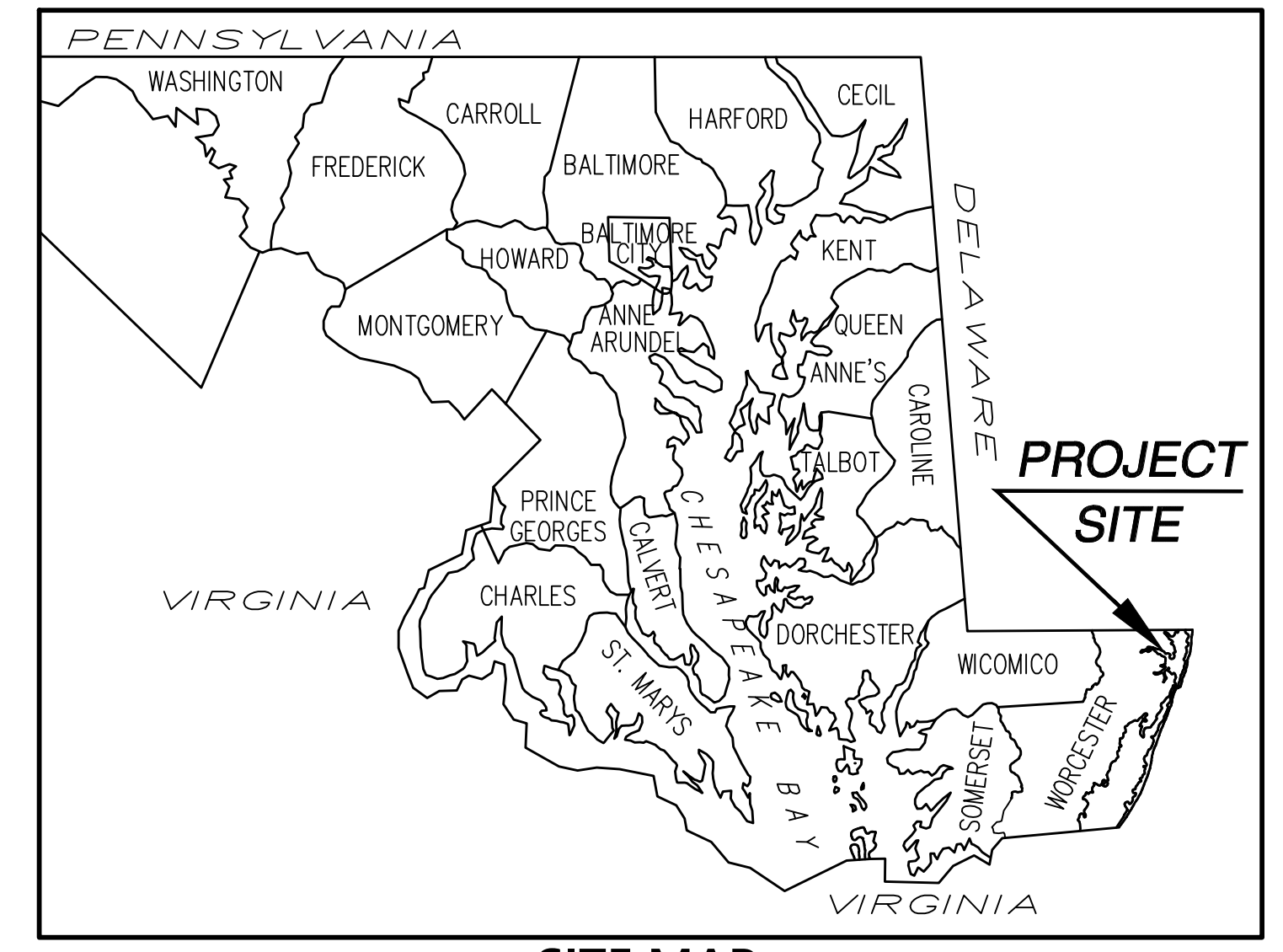


Coastal Resiliency & Living Shoreline Project at Selsey Road Worcester County, Maryland



SITE MAP
NOT TO SCALE



Location Map ↑ 0 1,000 2,000 Feet

No.	Drawing Title
C-1	Cover Sheet
C-2	Existing Conditions
C-3	Proposed Shoreline Layout & Typical Sections
C-4	Sediment and Erosion Control Notes & Details

STANDARD RESPONSIBILITY NOTES

I (We) certify that:

- 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 Worcester Soil Conservation District 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.
 - Responsible personnel on site: _____
 - If applicable, the appropriate enclosure will be constructed and maintained on sediment basin(s) included in this plan. Such structure(s) will be in compliance with the Worcester County Code.
- The developer is responsible for the acquisition of all easements, right, and/or rights-of-way that may be required for the sediment and erosion control practices, stormwater management practices and the discharge of stormwater onto or across adjacent or downstream properties included in the plan.
- Initial soil disturbance or re-disturbance, permanent stabilization shall be completed within seven 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 fourteen days for all other disturbed or graded areas on the project site. Temporary stabilization of the surface of perimeter controls, dikes, swales, ditches, and perimeter slopes may be allowed at the discretion of the sediment control inspector.
- The sediment control approvals on this plan extend only to areas and practices identified as proposed work.
- The approval of this plan for sediment and erosion control does not relieve the developer/consultant from complying with Federal) State or County requirements appertaining to environmental issues.
- The developer must request that the Sediment Control Inspector approve work completed in accordance with the approved erosion and sediment control plan, the grading or building permit, and the ordinance.
- All material shall be taken to a site with an approved sediment and erosion control plan.
- On all sites with disturbed areas in excess of two acres, approval of the sediment and erosion control inspector shall be required on completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. This will require first phase inspections. Other building or grading inspection approvals may not be authorized until the initial approval by the sediment and erosion control inspector is given.
- Approval shall be requested on final stabilization of all sites with disturbed areas in excess of two acres before removal of controls.
- Existing topography must be field verified by responsible personnel to the satisfaction of the sediment control inspector prior to commencing work.

Signature of Developer/Owner _____ Date _____

Print: Name: _____ Title: _____
 Address: _____
 Telephone Number: _____

OWNER'S/DEVELOPERS CERTIFICATION:

I / We hereby certify that all clearing, grading, construction, and/or development will be done pursuant to this plan and that any responsible personnel involved in the construction project will have a certificate of attendance at a Maryland Department of the Environment approved training program for the control of erosion and sediment before beginning the project. I/We hereby authorize the right of entry for periodic on-site evaluation by appropriate inspection and enforcement authority or the State of Maryland, Department of the Environment.

Date _____ Owner/Developer Signature _____
 MDE Training Card No. _____ Print Name and Title _____

DESIGN CERTIFICATION

I hereby certify that this plan has been designed in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control, the 2000 Maryland Stormwater Design Manual, Volumes I & II including supplements, the Environment Article Sections 4-101 through 116 and Sections 4-201 and 215, and the Code of Maryland Regulations (COMAR) 26.17.01 and COMAR 26.17.02 for erosion and sediment control and stormwater management, respectively.

7/26/21 _____
 Date Designer's Signature
 Md. Registration No. 14544 _____ Glenn G. Gass _____
 (P.E.) R.L.S., R.L.A. or R.A. (circle one) Print Name

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 14544. Expiration Date: 16 August 2021.

_____ 7/26/21
 Glenn G. Gass Date

STANDARD STABILIZATION NOTE:

Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within:

- three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and
- seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading



July 26, 2021

- GENERAL NOTES**
- Mean tidal range is 0.9 feet.
 - The horizontal control was established by closed loop traverse.
 - Vertical control is 0.0 feet = MLW.
 - Topographic and hydrographic data obtained June 6, 2019. Coordinate systems is MD state plane.
 - Bench mark shown on plans
 - All dimensions and coordinates given in feet.
 - Existing topography has contour intervals every 1 ft above 0.0 MLW and every 1 ft below MLW.

- CONSTRUCTION SCHEDULE FOR SEDIMENT AND EROSION CONTROL**
- Contractor/Developer is to notify the Maryland Department of the Environment (410-974-2641) of the date construction is to begin at least five (5) days prior to the date. (Time Frame=1 day)
 - Clear for and install stabilized construction entrances. (1 day)
 - Install silt fence and other erosion and sediment control practices. (1 day)
 - Install turbidity curtain as needed to prevent sedimentation during construction. (4 days)
 - Remove all debris interfering with shoreline construction as construction proceeds. (continuous)
 - Clear trees and underbrush within designated areas as construction proceeds. (continuous)
 - Install breakwaters, Sills, spurs, revetment, and sand nourishment. (270 days)
 - Stabilize and seed all upland disturbed areas as specified. (2 days)
 - Remove turbidity curtain. (1 day)
 - After establishment of vegetative cover on site, remove silt fence and other erosion and sediment control devices after approval by Maryland Department of the Environment inspector (410-974-2641).

BORING NOTE:
 SOIL BORINGS WERE OBTAINED FOR DESIGN PURPOSES ONLY. BORING DATA IS PROVIDED FOR THE CONTRACTORS CONVENIENCE AND IS APPLICABLE ONLY AT THE SPECIFIED POINTS WHERE THE BORINGS WERE PERFORMED. NEITHER ENGINEER OR THE GOVERNMENT WARRANT THE CONTINUITY OF SUBSURFACE CONDITIONS. ALL ELEVATIONS REFER TO MLW DATUM.

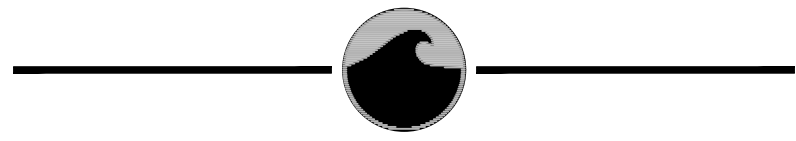
WORCESTER SOIL CONSERVATION DISTRICT SEDIMENT AND EROSION CONTROL APPROVAL

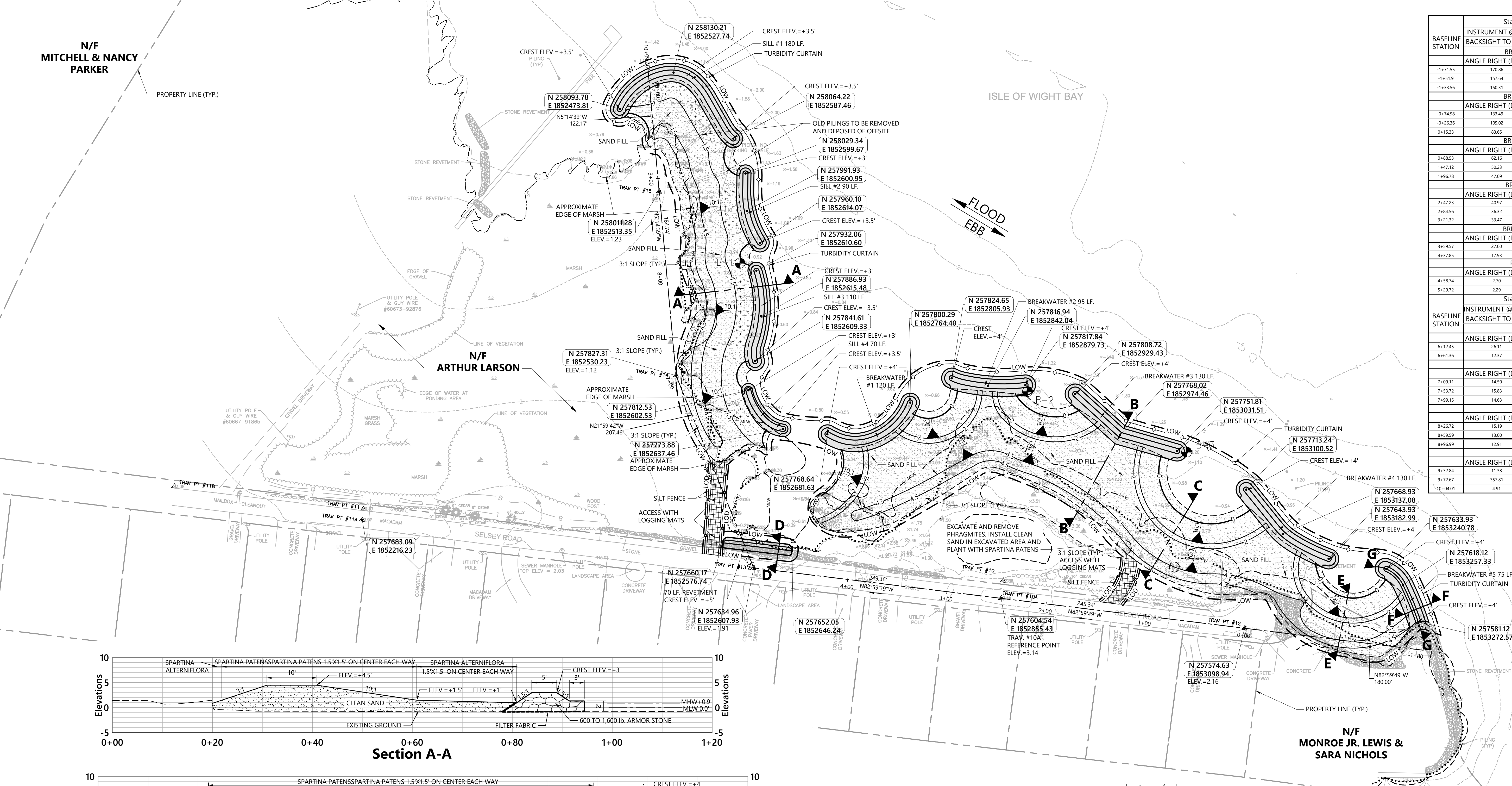
District Official _____ Date _____

WSCD # _____ SMALL POND(S) # _____

Reviewed for technical adequacy by USDA
 USDA, Natural Resource Conservation Service

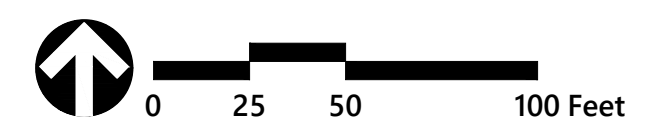
COASTLINE DESIGN, P.C.





Baseline Stakeout Data

BASELINE STATION	Stakeout Data		BASELINE STATION	Stakeout Data	
	INSTRUMENT @ TRAVERSE #12 (0+00) BACKSIGHT TO TRAVERSE #13 (4+94.7) BREAKWATER #5	ANGLE RIGHT (DEG.) DISTANCE (FT.)		INSTRUMENT @ TRAVERSE #13 (4+94.7) BACKSIGHT TO TRAVERSE #12 (0+00) BREAKWATER #5	ANGLE RIGHT (DEG.) DISTANCE (FT.)
-1+71.55	170.86	173.76	-1+71.55	357.63	666.82
-1+51.9	157.64	164.26	-1+51.9	354.48	649.62
-1+33.56	150.31	153.74	-1+33.56	353.09	632.86
BREAKWATER #4		BREAKWATER #4			
-0+74.98	133.49	108.94	-0+74.98	352.10	575.13
-0+26.36	105.02	101.72	-0+26.36	349.32	530.25
0+15.33	83.65	138.62	0+15.33	343.97	498.77
BREAKWATER #3		BREAKWATER #3			
0+88.53	42.16	189.58	0+88.53	337.53	439.41
1+47.12	50.23	229.99	1+47.12	333.04	389.94
1+96.78	47.09	289.01	1+96.78	324.61	365.45
BREAKWATER #2		BREAKWATER #2			
2+47.23	40.97	327.41	2+47.23	319.06	327.60
2+84.56	36.32	353.16	2+84.56	315.13	296.51
3+21.32	33.47	385.18	3+21.32	309.22	274.20
BREAKWATER #1		BREAKWATER #1			
3+59.57	27.00	403.54	3+59.57	306.42	227.64
4+37.85	17.93	460.19	4+37.85	291.87	152.65
REVETMENT		REVETMENT			
4+58.74	2.70	459.25	4+58.74	329.01	41.95
5+29.72	2.28	529.14	5+29.72	211.93	40.07
Stakeout Data		Stakeout Data			
BASELINE STATION	INSTRUMENT @ TRAVERSE #13 (4+94.7) BACKSIGHT TO TRAVERSE #15 (8+86.9) SILL #4		BASELINE STATION	INSTRUMENT @ TRAVERSE #15 (8+86.9) BACKSIGHT TO TRAVERSE #13 (4+94.7) SILL #4	
	ANGLE RIGHT (DEG.)	DISTANCE (FT.)		ANGLE RIGHT (DEG.)	DISTANCE (FT.)
6+12.45	26.11	142.03	6+12.45	346.51	267.89
6+61.36	12.37	177.65	6+61.36	349.94	217.85
SILL #3		SILL #3			
7+09.11	14.50	206.61	7+09.11	344.61	194.98
7+53.72	15.83	252.08	7+53.72	334.71	160.92
7+99.15	14.63	297.08	7+99.15	323.28	125.47
SILL #2		SILL #2			
8+26.72	15.19	325.20	8+26.72	311.04	112.98
8+59.59	13.00	357.02	8+59.59	296.57	89.77
8+96.99	12.91	394.47	8+96.99	272.29	88.19
SILL #1		SILL #1			
9+32.84	11.38	429.75	10+22.90	248.57	91.08
9+72.67	357.81	478.04	10+41.22	168.50	91.49
10+04.01	4.91	501.70	10+60.89	201.03	119.81



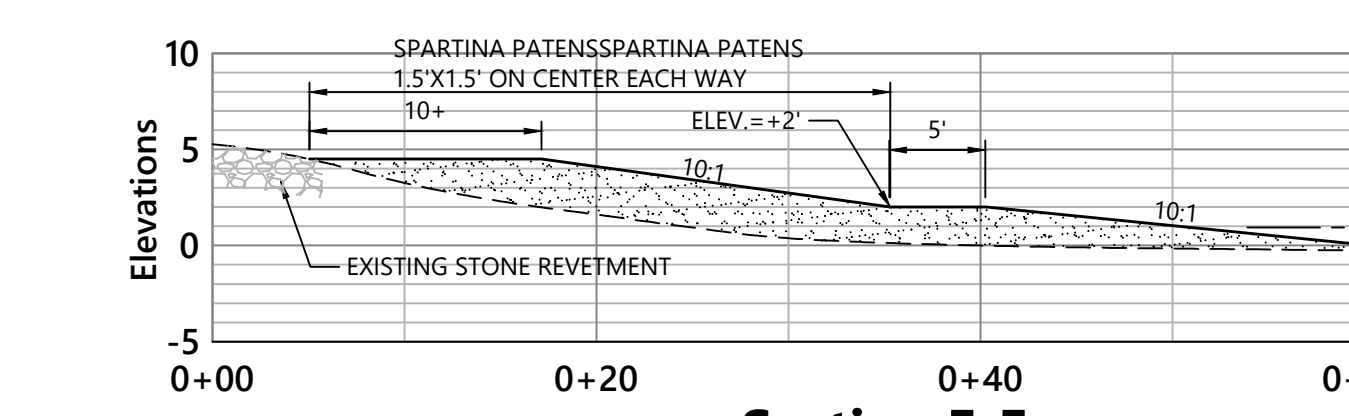
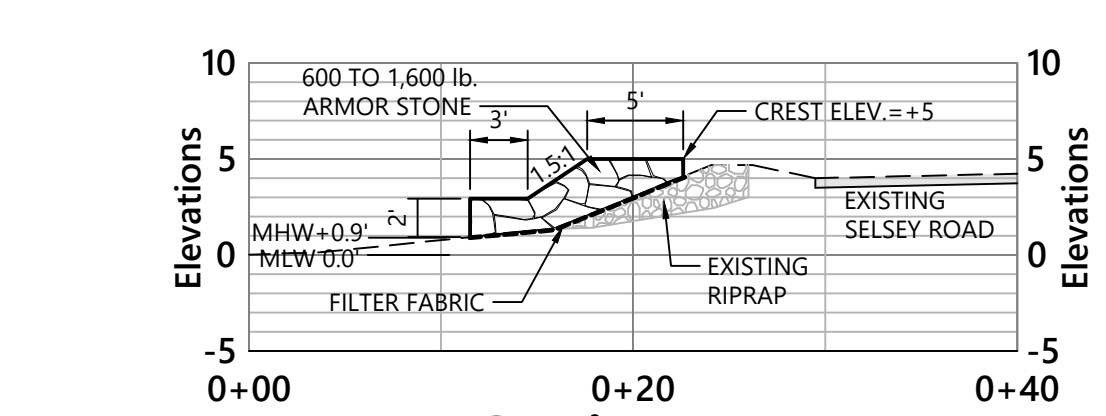
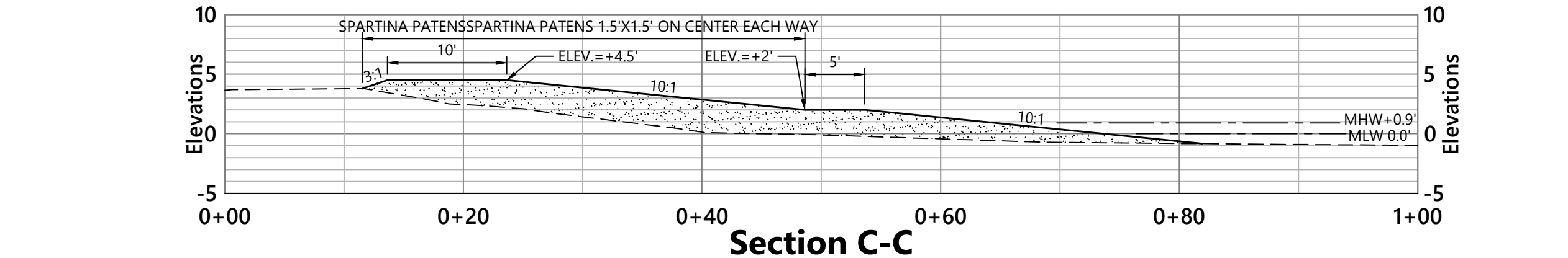
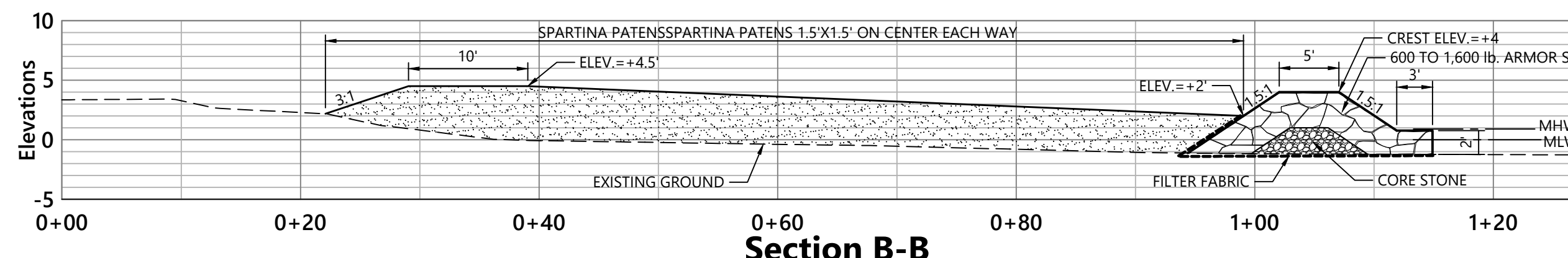
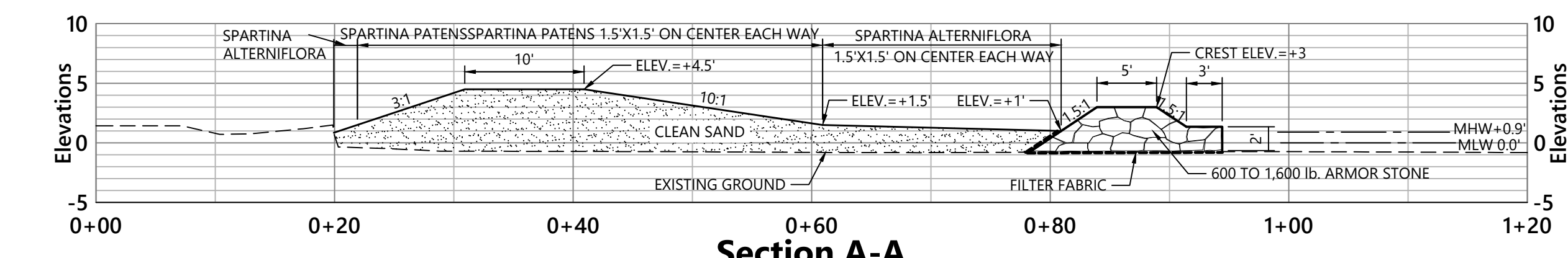
COASTLINE DESIGN, P.C.

Coastal Resiliency & Living Shoreline Project at Selsey Road

Property Owners Association inc.
Worcester County, Maryland

No.	Revision	Date	App'd.
1	Revised Planting Area Hatch	9/14/22	CSH

Designed by: _____ Checked by: _____
 Issued for: **Final** Date: **July 26, 2021**



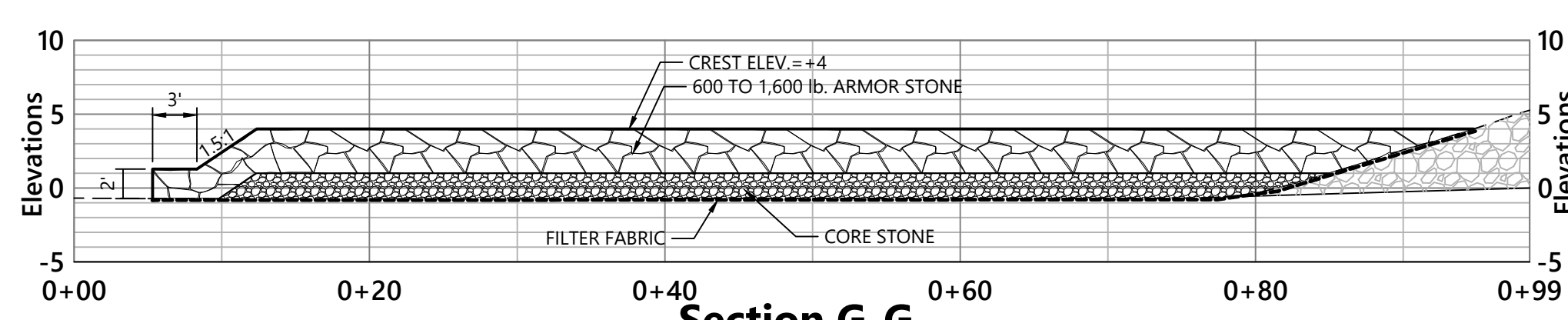
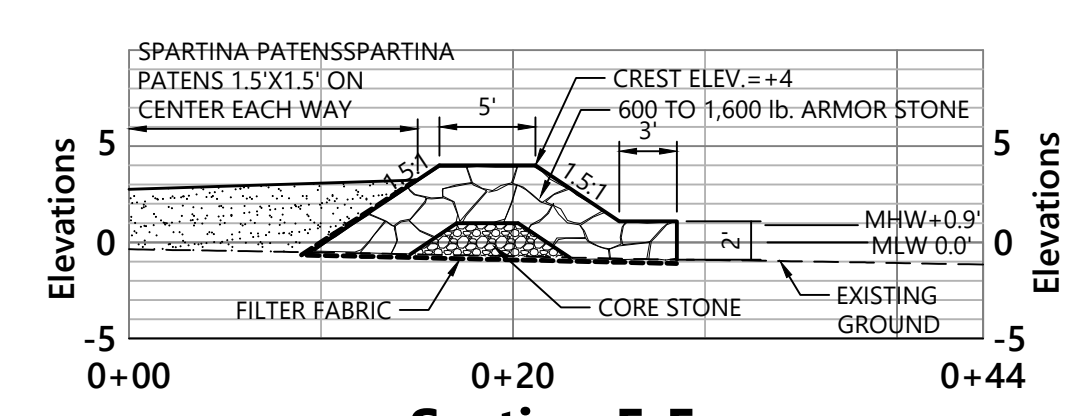
SPARTINA ALTERNIFLORA 6,176 SF.

SPARTINA PATENSSPARTINA PATENS 46,020 SF.

+0.064 NAVD 88	+0.9 MHW
0.0 NAVD 88	+0.836
-0.836 NAVD 88	0.0 MLW

Legend

---	MLW	---	MEAN LOW WATER
-----	MHW	-----	MEAN HIGH WATER
.....	EXISTING MINOR CONTOUR	EXISTING MINOR CONTOUR
-----	EXISTING MAJOR CONTOUR	-----	EXISTING MAJOR CONTOUR
○	SOIL BORING	○	SOIL BORING
△	EXISTING SPOT SHOT	△	EXISTING SPOT SHOT
△	TRAVERSE POINT	△	TRAVERSE POINT
---	LIMIT OF WORK	---	LIMIT OF WORK
---	LIMIT OF DISTURBANCE	---	LIMIT OF DISTURBANCE
---	PROPOSED MINOR CONTOUR	---	PROPOSED MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR	---	PROPOSED MAJOR CONTOUR
---	LIMIT OF FILL	---	LIMIT OF FILL
---	TURBIDITY CURTAIN	---	TURBIDITY CURTAIN
---	SILT FENCE	---	SILT FENCE
---	SAND FILL	---	SAND FILL
---	LOGGING MAT ACCESS	---	LOGGING MAT ACCESS



Shoreline Layout

Drawing Number
C-3

Sheet **3** of **4**

Project Number
32213.37

Kenneth A. Bass

STANDARD EROSION AND SEDIMENT CONTROL NOTES
 The Maryland Department of Environment requires that these notes, in their entirety, be included on the erosion and sediment control plan. It is recognized that every note may not apply to all projects. The requirement of any individual note not applicable to the subject project is not binding upon the applicant or the applicant's contractor.

1. The contractor shall notify the MARYLAND DEPARTMENT OF ENVIRONMENT (MDE) at (410) 537-3510 seven (7) days before commencing any land disturbing activity and, unless waived by the Administration, shall be required to hold a pre-construction meeting between project representatives and a representative of MDE.

2. The contractor must notify MDE in writing and by telephone at the following points:
 A. The required pre-construction meeting.
 B. Following installation of sediment control measures.
 C. During the installation of sediment basins (to be converted into permanent stormwater management structures) at the required inspection points (see Inspection Checklist on plan). Notification prior to commencing construction of each step is mandatory.
 D. Prior to removal or modification of any sediment control structure(s).
 E. Prior to removal of all sediment control devices.
 F. Prior to final acceptance.

3. The contractor shall construct all erosion and sediment control measures per the approved plan and construction sequence and shall have them inspected and approved by the agency inspector or MDE Inspector prior to beginning any other land disturbances. Minor sediment control device location adjustments may be made in the field with the approval of the MDE Inspector. The contractor shall ensure that all runoff from disturbed areas is directed to the sediment control devices and shall not remove any erosion or sediment control measure without prior permission from MDE Inspector and agency inspector. The contractor must obtain prior agency and MDE approval for changes to the Sediment Control Plan and / or Sequence of Construction.

4. The contractor shall protect all points of construction ingress and egress to prevent the deposition of materials onto public roads. All materials deposited onto public roads shall be removed immediately.

5. The contractor shall inspect daily and maintain continuously in an effective operating condition all erosion and sediment control measures until such times as they are removed with prior permission from MDE Inspector and agency inspector.

6. All sediment basins, trap embankments and slopes, perimeter dikes, swales and all disturbed slopes steeper or equal to 3:1 shall be stabilized with sod or seed and anchored straw mulch, or other approved stabilization measures, as soon as possible but no later than Three (3) calendar days after establishment. All areas disturbed outside of the perimeter sediment control system must be minimized. Maintenance must be performed as necessary to ensure continued stabilization. (Requirement for stabilization may be reduced to immediate days for sensitive areas.)

7. The contractor shall apply sod or seed and anchored straw mulch, or other approved stabilization measures to all disturbed areas and stockpiles within seven (7) calendar days after stripping and grading activities have ceased in the area. Maintenance shall be performed as necessary to ensure continued stabilization. (Requirement may be reduced to immediate days for sensitive areas.)
 A. The seed mix shall be annual rye and fescue. The seed mix shall NOT contain lespedeza.

8. Prior to removal of sediment control measures, the contractor shall stabilize and have established permanent stabilization for all contributory disturbed areas using sod or an approved permanent seed mixture with required soil amendments and an approved anchored mulch. Wood fiber mulch may only be used in seeding season where the slope does not exceed 10% and grading has been done to promote sheet flow drainage. Areas brought to finished grade during the seeding season shall be permanently stabilized as soon as possible, but not later than seven (7) calendar days after establishment. When property is brought to finished grade during the months of November through February, and permanent stabilization is found to be impractical, temporary seed and anchored straw mulch shall be applied to disturbed areas. The final permanent stabilization of such property shall be applied by March 15 or earlier if ground and weather conditions allow.

9. The site's approval letter, approved Erosion and Sediment Control Plans, daily log books, and test reports shall be available at the site for inspection by duly authorized officials of MDE and the agency responsible for project.

10. Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing protective devices to lower the water downslope without causing erosion. Dikes shall be installed and maintained at the top of a cut or fill slope until the slope and drainage area to it are fully stabilized, at which time they must be removed and final grading done to promote sheet flow drainage. Protective methods must be provided at points of concentrated flow where erosion is likely to occur.

11. Permanent swales or other points of concentrated water flow shall be stabilized with sod or seed with an approved erosion control matting, rip-rap, or by other approved stabilization measures.

12. Temporary sediment control devices may be removed, with permission of MDE Inspector and agency inspectors, within thirty (30) calendar days following establishment of permanent stabilization in all contributory drainage areas. Stormwater management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.

13. No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in low maintenance areas. A slope gradient of up to 2:1 will be permitted in nonmaintenance areas provided that those areas are indicated on the erosion and sediment control plan with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetative stabilization.

14. For finished grading, the contractor shall provide adequate gradients to prevent water from ponding for more than twenty four (24) hours after the end of a rainfall event. Drainage courses and swale flow areas may take as long as forty-eight (48) hours after the end of a rainfall event to drain. Areas designed to have standing water shall not be required to meet this requirement.

15. Sediment traps or basins are not permitted within 20 feet of a foundation that exists or is under construction. No structure may be

constructed within 20 feet of an active sediment trap or basin.

16. The MDE Inspector has the option of requiring additional safety or sediment control measures, if deemed necessary.

17. All trap depth dimensions are relative to the outlet elevation. All traps must have a stable outfall. All traps and basins shall have stable inflow points.

18. Vegetative stabilization shall be performed in accordance with the Standards and Specifications for Soil Erosion and Sediment Control. Refer to appropriate specifications for temporary seeding, permanent seeding, mulching, sodding, and ground covers.

19. Sediment shall be removed and the trap or basin restored to its original dimensions when the sediment has accumulated to one quarter of the total depth of the trap or basin. Total depth shall be measured from the trap or basin bottom to the crest of the outlet.

20. Sediment removed from traps (and basins) shall be placed and stabilized in approved areas, but not within a floodplain, wetland or tree-save area. When pumping sediment laden water, the discharge must be directed to a sediment trapping device prior to release from the site. A sump pit may be used if sediment traps themselves are being pumped out.

21. All water removed from excavated areas shall be passed through a MDE approved dewatering practice or pumped to a sediment trap or basin prior to discharge to a functional storm drain system or to stable ground surface.

22. Sediment control for utility construction for areas outside of designed controls or as directed by engineer or MDE Inspector:
 A. Call "Miss Utility" at 1-800-257-7777 48 hours prior to the start of work.
 B. Excavated trench material shall be placed on the high side of the trench.
 C. Trenches for utility installation shall be backfilled, compacted, and stabilized at the end of each working day. No more trench shall be opened than can be completed the same day, unless;
 D. Temporary silt fence shall be placed immediately downstream of any disturbed area intended to remain disturbed for more than one day.

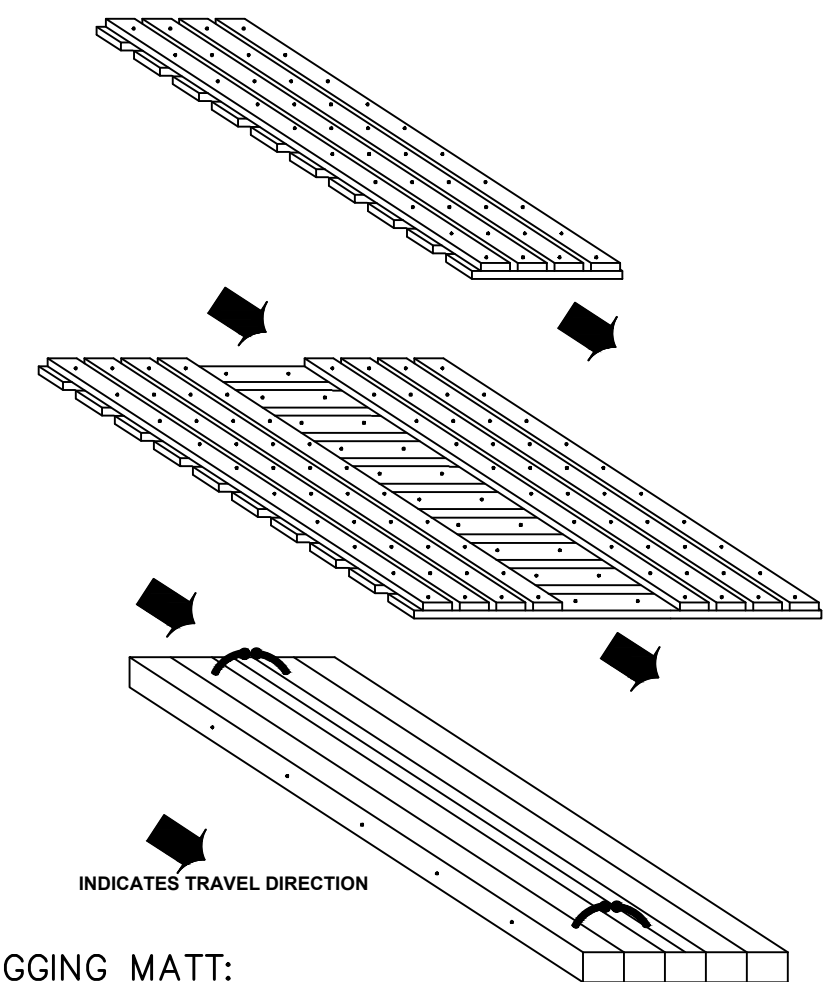
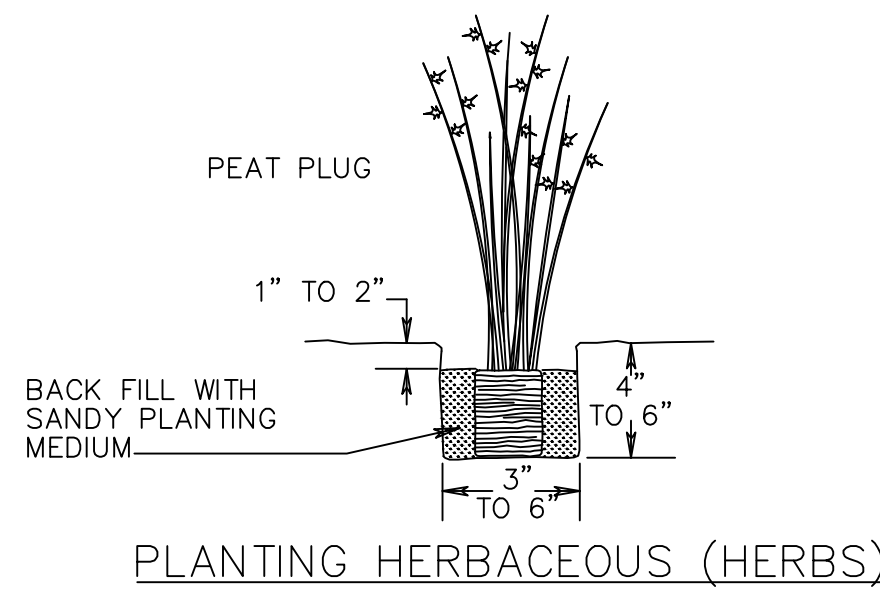
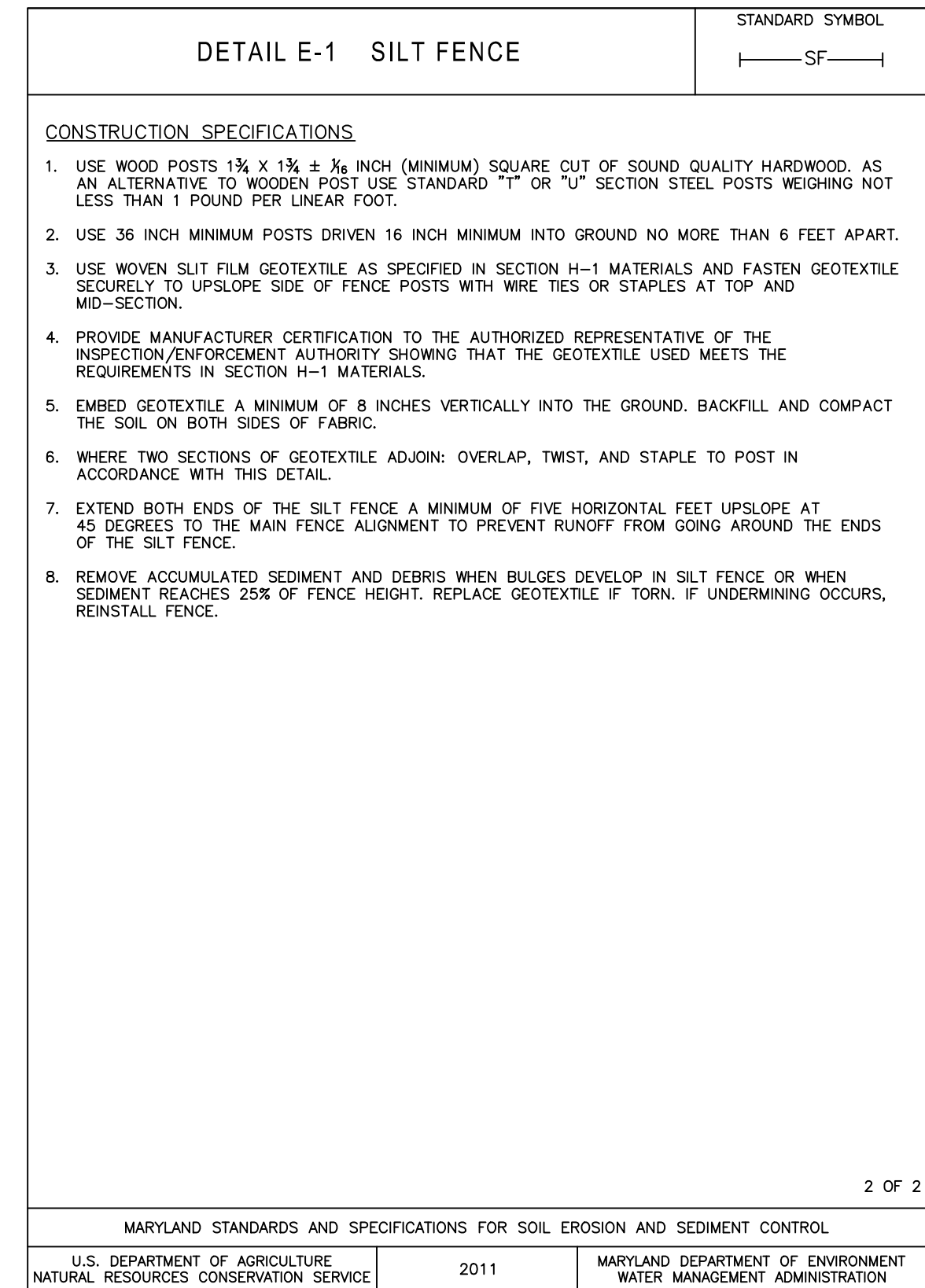
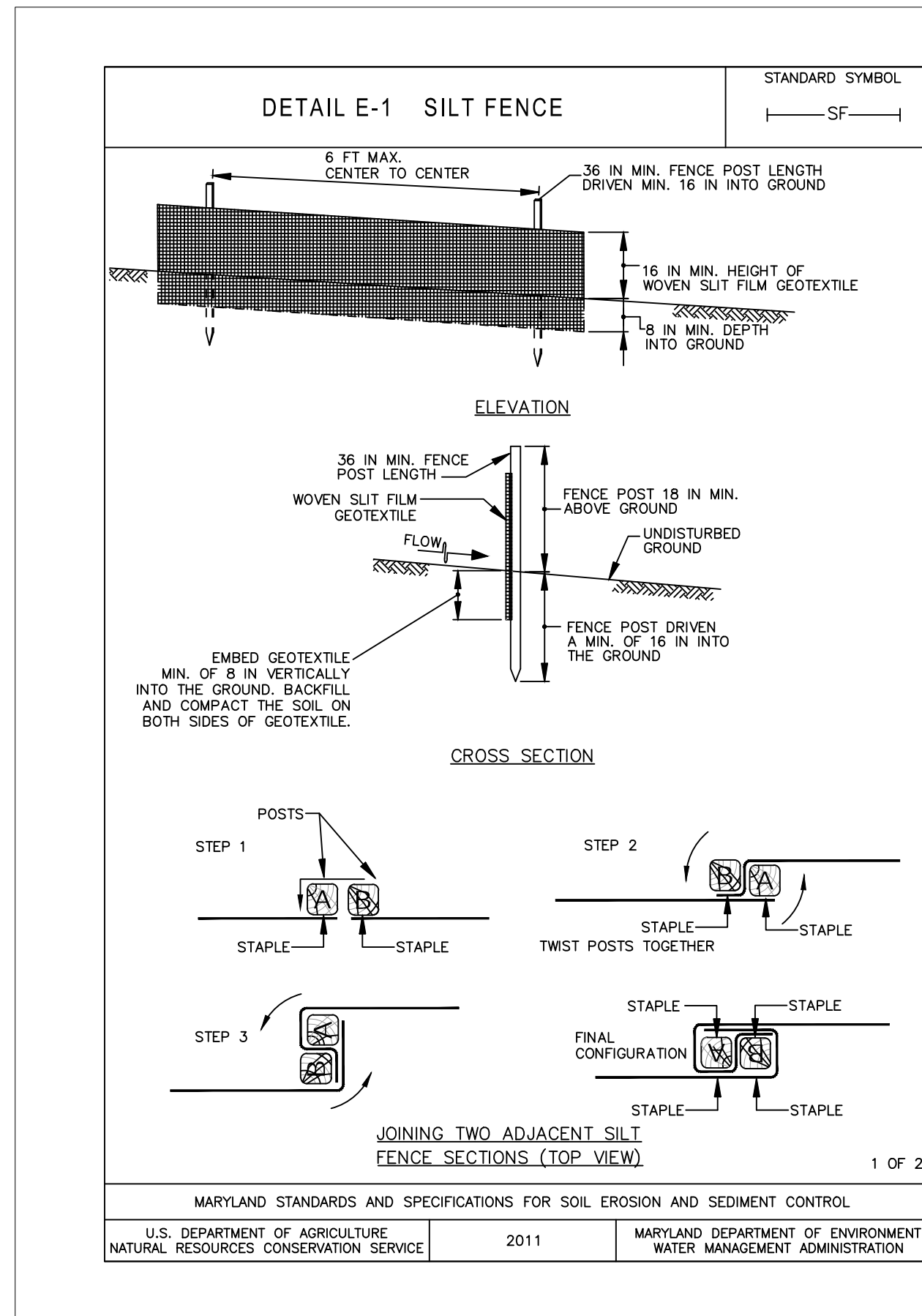
23. Where deemed appropriate by the engineer or inspector, sediment basins and traps may need to be surrounded with an approved safety fence. The fence must conform to local ordinances and regulations. The developer or owner shall check with local building officials on applicable safety requirements. Where safety fence is deemed appropriate and local ordinances do not specify fencing sizes and types, the following shall be used as a minimum standard: The safety fence must be made of welded wire and at least 42 inches high, have posts spaced no farther apart than 8 feet, have mesh openings no greater than 2 inches in width and 4 inches in height with a minimum of 14 gauge wire. Safety fence must be maintained and in good condition at all times.

24. Off-site spoil or borrow areas on State or federal property must have prior approval by MDE and other applicable State, federal, and local agencies; otherwise approval must be granted by the local authorities. All waste and borrow areas off-site must be protected by sediment control measures and stabilized.

25. Sites where infiltration devices are used for the control of stormwater, extreme care must be taken to prevent runoff from unstabilized areas from entering the structure during construction. Sediment control devices placed in infiltration areas must have bottom elevations at least two (2) feet higher than the finish grade bottom elevation of the infiltration practice. When converting a sediment trap to an infiltration device, all accumulated sediment must be removed and disposed of prior to final grading of infiltration device.

26. When a storm drain system outfall is directed to a sediment trap or sediment basin and the system is to be used for temporarily conveying sediment laden water, all storm drain inlets in non-sump areas shall have temporary asphalt berms constructed at the time of base paving to direct gutter flow into the inlets to avoid surcharging and overflow of inlets in sump areas.

27. Site Information:
 a. Total Area of Facility XX Acres (base, campus, park, etc.)
 b. Area Disturbed 0 Sq. Acres
 c. Area to be Roofed or Paved N/A Acres
 d. Total Cut 0 Cubic Yards
 e. Total Fill 0 Cubic Yards
 f. Off-Site Waste / Borrow Area Location will be the responsibility of the contractor.



LOGGING MATT:

DEFINITION:
 A LOGGING MAT IS A PORTABLE FABRICATION USUALLY OF BOARDS OR TIMBERS HELD TOGETHER BY BOLTS OR CABLE TO PROVIDE TEMPORARY PROTECTION OF A FOREST HARVEST ENTRANCE OR HUAL ROAD.

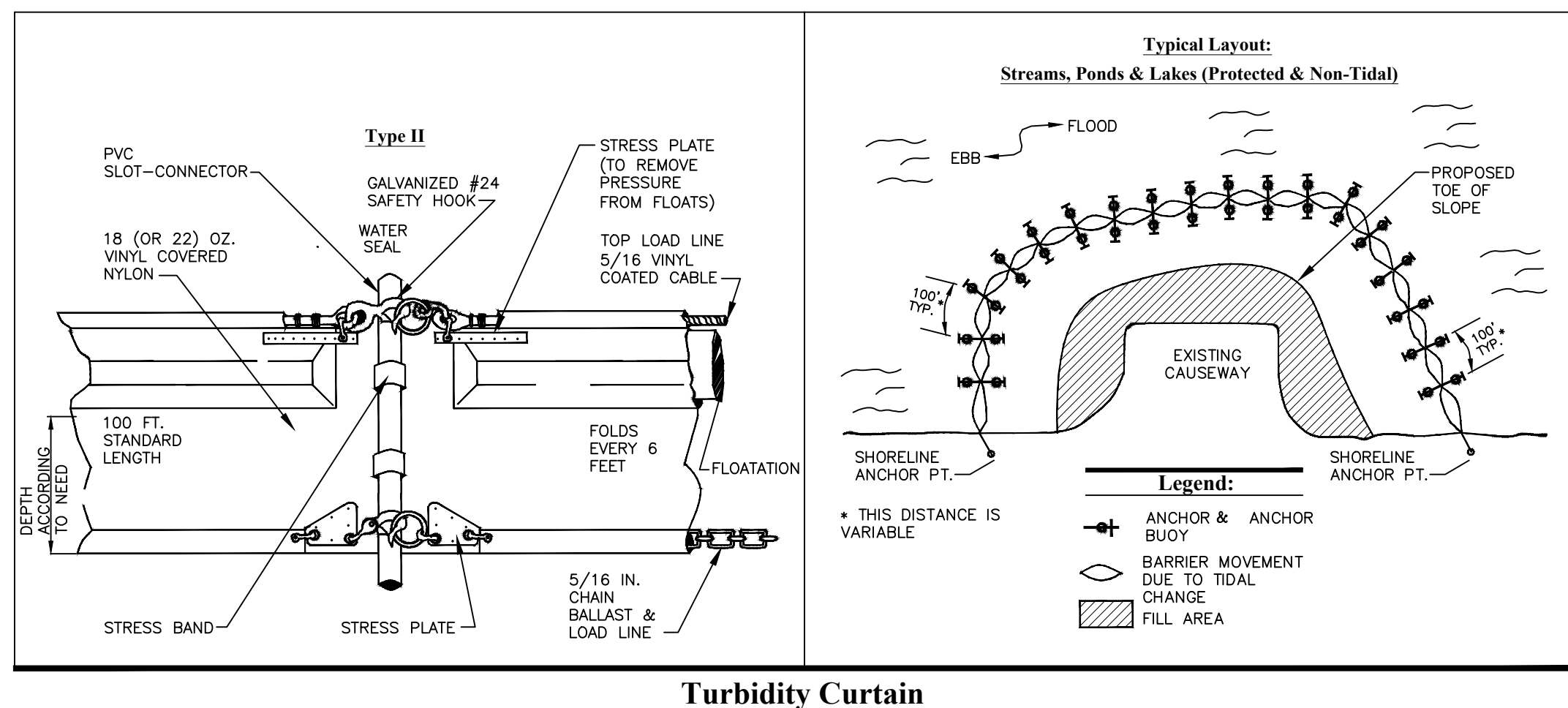
PURPOSE:
 THIS PRACTICE PROTECTS THE SURFACE SOIL STRUCTURE FROM EXCESSIVE COMPACTION AND RUTTING.

CONDITIONS WHERE PRACTICE APPLIES:
 THIS PRACTICE APPLIES TO ANY PART OF THE FOREST HARVEST ACCESS SYSTEM OR HUAL ROAD WHERE RUTTING COULD BECOME AN EROSION OR WATER HANDLING PROBLEM. IT IS OFTEN USED AS A SUBSTITUTE FOR STONE OR OTHER STABILIZATION MATERIALS AT THE ENTRANCE OF A FOREST HARVEST SITE AND ISOLATED WET AREAS ON HUAL ROADS OR SKID TRAILS. THEY ARE ALSO USED TO ACCESS SHORELINE CONSTRUCTION SITES.

SPECIFICATIONS:
 1. MATS SHALL BE PLACED END TO END TO FORM A CONTINUOUS SPAN FOR THE ENTIRE LENGTH OF THE AREA TO BE PROTECTED.

2. MATS CAN BE USED AS SUBSTITUTE FOR OR IN CONJUNCTION WITH STONE, GRAVEL, WOOD CHIPS, CULVERTS, AND OTHER STABILIZING MATERIAL AT THE ENTRANCE TO THE PROJECT SITE.

3. MATS SHALL BE INSPECTED FREQUENTLY AND MAINTAINED OR REPLACED AS NECESSARY TO ENSURE THEIR PROPER FUNCTION.



Turbidity Curtain

COASTLINE DESIGN, P.C.

Coastal Resiliency & Living Shoreline Project at Selsey Road

Property Owners Association inc. Worcester County, Maryland

No. Revision Date Appr.

Designed by Checked by

Issued for Date

Final July 26, 2021

Erosion & Sediment Control Notes & Details

Sheet C-4 of 4



Glenn G. Bass