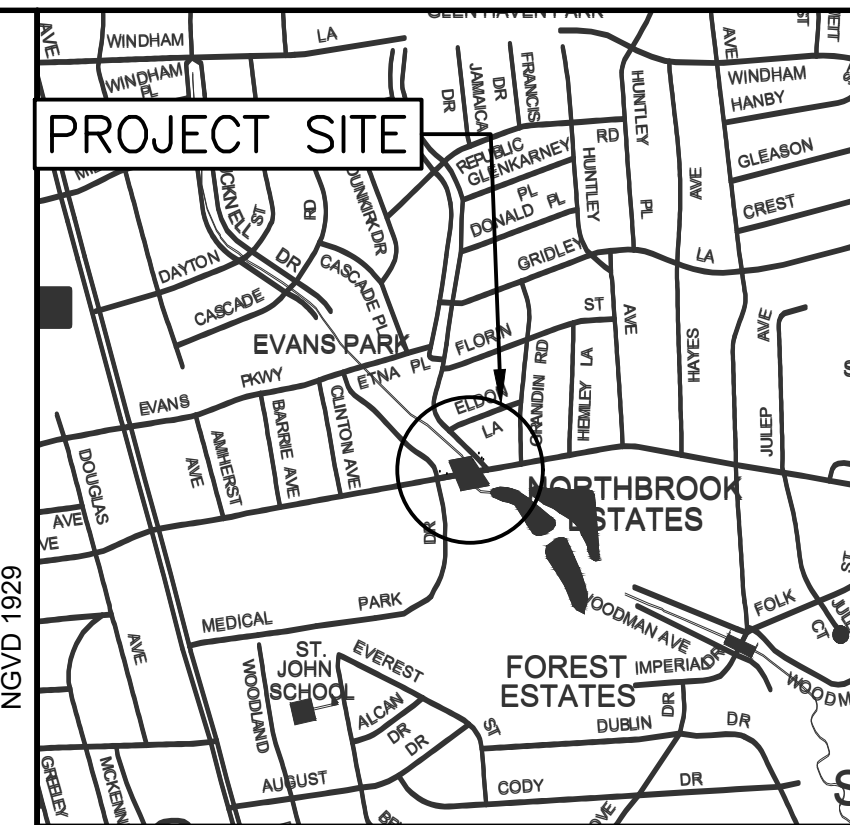
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OWNER/ADDRESS: DEPARTMENT OF TRANSPORTATION BRUCE JOHNSTON 100 EDISON PARK DRIVE GAITHERSBURG, MARYLAND 240-777-7221 CONTACT: DIVISION OF TRANSPORTATION ENGINEERING TRANSPORTATION CONSTRUCTION 240-777-7210 TRANSPORTATION PLANNING & DESIGN 240-777-7221	<table border="1"> <thead> <tr> <th>NO.</th> <th>REVISION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	REVISION	DATE	BY																																									MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL Chief, Design Section _____ Date _____ APPROVED Chief, Division of Transportation Engineering _____ Date _____ Designed By: MCDOT _____ Drawn By: ADW _____ Checked By: MCDOT _____	LIGHTING SPECIFICATIONS REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH) SCALE: AS SHOWN DATE: APRIL 2024 Project No. : 501701 SHEET 74 OF 82
NO.	REVISION	DATE	BY																																												

GENERAL NOTES

- NOTIFY WSSC'S PIPELINE CONSTRUCTION DIVISION AT (301) 206-7339 AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. INSPECTION OF MATERIALS REQUIRED FOR THE PROJECT SHALL TAKE PLACE AT THE CONSTRUCTION SITE.
- ALL MATERIALS REQUIRED UNDER THIS CONTRACT SHALL BE FURNISHED BY THE APPLICANT AT NO EXPENSE TO WSSC IN ACCORDANCE WITH THE LATEST EDITION OF THE WSSC GENERAL CONDITIONS AND STANDARD SPECIFICATIONS.
- ALL SEWER MAIN PIPES TO BE PVC, C-900 EXCEPT CLASS 50 WHERE NOTED. ALL SANITARY MANHOLES SHALL BE 48" DIAMETER PRECAST CONCRETE MANHOLES PER STD. DETAIL S/1.0 UNLESS OTHERWISE NOTED ON DRAWINGS.
- ALL WATER MAIN PIPES TO BE DUCTILE IRON PIPE WITH ZINC COATING CLASS 54 MINIMUM.
- ALL DUCTILE IRON PIPES SHALL BE V-BIO ENHANCED POLYETHYLENE ENCASMENT IN ACCORDANCE WITH AWWA C105, METHOD A.
- ALL DUCTILE IRON FITTINGS TO BE FUSION BONDED EPOXY COATED.
- AFTER PIPE HAS BEEN ASSEMBLED IN TRENCH, INSPECT POLYETHYLENE ENCASMENT FOR DAMAGE AND REPAIR IN ACCORDANCE WITH AWWA C105 AND MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL CONTACT KEVIN LETHBRIDGE, PIPELINE CONSTRUCTION DIVISION, AT (301) 206-7339, AT LEAST TWO WEEKS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.
- NOTIFY THE WSSC ENGINEERING AND ENVIRONMENTAL DIVISION (301) 206-8077 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE SEDIMENT CONTROL PERMIT WILL BE ISSUED TO THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
- MAINTAIN FLOW THROUGH EXISTING SEWER MAINS UNTIL NEW MAINS ARE CONSTRUCTED AND PLACED INTO SERVICE.
- STAKEOUT FOR THE PROPOSED RELOCATION SHALL BE PROVIDED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE AND SALVAGE ALL EXISTING FIRE HYDRANTS, VALVES, VALVE BOXES AND MANHOLE FRAME AND COVERS REMOVED DURING CONSTRUCTION AND DELIVER THEM TO THE WSSC WAREHOUSE SECTION, MATERIAL DIVISION, KENILWORTH AVENUE, BLADENSBURG, MARYLAND.
- UPON COMPLETION OF CONSTRUCTION THE CONTRACTOR SHALL PREPARE AS-BUILTS AND SUBMIT TO THE PIPELINE CONSTRUCTION DIVISION CONTRACT MANAGER. COST OF AS-BUILTS PREPARATION IS INCIDENTAL TO CORRESPONDING WATER MAIN AND SEWER LINE CONSTRUCTION.
- ALL EXISTING WATER MAIN VALVES NECESSARY FOR SHUTDOWN OF WATER MAINS ON THIS CONTRACT SHALL BE LOCATED AND CHECKED FOR OPERATION BY WSSC UTILITY SERVICE DIVISION PRIOR TO THE START OF CONSTRUCTION.
- THE SHUTDOWN OF THE EXISTING WATER MAIN MUST NOT EXCEED 8 HOURS. SHUT DOWNS MUST TAKE PLACE BETWEEN 10:00 PM AND 6:00 AM, UNLESS TEMPORARY BYPASS PIPING IS PROVIDED.
- THE CONTRACTOR SHALL TEST PIT AND DETERMINE THE LOCATION, ELEVATION, SIZE, MATERIAL, PIPE DIAMETER AND OUT OF ROUNDNESS OF THE EXISTING PIPE WHERE THE NEW PIPE WILL CONNECT. PRIOR TO ORDERING ANY NEW MATERIAL, UPON DELIVERY OF REQUIRED MATERIALS AND PRIOR TO THE REMOVAL OF EXISTING PIPING, THE CONTRACTOR SHALL CONFIRM THAT ALL NEW MATERIALS FIT TOGETHER.
- THE CONTRACTOR SHALL TEST PIT ALL UTILITY CROSSINGS. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 48 HOURS IN ADVANCE OF COMMENCING THIS WORK, SO APPROPRIATE MARKINGS OF UTILITIES CAN BE MADE.
- THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO THE PROCEDURES FOR RETURNING SCRAP MATERIALS TO WSSC AS OUTLINED IN THE WSSC STANDARD SPECIFICATION SECTION 01110.
- ALL EXISTING WATER MAIN VALVES NECESSARY FOR SHUTDOWN OF WATER MAINS ON THIS CONTRACT SHALL BE LOCATED AND CHECKED FOR OPERATION BY WSSC UTILITY SERVICES DIVISION PRIOR TO THE START OF CONSTRUCTION.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSSC'S GENERAL CONDITIONS AND STANDARD SPECIFICATIONS, STANDARD DETAILS.
- ALL EXISTING WATER AND SEWER SERVICE CONNECTIONS SIZES AND LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTING WATER MAIN AND SEWER RELOCATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING STAGING AREA(S) AND MOBILIZATION TO AND FROM SUCH AREA AT NO ADDITIONAL COST TO THE COMMISSION.
- REFER TO DPS SC NO. 285774 FOR E&S CONTROLS.

WSSC CONTRACT NO. RERF8756A21 DENNIS AVENUE BRIDGE WATER AND SEWER RELOCATION



VICINITY MAP
SCALE 1"=2,000'
MONTGOMERY Co. PAGE 5286 GRID D6
FOR LOCATION OF UTILITIES CALL 8-1-1 OR 1-800-257-7777 OR LOG ON TO www.call811.com or www.missutility.net 48 HOURS IN ADVANCE OF ANY WORK IN THIS VICINITY

DATE	REVISIONS

PERMIT REQUIREMENTS	
TREE	REQUIRED
WETLANDS / WATERWAYS	REQUIRED
M.N.C.P.&P.C.	REQUIRED
STATE HWY. ADM.	REQUIRED
STATE BD. HEALTH	REQUIRED
MONTGOMERY CO.	NOT REQUIRED
SED. CONTROL	REQUIRED
P.G.CO.D.P.W.&T.	NOT REQUIRED
M.D. D.O.E. - WMA	REQUIRED
*TO BE ACQUIRED BY APPLICANT	

TOWN NOTIFICATION	

AS BUILT DATA	
CONTRACT MANAGER	
CONTRACTOR	
INSPECTOR	
L & G	
DATE STARTED	
DATE COMPLETED	
TYPE PIPE	W. S.
TYPE MANHOLES	
DATE FINALED	
FINALED BY	

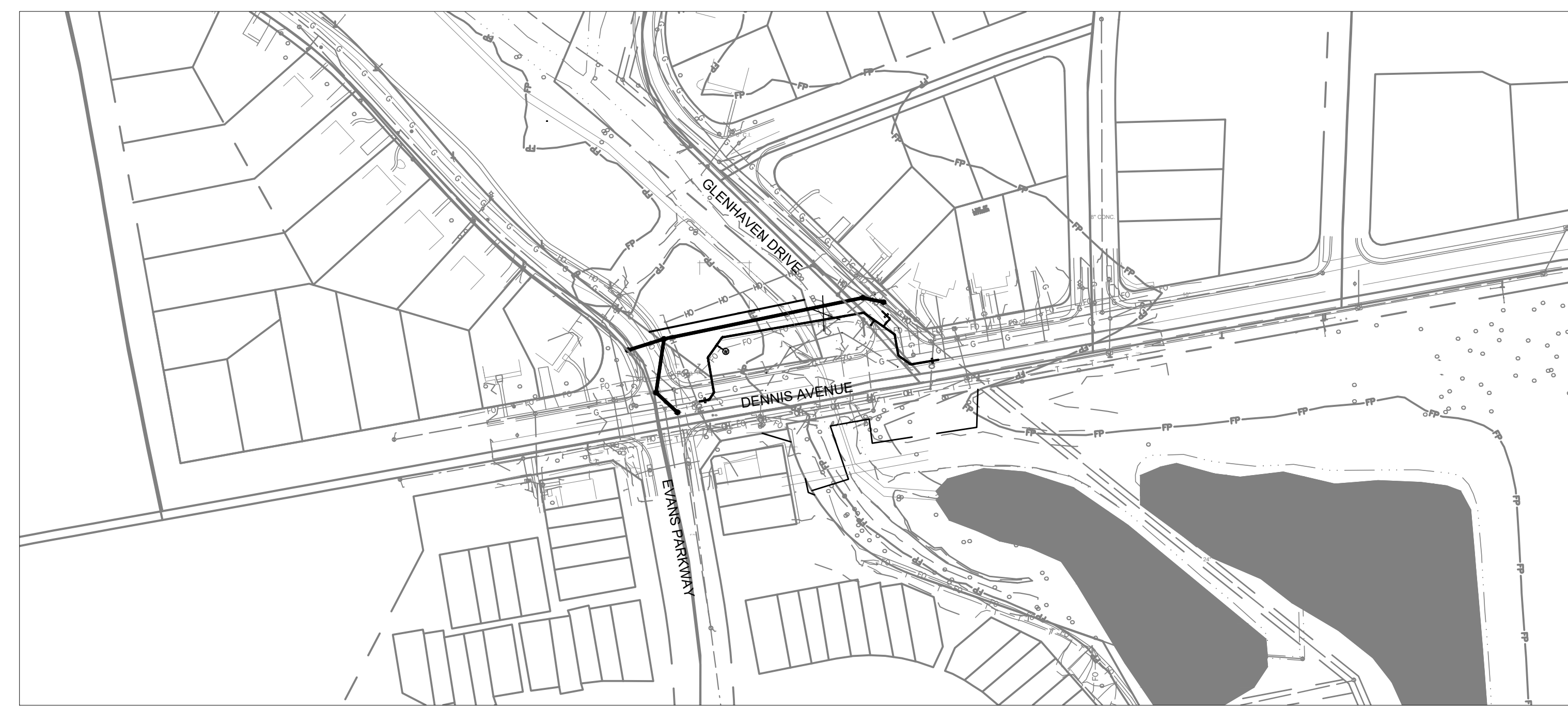
DRAWING INDEX	
Drawing No. 1	COVER
2 thru 7	Plans/Profiles/Details

PIPELINE DESIGN DIVISION	
DATE	DIVISION MANAGER: Caville Stanbury-Woolery

RELOCATIONS SECTION	
DATE	SECTION MANAGER: Amy Quant

PROFESSIONAL CERTIFICATION	
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.	
LICENSE NO.:	19344
EXP. DATE:	8-25-2025

CONTRACT RERF8756A21	
SHEET 76 OF 82	NO 1
200'S 213 NW02	OF 7



TRAVERSE POINTS			
POINT NO.	NORTH	EAST	ELEVATION
MERI 100	495,084.0786	1,300,687.9657	317.24
MERI 150	495,163.3662	1,300,869.6145	309.97
MERI 153	495,059.5183	1,300,882.5712	315.14

LOCATION MAP
1"=100'

SITE ABBREVIATIONS			
CIP	CAST IRON PIPE	NTS	NOT TO SCALE
CL	CENTERLINE	PROP	PROPOSED
CMP	CORRUGATED METAL PIPE	PVC	POLYVINYL CHLORIDE
CONC	CONCRETE	QTY	QUANTITY
DB	DUCTBANK	R	REDUCER
DIA	DIAMETER	RCP	REINFORCED CONCRETE PIPE
DIP	DUCTILE IRON PIPE	REV	REVISION
DWG	DRAWING	RP	RESTRAIN PIPE
EL	ELEVATION	RW	RIGHT OF WAY
ELEC	ELECTRIC OR ELECTRICAL	S	SANITARY SEWER
EP	ELECTRIC POLE	SD	STROM DRAIN
EX	EXISTING	SF	SQUARE FOOT
FH	FIRE HYDRANT	SHC	SANITARY HOUSE CONNECTION
G	GAS	SHT	SHEET
HB	HORIZONTAL BEND	SPEC	SPECIFICATION
IN	INCH	SO	SQUARE
INV	INVERT	STA	STATION
LOC	LOCATION	T	TEE
LP	LIGHT POLE	TEMP	TEMPORARY
MAX	MAXIMUM	TYP	TYPICAL
MH	MANHOLE	TV	TOP OF VALVE
MIN	MINIMUM	V	VALVE
MISC	MISCELLANEOUS	W	WATER OR WATER PIPE
		WHC	WATER HOUSE CONNECTION

LEGEND	
	PROP. SEWER MAINS
	PROP. SEWER MANHOLES (SMH)
	PROP. WATER MAINS
	PROP. WATER MANHOLE
	PROP. WATER VALVES (V)
	PROP. WATER TEES (T)
	PROP. WATER REDUCERS (R)
	PROP. WATER FIRE HYDRANTS (FH)
	PROP. WATER CAP
	PROP. WATER BEND
	UTILITY TO BE ABANDONED
	UTILITY TO BE REMOVED
	EX. STREET R/W LINES
	EX. EASEMENT LINES WATER AND SEWER
	EX. FLOOD PLAIN
	EX. STREAM

BLOCKING NOTES

- RESTRAIN FIRE HYDRANTS TO MAIN PER STD. DETAIL B/2.1.
- RESTRAIN JOINTS FOR WATER MAINS, FITTINGS AND VALVES WHERE INDICATED ON THE PLANS.
- BLOCK ALL HORIZONTAL BENDS WITH CONCRETE. SEE STD. DETAIL B/1.0.
- STRAP FH TO MAIN. SEE STD DETAIL B/2.1. DO NOT BLOCK FH OR FHT.
- BLOCK ALL OTHER FITTINGS WITH CONCRETE. SEE STD. DETAIL B/1.3 AND B/1.4.

WESTERN BASIN DRAINAGE BASIN, MINI BASIN No.-14-068 & 067

VERTICAL CONTROL

THE LOCATION AND ELEVATION OF BENCH MARKS ARE SHOWN ON THESE PLANS. ALL ELEVATIONS SHOWN ON THESE PLANS ARE BASED ON NGVD 29 DATUM BENCH MARKS INCLUDED ON THE PLANS FOR STAKEOUT OF THIS WATER AND SANITARY SEWER CONSTRUCTION.

EXISTING WATER MAIN TO BE RELOCATED			
Street	Ex. WM Size	Relocation WM Size	Length
DENNIS AVENUE	12"	12"	327
GLENHAVEN DRIVE	6"	8"	22

RESTORATION SCHEDULE			
Location	Grading Type	Restoration Type	
12" WATER STA. 0+00 TO STA. 0+30	I	F	
12" WATER STA. 2+25 TO STA. 3+27	I	F	
12" WATER STA. 0+30 TO STA. 2+25	II	E	
8" WATER STA. 0+00 TO STA. 0+20	I	F	
6" WATER STA. 0+00 TO STA. 0+07	I	F	
All OTHER AREAS	I	F	

APPLICANT
NAME: MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING
ADDRESS: 100 EDISON PARK DRIVE, 4TH FLOOR GAITHERSBURG, MD 20878
PHONE: 240-777-7220

PRESSURE ZONE= 495A
HHG: 530
LHG: 457

WASHINGTON SUBURBAN SANITARY COMMISSION
WSSCWATER
DELIVERING THE ESSENTIAL

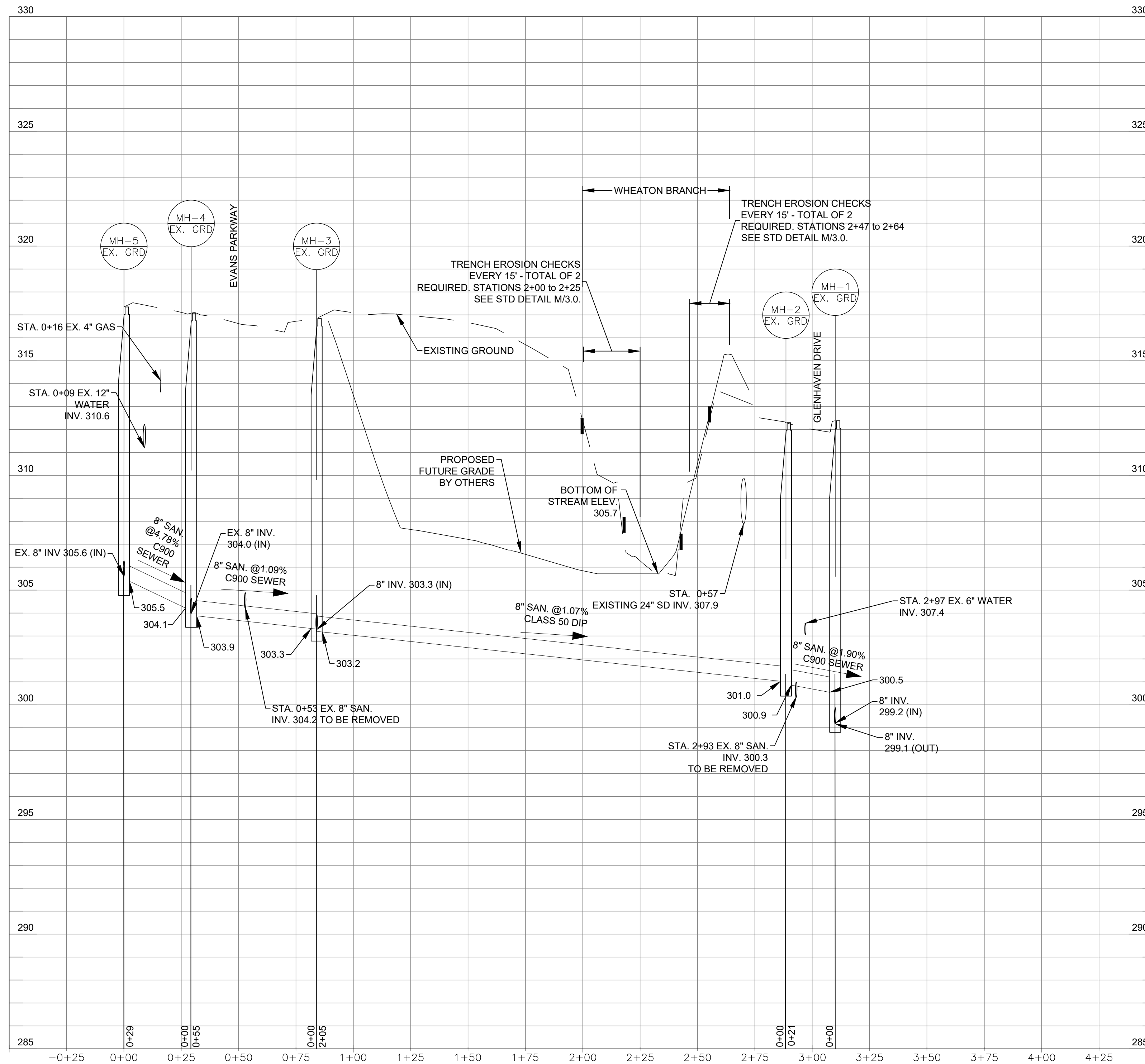
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ENGINEER:
NAME: GREENMAN PEDERSEN INC
ADDRESS: 11000 BROKEN LAND PARKWAY, SUIT 500, COLUMBIA MD 443 753 5473
PHONE: RICH HAYES
CONTACT:

MONTGOMERY COUNTY ELECTION DISTRICT NO. 13
DENNIS AVENUE WATER AND SEWER RELOCATION
TITTLE SHEET
DENNIS AVENUE AND VARIOUS STREETS
SILVER SPRING MONTGOMERY COUNTY, MARYLAND

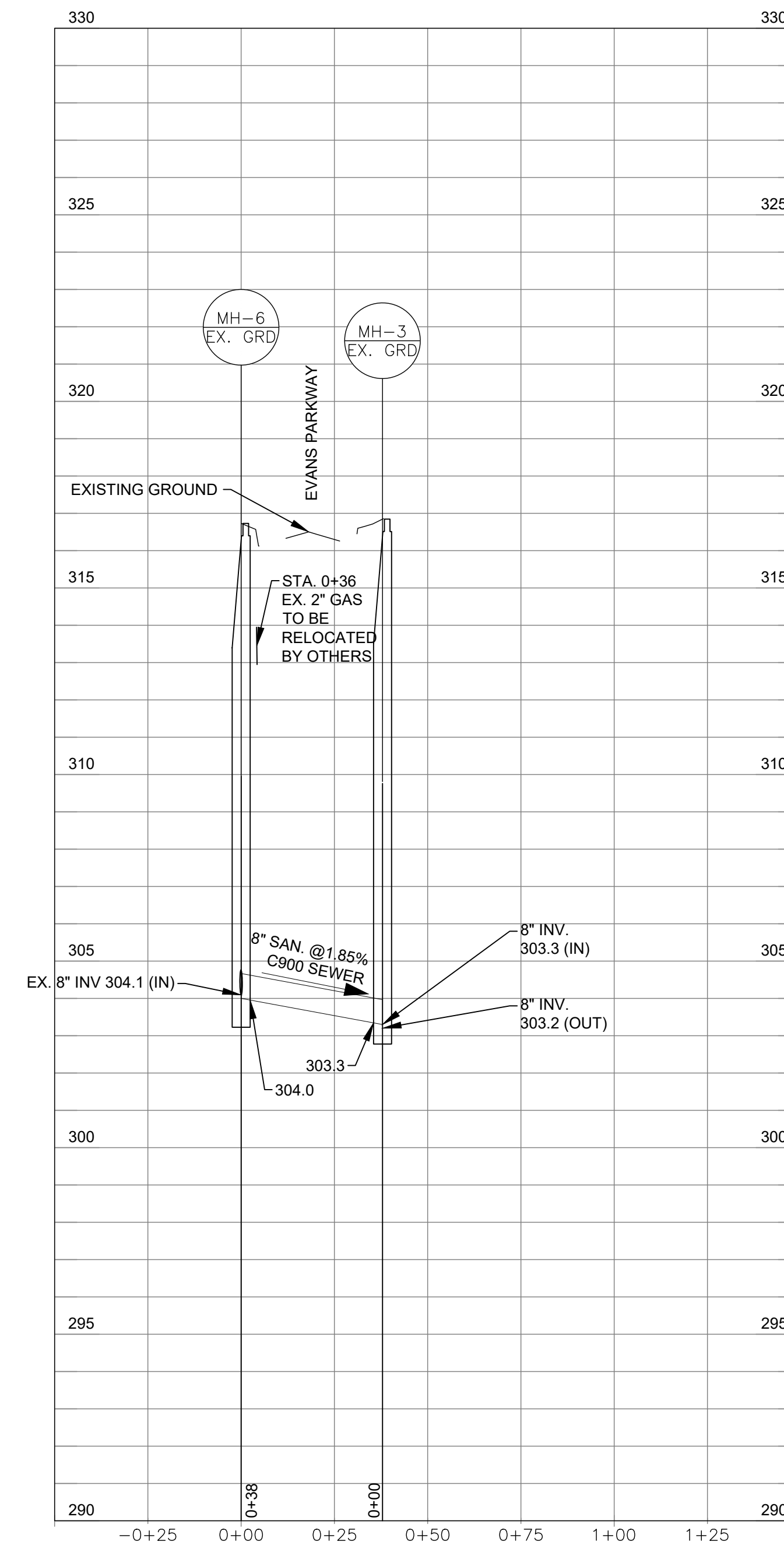
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PATH: N:\2024\02\02031_00 MONTGOMERY COUNTY DOT ENGINEERING\TASK 12 DENNIS AVE WATER AND SEWER DESIGN\DRAWINGS\DESIGN-DATE UPDATED.DWG



8" SEWER LINE FROM MH-5 TO MH-1

SCALE: 1" = 30' (HORIZ)
SCALE: 1" = 3' (VERT)



8" SEWER LINE FROM MH-6 TO MH-3

SCALE: 1" = 30' (HORIZ)
SCALE: 1" = 3' (VERT)

PRESSURE ZONE=495A
HHG: 530
LHG: 457

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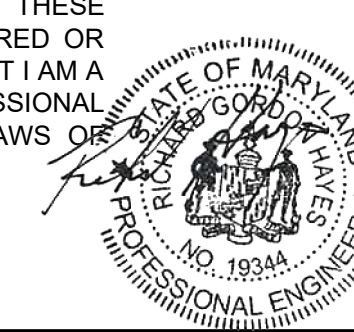
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COLUMBIA MD
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CONTACT: RICH HAYES

MONTGOMERY COUNTY ELECTION DISTRICT NO. 13
DENNIS AVENUE WATER AND SEWER RELOCATION
SEWER PROFILE
DENNIS AVENUE AND VARIOUS STREETS
SILVER SPRING MONTGOMERY COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO.: 19344
EXP. DATE: 8-25-2025



DATE	REVISIONS

RELOCATIONS SECTION

DATE _____ SECTION MANAGER: Amy Quant

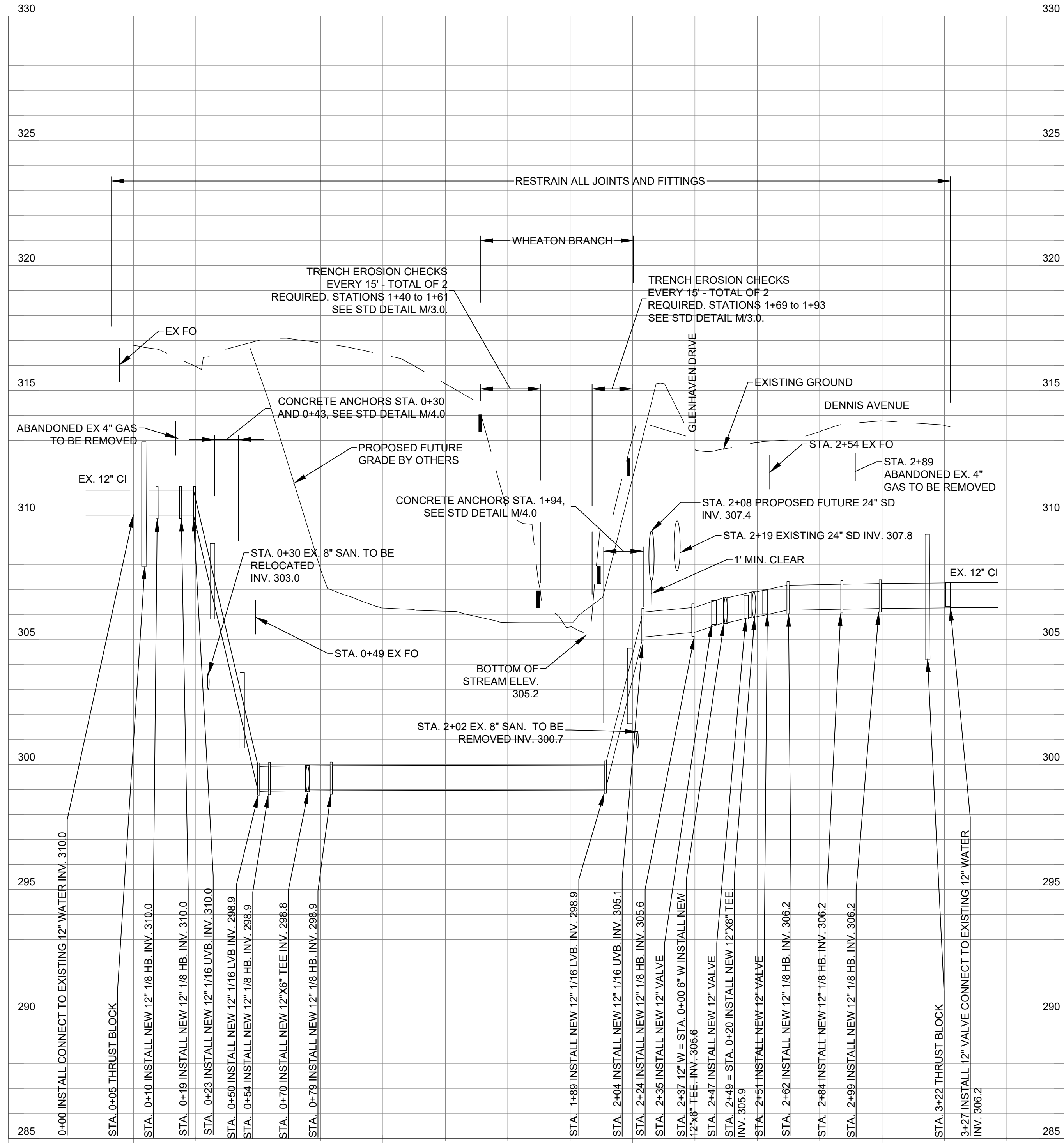
DATE _____ REVIEWED BY: _____

CONTRACT RERF8756A21

SHEET 78 OF 82 NO 3
200'S 200'SHEET# 213 NW02 OF 7

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PATH: N:\2024\202403\01.MONTGOMERY COUNTY DOT ENGINEERING\TASK 12 DENNIS AVE WATER AND SEWER DESIGN\DRAWINGS\DESIGN-1 SITE UPDATED.DWG



12" WATERLINE ALONG DENNIS AVENUE
 SCALE: 1" = 30' (HORIZ)
 SCALE: 1" = 3' (VERT)

PRESSURE ZONE=495A
 HHG: 530
 LHG: 457

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 PHONE: 443 753 5473
 CONTACT: RICH HAYES

MD STATE PLANE DATUM
 NAD 83/91AR
 NGVD 1929

MONTGOMERY COUNTY ELECTION DISTRICT NO. 13
DENNIS AVENUE WATER AND SEWER RELOCATION
 WATER MAIN PROFILE
 DENNIS AVENUE AND VARIOUS STREETS
 SILVER SPRING MONTGOMERY COUNTY, MARYLAND

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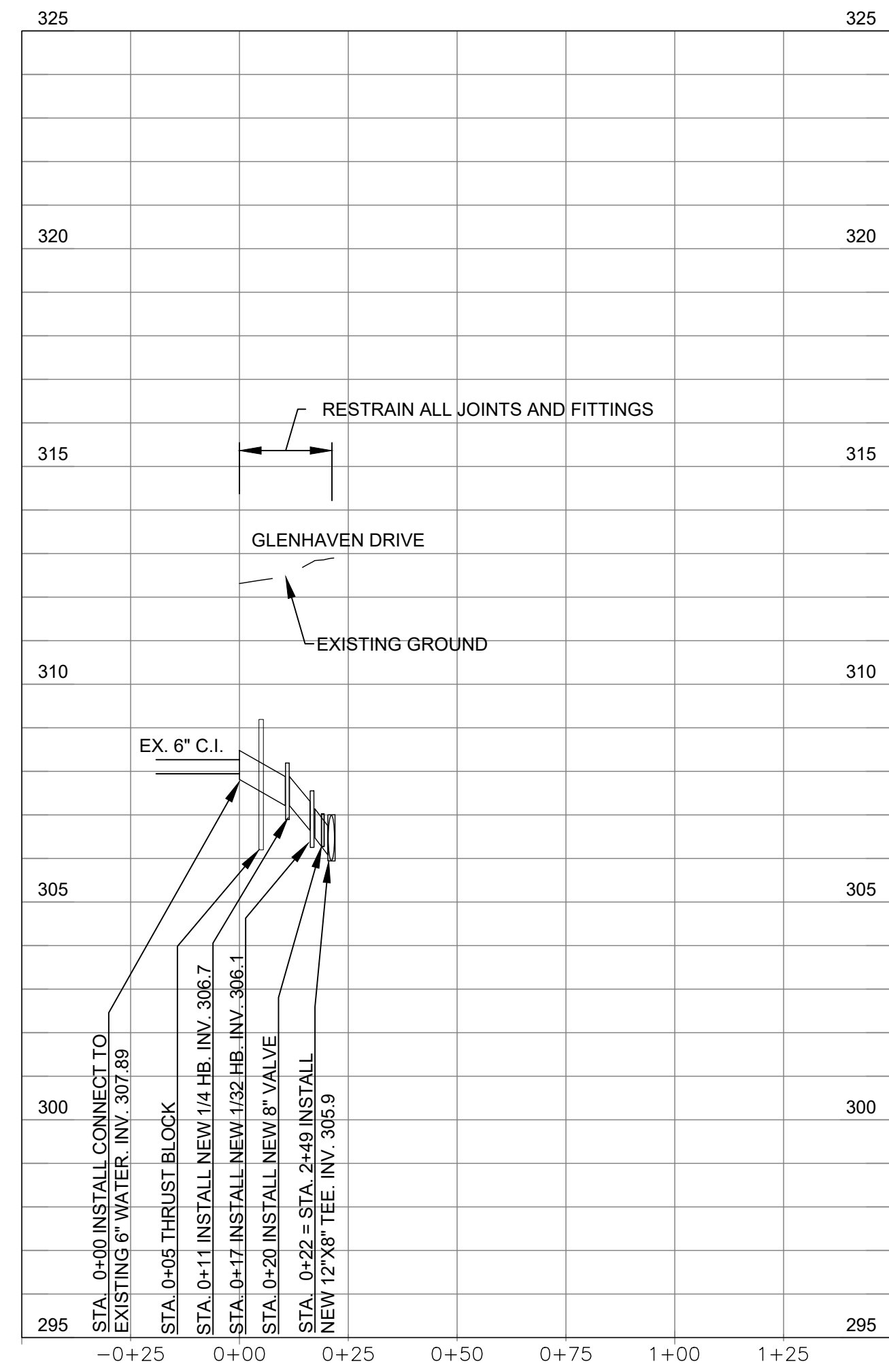
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CONTRACT RERF8756A21

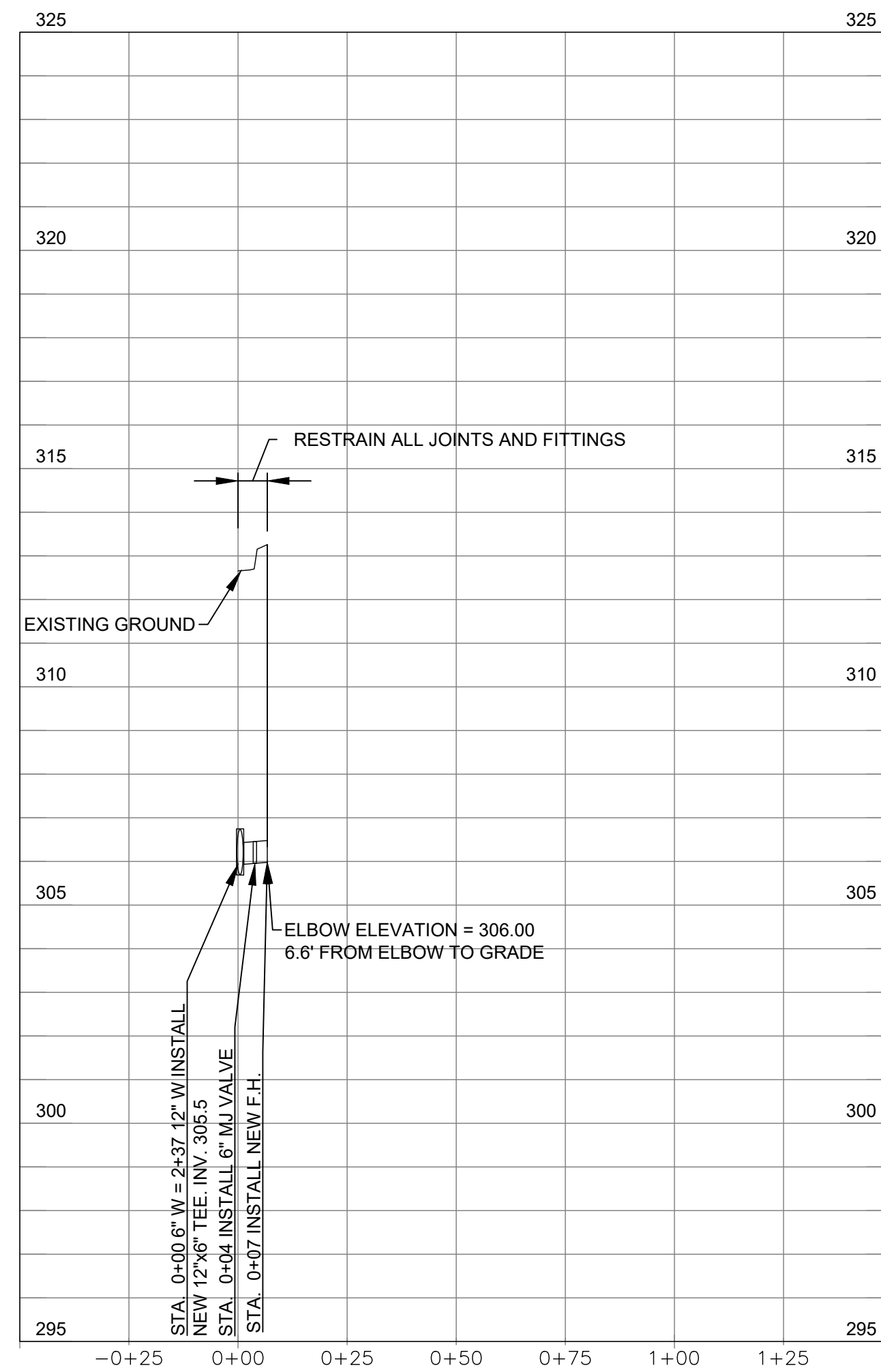
SHEET 79 OF 82	NO 4
200'S 213 NW02	OF 7

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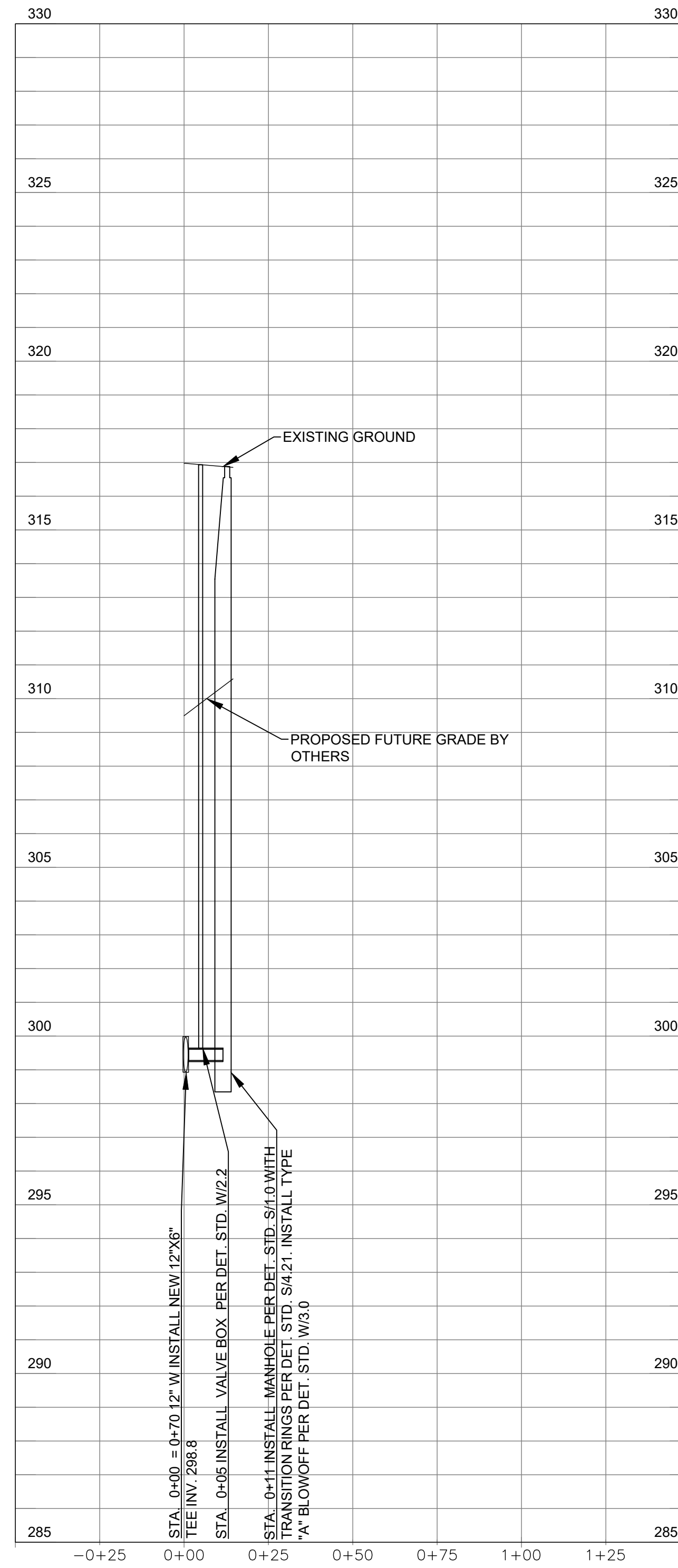
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8" WATERLINE ALONG GLENHAVEN DRIVE
SCALE: 1" = 30' (HORIZ)
SCALE: 1" = 3' (VERT)



6" WATER LINE TO NEW FIRE HYDRANT AT GLENHAVEN DRIVE
SCALE: 1" = 30' (HORIZ)
SCALE: 1" = 3' (VERT)



8" WATER LINE TO BLOW OFF VALVE AND HOUSING MANHOLE
SCALE: 1" = 30' (HORIZ)
SCALE: 1" = 3' (VERT)

PRESSURE ZONE=495A
HHG: 530
LHG: 457

WASHINGTON SUBURBAN SANITARY COMMISSION



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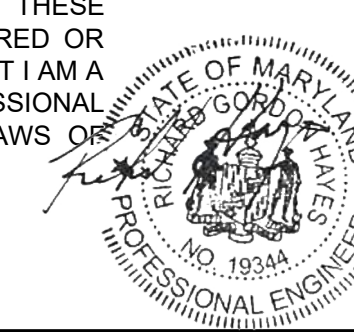
ENGINEER:
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CONTACT: RICH HAYES

MONTGOMERY COUNTY ELECTION DISTRICT NO. 13
DENNIS AVENUE WATER AND SEWER RELOCATION
WATER MAIN PROFILE
DENNIS AVENUE AND VARIOUS STREETS
SILVER SPRING MONTGOMERY COUNTY, MARYLAND

MD STATE PLANE DATUM
NAD 83/91AR
NGVD 1929

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LICENSE NO.: 19344
EXP. DATE: 8-25-2025

DATE	REVISIONS

RELOCATIONS SECTION

DATE SECTION MANAGER: Amy Quant

DATE REVIEWED BY:

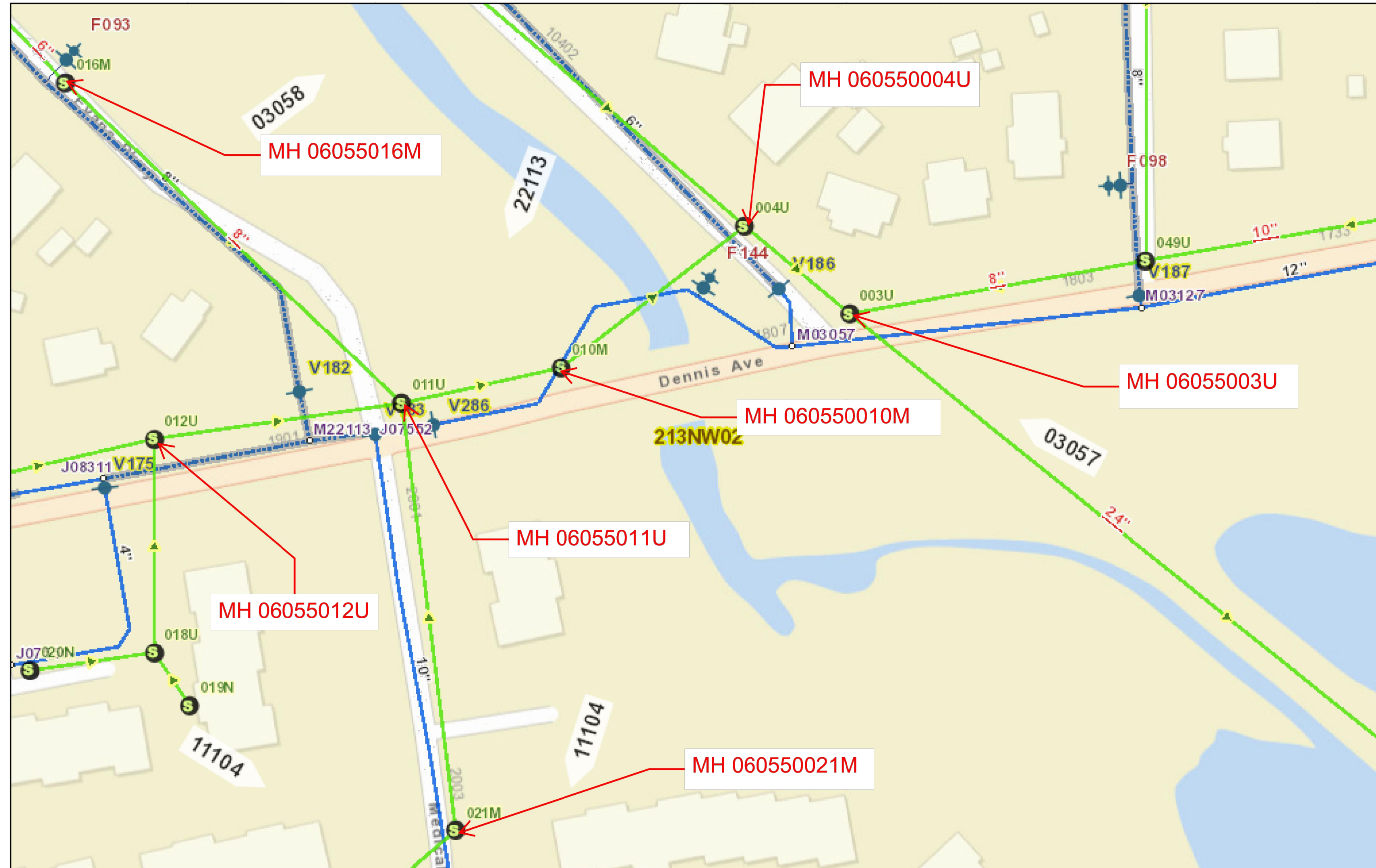
CONTRACT RERF8756A21

SHEET 80 OF 82 NO 5
200'S 213 NW02 OF 7

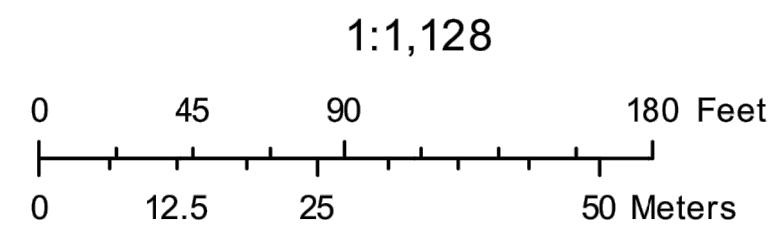
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PATH: N:\2020\20201031.00 MONTGOMERY COUNTY DOT ENGINEERING\TASK 12 DENNIS AVE WATER AND SEWER DESIGN\DRAWINGS\DESIGN-SITE-UPDATED.DWG

WSSC GIS (EXISTING WSSC STRUCTURES)



November 14, 2022



Sources: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

SUGGESTED SEQUENCE OF CONSTRUCTION - WATER LINE (SEE SHEETS 2,6, AND 7 FOR LOCATIONS)

PHASE 1 - INSTALL NEW 8" W

1. CLOSE THE FOLLOWING VALVES:

- A. V186 - DENNIS AVENUE AND GLEN HAVEN DRIVE.
- B. V189 - ELDON LANE.
- C. V131 - FLORIN STREET.

2. BEGIN CONSTRUCTION OF THE THRUST BLOCK AT STA. 0+05 PER PLAN WITH A PORTION OF 8" NEW PIPES PER STANDARD DETAIL B/3.1.

3. ONCE THE THRUST BLOCK INSTALLED IN STEP 1 HAS FULLY CURED, WITHOUT REQUIRING SHUTDOWNS, CONSTRUCT NEW 8" W IN ITS ENTIRETY PER PLAN, INCLUDING ALL APPURTENANCES, VALVE, FITTINGS AND ACCESSORIES.

PHASE 2 - INSTALL NEW 12" W THRUST BLOCK AT DENNIS AVENUE AND GLEN HAVEN DRIVE INTERSECTION.

4. CLOSE THE FOLLOWING VALVES TO SHUT DOWN WATER SUPPLY ON DENNIS AVENUE EAST OF GLEN HAVEN DRIVE:

- A. V286 - DENNIS AVENUE BETWEEN MEDICAL PARK DRIVE AND GLEN HAVEN DRIVE.
- B. V187 - GRANDIN ROAD.
- C. V188 - HEMLEY LANE.
- D. V193 - HUNTLEY AVENUE.
- E. V194 - HAYES AVENUE.
- F. V196 - INTERSECTION OF DENNIS AVENUE AND INWOOD AVENUE.

5. BEGIN CONSTRUCTION OF THE THRUST BLOCK ON PER PLAN AT STA. 3+22 PER STANDARD DETAIL B/3.1.

6. REOPEN ALL THE VALVES (EXCEPT V186, V189, AND V131) TO RESUME WATER SUPPLY WHILE THE THRUST BLOCK CURES.

7. ONCE THE THRUST BLOCK INSTALLED IN STEP 5 HAS FULLY CURED, CLOSE THE VALVES IN STEP 4.

8. INSTALL NEW 12" W FROM THE ABOVE CURED THRUST BLOCK TO STA. 3+27, INCLUDING THE VALVE AT STA. 3+27, TO CONNECT WITH EXISTING 12" W.

9. REOPEN ALL THE VALVES (EXCEPT V186, V189, AND V131) AND OPEN THE NEW 12" W VALVE AT STA. 3+27 TO RESTORE WATER SUPPLY.

PHASE 3 - INSTALLATION OF THE NEW 6" W AND REMAINING 12" W

10. CLOSE V286 AND THE NEW 12" VALVE AT STA. 3+27.

11. BEGIN CONSTRUCTION OF THE THRUST BLOCK AT STA. 0+05 PER STANDARD DETAIL B/3.1.

12. REOPEN V286 AND THE NEW 12" VALVE AT STA. 3+27 TO RESTORE WATER SUPPLY WHILE THE THRUST BLOCK CURES.

13. WITHOUT DISTURBING EXISTING WATER MAINS OR REQUIRING SHUTDOWNS, INSTALL THE NEW 12" W FROM STA. 0+19 (+/-) TO STA. 2+84, INCLUDING ALL APPURTENANCES, VALVES, BLOWOFF VALVES, THE MANHOLE HOUSING THE BLOWOFF VALVE, BRANCH MAINS, AND THE TWO 6" W LINES CONNECTING TO THE NEW FIRE HYDRANT AND BLOWOFF VALVE. DO NOT REMOVE FIRE HYDRANT F144 OR CONNECT THE BRANCH MAINS TO THE EXISTING WATER MAIN YET.

14. ONCE THE THRUST BLOCK INSTALLED IN STEP 11 HAS FULLY CURED, CLOSE V286 AND THE NEW 12" VALVE AT STA. 3+27.

15. INSTALL NEW 12" W FROM STA. 0+00 TO 0+19 (+/-) AND FROM STA. 2+84 TO 3+22, INCLUDING ALL APPURTENANCES, VALVES, FITTINGS AND ACCESSORIES, TO CONNECT WITH EXISTING 12" W.

16. REMOVE FIRE HYDRANT 144 AND INSTALL NEW FIRE HYDRANT.

17. REOPEN V286 AND THE NEW 12" VALVE AT STA. 3+27 TO RESTORE WATER SUPPLY, AS WELL AS V189 AND V131.

18. RESTORE THE AREA.

SUGGESTED SEQUENCE OF CONSTRUCTION - SEWER LINE (SEE SHEETS 2,6, AND 7 FOR LOCATIONS)

1. MAINTAIN SEWER MAIN SERVICE THROUGHOUT CONSTRUCTION.
2. CONSTRUCT PUMP AROUND FROM EXISTING MH 060550010M TO EXISTING MH 060550003U AND REMOVE THE EXISTING PIPE BETWEEN MH 060550010M AND MH 060550004U.
3. CONSTRUCT NEW DOGHOUSE MH 1 OVER EXISTING SANITARY 8" LINE.
4. CONSTRUCT NEW MH 2 AND NEW 8" PIPE IN BETWEEN NEW MH 2 AND NEW MH 1.
5. CONSTRUCT NEW MH 3 AND NEW 8" PIPE IN BETWEEN NEW MH 3 AND NEW MH 2.
6. CONSTRUCT PUMP AROUND FROM EXISTING MH 06055016M TO NEW MH 3.
7. CONSTRUCT NEW MH 6 AND NEW 8" PIPE IN BETWEEN NEW MH 6 TO NEW MH 3.
8. REMOVE EXISTING SEWER PIPE SECTION FROM NEW MH 6 TO EXISTING MH 06055011U.
9. CONSTRUCT PUMP AROUND FROM EXISTING MH 06055012U TO NEW MH 6.
10. CONSTRUCT PUMP AROUND FROM EXISTING MH 06055021M TO NEW MH 3.
11. CONSTRUCT NEW MH 4 AND NEW 8" PIPE IN BETWEEN NEW MH 4 AND NEW MH 3.
12. CONSTRUCT NEW MH 5 AND NEW 8" PIPE IN BETWEEN NEW MH 5 AND NEW MH 4.
13. ABANDON THE EXISTING SEWER PIPE FROM EXISTING MH 06055011U TO EXISTING MH 06055010M, FROM NEW MH 4 TO EXISTING MH 06055011U, FROM NEW MH 5 TO EXISTING MH 06055011U, AND FILL WITH FLOWABLE FILL. SEE DETAIL S3.6

NOTE:

1. THE WATER AND SEWER SHALL BE RELOCATED PRIOR TO THE DEMOLITION OF THE EXISTING DENNIS AVENUE BRIDGE.
2. COORDINATE WITH ALL ONGOING CONSTRUCTION IN THE PROJECT AREA (IF ANY) TO RESOLVE ANY ISSUES THAT WOULD BE IN CONFLICT WITH OTHER PROJECTS AND TRAFFIC CONTROL.
3. PEDESTRIAN AND VEHICLE ACCESS SHALL BE SAFELY MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE TEMPORARY TRAFFIC CONTROL PLAN FOR WATER AND SEWER RELOCATION.
4. VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
5. TEST PIT CONNECTION LOCATIONS OF EXISTING WATER MAINS AND EXISTING UTILITY CROSSINGS.
6. TEST AND DISINFECT WATERLINE AND TEMPORARY BYPASS PIPING PRIOR TO PLACING IN SERVICE.
7. CONTRACTOR SHALL PREPARE TEMPORARY BYPASS PIPING IF SHUTDOWNS EXCEED 8 HOURS WITH PRIOR APPROVAL FROM WSSC. THE COST OF TEMPORARY BYPASS PIPING IS INCIDENTAL TO THE CORRESPONDING WATER MAIN RELOCATION.
8. CONTRACTOR TO MAINTAIN OPERATION OF EXISTING WATER MAINS AND TEMPORARY BYPASS PIPING UNTIL THE WATER MAINS AFFECTED BY THIS CONSTRUCTION ARE TRANSFERRED OVER TO THE RELOCATED WATER MAIN.
9. CONTRACTOR SHALL REMOVE THE EXISTING WATER MAIN AND SEWER NO LONGER CONNECT AFTER THE RELOCATION, COST OF THE REMOVAL IS INCIDENTAL TO THE CORRESPONDING WATER MAIN AND SEWER RELOCATION.

DATE	REVISIONS

RELOCATIONS SECTION

DATE _____ SECTION MANAGER: Amy Quant

DATE _____ REVIEWED BY: _____

CONTRACT RERF8756A21

PROFESSIONAL CERTIFICATION

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LICENSE NO.: 19344
EXP. DATE: 8-25-2025

PATH: N:\2024\20240103\001\MONTGOMERY COUNTY DOT ENGINEERING\TASK 12 DENNIS AVE WATER AND SEWER DESIGN\DRAWINGS\DESIGN\2-SITE UPDATED.DWG
PRESSURE ZONE=495A
HHG: 530
LHG: 457

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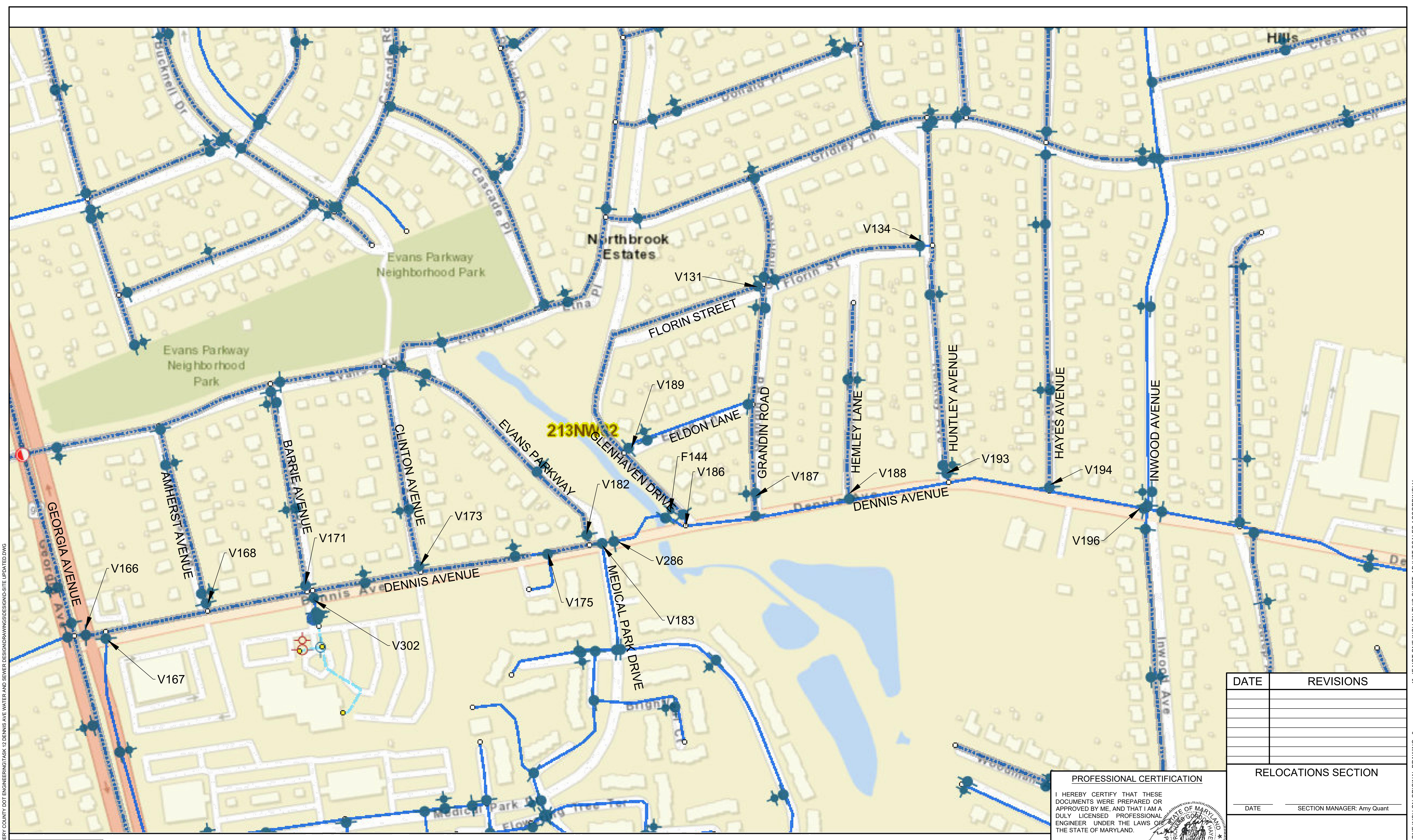


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NAME: GREENMAN PEDERSEN INC
ADDRESS: 11000 BROKEN LAND PARKWAY, SUIT 500, COLUMBIA MD 21046
PHONE: 443 753 5473
CONTACT: RICH HAYES

MONTGOMERY COUNTY ELECTION DISTRICT NO. 13
DENNIS AVENUE WATER AND SEWER RELOCATION
SEQUENCE OF CONSTRUCTION
DENNIS AVENUE AND VARIOUS STREETS
SILVER SPRING MONTGOMERY COUNTY, MARYLAND

VERIFY SCALE - BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



PATH: N:\2020\202003\001.MONTGOMERY COUNTY DOT ENGINEERING\TASK 12 DENNIS AVE WATER AND SEWER DESIGN\DRAWINGS\DESIGN\213 NW 2 SITE UPDATED.DWG
 DATE: 11/20/2020 10:03:00 AM

PRESSURE ZONE=495A
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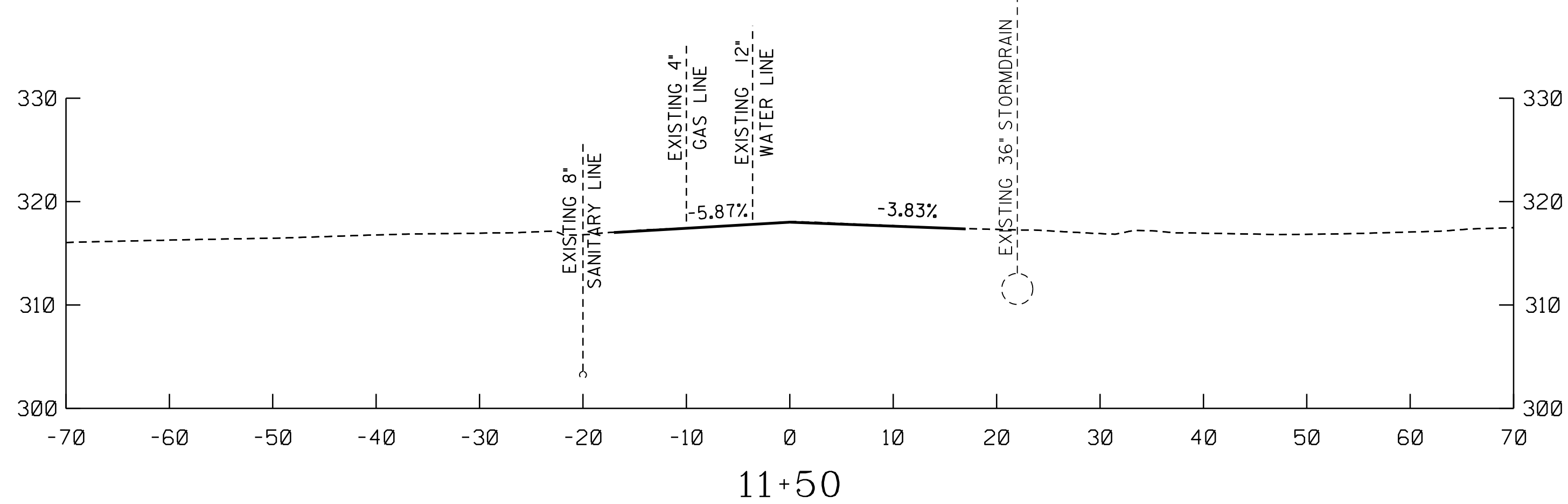
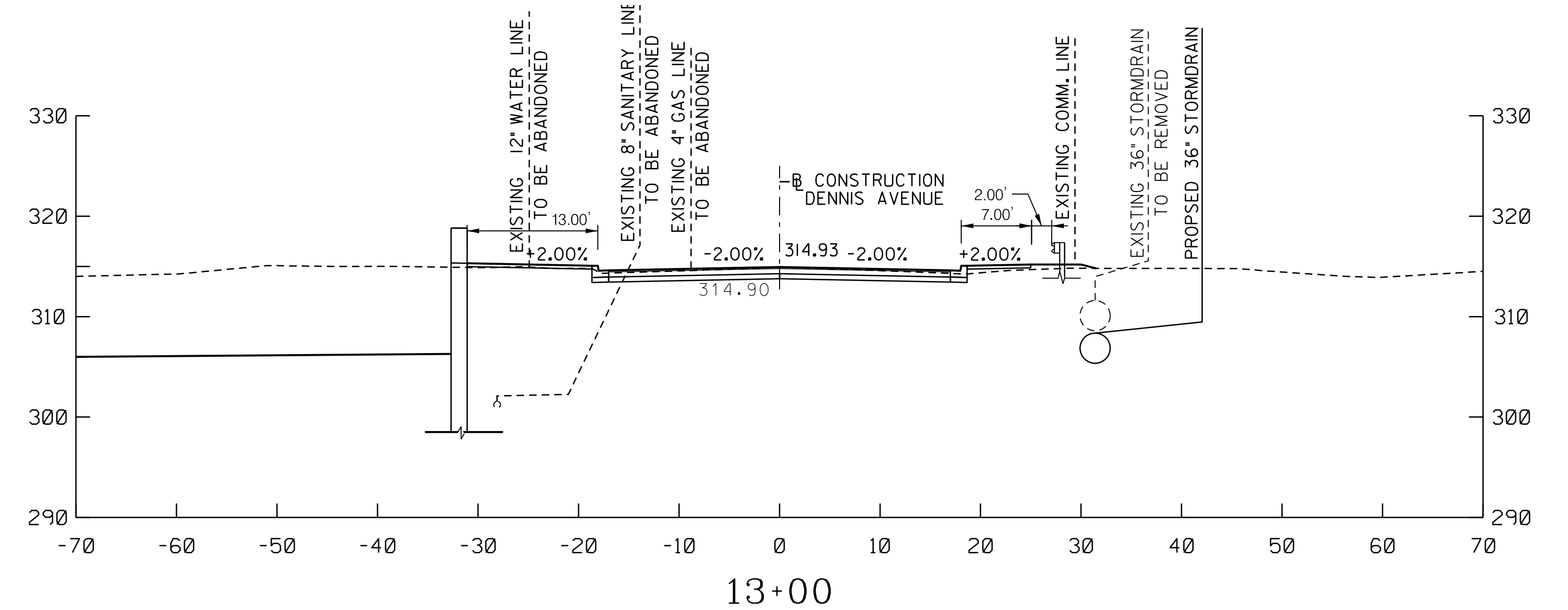
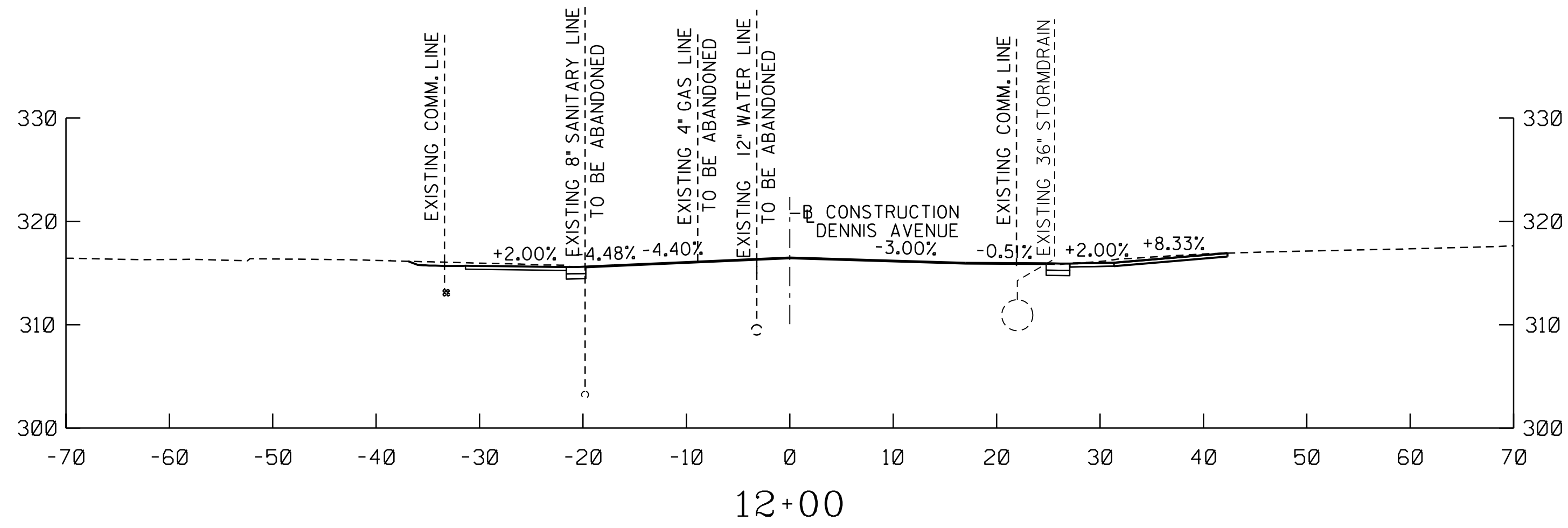
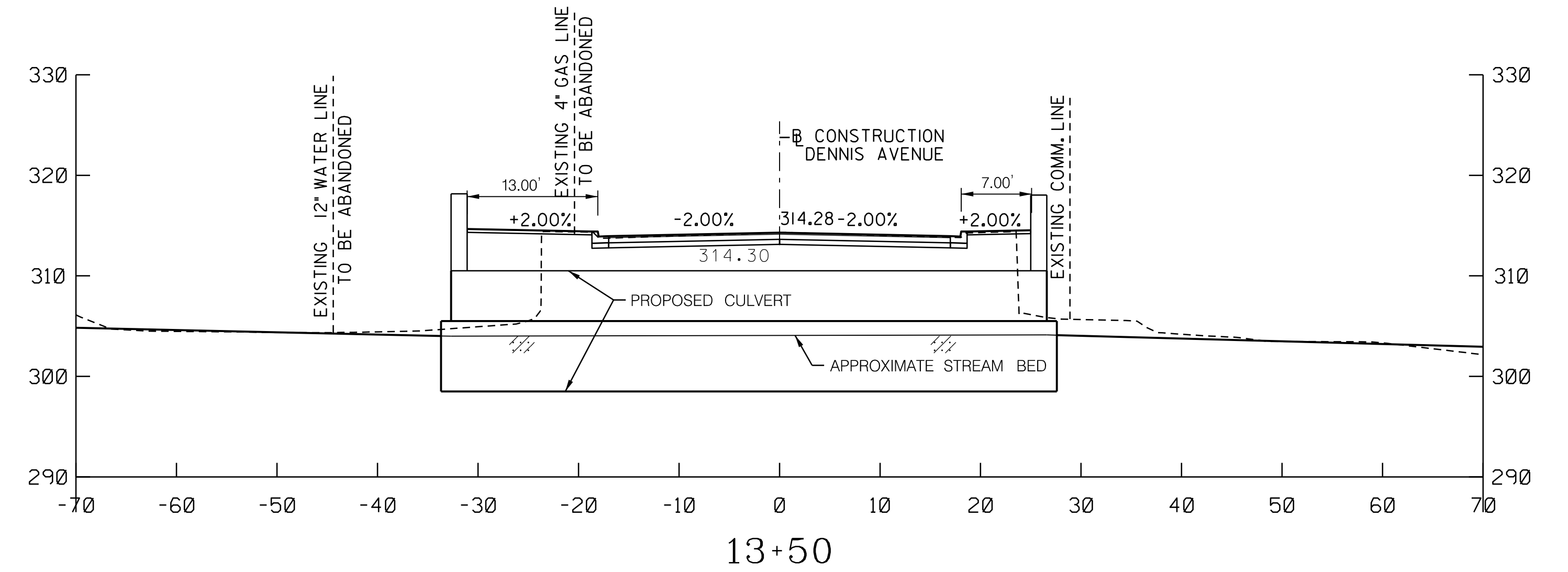
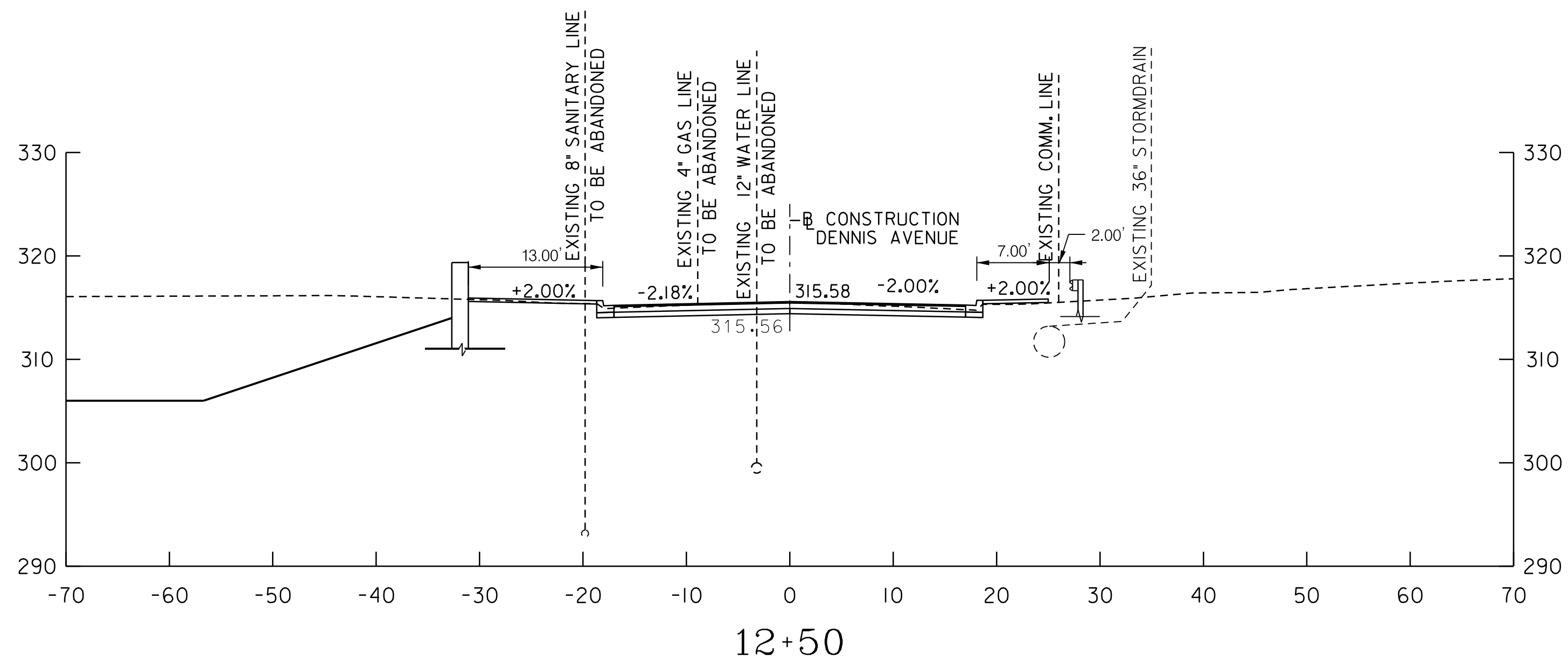


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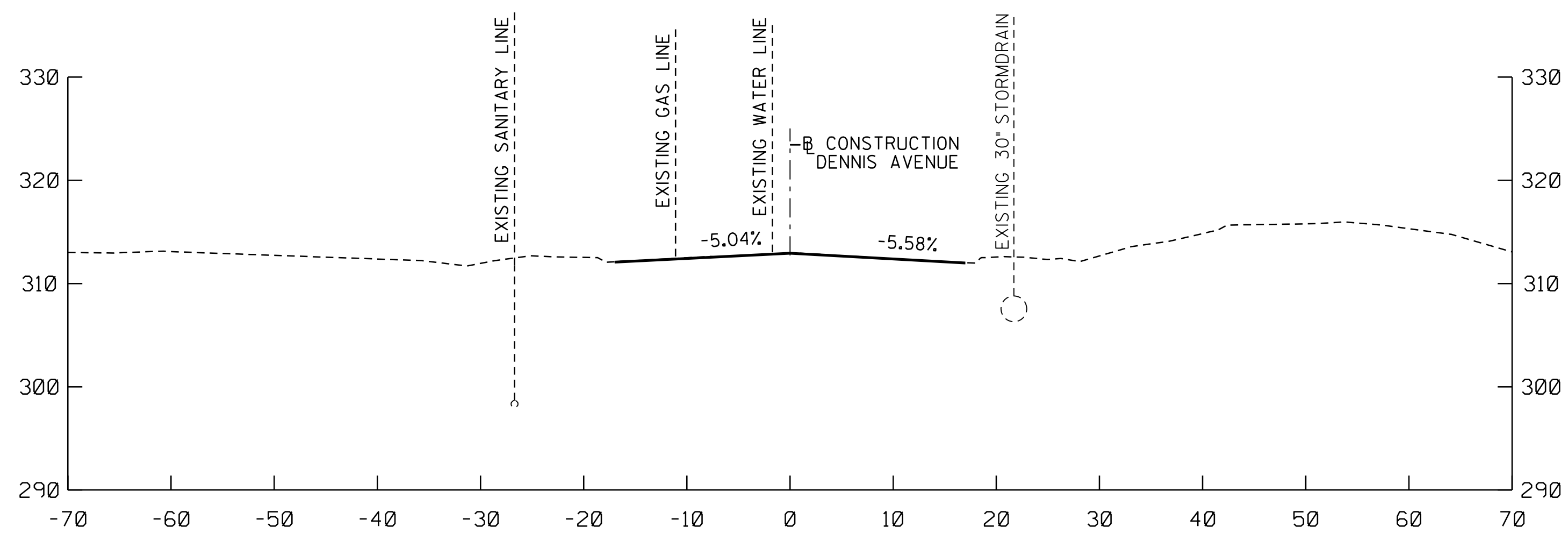
RELOCATIONS SECTION
 DATE _____ SECTION MANAGER: Amy Quant
 DATE _____ REVIEWED BY: _____

CONTRACT RERF8756A21
 SHEET 82 OF 82 NO 7
 200'S 213 NW02 OF 7

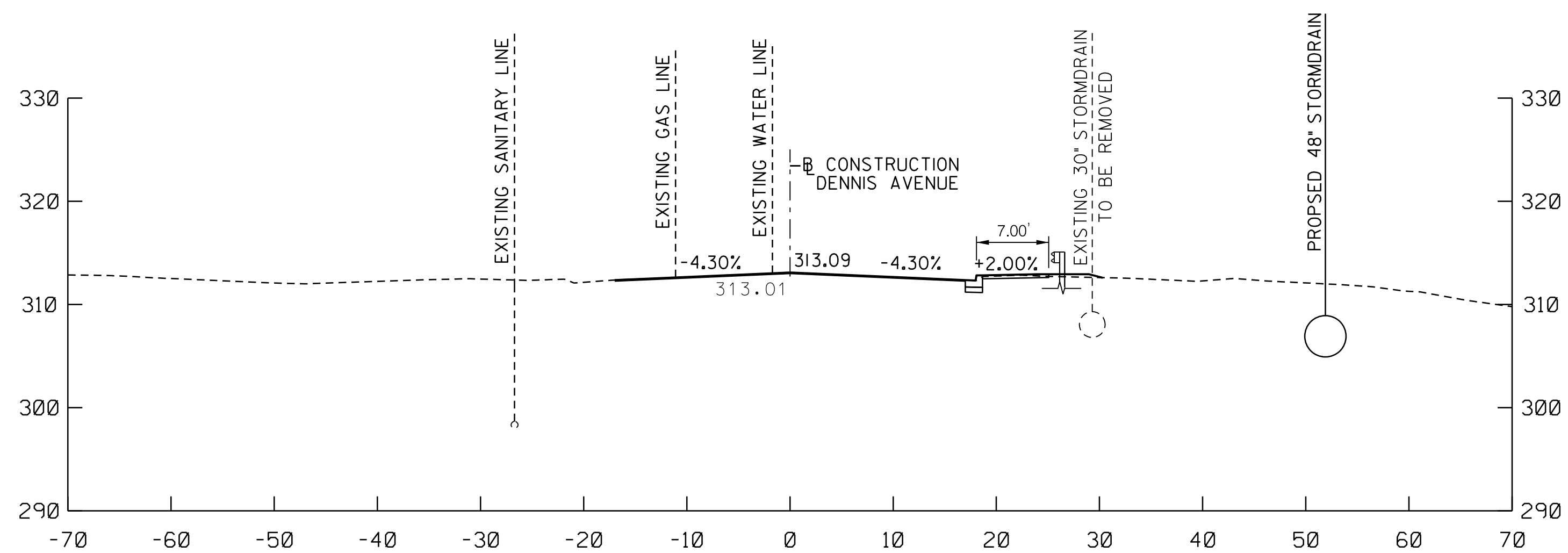
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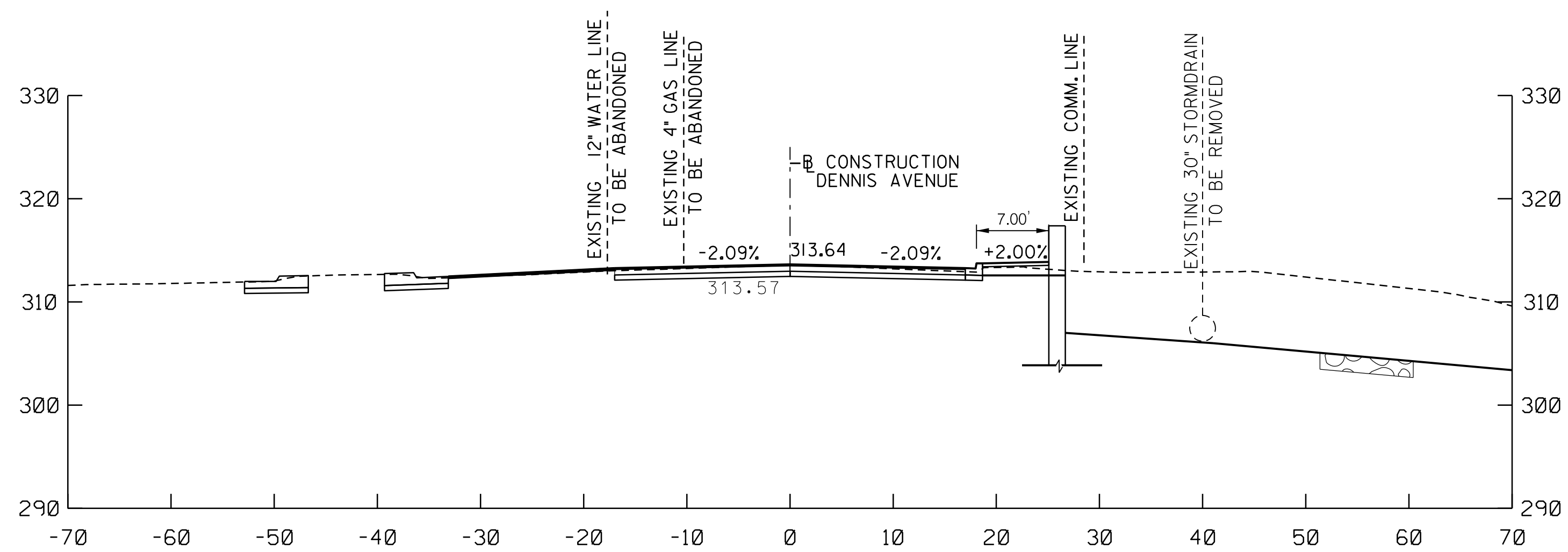
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND		CROSS SECTIONS	
RECOMMENDED FOR APPROVAL		REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)	
Chief, Design Section	_____	Date	_____
Chief, Division of Transportation Engineering	_____	Date	_____
Designed By: _____	Drawn By: _____	Checked By: _____	SCALE: 1"=10' DATE: APRIL 2024
Project No. : 501701			SHEET CS-1 OF 82



15+00



14+50



14+00

PLOTTED: Friday, March 29, 2024 AT 08:41 AM
FILE: \\vnetfile\projects\2017\0170200_BIS_2014c2E_SIA_Hwy_Sr_Eng_Services\Task_02_Dennis_Avenue_Bldg\CADD\14+000_DennisAve.dwg

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND		CROSS SECTIONS			
RECOMMENDED FOR APPROVAL		REPLACEMENT OF BRIDGE NO. M-0194 ON DENNIS AVENUE OVER SLIGO CREEK TRIBUTARY (WHEATON BRANCH)			
Chief, Design Section	_____			Date	_____
APPROVED					
Chief, Division of Transportation Engineering	_____	Date	_____		
Designed By: _____	Drawn By: _____	Checked By: _____	Project No. : 501701		
		SCALE: 1"=10' DATE: APRIL 2024			
		SHEET CS-2 OF 82			