ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS SOUTH SHORE TRAIL - PHASE II PROJECT No. P372000/CONTRACT No. P372005 CONSTRUCTION DOCUMENTS STATE CONTRACT NO. AA026B51 FAP NO. AC-TAP-3(899)E

LIMIT OF WORK ANNAPOLIS ROAD MD ROUTE 175 STA 112+41 PRINCIPAL ARTERIAI LIMIT OF WORK HOLLADAY PARK RD STA 18+79 SEQUENCE OF CONSTRUCTION **LOCATION PLAN** COMPLETE ALL WORK AT GAMBRILLS ROAD. STABILIZE DISTURBED AREAS WITH SEED AND STRAW, LEAST 48 HOURS BEFORE COMMENCING WORK, WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR

STANDARD RESPONSIBILITY NOTES

- All development and construction will be done in accordance with this sediment and erosion control plan, and further, authorize the right of entry for periodic on-site evaluation by the Anne Arundel Soil Conservation District AASCD Board of Supervisors or their authorized agents. Any responsible personnel involved in the construction project will have a certificate of attendance from the Maryland Department of the Environment's approved training program for the control of sediment and erosion before beginning the project.
- If applicable, the appropriate enclosure will be constructed and maintained on sediment basin(s) included in this plan. Such structure(s) will
- The developer is responsible for the acquisition of all easements, right, and/or rights-of-way that may be required for the sediment and
- For initial soil disturbance or re-disturbance, permanent and/or temporary stabilization per the AASCD Vegetative Establishment shall be completed within three calendar days for the surface of all controls, dikes, swales, ditches, perimeter slopes and all slopes greater than 3 horizontal to 1 vertical (3:1); and seven days for all other disturbed or graded areas on the project site.
- 4. The grading and sediment control approval on this plan extends only to those areas within the limits of disturbance
- The approval of this plan for sediment and erosion control does not relieve the developer/consultant from complying with Federal, State o
- The developer must request that the sediment and erosion control inspector approve work completed in accordance with the approved erosion and sediment control plan, the grading or building permit, and the ordinance.
- erosion and sediment controls prior to proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until the initial approval by the sediment and erosion control inspector is given. Inspection and Permits may also require that an inspection and certification of the installation of sediment control also be performed by a design professional prior
- Approval from the inspector must be requested on final stabilization of all sites prior to removal of sediment and erosion controls.
- 10. Existing topography must be field verified by responsible personnel to the satisfaction of the sediment control inspector prior to commencing

Varid Closen	6/8/18
SIGNATURE OF APPLICANT/DEVELOPER DAMD BRAUN	DATE
NAME	
ENGINEER ADMINISTRATOR	
nt_E	
A A COUNTY DPW.\ BUREAU OF ENGINEERING	
AFFIL ATION	
2662 RIVA ROAD, ANNAPOUS, MD 21401	
ADDRESS	
410-222-7500	
TELEPHONE NUMBER	
pwbrcu78@accounty.org	
THE INCOME.	

CONSULTANT'S CERTIFICATION

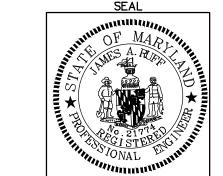
PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASCD PLAN SUBMITTAL GUIDELINES AND THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAV REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

MD P.E. LICENSE # 21774

JAMES A. RUFF, PE

PENNONI ASSOCIATES INC. 8890 MCGAW ROAD, SUITE 100

CITY COLUMBIA STATE MD ZIP CODE 21045



"I HEREBY CERTIFY THAT THE STORMWATER BEST MANAGEMENT PRACTICES SHOWN ON THE PLANS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATION

NAME (PRINTED)

EXISTING UTILITIES SHOWN ON THIS PLAN SET WERE DRAWN USING EXISTING RECORD DRAWINGS AND BASE FILES FROM THE UTILITY COMPANIES, FROM VISIBLE MARKINGS AND FEATURES WITHIN THE PROJECT LIMITS. FROM FIELD SURVEYS, AND FROM LIMITED TEST PITS. UTILITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. THE UTILITY INFORMATION SHOWN MAY BE INNACURATE OR INCOMPLETE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITIES WITHIN THE PROJECT LIMITS OF WORK TO HIS OWN SATISFACTION PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES, SHALL AVOID IMPACTS TO UTILITIES, AND SHALL MAINTAIN UNINTERRUPTED UTILITY SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT NO COST TO ANNE ARUNDEL COUNTY IN COORDINATION WITH THE AFFECTED UTILITY COMPANIES.

AS-BUILT CERTIFICATION

ARCHITECT:

COLUMBIA MD, 21045

(MD ROUTE 175)

GAMBRILLS, MD 21054

PENNONI ASSOCIATES, INC.

EXCEPT AS NOTED IN RED ON THE "AS BUILT DRAWINGS".

MARYLAND REGISTRATION #

ALL WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST APPROVED MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION (MDOT SHA) "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" REVISIONS THEREOF OR ADDITIONS THERETO. AS INDICATED IN THE PROJECT DESCRIPTION OF THE INVITATION FOR BIDS BOOK; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATION'S "BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES" AND THE LATEST ADOPTED MUTCD.

TAX ID: 400002312800 OWNER/DEVELOPER

ENGINEER/LANDSCAPE

8818 CENTRE PARK DRIVE, SUITE 200

PROJECT LOCATION:

NORTHEAST OF ANNAPOLIS ROAD

ANNE ARUNDEL COUNTY DEPARTMENT OF RECREATION AND PARKS AND ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS 44 CALVERT STREET ANNAPOLIS, MD 21401 (410) 222-7000

4/18/2023 | 09:35 EDT

DATE

SITE ANALYSIS SUMMARY

LIMIT OF DISTURBANCE (LOD)/SITE AREA: 9.28 AC (404,244 SF) CUT: 14,667 CY

AREA VEGETATIVELY STABILIZED: 7.04 AC (306,808 SF) IMPERVIOUS AREA: 2.28 AC (99,521 SF) CRITICAL AREA: NO SENSITIVE AREA: YES

BENCHMARKS

FILL: 9,939 CY

ANNE ARUNDEL COUNTY **SURVEY CONTROL STATION: 2019** ELEVATION: 136.62 N 506,533.98 E 1,409,624.398 LOCATION IS SET ON THE WEST SIDE OF SOUTHBOUND ROBERT CRAIN HIGHWAY (MD. ROUTE #3) AT THE SOUTHWEST SIDE OF THE INTERSECTION WITH ANNAPOLIS ROAD (MD. ROUTE #175)

ANNE ARUNDEL COUNTY **SURVEY CONTROL STATION: 2066** ELEVATION: 158.61 N 510,304.27 E 1,406,408.419 LOCATION IS SET ON THE SOUTH SIDE OF ANNAPOLIS ROAD (MD. ROUTE #175) APPROXIMATELY 150 FEET EAST OF GAMBRILLS ROAD

> GP# 02018537 DWG NO: CD01A

PHASE 3 -BURNS CROSSING ROAD TO GAMBRILLS ROAD

15. UPON APPROVAL OF INSPECTOR BEGIN CLEARING FOR THE INSTALLATION OF STORM DRAINS AND DRAINAGE STRUCTURES. (2 DAYS)

THE RESPONSIBLE PERSONNEL HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL

3. CLEAR AND GRUB FOR THE INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER

4. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER CONTROLS AS CLEARING PROGRESSES.

ESTABLISH STAGING AREAS AS SHOWN ON PLANS. STAGING AREAS SHALL BE STABILIZED WITH 6"

(MIN.) OF WOODCHIP MULCH. PREFERABLY FROM MATERIAL CLEARED AND CHIPPED ON SITE. (4

6. UPON APPROVAL OF INSPECTOR BEGIN CLEARING FOR THE INSTALLATION OF CULVERTS. STORM

7. INSTALL CULVERTS, STORM DRAINS, STRUCTURES AND RIP RAP. UPON INSTALLATION OF STORM DRAIN INSTALL INLET PROTECTION AS SHOWN ON PLANS AND MOVE SILT FENCE SO THAT FLOW FROM

8. UPON COMPLETION OF STORM DRAINAGE WORK, BEGIN CLEARING AND GRADING TO ESTABLISH TRAIL

SOIL STABILIZATION MATTING. ALL SOIL STABILIZATION MATTING SHALL BE COMPRISED OF

CONSTRUCTED, BRING GRADE UP TO ESTABLISH TRAIL SUBGRADE. (4 WEEKS)

STUMPS LEFT IN PLACE WITHIN BOARDWALK FOOTPRINT. (2 WEEKS)

9. CONCURRENT WITH STEP 8, CONSTRUCT RETAINING WALL A, H, I, AND J. AS WALLS IN FILL ARE

SUBGRADE. AS SLOPES 3:1 AND GREATER ARE COMPLETED, TOPSOIL, SEED, AND PLACE PERMANENT

10. CONCURRENT WITH STEP 8. CONSTRUCT BOARDWALK AND BOARDWALK ABUTMENTS. BOARDWALK TO BE

CONSTRUCTED FROM BOARDWALK SURFACE OR TRAIL SUBGRADE: NO DISTURBANCE OR GRADING IN

WETLAND AREAS FOR BOARDWALK CONSTRUCTION IS PERMITTED. CLEARING FOR BOARDWALK SHALL

BE THE MINIMUM NECESSARY FOR CONSTRUCTION. ALL TREES SHALL BE REMOVED BY HAND AND

11. WITH THE ESTABLISHMENT OF TRAIL SUBGRADE, BEGIN INSTALLING STONE BASE AND ASPHALT PAVING.

COMPLETE ALL WORK AT BURNS CROSSING ROAD. INSTALL PARKING LOT AND ENTRANCE ONTO MD

12. ONCE PAVING HAS BEEN COMPLETED AND SITE PRELIMINARILY STABILIZED, COMPLETE FINAL GRADING

FOR THE INSTALLATION OF STORMWATER MEASURES AND INSTALL ALL STORMWATER FACILITIES.

STORMWATER FACILITIES SHALL NOT BE INSTALLED UNTIL CONTRIBUTING DRAINAGE AREA IS 95%

13. INSTALL LANDSCAPING, FENCING, SIGNAGE, STRIPING, AND FURNISHINGS. PRIOR TO REFORESTATION

RUBBLE REMOVAL SHALL BE COMPLETED BY HAND; NO CLEARING WILL BE PERMITTED FOR THIS

14. WITH COMPLETION OF WORK AND STABILIZATION OF SITE, CONTACT COUNTY INSPECTOR FOR FINAL

PLANTING, REMOVE VINES AND RUBBLE WITHIN FOREST CONSERVATION EASEMENTS. ALL VINE AND

INSPECTION. WITH APPROVAL OF INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES.

SILT FENCE, AND COVER WITH FILTER FABRIC UNTIL LANDSCAPING IS INSTALLED. (3 WEEKS)

STABILIZED. IF INSPECTOR ALLOWS EARLIER INSTALLATION, PROTECT PERIMETER OF FACILITY WITH

175. STABILIZE DISTURBED AREAS WITH SEED AND STRAW, AND INSTALL SOIL STABILIZATION MATTING

INSPECTOR TO REVIEW THE APPROVED PLANS.

2. STAKEOUT LIMITS OF DISTURBANCE ALONG ENTIRE PROJECT. (2 WEEKS)

5. CONTACT COUNTY INSPECTOR FOR INITIAL INSPECTION. (1 DAY)

PHASE 2 - SAPPINGTON STATION ROAD TO BURNS CROSSING ROAD

CULVERTS AND STORM DRAINS IS NOT BLOCKED. (2 WEEKS)

DRAINS, AND DRAINAGE STRUCTURES. (2 DAYS)

BIODEGRADABLE MATERIAL. (6 WEEKS)

IN SWALES. (3 WEEKS)

ACTIVITY. (2 WEEKS)

SOME OR ALL OF THE PHASES SHOWN BELOW WILL RUN CONCURRENTLY.

PHASE I - PERIMETER SEDIMENT CONTROLS

CONTROLS ONLY. (3 WEEKS)

- 16. INSTALL STORM DRAINS AND RIP RAP, INSTALL INLET PROTECTION AS SHOWN ON PLANS AND MOVE SILT FENCE SO THAT FLOW FROM CULVERTS AND STORM DRAINS IS NOT BLOCKED. (2 WEEKS)
- SUBGRADE. AS SLOPES 3:1 AND GREATER ARE COMPLETED, TOPSOIL, SEED, AND PLACE PERMANENT SOIL STABILIZATION MATTING. (6 WEEKS) 18. CONCURRENT WITH STEP 17, CONSTRUCT RETAINING WALL B, C, D, AND E. AS WALLS IN FILL ARE CONSTRUCTED, BRING GRADE UP TO ESTABLISH TRAIL SUBGRADE. AS SLOPES 3:1 AND GREATER ARE

17. UPON COMPLETION OF STORM DRAINAGE WORK, BEGIN CLEARING AND GRADING TO ESTABLISH TRAIL

COMPLETED, TOPSOIL, SEED, AND PLACE PERMANENT SOIL STABILIZATION MATTING. (4 WEEKS) 19.WITH THE ESTABLISHMENT OF TRAIL SUBGRADE, BEING INSTALLING STONE BASE AND ASPHALT PAVING.

- AND PLACE SOIL STABILIZATION MATTING IN SWALES. (3 WEEKS)
- FOR THE INSTALLATION OF STORMWATER MEASURES AND INSTALL ALL STORMWATER FACILITIES. STORMWATER FACILITIES SHALL NOT BE INSTALLED UNTIL CONTRIBUTING DRAINAGE AREA IS 95% STABILIZED. IF INSPECTOR ALLOWS EARLIER INSTALLATION, PROTECT PERIMETER OF FACILITY WITH SILT FENCE, AND COVER WITH FILTER FABRIC UNTIL LANDSCAPING IS INSTALLED. (3 WEEKS)
- 21. INSTALL LANDSCAPING, FENCING, SIGNAGE, STRIPING, AND FURNISHINGS. (2 WEEKS) 22. WITH COMPLETION OF WORK AND STABILIZATION OF SITE, CONTACT COUNTY INSPECTOR FOR FINAL INSPECTION. WITH APPROVAL OF INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES.

PHASE 4 - GAMBRILLS ROAD TO HOLLADAY STREET

- 23, UPON APPROVAL OF INSPECTOR BEGIN CLEARING FOR THE INSTALLATION OF STORM DRAINS AND DRAINAGE STRUCTURES, (2 DAYS)
- 24.INSTALL STORM DRAINS AND RIP RAP. INSTALL INLET PROTECTION AS SHOWN ON PLANS AND MOVE
- SILT FENCE SO THAT FLOW FROM CULVERTS AND STORM DRAINS IS NOT BLOCKED. (3 WEEKS) 25.UPON COMPLETION OF STORM DRAINAGE WORK, BEGIN CLEARING AND GRADING TO ESTABLISH TRAIL SUBGRADE. AS SLOPES 3:1 AND GREATER ARE COMPLETED, TOPSOIL, SEED, AND PLACE PERMANENT SOIL STABILIZATION MATTING. (6 WEEKS)
- 26. CONCURRENT WITH STEP 25. CONSTRUCT PEDESTRIAN BRIDGE ABUTMENTS, RETAINING WALL F, AND SET BRIDGE, (8 WEEKS)
- 27. WITH THE ESTABLISHMENT OF TRAIL SUBGRADE, BEING INSTALLING STONE BASE AND ASPHALT PAVING. COMPLETE ALL WORK AT INTERSECTIONS. STABILIZE DISTURBED AREAS WITH SEED AND STRAW, AND PLACE SOIL STABILIZATION MATTING IN SWALES. (2 WEEKS)
- 28.ONCE PAVING HAS BEEN COMPLETED AND SITE PRELIMINARY STABILIZED, COMPLETE FINAL GRADING FOR THE INSTALLATION OF STORMWATER MEASURES AND INSTALL ALL STORMWATER FACILITIES. STORMWATER FACILITIES SHALL NOT BE INSTALLED UNTIL CONTRIBUTING DRAINAGE AREA IS 95% STABILIZED. IF INSPECTOR ALLOWS EARLIER INSTALLATION, PROTECT PERIMETER OF FACILITY WITH SILT FENCE, AND COVER WITH FILTER FABRIC UNTIL LANDSCAPING IS INSTALLED. (3 WEEKS)
- 29. INSTALL LANDSCAPING, FENCING, SIGNAGE, STRIPING, AND FURNISHINGS. (2 WEEKS)
- 30. WITH COMPLETION OF WORK AND STABILIZATION OF SITE, CONTACT COUNTY INSPECTOR FOR FINAL INSPECTION. WITH APPROVAL OF INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES.

PHASE 4 - HOLLADAY STREET TO BONHEUR AVENUE

- 31. UPON APPROVAL OF INSPECTOR BEGIN CLEARING FOR THE INSTALLATION OF STORM DRAINS AND DRAINAGE STRUCTURES. (2 DAYS)
- 32.INSTALL STORM DRAINS AND RIP RAP. INSTALL INLET PROTECTION AS SHOWN ON PLANS AND MOVE SILT FENCE SO THAT FLOW FROM CULVERTS AND STORM DRAINS IS NOT BLOCKED. (2 WEEKS)
- 33. UPON COMPLETION OF STORM DRAINAGE WORK, BEGIN CLEARING AND GRADING TO ESTABLISH TRAIL SUBGRADE. AS SLOPES 3:1 AND GREATER ARE COMPLETED, TOPSOIL, SEED, AND PLACE PERMANENT SOIL STABILIZATION MATTING. (6 WEEKS)
- UP TO ESTABLISH TRAIL SUBGRADE. AS SLOPES 3:1 AND GREATER ARE COMPLETED, TOPSOIL, SEED, AND PLACE PERMANENT SOIL STABILIZATION MATTING. (2 WEEKS) 35. WITH THE ESTABLISHMENT OF TRAIL SUBGRADE, BEING INSTALLING STONE BASE AND ASPHALT PAVING.

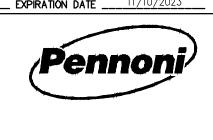
34. CONCURRENT WITH STEP 33, RETAINING WALL G. AS WALLS IN FILL ARE CONSTRUCTED, BRING GRADE

COMPLETE ALL WORK AT INTERSECTIONS. STABILIZE DISTURBED AREAS WITH SEED AND STRAW, AND

- PLACE SOIL STABILIZATION MATTING IN SWALES. (2 WEEKS) 36. ONCE PAVING HAS BEEN COMPLETED AND SITE PRELIMINARY STABILIZED, COMPLETE FINAL GRADING FOR THE INSTALLATION OF STORMWATER MEASURES AND INSTALL ALL STORMWATER FACILITIES. STORMWATER FACILITIES SHALL NOT BE INSTALLED UNTIL CONTRIBUTING DRAINAGE AREA IS 95% STABILIZED. IF INSPECTOR ALLOWS EARLIER INSTALLATION, PROTECT PERIMETER OF FACILITY WITH
- 37.INSTALL LANDSCAPING, FENCING, SIGNAGE, STRIPING, AND FURNISHINGS. (2 WEEKS) 38.31. WITH COMPLETION OF WORK AND STABILIZATION OF SITE, CONTACT COUNTY INSPECTOR FOR FINAL INSPECTION. WITH APPROVAL OF INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES.

SILT FENCE, AND COVER WITH FILTER FABRIC UNTIL LANDSCAPING IS INSTALLED. (3 WEEKS)

PROFESSIONAL CERTIFICATION: I, _____ JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY LICENSED _____PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____21774 ____ EXPIRATION DATE ____11/10/2023 REVISIONS BY DATE DESCRIPTION



CALL "MISS UTILITY" AT LEAST 72

HOURS IN ADVANCE OF CONSTRUCTION AT

1-800-257-7777

PENNONI ASSOCIATES INC. 8890 McGaw Road, Suite 100 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

ANNE ARUNDEL COUNTY

DEPARTMENT OF PUBLIC WORKS

APRIL 11, 202 SCALE: 1" = 500" COVER SHEET J_DPRAWN BY: PAI

SOUTH SHORE TRAIL PHASE II TAX MAP 29 AND 30

APPROVAL DocuSigned by: David C. Braun 4/18/2023 | 08:38 EDT | ASSISTANT CHIEF ENGINEER

APPROVED

Correl .

CHIÉF ÉNGINEER

Jule autry 4/14/2023 | 13:17 PROJECT MANAGER

tom Burke CHIEF, RIGHT OF WAY SERVICES

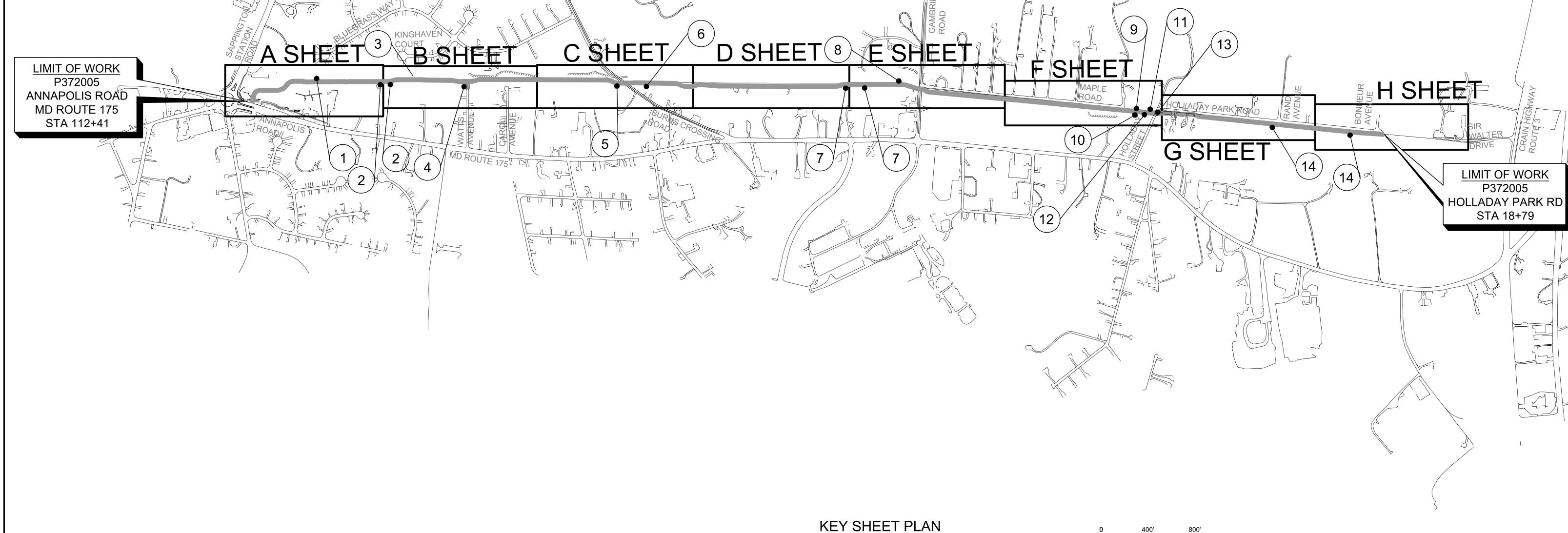
APPROVED

CHECKED BY: PJS SHEET 1 of 74 4/17/2023 | 10:18 EPROJECT #: P372000

CONTRACT #: P372005

GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ANNE ARUNDEL COUNTY, MD

\Accounts\AACOX\AACOX19001 - South Shore Trail Phase ||\DES|GN_SHEETS\CD SET\AACOX19001-CD01A.d\r



1. THE LETTER DESIGNATIONS FOR THE 40 SCALE SHEETS CORRESPOND TO THE DRAWING NO. SHOWN IN THE BOTTOM RIGHT CORNER OF THE 40 SCALE PLAN AND PROFILE SHEETS (CD05A-CD05H). FOR MOST THE OTHER 40 SCALE PLAN SHEETS, THE SHEETS HAVE BEEN COMBINED SO THAT A AND B ARE ON ONE SHEET, C AND D ON THE NEXT SHEET, ETC.

	•			RED BY OR APPROVED BY ME AND THAT I AM A DULY
LICE	NSEDPROFESSIONAL ENGINEER UNDER THE			L EXPIRATION DATE
L	REVISIONS	APPROVED		
#	DESCRIPTION	BY DATE	"AMILIANIANA"	
			THE ARCHINGS ARCHING A	Pennoni ⁾

SCALE: 1" = 400'

11/10/2023				A
	•			DEPA
roni ⁾	APPROVED DocuSigned by:	DATE	APPROVED —pocuSigned by:	
	Colored	4/18/2023 09:35 EDT	Lyle Autry	4/14,
	CHIEF ENGINEER	D A TE	PROJECT MANA	GER
DCIATES INC. pad, Suite 100 //D 21045	APPROVAL DocuSigned by: David C. Bran	DATE n4/18/2023 08:38 EDT	APPROVED Docusigned by: Tom Burke	4/17

ANNE ARUNDEL COUNTY							
	DEPARTMENT OF PUBLIC WORKS APRIL 11,						
APPROVED DocuSigned by:	DATE	APPROVED — DocuSigned by:	DATE	SCALE: 1" = 400"	KEY SHEET		
Blossef	4/18/2023 09:35 EDT	1 / 2 /	4/14/2023 13:17 F	DPRAWN BY: PAI	KET SHEET		
CHIEF ENGINEER		PROJECT MANAGE	R	CHECKED BY: PJS	SOUTH SHORE TRAIL		
APPROVAL —DocuSigned by:	DATE	APPROVED DocuSigned by:	DATE	SHEET 2 of 74	PHASE II		
David C. Braus	~4/18/2023 08:38 EDT		4/17/2023 10:18 E	PROJECT #: P372000	TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT		
ASSISTANT CHIEF	ENGINEER	CHIEF, RIGHT OF	WAY SERVICES	CONTRACT #: P372005	ANNE ARUNDEL COUNTY, MD		
	U:\Accounts\AACOX\AACOX19001 — South Shore Trail Phase II\DESIGN_SHEETS\CD SET\AACOX19001—						

GP# 02018537

DWG NO: CD01B

GENERAL NOTES

- 1. THIS FIELD RUN BOUNDARY WAS PERFORMED BY CENTURY ENGINEERING, INC. BETWEEN 2007 AND 2009. PENNONI PERFORMED SUPPLEMENTAL BOUNDARY SURVEY DURING NOVEMBER 2019.
- 2. LIMITED FIELD RUN TOPOGRAPHY WAS PERFORMED BY MESSICK ASSOCIATES DURING 2017. PENNONI PERFORMED ADDITIONAL TOPOGRAPHIC SURVEY DURING NOVEMBER 2019. TOPOGRAPHIC INFORMATION HAS BEEN SUPPLEMENTED BY ANNE ARUNDEL COUNTY AND UTILITY COMPANY GIS INFORMATION.
- 3. THE EXISTENCE OF NONTIDAL WETLANDS, AND WATERS OF THE U.S. HAS BEEN INVESTIGATED, AND IS SHOWN BASED ON A REPORT PREPARED BY WETLAND STUDIES AND SOLUTIONS, INC., DATED OCTOBER 2019.
- 4. THE SPECIMEN TREES SHOWN ON THE PLAN ARE FROM A FOREST STAND DELINEATION PREPARED BY WETLAND STUDIES AND SOLUTIONS, INC., DATED
- EXISTING UTILITIES SHOWN ON THIS PLAN SET WERE DEVELOPED USING EXISTING RECORD DRAWINGS AND BASE FILES FROM THE UTILITY COMPANIES, FROM VISIBLE MARKINGS AND FEATURES WITHIN THE PROJECT LIMITS, AND FROM FIELD SURVEYS. UTILITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. THE UTILITY INFORMATION SHOWN MAY BE INACCURATE OR INCOMPLETE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITIES WITHIN THE PROJECT LIMITS OF WORK TO HIS OWN SATISFACTION PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES, SHALL AVOID IMPACTS TO UTILITIES, AND SHALL MAINTAIN UNINTERRUPTED UTILITY SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT NO COST TO ANNE ARUNDEL COUNTY IN COORDINATION WITH THE AFFECTED UTILITY COMPANIES.
- 6. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 7. UTILITY RELOCATION WILL BE PERFORMED BY OTHERS UNLESS NOTED OTHERWISE IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF HIS CONSTRUCTION WITH THE CONSTRUCTION OF OTHER CONTRACTORS (INCLUDING BUT NOT LIMITED TO BG&E, VERIZON, AND CABLE TV UTILITY). REFER TO PROJECT MANUAL GENERAL SPECIAL PROVISIONS.
- 8. CONTRACTOR SHALL MAINTAIN COVER OF 30" OVER ALL ELECTRICAL LINES. WHERE FEASIBLE, AND IN COORDINATION WITH BGE AND THE COUNTY, BGE'S DETAIL FOR SHALLOW COVER PROTECTION UNDER SIDEWALKS SHALL BE UTILIZED TO REDUCE THE COVER TO NO LESS THAN 12".
- 9. THE CONTRACTOR SHALL CALL "MISS UTILITY" 1-800-257-7777 A MINIMUM OF 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
- 10. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NATURALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
- 11. THE CONTRACTOR SHALL NOTIFY THE ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS (410) 222-4126, AT LEAST FOURTEEN (14) DAYS PRIOR TO BEGINNING CONSTRUCTION.
- 12. GRID COORDINATES ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD 83/91. VERTICAL ELEVATIONS ARE BASED UPON NAVD 88.
- 13. THE CONTRACTOR SHALL ADJUST MANHOLES, WATER, METER VALVES, HAND BOXES, AND OTHER APPURTENANCES TO FINAL GRADE. THE COST OF PERFORMING THESE ACTIVITIES SHALL BE INCIDENTAL TO THE CONTRACT PRICE PAID FOR VARIOUS PAVEMENT ITEMS.
- 14. UNLESS OTHERWISE NOTED, PIPE ELEVATIONS REFER TO THE PIPE INVERT.
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY EXISTING LIGHT POLES, TRAFFIC BARRIER, SIGNS, ETC., DAMAGED OR REMOVED BY HIM DURING CONSTRUCTION.
- 16. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION TO THIS PLAN PRIOR TO ANY FIELD CHANGES BEING MADE. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR ANY FIELD CHANGES OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER.
- 17. ALL WORK SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" ISSUED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND AMENDMENTS BY THE ANNE ARUNDEL SOIL CONSERVATION DISTRICT, CONTAINED HEREIN AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS ISSUED BY THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION.
- 18. THE DESIGN FOR THIS PROJECT INCORPORATES FACILITIES FOR THE HANDICAPPED IN COMPLIANCE WITH STATE AND FEDERAL LEGISLATION.
- 19. WHERE CURB AND GUTTER ENDS ARE EXPOSED, PROVIDE A NOSE DOWN SECTION AT 3:1 SLOPE.
- 20. MATERIAL REMOVED DURING CONSTRUCTION SHALL BECOME THE CONTRACTOR'S PROPERTY UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIAL PROVISIONS.
- 21. STORM DRAIN AND UTILITY INSTALLATION IN EXISTING PAVEMENT SHALL BE IN ACCORDANCE WITH MD STD. 578.1
- 22. SUBGRADE DRAINS SHALL BE PLACED WHEN WET SUBGRADE IS ENCOUNTERED AND AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL USE CIRCULAR PIPE UNDERDRAIN OUTLET TO CONNECT ALL EXISTING AND PROPOSED SUBGRADE DRAIN AND PERFORATED CIRCULAR PIPE UNDERDRAIN TO PROPOSED
- 23. ALL INVERT ELEVATIONS ARE APPROXIMATE. INVERT ELEVATIONS OF INLETS AND PIPES MAY BE MODIFIED AS DIRECTED BY THE ENGINEER TO MEET CONDITIONS ENCOUNTERED DURING INSTALLATION OF DRAINAGE STRUCTURES. ALL PIPES AND DITCHES SHALL BE CONSTRUCTED ON A UNIFORM GRADE BETWEEN INVERT ELEVATIONS NOTED ON THE PLANS, UNLESS INDICATED OTHERWISE ON THE PLANS OR DETAILS OR AS DIRECTED BY THE ENGINEER. THE LOCATION AND LENGTH OF PIPE SHALL BE VERIFIED BY THE CONTRACTOR BEFORE ORDERING.
- 24. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION OF ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS AND THE DETAILS, CONTAINED HEREIN.
- 25. CONTRACTOR MUST HAND DIG NEAR EXISTING UNDERGROUND UTILITIES WITH LESS THAN OR EQUAL TO 3.0 FEET CLEAR DISTANCE.
- 26. EXISTING OVERHEAD POWER LINES ARE IN THE VICINITY OF THE PROJECT. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL COMPLY ABSOLUTELY WITH THE MARYLAND HIGH VOLTAGE ACT. IT IS THE CONTRACTOR'S OBLIGATION TO VERIFY THE EXISTING LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS SPECIFIED IN THE ACT.
- 27. PROPOSED FENCING SHALL BE 4'-6" HIGH BLACK VINYL COATED CHAIN LINK, EXCEPT WHERE NOTED, OR SPLIT RAIL FENCE, AS SHOWN ON THE PLANS. FENCE TO BE INSTALLED WITH MINIMAL CLEARING.
- 28. ALL SCALED DIMENSIONS ON THE DRAWINGS ARE APPROXIMATE. BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL DIMENSIONS AND QUANTITIES, AND SHALL IMMEDIATELY INFORM THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE INFORMATION ON THE DRAWINGS AND THE ACTUAL CONDITIONS, REFRAINING FROM DOING ANY WORK IN SAID AREAS UNTIL GIVEN APPROVAL TO DO SO BY THE OWNER'S REPRESENTATIVE.
- WHEREVER REFERENCES ARE MADE TO STANDARDS OR CODES IN ACCORDANCE WITH WHICH WORK IS TO BE PERFORMED OR TESTED, THE EDITION OR REVISION OF THE STANDARDS AND CODES CURRENT ON THE EFFECTIVE DATE OF THIS CONTRACT SHALL APPLY. UNLESS OTHERWISE EXPRESSLY SET FORTH.
- IN CASE OF CONFLICT AMONG ANY REFERENCED STANDARDS OR CODES OR BETWEEN ANY REFERENCED STANDARDS AND CODES AND THE SPECIFICATIONS, THE MORE RESTRICTIVE STANDARD SHALL APPLY OR OWNER'S REPRESENTATIVE SHALL DETERMINE WHICH SHALL GOVERN.
- ALL TREES SHALL BE PLANTED A MINIMUM OF 8' FROM THE EDGE OF THE TRAIL. . ACCESS TO ALL DRIVEWAYS BY RESIDENTS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING SHOP DRAWINGS AND DESIGN CALCULATIONS FOR THE BOARDWALK, SHOP DRAWINGS AND DESIGN

- CALCULATIONS SHALL INCLUDE ALL RELEVANT INFORMATION SUCH AS DESIGN CRITERIA, MATERIAL SPECIFICATIONS, STRUCTURE FRAMING, FOUNDATIONS AND MEMBER SIZES, AND CONNECTION DETAILS. A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND WILL SIGN AND SEAL ALL DRAWINGS AND CALCULATIONS TO SUPPORT SIZING OF STRUCTURAL COMPONENTS AND REQUIRED LOAD HANDLING.
- 34. BOARDWALK SHALL BE A PERMATREK PRECAST CONCRETE BOARDWALK SYSTEM, OR APPROVED EQUAL, AS DETAILED ON THESE DRAWINGS AND IN THE PROJECT SPECIFICATIONS
- 35. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING SHOP DRAWINGS AND DESIGN CALCULATIONS FOR ANY CHANGES PROPOSED TO THE BASIS OF DESIGN FOR THE RETAINING WALLS. SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL INCLUDE ALL RELEVANT INFORMATION SUCH AS DESIGN CRITERIA, MATERIAL SPECIFICATIONS, AND FOUNDATIONS. A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND WILL SIGN AND SEAL ALL DRAWINGS AND CALCULATIONS.
- 36. THE BASIS OF DESIGN FOR THE PROPOSED RETAINING WALLS SHALL BE A LARGE BLOCK GRAVITY WALL SYSTEM. SEE PLANS AND RETAINING WALL DESIGN COMPUTATIONS FOR DETAILS. SUBSTITUTES WILL BE ACCEPTED FOR THESE WALLS. ACCEPTABLE SUBSTITUTES FOR THESE WALLS MUST HAVE AN ATTRACTIVE FINISH, BUT A WIDE RANGE OF STYLES AND SIZES WILL BE CONSIDERED FOR SUBSTITUTES. ALL PRODUCT DATA FOR ANY PROPOSED SUBSTITUTE SHALL BE SUBMITTED FOR APPROVAL, ALONG WITH APPROPRIATE ENGINEERING DRAWINGS AND CALCULATIONS AS NOTED ABOVE.
- 37. RETAINING WALLS SHALL HAVE AN ANTI-GRAFFITTI COATING APPLIED AT THE COMPLETION OF CONSTRUCTION. CONTRACTOR TO SUBMIT A PRODUCT FOR APPROVAL.
- 38. THE INTENT OF THESE PLANS IS TO MEET EXISTING GRADES WHERE THE PROPOSED TRAIL CONNECTS TO THE EXISTING ROAD; NO ROAD GRADE MODIFICATIONS OR ROAD REPAVING ARE INCLUDED IN THIS SCOPE UNLESS SPECIFICALLY NOTED.
- 39. CONTRACTOR TO MAINTAIN MAXIMUM SIDE SLOPES OF 3:1, EXCEPT IN CUT AREAS WHERE A 2:1 SLOPE MAY BE UTILIZED AS NOTED ON PLANS. CONTRACTOR TO ADJUST GRADES AS NEEDED TO MEET EXISTING CONDITIONS, AND MAINTAIN ADA REQUIREMENTS. CONTRACTOR TO AVOID THE CREATION OF SUMPS EXCEPT WHERE NOTED ON PLAN FOR STORM DRAINAGE OR STORMWATER MANAGEMENT PURPOSES.
- 40. MAXIMUM CROSS SLOPE ON TRAIL SHALL BE 1.5%. MAXIMUM RUNNING (LONGITUDINAL SLOPE ON TRAIL SHALL BE 4.5%.
- 41. CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO BEGINNING WORK. HE SHALL VERIFY SIZE AND LOCATIONS OF ALL UNDERGROUND UTILITIES AND EXCAVATE TEST PITS AT PROPOSED TIE IN LOCATIONS. DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER WELL IN ADVANCE OF CONSTRUCTION START. START OF CONSTRUCTION BY THE CONTRACTOR SHALL CONSTITUTE FULL ACCEPTANCE OF ALL SITE CONDITIONS BY THE CONTRACTOR.
- 42. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL REQUEST CONTROL STAKE OUT, AND VERIFY LOCATIONS OF ALL IMPROVEMENTS AND UTILITY TIE IN LOCATIONS. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES WELL IN ADVANCE OF START OF CONSTRUCTION.
- 43. SCALING OF THESE PLANS IS DISCOURAGED UNLESS DIRECTED BY THE ENGINEER. IN THE EVENT OF A DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS, THE FIGURED DIMENSIONS SHALL BE HELD.
- 44. STAGING AREAS: CONTRACTOR SHALL RESTORE STAGING AREAS TO THEIR CONDITION PRIOR TO CONSTRUCTION. ALL WOODCHIP MULCH SHALL BE REMOVED. A MINIMUM OF 2" OF TOPSOIL SHALL BE PLACED OVER VEGETATED AREAS AND A THICK STAND OF GRASS ESTABLISHED. ALL PAVEMENT SHALL BE RESTORED TO PRECONSTRUCTION CONDITIONS. ALL LANDSCAPE PLANT MATERIAL SHALL BE REPLACED. CONTRACTOR SHALL DOCUMENT PHOTOGRAPHICALLY THE CONDITION OF THE STAGING AREAS PRIOR TO CONSTRUCTION AND AGREE ON A RESTORATION PLAN WITH COUNTY.
- 45. ALL TRAIL CROSSINGS AT DRIVEWAYS SHALL HAVE A MAXIMUM CROSS SLOPE OF 2% FOR THE ENTIRE WIDTH OF THE TRAIL TO MEET ADA COMPLIANCE.
- 46. ALL PROPOSED SIDEWALKS/PATHS SHALL HAVE A MINIMUM WIDTH OF 5 FEET AND A MAXIMUM CROSSSLOPE OF 2% TO MEET ADA COMPLIANCE. WHERE TWO PATHS MEET AND REQUIRE A CHANGE OF DIRECTION, PROVIDE A LEVEL LANDING AREA. THE LANDING AREA WILL NEED TO BE THE WIDTH OF THE TWO PROPOSED PATHS AND MUST BE MAXIMUM 2% IN BOTH DIRECTIONS.
- 47. ALL EXISTING TRAFFIC SIGNS AND OBSTACLES SHALL BE LOCATED A MINIMUM OF 3' FROM THE EDGE OF THE TRAIL
- 48. THE FOLLOWING STANDARDS (CONSTRUCTION, TEMPORARY TRAFFIC CONTROL AND APPLICABLE PEDESTRIAN MOBILITY) ARE REQUIRED FOR THIS PROJECT. FOR ALL MDOT/MSHA STANDARDS REFERRED TO ON THE PLANS, THE CONTRACTOR MUST GO TO THE BOOK OF STANDARDS WHICH WILL HAVE THE MOST CURRENT VERSION. THE BOOK OF STANDARDS CAN BE ACCESSED AT:
- HTTPS://APPS.ROADS.MARYLAND.GOV/BUSINESSWITHSHA/BIZSTDSSPECS/ DESMANUALSTDPUB/PUBLICATIONSONLINE/OHD/BOOKSTD/INDEX.ASP

THE FOLLOWING STANDARDS SHALL BE UTILIZED FOR THIS PROJECT:

- a. MD 104-01.28
- b. MD 104.02-02
- c. MD 104.02-08
- d. MD 104.02-14 e. MD 620.02
- f. MD655.11
- g. MD 655.12
- h. MD 655.21
- i. MD 655.40 ALL ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT VERSION
- 49. PLASTIC NETTING IS NOT PERMITTED ON TRAILS/PARKS PROJECTS. AS AN ALTERNATE UTILIZE NET FREE CURLEX. ANCHORING DEVICES MUST BE

OF THE REFERENCED STANDARD AT THE TIME OF CONSTRUCTION.

- BIODEGRADABLE. 50. MODIFICATION #16304 REGARDING ARTICLE 17-6-303(b)(6) (CLEARING PRIORITY FOREST OF AT LEAST 35 FEET WIDE AND A TOTAL AREA OF 10,000 SQUARE FEET OR GREATER) WAS APPROVED ON SEPTEMBER 29, 2020. THIS MODIFICATION IS
- FOR THE REMOVAL OF 1.05 ACRES OF FOREST. MODIFICATION #16305 REGARDING ARTICLE 17-6-401 (DISTURBANCE WITHIN A WETLAND AND WETLAND BUFFER) WAS APPROVED ON SEPTEMBER 29, 2020, WITH
- THE FOLLOWING CONDITION: 1. ALL APPLICABLE STATE AND FEDERAL PERMITS MUST BE OBTAINED PRIOR TO GRADING PERMIT APPROVAL.
- 52. MODIFICATION #16625 TO SECTION 17-6-306(A) TO EXCLUDE THE BGE R/W FROM THE SITE AREA FOR PURPOSE OF FOREST CONSEVATION CALCULATIONS WAS APPROVED ON DECEMBER 15, 2021
- 53. ADDITIONALLY THIS IS A LINEAR PROJECT. AREAS OUTSIDE OF THE UTILITY RIGHT-OF-WAY BUT WITHIN THE PROJECT RIGHT-OF-WAY. DO CONTAIN FOREST. BUT LESS THAN 20,000 SF OF CLEARING IS PROPOSED SO THIS PROJECT IS ALSO EXEMPT PER17-6-301(B)(7). CLEARING OF 15,205 SF IS PROPOSED OUTSIDE OF THE BGE R/W.
- THERE IS AN ADJACENT COUNTY OWNED PARCEL (LOT 3) THAT IS PART OF THIS PROJECT WHICH HAS A FOREST CONSERVATION EASEMENT THAT IS BEING IMPACTED. ALL BUT 646 SF OF THE 7,082 SF FOREST CONSERVATION EASEMENT IS WITHIN THE LOD AND WILL BE CLEARED. THIS IS PROPOSED TO BE HANDLED BY REPLANTING EQUIVALENT AREAS ON THE SAME PARCEL AND RECONFIGURING THE EASEMENT. A TOTAL OF 12,057 SF OF CLEARING IS PROPOSED ON LOT 3. A TOTAL OF 14,799 SF OF REFORESTATION PLANTING AND 4,001 SF OF RETENTION IS PROPOSED ON LOT 3. THE REFORESTATION PLANTING WILL BE LOCATED WITHIN

- THE RECONFIGURED FOREST CONSERVATION EASEMENT. THE RECONFIGURED EASEMENT WILL BE 18,800 SF IN SIZE.
- 55. A TWO FOOT WIDE CLEAR SHOULDER MUST BE MAINTAINED ALONG THE LENGTH OF THE TRAIL. THIS AREA SHALL BE CLEAR OF ALL OBSTRUCTIONS.
- 56. STANDARD SPECIFICATIONS BOOK, BOOK OF STANDARDS AND MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL WORK ON THIS PROJECT SHALL CONFORM TO LATEST APPROVED MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION (MDOT SHA) "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" REVISIONS THEREOF OR ADDITIONS THERETO, AS INDICATED IN THE PROJECT DESCRIPTION OF THE INVITATION FOR BIDS BOOK; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATION'S "BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES" AND THE LATEST ADOPTED MUTCD.
- 57. EXCEPT AS SUPERSEDED IN CURRENT ADA AND LOCAL STANDARDS THE FOLLOWING SHALL APPLY FOR ACCESSIBLE PARKING AREAS: A) MAXIMUM SIDEWALK CROSS SLOPES SHALL BE 2%, B) ALL HANDICAPPED PARKING INCLUDING ACCESS AISLES, SHALL BE SLOPED NO GREATER THAN 2% IN ANY DIRECTION, INCLUDING A 5' WIDE AREA BEHIND THE PARKING SPACES.
- 58. ALL RETAINING WALL BACKFILL SHALL BE TESTED BY CONTRACTOR PRIIOR TO PLACEMENT FOR CONFORMANCE WITH PROJECT SPECIFICATIONS.
- 59. PERIMETER SEDIMENT CONTROL DEVICES SHALL BE PLACED AT THE LIMITS OF DISTURBANCE UNLESS SPECIFICALLY NOTED OTHERWISE. SEPARATION BETWEEN LOD AND PERIMETER DEVICES IS FOR GRAPHIC PURPOSES ONLY

LIST OF ABBREVIATIONS

		LIST OF AB	BREVIA	119	<u>ONS</u>
AATUR	-	ABANDONED ACCORDING TO UTILITY RECORDS	O.C		ON CENTER
A.D.T.	-	AVERAGE DAILY TRAFFIC	O/S -		OFFSET
AHD	-	AHEAD	P.C		POINT OF CURVE
BGE	-	BALTIMORE GAS AND ELECTRIC COMPANY	P/C -		POINT OF CROWN
BIT.	-	BITUMINOUS	P.C.A		POINT OF COMPOUND CURVE
BK.	-	BACK	P/G.E		PROFILE GRADE ELEVATION
B.M.	-	BENCH MARK	P.G.L		PROFILE GRADE LINE
BW	-	FINISHED GRADE AT BOTTOM FACE OF WALL	P./G.L		PROFILE GROUND LINE
B/L	-	BASELINE	P.H		PUNCH HOLE
CATV	-	CABLE TELEVISION	P.I		POINT OF INTERSECTION
C&G	-	CURB AND GUTTER	P.O.C		POINT ON CURVE
C.I.P.	-	CAST IN PLACE (OR CURB INLET PROTECTION)	P.O.T		POINT ON TANGENT
C.I.P.	-	CORRUGATED METAL PIPE	P/R -		POINT OF ROTATION
C.S.P.	-	CORRUGATED STEEL PIPE	P.R.C		POINT OF REVERSE CURVATURE
C.O.	-	CLEAN OUT	P.T		POINT OF TANGENT
COMB.	-	COMBINATION	P.V.C		POINT OF VERTICAL CURVE (OR
COMM.	-	COMMUNICATION	POLYVINYL	_CH	
CONSTR	₹	CONSTRUCTION	P.V.I		POINT OF VERTICAL INTERSECTION
DWG.	_	DRAWING	PVMT		PAVEMENT
Dc	_	DEGREE OF CURVE	P.V.T		POINT OF VERTICAL TANGENCY
Δ	_	DELTA (CENTRAL ANGLE), DEGREES	R -		RADIUS
D.I.	_	DROP INLET	R.C.P		REINFORCED CONCRETE PIPE
DIA.	_	DIAMETER	REF		REFERENCE
D.S.	_	DESIGN SPEED	R.S.E		REVERTIBLE SLOPE EASEMENT
E	_	ELECTRIC	RT		RIGHT
EB	_	EASTBOUND	RTE		ROUTE
EOI	_	END OF INFORMATION	R/W -		RIGHT OF WAY
EORI	_	END OF RECORD INFORMATION	SAN		SANITARY
ERCCP		ELLIPTICAL REINFORCED CEMENT CONCRETE PIPE	S.D		STORM DRAIN
ES	_	END STRUCTURE	S/E -		SUPER ELEVATION
EW	_	ENDWALL OR EACH WAY	S.H.A		STATE HIGHWAY ADMINISTRATION
EX., EXIS		EXISTING	SMH		SEWER MANHOLE
F.O.	-	FIBER OPTIC	S.S.D		STOPPING SIGHT DISTANCE
F.S.	_	FULL SUPER	STA		STATION
GA.	_	GAUGE OR GAGE	STD		STANDARD
G.H.V.	_		STRUCT		STRUCTURE
G.V.	_	GAS VALVE	Т -		TELEPHONE
HDWL	_	HEADWALL	TC -		TRAFFIC CONTROL
G.W.	-	HANDHOLE	T.C.A EASEMENT	-	TEMPORARY CONSTRUCTION
H.P.	-	HIGH POINT	T.C.P		TRAFFIC CONTROL PLANS
1	-	INLET			TEST HOLE
INV.	-	INVERT	TW -		TOP OF WALL
L	-	LENGTH	TYP		TYPICAL
L.P.	-	LOW POINT (OR LIGHT POLE)	U.D		UNDERDRAIN PIPE
L.S.	-	LEVEL SECTION	WB -		WESTBOUND
LT.	-	LEFT	W.M		WATER METER
M.B.	-	MAIL BOX	W.S		WRAPPED STEEL
MD	-	MARYLAND	W.U.S		WATERS OF THE UNITED STATES
MDE	-	MARYLAND DEPARTMENT OF	W.V		WATER VALVE
		THE ENVIRONMENT	V.V		LENGTH OF VERTICAL CURVE
M.H.	-	MANHOLE	v.o		

SYMBOL LEGEND

	<u>3 1 MD(</u>	<u>JL LLOLIND</u>	
PROPERTY LINE AND RIGHT-OF-WAY		PROPOSED 2' CONTOUR	122
EXISTING 2' CONTOUR	52	PROPOSED 10' CONTOUR	120
EXISTING 10' CONTOUR EXISTING TREE LINE		PROPOSED SPOT ELEVATION	21 ⁵⁰
EXISTING TILL LINE EXISTING SOILS		PROPOSED SUPER SILT FENCE	
EXISTING ASPHALT ROADWAY		PROPOSED REINFORCED SILT FENCE	
EXISTING BUILDINGS		PROPOSED SOIL STABILIZATION MATTING	
EXISTING WATER	w w w		[/ y x x / y x x / y x x
EXISTING SEWER	sss	OTABILIZED CONOTRUCTION	
EXISTING OVERHEAD ELECTRIC	OEOE	STABILIZED CONSTRUCTION ENTRANCE	TO CISCHOLOGY PO
EXISTING UNDERGROUND ELECTRIC	C —— UE —— UE ———		
EXISTING STORM DRAIN			
EXISTING GAS	G G		
EXISTING STREAM			
EXISTING STREAM BUFFER		TEMPORARY STAGING AREA	TEMP. STAGING
EXISTING WETLANDS	**************************************		AREA
EXISTING WETLAND BUFFER			
EXISTING CRITICAL AREA LIMITS	—— CAB —— —— ——		(TEMP. SOIL)
		TEMPORARY SOIL STOCKPILE AREA	STOCKPILE AREA
SPECIMEN TREE AND CRITICAL ROC	OT ZONE (
		PROPOSED STANDARD INLET PROTECTION	SIP J
EXISTING TREES		PROPOSED CHECK DAM	CD CD
EXISTING POWER POLE	Q		-
EXISTING GUY WIRE	-⊕	SPECIMEN TREE TO BE REMOVED	₩ 76
EXISTING MAILBOXES		EXISTING DRAINAGE AREA	
PROPOSED ASPHALT TRAIL		SPECIMEN TREE SIGNAGE	(S_{μ})
PROPOSED CONCRETE TRAIL		FOREST CONSERVATION SIGNAGE	S
PROPOSED CONCRETE RAMP		TREE PROTECTION FENCE	TPD
PROPOSED DETECTABLE WARNING			
		RIP RAP	
PROPOSED RETAINING WALL			
PROPOSED SPLIT RAIL FENCE	── ◆		
PROPOSED CHAIN LINK FENCE			
	^ ^ ^	PROPOSED SHADE TREE	٠ - ا
PROPOSED STORM DRAIN			C C
PROPOSED GRASS SWALE		PROPOSED SHRUBS	80
PROPOSED BIOSWALE		PROPOSED EVERGREEN TREE	
PROPOSED SUBMERGED GRAVEL WETLAND		EXISTING FOREST CONSERVATION	KXXXXXXXX
PROPOSED LIMIT OF DISTURBANCE		EASEMENT	
	LOD		
BG&E 52' CLEAR ZONE			

OILS CHART						
IAP SYMBOL	NAME	EROSION	K FACTOR	HYDRIC	SLOPE (%)	HYDROLOGIC GROUP
xВ	Downer-Phalanx complex	SLIGHT	0.1	NO	2-5%	Α
xC	Downer-Phalanx complex	MODERATE	0.1	NO	5-10 %	Α
aaA	Fallsington sandy loam	SLIGHT	•	YES	0-2%	C/D
lxΒ	Mattapex-Butlertown complex	MODERATE	0.43	NO	2-5%	D
gB	Patapsco-Fort Mott-Urban land complex	SLIGHT	0.02	NO	0-5%	Α
аВ	Sassafras fine sandy loam	SLIGHT	0.15	NO	2-5%	Α
fB	Sassafras Ioam	MODERATE	0.32	YES	2-5%	В
hΑ	Sassafras-Hambrook complex	SLIGHT	0.15	NO	0-2%	A
ME	Sassafras and Croom soils	SEVERE	0.15	YES	15-25%	С
						_

0.15 YES 0-2%

GP# 02018537 DWG NO: CD02

//ccounts\AACOX\AACOX19001 — South Shore Trail Phase II\DESIGN_SHEETS\CD SET\AACOX19001—CD02،

APRIL 11, 2023

PROFESSIONAL CERTIFICATION: I, _____ JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY LICENSED _____PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____21774 ____ EXPIRATION DATE ____11/10/2023

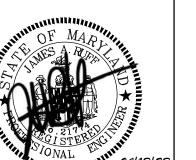
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NOT APPLICABLE

NUMBER

NORMAL SECTION





APPROVED

(Descel

CHIEF ENGINEER

APPROVAL

DocuSigned by:

ASSISTANT CHIEF ENGINEER

4/18/2023 | 09:35 EDT

Parid C. Braun4/18/2023 | 08:38 EDT |

PENNONI ASSOCIATES INC.

8890 McGaw Road, Suite 100

Columbia, MD 21045

T 410.997.8900 F 410.997.9282

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS

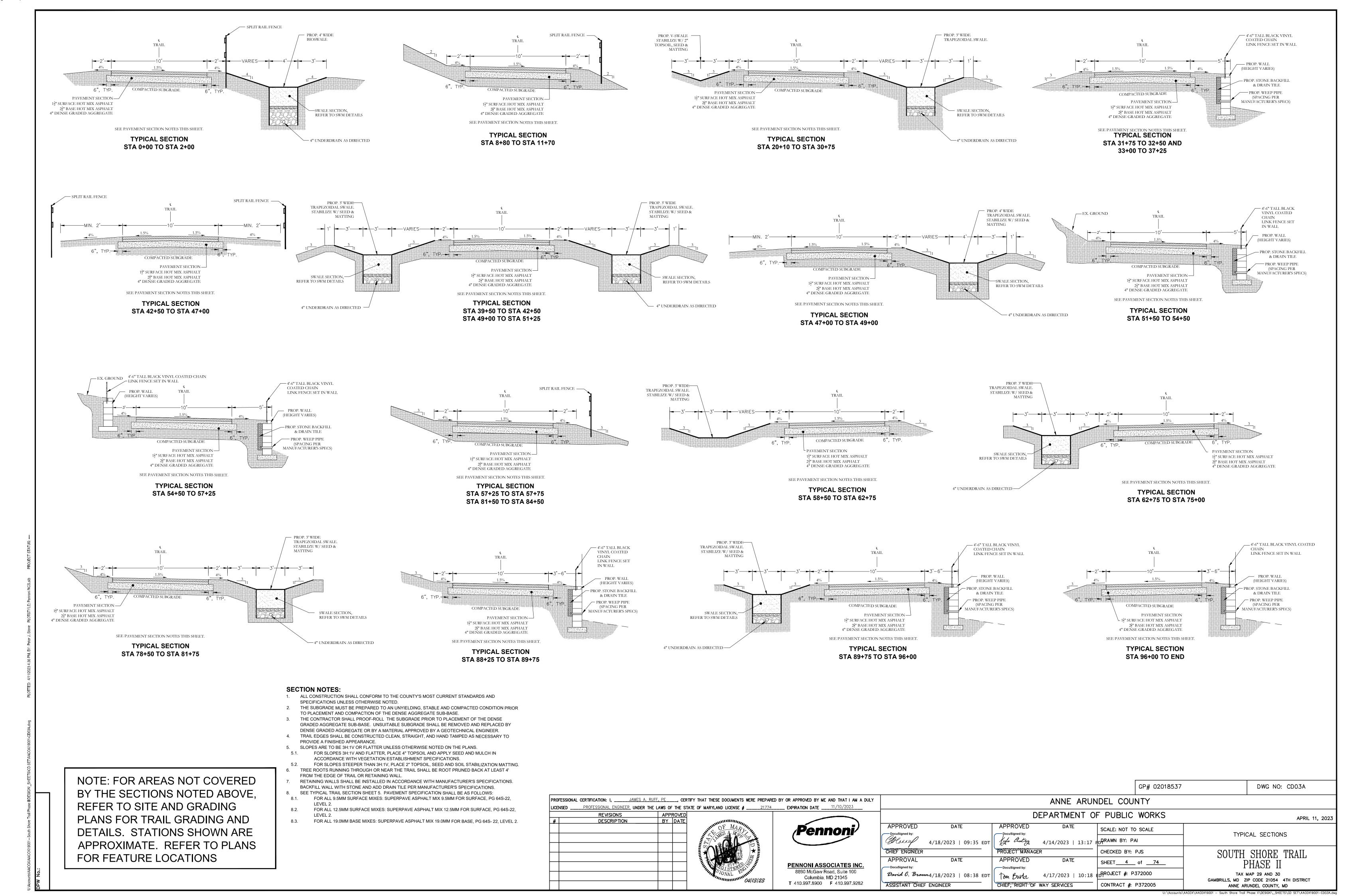
APPROVED DocuSigned by 4/14/2023 | 13:17 HDPRAWN BY: PAI Yyle autry PROJECT MANAGER

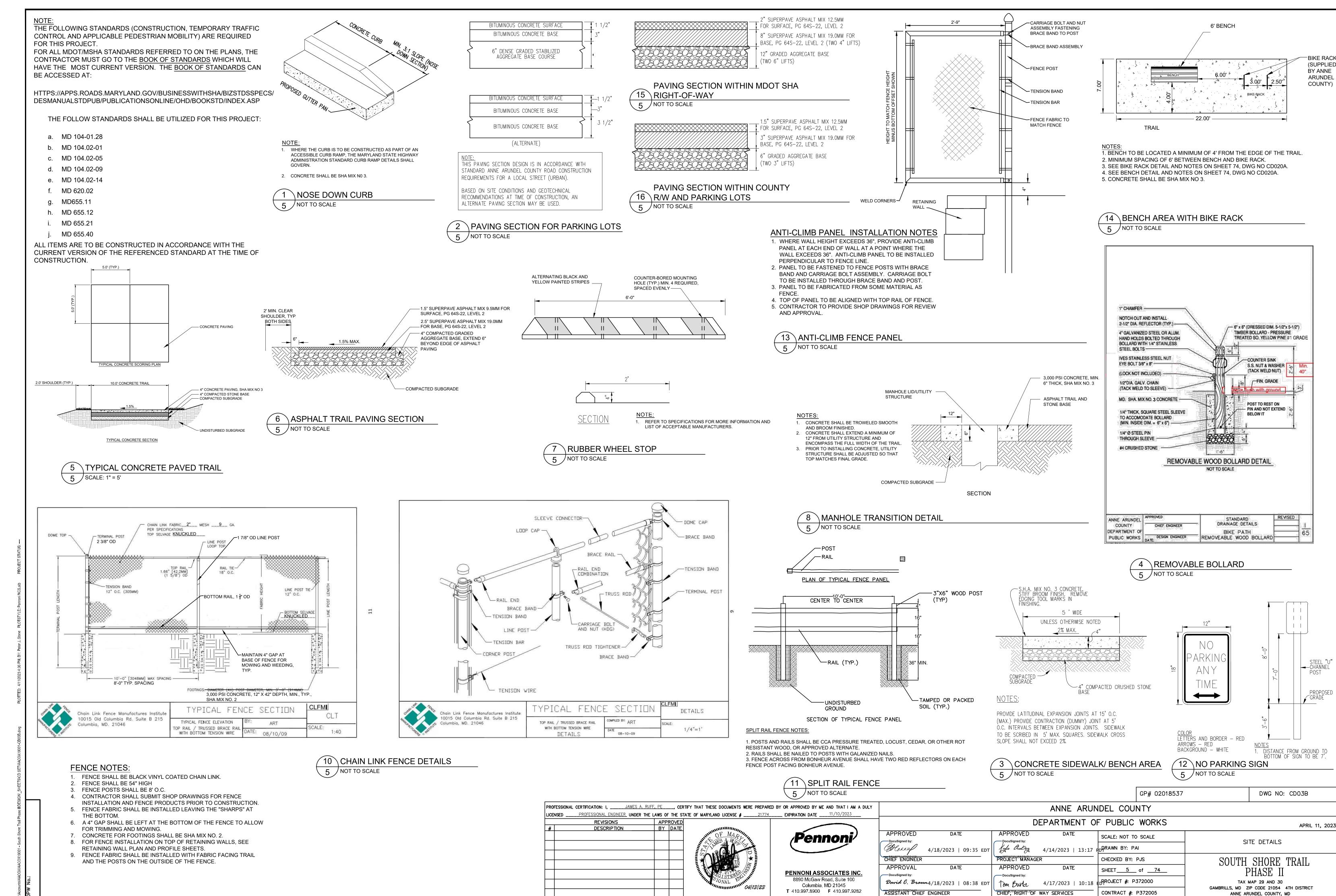
CHIEF RIGHT OF WAY SERVICES

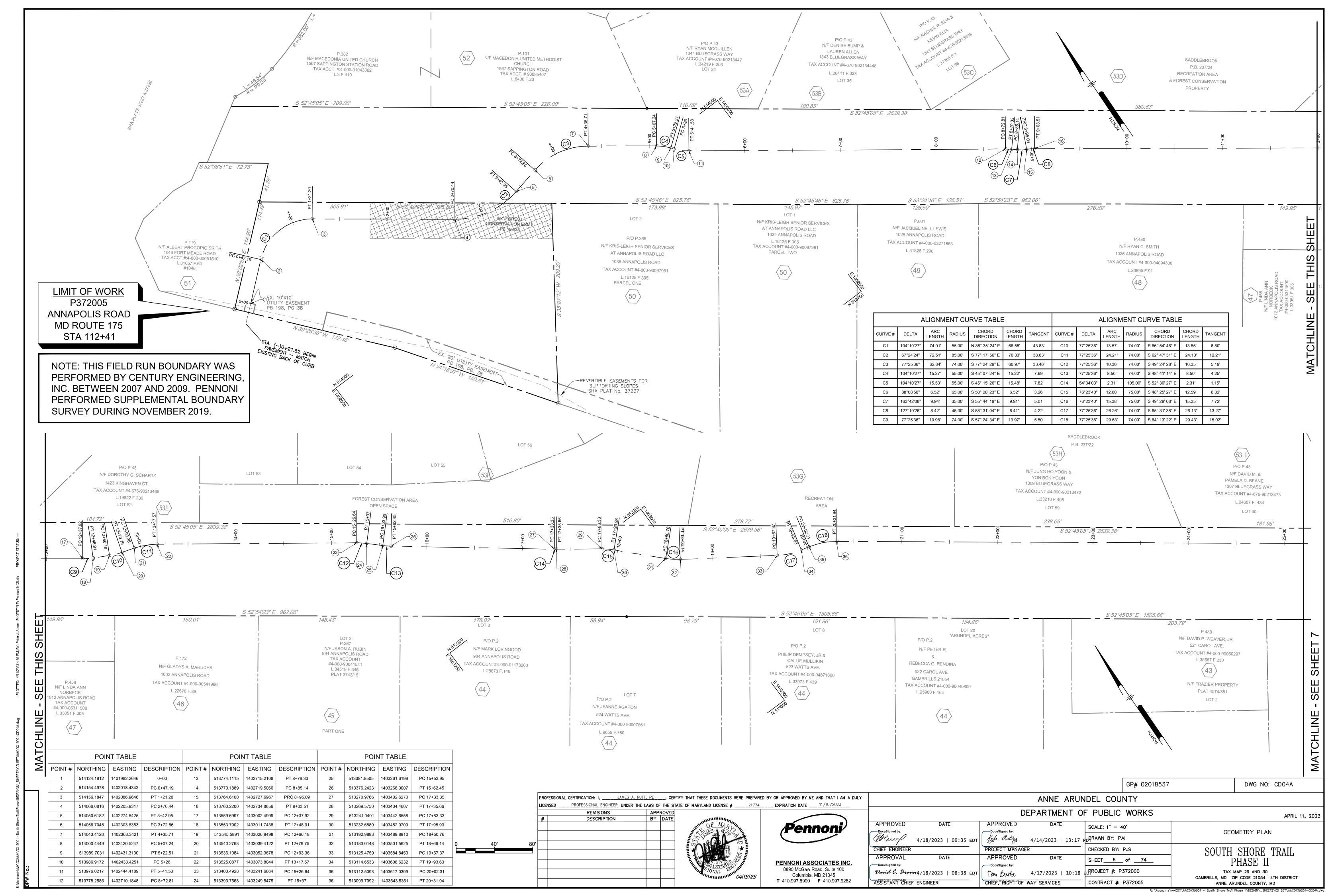
Woodstown sandy load

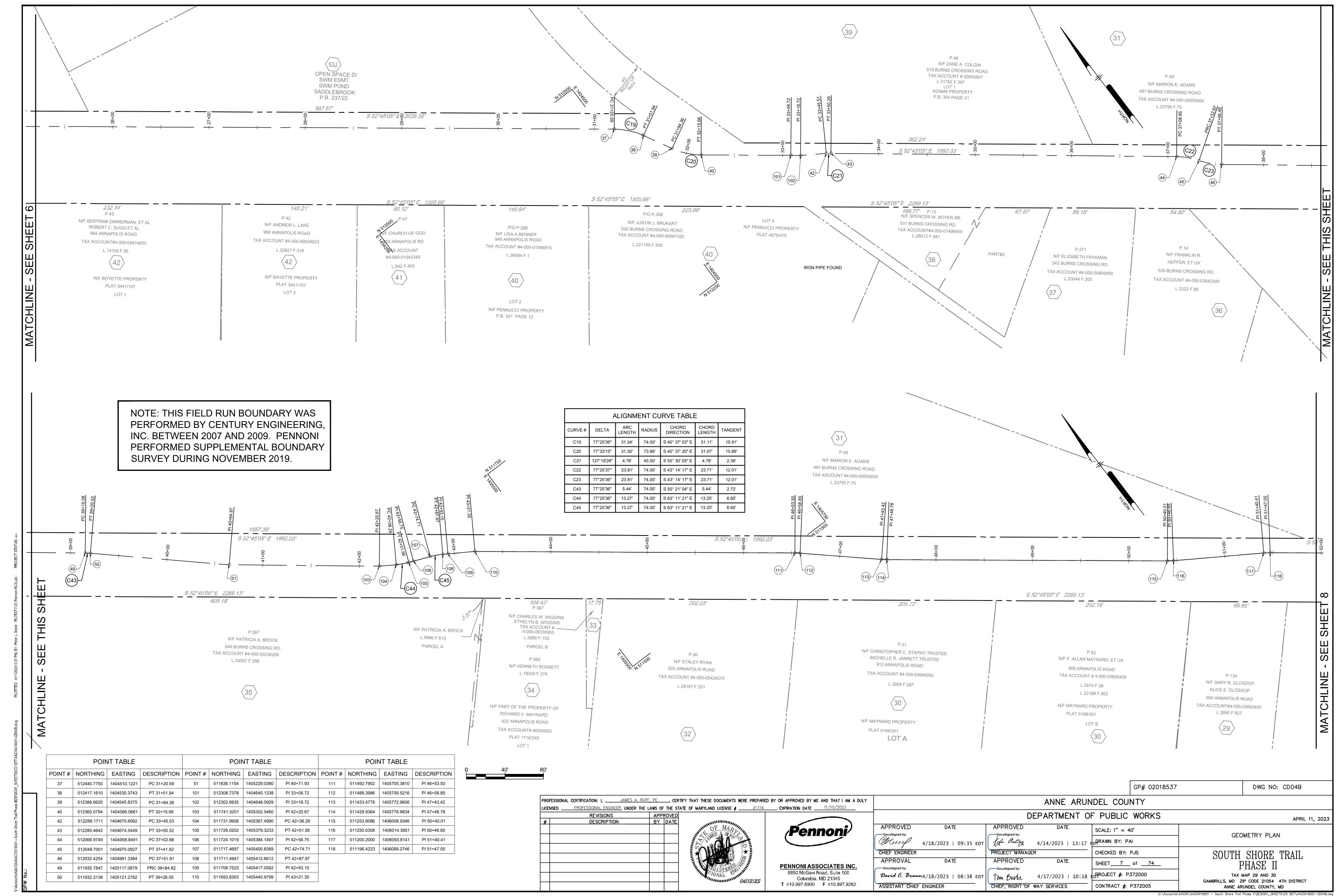
Tom Burke

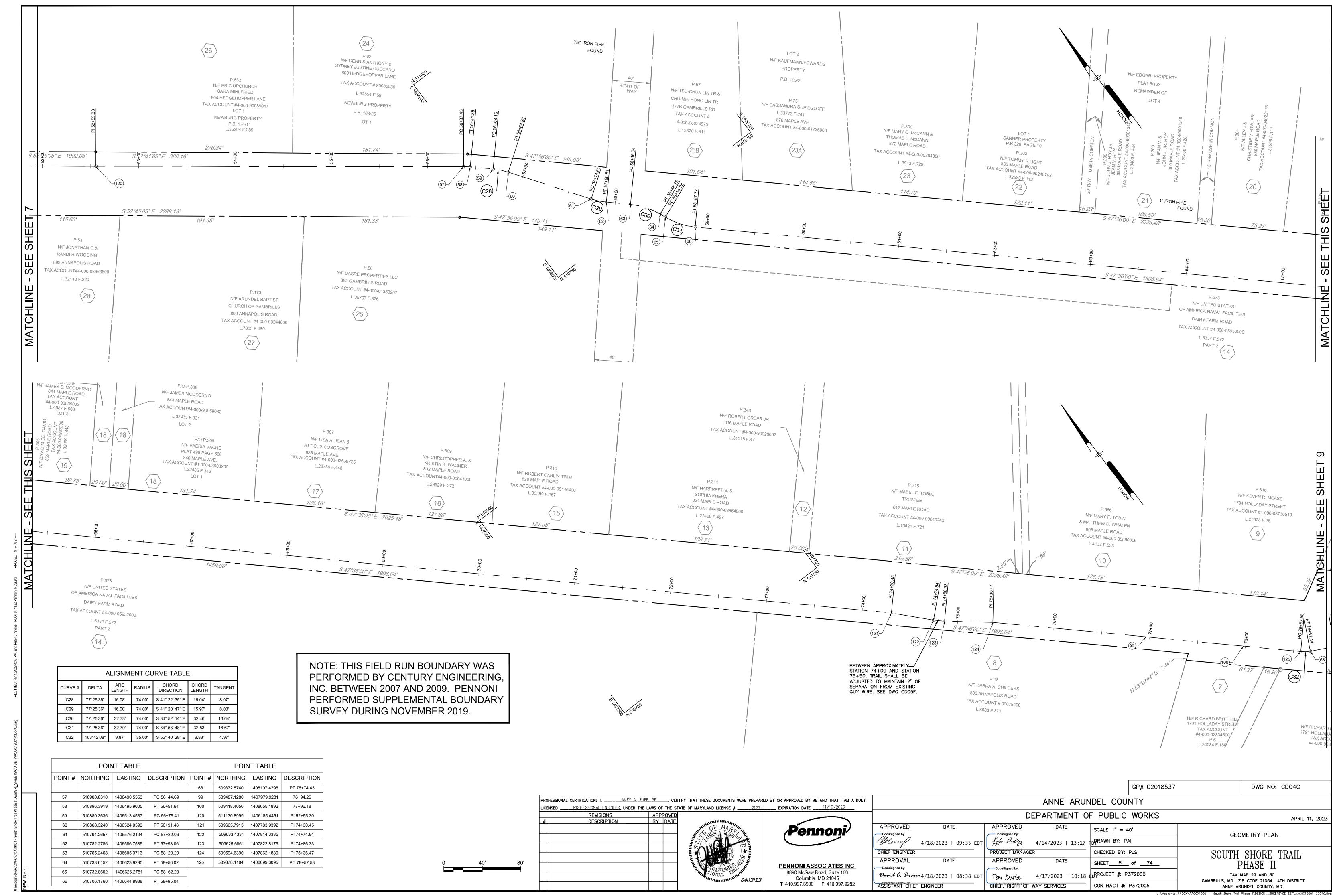
SCALE: NOT TO SCALE GENERAL NOTES, LEGEND AND ABBREVIATIONS CHECKED BY: PJS SOUTH SHORE TRAIL SHEET 3 of 74 PHASE II 4/17/2023 | 10:18 EDROJECT #: P372000 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD

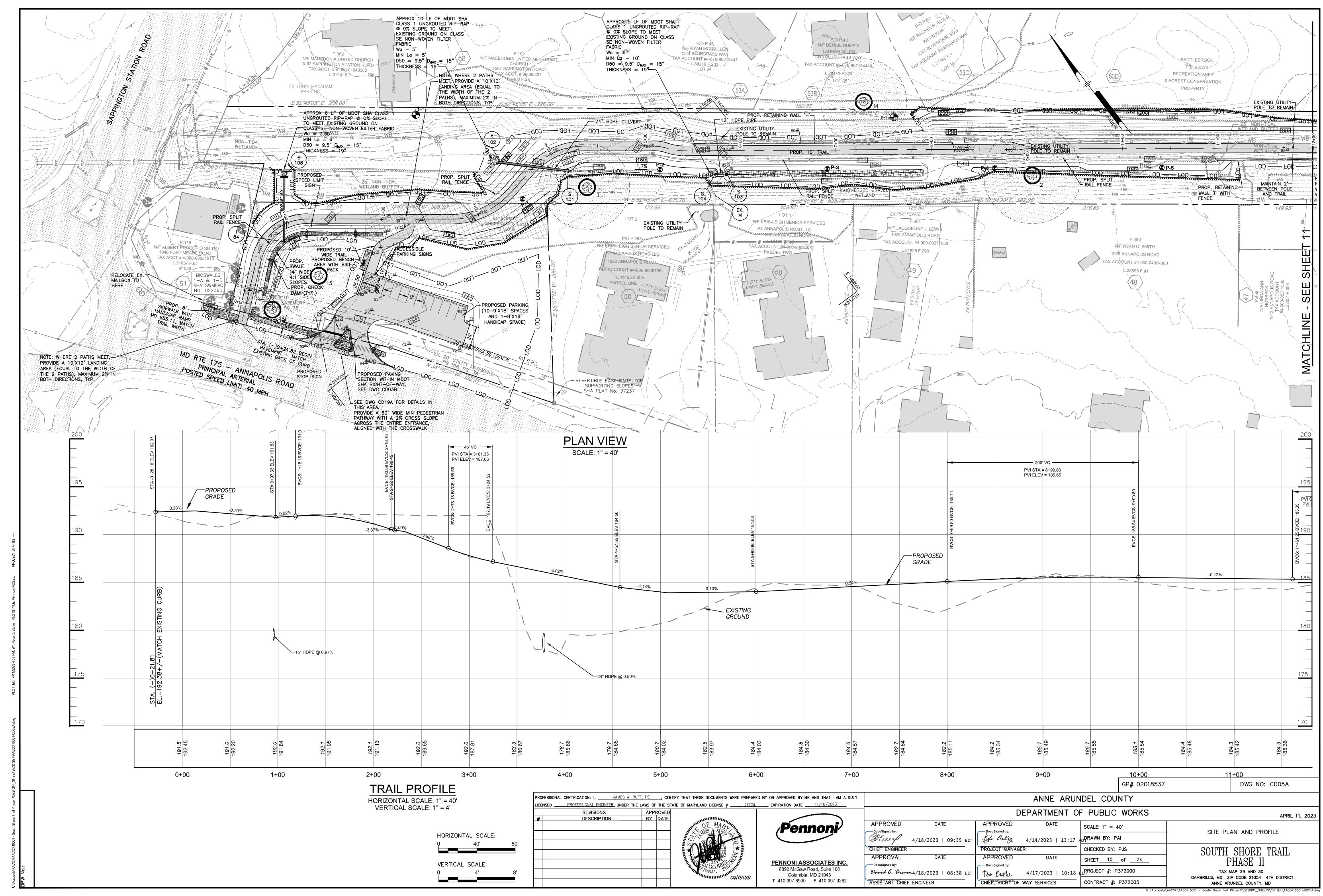


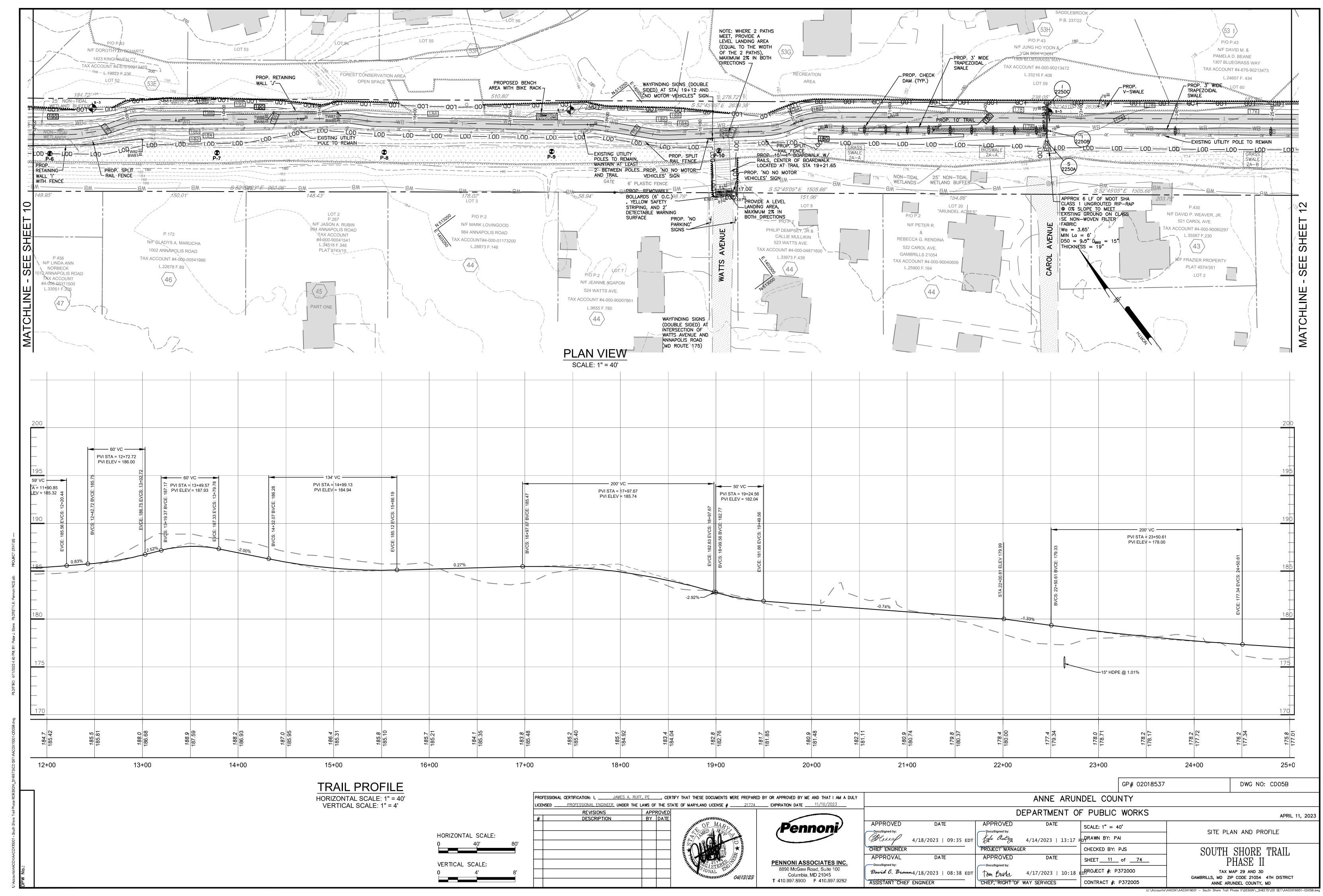


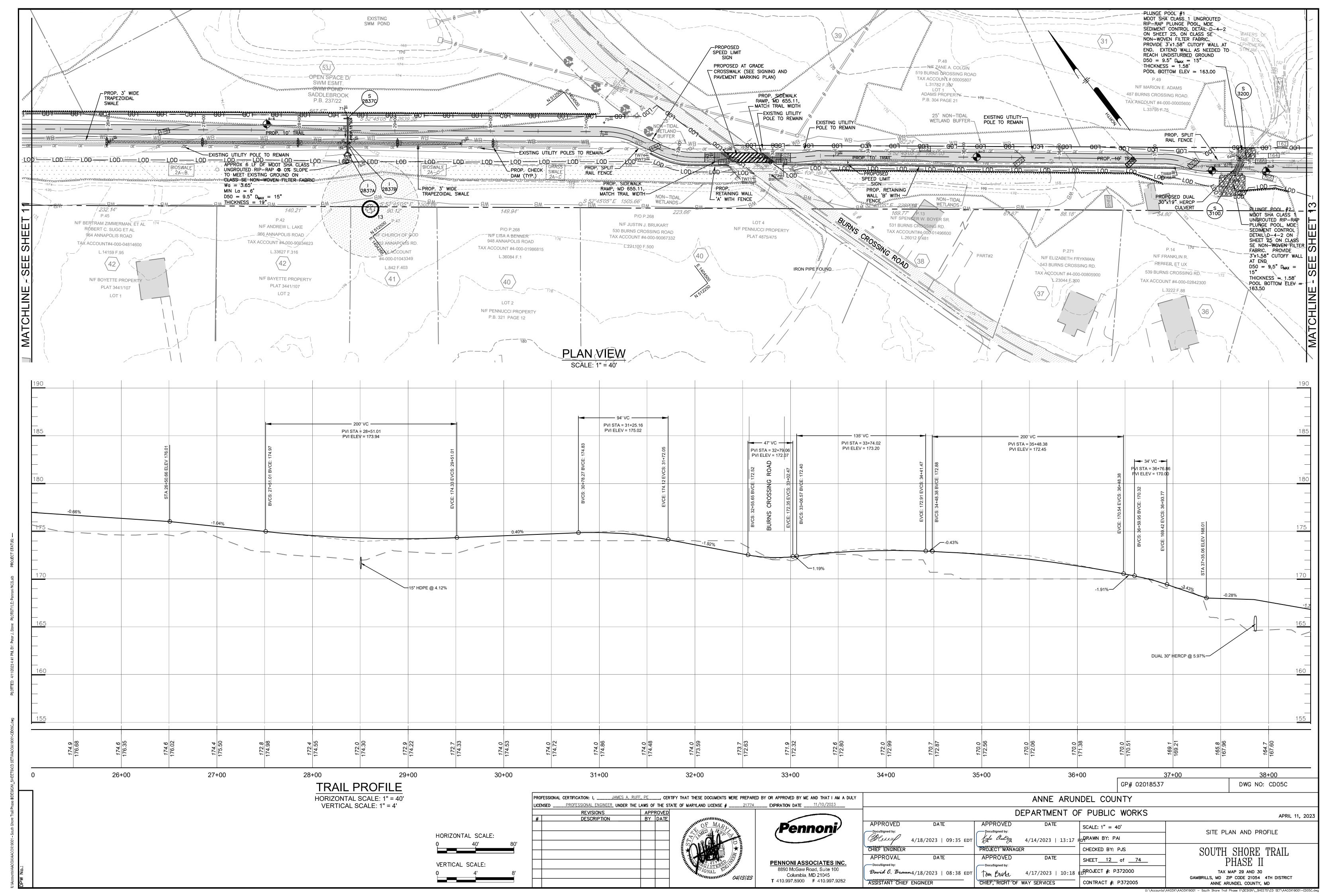


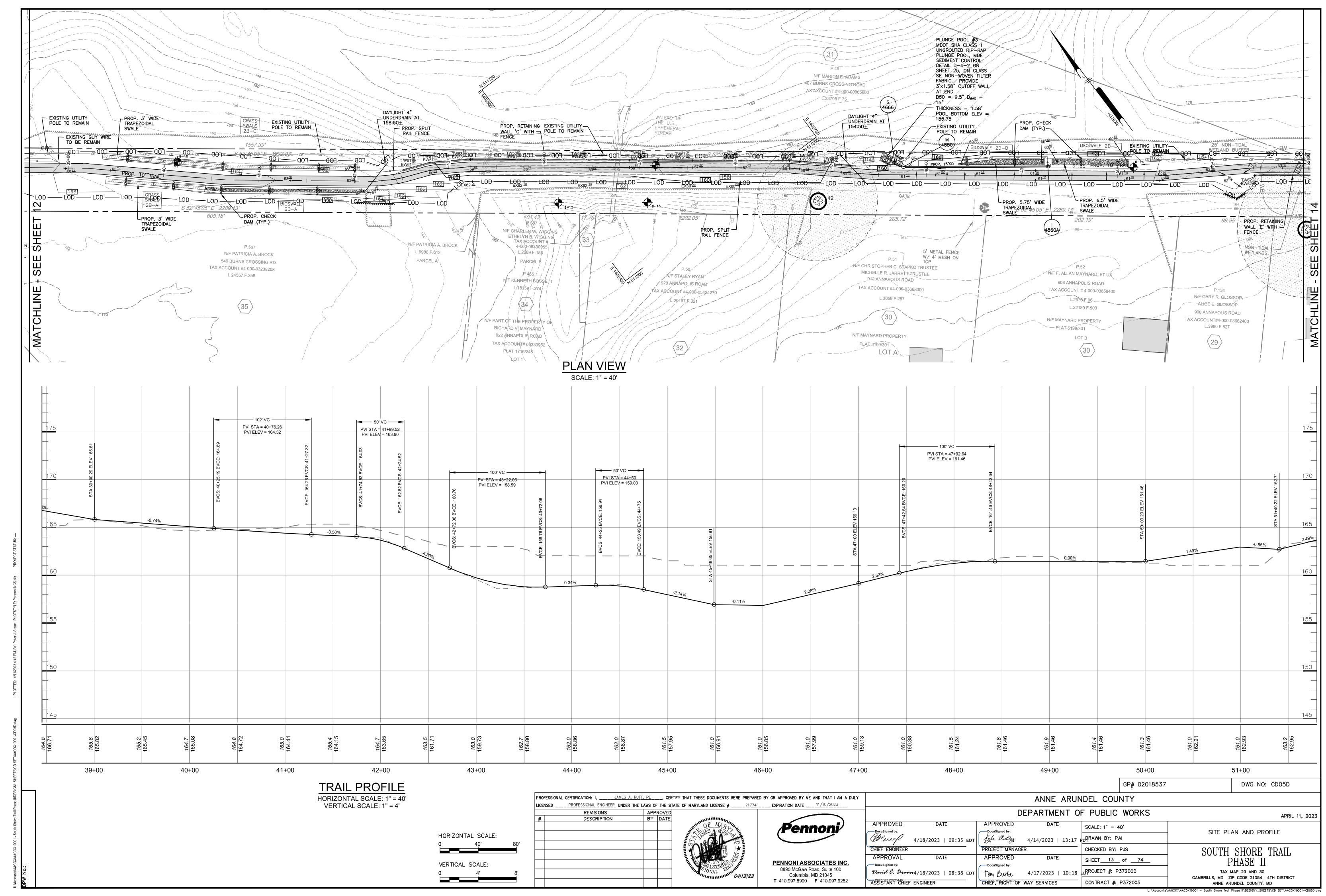


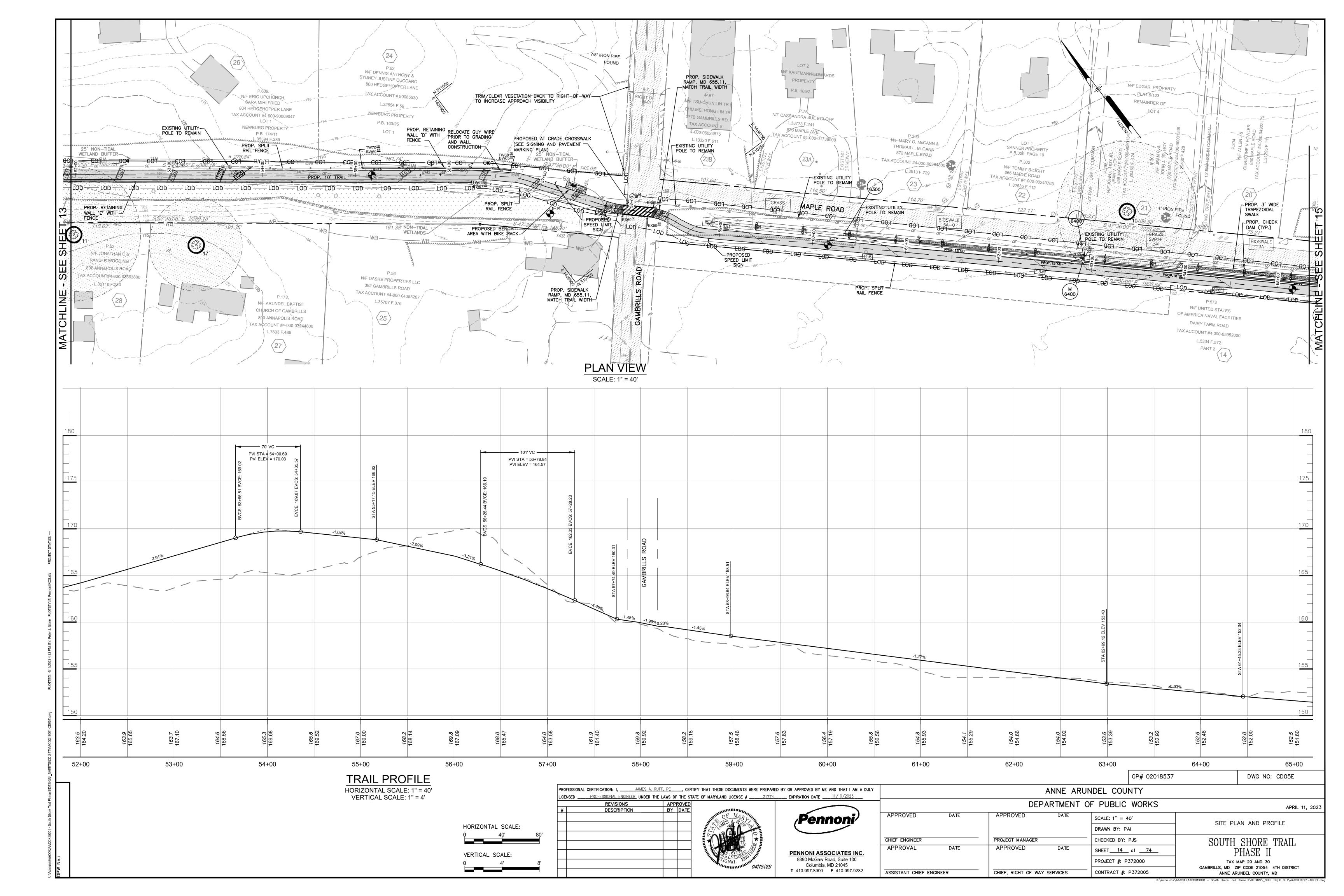


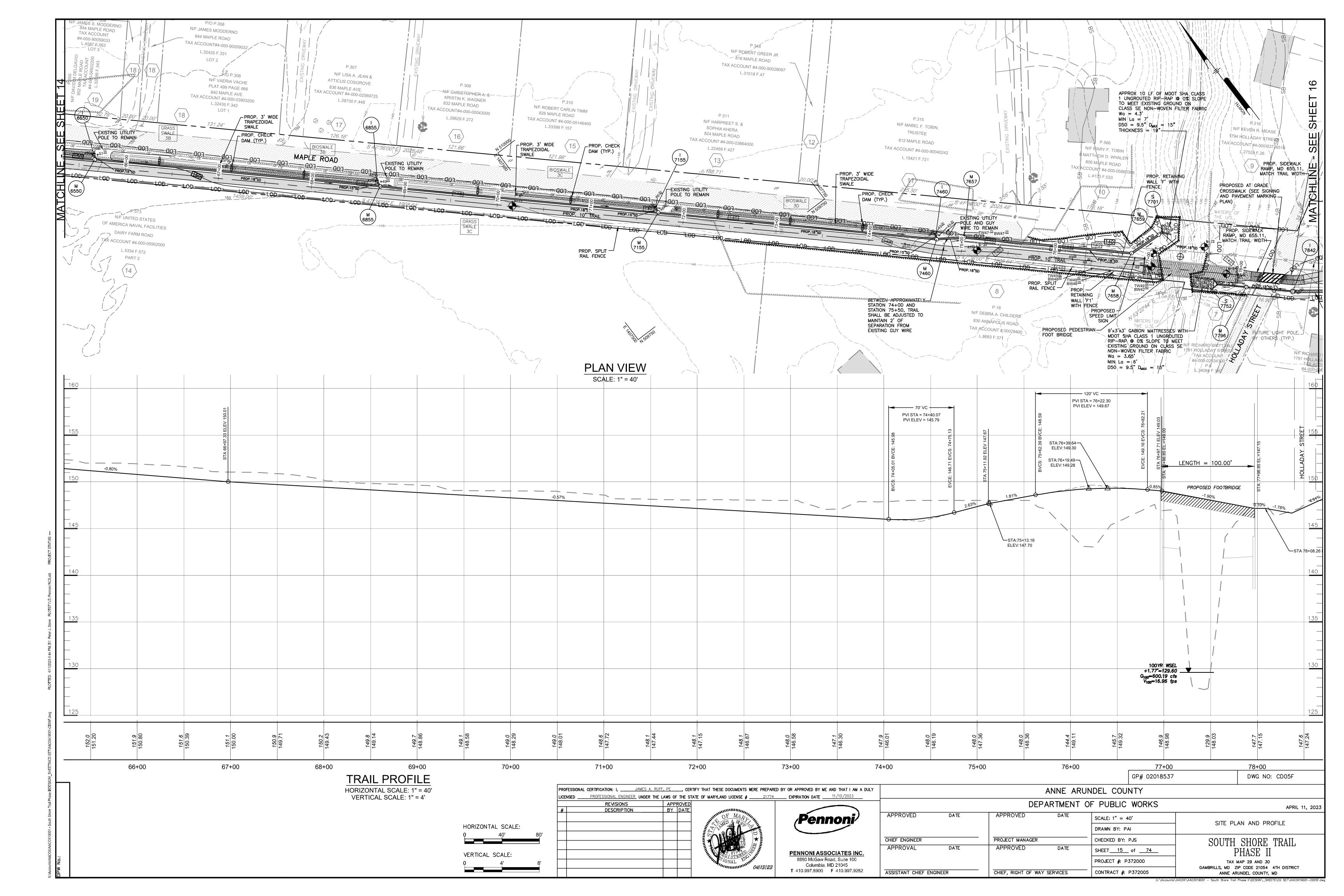


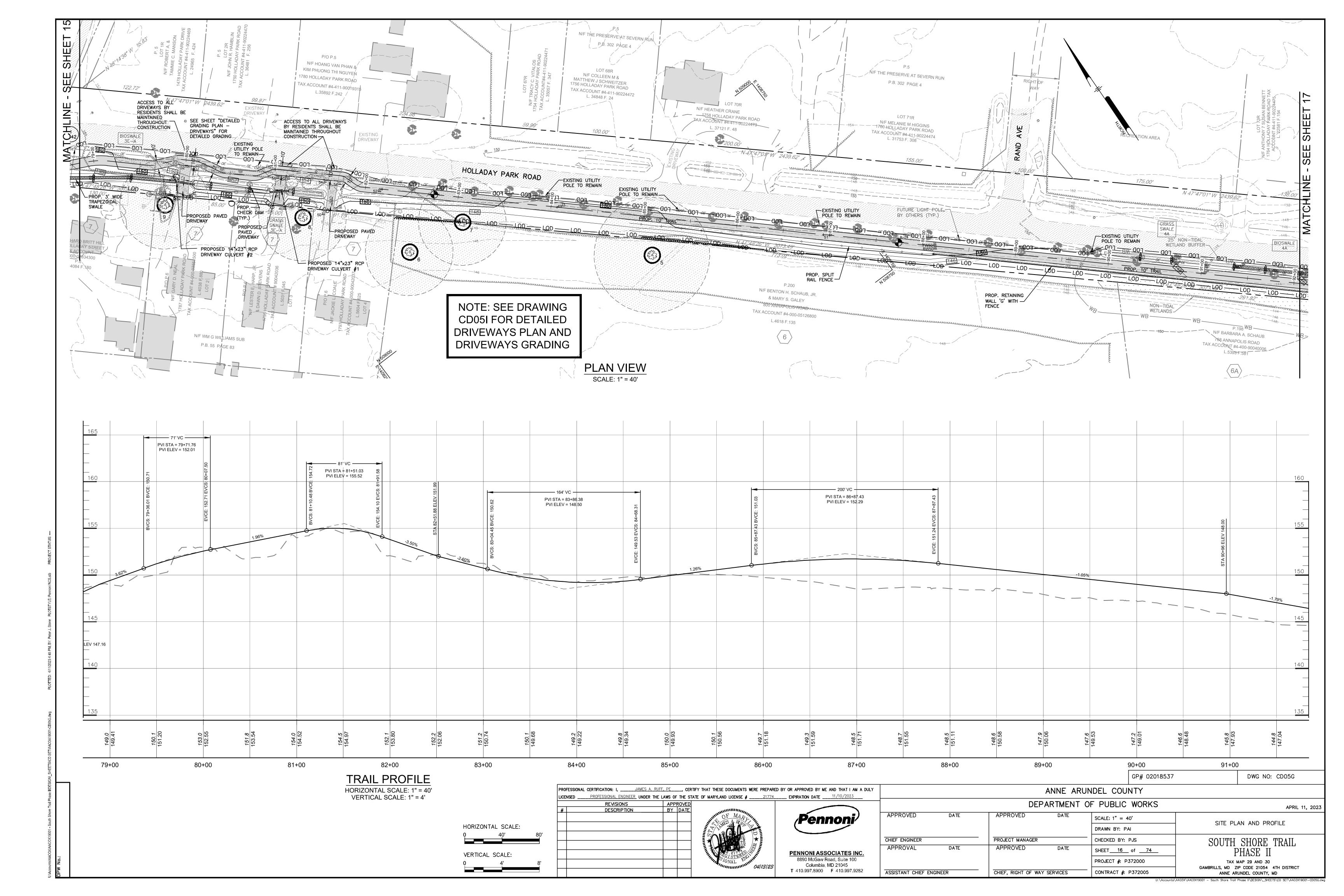


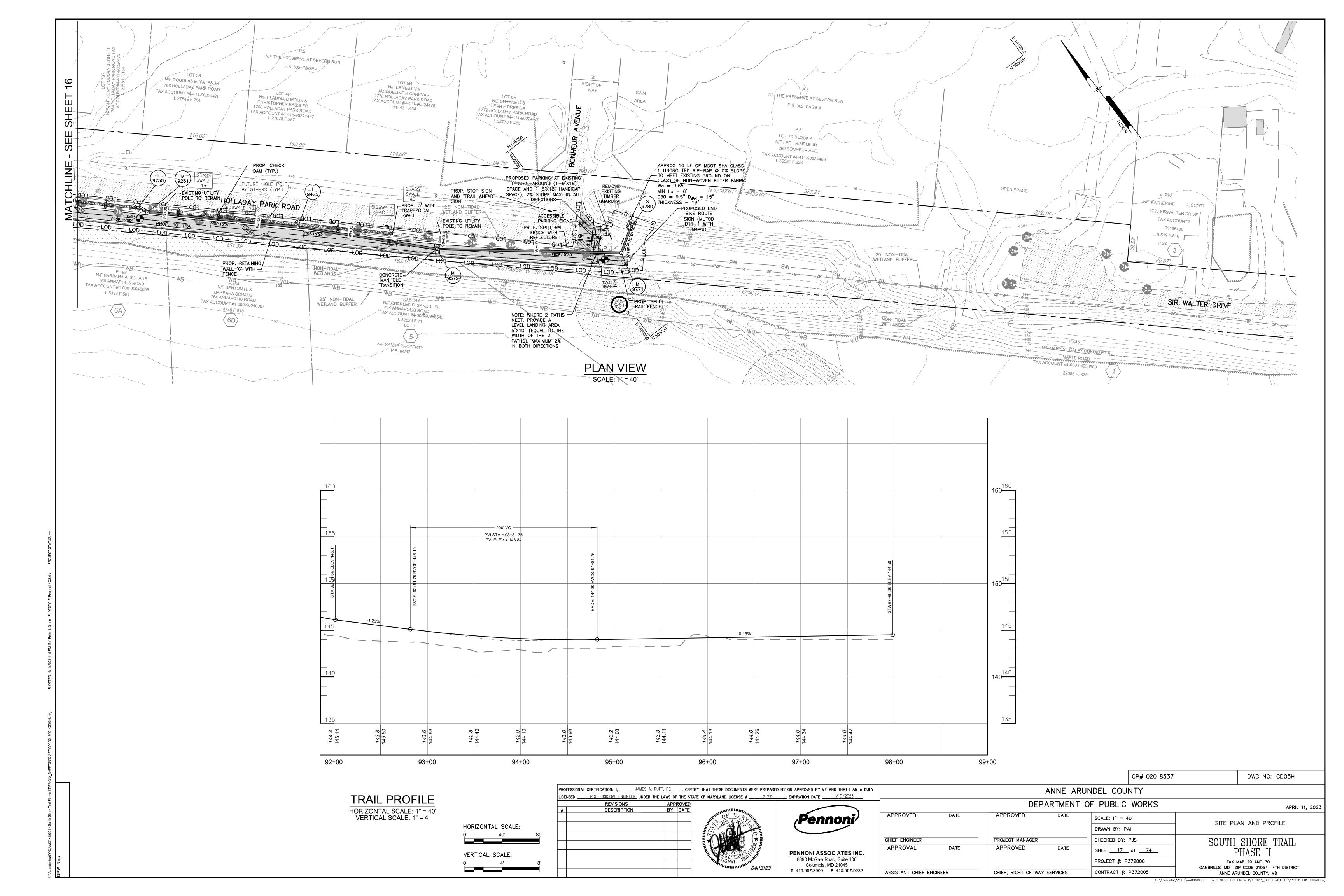


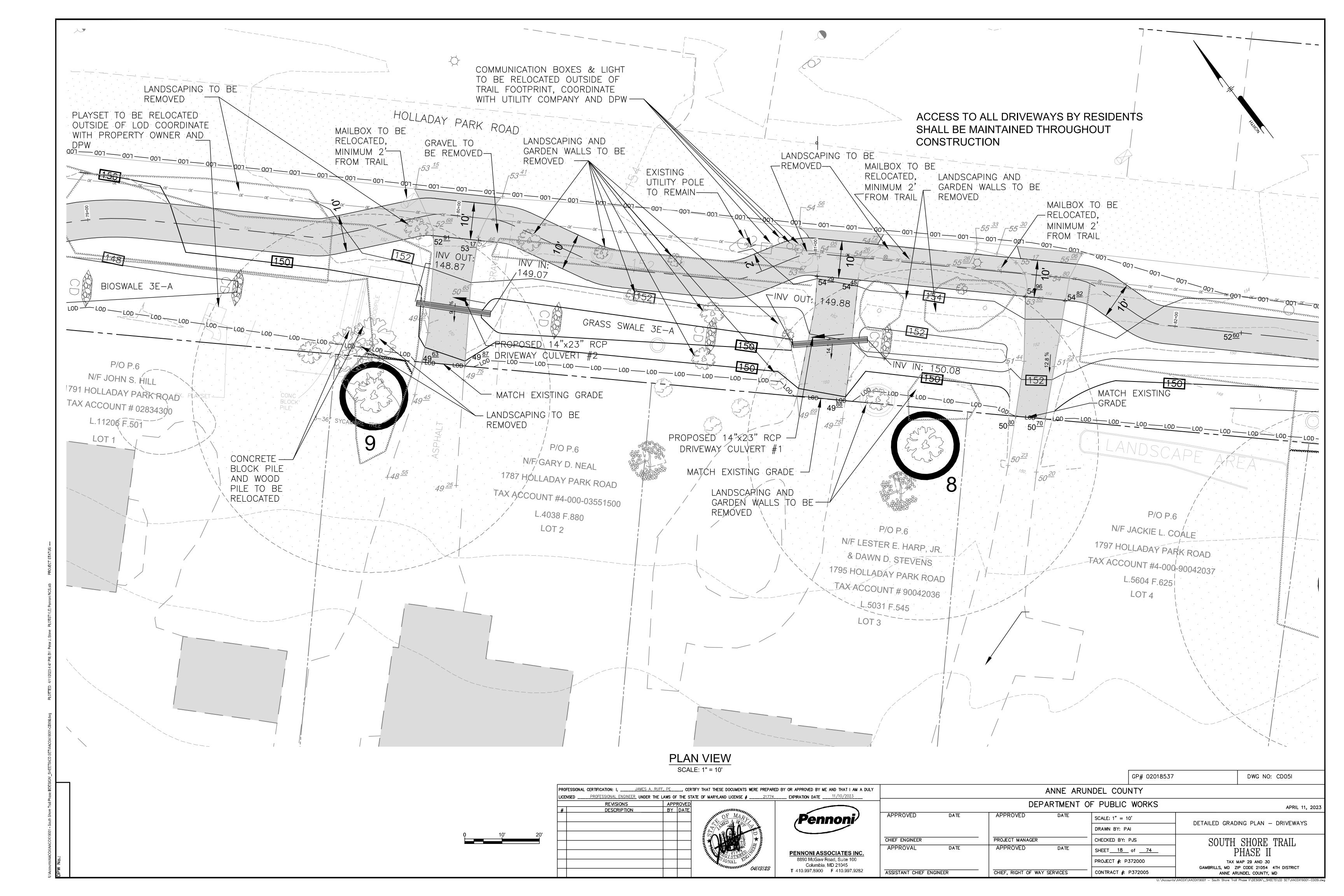


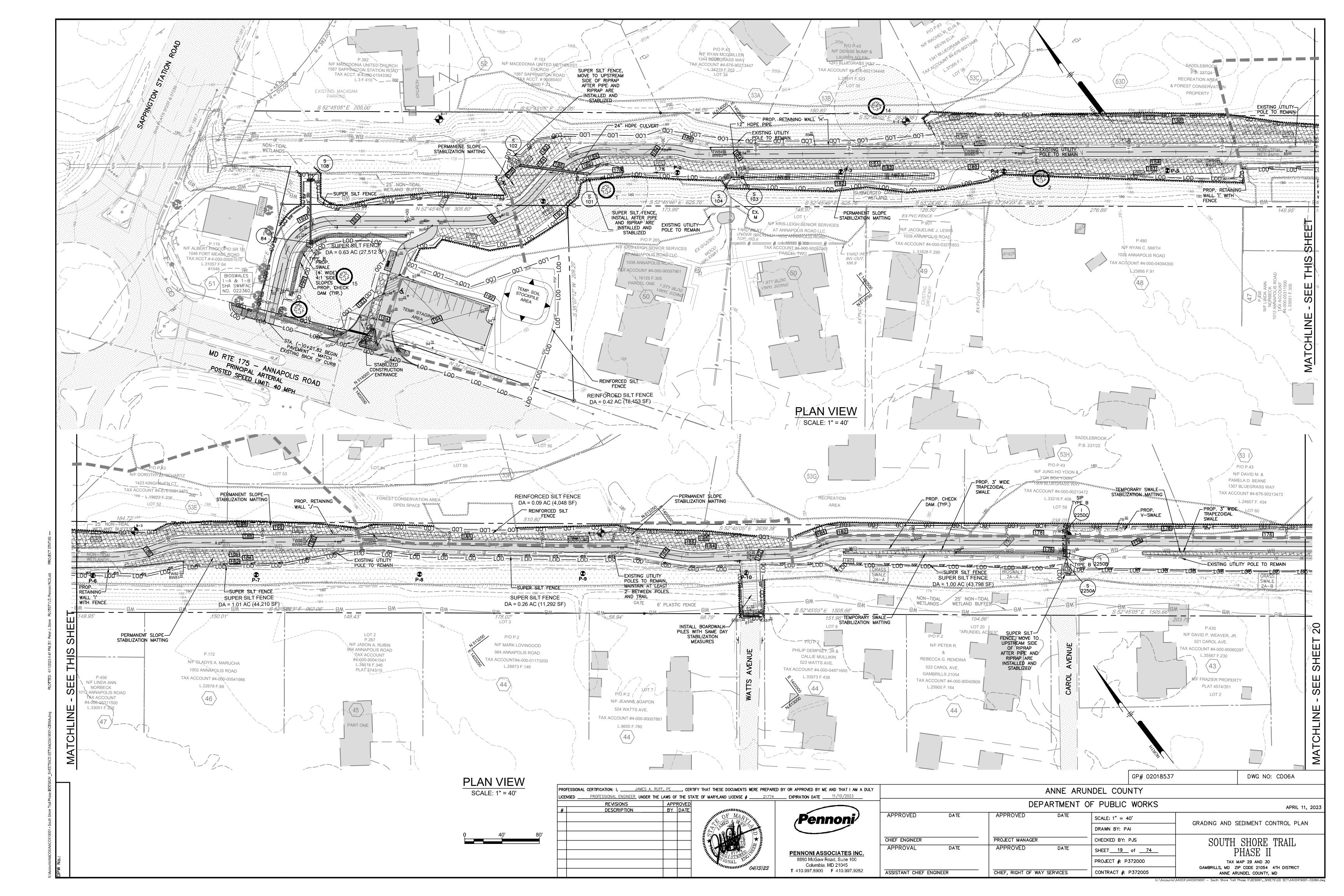


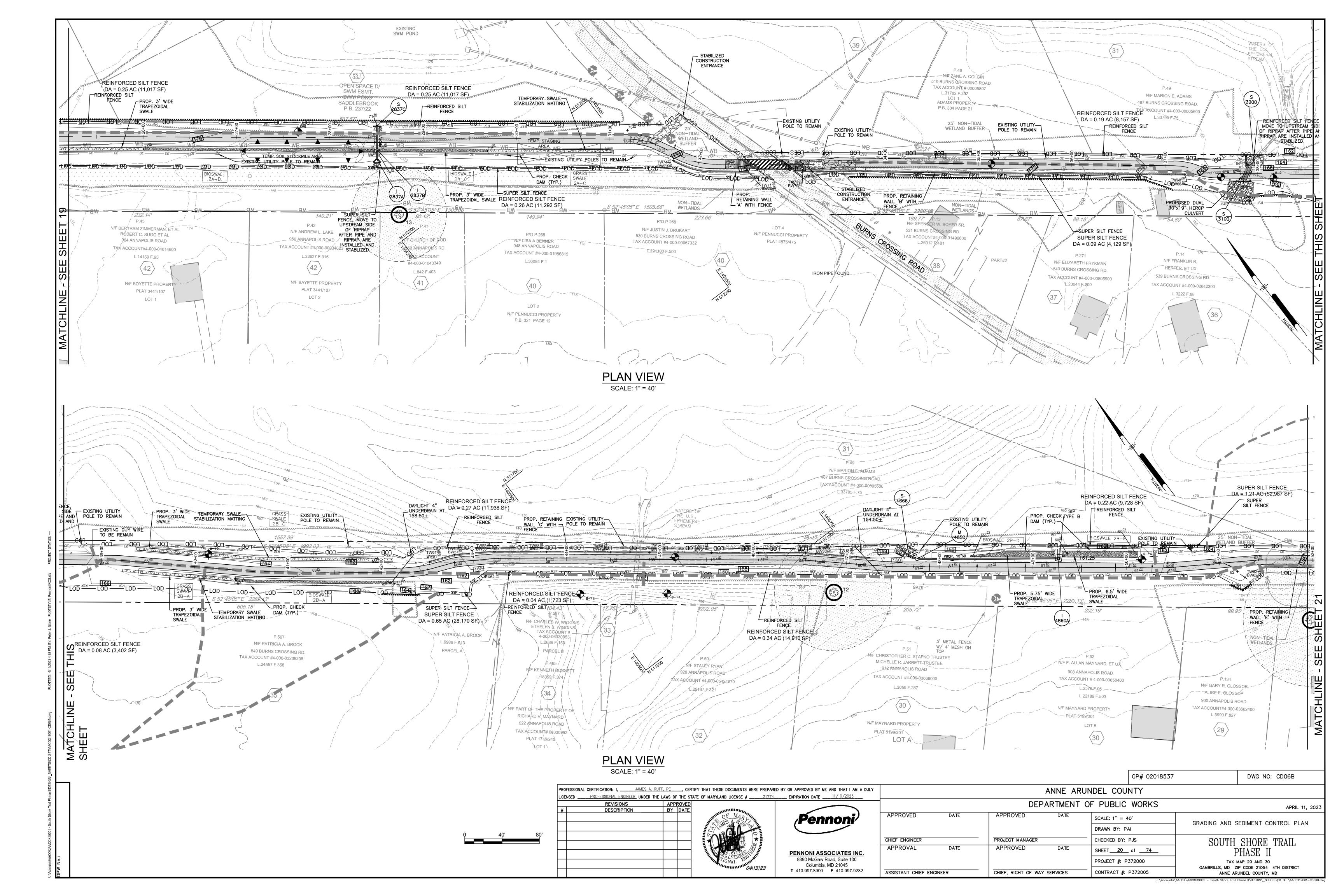


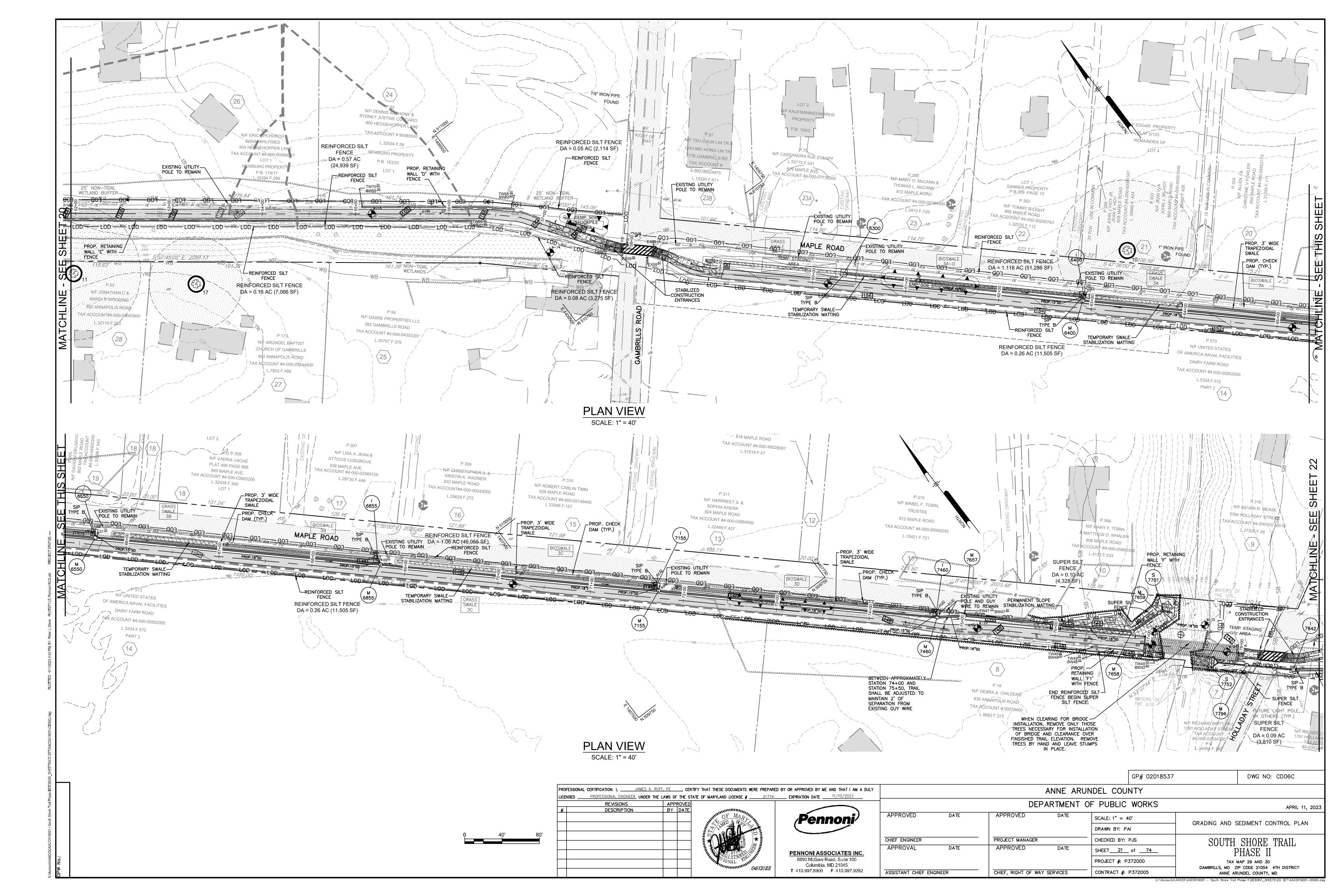


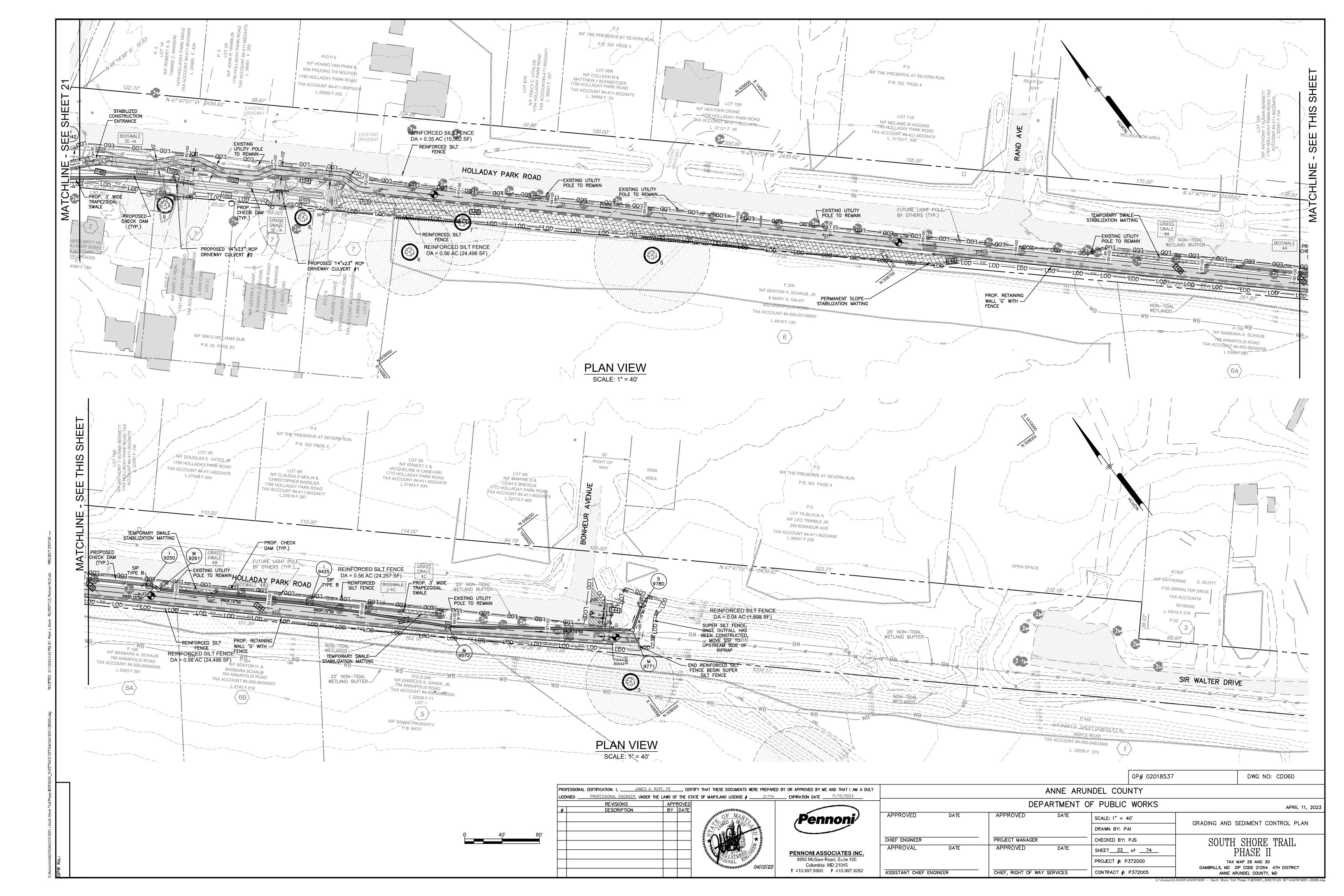












AMENDMENTS **DEFINITION**

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.

<u>CRITERIA</u>

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 RIPPERS 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. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
- c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED

ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH

- OF 3 TO 5 INCHES. d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
- e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING

- 1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
- 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
- 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
- a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
- b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
- c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT
- d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- 4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
- 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING
- a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS. STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 11/2 INCHES IN DIAMETER.
- b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

. TOPSOIL APPLICATION

- a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
- b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH

- A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

- 1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
- 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
- 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
- 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS. SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL

B-4-3 STANDARDS AND SPECIFICATIONS

FOR SEEDING AND MULCHING

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

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

CONDITIONS WHERE PRACTICE APPLIES TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE

CRITERIA

A. SEEDING

GRADING.

- 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 THE 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 FIXING 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. NOTE: 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 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
- . 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
- 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
- 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; K20 (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. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY. MOLDY.

CAKED, DECAYED, OR EXCESSIVELY DUSTY, NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

- b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
- i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
- ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
- iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
- iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
- v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
- a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- b. WHEN STRAW MULCH IS USED. SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
- c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

3. ANCHORING

2. APPLICATION

- a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
- i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
- ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET. TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
- iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

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

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

CONDITIONS WHERE PRACTICE APPLIES

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

<u>CRITERIA</u>

- 1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS 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.1 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

	HARDINESS ZONE	(FROM FIGURE B.3):	7A		FERTILIZER	
	SEED MIXTURE (FROM TABLE B.1):					LIME RATE
NO.	SPECIES	APPLICATION RATE (Ib/ac)	SEEDING DATES	SEEDING DEPTHS	(10–20–20)	
	ANNUAL RYEGRASS	40	MAR 1 TO MAY 15; AUG 1 TO OCT 15	0.5		
	BARLEY	96	MAR 1 TO MAY 15; AUG 1 TO OCT 15	1.0	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 st
	OATS	72	MAR 1 TO MAY 15; AUG 1 TO OCT 15	1.0		
	PEARL MILLET	20	MAY 16 TO JULY 31	0.5		

APPROVED

BY DATE

REVISIONS

DESCRIPTION

PROFESSIONAL CERTIFICATION: I, ______ JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY

LICENSED _____PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____21774 ____ EXPIRATION DATE ____11/10/2023

B-4-5 STANDARDS AND SPECIFICATIONS

FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND

COVER ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES

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 HARDINESS 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
- d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT

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 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 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 CULTIVARS/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.
- 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: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:

Pennoni

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

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

c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)

MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)

APPROVED

CHIEF ENGINEER

ASSISTANT CHIEF ENGINEER

DATE

APPROVAL

- SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS 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 11/2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
- e. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL 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.

PERMANENT SEEDING SUMMARY

		FROM FIGURE B.3): (FROM TABLE B.3):	7A			FERTILIZER RATE (10–20–20)	•	INC DATE
NO.	SPECIES	APPLICATION RATE (Ib/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K ₂ 0	LIME RATE
8	TALL FESCUE	100	MAR 1-MAY 15; AUG 15-OCT 15*	1/4-1/2 IN	45 POUNDS	90 POUNDS	90 POUNDS	2 TONS
9	TALL FESCUE KENTUCKY BLUEGRASS FERENNAL RYECRASS	60 40 20	MAR 1-MAY 15; AUG 15-OCT 15*	1/4-1/2 IN	PER ACRE	PER ACRE (2 lb/1000 sf)	PER ACRE	PER ACRE
l 11	CREEPING RED FESCUE CHEMINGS FESCUE MENTILOGY BUILDORASS	30	MAR 1-MAY 15; AUG 15-OCT 15*	1/4-1/2 IN	(1.00) 1000 51)	(2 10/1000 31/	(2 10/1000 31)	(30 10/1000 \$

+ FOR MAY 1 TO AUGUST 14, PLANT WITH NURSE CROP OF PEARL MILLET BASED ON 5% OF THE PERMANENT SEED MIX APPLICATION RATE.

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

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 EXCLUDE 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 TRANSPI ANTED 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

ADEQUATE MOISTURE CONTENT.

- 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
- 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.

NOTE TO CONTRACTOR

DEPARTMENT OF PUBLIC WORKS

SCALE: NOT TO SCALE

DRAWN BY: PAI

CHECKED BY: PJS

APPROVED

PROJECT MANAGER

APPROVED

ALL SEDIMENT CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THESE PLANS AND THE MDE INSPECTOR. ALL SEDIMENT CONTROL REQUIREMENTS SHALL BE STRICTLY ENFORCED.

	GP#	02018537	
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ANNE ARUNDEL COUNTY

APRIL 11, 2023 SEDIMENT CONTROL NOTES

DWG NO: CD07A

SOUTH SHORE TRAIL PHASE II

Accounts\AACOX\AACOX19001 — South Shore Trail Phase II\DESIGN_SHEETS\CD SET\AACOX19001—CD07A.dw

SHEET 23 of 74 PROJECT #: P372000 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD

<u>PURPOSE</u>

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE

CRITERIA

- RECOMMENDED BY THE SOIL TESTING AGENCY.
- SEEDING SUMMARY.

- THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES. AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE
- 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
- iii. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT

1. Permanent Seeding:

A. Soil Tests: Lime and fertilizer will be applied per soil tests results for sites greater than 5 acres. Soil tests will be done at completion of initial rough grading or as recommended by the sediment control inspector. Rates and analyses will be provided to the grading inspector as well as the contractor.

Occurrence of acid sulfate soils (grayish black color) will require covering with a minimum of 12 inches of clean soil with 6 inches minimum capping of top soil. No stockpiling of material is allowed. If needed, soil tests should be done before and after a 6-week incubation period to allow oxidation of

The minimum soil conditions required for permanent vegetative establishment are:

- a. Soil pH shall be between 6.0 and 7.0.
- b. Soluble salts shall be less than 500 parts per million (ppm).
- c. The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedeza is to be planted, then a sandy soil (< 30% silt plus clay) would be acceptable.
- d. Soil shall contain 1.5% minimum organic matter by weight.
- e. Soil must contain sufficient pore space to permit adequate root penetration
- f. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with the Standard and Specification for Soil Preparation, Topsoiling and Soil Amendments from the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control or amendments made as recommended by a certified agronomist.
- B. Seedbed Preparation: Area to be seeded shall be loose and friable to a depth of at least 3-5 inches. The top layer shall be loosened by raking, disking or other acceptable means before seeding occurs. For sites less than 5 acres, apply 100 pounds dolomitic limestone and 21 pounds of 10-10-10 fertilizer per 1,000 square feet. Harrow or disk lime and fertilizer into the soil to a depth of at least 3-5 inches on slopes flatter than 3:1.
- Seeding: Apply 5-6 pounds per 1,000 square feet of tall fescue between February 1 and April 30 or between August 15 and October 31. Apply seed uniformly on a moist firm seedbed with a cyclone seeder, cultipacker seeder or hydroseeder (slurry includes seeds and fertilizer, recommended on steep slopes only). Maximum seed depth should be ¼ inch in clayey soils and ½ inch in sandy soils when using other than the hydroseeder method. Irrigate where necessary to support adequate growth until vegetation is firmly established. If other seed mixes are to be used, select from Table B3 and B5 of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Mulching: Mulch shall be applied to all seeded areas immediately after seeding. During the time periods when seeding is not permitted, mulch shall be applied immediately after grading. Mulch shall be unrotted, unchopped, small grain straw applied at a rate of 2 tons per acre or 90 pounds per 1,000 square feet (2 bales). Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch-anchoring tool is used, apply 2.5 tons per acre. Mulch materials shall be relatively free of all kinds of weeds and shall be completely free of prohibited noxious weeds. Spread mulch uniformly, mechanically or by hand, to a depth of 1-2 inches.
- Securing Straw Mulch: Straw mulch shall be secured immediately following mulch application to minimize movement by wind or water. The following methods are permitted:
- Use a mulch-anchoring tool which is designed to punch and anchor mulch into the soil surface to a minimum depth of 2 inches. This is the most effective method for securing mulch, however, it is limited to relatively flat areas where equipment can operate safely.
- Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. If mixed with water, use 50 pounds of wood cellulose fiber per 100 gallons of water.
- iii. Liquid binders may be used. Apply at higher rates at the edges where wind catches mulch, such as in valleys and on crests of slopes. The remainder of the area should appear uniform after binder application. Binders listed in the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control or approved equal shall be applied at rates recommended by the manufacturers.
- iv. Lightweight plastic netting may be used to secure mulch. The netting will be stapled to the ground according to manufacturer's recommendations.

2. Temporary Seeding:

100 pounds of dolomitic limestone per 1,000 square feet. Lime: Fertilizer:

15 pounds of 10-10-10 per 1,000 square feet.

Perennial rye – 0.92 pounds per 1,000 square feet (February 1 through April 30 or August 15 through October 31).

Millet – 0.92 pounds per 1,000 square feet (May 1 through August 15). Mulch: Same as 1 D and E above.

3. No fills may be placed on frozen ground. All fill is to be placed in approximately horizontal layers, each layer having a loose thickness of not more than 8 inches. All compaction requirements are in accordance to Anne Arundel County Standard Specifications for Construction as well as the AA County Design Manual and Standard Details. Fills for pond embankments shall be compacted as per MD-378 Construction Specifications. All other fills shall be compacted sufficiently so as to be stable and prevent erosion and

4. Permanent Sod:

slippage.

Seed:

Installation of sod should follow permanent seeding dates. Seedbed preparation for sod shall be as noted in section (B) above. Permanent sod is to be tall fescue, state approved sod; lime and fertilizer per permanent seeding specifications and lightly irrigate soil prior to laying sod. Sod is to be laid on the contour with all ends tightly abutting. Joints are to be staggered between rows. Water and roll or tamp sod to insure positive root contact with the soil. All slopes steeper than 3:1, as shown, are to be permanently sodded or protected with an approved erosion control netting. Additional watering for establishment may be required. Sod is not to be installed on frozen ground. Sod shall not be transplanted when moisture content (dry or wet) and/or extreme temperature may adversely affect its survival. In the absence of adequate rainfall, irrigation should be performed to ensure establishment of sod.

5. Mining Operations:

Sediment control plans for mining operations must include the following seeding dates and mixtures:

For seeding dates of February 1 through April 30 and August 15 through October 31, use seed mixture of tall fescue at the rate of 2 pounds per 1,000 square feet and sericea lespedeza at the minimum rate of 0.5 pounds per 1,000 square feet.

6. Topsoil shall be applied as per the Standard and Specifications for Soil Preparation, Topsoiling, and Soil Amendments from the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

7. Use of these Vegetative Establishment Specifications does not preclude the permittee or contractor from meeting all of the requirements set forth in the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

STOCKPILE NOTES

THE MAXIMUM HEIGHT = 8', MAXIMUM SLOPE = 2H:1V

ALL STOCKPILES SHALL BE TEMPORARILY STABILIZED IN ACCORDANCE WITH THE STABILIZATION SPECIFICATIONS OR COVER THE STOCKPILE WITH A PLASTIC TARP AND ANCHORED AT THE END OF EACH DAY.

SPOIL MATERIAL SHALL BE TAKEN OFF SITE TO A SITE WITH AN ACTIVE AND APPROVED SEDIMENT AND EROSION CONTROL PLAN.

STANDARD SEDIMENT CONTROL NOTES

- 1. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- 2. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED
- A) THREE CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) B) SEVEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- C) THE ABOVE REQUIREMENTS DO NOT APPLY TO THOSE AREAS WHICH ARE SHOWN ON THE PLAN AND ARE CURRENTLY BEING USED FOR MATERIAL STORAGE OR FOR THOSE AREAS ON WHICH ACTUAL CONSTRUCTION ACTIVITIES ARE CURRENTLY BEING PERFORMED OR TO INTERIOR AREAS OF A SURFACE MINE SITE WHERE THE STABILIZATION MATERIAL WOULD CONTAMINATE THE RECOVERABLE RESOURCE. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE THAT THE STABILIZED AREAS CONTINUOUSLY MEET THE APPROPRIATE REQUIREMENTS OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 3. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHED OF GRASSES.
- 4. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR.
- 5. SITE ANALYSIS:

TOTAL CUT

TOTAL FILL

TOTAL AREA OF SITE (LOD) AREA DISTURBED

WHICH MAY AFFECT THE WORK.

9.32 ACRES 14,007 CU. YARDS 7,058 CU. YARDS

9.32 ACRES

OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 7. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE SEDIMENT CONTROL INSPECTOR.
- 8. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
- 10. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A
- FUNCTIONING CONDITION. 11. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF
- 12. STAGING AREAS SHALL BE MECHANICALLY STABILIZED WITH 6" (MIN.) OF WOODCHIPS, PREFERABLY FROM BRUSH CHIPPED ON SITE FROM THIS PROJECT

UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS

STANDARD SYMBOL DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING TSSMC - *>1.5 lb/ft² CHANNEL APPLICATION (* INCLUDE SHEAR STRESS) OVERLAP OR ABUT ROLL EDGE (TYP.)-6 IN MIN. OVERLAP_ AT ROLL END (TYP.) DOWNSLOPE ROLL (TYP.) PREPARED SURFACE WITH SEED IN PLACE ISOMETRIC VIEW CONSTRUCTION SPECIFICATIONS USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.

- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 11/2 INCHES WIDE AND BE A MINIMUM OF T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN

- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
- KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
- OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- . ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMENT

NOTE: PLASTIC NETTING NOT PERMITTED ON TRAILS/PARKS PROJECTS. AS AN ALTERNATE UTILIZE NET FREE CURLEX. ANCHORING DEVICES MUST BE BIODEGRADABLE.

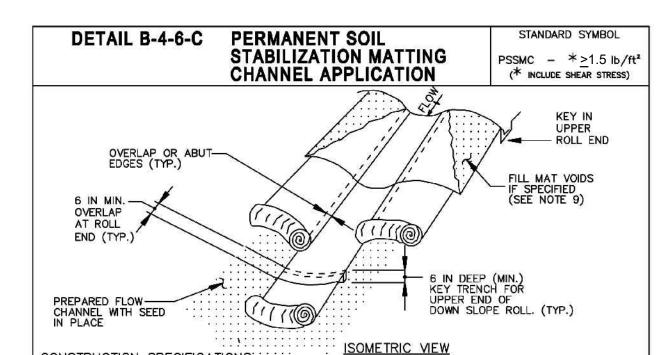
BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- 1) No excess fill, construction material, or debris shall be stockpiled 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, or 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.
- All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Uniola 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 seeded and mulched to reduce erosion after construction activities have been completed.
- After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
- 9) To protect aquatic species, in-stream work is prohibited as determined by the classification of

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.



CONSTRUCTION SPECIFICATIONS:

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OF ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2×2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIA
- SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL
- WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE, AVOID STRETCHING THE MATTING OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS

UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE.

- BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.

O. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION

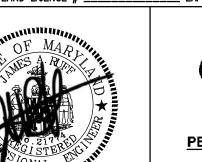
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMENT NATURAL RESOURCES CONSERVATION SERVICE

NOTE: PLASTIC NETTING NOT PERMITTED ON TRAILS/PARKS PROJECTS. AS AN ALTERNATE UTILIZE NET FREE CURLEX. ANCHORING DEVICES MUST BE BIODEGRADABLE.

GP# 02018537 DWG NO: CD07B

PROFESSIONAL CERTIFICATION: I, _____ JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY LICENSED _____PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____21774 ____ EXPIRATION DATE ____11/10/2023 REVISIONS

DESCRIPTION BY DATE



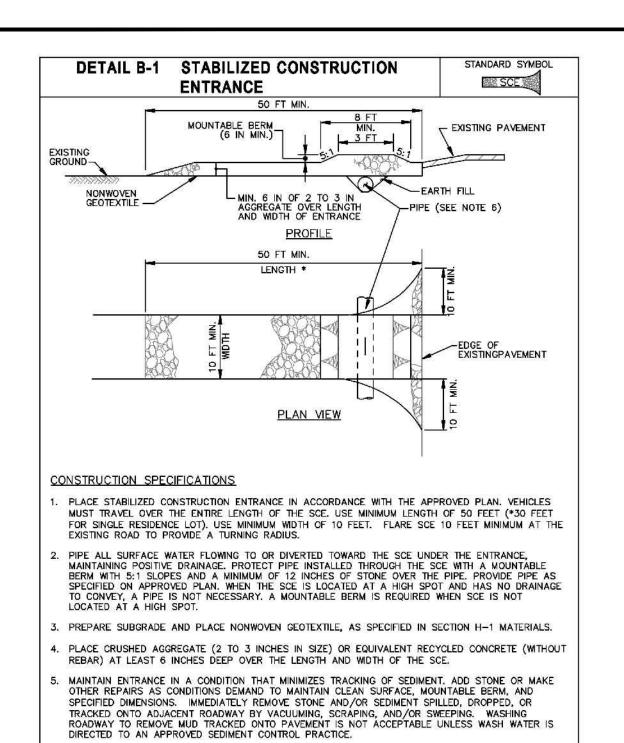


PENNONI ASSOCIATES INC. 8890 McGaw Road, Suite 100 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

APPROVED **APPROVED** CHIEF ENGINEER PROJECT MANAGER APPROVAL APPROVED DATE

DEPARTMENT OF PUBLIC WORKS APRIL 11, 2023 SCALE: NOT TO SCALE SEDIMENT CONTROL NOTES DRAWN BY: PAI SOUTH SHORE TRAIL CHECKED BY: PJS SHEET 24 of 74 PHASE II PROJECT #: P372000 TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ASSISTANT CHIEF ENGINEER CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD \Accounts\AACOX\AACOX19001 - South Shore Trail Phase II\DESIGN_SHEETS\CD SET\AACOX19001-CD07B.dw

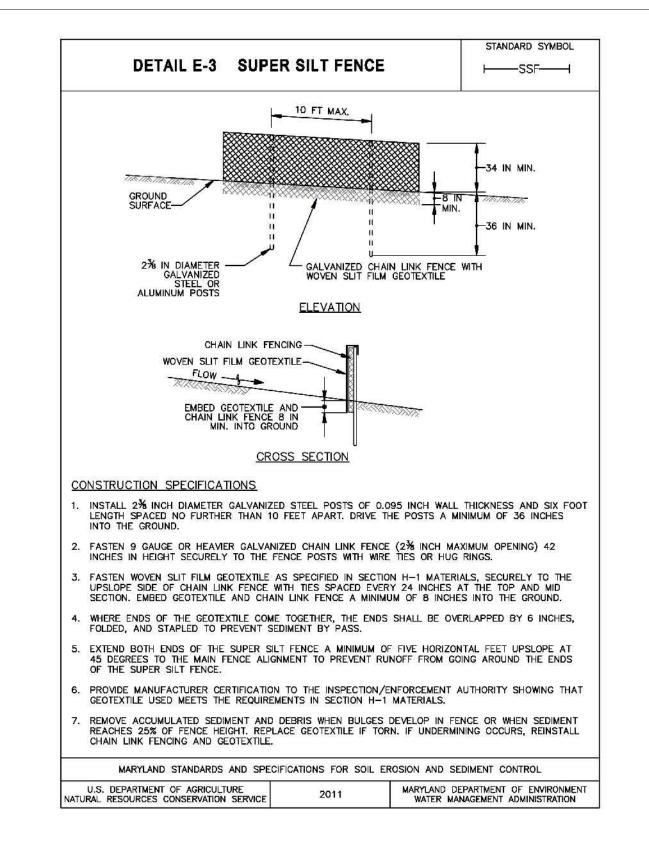
ANNE ARUNDEL COUNTY



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



DETAIL D-4-2 PLUNGE POOL

NONWOVEN GEOTEXTILE-

CONSTRUCTION SPECIFICATIONS

. USE SPECIFIED CLASS OF RIPRAF

NECESSARY REPAIRS IMMEDIATELY.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PLAN VIEW

SECTION A-A

USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM

PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING

PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING

STONE FOR THE PLUNCE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNCE POOL IN A MANNER THAT WILL ENSURE

HAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS

MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

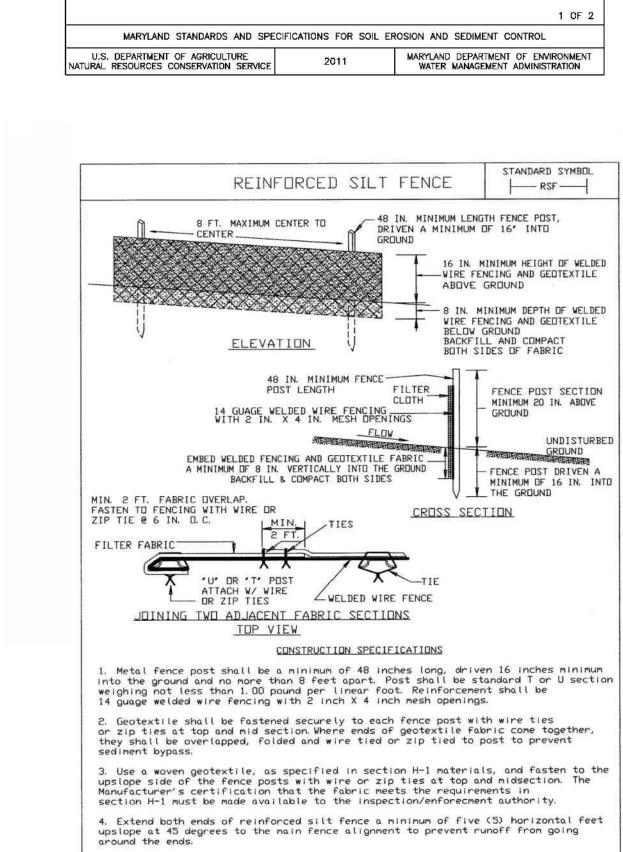
BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT

AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.

DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.

EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.

THE GEOTEXTILE, PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.



5. Remove accumulated sediment and debris when bulges develop in the reinforced silt fence fabric or when sediment reaches 25% of the fence height. Replace geotextile if torm. If undermining occurs, reinstall fence.

ANNE ARUNDEL SOIL

CONSERVATION DISTRICT

DETAIL E-9-1 STANDARD INLET PROTECTION

TOP ELEVATION

−16 IN MIN. ∠NOTCH ELEVATION

SLIT FILM GEOTEXTILE

18 IN INTO GROUND ---

EDGE OF ROADWAY OR TOP-

OF EARTH DIKE

-EXCAVATE, BACKFILL AND

COMPACT EARTH (TYP.)

6 IN MIN.

9 GAUGE CHAIN -

LINK FENCE (TYP.)

ISOMETRIC VIEW

SECTION FOR TYPE A AND B

-2 IN x 4 IN FRAMING

HARDWARE

- WOVEN SLIT FILM

TYPE A

GEOTEXTILE

SIP

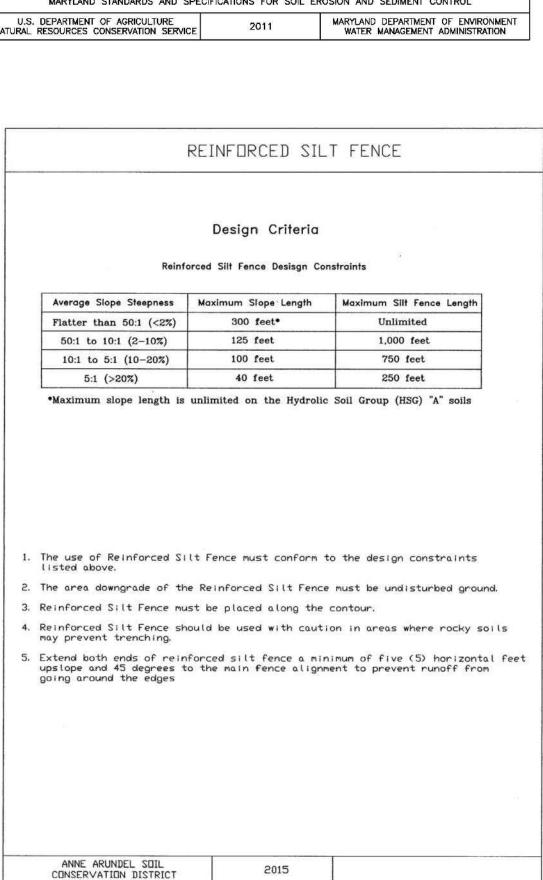
— CHAIN LINK FENCE POSTS

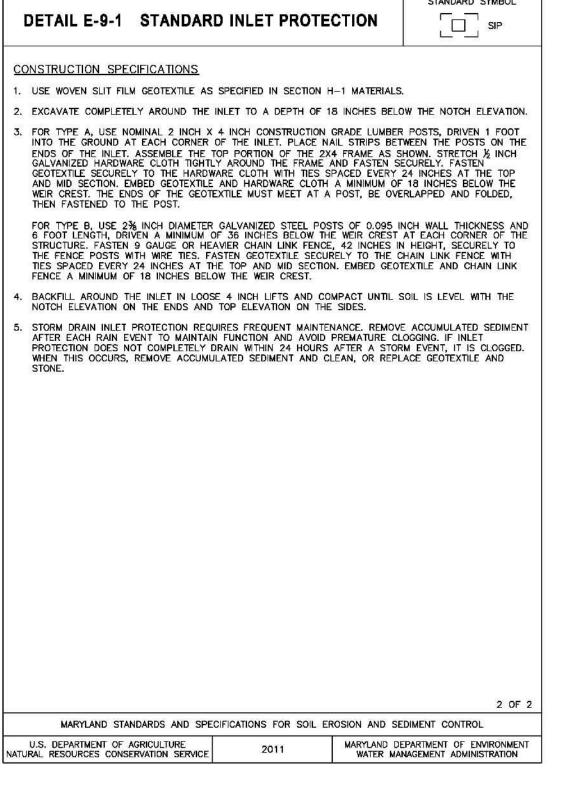
-TOP ELEVATION

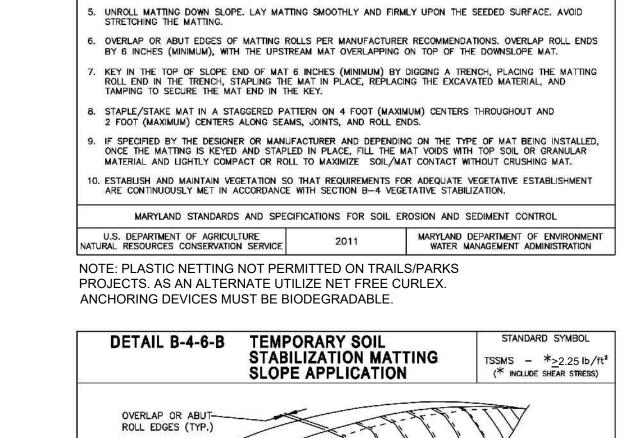
ELEVATION

TYPE A MAXIMUM DRAINAGE AREA = 1/4 ACRE

TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE







PERMANENT SOIL

STABILIZATION MATTING

ISOMETRIC VIEW

USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR

. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.

SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL

PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS, PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERAT

WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE

1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH—SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE POSTON

UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL

SLOPE APPLICATION

DETAIL B-4-6-D

OVERLAP OR ABUT

CONSTRUCTION SPECIFICATIONS

STRESS DESIGNATED ON APPROVED PLANS.

ROLL EDGES (TYP.)-

STANDARD SYMBOL

PSSMS - *>2.25 lb/ft2

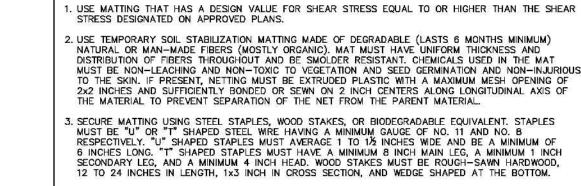
FILL MAT VOIDS

IF SPECIFIED

(SEE NOTE 9) 6 IN MIN. OVERLAP

AT ROLL END (TYP.)

(* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN

ISOMETRIC VIEW

5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.

6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND

8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE

MARYLAND STANDARDS AND SPE	CIFICATIONS FOR SOIL	EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

NOTE: PLASTIC NETTING NOT PERMITTED ON TRAILS/PARKS PROJECTS. AS AN ALTERNATE UTILIZE NET FREE CURLEX.

ANCHORING DEVICES MUST BE BIODEGRADABLE.

GP# 02018537

TAMPING TO SECURE THE MAT END IN THE KEY.

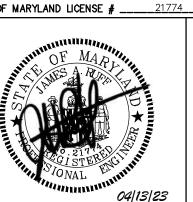
PLUNGE POOL DESIGN DATA								
POOL	d	D	В	С	E	F		
1	2 x 30"x19"	19"	18'	11.5'	(1)	12"		
2	2 x 30"x19"	19"	21.5'	27.5'	6'	19"		
3	15"	19"	8.5'	10.5'	15"	15"		

NOTES:

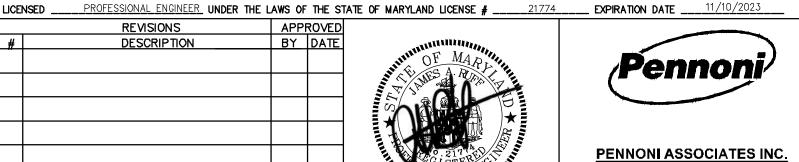
I. DUE TO LIMITED SPACE BOTTOM OF PLUNGE POOL 1 IS TO BE 5.5' DEEP (3E) X 15.5' WIDE (2E)

2. EXTEND CUT OFF WALL BELOW PLUNGE POOL ONE AS NEEDED TO REACH UNDISTURBED GROUND. WIDEN WALL AS NEEDED TO MAINTAIN 2:1 HEIGHT TO WIDTH RATIO.

> REVISIONS DESCRIPTION BY DATE



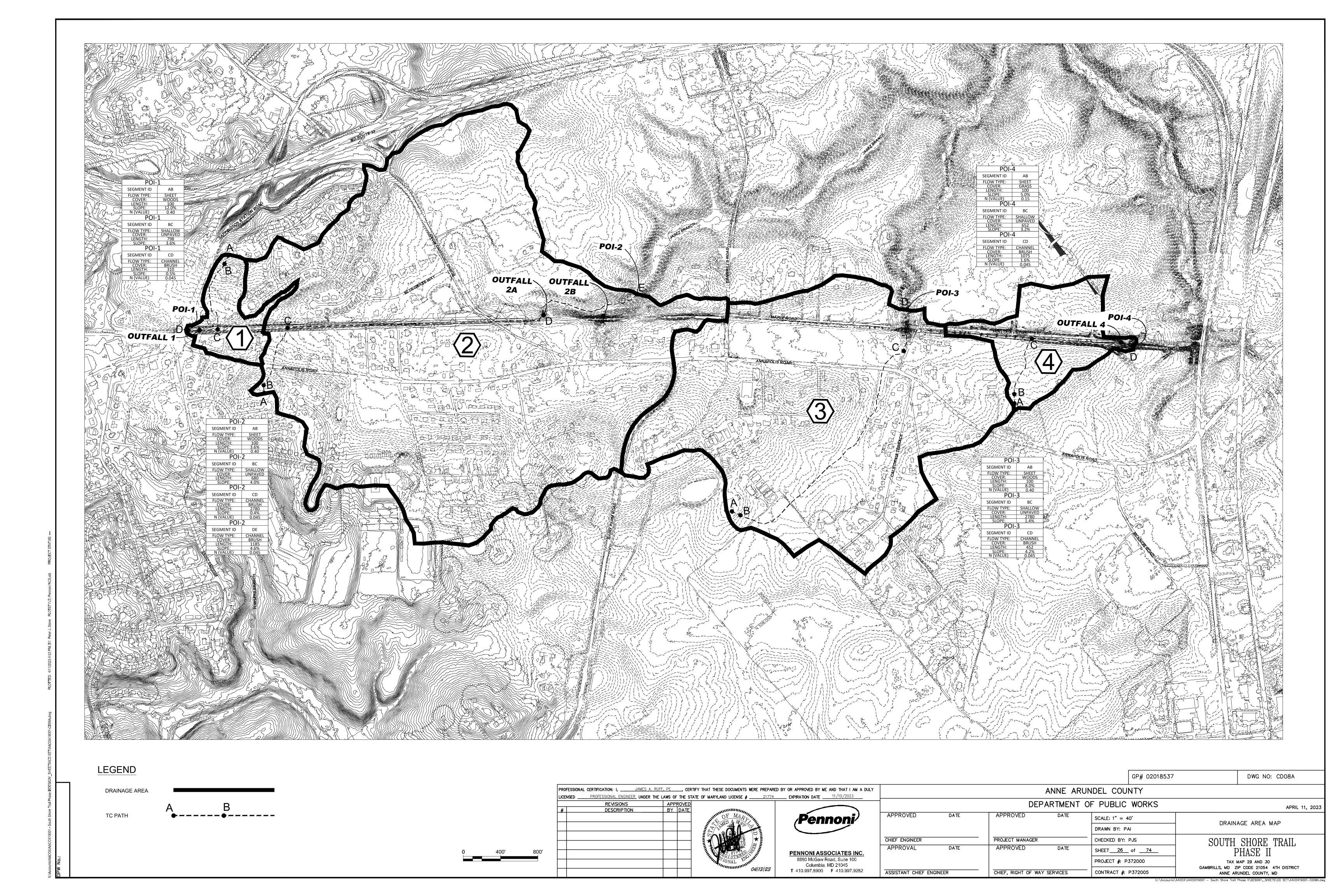
PROFESSIONAL CERTIFICATION: I, ______JAMES A. RUFF, PE_____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY



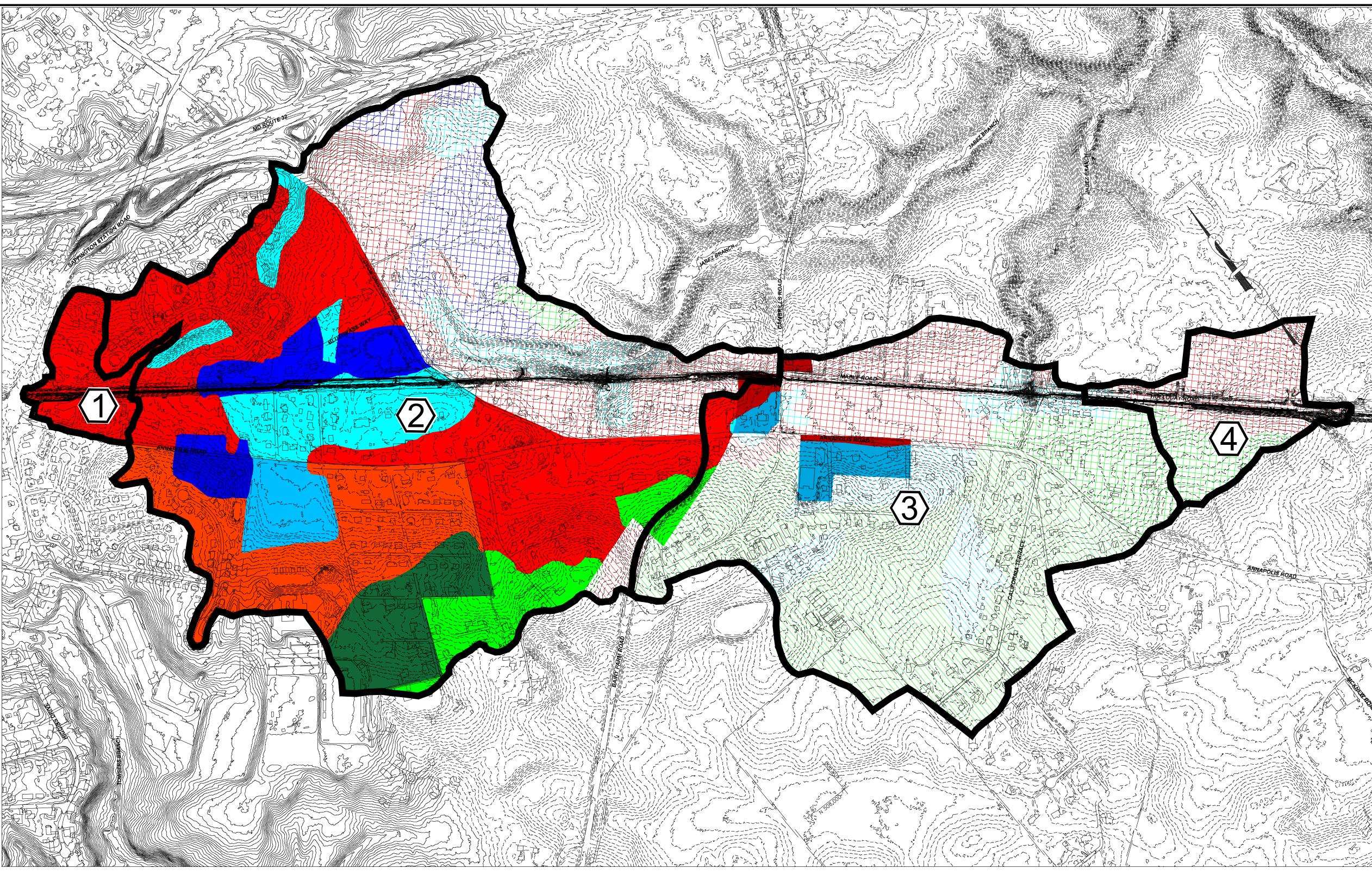
8890 McGaw Road, Suite 100 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

			ANNE AR	UNDEL COUNTY					
		DEF	PARTMENT	OF PUBLIC WORKS	APRIL 11, 2023				
APPROVED	DATE	APPROVED	DATE	SCALE: NOT TO SCALE	SEDIMENT CONTROL DETAILS				
				DRAWN BY: PAI	SEDIMENT CONTINUE DETAILS				
CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: PJS	SOUTH SHORE TRAIL				
APPROVAL	DATE	APPROVED	DATE	SHEET 25 of 74	PHASE II				
				PROJECT #: P372000	TAX MAP 29 AND 30				
ASSISTANT CHIEF EN	IGINEER	CHIEF, RIGHT OF WA	Y SERVICES	CONTRACT #: P372005	GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ANNE ARUNDEL COUNTY, MD				
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DWG NO: CD07C





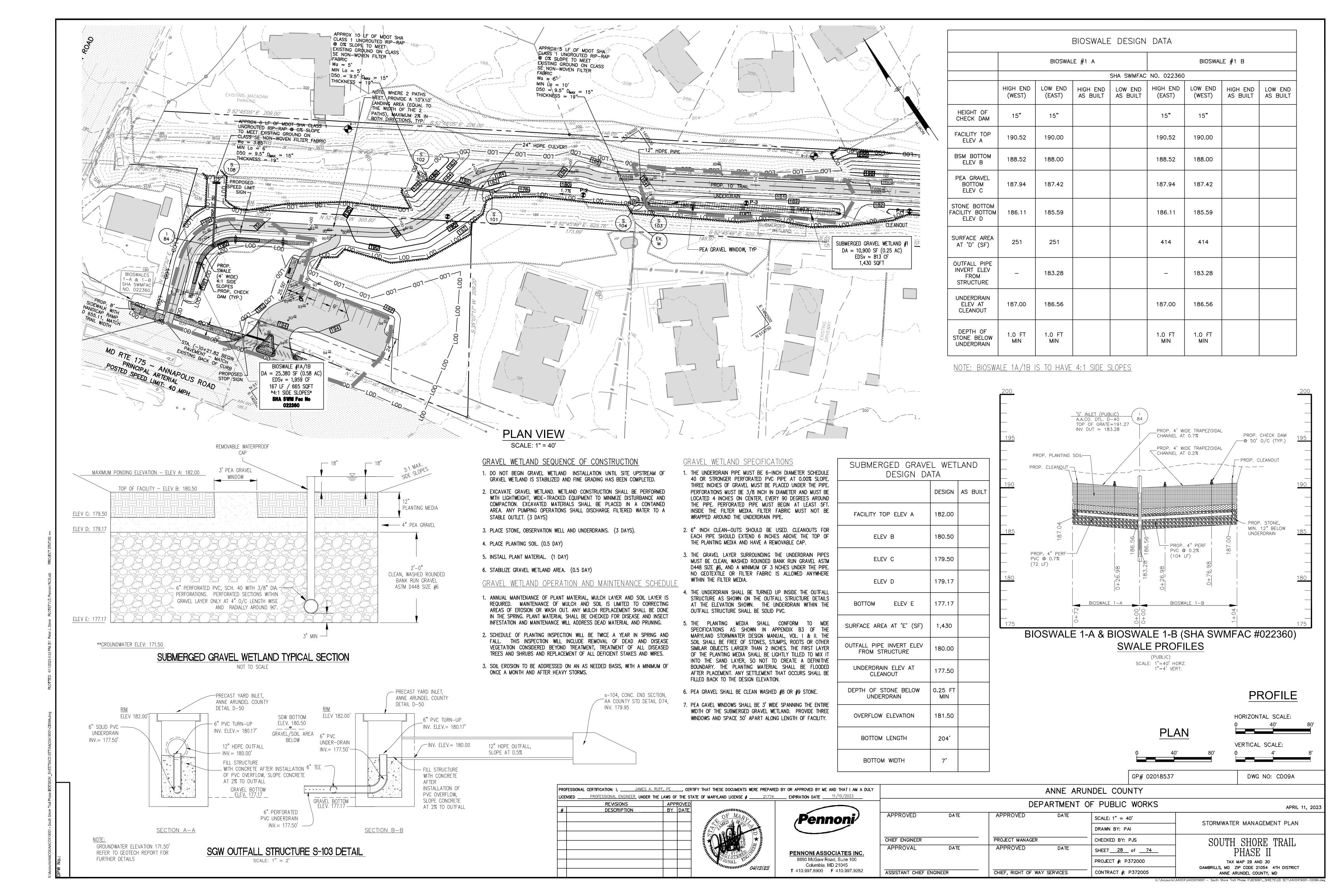


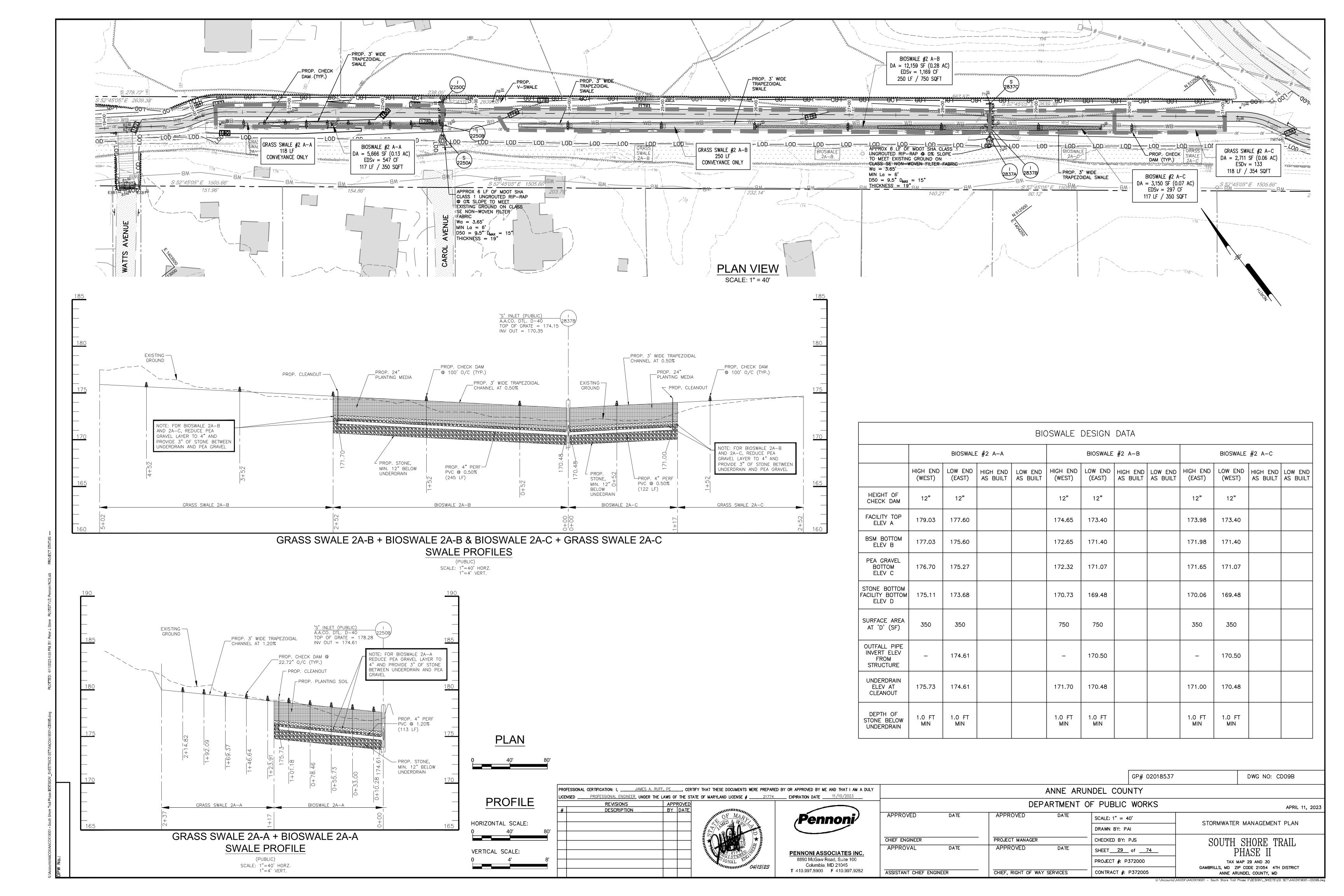
GP# 02018537 DWG NO: CD08B PROFESSIONAL CERTIFICATION: I, ______JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY ANNE ARUNDEL COUNTY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # ______ 21774 EXPIRATION DATE _____ 11/10/2023 DEPARTMENT OF PUBLIC WORKS REVISIONS DESCRIPTION APRIL 11, 2023 APPROVED SCALE: 1" = 40' DRAINAGE AREA MAP DRAWN BY: PAI SOUTH SHORE TRAIL PHASE II CHIEF ENGINEER PROJECT MANAGER CHECKED BY: PJS APPROVAL SHEET 27 of 74 PENNONI ASSOCIATES INC.

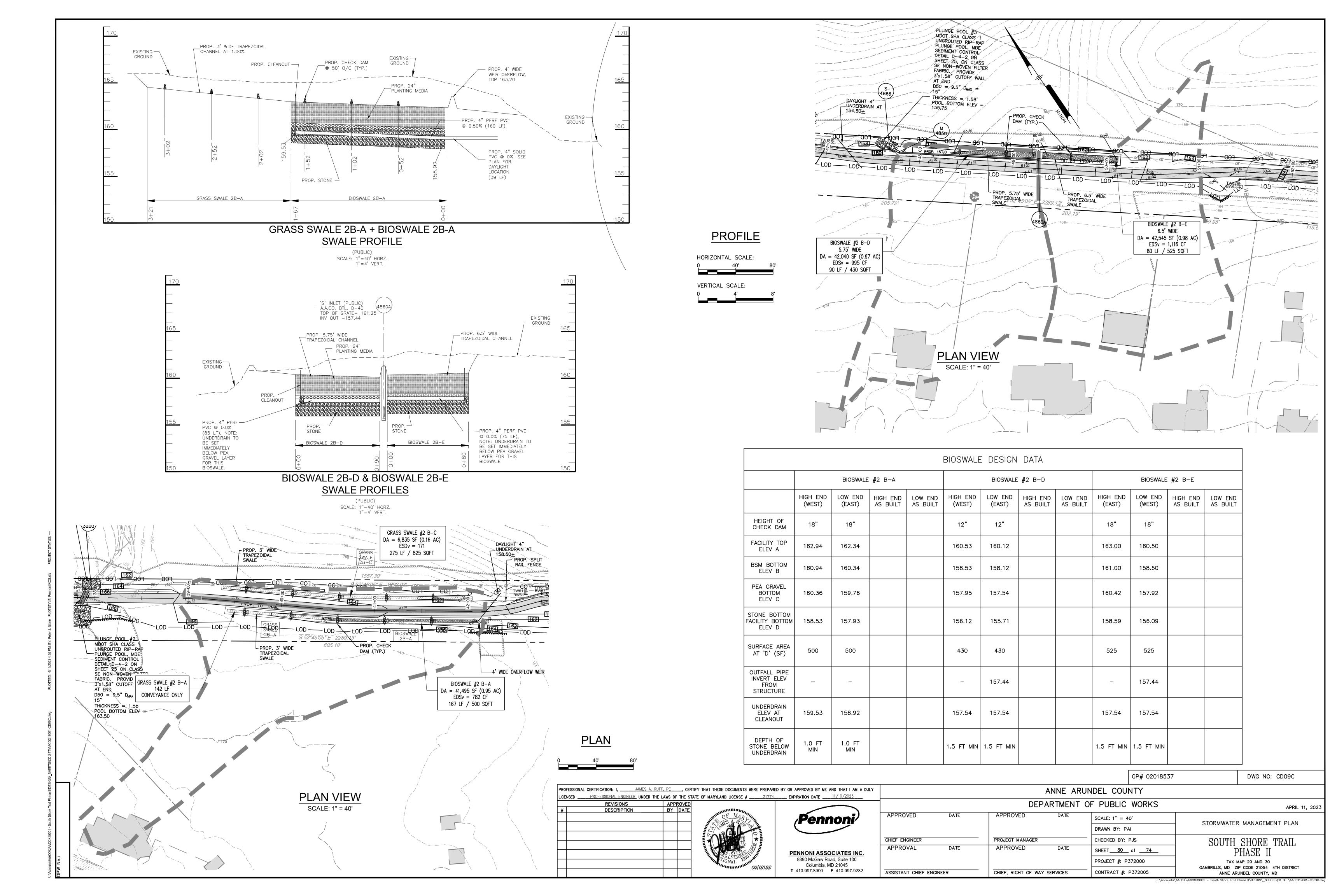
8890 McGaw Road, Suite 100

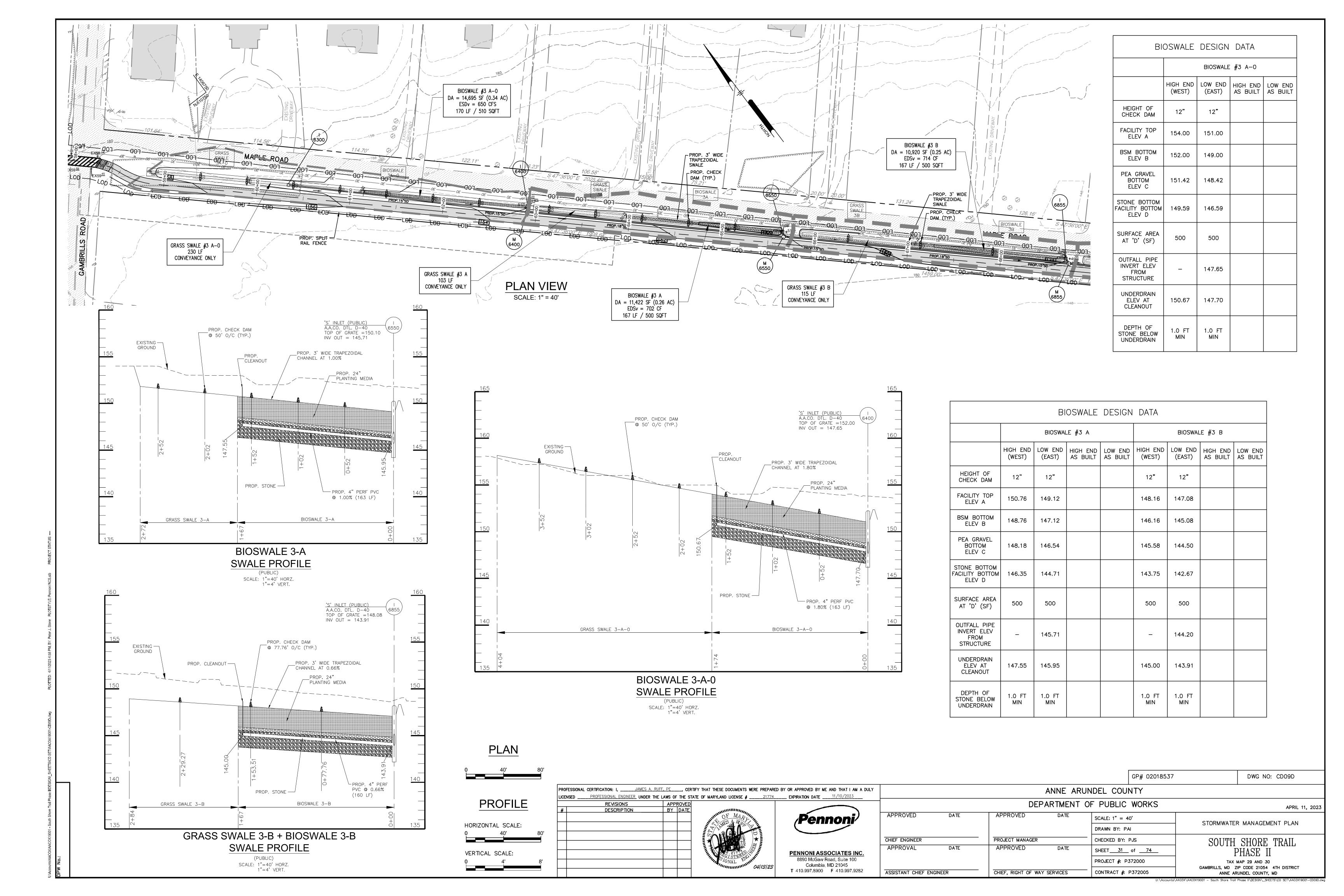
Columbia, MD 21045
T 410.997.8900 F 410.997.9282 PROJECT #: P372000 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ASSISTANT CHIEF ENGINEER CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD

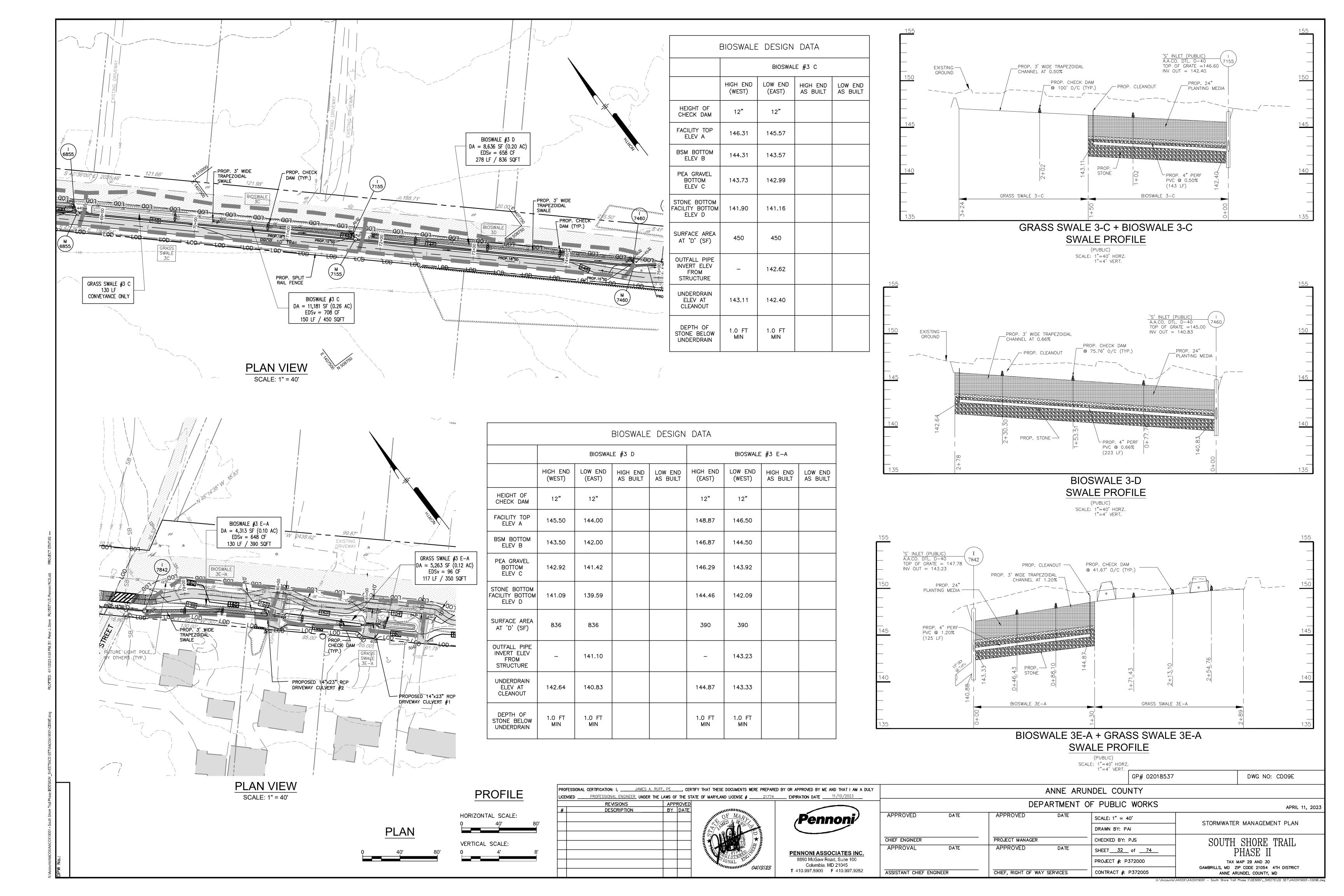
0 400' 800'

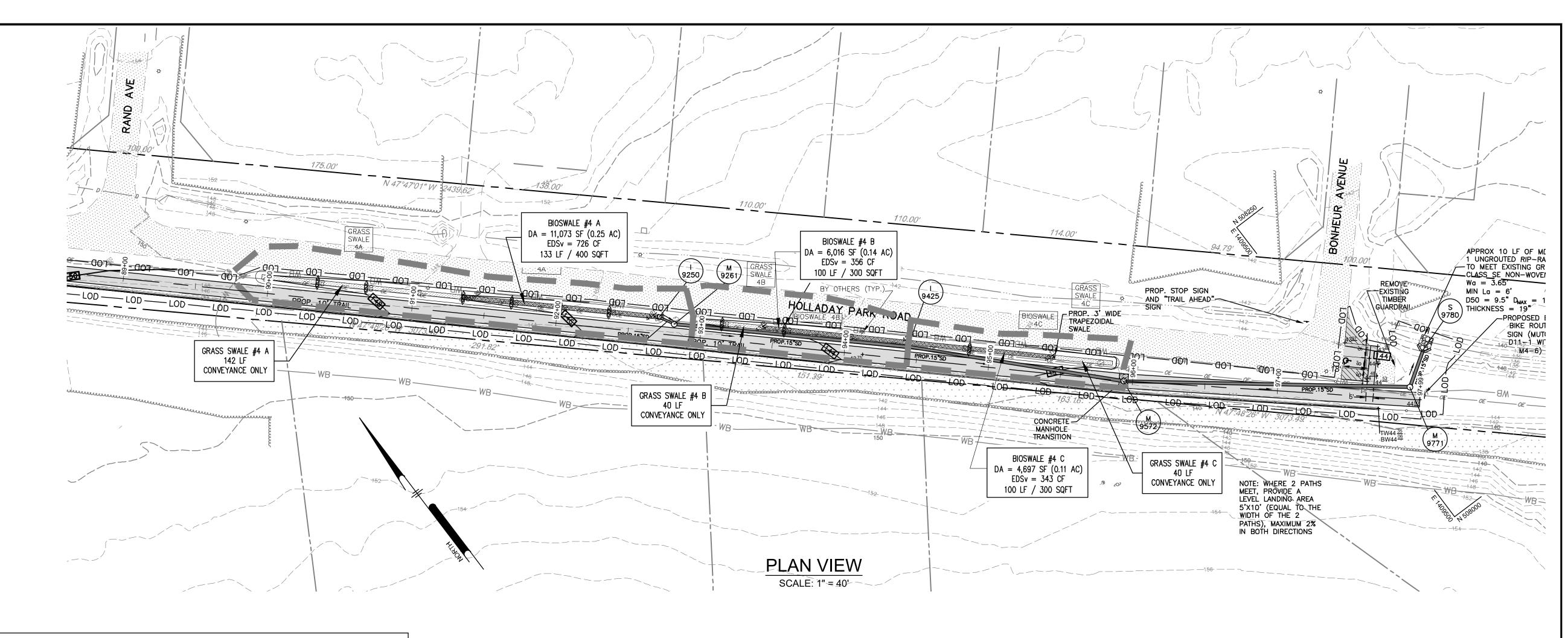




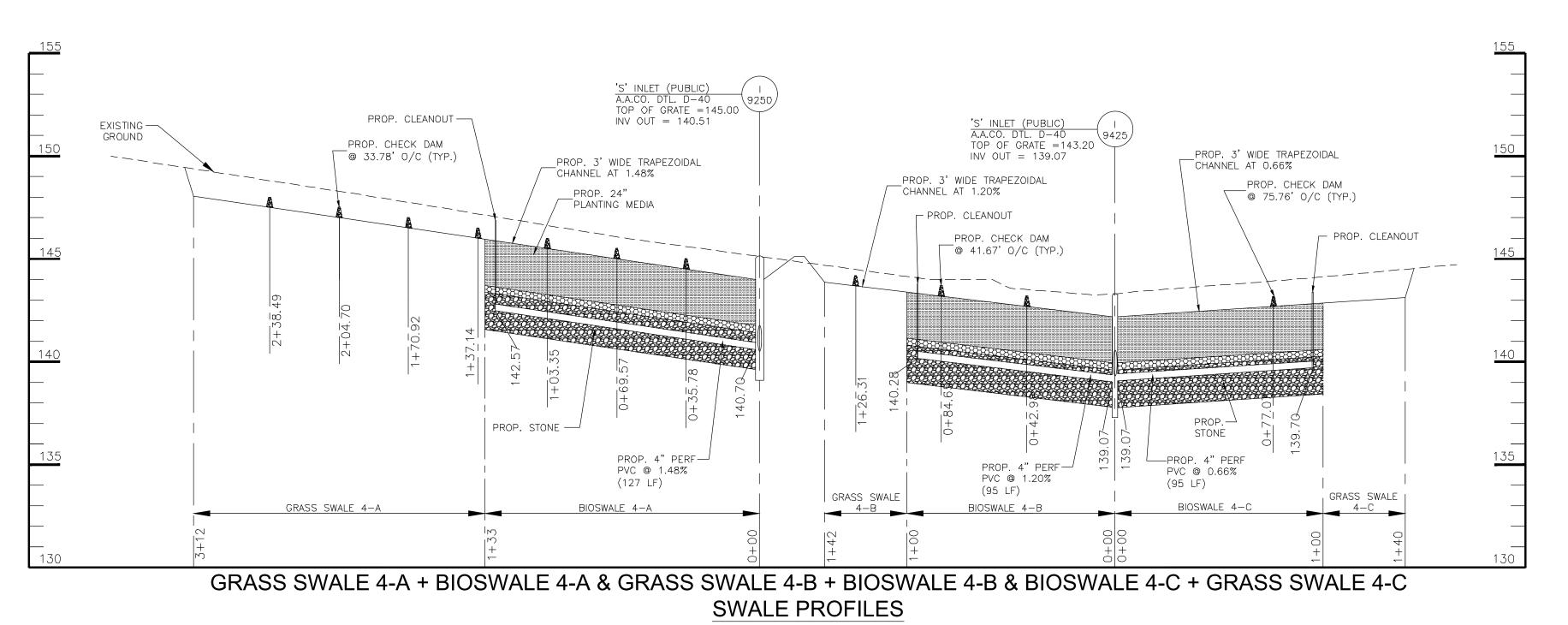


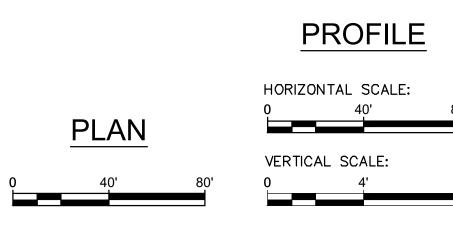


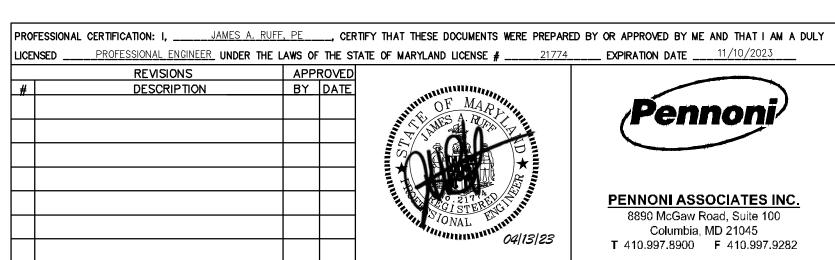


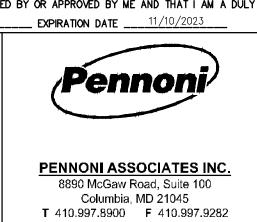


	BIOSWALE DESIGN DATA											
		BIOSWALE #4 A			BIOSWALE #4 B			BIOSWALE #4 C				
	HIGH END (WEST)	LOW END (EAST)	HIGH END AS BUILT	LOW END AS BUILT	HIGH END (WEST)	LOW END (EAST)	HIGH END AS BUILT	LOW END AS BUILT	HIGH END (EAST)	LOW END (WEST)	HIGH END AS BUILT	LOW END AS BUILT
HEIGHT OF CHECK DAM	18"	18"			12"	12"			12"	12"		
FACILITY TOP ELEV A	145.96	144.01			143.40	142.20			143.11	142.20		
BSM BOTTOM ELEV B	143.96	142.01			141.40	140.20			141.11	140.20		
PEA GRAVEL BOTTOM ELEV C	143.38	141.43			140.82	139.62			140.53	139.62		
STONE BOTTOM FACILITY BOTTOM ELEV D	141.55	139.60			138.99	137.79			138.70	137.79		
SURFACE AREA AT 'D' (SF)	400	400			300	300			300	300		
OUTFALL PIPE INVERT ELEV FROM STRUCTURE	_	140.51			-	139.12			_	139.12		
UNDERDRAIN ELEV AT CLEANOUT	142.57	140.70			140.28	139.07			139.70	139.07		
DEPTH OF STONE BELOW UNDERDRAIN	1.0 FT MIN	1.0 FT MIN			1.0 FT MIN	1.0 FT MIN			1.0 FT MIN	1.0 FT MIN		









ILY			•	ANNE ARUI	NDEL COUNTY	
			DEPA	ARTMENT O	F PUBLIC WORKS	APRIL 11, 20
	APPROVED 0	DATE	APPROVED	DATE	SCALE: 1" = 40'	STORMWATER MANAGEMENT PLAN
					DRAWN BY: PAI	STONWWATEN WANAGEMENT FLAN
	CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: PJS	SOUTH SHORE TRAIL
	APPROVAL [DATE	APPROVED	DATE	SHEET 33 of 74	PHASE II
					PROJECT #: P372000	TAX MAP 29 AND 30
	ASSISTANT CHIEF ENGINEER		CHIEF, RIGHT OF WAY	SERVICES	CONTRACT #: P372005	GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ANNE ARUNDEL COUNTY, MD
	_				U: \Accounts	s\AACOX\AACOX19001 - South Shore Trail Phase II\DESIGN_SHEETS\CD SET\AACOX19001-CD0

GP# 02018537

DWG NO: CD09F

DRAINAGE AREA #1					
PERMIT NUMBER					
PROJECT NUMBER	P372000				
PROJECT NAME	SOUTH SHORE TRAIL - PHASE 2				
STRUCTURE ADDRESS	ANNAPOLIS ROAD				
STRUCTURE CITY	GAMBRILLS				
STATE	MARYLAND				
STRUCTURE ZIP	21054				
TOTAL DRAINAGE AREA	14.70 ACRES				
RCN - PRECONSTRUCTION	54				
RCN - POSTCONSTRUCTION	54				
RCN - WOODS	35				
TOTAL NUMBER OF BMPs	3				
PE REQUIRED (SEE NOTE 1)	1.15				
PE ADDRESSED (SEE NOTE 2)	1.45				
MD 8-DIGIT HUC (SEE NOTE 4)	02131002				
USGS 12-DIGIT HUC	021310021001				

PERMIT NUMBER	
PROJECT NUMBER	P372000
PROJECT NAME	SOUTH SHORE TRAIL - PHASE 2
STRUCTURE ADDRESS	ANNAPOLIS ROAD
STRUCTURE CITY	GAMBRILLS
STATE	MARYLAND
STRUCTURE ZIP	21054
TOTAL DRAINAGE AREA	304.60 ACRES
RCN - PRECONSTRUCTION	59
RCN - POSTCONSTRUCTION	59
RCN - WOODS	50
TOTAL NUMBER OF BMPs	9
PE REQUIRED (SEE NOTE 1)	1.15
PE ADDRESSED (SEE NOTE 2)	1.45
MD 8-DIGIT HUC (SEE NOTE 4)	02131002
USGS 12-DIGIT HUC	021310021001

DRAINAGE AREA #3					
PERMIT NUMBER					
PROJECT NUMBER	P372000				
PROJECT NAME	SOUTH SHORE TRAIL - PHASE 2				
STRUCTURE ADDRESS	ANNAPOLIS ROAD				
STRUCTURE CITY	GAMBRILLS				
STATE	MARYLAND				
STRUCTURE ZIP	21054				
TOTAL DRAINAGE AREA	177.20 ACRES				
RCN - PRECONSTRUCTION	69				
RCN - POSTCONSTRUCTION	69				
RCN - WOODS	68				
TOTAL NUMBER OF BMPs	7				
PE REQUIRED (SEE NOTE 1)	1.15				
PE ADDRESSED (SEE NOTE 2)	1.45				
MD 8-DIGIT HUC (SEE NOTE 4)	02131002				
USGS 12-DIGIT HUC	021310021001				

DRAINAGE AREA #4						
PERMIT NUMBER						
PROJECT NUMBER	P372000					
PROJECT NAME	SOUTH SHORE TRAIL - PHASE 2					
STRUCTURE ADDRESS	ANNAPOLIS ROAD					
STRUCTURE CITY	GAMBRILLS					
STATE	MARYLAND					
STRUCTURE ZIP	21054					
TOTAL DRAINAGE AREA	29.94 ACRES					
RCN - PRECONSTRUCTION	57					
RCN - POSTCONSTRUCTION	58					
RCN - WOODS	49					
TOTAL NUMBER OF BMPs	3					
PE REQUIRED (SEE NOTE 1)	1.15					
PE ADDRESSED (SEE NOTE 2)	1.45					
MD 8-DIGIT HUC (SEE NOTE 4)	02131002					
USGS 12-DIGIT HUC	021310021001					

12 IN LAYER OF

WASHED AGGREGATE

KEY IN GEOTEXTILE 6 IN

HEIGHT TO WEIR CREST. 6 IN

BIOSWALE SPECIFICATIONS

- 1. THE UNDERDRAIN PIPE MUST BE 4-INCH DIAMETER SCHEDULE 40 OR STRONGER PERFORATED PVC PIPE AT 0.00% SLOPE. THREE INCHES OF GRAVEL MUST BE PLACED UNDER THE PIPE, WITH A MINIMUM OF 6 INCHES OF GRAVEL OVER THE PIPE. PERFORATIONS MUST BE 3/8 INCH IN DIAMETER AND MUST BE LOCATED 4 INCHES ON CENTER, EVERY 90 DEGREES AROUND THE PIPE. PERFORATED PIPE MUST BEGIN AT LEAST 5FT. INSIDE THE FILTER MEDIA. FILTER FABRIC MUST NOT BE WRAPPED AROUND THE UNDERDRAIN PIPE.
- 2. WHERE REQUIRED FOR UNDERDRAINS, 4" INCH CLEAN-OUTS SHOULD BE USED. CLEANOUTS FOR EACH PIPE SHOULD EXTEND 6 INCHES ABOVE THE TOP OF THE PLANTING MEDIA AND HAVE A REMOVABLE CAP.
- 3. THE GRAVEL LAYER SURROUNDING THE UNDERDRAIN PIPES MUST MEET MSHA SIZE #7 (TABLE 901A), AND MUST PROVIDE A MINIMUM OF 6 INCHES COVER OVER THE PIPE, AND MINIMUM 3 INCHES UNDER THE PIPE. NO GEOTEXTILE OR FILTER FABRIC IS ALLOWED ANYWHERE WITHIN THE FILTER MEDIA (STONE OR SAND).
- 4. A MINIMUM 7-INCH PEA GRAVEL LAYER SHALL BE PROVIDED BETWEEN THE PLANTING MEDIA AND THE STONE.
- 5. THE PLANTING MEDIA MIX SHALL MEET SHA BIORETENTION SOIL MIX STANDARDS. THE SOIL SHALL MEET THE FOLLOWING MINIMUM CRITERIA: A HOMOGENEOUS MIXTURE COMPOSED OF 5 PARTS COARSE SAND, 3 PARTS BASE SOIL, AND 2 PARTS FINE BARK. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES. THE PLANTING MATERIAL SHALL BE FLOODED AFTER PLACEMENT. ANY SETTLEMENT THAT OCCURS SHALL BE FILLED BACK TO THE DESIGN ELEVATION.
- 6. A SEED MIX WILL BE INSTALLED ON THE SURFACE OF THE PLANTING MEDIA. A LAYER OF STRAW MULCH AND TYPE D STABILIZATION MAT (BIODEGRADABLE WOVEN COIR NETTING) SHALL BE PLACED TO PROTECT THE SEED MIX UNTIL THE SEED MIX HAS BEEN ESTABLISHED.
- 7. SIDES OF FACILITY TO BE LINED WITH PE TYPE 1 NONWOVEN FILTER FABRIC OR APPROVED EQUIVALENT SIDES ONLY, DO NOT INSTALL ON BOTTOM
- 8. ALL MATERIALS SHALL BE SUBMITTED FOR APPROVAL BY ENGINEER, CONSTRUCTION MANAGER, AND COUNTY INSPECTOR PRIOR TO INSTALLATION.

BIO-SWALE SEQUENCE OF CONSTRUCTION

- 1. DO NOT BEGIN BIO-SWALE INSTALLATION UNTIL SITE UPSTREAM OF BIO-SWALE IS STABILIZED AND FINE GRADING HAS BEEN COMPLETED. IF INSTALLATION OCCURS BEFORE STABILIZATION, WRAP PERIMETER OF BIO-SWALE WITH SILT FENCE TO PREVENT SOIL INTRUSION
- 2. EXCAVATE BIO-SWALE. CONSTRUCTION SHALL BE PERFORMED WITH LIGHTWEIGHT, WIDE-TRACKED EQUIPMENT TO MINIMIZE DISTURBANCE AND COMPACTION. EXCAVATED MATERIALS SHALL BE PLACED IN A
- CONTAINED AREA. (2 DAYS) 3. PLACE STONE AND UNDERDRAINS. (1 DAY).
- 4. PLACE SAND LAYER IN LIFTS OF THREE INCHES. (0.5 DAY)
- 5. PLACE PLANTING SOIL AND OBSERVATION WELLS. (1 DAY)
- 6. PLACE CHECK DAMS (1 DAY) 7. PLACE MULCH. (0.5 DAY)
- 8. INSTALL PLANT MATERIAL. (0.5 DAY)
- 9. STABILIZE BIO-SWALE AREA. (0.5 DAY)

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-SWALE

- 1. ANNUAL MAINTENANCE OF PLANT MATERIAL. MULCH LAYER. CHECK DAMS. AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH. CHECK DAMS. AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
- 2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- 3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- 4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS. WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

OPERATION AND MAINTENANCE SCHEDULE FOR GRASS SWALE (M-8)

MAINTENANCE OF GRASS SWALE AREAS IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS ARE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

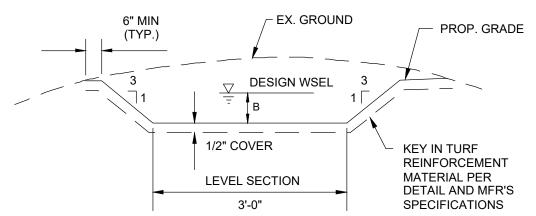
GP# 02018537

DWG NO: CD09G

SAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT

ANNE ARUNDEL COUNTY, MD

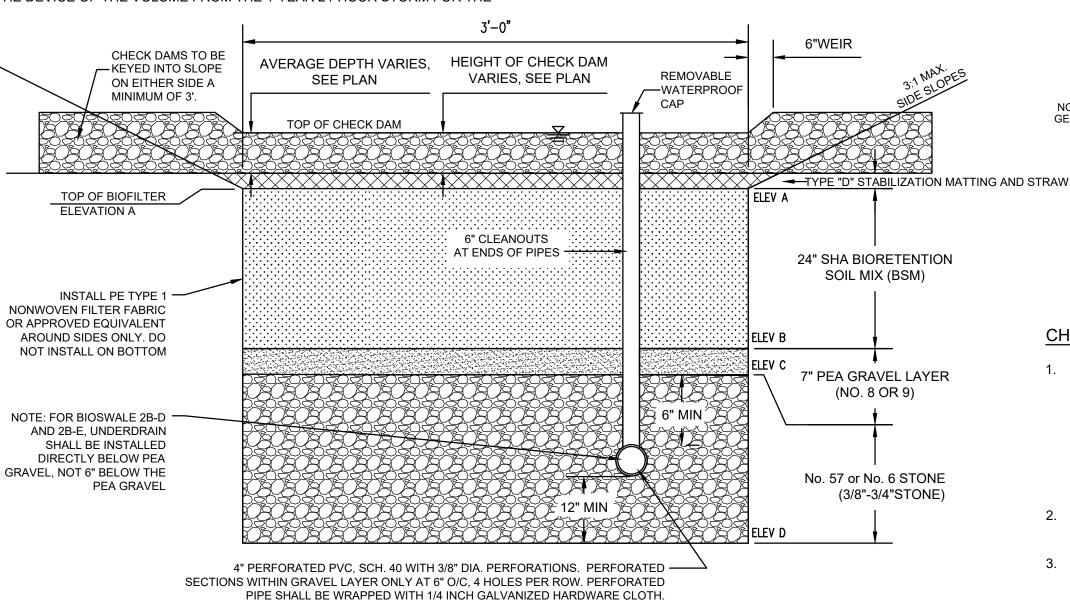
- 1. RAINFALL TARGET (FROM TABLE 5.3, DESIGN MANUAL PP.5.21-22) USED TO DETERMINE ESD GOALS AND SIZE PRACTICES (FOR NEW DEVELOPMENT OR REDEVELOPMENT) IF PRACTICE IS FOR RESTORATION, IF PRACTICE IS FOR RESTORATION, THEN PE REQUIRED IS 1 INCH.
- 2. RAINFALL ADDRESSED (USING BOTH ESD TECHNIQUES AND PRACTICES, AND STRUCTURAL PRACTICES) BY THEM BMP'S WITHIN DRAINAGE AREA
- 3. EQUALS IMPERVIOUS AREA DRAINAGE TO DEVICE WHEN PE ADR = 1 INCH (FOR RESTORATION ONLY)
- 4. MARYLAND 8-DIGIT HUC (HYRDOLOGIC UNIT CODE) CAN BE FOUND BY USING MAP AT: https://Data.Maryland.gov/Energy-and-Environment/Maryland-s-8-Digit-Sub-Watersheds/e9i9-vuxg
- 5. WATER QUALITY VOLUME, THE SMALLER OF THE VOLUME OF THE ACTUAL STOARGE VOLUME IN THE DEVICE OF THE VOLUME FROM THE 1-YEAR 24-HOUR STORM FOR THE DRAINAGE AREA TO THE DEVICE ((2.7" x Rv X A)/12)



NOTES

- 1. INSTALL THE MATERIAL PER THE MANUFACTURER'S INSTRUCTIONS INCLUDING SURFACE PREPARATION AND STAPLING. IT IS VERY IMPORTANT THAT THE MATERIAL BE INSTALLED IN GOOD CONTACT WITH THE GROUND WITH NO WRINKLES OR VOID SPACES BELOW THE FABRIC. STAPLES MUST BE PLACED IN A DIAMOND PATTERN APPROXIMATELY 18" APART.
- 2. FILL VOIDS IN THE MATERIAL WITH TOPSOIL BEFORE SODDING OR SEEDING DO NOT PLACE MORE THAN ONE HALF INCH (1/2") OF TOPSOIL OVER THE MATERIAL. THE MATERIAL MUST BE WITHIN THE ROOT ZONE FOR IT TO FUNCTION
- 3. MATERIAL MUST BE ENKAMAT 7010, ENKAMAT 7020, TENSAR TM-3000, PYRAMAT OR OTHER MCDPS APPROVED EQUIVALENT. TO BE CONSIDERED AS AN EQUIVALENT, THE MATERIAL MUST BE A SINGLE BONDED TURF REINFORCEMENT MATERIAL. PROPOSED ALTERNATIVES MUST BE APPROVED BY MCDPS IN WRITING PRIOR TO PLACEMENT.
- 4. TURF REINFORCEMENT IS NOT MEANT TO SERVE AS AN EROSION CONTROL MAT. IF NECESSARY, A BIOGRADABLE MATERIAL SUCH AS EXVELSIOR MAY BE PLACE OVER THE PREPARED SEED BED TO HOLD THE SEED IN PLACE. THE PURPOSE OF THE TURF REINFORCEMENT MATERIAL IS TO ADD STRENGTH TO THE ROOT SYSTEM AFTER GERMINATION.





BIO-SWALE TYPICAL CROSS SECTION NOT TO SCALE

2. SET THE HEIGHT FOR THE WEIR CREST EQUAL TO THE ELEVATION SHOWN ON THE TABLE BELOW TO AVOID SCOUR. THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET.

SEE PLAN FOR SPACING

CHANNEL PROFILE

CROSS SECTION

1. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM

AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH

WASHED 4 TO 7 INCH STONE WITH SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM TOP WIDTH OF

12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND

CHANNEL BANKS. FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6

INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 FOOT

THICK LAYER OF WASHED RIVERSTONE (3/4 TO 1/2 INCH). STONE COLOR SHALL BE DARK GREY FOR

NONWOVEN

GEOTEXTILE

12 IN MIN.

KEY IN GEOTEXTILE 6 IN-

NONWOVEN-**GEOTEXTILE**

└ 4 TO 7 IN STONE

GEOTEXTILE 6 IN

NONWOVEN

CHECK DAM CONSTRUCTION SPECIFICATIONS

BOTH 4 TO 7 INCH STONE AND WASHED RIVERSTONE.

GEOTEXTILE

3. HEIGHT OF THE CREST OF EACH DAM SHALL BE APPROXIMATELY THE SAME ELEVATION AS THE TOE OF THE ADJACENT UPSTREAM DAM.

> TYPICAL CHECK DAM / NOT TO SCALE

PROFESSIONAL CERTIFICATION: I, _____ JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY LICENSED _____PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____21774 ____ EXPIRATION DATE ____11/10/2023 REVISIONS BY DATE DESCRIPTION

PENNONI ASSOCIATES INC. 8890 McGaw Road, Suite 100

Columbia, MD 21045 T 410.997.8900 F 410.997.9282 ASSISTANT CHIEF ENGINEER

DEPARTMENT OF PUBLIC WORKS APRIL 11, 202 **APPROVED** APPROVED SCALE: 1" = 40STORMWATER MANAGEMENT NOTES & DETAILS DRAWN BY: PAI CHIEF ENGINEER PROJECT MANAGER SOUTH SHORE TRAIL CHECKED BY: PJS APPROVAL APPROVED DATE SHEET 34 of 74 PHASE I PROJECT #: P372000 TAX MAP 29 AND 30

CONTRACT #: P372005

CHIEF, RIGHT OF WAY SERVICES

ANNE ARUNDEL COUNTY

		BIOSWALE #1 A - PLANT SCH	HEDULE		
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
PV	60	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER
SE	0.12 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

BIOSWALE #1 B - PLANT SCHEDULE								
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS			
CE	99	CAREX FLACCOSPERMA BLUE WOOD SEDGE	1 QUART	CONT.	24" ON CENTER			
SE	0.19 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST			

	BIOSWALE #2 A-A - PLANT SCHEDULE								
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS				
PV	85	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER				
SE	0.16 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST				

	BIOSWALE #2 A-B - PLANT SCHEDULE								
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS				
CE	179	CAREX FLACCOSPERMA BLUE WOOD SEDGE	1 QUART	CONT.	24" ON CENTER				
SE	0.34 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST				

		BIOSWALE #2 A-C - PLANT SO	CHEDULE		
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
PV	84	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER
SE	0.16 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

BIOSWALE #2 B-A - PLANT SCHEDULE					
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
PV	120	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER
SE	0.23 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

	BIOSWALE #2 B-D - PLANT SCHEDULE						
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS		
CE	124	CAREX FLACCOSPERMA BLUE WOOD SEDGE	1 QUART	CONT.	24" ON CENTER		
SE	0.24 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST		

		BIOSWALE #2 B-E - PLANT SC	CHEDULE		
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
PV	152	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER
SE	0.29 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

		BIOSWALE #3A-0 - PLANT SC	HEDULE		
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
CE	119	CAREX FLACCOSPERMA BLUE WOOD SEDGE	1 QUART	CONT.	24" ON CENTER
SE	0.23 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

1			BIOSWALE #3 A — PLANT SCH	HEDULE		
	SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
	PV	120	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER
	SE	0.23 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

	BIOSWALE #3 B - PLANT SCHEDULE					
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS	
PV	120	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER	
SE	0.23 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST	

SUBMERGED GRAVEL WETLAND #1 PLANTING NOTES:

1. PLANT IN GROUPS OF 15-50 PLANTS OF THE SAME SPECIES IN A

CURVELINEAR LAYOUT. 2. SEE PLANT LIST FOR ACTUAL NUMBER OF PLANT SPECIES. SEE PLANT

LIST FOR ON CENTER SPACING REQUIREMENTS.

BIOSWALE #3 C - PLANT SCHE					
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
CE	108	CAREX FLACCOSPERMA BLUE WOOD SEDGE	1 QUART	CONT.	24" ON CENTER
SE	0.21 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

BIOSWALE #3 D - PLANT SCHEDULE					
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
PV	201	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER
SE	0.38 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

	BIOSWALE #3 E-A - PLANT SCHEDULE						
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS		
PV	94	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER		
SE	0.18 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST		

BIOSWALE #4 A — PLANT SCHE			HEDULE		
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
PV	96	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER
SE	0.18 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	Ш	SEEDS	PER ERNST

BIOSWALE #4 B — PLANT SCHEDULE					
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
CE	72	CAREX FLACCOSPERMA BLUE WOOD SEDGE	1 QUART	CONT.	24" ON CENTER
SE	0.14 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST

BIOSWALE #4 C - PLANT SCHEDULE							
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS		
PV	72	PANICUM VIRGATUM VIRGINIA SWITCHGRASS	1 QUART	CONT.	24" ON CENTER		
SE	0.14 LB	ERNST SEEDS SOUTHEAST RAIN GARDEN MIX	LB	SEEDS	PER ERNST		

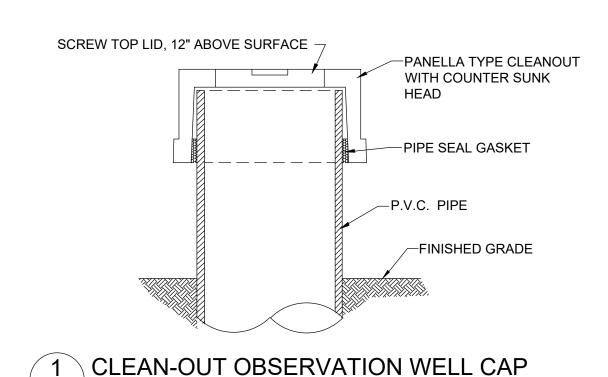
47 NOT TO SCALE

SEED MIX NOTE:

ERNST SEEDS SOUTHEAST RAIN GARDEN MIX, OR APPROVED EQUIVALENT

ITEM NUMBER: ERNMX-180-2

SEEDING RATE: 20 LB PER ACRE PLANT PER MANUFACTURER'S SPECIFICATIONS



STORMWATER MANAGEMENT NARRATIVE

THIS PROJECT HAS 4 SEPARATE DRAINAGE AREAS ON SITE THAT ALL DRAIN TO THE SEVERN RIVER WATERSHED. THE PROPOSED TRAIL IS LOCATED ALONG A VALLEY WITH SEVERAL EXISTING WETLAND AREAS ON SITE.

DRAINAGE AREA #1:

DRAINAGE AREA #1 IS LOCATED AT THE WESTERN END OF THIS PHASE OF THE TRAIL PROJECT, NEAR SAPPINGTON STATION ROAD, AND DRAINS TO THE WEST. THIS DRAINAGE AREA CONTAINS TWO (2) BIOSWALE FACILITIES AND A SUBMERGED GRAVEL WETLAND FACILITY, WHICH PROVIDE 2,772 CF OF ESDv.

DRAINAGE AREA #2:

DRAINAGE AREA #2A IS LOCATED BETWEEN A HIGH POINT RIDGE EAST OF SAPPINGTON STATION ROAD AND GAMBRILLS ROAD. THIS DRAINAGE AREA IS DIVIDED INTO TWO OUTFALL AREAS WITH A SINGLE POI THAT DRAINS TO THE EAST.

DRAINAGE AREA #2A:

DRAINAGE AREA #2A IS LOCATED WITHIN DRAINAGE AREA 2 AND DRAINS TO THE JABEZ BRANCH STREAM JUST EAST OF BURNS CROSSING ROAD. THIS DRAINAGE AREA CONTAINS THREE (3) BIOSWALE FACILITIES AND A GRASS SWALE, WHICH PROVIDE 2,140 CF OF ESDv.

DRAINAGE AREA #2B:

DRAINAGE AREA #2B IS LOCATED WITHIN DRAINAGE AREA 2 AND DRAINS TO THE JABEZ BRANCH STREAM JUST EAST OF BURNS CROSSING ROAD. THIS DRAINAGE AREA CONTAINS FOUR (4) BIOSWALE FACILITIES AND ONE (1) GRASS SWALE, WHICH PROVIDE 3,513 CF OF ESDv.

DRAINAGE AREA #3:

DRAINAGE AREA #3 IS LOCATED BETWEEN GAMBRILLS ROAD AND A HIGH POINT RIDGE JUST EAST OF HOLLADAY STREET AND DRAINS TO THE NORTH-EAST. THIS DRAINAGE AREA CONTAINS SIX (6) BIOSWALE FACILITIES AND ONE (1) GRASS SWALES WHICH PROVIDE 4,591 CF OF ESDv.

DRAINAGE AREA #4:

DRAINAGE AREA #4 IS LOCATED AT THE EASTERN END OF THIS TRAIL PROJECT, NEAR CRAIN HIGHWAY (ROUTE 3) AND DRAINS TO EAST. THIS DRAINAGE AREA CONTAINS THREE (3) BIOSWALE FACILITIES WHICH PROVIDE 1,425 CF OF ESDv.

ESDv SUMMARY TABLE								
ESDv REQUIRED	ESDv PROVIDED	Pe REQUIRED	Pe PROVIDED					
13,679 cf	14,441 cf	1.49	1.58					
FACILITY TYPE		ESDv PROVIDED						
BIOSWALE		12,996 CF						
GRASS SWALE		632 CF						
SUBMERGED G	RAVEL WETLAND	813 CF						

SITE IMPERVIOUSNESS					
AND WATER QUALITY VOLUME					
SITE AREA (ACRES)	9.32				
EXISTING IMPERVIOUS SURFACE AREA (ACRES)	0.00				
PROPOSED IMPERVIOUS SURFACE AREA (ACRES)	2.28				
RAINFALL DEPTH (IN)	1.0				
EXISTING IMPERVIOUSNESS	0.0%				
PROPOSED IMPERVIOUSNESS	24.5%				
WATER QUALITY CALCULATION FOR NEW DEVELOPMENT					
REQUIRED TREATMENT AREA (ACRES)	9.32				
RUNOFF COEFFICIENT	0.26				
WATER QUALITY VOLUME, WQv (CF)	9,252				
RECHARGE VOLUME REQUIRED (CF)	2,793				
RECHARGE VOLUME PROVIDED (CF)	2,929				
TOTAL AREA OF SITE	9.32 ACRES (406,329 SF)				

OUTFALL STATEMENT

OUTFALL STATEMENT (SITE OUTFALL #1):

A FIELD INVESTIGATION OF OUTFALL #1 AND THE CONVEYANCE SYSTEM DOWNSTREAM OF THE OUTFALL WAS PERFORMED ON JULY 25, 2017 BY MESSICK GROUP, INC. (T/A MESSICK & ASSOCIATES). THESE CONDITIONS WERE VERIFIED BY A SITE INVESTIGATION BY PENNONI AND ASSOCIATES ON OCTOBER 15, 2019. OUTFALL #1 IS LOCATED WHERE THE 15" STORM DRAIN AT STRUCTURE S-108 DISCHARGES INTO THE DEEP DRAINAGE RAVINE THAT RUNS BETWEEN SAPPINGTON STATION ROAD TO BURNS CROSSING ROAD PARALLEL TO THE OLD RAILROAD BED. THE OUTFALL IS LOCATED IN THE NORTHWESTERN PART OF THE RAVINE NEAR SAPPINGTON STATION ROAD. THE AREA JUST BELOW THE OUTFALL APPEARS TO BE WELL VEGETATED AND STABLE. RUNOFF FROM THE OUTFALL WILL FOLLOW THE DRAINAGE RAVINE TO THE NORTH TOWARD SAPPINGTON STATION ROAD TO AN EXISTING CULVERT UNDERNEATH SAPPINGTON STATION ROAD. THE FLOW CHANNEL FROM THE OUTFALL TO THE CULVERT IS WELL VEGETATED WITH LITTLE TO NO SIGNS OF EROSION. THERE IS SOME MINOR SILT DEPOSITION AT THE HEADWALL OF THE CULVERT. THE AREAS OUTSIDE THE CHANNEL ARE WELL VEGETATED AND ARE STABLE. THE POINT OF INVESTIGATION IS THE POINT AT WHICH THE FLOW ENTERS THE CULVERT. THE EXISTING CHANNEL IS OF SIZE AND SLOPE TO ADEQUATELY CONVEY THE TEN-YEAR PEAK DISCHARGE BASED ON ULTIMATE CONDITIONS DOWN TO THE POINT OF INVESTIGATION.

OUTFALL STATEMENT (SITE OUTFALL #2A):

A FIELD INVESTIGATION OF OUTFALL #2A AND THE CONVEYANCE SYSTEM DOWNSTREAM OF OUTFALL WAS PERFORMED ON JULY 25, 2017 BY MESSICK GROUP, INC. (T/A MESSICK & ASSOCIATES). THESE CONDITIONS WERE VERIFIED BY A SITE INVESTIGATION BY PENNONI AND ASSOCIATES ON OCTOBER 15, 2019. OUTFALL #2A IS LOCATED WHERE THE EXISTING 24" CMP CULVERT NEAR STATION 37+77 DISCHARGES THROUGH THE RIGHT OF WAY INTO AN EXISTING DRAINAGE SWALE APPROXIMATELY 3 FEET WIDE ON THE ADJACENT PROPERTY. THE GENERAL AREA IS FORESTED. HOWEVER, THE CHANNEL BOTTOM WAS DE-NUDED REVEALING THE CHANNEL LINING (SAND AND IRONSTONE). THE CHANNEL SHOWS SIGNS OF EROSION. THE CULVERT APPEARS TO BE IN THE PROCESS OF BEING REPLACED. THE CHANNEL FLOWS TO THE NORTH INTO BROAD FORESTED FLOODPLAIN. A PILOT CHANNEL SIMILAR TO THE OUTFALL CHANNEL RUNS ALONG THE FLOODPLAIN. THERE ARE SOME MINOR SIGNS OF EROSION WITH SIGNS OF SAND DEPOSITION IN THE FLATTER AREAS OF THE FLOODPLAIN. THE AREAS OUTSIDE THE CHANNEL ARE WELL VEGETATED AND ARE STABLE. THE POINT OF INVESTIGATION IS THE CONFLUENCE IN THE FORESTED CHANNEL/FLOODPLAIN AT WHICH THE FLOW FROM OUTFALL 2A AND 2B COMBINE. THE EXISTING CHANNEL IS OF SIZE AND SLOPE TO ADEQUATELY CONVEY THE TEN-YEAR PEAK DISCHARGE BASED ON ULTIMATE CONDITIONS TO THE POINT OF INVESTIGATION. HOWEVER, THE EXISTING CULVERT SHOULD BE REMOVED AND THE OUTFALL CHANNEL SHOULD BE ARMORED TO REDUCE THE POTENTIAL FOR EROSION.

OUTFALL STATEMENT (SITE OUTFALL #2B):

A FIELD INVESTIGATION OF OUTFALL 2B AND THE CONVEYANCE SYSTEM DOWNSTREAM OF OUTFALL WAS PERFORMED ON JULY 25, 2017 BY MESSICK GROUP, INC. (T/A MESSICK & ASSOCIATES). THESE CONDITIONS WERE VERIFIED BY A SITE INVESTIGATION BY PENNONI AND ASSOCIATES ON OCTOBER 15, 2019. OUTFALL #2B IS LOCATED WHERE THE EXISTING 4'X4' BOX CULVERT NEAR STATION 44+58 DISCHARGES THROUGH THE RIGHT OF WAY INTO AN EXISTING DRAINAGE SWALE ON THE ADJACENT PROPERTY TO THE NORTH. THE SWALE AT THE OUTFALL OF THE CULVERT IS APPROXIMATELY 5 FEET WIDE THEN NARROWS AS IT MOVES DOWN SLOPE. THE GENERAL AREA IS FORESTED, HOWEVER THE CHANNEL BOTTOM WAS DE-NUDED REVEALING THE CHANNEL LINING (SAND AND IRONSTONE). THE CHANNEL SHOWS SIGNS OF EROSION DUE TO THE LINING MATERIAL AND STEEPNESS OF THE CHANNEL. THE CHANNEL FLOWS TO THE NORTH INTO THE BROAD FORESTED FLOODPLAIN. THERE ARE SIGNS OF EROSION WITH SAND DEPOSITION IN THE FLATTER AREAS OF THE FLOODPLAIN. THE AREAS OUTSIDE OF THE CHANNEL ARE WELL VEGETATED AND ARE STABLE. THE POINT OF INVESTIGATION IS THE CONFLUENCE IN THE FORESTED CHANNEL/FLOODPLAIN AT WHICH THE FLOW FROM OUTFALL 2A AND 2B COMBINE. THE EXISTING CHANNEL IS OF SIZE AND SLOPE TO ADEQUATELY CONVEY THE TEN-YEAR PEAK DISCHARGE BASED ON ULTIMATE CONDITIONS DOWN TO THE POINT OF INVESTIGATION. THE EXISTING OUTFALL CHANNEL CONSISTS OF LARGE IRONSTONE, THUS ADDITIONAL ARMORING IS NOT REQUIRED AT THIS

OUTFALL STATEMENT (SITE OUTFALL #3):

A FIELD INVESTIGATION OF OUTFALL #3 AND THE CONVEYANCE SYSTEM DOWNSTREAM OF OUTFALL WAS PERFORMED ON JULY 25, 2017 BY MESSICK GROUP, INC. (T/A MESSICK & ASSOCIATES). THESE CONDITIONS WERE VERIFIED BY A SITE INVESTIGATION BY PENNONI AND ASSOCIATES ON OCTOBER 15, 2019. OUTFALL #3 IS LOCATED WHERE THE PROPOSED 18" STORM DRAIN AT STRUCTURE S-7701 DISCHARGES INTO THE DEEP DRAINAGE RAVINE THAT RUNS THROUGH THE RAUROAD RIGHT-OF-WAY PARALLEL TO HOLLADAY STREET AT STATION 77+25. THE OUTFALL IS LOCATED AT THE POINT OF INVESTIGATION SINCE THE FLOW FROM THE SITE IS LESS THAN TEN PERCENT OF THE TOTAL FLOW THROUGH THE RAVINE. THE RAVINE IS FAIRLY BROAD WITH ERODED STEEP SLOPES ON THE EAST SIDE. THE BOTTOM IS COVERED WITH STONE RUINS, POSSIBLY THE ABUTMENT OF A PREVIOUS RAILROAD BRIDGE. THE CHANNEL APPEARS STABLE WITH VEGETATION AND MINIMAL EROSION.

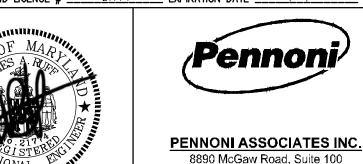
OUTFALL STATEMENT (SITE OUTFALL #4):

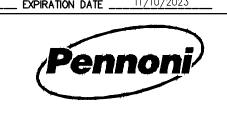
A FIELD INVESTIGATION OF OUTFALL #4 AND THE CONVEYANCE SYSTEM DOWNSTREAM OF OUTFALL WAS PERFORMED ON JULY 25, 2017 BY MESSICK GROUP, INC. (T/A MESSICK & ASSOCIATES). THESE CONDITIONS WERE VERIFIED BY A SITE INVESTIGATION BY PENNONI AND ASSOCIATES ON OCTOBER 15, 2019. OUTFALL #4 IS LOCATED WHERE THE PROPOSED 15" STORM DRAIN AT STRUCTURE s-9780 DISCHARGES INTO THE DEEP DRAINAGE DITCH AT THE TERMINUS OF HOLLADAY PARK ROAD. THE AREA JUST BELOW THE OUTFALL APPEARS TO BE WELL VEGETATED AND STABLE. THIS AREA IS THE UPPER CELL OF A STEP POOL CONVEYANCE SYSTEM. RUNOFF FRO THE OUTFALL WILL FLOW THROUGH SUCCESSIVE POOLS. THE POOLS ARE WELL VEGETATED WITH NO SIGNS OF EROSION. THE EXISTING CHANNEL IS OF SIZE AND SLOPE TO ADEQUATELY CONVEY THE TEN YEAR PEAK DISCHARGE BASED ON THE ULTIMATE CONDITIONS DOWN TO THE POINT OF INVESTIGATION.

> GP# 02018537 DWG NO: CD09H

> > - South Shore Trail Phase II\DESIGN_SHEETS\CD_SET\AACOX19001-CD09H.dw

PROFESSIONAL CERTIFICATION: I, _____ JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY LICENSED _____PROFESSIONAL ENGINEER_UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____21774 ____ EXPIRATION DATE ____11/10/2023 REVISIONS DESCRIPTION BY DATE

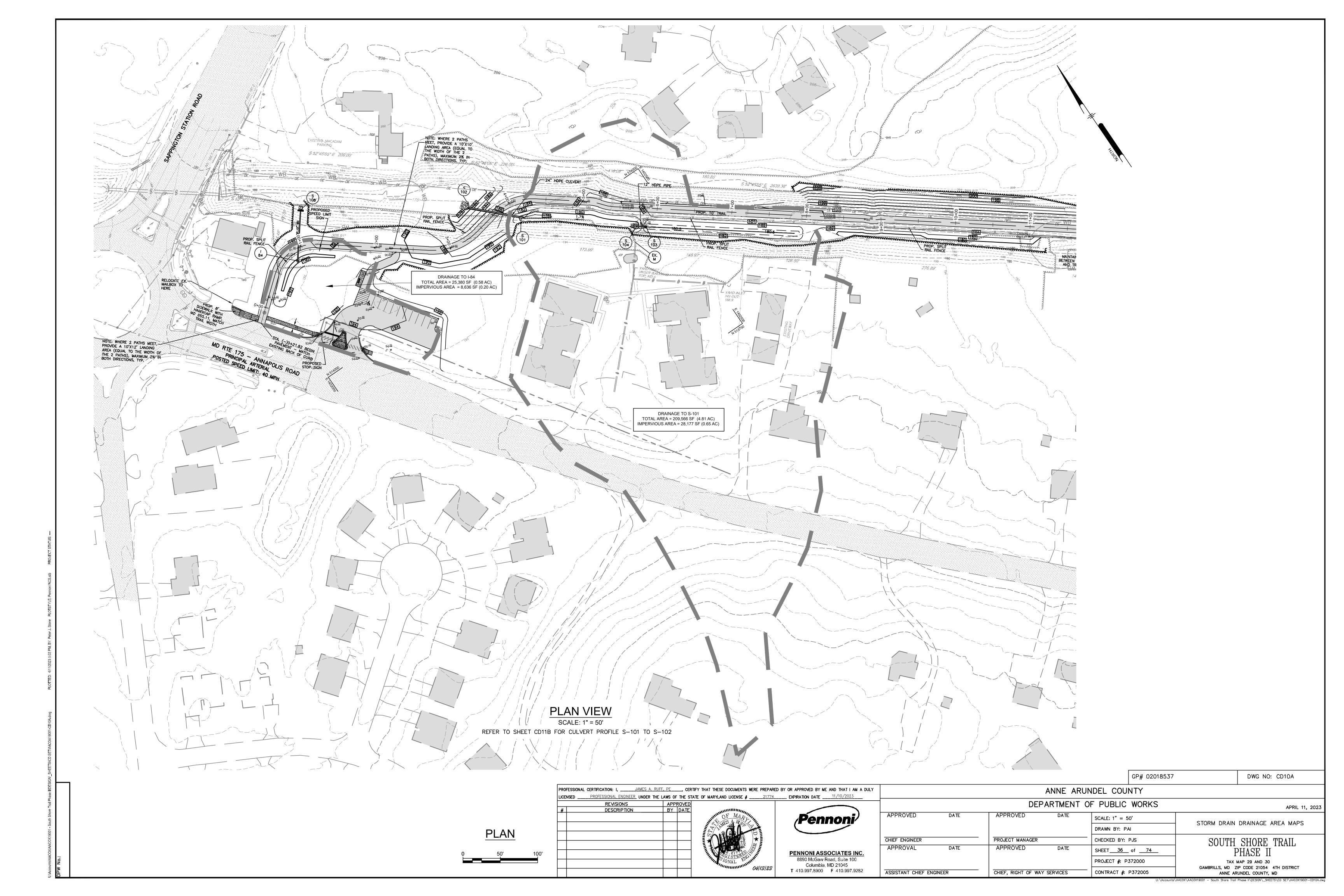


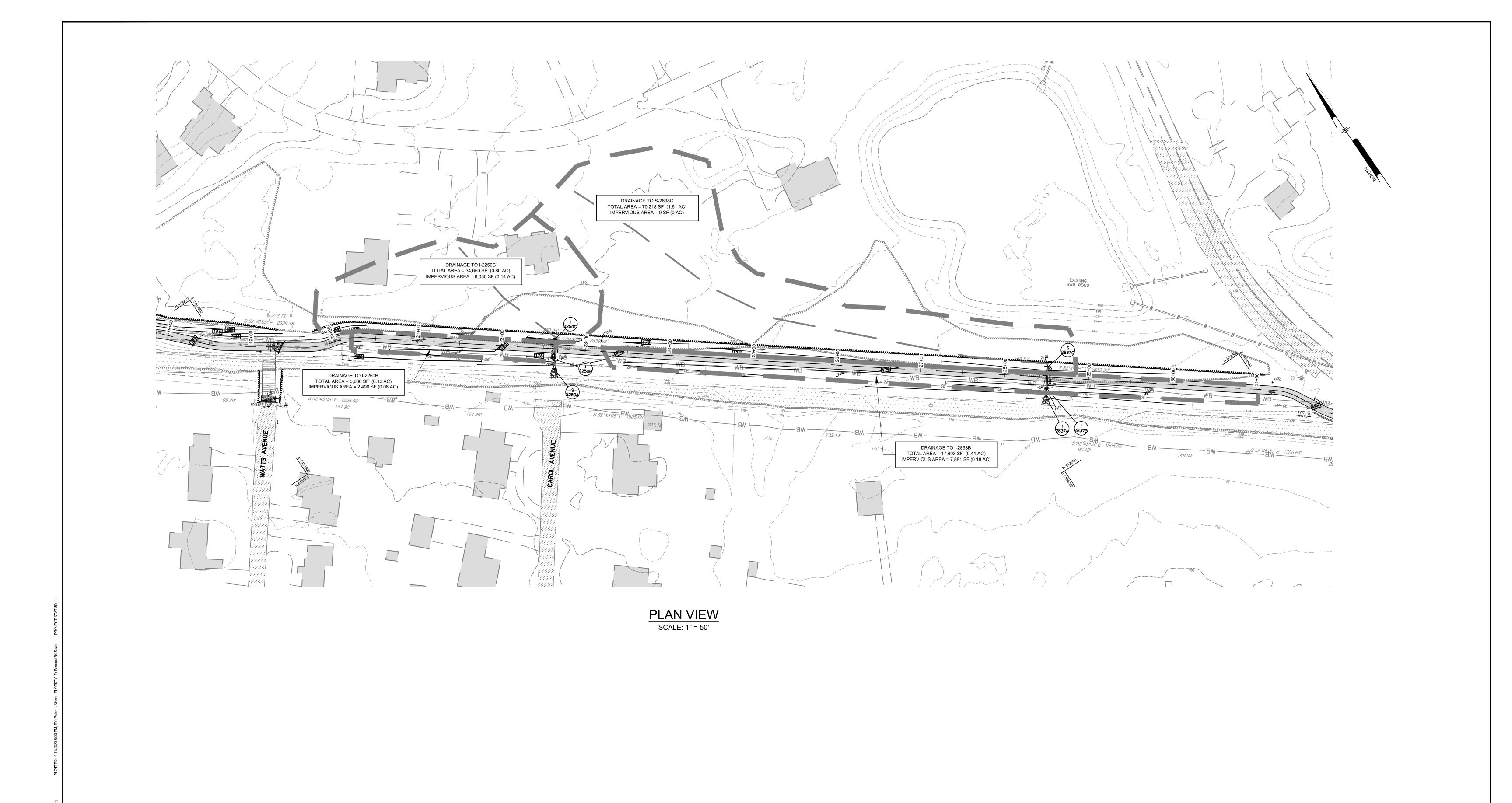


Columbia, MD 21045

CHIEF ENGINEER APPROVAL T 410.997.8900 F 410.997.9282

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS APRIL 11, 2023 APPROVED APPROVED SCALE: STORMWATER MANAGEMENT NOTES & DETAILS DRAWN BY: PAI PROJECT MANAGER SOUTH SHORE TRAIL CHECKED BY: PJS APPROVED DATE SHEET 35 of 74 PHASE II PROJECT #: P372000 TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ASSISTANT CHIEF ENGINEER CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD





GP# 02018537 DWG NO: CD10B PROFESSIONAL CERTIFICATION: I, ______JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY ANNE ARUNDEL COUNTY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # ______ 21774 EXPIRATION DATE _____ 11/10/2023 DEPARTMENT OF PUBLIC WORKS REVISIONS DESCRIPTION APRIL 11, 2023 APPROVED APPROVED SCALE: 1" = 50' STORM DRAIN DRAINAGE AREA MAPS DRAWN BY: PAI SOUTH SHORE TRAIL PHASE II CHIEF ENGINEER PROJECT MANAGER CHECKED BY: PJS APPROVAL SHEET 37 of 74 PENNONI ASSOCIATES INC.

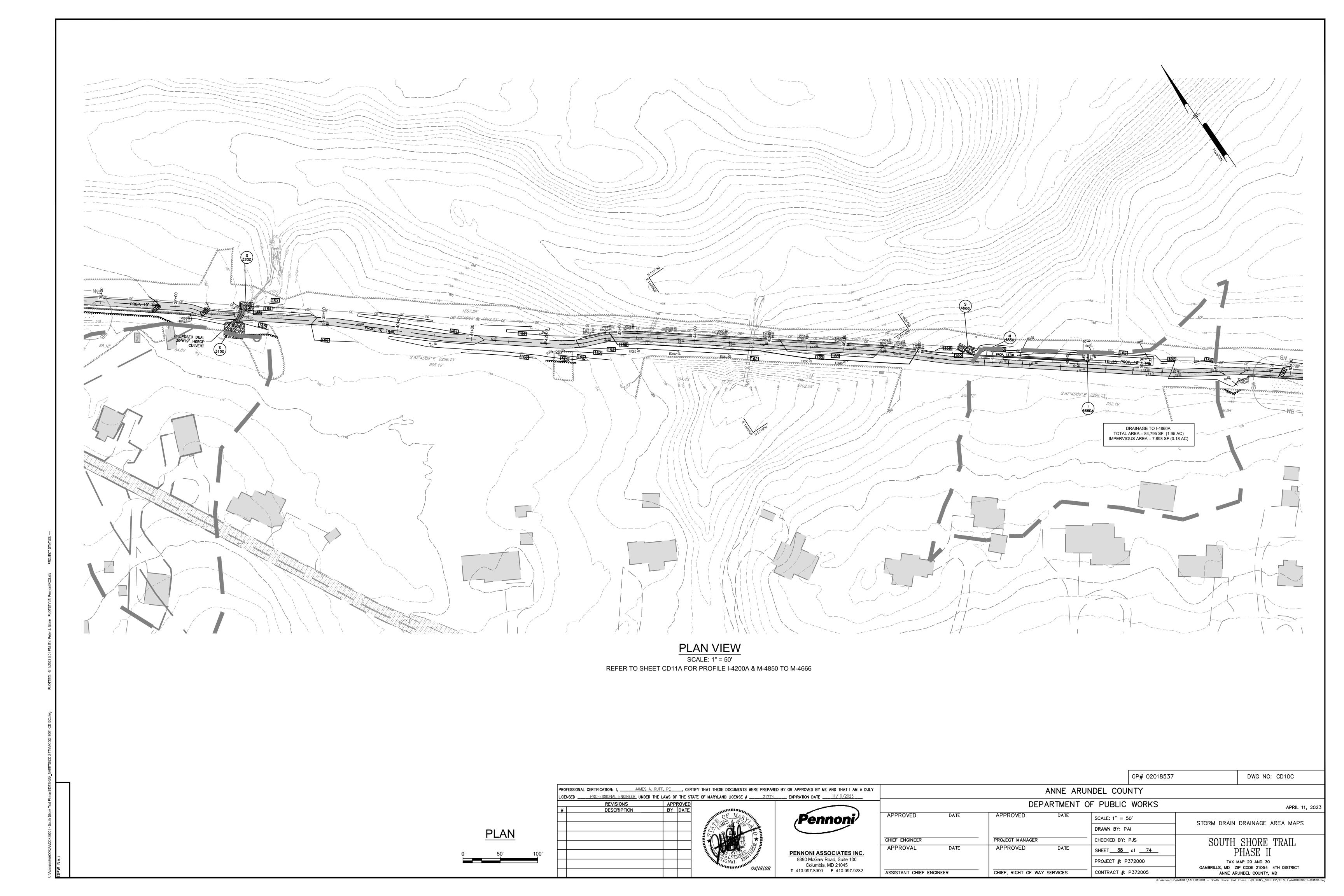
8890 McGaw Road, Suite 100
Columbia, MD 21045
T 410.997.8900 F 410.997.9282 PROJECT #: P372000 TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT

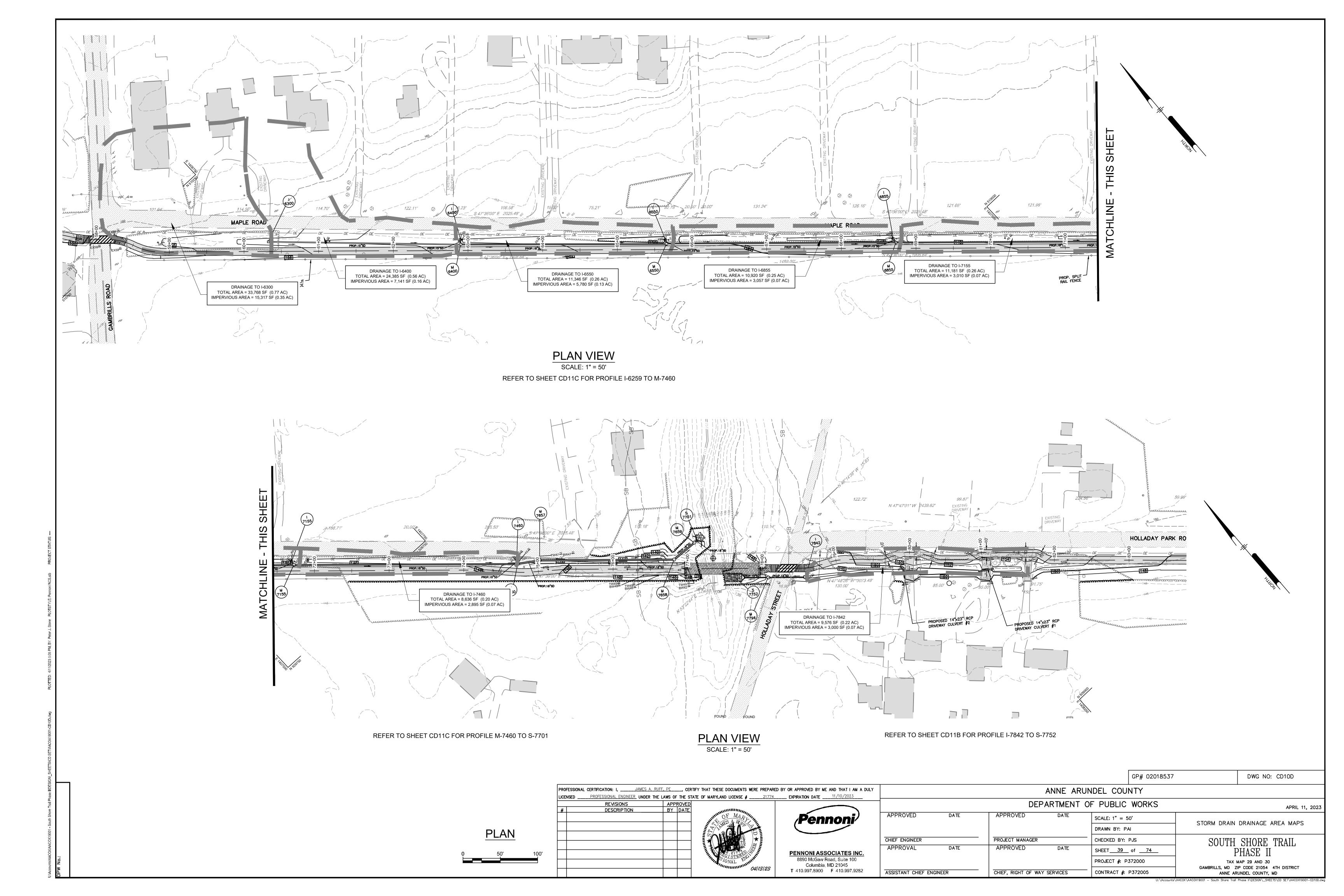
CHIEF, RIGHT OF WAY SERVICES

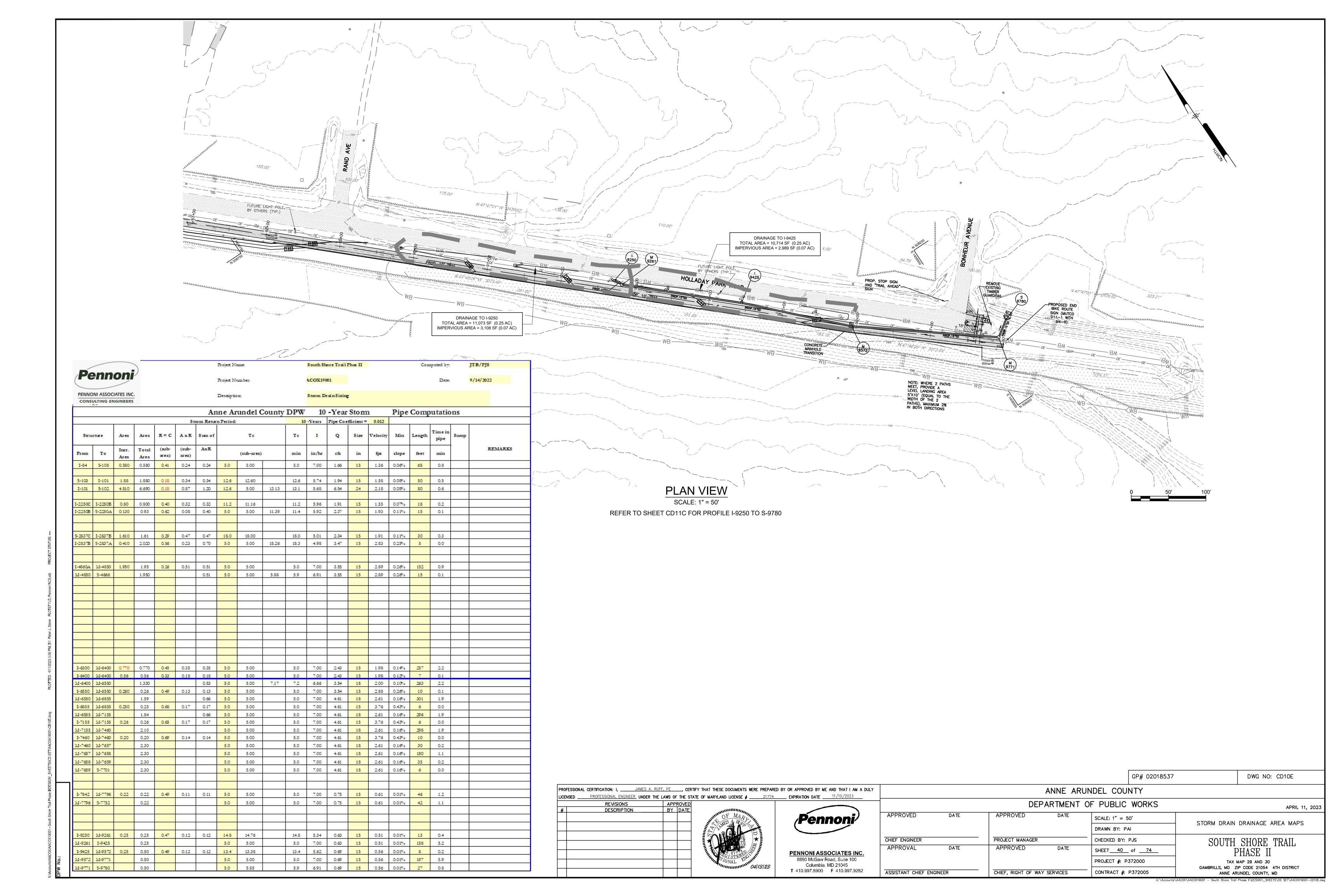
CONTRACT #: P372005

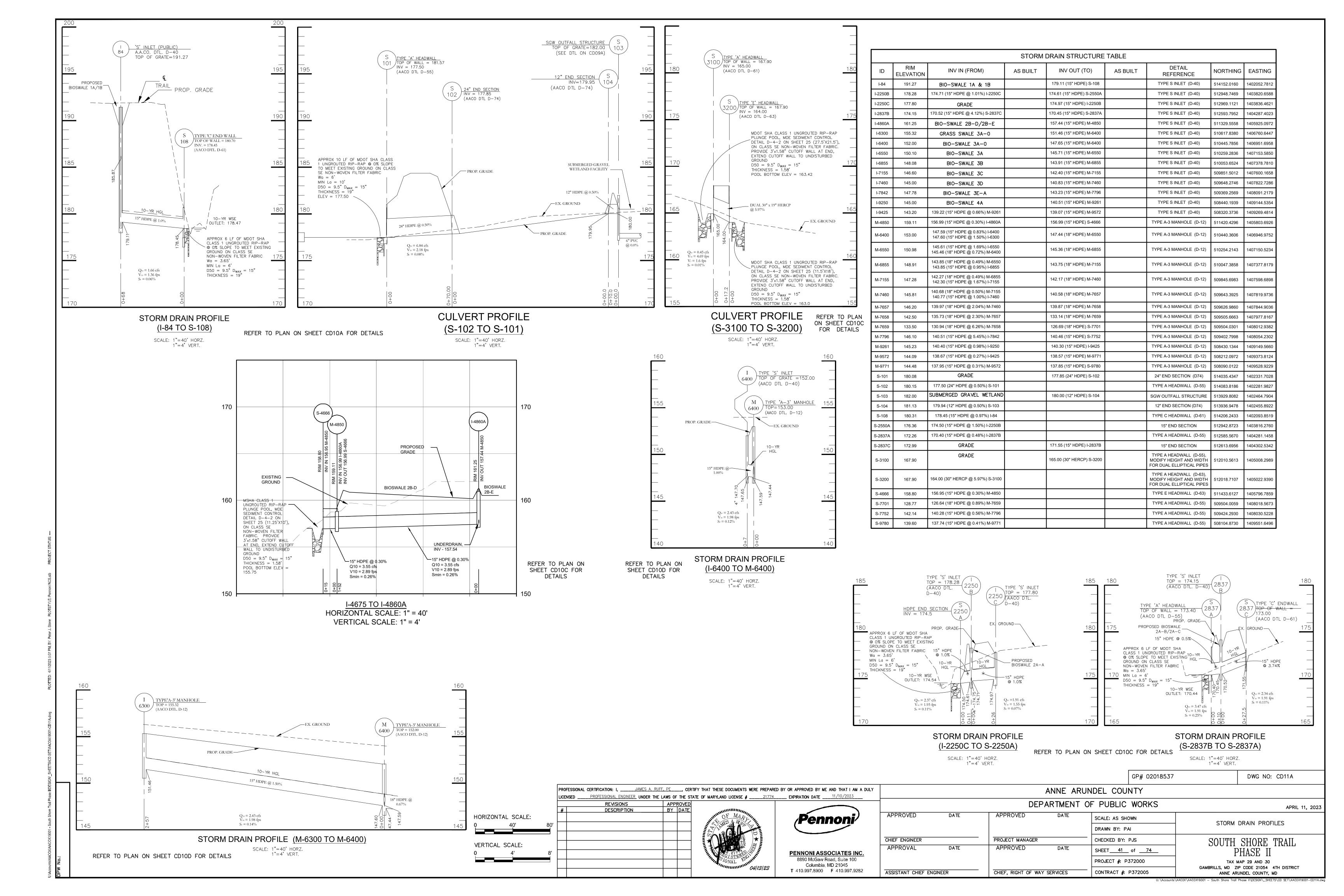
ANNE ARUNDEL COUNTY, MD

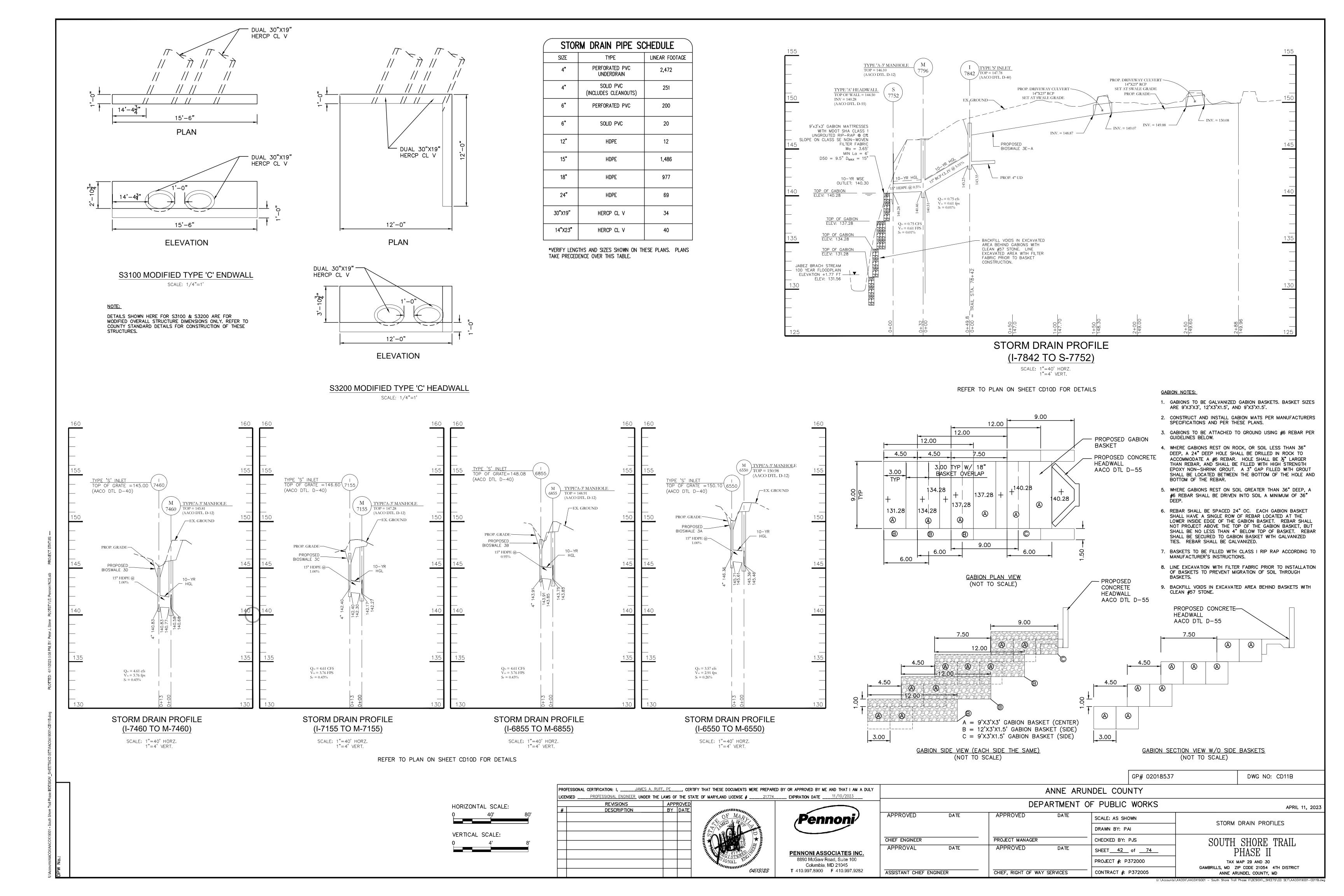
ASSISTANT CHIEF ENGINEER

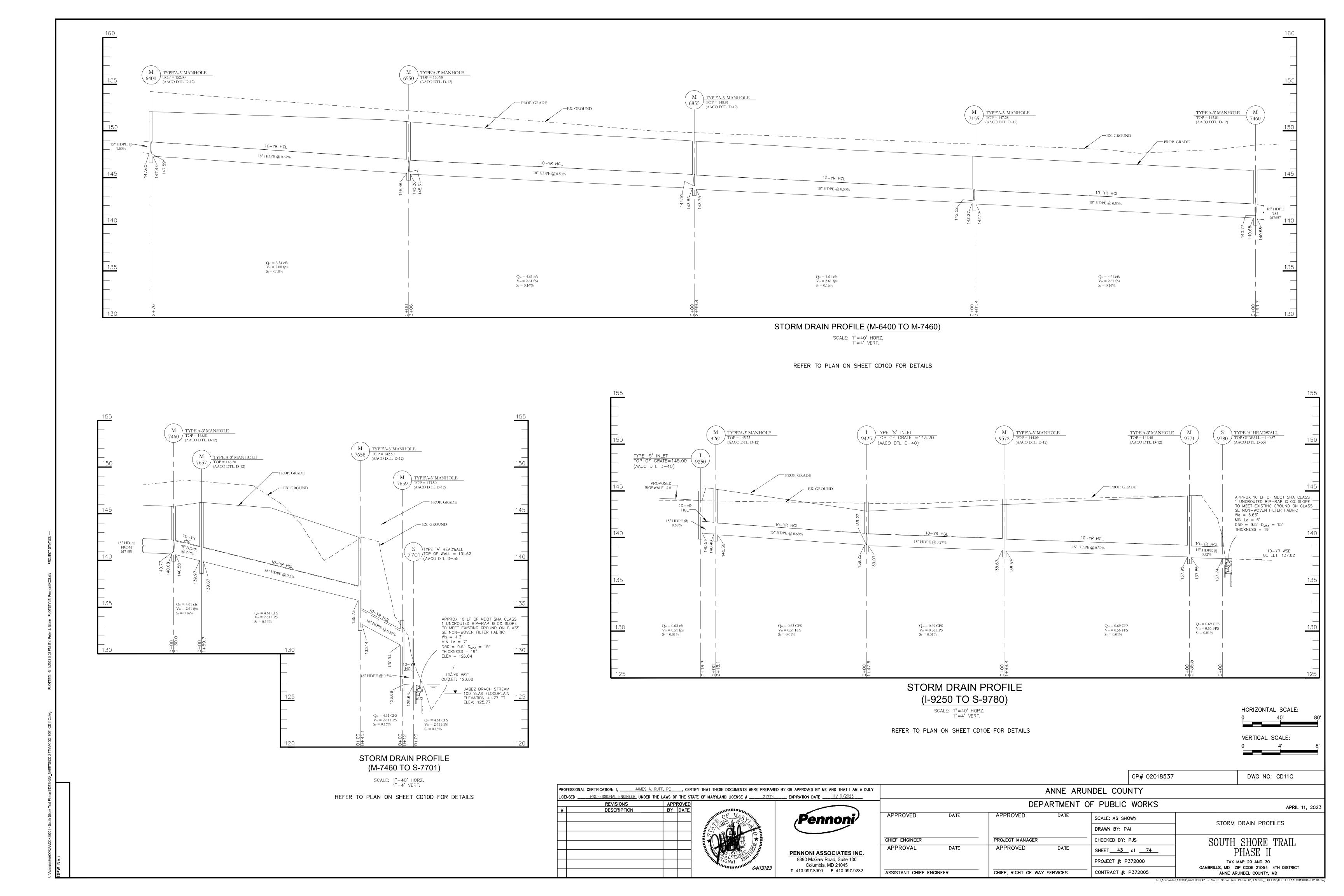


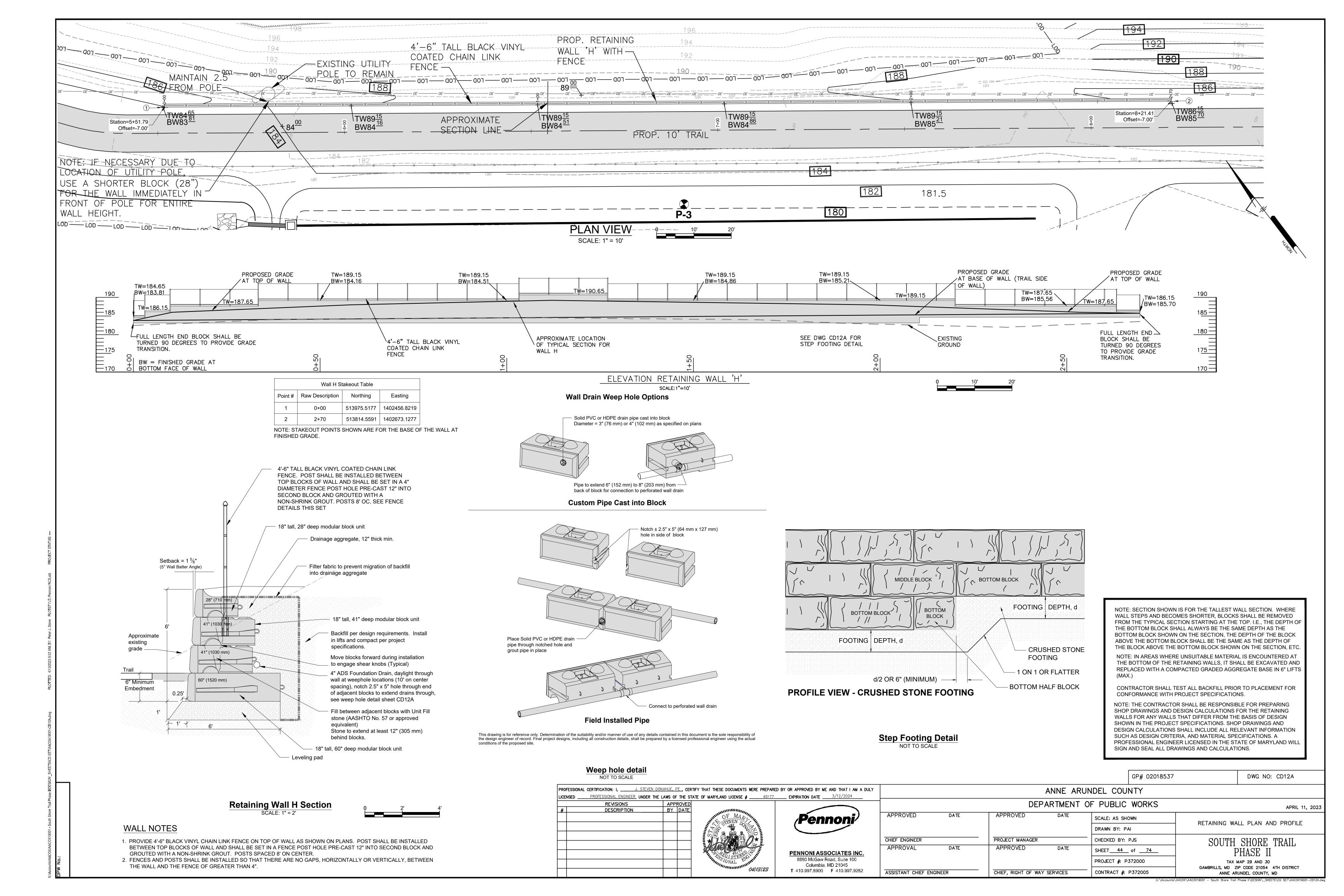


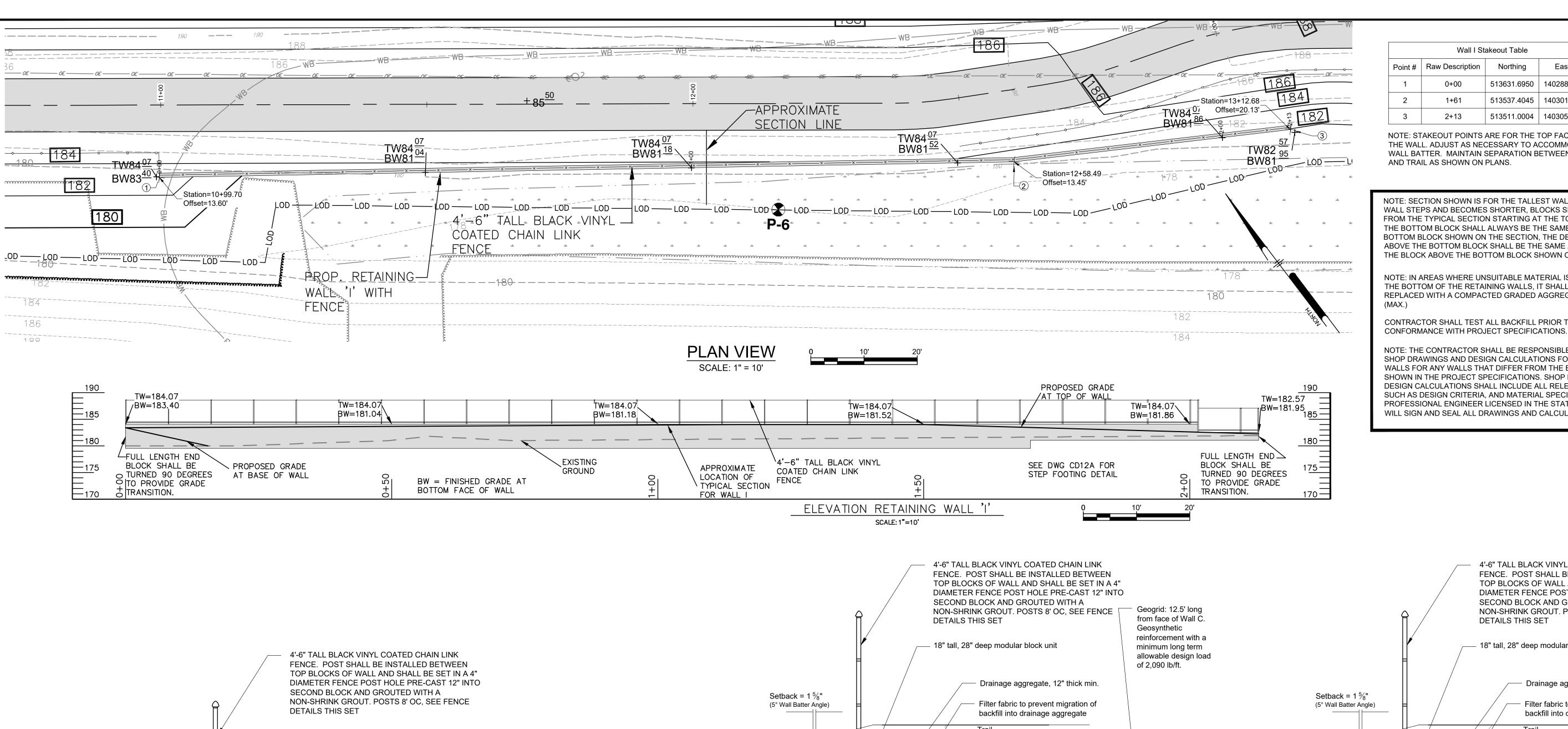












BY DATE

DESCRIPTION

Wall I Stakeout Table Point # | Raw Description | Northing Easting 0+00 513631.6950 1402883.7246 513537.4045 | 1403013.7974 513511.0004 | 1403058.9149

NOTE: STAKEOUT POINTS ARE FOR THE TOP FACE OF THE WALL. ADJUST AS NECESSARY TO ACCOMMODATE WALL BATTER. MAINTAIN SEPARATION BETWEEN WALL AND TRAIL AS SHOWN ON PLANS.

NOTE: SECTION SHOWN IS FOR THE TALLEST WALL SECTION. WHERE WALL STEPS AND BECOMES SHORTER, BLOCKS SHALL BE REMOVED FROM THE TYPICAL SECTION STARTING AT THE TOP. I.E., THE DEPTH OF THE BOTTOM BLOCK SHALL ALWAYS BE THE SAME DEPTH AS THE BOTTOM BLOCK SHOWN ON THE SECTION, THE DEPTH OF THE BLOCK ABOVE THE BOTTOM BLOCK SHALL BE THE SAME AS THE DEPTH OF THE BLOCK ABOVE THE BOTTOM BLOCK SHOWN ON THE SECTION, ETC.

NOTE: IN AREAS WHERE UNSUITABLE MATERIAL IS ENCOUNTERED AT THE BOTTOM OF THE RETAINING WALLS, IT SHALL BE EXCAVATED AND REPLACED WITH A COMPACTED GRADED AGGREGATE BASE IN 6" LIFTS

CONTRACTOR SHALL TEST ALL BACKFILL PRIOR TO PLACEMENT FOR

NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING SHOP DRAWINGS AND DESIGN CALCULATIONS FOR THE RETAINING WALLS FOR ANY WALLS THAT DIFFER FROM THE BASIS OF DESIGN SHOWN IN THE PROJECT SPECIFICATIONS. SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL INCLUDE ALL RELEVANT INFORMATION SUCH AS DESIGN CRITERIA, AND MATERIAL SPECIFICATIONS. A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND WILL SIGN AND SEAL ALL DRAWINGS AND CALCULATIONS.

4'-6" TALL BLACK VINYL COATED CHAIN LINK

APRIL 11, 2023

RETAINING WALL PLAN AND PROFILE

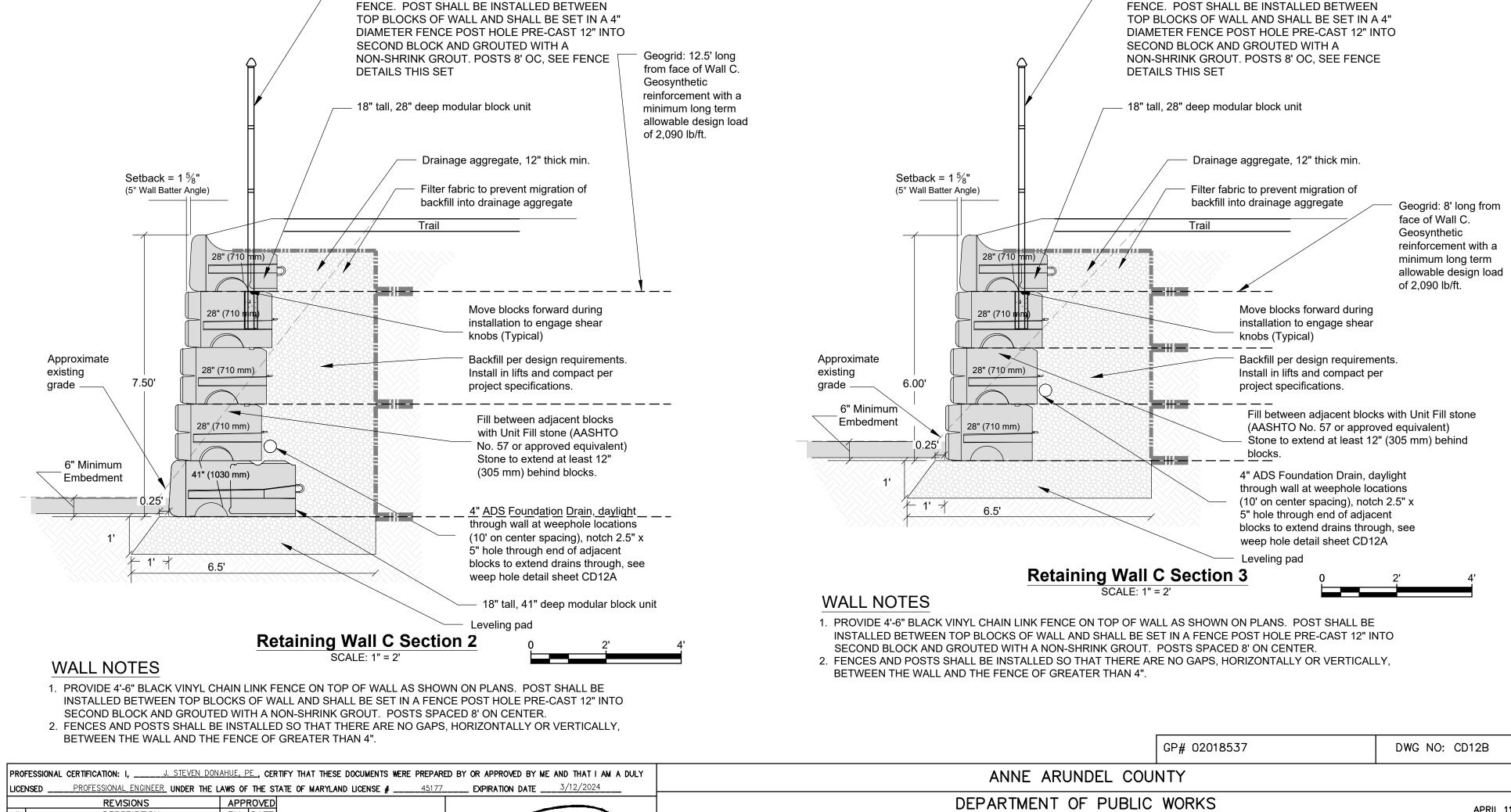
SOUTH SHORE TRAIL

PHASE II

TAX MAP 29 AND 30

GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT

ANNE ARUNDEL COUNTY, MD



APPROVED

CHIEF ENGINEER

ASSISTANT CHIEF ENGINEER

DATE

APPROVAL

Pennoni

PENNONI ASSOCIATES INC. 8890 McGaw Road, Suite 100

Columbia, MD 21045

T 410.997.8900 F 410.997.9282

APPROVED

PROJECT MANAGER

CHIEF, RIGHT OF WAY SERVICES

APPROVED

SCALE: AS SHOWN

CHECKED BY: PJS

SHEET 45 of 74

PROJECT #: P372000

CONTRACT #: P372005

DRAWN BY: PAI

WALL NOTES

Setback = $1\frac{5}{8}$ "

Approximate

existing

grade -

6" Minimum

Embedment

(5° Wall Batter Angle)

60" (1520 mm)

1. PROVIDE 4'-6" BLACK VINYL CHAIN LINK FENCE ON TOP OF WALL AS SHOWN ON PLANS. POST SHALL BE INSTALLED BETWEEN TOP BLOCKS OF WALL AND SHALL BE SET IN A FENCE POST HOLE PRE-CAST 12" INTO SECOND BLOCK AND

Leveling pad

18" tall, 28" deep modular block unit

Drainage aggregate, 12" thick min.

into drainage aggregate

- Filter fabric to prevent migration of backfill

18" tall, 41" deep modular block unit

Trail

4" ADS Foundation Drain, daylight through

spacing), notch 2.5" x 5" hole through end

of adjacent blocks to extend drains through,

wall at weephole locations (10' on center

Backfill per design requirements. Install

Move blocks forward during installation

Fill between adjacent blocks with Unit Fill

stone (AASHTO No. 57 or approved

Stone to extend at least 12" (305 mm)

see weep hole detail sheet CD12A

in lifts and compact per project

to engage shear knobs (Typical)

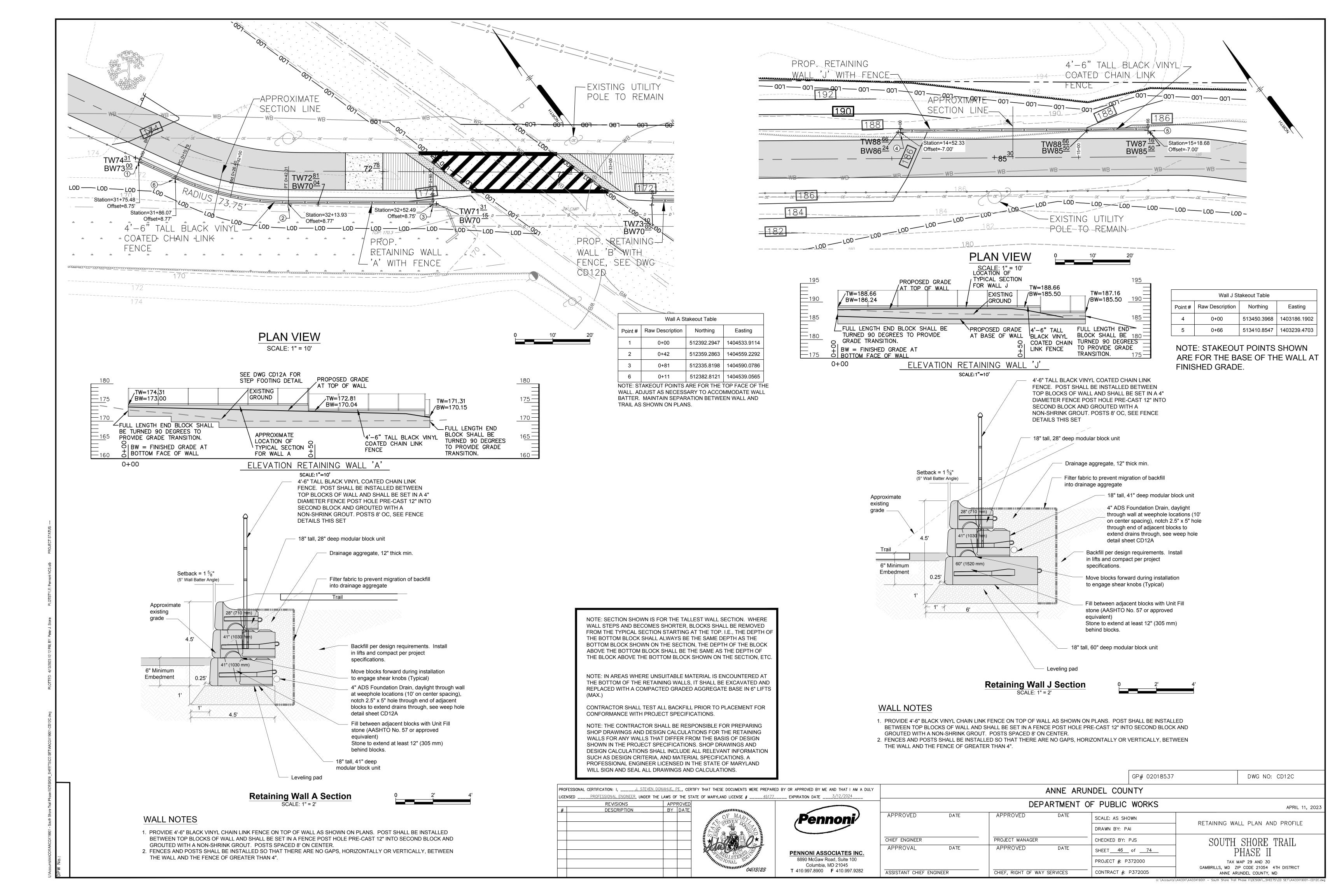
specifications.

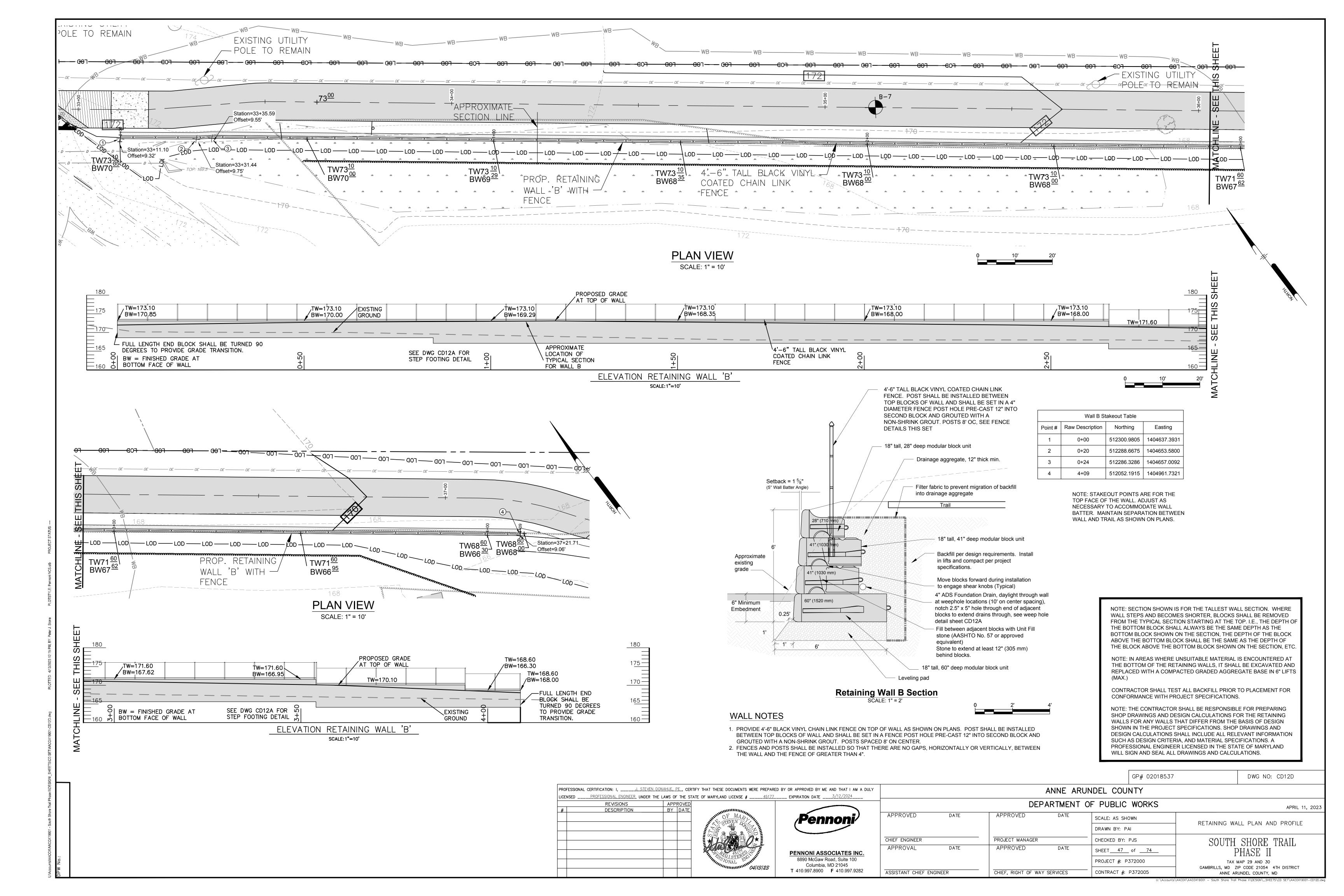
behind blocks.

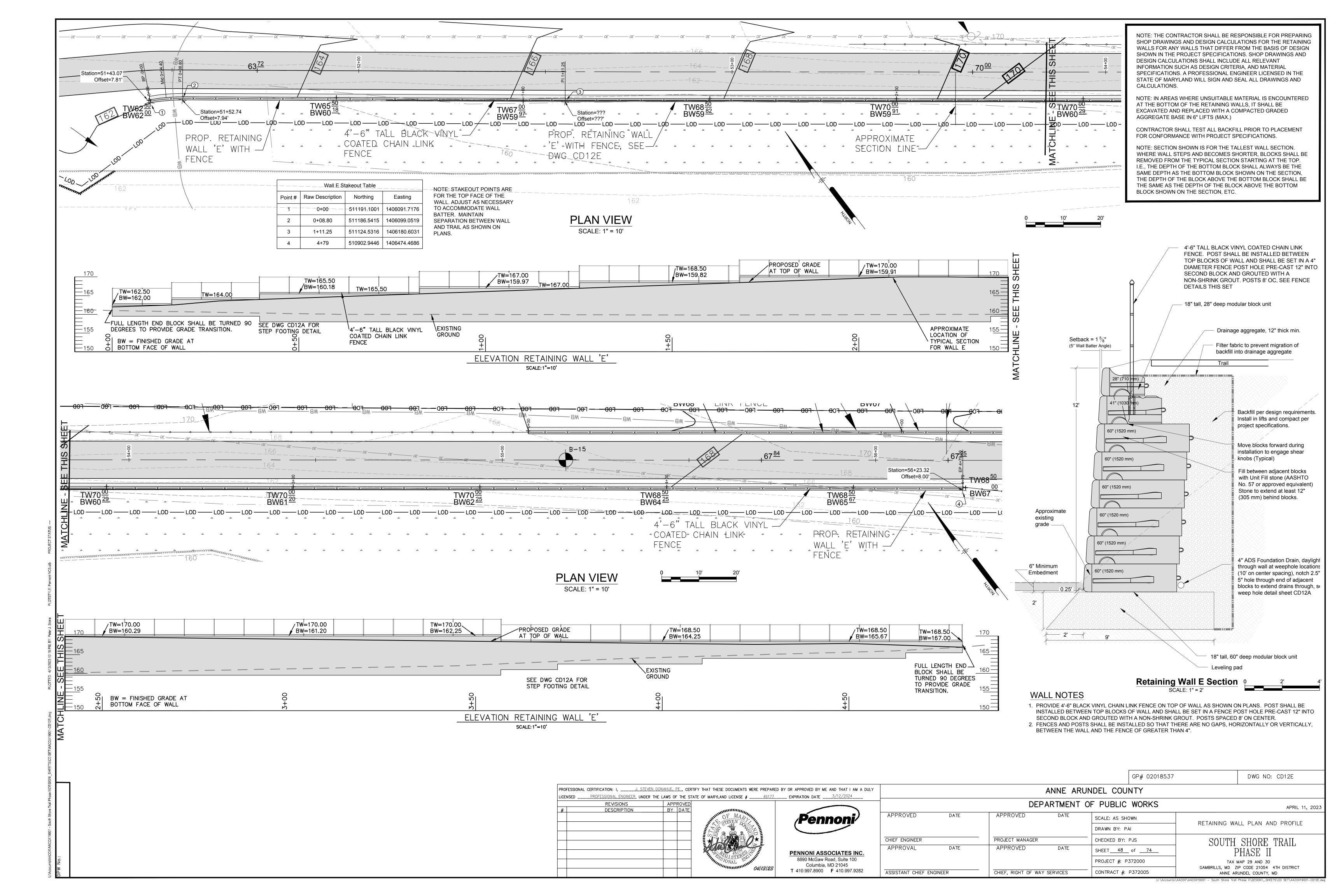
18" tall, 60" deep modular block unit

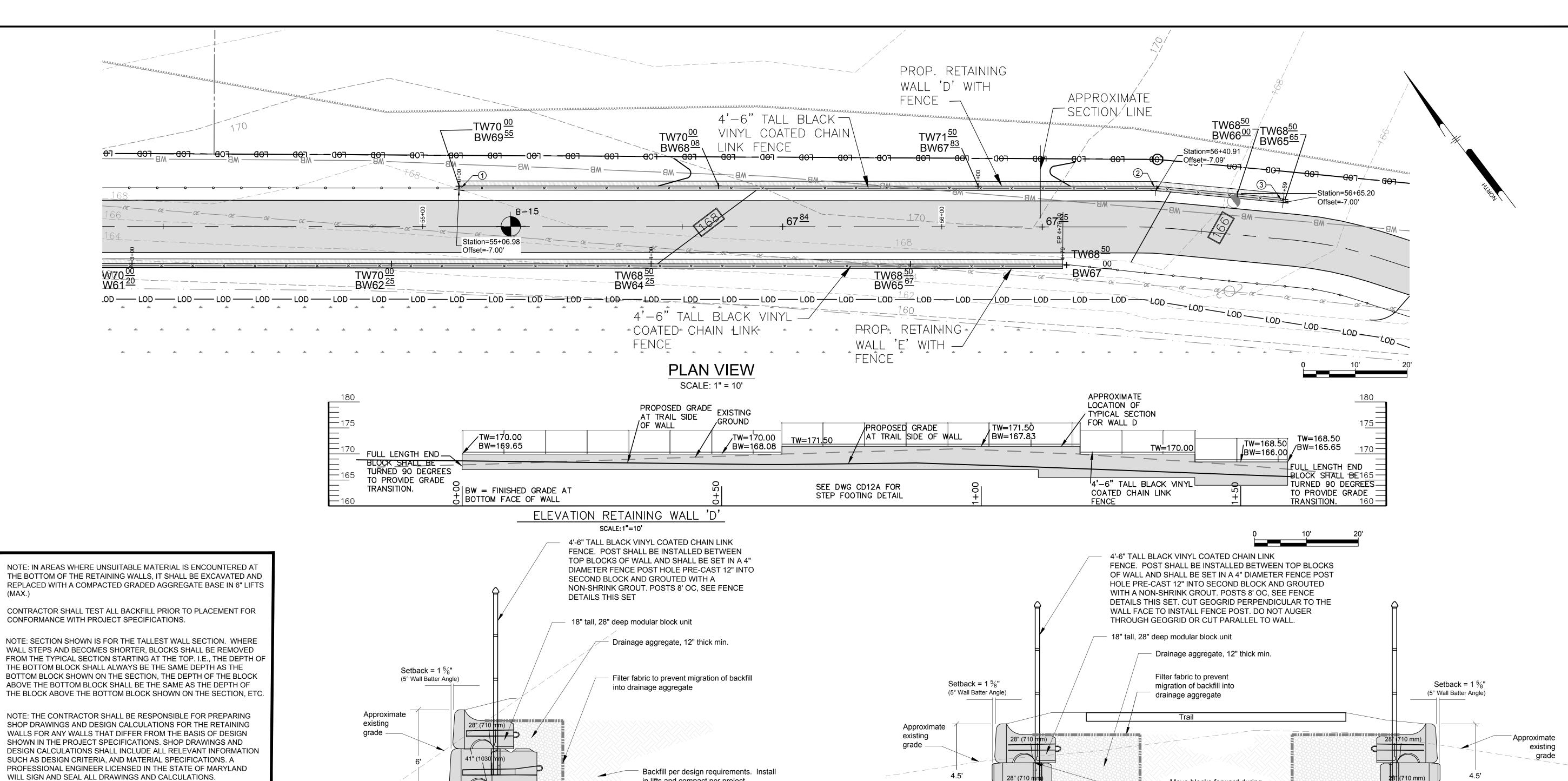
GROUTED WITH A NON-SHRINK GROUT. POSTS SPACED 8' ON CENTER. 2. FENCES AND POSTS SHALL BE INSTALLED SO THAT THERE ARE NO GAPS, HORIZONTALLY OR VERTICALLY, BETWEEN THE WALL AND THE FENCE OF GREATER THAN 4".

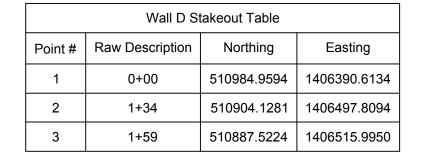
Retaining Wall I Section



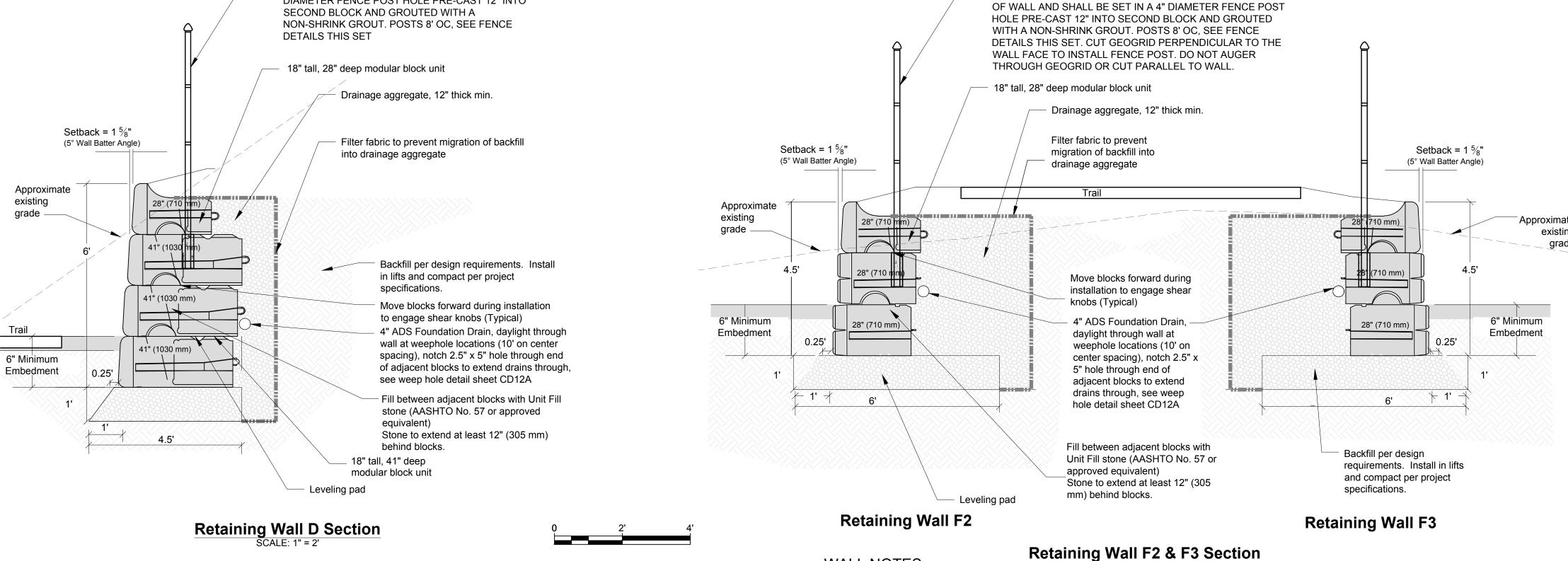








NOTE: STAKEOUT POINTS SHOWN ARE FOR THE BASE OF THE WALL AT FINISHED GRADE.



WALL NOTES

- 1. PROVIDE 4'-6" BLACK VINYL CHAIN LINK FENCE ON TOP OF WALL AS SHOWN ON PLANS. POST SHALL BE INSTALLED BETWEEN TOP BLOCKS OF WALL AND SHALL BE SET IN A FENCE POST HOLE PRE-CAST 12" INTO SECOND BLOCK AND GROUTED WITH A NON-SHRINK GROUT. POSTS SPACED 8' ON CENTER.
- 2. FENCES AND POSTS SHALL BE INSTALLED SO THAT THERE ARE NO GAPS, HORIZONTALLY OR VERTICALLY, BETWEEN THE WALL AND THE FENCE OF GREATER THAN 4".

PENNONI ASSOCIATES INC.

OR APPROVED BY ME AND THAT I AM A DULY

2/2024

APPROVED

CHIEF ENGINEE

APPROVAL

8890 McGaw Road, Suite 100

Columbia, MD 21045

T 410.997.8900 F 410.997.9282

WALL NOTES

2. GEOGRID FOR WALL F ONLY.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS APRIL 11, 2023 APPROVED DATE SCALE: AS SHOWN RETAINING WALL PLAN AND PROFILE DRAWN BY: PAI CHIEF ENGINEER PROJECT MANAGER SOUTH SHORE TRAIL CHECKED BY: PJS APPROVAL DATE APPROVED SHEET <u>49</u> of <u>74</u> PHASE II PROJECT #: P372000 TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ASSISTANT CHIEF ENGINEER CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD

GP# 02018537

DWG NO: CD12F

1. PROVIDE 4'-6" BLACK VINYL CHAIN LINK FENCE ON TOP OF WALL AS SHOWN ON PLANS. POST SHALL BE INSTALLED

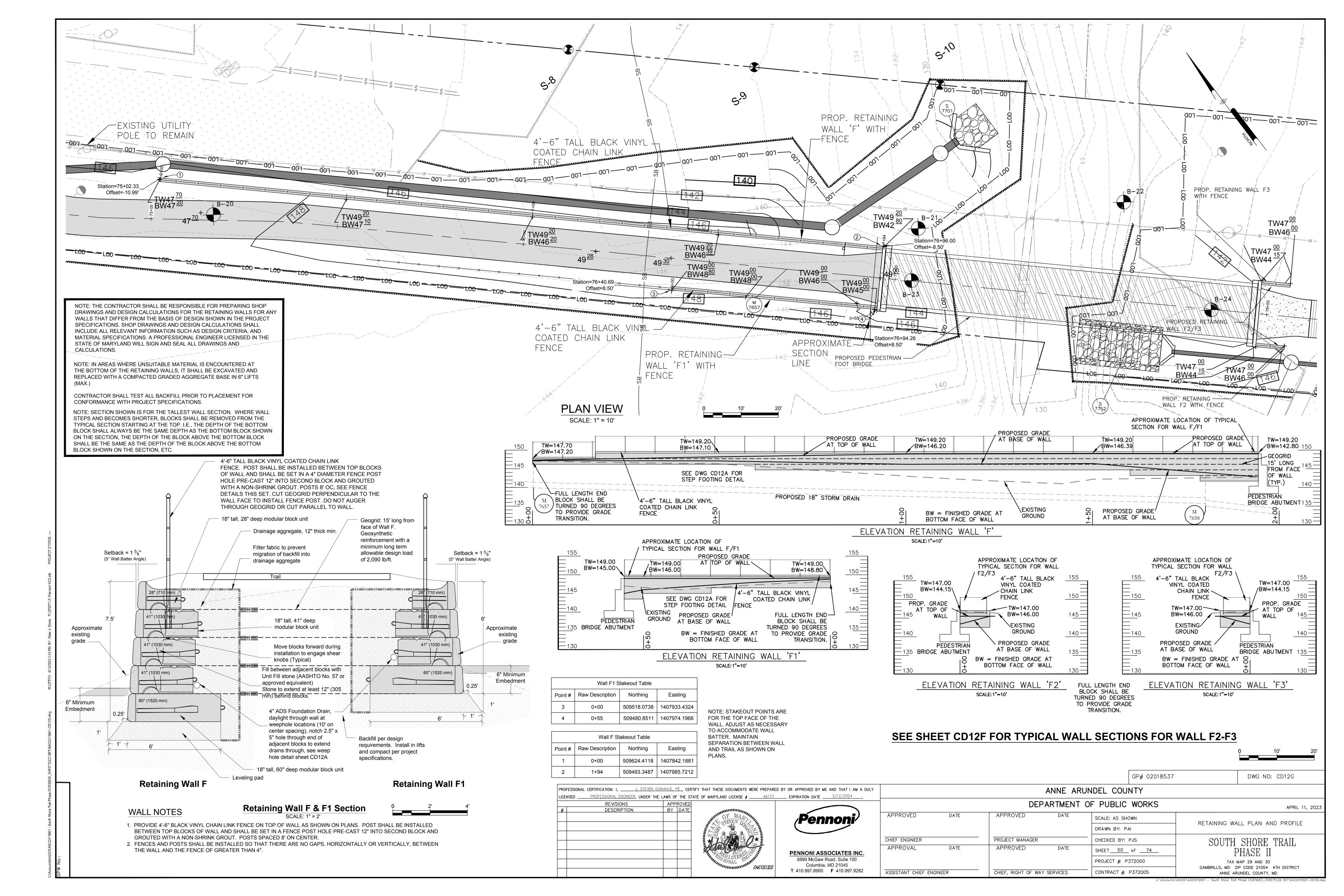
3. FENCES AND POSTS SHALL BE INSTALLED SO THAT THERE ARE NO GAPS, HORIZONTALLY OR VERTICALLY, BETWEEN

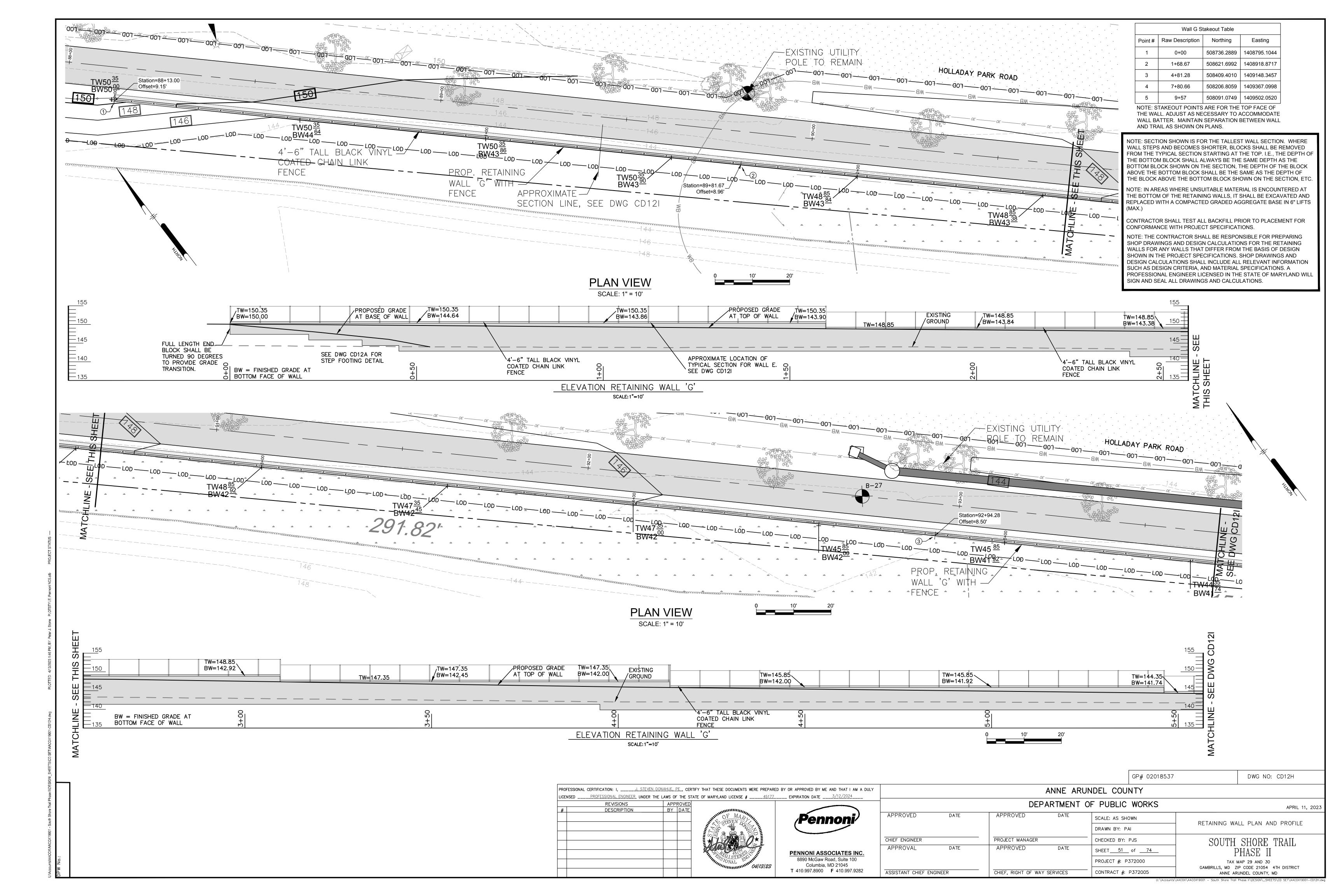
GROUTED WITH A NON-SHRINK GROUT. POSTS SPACED 8' ON CENTER.

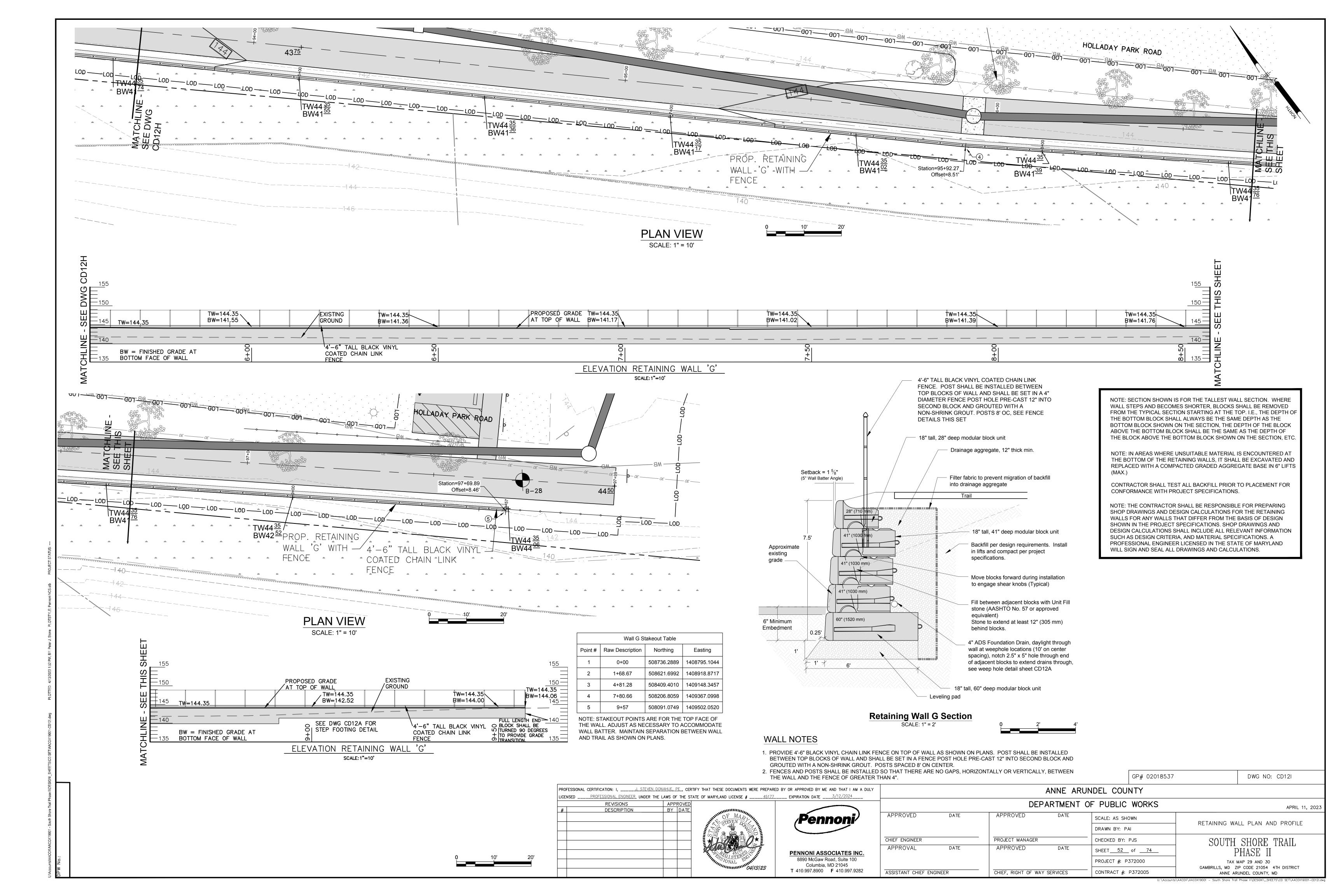
THE WALL AND THE FENCE OF GREATER THAN 4".

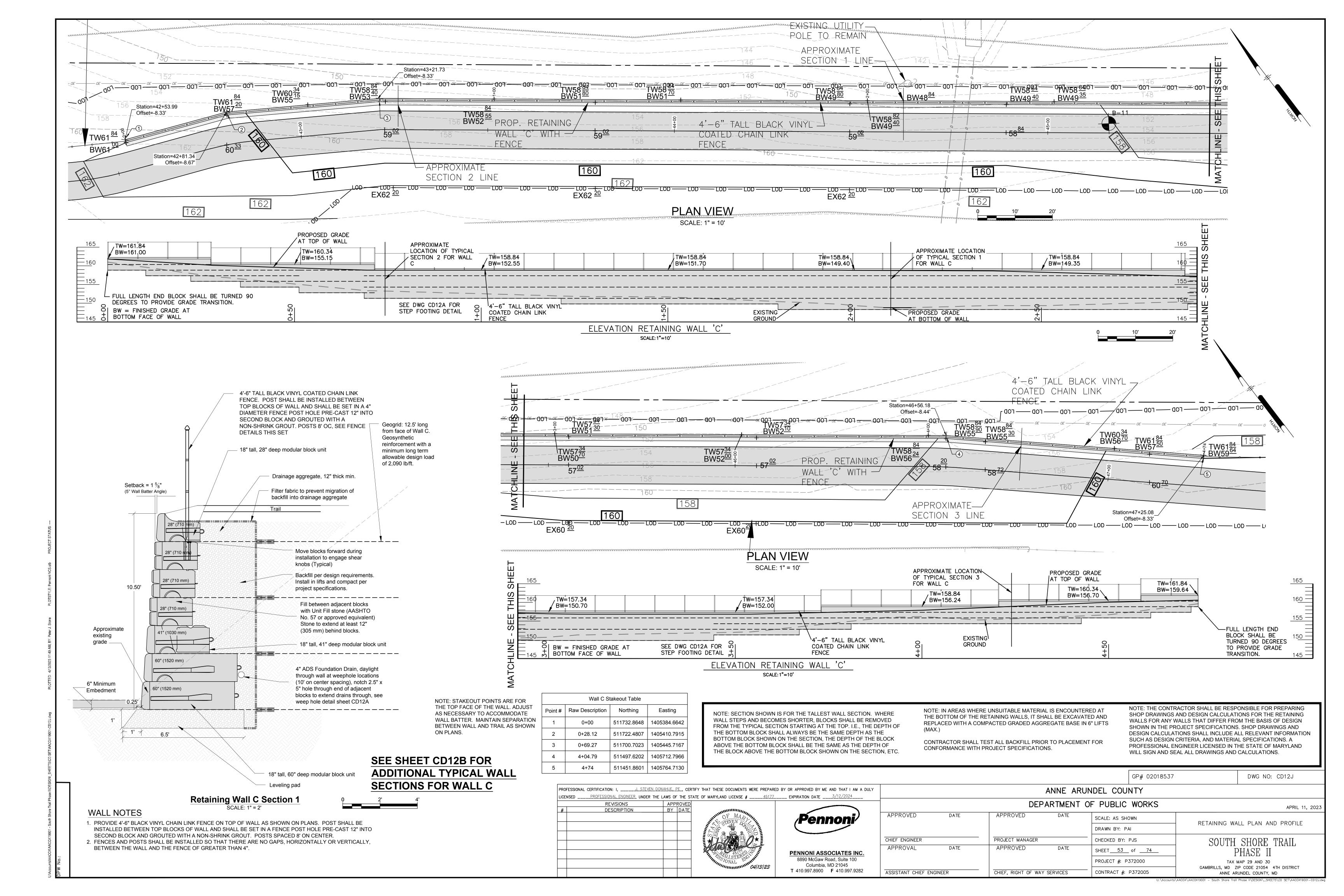
BETWEEN TOP BLOCKS OF WALL AND SHALL BE SET IN A FENCE POST HOLE PRE-CAST 12" INTO SECOND BLOCK AND

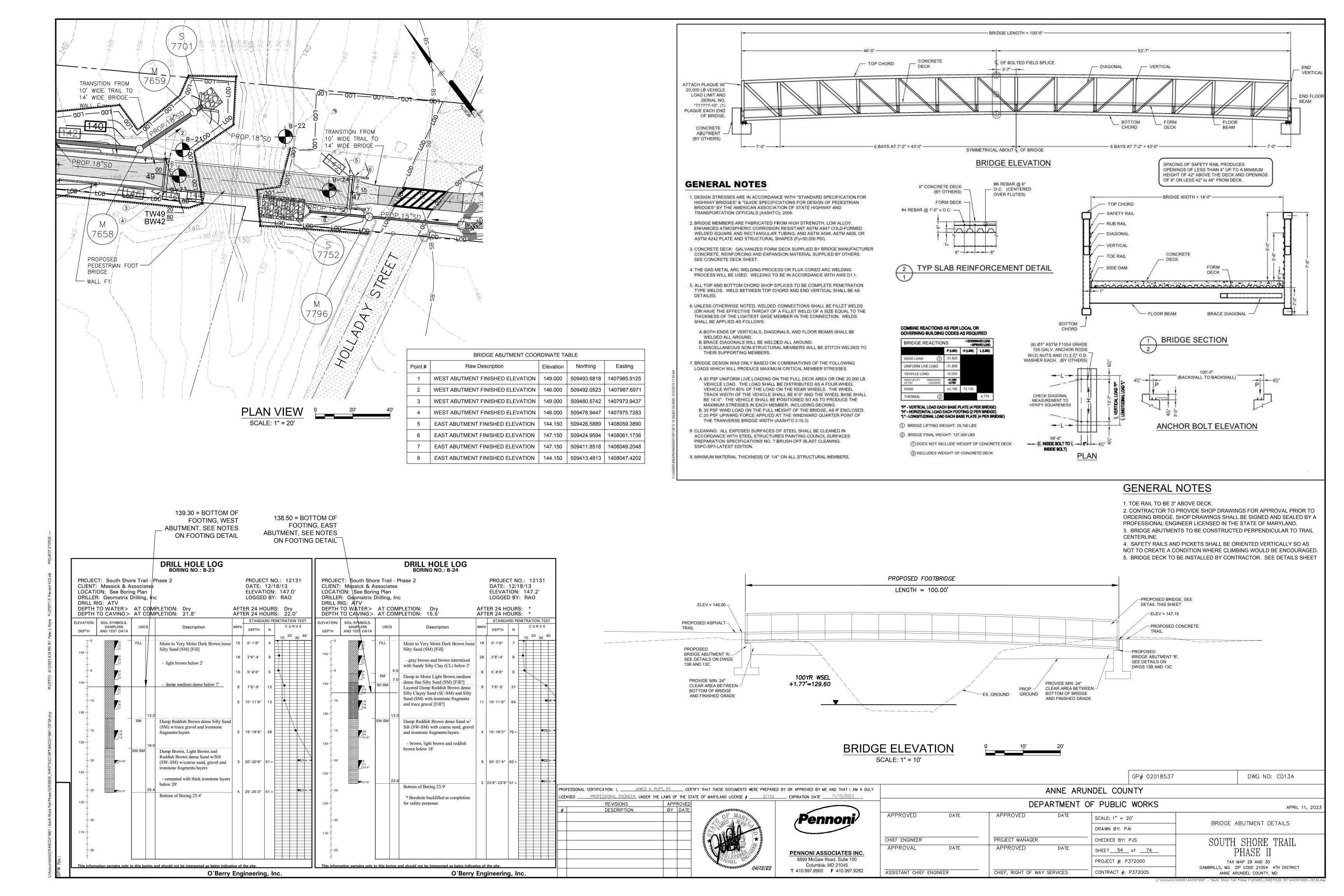
U:\Accounts\AACOX\AACOX19001 - South Shore Trail Phase II\DESIGN_SHEETS\CD SETV | DPW No.:

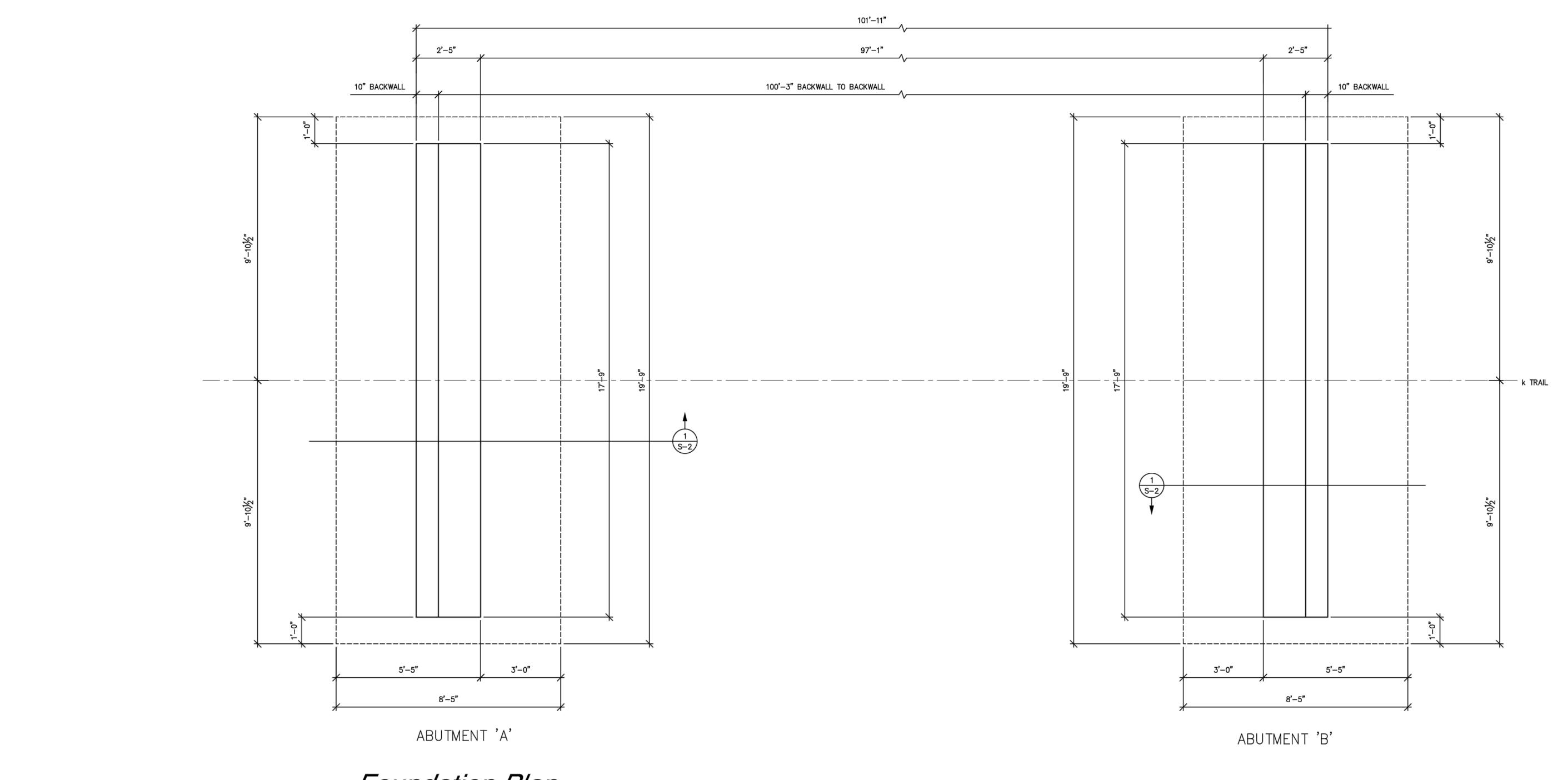












Foundation Plan

1/2" = 1'-0"

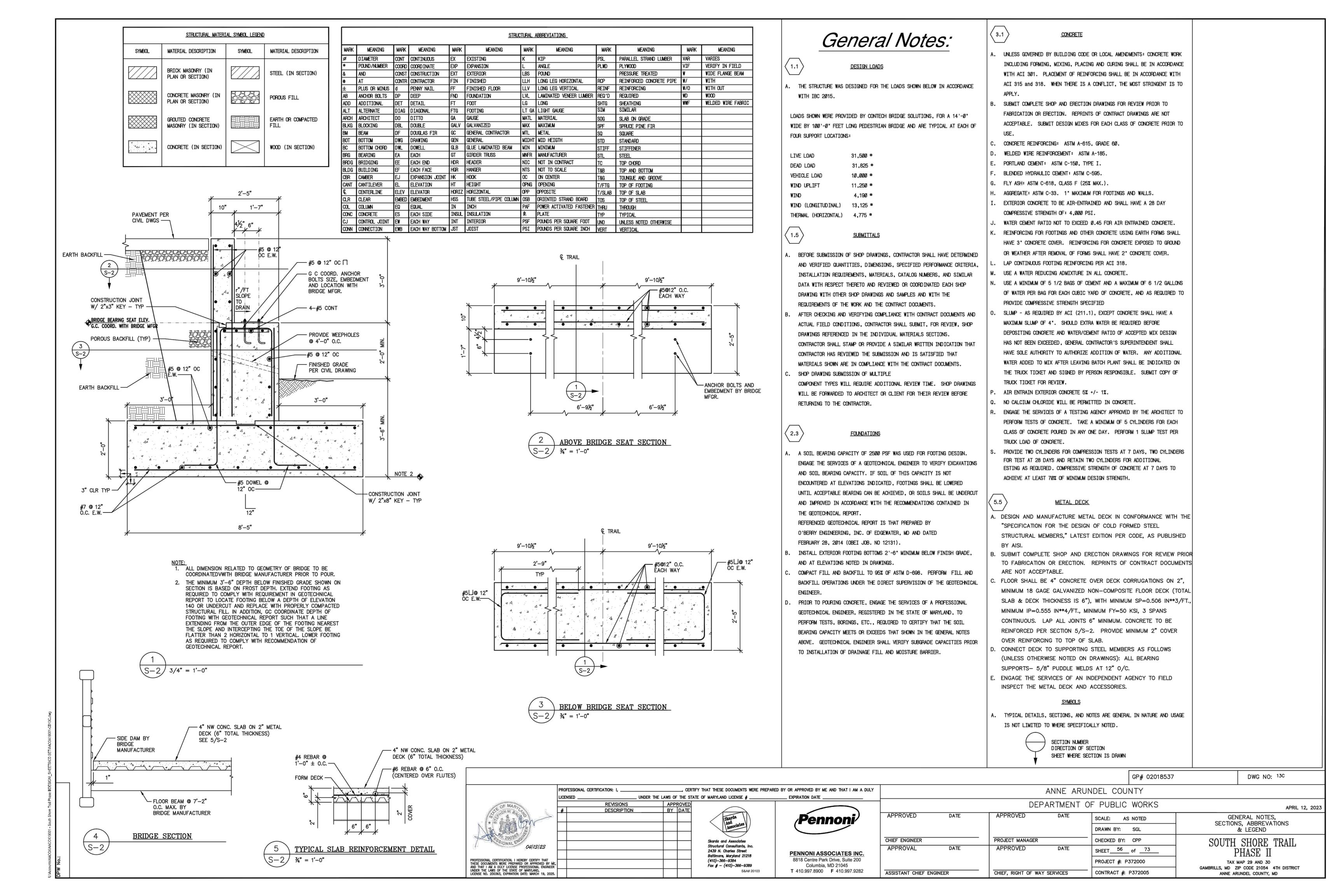
0 4' 8' 16'

NOTES:

1. REMOVE LOOSE FILL TO DEPTHS REQUIRED TO ACHIEVE ASSUMED BEARING PRESSURES PER RECOMMENDATIONS OF GEOTECHNICAL REPORT & PROVIDE COMPACTED FILL TO FOOTING BEARING ELEVATIONS.

GP# 02018537 DWG NO: 13B ANNE ARUNDEL COUNTY _____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY __ UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # __ _ EXPIRATION DATE __ DEPARTMENT OF PUBLIC WORKS REVISIONS DESCRIPTION APRIL 12, 2023 APPROVED FOUNDATION PLAN DRAWN BY: SGL SOUTH SHORE TRAIL PHASE II CHIEF ENGINEER PROJECT MANAGER Skarda and Associates
Structural Consultants, Inc.
2439 N. Charles Street
Baltimore, Maryland 21218
(410)-366-9384
Fax # - (410)-366-9389 CHECKED BY: CPP APPROVAL DATE APPROVED SHEET___55__ of __73___ PENNONI ASSOCIATES INC. 8818 Centre Park Drive, Suite 200 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT
THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME,
AND THAT I AM A DULY LICENSE PROFESSIONAL ENGINEER
UNDER THE LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 200363, EXPIRATION DATE: MARCH 19, 2025. TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ANNE ARUNDEL COUNTY, MD PROJECT #: P372000 Columbia, MD 21045 T 410.997.8900 F 410.997.9282 ASSISTANT CHIEF ENGINEER CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005

unts/AACOX/AACOX/9001 - South Shore Trail Phase IliDESIGN SHEETS/CD SETAACOX/9001



SOUTH SHORE TRAIL

GENERAL NOTES

- This structure has been designed in accordance with the project architects plan layout and guidelines. Suitability for access and intended usage shall be the responsibility of the architect.
- Vehicular access larger than the design live load shall be limited by permanent physical means.
- 3. Prior to construction the contractor shall verify all elevations through the project architect.
- These plans were prepared by Permatrak North America for this specific site. Any alternate to these plans must meet the requirements for alternates as described in the bid documents.

DESIGN DATA

 Boardwalk shall be designed in accordance with the AASHTO LRFD bridge design specifications and the LRFD guide specification for the design of pedestrian bridges.

Design Live Load: Pedestrian Loading - 90 psf Uniform

Vehicular Loading - H-10 Truck (20,000 lb Vehicle Load)

- Abutments and piers shall be designed for lateral earth pressure, live load surcharge and structure loads.
 Allowable bearing pressure: 3,000 psf. (Contractor To Verify)
- All geotechnical recommendations contained in the report of subsurface investigation shall be followed. Report titled "Geotechnical Investigation" was dated May 9, 2017 and produced by O'Berry Engineering, Inc.

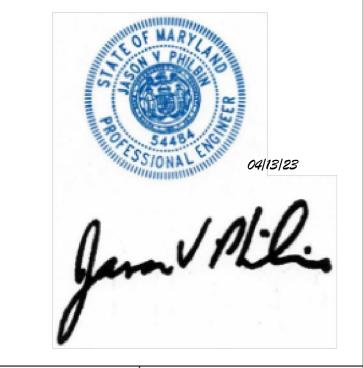
MATERIALS

- All bolts, nuts, washers, and hardware shall be hot dipped galvanized after fabrication in accordance with ASTM A153.
- Cast-in-place concrete shall have a 28-day concrete compressive strength of 4000 psi.
- All foundation reinforcing shall be Grade 60 conforming to ASTM A615.

QUALITY ASSURANCE SPECIFICATIONS

- 1. Acceptability Criteria for Treads and Curbs (if applicable): The finished visible (in the final installed position) surface shall have no obvious imperfections other than minimal color or texture variations from the approved samples or evidence of repairs when viewed in good typical daylight illumination with the unaided naked eye at a 20 ft. viewing distance. Appearance of the surface shall not be evaluated when light is illuminating the surface from an extreme angle as it tends to accentuate the minor surface irregularities. The following is a list of finish defects that shall be properly repaired, if obvious when viewed at a 20 ft. distance. Patching (by a trained skilled concrete repair person) is an acceptable repair method.
- a. Ragged or irregular surfaces.
- b. Excessive air voids (commonly called bug holes) larger than ¼ in. evident on the top surface of the tread or curbs (if applicable).
- Adjacent flat and return surfaces with greater texture and/or color differences than the approved samples or mockups.
- d. Casting and/or aggregate segregation lines evident from different concrete placement lifts and consolidation.
- e. Visible mold joints or irregular surfaces.
- f. Rust stains on exposed surfaces.
- g. Units with excessive variation in texture and/or color from the approved samples, within the unit or compared with adjacent units.
- h. Blocking stains evident on exposed surfaces.
- i. Areas of backup concrete bleeding through the facing concrete.
- j. Foreign material embedded in the surface.
- k. Visible repairs at a 20 ft. viewing distance.l. Reinforcement shadow lines.
- m. Cracks visible at a 20 ft. viewings distance.

,	
	PROJECT COMPONENTS
	PRECAST CONCRETE TREADS
RAK	PRECAST CONCRETE ABUTMENTS
PERMATRAK	PRECAST CONCRETE BEAMS
PER	RUBBER LEVELING PADS
) BY	4x4 TIMBER POST BRACKET AND CONNECTION HARDWARE
SUPPLIED	COMPOSITE CLIP ANGLES WITH 3/4" DIAMETER RODS, WASHERS AND NUTS (6x6x3/8x0'-4")
SUPF	3/4" DIAMETER THREADED BARS WITH NUTS AND WASHERS (BEAM TO PIER CONNECTION)
	3/4" DIAMETER THREADED BARS WITH NUTS AND WASHERS (BEAM TO ABUTMENT CONNECTION)
	CAST-IN-PLACE CONCRETE PIER FOUNDATIONS
BY TOR	HILTI HY-200 EPOXY ADHESIVE (ANCHORING SYSTEM CONNECTION)
PLIE	SHIMS AND NON-SHRINK GROUT (LEVELING FOR PRE-CAST COMPONENTS)
SUPPLIED	RAILING AND CONNECTION HARDWARE
"	UNREINFORCED CONCRETE (2000 PSI MINIMUM COMPRESSIVE STRENGTH)

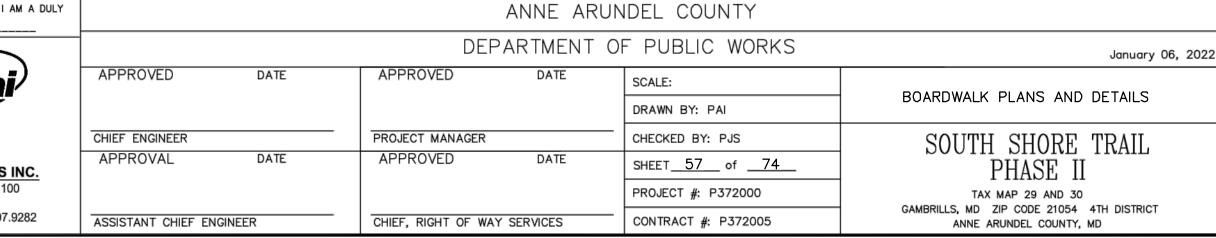


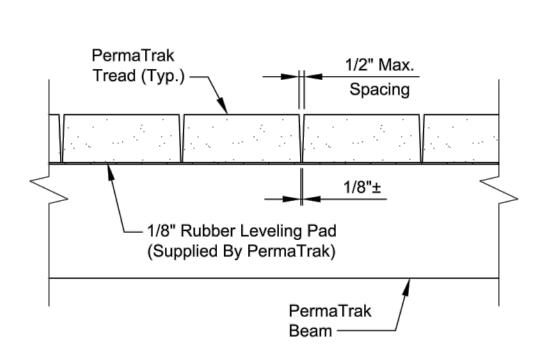
GP# _____ DWG NO: CD14A



SIONAL CERTIFICATION: I,Jason V. Philbin		, CER	TIFY THAT THESE DOCUMENTS WERE PREPARE	D BY OR APPROVED BY ME AND THAT I
Professional Engineer UNDER THE L	AWS OF	THE ST	ATE OF MARYLAND LICENSE # _54484	EXPIRATION DATE 6/4/2025
REVISIONS	APP	ROVED		(A)
DESCRIPTION	BY	DATE		
vised As Per Reviewer Comments's	нв	08/24/21		∕Pennoni
vised Threaded Bar Length and	JVP	01/06/22		
bedment Depth				
				PENNONI ASSOCIATES
				8890 McGaw Road, Suite 10
				Columbia, MD 21045

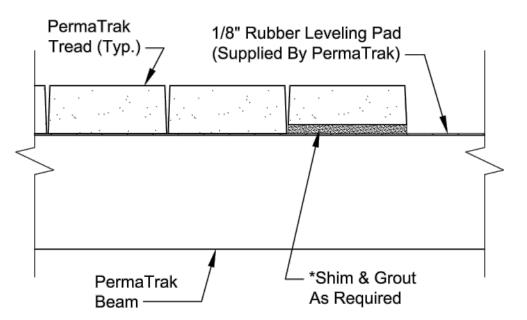
T 410.997.8900 F 410.997.9282





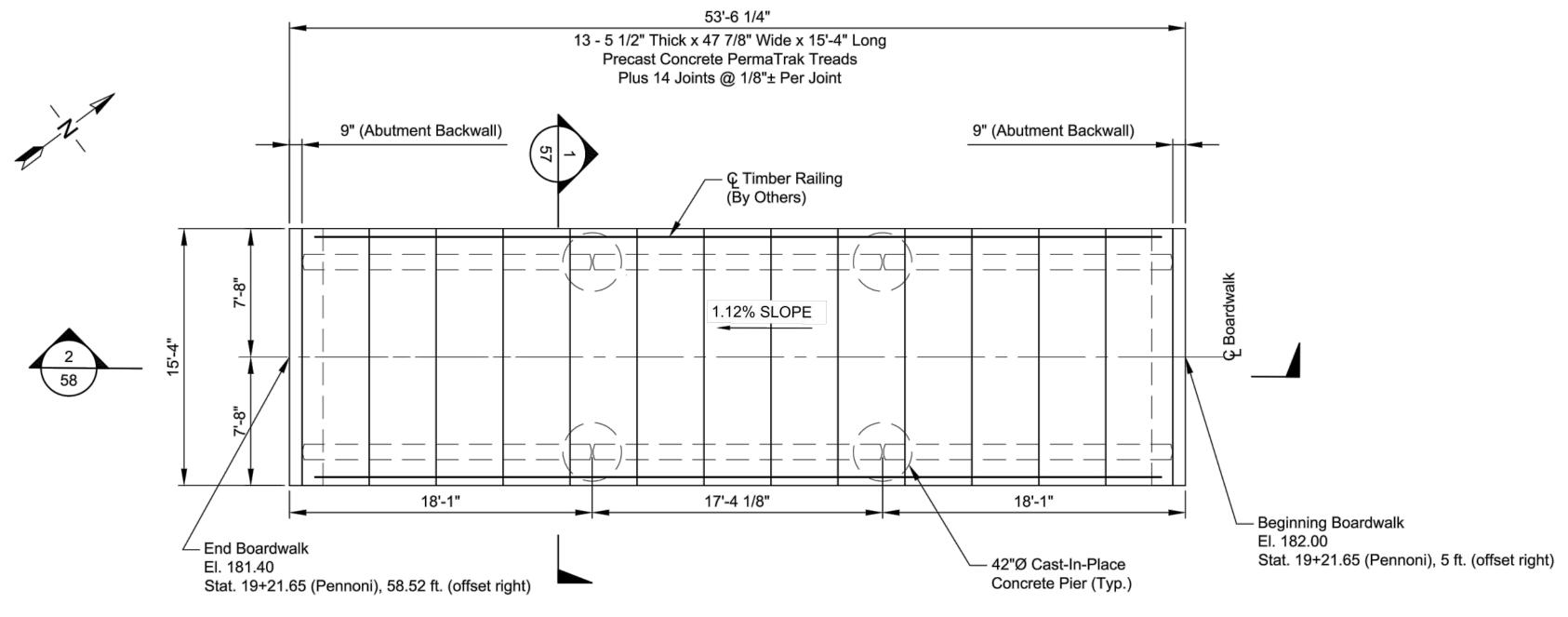
TYPICAL TREAD SPACING DETAIL

Scale: Not To Scale

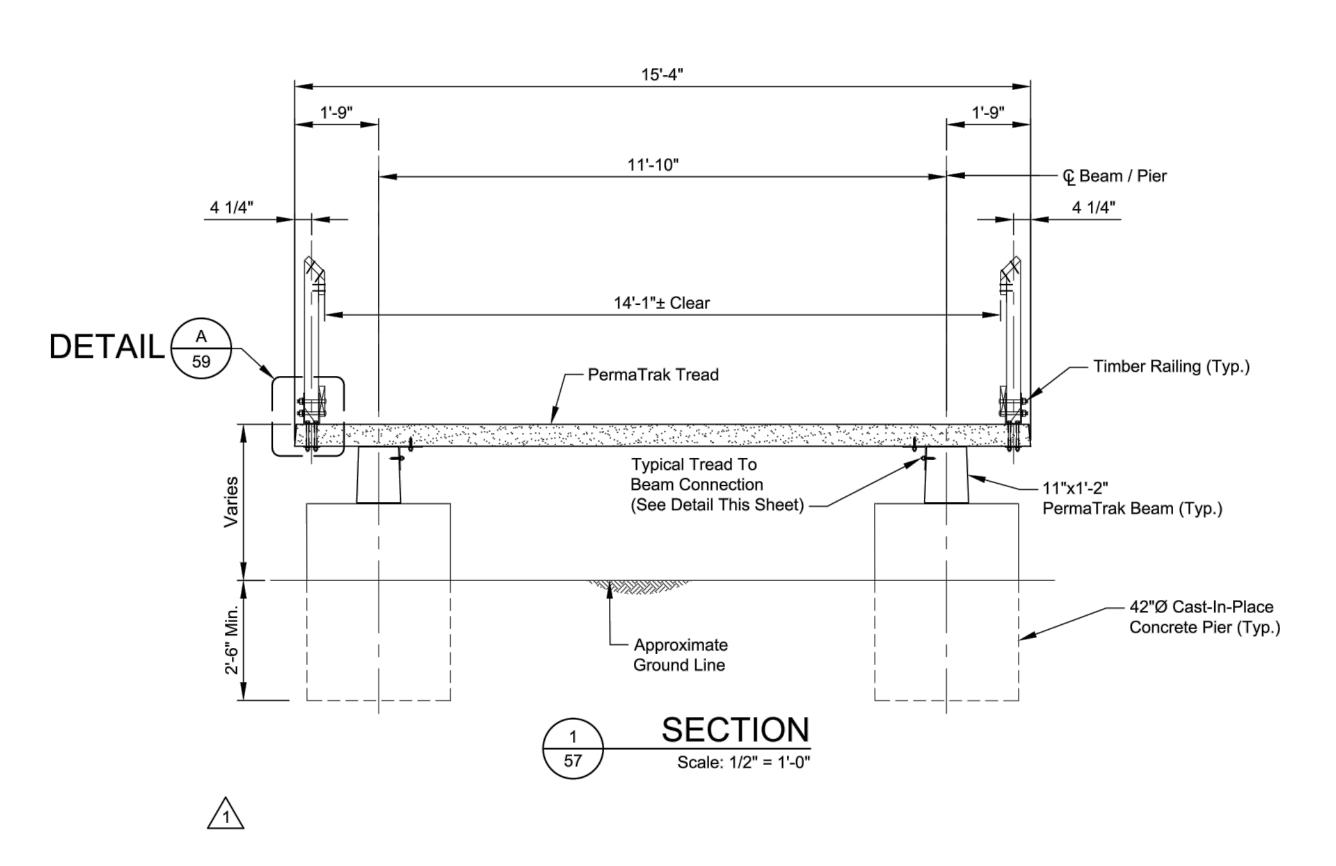


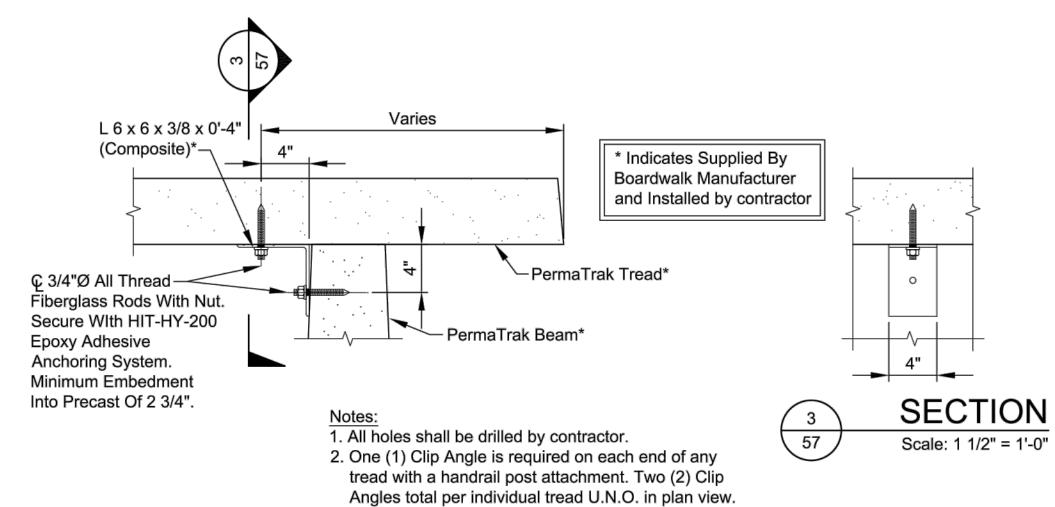
*Note:
Due to tolerances and variance in precast production and installation accuracy, shimming and grouting may be required. Where required the entire bearing area and void shall be shim and grouted.

TYPICAL SHIM/GROUT DETAIL (UNDER TREAD) Scale: Not To Scale



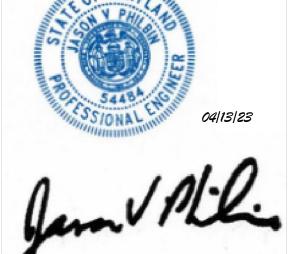
BOARDWALK PLAN Scale: 3/16" = 1'-0"





TREAD TO BEAM CONNECTION

Scale: Not To Scale



						GP#		DWG NO: CD14B
PROFESSIONAL CERTIFICATION: I,			ANNE ARUNDEL COUNTY					
REVISIONS APPROVED BY DATE		-		DEP	ARTMENT (OF PUBLIC WORKS		January 06, 2022
1 Revised As Per Reviewer Comments's HB 08/24/21	/Pennoni ⁾	APPROVED	DATE	APPROVED	DATE	SCALE:	DOADDWALK	/ DI ANG AND DETAILS
2 Revised Threaded Bar Length and JVP 01/06/22						DRAWN BY: PAI	BOARDWALK PLANS AND DETAILS	
Embedment Depth		CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: PJS	SOUTH	SHORE TRAIL
		APPROVAL	DATE	APPROVED	DATE	SHFFT 58 of 74	l .	DILYGE II

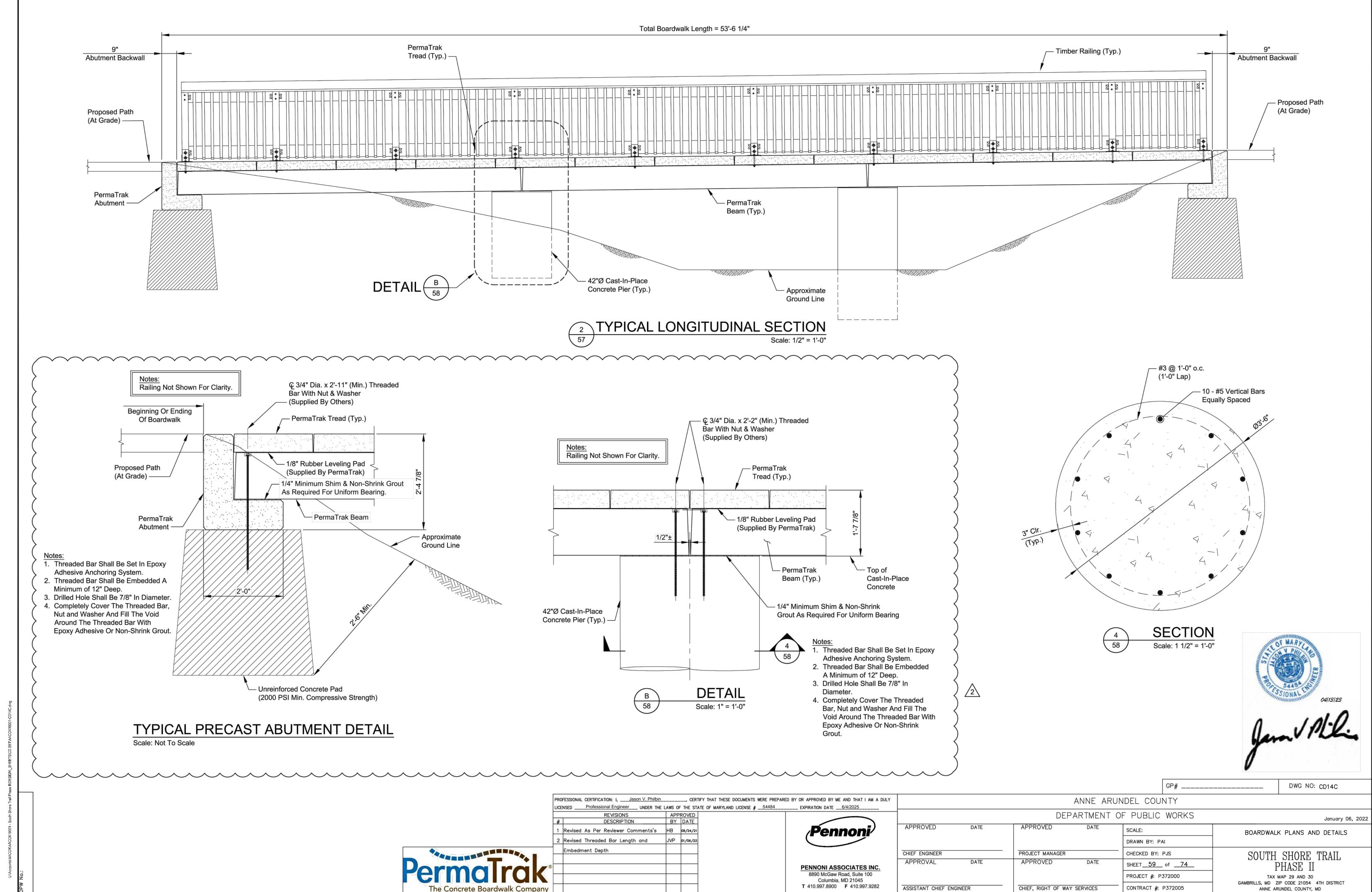
ASSISTANT CHIEF ENGINEER

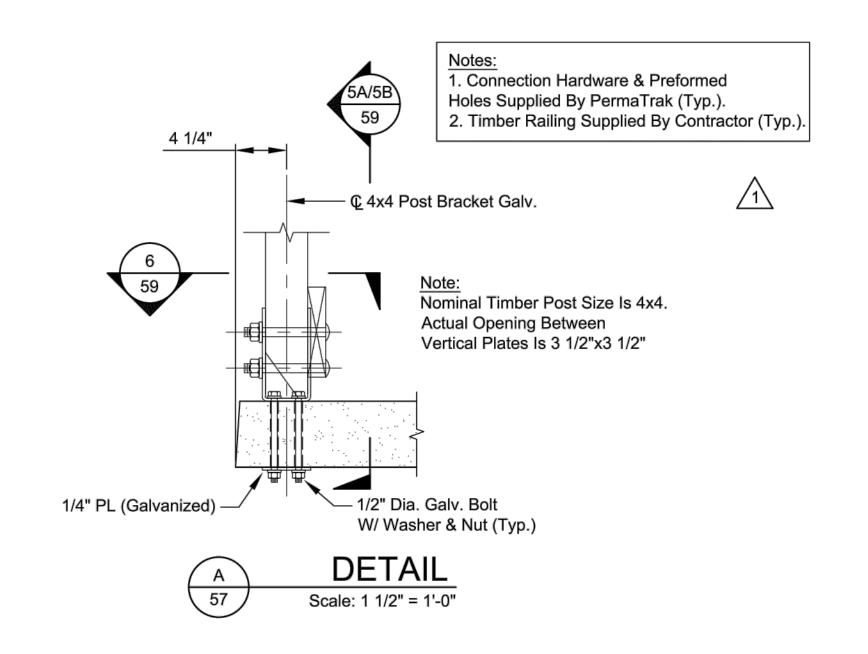
2 Revised Threaded Bar Leng Embedment Depth

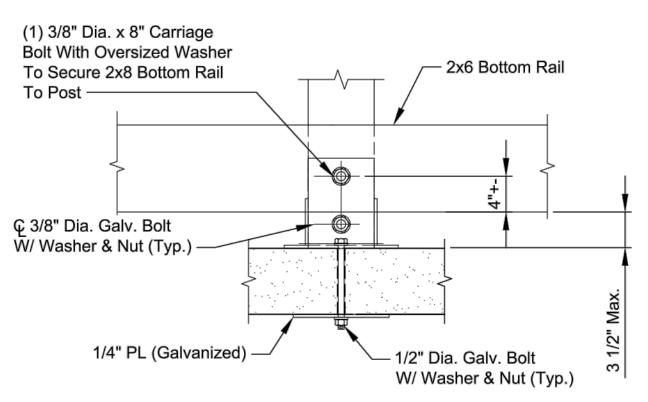
PENNONI ASSOCIATES INC. 8890 McGaw Road, Suite 100 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

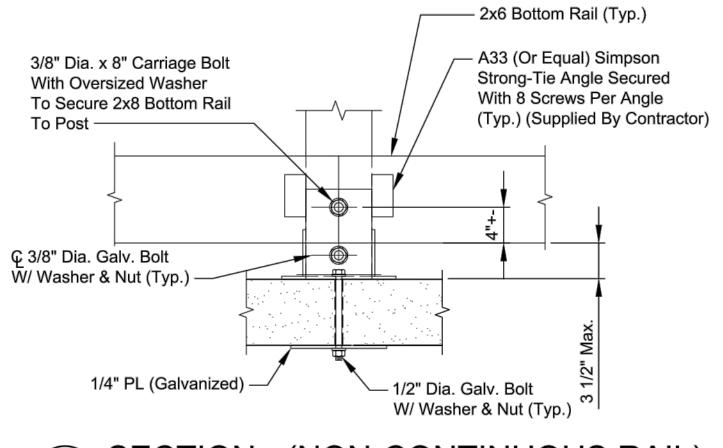
APPROVED SHEET 58 of 74 PROJECT #: P372000 CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005

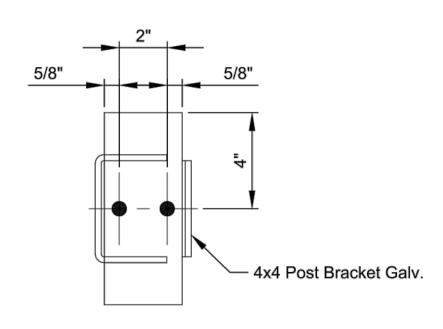
PHASE II TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ANNE ARUNDEL COUNTY, MD









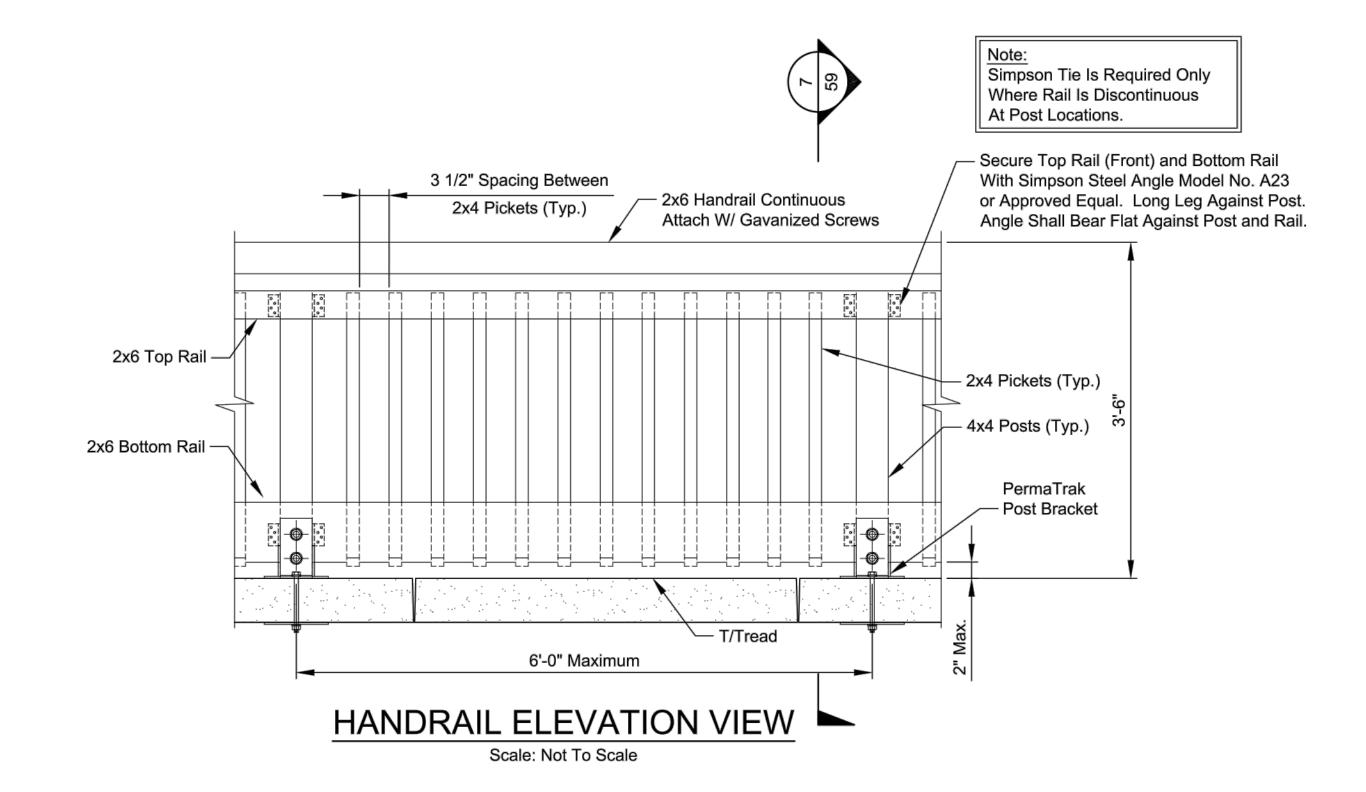


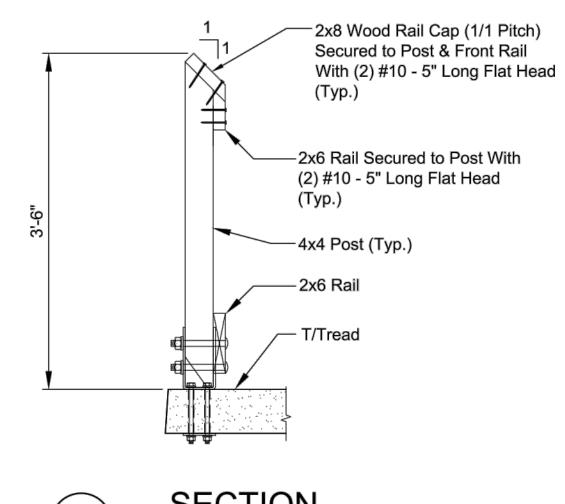
SECTION - (CONTINUOUS RAIL)

Scale: 3" = 1'-0"

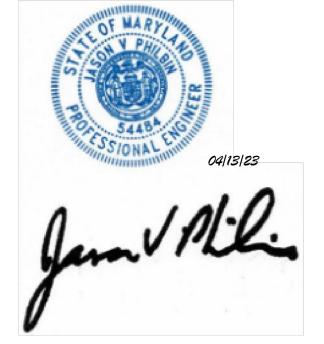
SECTION - (NON-CONTINUOUS RAIL)
Scale: 3" = 1'-0"







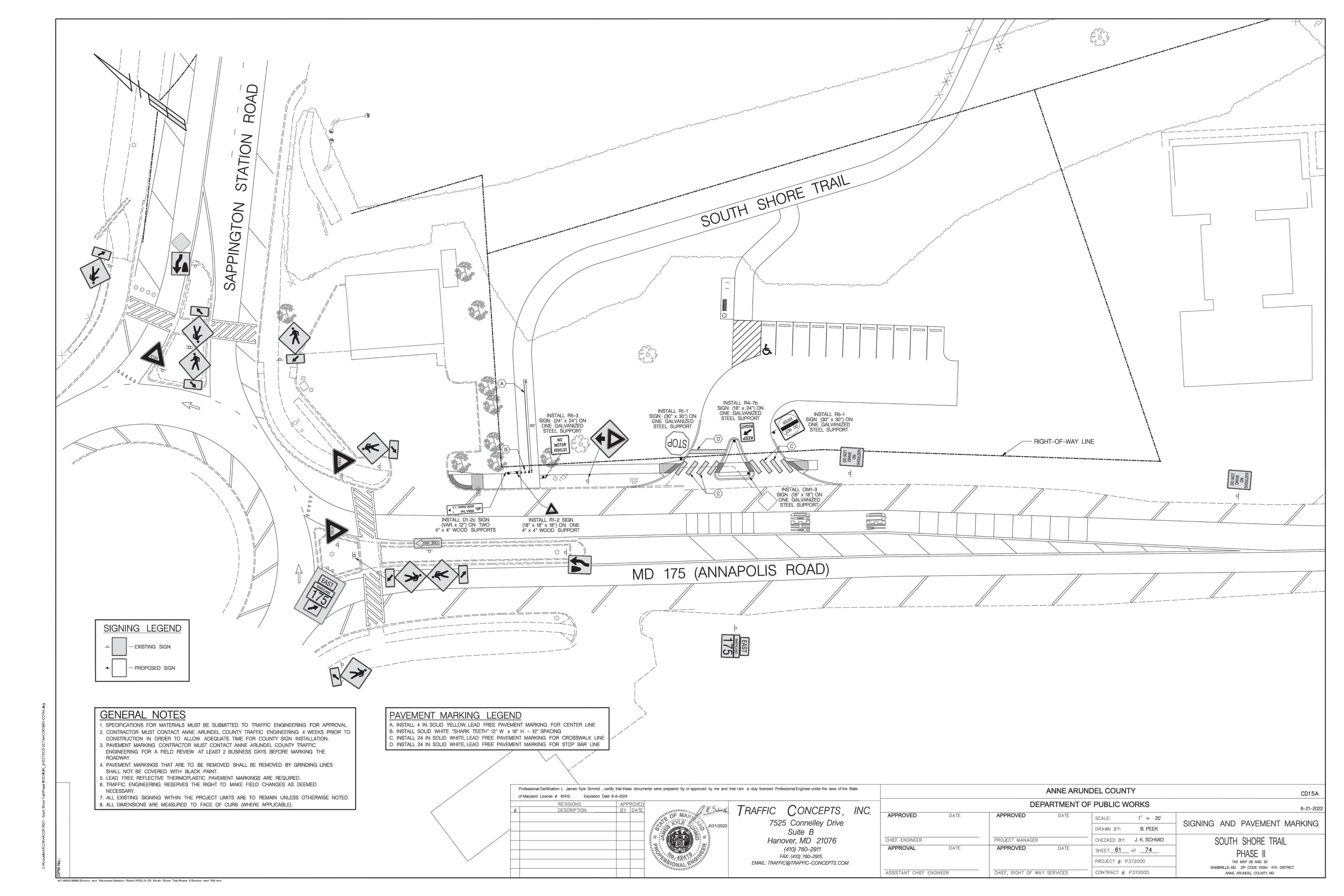


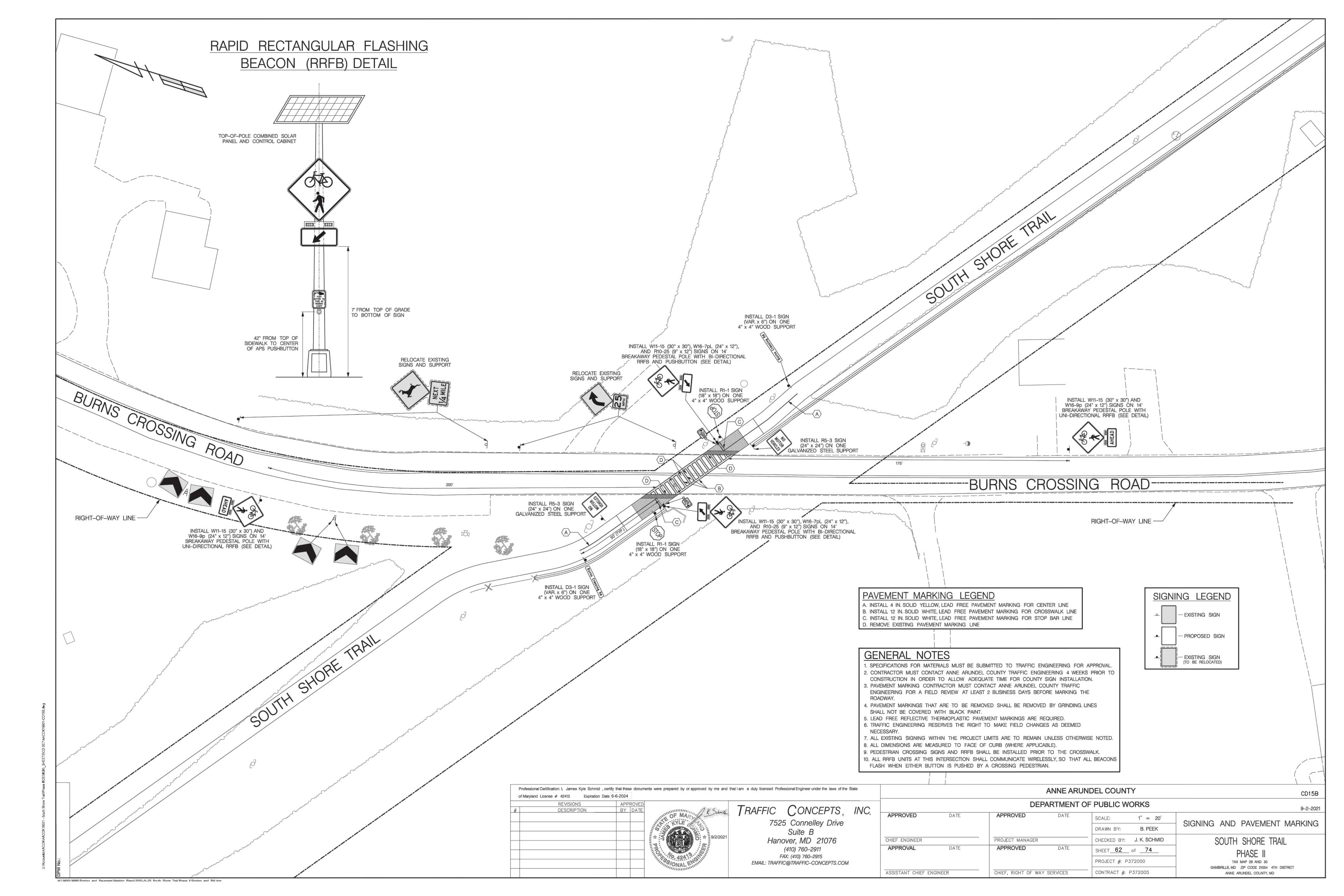


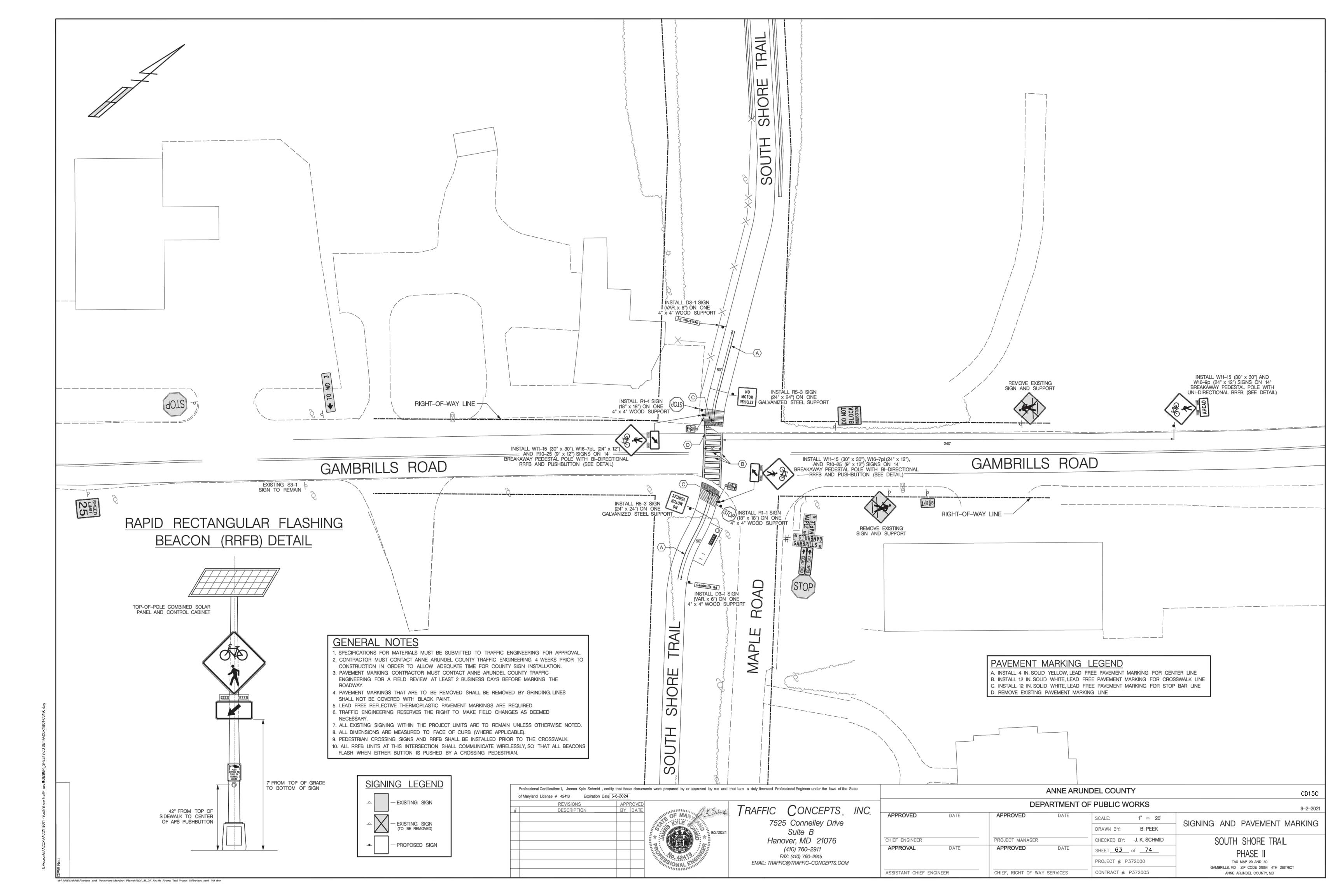
GP# _____ DWG NO: CD14D

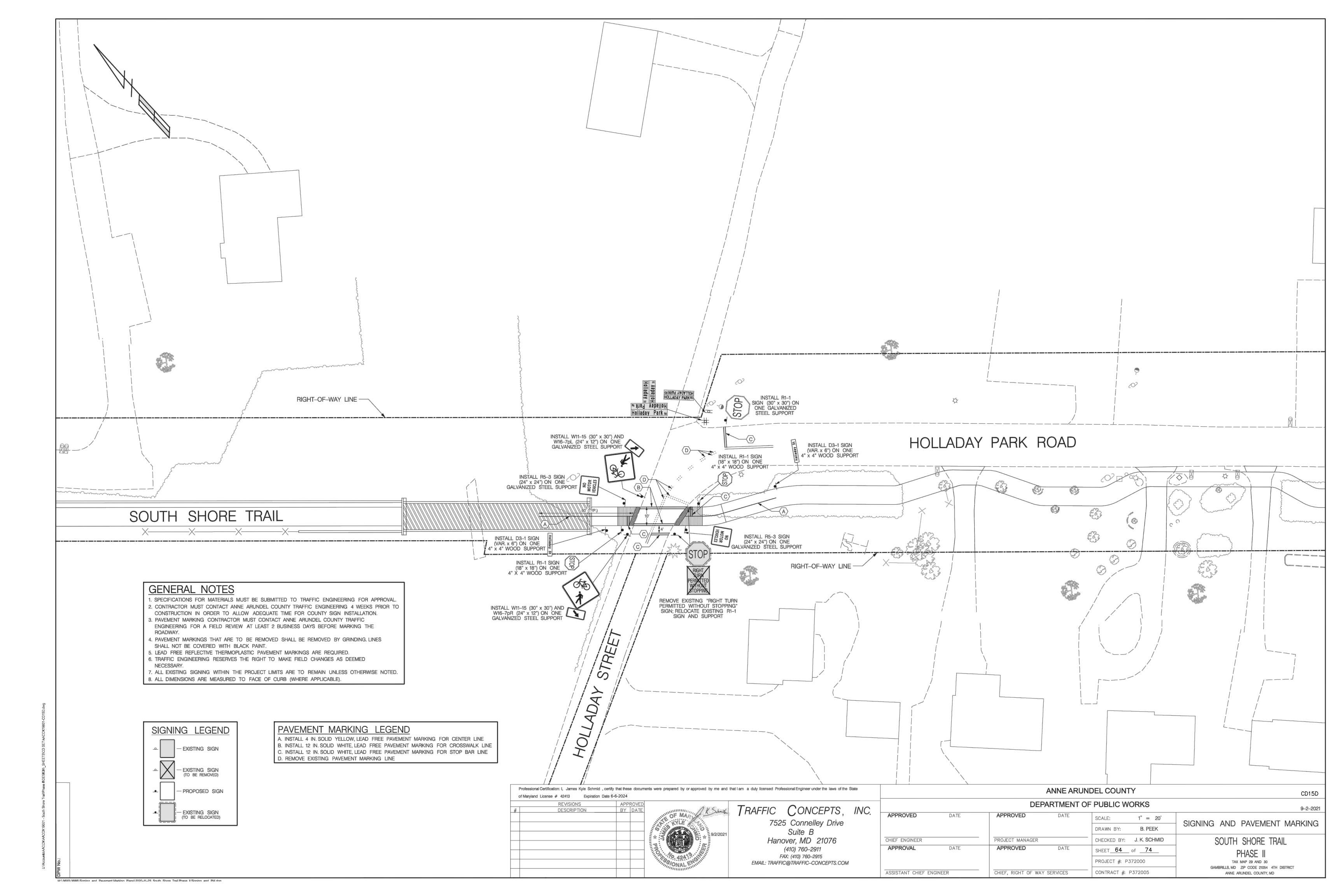


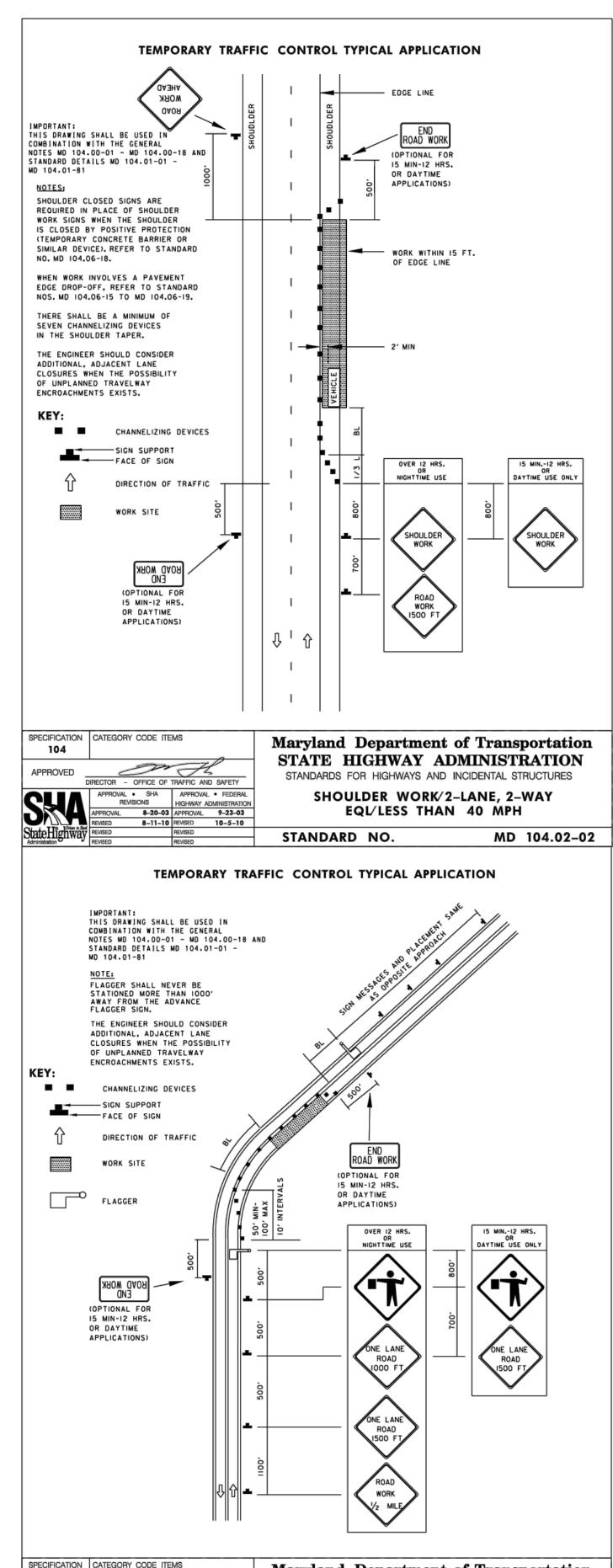
U:\Accounts\AACOX\AACOX19001 - South Shore Trail Phase INDESIGN_SHEETS\CD SET\AACOX19001 -











Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

FLAGGING OPERATION/2-LANE, 2-WAY

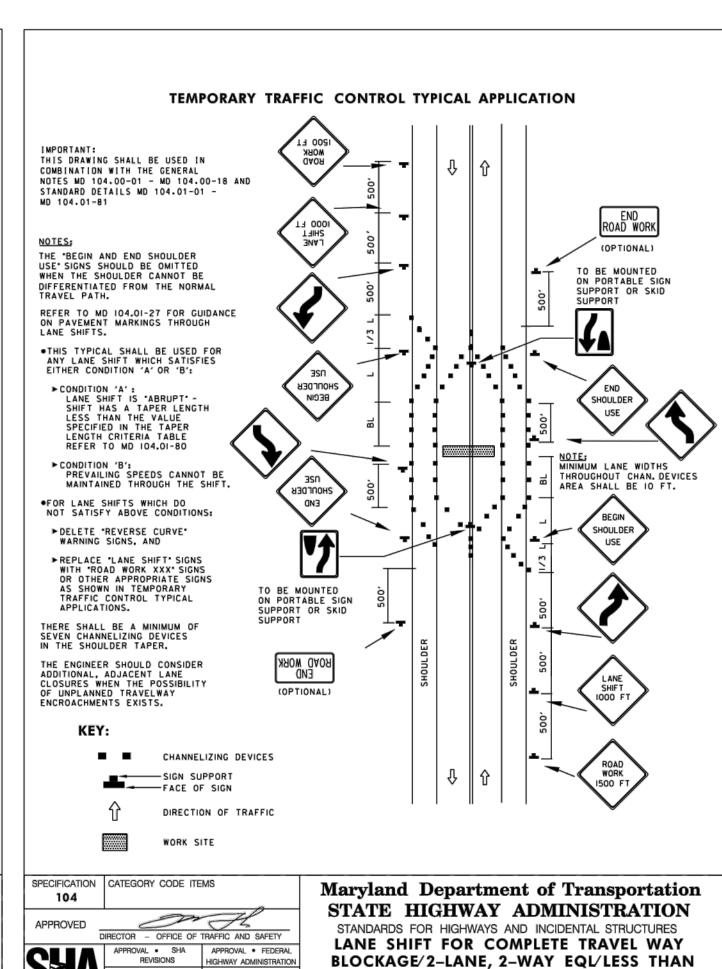
EQL/LESS THAN 40 MPH

MD 104.02-10

STANDARD NO.

DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

REVISIONS



40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY

MD 104.02-08

STANDARD NO.

IN ADDITION TO THE COUNTY TRAFFIC CONTROL DETAILS SHOWN ON THIS SHEET, THE FOLLOWING SHA TRAFFIC CONTROL DETAILS SHALL BE UTILIZED:

- 1. MD 104-01.28 2. MD 104.02-01
- 3. MD 104.02-05 4. MD 104.02-09

5. MD 104.02-14

FOR ALL MDOT/MSHA STANDARDS REFERRED TO ON THE PLANS, THE CONTRACTOR MUST GO TO THE BOOK OF STANDARDS WHICH

WILL HAVE THE MOST CURRENT VERSION. THE BOOK OF

STANDARDS CAN BE ACCESSED AT: HTTPS://APPS.ROADS.MARYLAND.GOV/BUSINESSWITHSHA/BIZSTDSSPECS/ DESMANUALSTDPUB/PUBLICATIONSONLINE/OHD/BOOKSTD/INDEX.ASP

ANNE ARUNDEL COUNTY - TRAFFIC **ENGINEERING** TRAFFIC CONTROL PLAN GENERAL NOTES

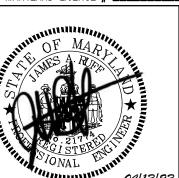
GENERAL NOTES FOR TEMPORARY TRAFFIC CONTROL PLANS FOR SUBDIVISION PROJECTS - 5/1/15

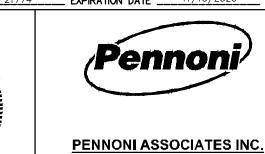
- 1. ANNE ARUNDEL COUNTY SHALL BE NOTIFIED AT LEAST TWO BUSINESS DAYS PRIOR TO BEGINNING ANY WORK IN ORDER TO SCHEDULE A FIELD INSPECTION OF TRAFFIC CONTROL DEVICES. NOTIFY INSPECTIONS AND PERMITS AT EITHER 410-222-7794 OR 410-222-7542.
- ALL CONSTRUCTION AND MATERIALS FOR THE TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS CONTAINED IN THE LATEST EDITION OF THE STATE OF MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- 3. NO WORK SHALL BE PERFORMED IN THE ROADWAY FROM __:00 AM TO __:00 AM AND/OR FROM __:00 PM TO __:00 PM.
- 4. TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH. WHEN ONLY ONE LANE IS OPEN, FLAGGERS AND THE APPROPRIATE SIGNING SHALL BE PROVIDED. THE ROADWAY SHOULD BE REOPENED TO TWO LANES AT NIGHT.
- REFLECTORIZED TRAFFIC DRUMS SHALL BE USED AS CHANNELIZING DEVICES AT NIGHT ALONG THE CONSTRUCTION AREA.
- 6. IF A DROP-OFF MEASURES GREATER THAN 2", A BARRIER OR 2:1 SLOPE OF COMPACTED CRUSH-RUN GRAVEL WILL BE REQUIRED.
- 7. PAVEMENT DISRUPTIONS OF ONE INCH (1") OR GREATER SHALL BE RAMPED WITH A BEVELED EDGE OF FOUR HORIZONTAL TO ONE VERTICAL (4:1).
- 8. ALL OPEN TRENCHES SHALL BE CLOSED AT THE END OF EACH DAY. IF STEEL PLATES ARE TO BE USED, APPROPRIATE SIGNING WILL BE REQUIRED. STEEL PLATES MUST ADHERE TO DESIGN STANDARDS STEEL PLATES MUST BE PINNED. STEEL PLATES ON ARTERIAL ROADWAYS MUST BE RECESSED, AS MUST ALL STEEL PLATES TO BE PLACED FOR MORE THAN 24 HOURS BETWEEN DECEMBER AND MARCH. ALL OTHER STEEL PLATES MUST BE RAMPED.
- 9. CONTRACTOR SHALL INSTALL "CAUTION STEEL PLATES AHEAD" SIGNS IN ADVANCE OF STEEL PLATE BRIDGING.
- 10. ALL TEMPORARY SIGNS THAT DO NOT APPLY SHALL BE COVERED OR
- 11. CHANNELIZING DEVICES AND TEMPORARY STRIPING SHALL BE REMOVED AS SOON AS PRACTICAL.
- 12. ALL TRAFFIC CONTROL DEVICES SHALL BE KEPT IN THEIR PROPER POSITION AT ALL TIMES, AND SHALL BE REPAIRED, REPLACED, OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY.

- 13. ACCESS SHALL BE PROVIDED TO ALL EXISTING DRIVEWAYS AT ALL TIMES UNLESS COVERED BY THE APPROVED TRAFFIC CONTROL PLAN.
- 14. ALL CONES AND FLAGMEN SHALL BE MOVED ACCORDINGLY AS CONSTRUCTION PROGRESSES.
- 15. ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE TYPICAL SIGN PLACEMENT SHOWN ON THESE PLANS AND SHALL NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
- 16. ANY CHANGES TO THE TCP SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION FOR REVIEW AND APPROVAL. REQUESTS FOR DETOURS AND ROAD CLOSURES SHALL BE SUBMITTED TO RIGHT OF WAY MANAGEMENT SECTION.
- 17. THE CONTRACTOR MUST CONTACT TRAFFIC ENGINEERING FOR APPROVAL PRIOR TO PLACEMENT OF ANY TEMPORARY PARKING RESTRICTIONS. IF RESTRICTIONS ARE APPROVED, THE CONTRACTOR MUST NOTIFY ALL AFFECTED RESIDENTS AT LEAST 48 HOURS IN ADVANCE AND MUST SUPPLY AND INSTALL ALL NECESSARY SIGNING.
- 18. CONSTRUCTION & WORKER'S VEHICLES SHALL NOT BE PARKED IN A MANNER THAT WILL IMPEDE TRAFFIC OR IMPAIR SIGHT DISTANCE. THESE VEHICLES SHOULD BE PARKED OFF-STREET ON THE CONSTRUCTION SITE OR ON A SIDE STREET NOT UNDER CONSTRUCTION.
- 19. CONTRACTORS SHALL ADHERE TO ANNE ARUNDEL COUNTY'S, DEPARTMENT OF PUBLIC WORKS, DESIGN MANUAL AND STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, SECTION VLLL -TRAFFIC CONTROL.
- 20. ALL WORK SHALL BE PERFORMED ON DAYS WHEN THE COUNTY'S DEPARTMENT OF PUBLIC WORKS IS OPEN FOR BUSINESS.

GP# 02018537 DWG NO: CD16A

PROFESSIONAL CERTIFICATION: I, _____ JAMES A. RUFF, PE____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY LICENSED _____PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____21774 ____ EXPIRATION DATE ____11/10/2023 REVISIONS DESCRIPTION





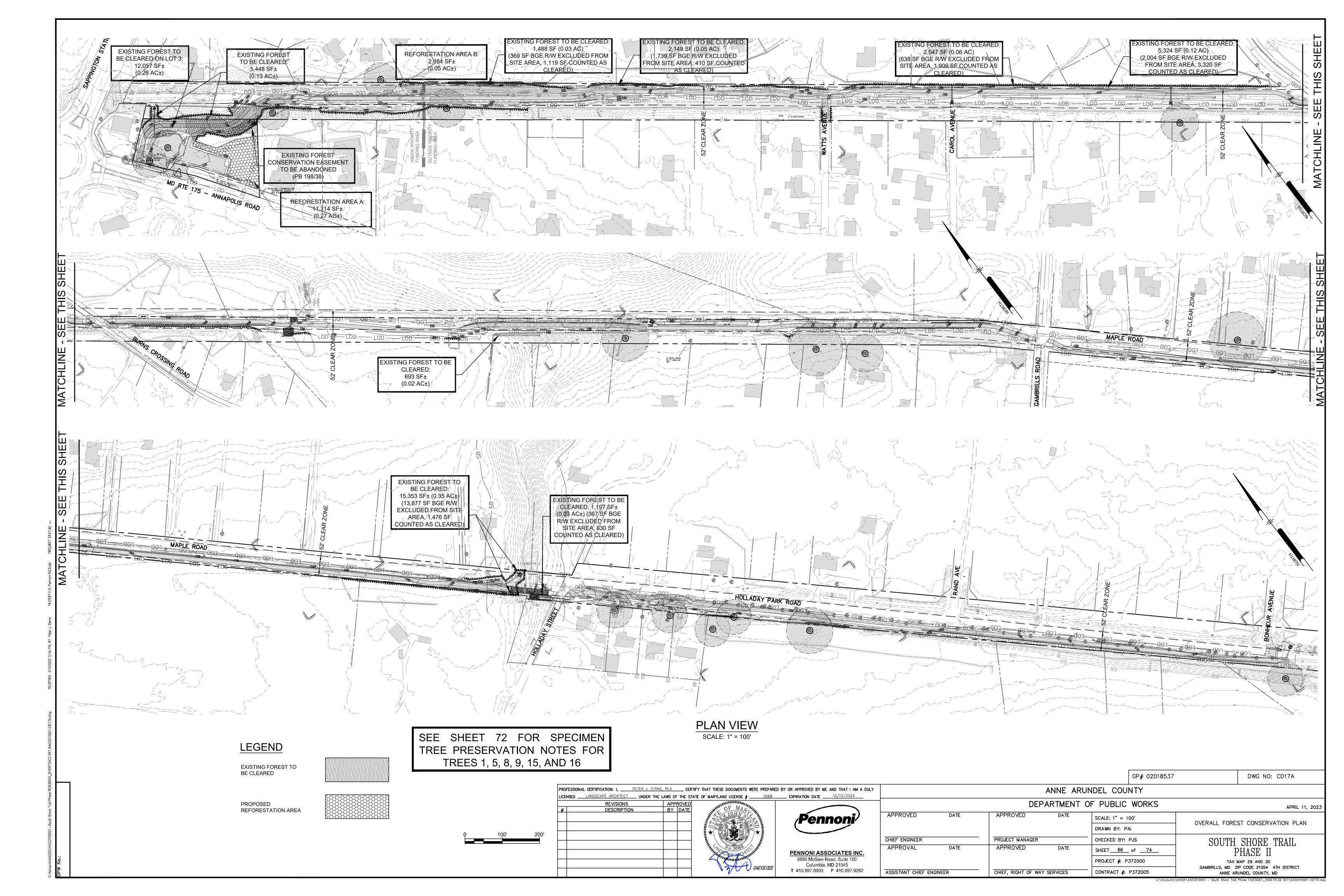


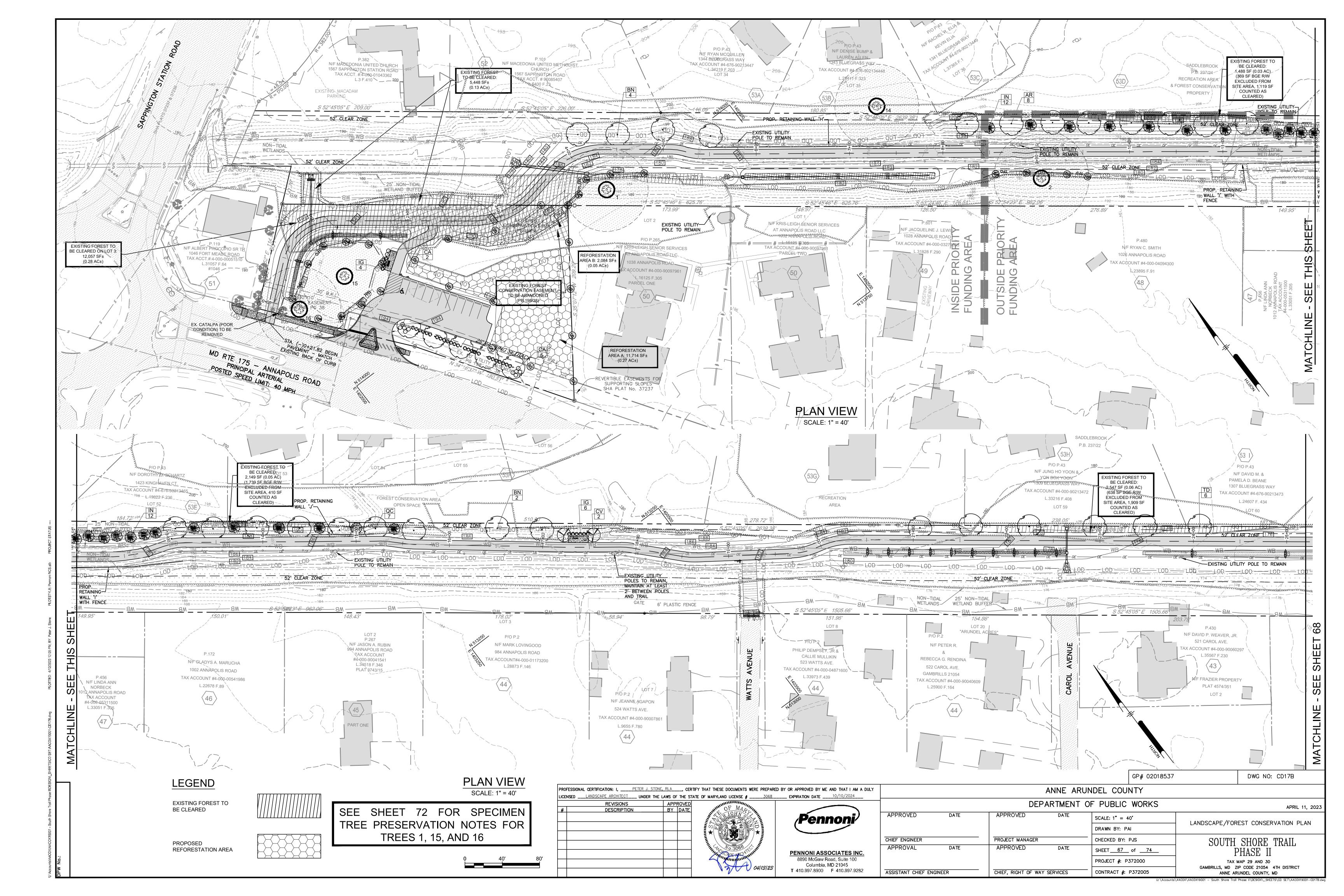
8890 McGaw Road, Suite 100

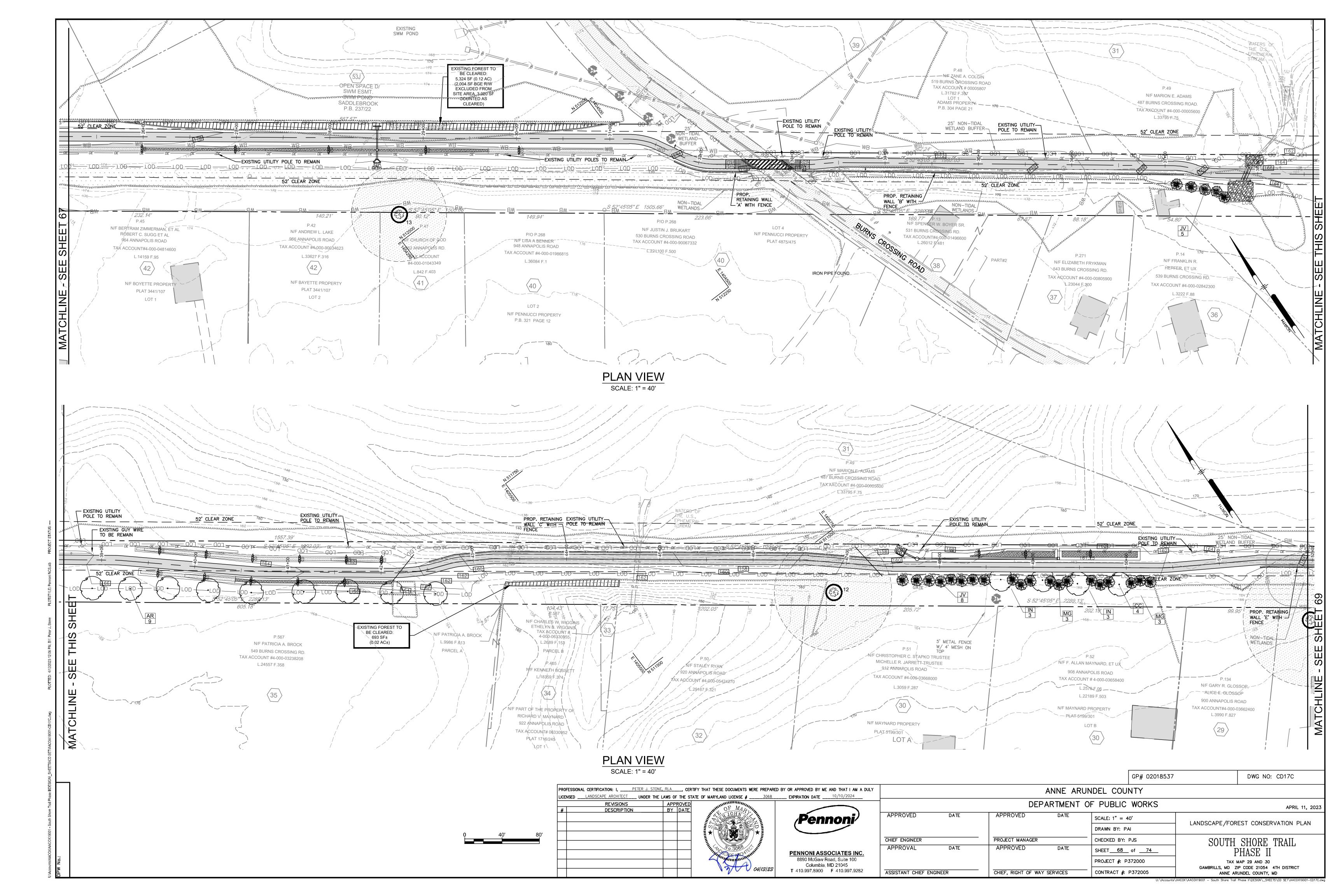
Columbia, MD 21045

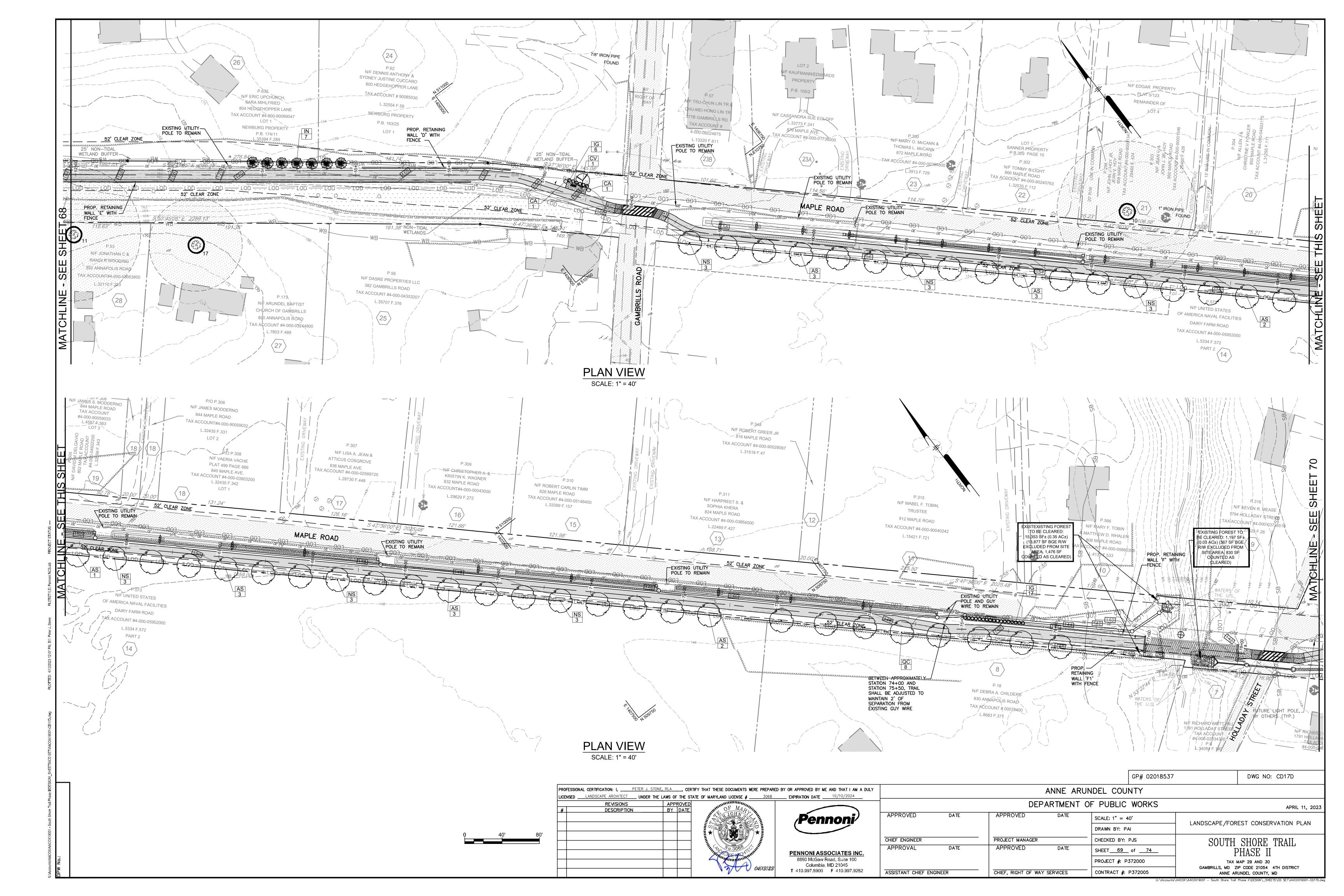
T 410.997.8900 F 410.997.9282

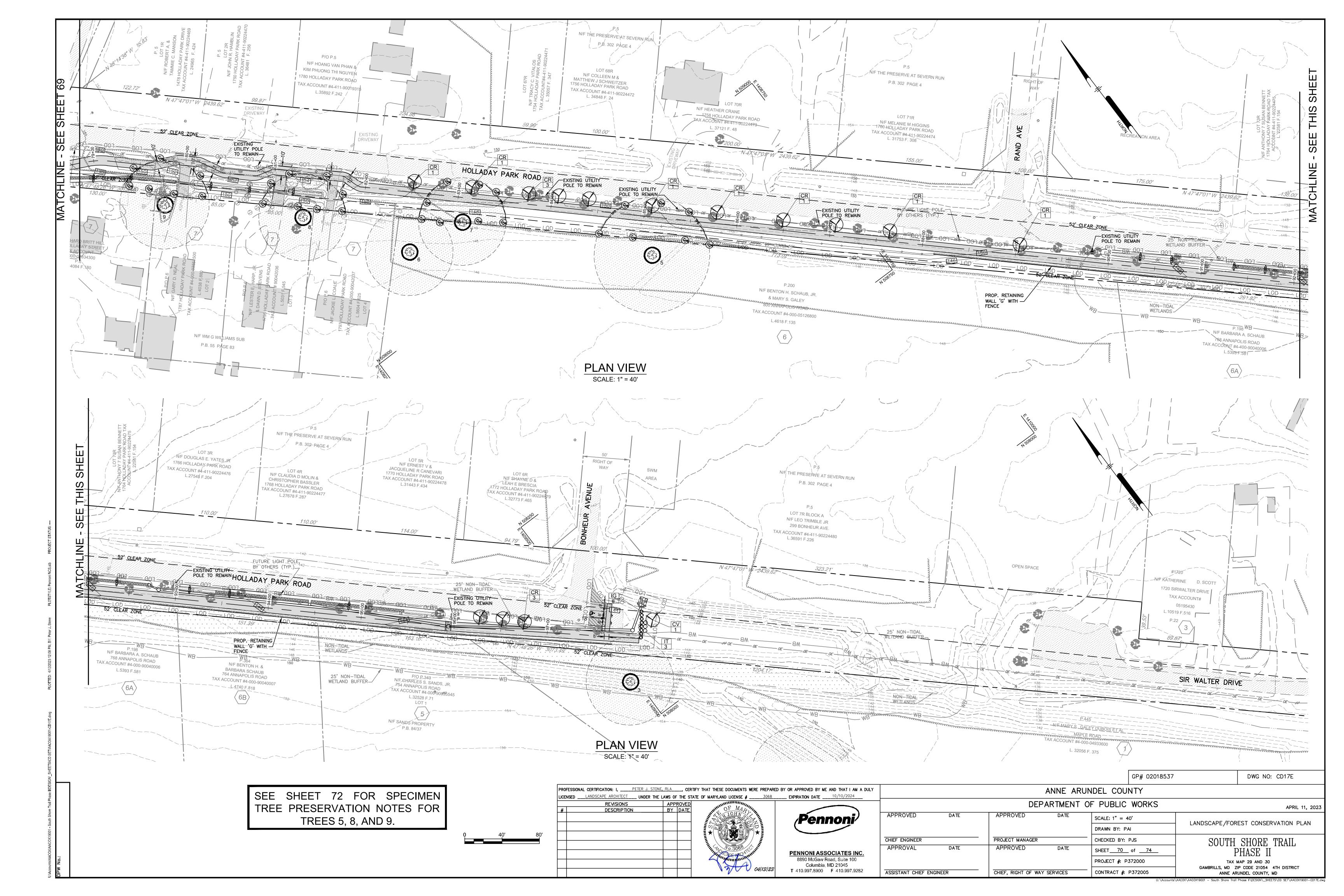
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS APRIL 11, 2023 APPROVED APPROVED SCALE: NOT TO SCALE MAINTENANCE OF TRAFFIC DETAILS DRAWN BY: PAI CHIEF ENGINEER PROJECT MANAGER SOUTH SHORE TRAIL CHECKED BY: PJS APPROVAL DATE SHEET 65 of 74 PHASE II PROJECT #: P372000 TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ASSISTANT CHIEF ENGINEER CHIEF, RIGHT OF WAY SERVICES CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD

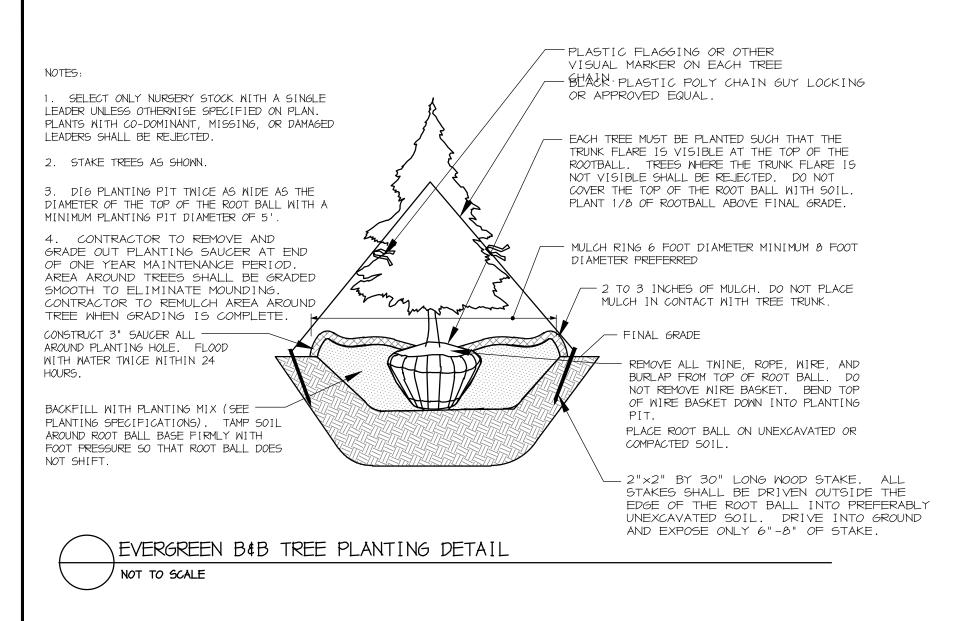












NOTES: 1. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS. CO-DOMINANT LEADERS, AND BROKEN OR DEAD BLACK PLASTIC POLY CHAIN LOCK GUYING BRANCHES. SOME INTERIOR TWIGS AND LATERAL REMOVE STAKES AFTER ONE YEAR BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN 2. STAKE TREES AS SHOWN. 3. DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5' PLANT 1/8 OF ROOTBALL ABOVE FINAL GRADE. 4. TIGHTEN GUYS ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. GUYS SHALL BE LONG ENOUGH TO ACCOMMODATE 1.5 IN. OF GROWTH AND BUFFER ALL BRANCHES. 5. TUCK ANY LOOSE ENDS OF THE GUY SO THAT NO LOOSE ENDS ARE EXPOSED. 6. CONTRACTOR TO REMOVE AND GRADE OUT PLANTING SAUCER AT END OF ONE YEAR MAINTENANCE PERIOD. AREA AROUND TREES SHALL BE GRADED SMOOTH TO FLIMINATE MOUNDING CONTRACTOR TO REMULCH AREA AROUND TREE WHEN GRADING IS COMPLETE. INSTALL TWO STAKES ON OPPOSITE SIDES OF TREE, PARALLEL TO THE DIRECTION OF THE PREVAILING WINTER WINDS, UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT. ALL STAKES SHALL BE DRIVEN OUTSIDE THE EDGE OF THE ROOT BALL INTO PREFERABLY UNEXCAVATED SOIL

EACH TREE MUST BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOTBALL. TREES WHERE THE TRUNK FLARE IS NOT VISIBLE SHALL BE REJECTED. DO NOT COVER THE TOP OF THE ROOT BALL WITH SOIL.

BLACK PLASTIC POLY CHAIN LOCK GUYING

MULCH RING 6 FOOT DIAMETER MINIMUM 8 FOOT DIAMETER PREFERRED - 2 TO 3 [NCHES OF MULCH. DO NOT PLACE MULCH IN CONTACT WITH TREE TRUNK. CONSTRUCT 3" SAUCER ALL AROUND PLANTING HOLE. FLOOD WITH WATER TWICE WITHIN 24 HOURS. FINAL GRADE

REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM TOP OF ROOT BALL. DO NOT REMOVE WIRE BASKET. BEND TOP OF WIRE BASKET DOWN INTO PLANTING

PLACE ROOT BALL ON UNEXCAVATED OR COMPACTED SOIL. BACKFILL WITH PLANTING MIX (SEE PLANTING SPECIFICATIONS). TAMP SOIL

AROUND ROOT BALL BASE FIRMLY WITH FOOT PRESSURE SO THAT ROOT BALL DOES

DECIDUOUS B&B TREE PLANTING DETAIL (TREES 3" CAL. OR SMALLER)

1. SEE PLANTING SPECIFICATIONS FOR PREPARATION OF PLANTING BED. 2. DO NOT HEAVILY PRUNE THE SHRUB AT PLANTING. PRUNE ONLY BROKEN, DAMAGED, OR Diseased 3. DIG PLANTING PIT 12" WIDER THAN THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT 4. FOR B&B SHRUBS: REMOVE ALL TWINE, ROPE, AND BURLAP FROM TOP OF ROOT BALL. 5. ALL CONTAINERS SHALL BE REMOVED BEFORE INSTALLATION.

NOT COVER THE TOP OF THE ROOT BALL TH SOIL. PLANT 1/8 OF ROOTBALL ABOVE

–2 TO 3 INCHES OF MULCH, DO NOT PLACE MULCH IN CONTACT WITH SHRUB TRUNK OR BRANCHES --FINAL GRADE

TAMP SOIL AROUND BALL BASE FIRMLY WITH FOOT PRESSURE SO THE ROOT BALL

-SCARIFY ROOT BALL TO A DEPTH OF 3/4" ON ALL SIDES OR BUTTERFLY CUT CONTAINER PLANTS. - PLACE ROOT BALL ON UNEXCAVATED OR COMPACTED SOIL.

SHRUB BED PLANTING DETAIL - B&B AND CONTAINER SHRUBS

NOTE: ALL TREES SHALL BE PLANTED A MINIMUM OF 8' FROM THE EDGE OF THE

NOTE: ALL PLANTINGS SHALL BE INSTALLED AND MULCHED/STABILIZED IN THE SAME WORKING DAY.

SEE SWM LANDSCAPE PLANS FOR SWM LANDSCAPE SCHEDULES.

NOT TO SCALE

TRAIL

FOREST CONSERVATION NOTES: MODIFICATION #16625 TO SECTION 17-6-306(A) TO EXCLUDE THE BGE R/W FROM THE SITE AREA FOR PURPOSE OF

DECEMBER 15, 2021. ADDITIONALLY THIS IS A LINEAR PROJECT. AREAS OUTSIDE OF THE UTILITY RIGHT-OF-WAY BUT WITHIN THE PROJECT RIGHT-OF-WAY, DO CONTAIN FOREST, BUT LESS THAN 20,000 SF OF CLEARING IS PROPOSED SO THIS PROJECT IS ALSO EXEMPT PER17-6-301(B)(7). CLEARING OF 15,205 SF IS

FOREST CONSEVATION CALCULATIONS WAS APPROVED ON

PROPOSED OUTSIDE OF THE BGE R/W. THERE IS AN ADJACENT COUNTY OWNED PARCEL (LOT 3) THAT IS PART OF THIS PROJECT WHICH HAS A FOREST CONSERVATION EASEMENT THAT IS BEING IMPACTED. ALL BUT 646 SF OF THE 7,082 SF FOREST CONSERVATION EASEMENT IS WITHIN THE LOD AND WILL BE CLEARED. THIS IS PROPOSED TO BE HANDLED BY REPLANTING EQUIVALENT AREAS ON THE SAME PARCEL AND RECONFIGURING THE EASEMENT. A TOTAL OF 12,057 SF OF CLEARING IS PROPOSED ON LOT 3. A TOTAL OF 14,799 SF OF REFORESTATION PLANTING AND 4,001 SF OF RETENTION IS PROPOSED ON LOT 3. THE REFORESTATION PLANTING WILL BE LOCATED WITHIN THE RECONFIGURED FOREST

CONSERVATION EASEMENT. THE RECONFIGURED EASEMENT WILL BE 18.800 SF IN SIZE. PRIOR TO REPLANTING, INVASIVE VINES AND RUBBLE WITHIN THE FOREST CONSERVATION EASEMENT AREA SHALL BE REMOVED. THE REMOVAL OF THE VINES AND RUBBLE SHALL BE COMPLETED BY HAND; NO CLEARING IS PERMITTED FOR THIS ACTIVITY. VINES SHALL BE CUT AT THE GROUND AND TREATED WITH AN HERBICIDE TO PREVENT REGROWTH.

PLANT LIST SCIENTIFIC/ SYMBOL QTY. SIZE ROOT REMARKS COMMON NAME ACER RUBRUM 'RED SUNSET' 17 2.5-3" CAL. B&B AR PLANT AS SHOWN RED SUNSET MAPLE ACER SACCHARUM AS 2.5-3" CAL. B&B PLANT AS SHOWN SUGAR MAPLE BETULA NIGRA 10-12' HT. B&B PLANT AS SHOWN RIVER BIRCH CARPINUS CAROLINIANA 2.5-3" CAL. CC B&B PLANT AS SHOWN AMERICAN HORNBEAM MALE VARIETY ONLY: GINKGO BILOBA 'AUTUM GOLD' GB 2.5-3" CAL. B&B PLANT AS SHOWN AUTUMN GOLD GINKGO NYSSA SYLVATICA 18 2.5-3" CAL. B&B PLANT AS SHOWN BLACK GUM QUERCUS COCCINEA QC 15 2.5-3" CAL. B&B PLANT AS SHOWN SCARLET OAK TAXODIUM DISTICHUM 2.5-3" CAL. B&B PLANT AS SHOWN BALD CYPRESS ILEX X 'NELLIE R. STEVENS' 37 7-8' HT. B&B PLANT AS SHOWN NELLIE STEVENS HOLLY JUNIPERUS VIRGINIANA 13 7–8' HT. B&B PLANT AS SHOWN EASTERN RED CEDAR MAGNOLIA GRANDIFLORA 7–8' HT. B&B PLANT AS SHOWN SOUTHERN MAGNOLIA CERCIS CANADENSIS CONT. CR 13 8-10' HT. SINGLE STEM EASTERN REDBUD CHIONANTHUS VIRGINICUS CONT. CV SINGLE STEM 8–10' HT. WHITE FRINGETREE CLETHRA ALNIFOLIA 24-30" HT. CONT. CA PLANT AS SHOWN SWEET PEPPERBUSH ILEX GLABRA 67 24-30" HT. CONT. PLANT AS SHOWN IG INKBERRY ITEA VIRGINICA CONT. 24-30" HT. PLANT AS SHOWN VIRGINIA SWEETSPIRE

PLANTING SPECIFICATIONS

. PLANTS, RELATED MATERIAL, AND OPERATIONS SHALL MEET THE DETAILED DESCRIPTION, AS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN. WHERE DISCREPANCIES EXIST BETWEEN STANDARDS & GUIDELINES REFERENCED WITHIN THESE SPECIFICATIONS AND THE ANNE ARUNDEL COUNTY SPECIFICATIONS, THE LATTER TAKES PRECEDENCE.

2. ALL PLANT MATERIAL, UNLESS OTHERWISE SPECIFIED, THAT IS NOT NURSERY GROWN, UNIFORMLY BRANCHED, DOES NOT HAVE A VIGOROUS ROOT SYSTEM, AND DOES NOT CONFORM TO THE MOST RECENT EDITION OF THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS WILL BE REJECTED. PLANT MATERIAL THAT IS NOT HEALTHY, VIGOROUS, FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUNSCALD INJURIES, ABRASIONS OF THE BARK, PLANT DISEASE, INSECT PEST EGGS, BORERS AND ALL FORMS OF INSECT INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS WILL BE REJECTED. PLANT MATERIAL THAT IS WEAK OR WHICH HAS BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORKED LEADERS WILL BE REJECTED. ALL B & B PLANTS SHALL BE FRESHLY DUG: NO HEALED-IN PLANTS OR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

3. UNLESS OTHERWISE SPECIFIED, ALL GENERAL CONDITIONS, PLANTING OPERATIONS, DETAILS AND PLANTING SPECIFICATIONS SHALL CONFORM TO THE MOST RECENT EDITION OF THE "LANDSCAPE SPECIFICATION GUIDELINES BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF MD. DC. & VA". (HEREINAFTER "LANDSCAPE GUIDELINES") APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE POTOMAC CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS.

4. CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE IN ACCORDANCE WITH THE APPROPRIATE SECTION ON THE LANDSCAPE GUIDELINES. CONTRACTOR'S ATTENTION IS DIRECTED TO THE MAINTENANCE REQUIREMENTS FOUND WITHIN THE ONE YEAR SPECIFICATIONS INCLUDING WATERING AND REPLACEMENT OF SPECIFIED PLANT MATERIAL.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RELEVANT AND APPROPRIATE UTILITY COMPANIES, UTILITY CONTRACTORS, AND "MISS UTILITY" A MINIMUM OF 48 HOURS PRIOR TO THE BEGINNING OF ANY WORK. CONTRACTOR MAY MAKE MINOR ADJUSTMENTS IN SPACING AND LOCATION OF PLANT MATERIAL TO AVOID CONFLICTS WITH UTILITIES. MAJOR CHANGES WILL REQUIRE THE APPROVAL OF THE LANDSCAPE ARCHITECT. DAMAGE TO EXISTING STRUCTURE AND UTILITIES SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.

6. CONTRACTOR TO REGRADE, FINE GRADE, HYDROSEED OR SOD, AND STRAW MULCH ALL AREAS DISTURBED BY THEIR WORK.

7. PLANT QUANTITIES ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN TAKE PRECEDENCE. WHERE DISCREPANCIES ON THE PLAN EXIST BETWEEN THE SYMBOLS AND THE CALLOUT LEADER, THE NUMBER OF SYMBOLS TAKE PRECEDENCE.

8. PLANTING MIX: FOR TREES NOT IN A PREPARED BED, MIX 50% COMPRO OR LEAFGRO WITH 50% SOIL FROM TREE HOLE TO USE AS BACKFILL, SEE TREE PLANTING DETAIL.

9. WEED & INSECT CONTROL: INCORPORATE A PRE-EMERGENT HERBICIDE INTO THE PLANTING BED FOLLOWING RECOMMENDED RATES ON THE LABEL. FOR TREE PLANTING, APPLY A PRE-EMERGENT ON TOP OF SOIL AND ROOT BALL BEFORE MULCHING. MAINTAIN THE MULCH WEED-FREE FOR THE EXTENT OF THE WARRANTY PERIOD. UNDER NO CIRCUMSTANCES IS A PESTICIDE CONTAINING CHLORPYRIFOS TO BE USED AS A MEANS OF PEST CONTROL.

10. WATER: ALL PLANT MATERIAL PLANTED SHALL BE WATERED THOROUGHLY THE DAY OF PLANTING. ALL PLANT MATERIAL NOT YET PLANTED SHALL BE PROPERLY PROTECTED FROM DRYING OUT UNTIL PLANTED. AT A MINIMUM, WATER UNPLANTED PLANT MATERIAL DAILY AND AS NECESSARY TO AVOID DESSICATION.

11. PRUNING: DO NOT HEAVILY PRUNE TREES AND SHRUBS AT PLANTING. PRUNE ONLY BROKEN, DEAD, OR DISEASED BRANCHES.

12. NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS OF ANNE ARUNDEL

13. CONTRACTOR SHALL ENSURE THAT ANY WATERING TRUCKS OR OTHER EQUIPMENT USED IN PLANTING AND MAINTENANCE OF PLANT MATERIAL IS SIZED APPROPRIATELY SO AS NOT TO DAMAGE TRAIL.

> GP# 02018537 DWG NO: CD17F

LICENSED __LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____3068 ____ EXPIRATION DATE ____10/10/2024

BY DATE

PROFESSIONAL CERTIFICATION: I, _____PETER J. STONE, RLA____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY

REVISIONS

DESCRIPTION

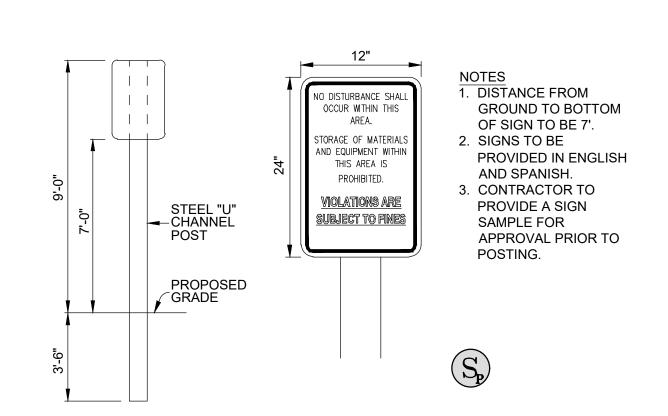


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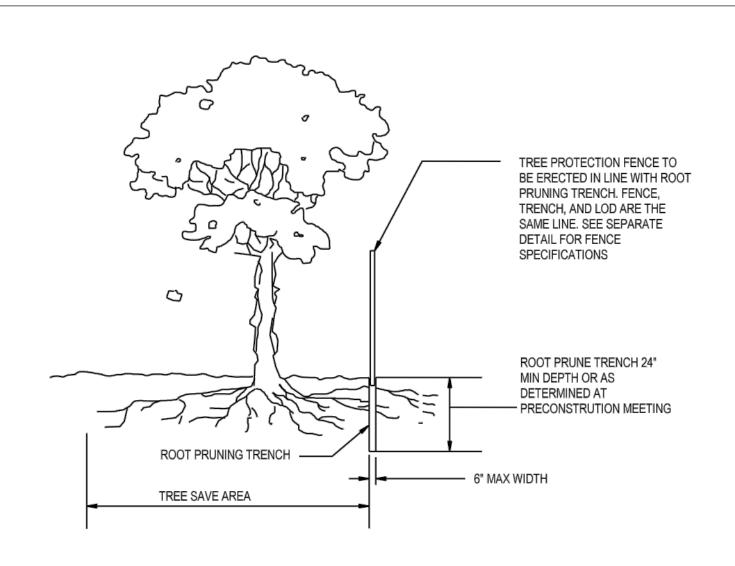
T 410.997.8900 F 410.997.9282

	DEPARTMENT OF PUBLIC WORKS APRIL 11, 2								
	APPROVED DATE		APPROVED	DATE	SCALE: NOT TO SCALE	LANDSCAPE NOTES AND DETAILS			
					DRAWN BY: PAI	LANDSCALE NOTES AND BETAILS			
	CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: PJS	SOUTH SHORE TRAIL			
	APPROVAL DATE		APPROVED	DATE	SHEET 71 of 74	PHASE II			
					PROJECT #: P372000	TAX MAP 29 AND 30			
ASSISTANT CHIEF ENGINEER CHIEF, RIGHT OF WAY SERVICES				SERVICES	CONTRACT #: P372005	GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT ANNE ARUNDEL COUNTY, MD			
					U: \Accounts	s\AACOX\AACOX19001 — South Shore Trail Phase II\DESIGN_SHEETS\CD SET\AACOX19001—CD17F.dwg			

ANNE ARUNDEL COUNTY



SPECIMEN TREE PROTECTION SIGN NOT TO SCALE



EQUIPMENT.

1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRECONSTRUCTION

2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRECONSTRUCTION MEETING AND FLAGGED PRIOR TO TRENCHING.

3. EXACT LOCATION OF TRENCH SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH

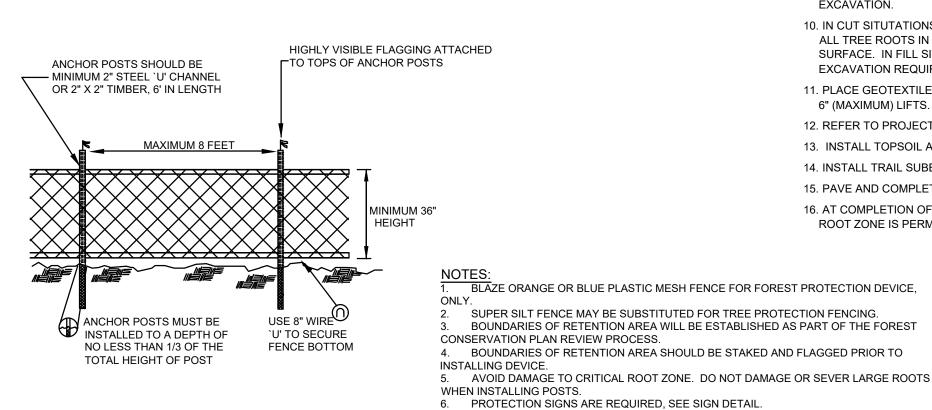
THE FOREST CONSERVATION (FC) INPECTOR 4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC

SOIL AS SPECIFIED PER PLAN OR BY THE FC INSPECTOR. 5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE

6. ALL PRUNING MUST BE EXECUTED WITH LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FC INSPECTOR.

ROOT PRUNING DETAIL

FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.



TREE PROTECTION FENCING

SPECIMEN TREE TABLE DBH CONDITION CRITICAL ROOT KEY COMMENTS REMAIN/REMOVE COMMON NAME SCIENTIFIC NAME (INCHES) ZONE IMPACTS (%) RATING LEADERS (1 DEAD), LARGE DEAD WOOD, REMAIN **BLACK CHERRY** PRUNUS SEROTINA 36.29 SMALL DEAD WOOD, GIRDLED ROOTS NARROW CROWN, 1 LEADER HAS BEEN REMAIN ACER RUBRUM FAIR RED MAPLE 44.63 TRIMMED HEAVY VINE COVER - POISON IVY AND REMAIN WILLOW OAK QUERCUS PHELLOS 7.54 **ENGLISH IVY** FAIR REMAIN WILLOW OAK QUERCUS PHELLOS 0.00 SOUTHERN RED OAK QUERCUS FALCATA REMAIN 29.27 GOOD HEAVY VINE COVER - POISON IVY AND FAIR 6* AMERICAN SYCAMORE PLATANUS OCCIDENTALIS REMAIN 5.04 **ENGLISH IVY** LARGE DEAD WOOD AND SMALL DEAD TULIP POPLAR LIRIODENDRON TULIPIFERA REMAIN 47.61 REMAIN 34.80 RED MAPLE ACER RUBRUM GOOD AMERICAN SYCAMORE PLATANUS OCCIDENTALIS FAIR REMAIN VINE COVER 33.61 WILLOW OAK QUERCUS PHELLOS GOOD REMAIN 18.36 DIEBACK, LARGE DEAD WOOD, SMALL POOR REMAIN SCARLET OAK QUERCUS COCCINEA 10.19 DEAD WOOD TULIP POPLAR LIRIODENDRON TULIPIFERA POOR FORM AND DIEBACK REMAIN 36.90 0.58 SOUTHERN RED OAK QUERCUS FALCATA GOOD VINE COVER - POISON IVY REMAIN NARROW CROWN, LARGE DEAD WOOD, FAIR REMAIN 14* TULIP POPLAR LIRIODENDRON TULIPIFERA 6.10 DIEBACK BROKEN BRANCHES, LARGE DEAD WOOD, REMAIN AMERICAN ELM ULMUS AMERICANA 21.31 POOR CROTCH ATTACHMENT HEAVY VINE COVER - ORIENTAL JUNIPERUS VIRIGINIANA FAIR 28.50 EASTERN RED CEDAR BITTERSWEET, SMALL DEAD WOOD, REMAIN MULTIPLE LEADERS WHITE OAK QUERCUS ALBA 33 GOOD REMAIN 0.00

*Tree is outside the LOD and DBH approximated

SPECIMEN TREE PRESERVATION NOTES

SPECIMEN TREE 1 - ROOT PRUNE AT LIMITS OF DISTURBANCE. INSTALL TREE PROTECTION SIGNAGE AND FENCING AT ROOT PRUNE LINE AS

SPECIMEN TREE 2 - ROOT PRUNE AT LIMITS OF DISTURBANCE. INSTALL TREE PROTECTION SIGNAGE AND FENCING AT ROOT PRUNE LINE AS

SPECIMEN TREE 5 - INSTALL TREE PROTECTION SIGNAGE AND FENCING AT CRITICAL ROOT ZONE LINE. UTILIZE STRUCTURAL SOIL FOR FILL AREAS WITHIN CRITICAL ROOT ZONE.

SPECIMEN TREE 7 - INSTALL TREE PROTECTION SIGNAGE AND FENCING AT CRITICAL ROOT ZONE LINE. UTILIZE STRUCTURAL SOIL FOR FILL AREAS WITHIN CRITICAL ROOT ZONE. SPECIMEN TREE 8 - INSTALL TREE PROTECTION SIGNAGE AND FENCING AT CRITICAL ROOT ZONE LINE. UTILIZE STRUCTURAL SOIL FOR FILL

AREAS WITHIN CRITICAL ROOT ZONE. SPECIMEN TREE 9 - INSTALL TREE PROTECTION SIGNAGE AND FENCING AT CRITICAL ROOT ZONE LINE. ROOT PRUNE FOR BIOSWALE EXCAVATION. UTILIZE STRUCTURAL SOIL FOR FILL AREAS WITHIN CRITICAL ROOT ZONE.

SPECIMEN TREE 15 - ROOT PRUNE AT LIMITS OF DISTURBANCE. INSTALL TREE PROTECTION SIGNAGE AND FENCING AT ROOT PRUNE LINE. SPECIMEN TREE 16 - ROOT PRUNE AT LIMITS OF DISTURBANCE. INSTALL TREE PROTECTION SIGNAGE AND FENCING AT ROOT PRUNE LINE.

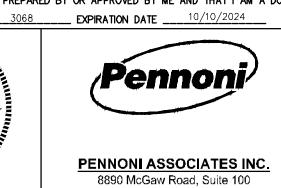
GENERAL SPECIMEN TREE PRESERVATION NOTES

- 1. STAKEOUT LIMITS OF DISTURBANCE AROUND TREE EVERY 10'.
- 2. CONDUCT A PRECONSTRUCTION MEETING WITH CONTRACTOR, ARBORIST, LANDSCAPE ARCHITECT, AND OWNER. REVIEW LIMITS OF DISTURBANCE AND TREE PRESERVATION MEASURES.
- 3. INSTALL SEDIMENT CONTROLS AS SHOWN ON THE PLANS.
- 4. INSTALL TREE PROTECTION FENCE. WHERE SUPER SILT FENCE IS ALREADY INSTALLED, TREE PROTECTION FENCE IS NOT REQUIRED. WHERE INDICATED ON THE PLAN INSTALL TREE PROTECTION FENCE AT CRITICAL ROOT ZONE TO KEEP EQUIPMENT AND CONSTRUCTION ACTIVITY OUTSIDE OF
- CRITICAL ROOT ZONE, EXCEPT FOR ACTIVITIES SPECIFICALLY NOTED.
- 5. POST TREE PROTECTION SIGNS AS NOTED ON THE PLANS. 6. ALL OTHER TREES WITHIN CRITICAL ROOT ZONE SHALL BE REMOVED BY CUTTING TREES FLUSH WITH GROUND USING HAND EQUIPMENT. NO STUMPS
- 7. DO NOT PERMIT ANY ACTIVITY WITHIN CRITICAL ROOT ZONE, INCLUDING REMOVAL OF TOPSOIL, STORAGE OF MATERIALS, PARKING OF EQUIPMENT, ETC. 8. ARBORIST SHALL MONITOR INSTALLATION OF ALL TREE PROTECTION MEASURES AND ALL TREE MAINTENANCE ACTIVITY. ARBORIST SHALL MONITOR
- SITE DURING CONSTRUCTION ON A MONTHLY BASIS AT A MINIMUM. 9. WHEN WORKING WITHIN CRITICAL ROOT ZONE, SOAK CRITICAL ROOT ZONE LOD WITH A SOAKER HOSE FOR AT LEAST 4 HOURS, 12 HOURS PRIOR TO
- 10. IN CUT SITUTATIONS, USING AIR EXCAVATION TOOL AND HIGH POWERED VACUUM, EXCAVATE WITHIN CRITICAL ROOT ZONE LOD TO A DEPTH OF 12". ALL TREE ROOTS IN EXCESS OF 1" IN DIAMETER SHALL BE WORKED AROUND IN A MANNER THAT DOES NOT BREAK THE OUTER LAYER OF THE ROOT SURFACE. IN FILL SITUATIONS, TOPSOIL CAN BE REMOVED WITH LIGHT TRACKED EQUIPMENT BEFORE PLACEMENT OF STRUCTURAL SOIL; NO AIR EXCAVATION REQUIRED.
- 11. PLACE GEOTEXTILE ON BOTTOM OF TRENCH AND BACKFILL WITH CU STRUCTURAL SOIL OR APPROVED EQUAL. TO BOTTOM OF SUBGRADE. INSTALL IN 6" (MAXIMUM) LIFTS. COMPACT SOIL WITH PLATE TAMPER OR LIGHT, WIDE TRACKED EQUIPMENT.
- 12. REFER TO PROJECT SPECIFICATIONS FOR PROTECTION AND TREATMENT OF ROOTS DURING EXCAVATION OPERATIONS.
- 13. INSTALL TOPSOIL AND LIGHTLY COMPACT TO ACHIEVE FINAL GRADE OUTSIDE OF TRAIL FOOTPRINT
- 14. INSTALL TRAIL SUBBASE.

EXCAVATION.

- 15. PAVE AND COMPLETE TRAIL
- 16. AT COMPLETION OF CONSTRUCTION ALL SILT FENCE AND PROTECTION MEASURES SHALL BE REMOVED. NO DISTURBANCE WITHIN THE CRITICAL ROOT ZONE IS PERMITTED DURING THIS ACTIVITY.

PROFESSIONAL CERTIFICATION: I, _____PETER J. STONE, RLA____, CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE # _____3068 EXPIRATION DATE ____10/10/2024 REVISIONS DESCRIPTION BY DATE



Columbia, MD 21045

T 410.997.8900 F 410.997.9282

10' TRAIL

TOPSOIL LIGHTLY —

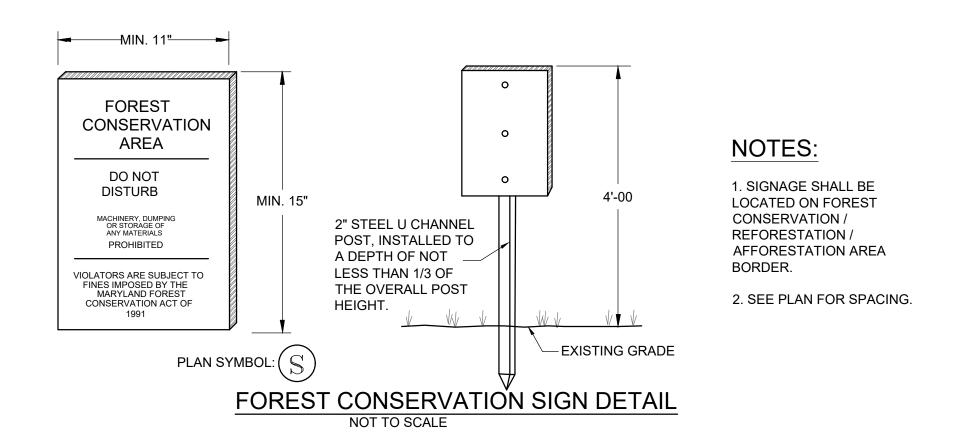
ALL TREE ROOTS IN-

NOT DAMAGED

EXCESS OF 1" IN DIAMETER

COMPACTED, MAX

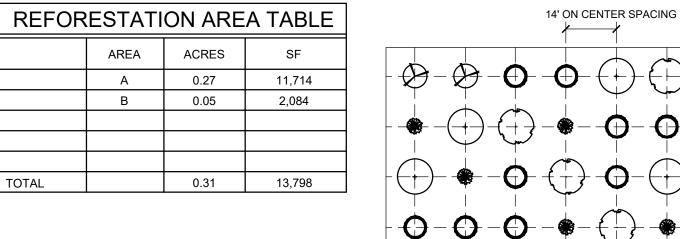
SIDE SLOPE 3:1



REFORESTATION PLANTING LISTS

QUANTITIES	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS	
14	NYSSA SALVATICA / BLACK GUM				
14	QUERCUS ALBA / WHITE OAK			FULL CROWN 20' ± SPACING SEE	
14	ACER RUBRUM 'SOMERSET' / SOMERSET RED MAPLE (SEEDLESS CULTIVARS ONLY)	1.5"-2" CAL.	CONTAINER	CONTAINER	RANDOM PLANTING
14	OUERCUS PALUSTRIS / PIN OAK			DETAIL	
13	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA' / SWEET GUM ROTUNDILOBA				

EASEMENT AREAS WILL HAVE TREES PLANTED AT A RATE OF 1 TREE/200 SF. 13,798 SF/200 TREE/SF = 69 TREES)



PROP. 4" ASPHALT, SEE TYPICAL SECTION

- PROP. 8" STONE BASE, PLACED IN 4" LIFTS

VARIES, ADD SOIL AS NEEDED TO ACHIEVE

- CU ® STRUCTURAL SOIL OR APPROVED

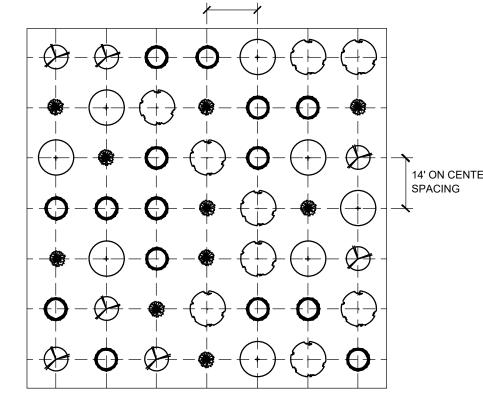
EQUAL, LIGHTLY COMPACTED, DEPTH

GEOTEXTILE, TENSAR GEO-GRID BX-4100 OR

-SHEET 5

APPROVED EQUAL

-EXISTING SUBGRADE



KEY

PLANT SPECIES 'A'

PLANT SPECIES 'B'

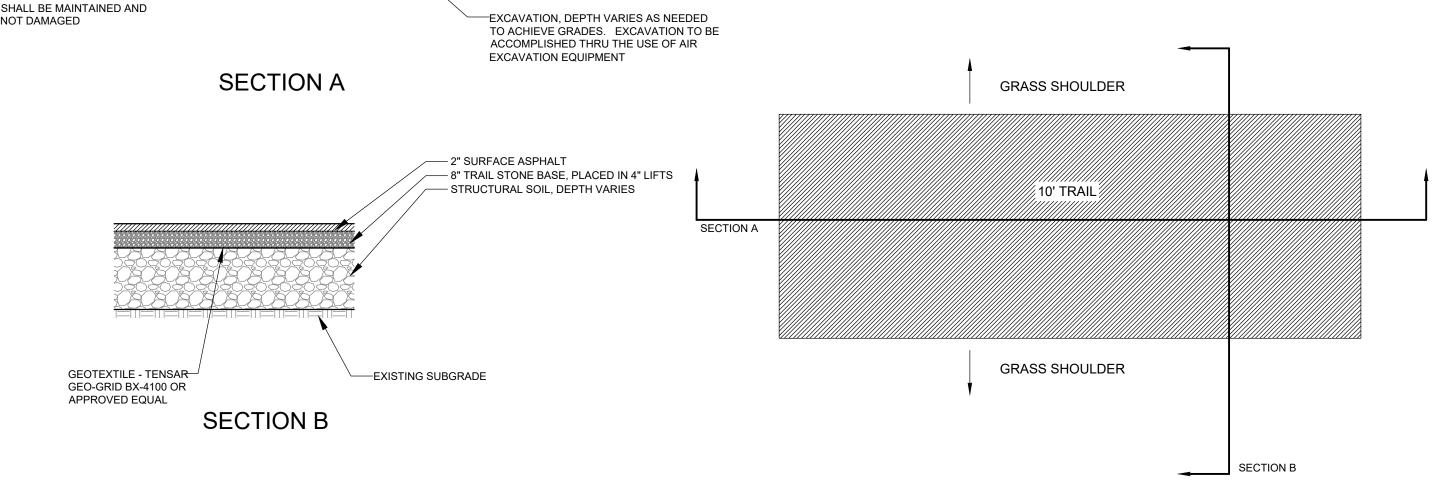
PLANT SPECIES 'C

PLANT SPECIES 'D

PLANT SPECIES 'E

1. RANDOMLY LOCATE GROUPS OF PLANT SPECIES, TAKING CARE NOT TO PLANT IN SUCCESSION MORE THAN 4 OF THE SAME SPECIES. 2. THIS DETAIL PROVIDES A HYPOTHETICAL, GRAPHIC DEPICTION OF A PROPOSED LAYOUT FOR FIVE DIFFERENT PLANT SPECIES (A-E) AND IS NOT MEANT TO BE FOLLOWED EXACTLY. THE PURPOSE IS TO ACHIEVE THE APPEARANCE OF RANDOM SPACING. SEE PLANT LIST FOR ACTUAL NUMBER OF PLANT SPECIES. SEE PLANT LIST FOR ON-CENTER SPACING REQUIREMENTS.

RANDOM PLANTING LAYOUT DETAIL



STRUCUTURAL SOIL FILL FOR TRAIL WITHIN CRITICAL ROOT ZONE

	GP# 02018537		DWG NO: (CD18A			
COU	NTY						
UBLIC	WORKS			APRIL 11,			
E: NOT TO	SCALE	TREE PROTECTION DETAILS					
MN BY: PA	AI	INCE PRO	TREE PROTECTION DETAILS				
NED DV	5	COLUMIT	COLUMII CILODO MDAII				

DEPARTMENT OF PU APPROVED APPROVED SCALE DRAWN CHIEF ENGINEER PROJECT MANAGER CHECKED BY: PJS SOUTH SHORE TRAIL APPROVAL APPROVED DATE SHEET 72 of 74 PHASE I PROJECT #: P372000 TAX MAP 29 AND 30 GAMBRILLS, MD ZIP CODE 21054 4TH DISTRICT CHIEF, RIGHT OF WAY SERVICES ASSISTANT CHIEF ENGINEER CONTRACT #: P372005 ANNE ARUNDEL COUNTY, MD

ANNE ARUNDEL

