



June 7, 2023

Columbia Association
Attn: Dennis Matthey
9450 Gerwig Lane
Columbia, MD 21046

RE: WP-23-075 Wilde Lake Bank Riprap Replacement

Dear Mr. Matthey:

This letter is to inform you that your request for alternative compliance to the Howard County Subdivision and Land Development Regulations for the subject project was reviewed.

On June 1, 2023, and pursuant to Section 16.116(d), the Director of the Department of Planning and Zoning, Director of the Department of Public Works and Administrator of the Office of Community Sustainability considered and **approved** your request for alternative compliance with respect to **Section 16.116(a)(2)** of the Subdivision and Land Development Regulations to disturb 240 linear feet of perennial stream channel for the proposed gabion riprap replacement. Please see the attached Final Decision Action Report for more information.

On May 31, 2023, and pursuant to Section 16.104, the Director of the Department of Planning and Zoning, considered and **approved** your request for alternative compliance with respect to **Section 16.155(a)(1)(ii) and Section 16.115(c)(2)** of the Subdivision and Land Development Regulations to allow the Alternative Compliance Exhibit to serve in place of a site development plan and allow disturbance within the floodplain for completion of the riprap repair project.

The Department of Planning and Zoning hereby determines that you have demonstrated to its satisfaction that strict enforcement of Section 16.155(a)(1)(ii) would result in an unreasonable hardship or practical difficulty. This determination is made with consideration of your alternative compliance application and the one (1) item you were required to address, pursuant to Section 16.104(a)(1):

1. Unreasonable hardship or practical difficulties may result from strict compliance with the regulations.

The project being proposed is to replace the existing failed gabion basket riprap along 240 linear feet of the stream channel to address current and future erosion onsite and prevent sediment issues in downstream areas. Due to the riprap failure, the project needs to be done as soon as possible to prevent continued sedimentation into the Little Patuxent River. In-stream work is prohibited between March 1 and May 31. The time involved to process an SDP would prevent the work being completed prior to the closure date of 2024 and leave the existing riprap in place allowing for additional erosion and sedimentation. The project is also reviewed by the Maryland Department of the Environment (MDE), the Army Corps of Engineers (ACOE) and the Howard County Soil Conservation District (HCSCD) to meet all Federal, State and local regulations. Strict compliance with the regulations would require the applicant to submit a formal Site Development Plan for the proposed project. This would result in an unreasonable hardship since the alternative compliance plan exhibit contains all necessary information for permitting and construction. Approval of the alternative compliance provides efficiency of the plan review process as the alternative compliance drawings include all relevant information needed for this project's riprap replacement.

The Department of Planning and Zoning hereby determines that you have demonstrated to its satisfaction that strict enforcement of Section 115(c)(2) would result in an unreasonable hardship or practical difficulty. This determination is made with consideration of your alternative compliance application and the four (4) items you were required to address, pursuant to Section 16.104(a)(1):

1. Strict conformance with the requirements will deprive the applicant of rights commonly enjoyed by others in similar areas;

The purpose of this project is to replace the existing failed gabion basket riprap along 240 linear feet of the stream channel. There is a FEMA Zone AE 100-year floodplain within the project area. Floodplain impacts are temporary and total 14,922 square feet. Replacing the failing gabion basket riprap with an imbricated riprap wall will prevent future erosion and sediment issues and will provide for a greater benefit to the ecological system. Strict conformance with the regulation would prevent the repair from occurring since the nature of the work is within the floodplain. Completion of the project will help protect adjacent properties and prevent further sedimentation into the Little Patuxent River.

2. Uniqueness of the property or topographical conditions would result in practical difficulty; other than economic, or unreasonable hardship from strict adherence to the regulations;

The perennial outfall stream location within the floodplain makes it impossible to replace the failing riprap banks without disturbing the floodplain. The purpose of the project is to address the degraded gabion basket bank and to reduce lateral erosion to protect adjacent land from runoff and loss of property. In order to repair the failing riprap, impacts within the floodplain are required.

3. The Variance will not confer to the applicant a special privilege that would be denied to other applicants and;

There are no proposed structures or impervious surfaces that would have permanent floodplain impacts. Replacing failing riprap to prevent damage to public or private interests would not be considered a special privilege.

4. The modification is not detrimental to the public health; safety or welfare, or injurious to other properties.

The request is to make improvements to the streambank riprap and reduce erosion and sedimentation downstream. The project goals will have an overall positive effect on the health, safety and welfare of the public. The work will not be injurious to other properties and will protect private and public properties downstream from the site. The proposed project will also help protect existing public infrastructure (walkways, natural resources) in Wilde Lake Park. All floodplain impacts are temporary and would be limited to the maximum extent practicable.

Approval of this Alternative Compliance is subject to the following conditions:


1. The alternative compliance plan exhibit shall serve as the substitute for a site development plan for development. No disturbance is permitted beyond the 21,482 square feet limit of disturbance as shown on the Alternative Compliance Plan Exhibit and dated November, 2022 unless it can be sufficiently demonstrated by the applicant to be justified.
2. Electronic originals of the alternative compliance plan exhibit shall be submitted to the Department of Planning Zoning for signatures within 60 days of the date of this letter (on or before August 1, 2023). Electronic drawings requiring seals and signatures of State licensed individuals must meet the overall criteria for digital signatures provided in the Code of Maryland Regulations 09.23.03.09 and be verified or 3rd party verifiable.
3. The applicant shall obtain all required authorizations and permits from the Department of Inspections, Licenses and Permits, Maryland Department of the Environment and U.S. Army Corps of Engineers for disturbances within the floodplain, streams and their buffers. Reference the applicable MDE or USACOE permits or tracking numbers on the alternative compliance plan exhibit and any County permits.

Indicate this alternative compliance petition file number, request, section of the regulations, action, conditions of approval, and date on all related plats, and site development plans, and building permits. This alternative compliance approval will remain valid for one year from the date of this letter or as long as a subdivision or site development plan is being actively processed in accordance with the processing provisions of the Regulations.

If you have any questions, please contact Justin Schleicher at (410) 313-2350 or email at jschleicher@howardcountymd.gov.

Sincerely,

DocuSigned by:



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Anthony Cataldo, AICP, Chief
Division of Land Development

AC/JS

cc: Research
DLD - Julia Sauer
Real Estate Services
Straughan Environmental – Lauren Wirth



HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 3430 Courthouse Drive ■ Ellicott City, Maryland 21043 ■ 410-313-2350
 Mary Kendall, Acting Director FAX 410-313-3467

**ALTERNATIVE COMPLIANCE
 FINAL DECISION ACTION REPORT**

DEPARTMENT OF PLANNING AND ZONING
 DEPARTMENT OF PUBLIC WORKS
 OFFICE OF COMMUNITY SUSTAINABILITY

RE: **WP-23-075 Wilde Lake Bank Riprap Replacement Project**
Request for an alternative compliance to Section 16.116(a)(2) of the Subdivision and Land Development Regulations.

Applicant: Columbia Association
 Mr. Dennis Matthey
 9450 Gerwig Lane
 Columbia, MD 21046

Pursuant to Section 16.116(d), the Director of the Department of Planning Zoning, Director of the Department of Public Works and the Administrator of the Office of Community Sustainability considered and **approved** the applicants request for an alternative compliance with respect to **Section 16.116(a)(2)** of the Subdivision and Land Development Regulations. The purpose is to disturb 240 linear feet of stream channel and 4,834 square feet of perennial stream buffer for the replacement of failing gabion riprap. The Directors deliberated the application in a meeting on June 1, 2023.

Each Department hereby determines that the applicant has demonstrated to its satisfaction that strict enforcement of the above-cited regulation would result in unreasonable hardship or practical difficulty. This determination is made with consideration of the alternative compliance application and the seven (7) items the applicant was required to address, pursuant to Section 16.104(a)(1) and Section 16.116(d):

1. Strict conformance with the requirements will deprive the applicant of rights commonly enjoyed by others in similar areas;

The purpose of this project is to replace the existing failed gabion basket riprap along 240 linear feet of the stream channel. The project goals are to create a more stable stream channel and bank to improve existing conditions on site and downstream. Strict conformance with the regulations would not allow the project to proceed expeditiously and would result in further riprap failure and erosion of the steam resulting in sedimentation downstream. It is not uncommon for the County to allow disturbances within stream buffers for the purpose of stream restoration and riprap replacement to correct a failed/damaged portion of infrastructure.

2. Uniqueness of the property or topographical conditions would result in practical difficulty; other than economic, or unreasonable hardship from strict adherence to the regulations;

The stream begins at the Wilde Lake Dam spillway and ultimately flows into the Little Patuxent River. The purpose of the project is to address the failing gabion basket riprap, reduce nutrient input from the eroding stream and protect adjacent properties from runoff. In order to repair the current condition, impacts within the stream and

stream buffer are required. Restoring the degraded riprap will eliminate further erosion of the stream banks and prevent continued sedimentation into the Little Patuxent River.

- 3. The Variance will not confer to the applicant a special privilege that would be denied to other applicants and;**
No buildings, permanent structures or impervious area are proposed. Replacement of the degraded stream riprap would not be considered a special privilege.
- 4. The modification is not detrimental to the public health; safety or welfare, or injurious to other properties.**
The modification is not detrimental to the public health, safety, or welfare. The project will improve conditions on site and benefit off site properties by reducing or eliminating sediments currently leaving the site through erosion. The proposed project will also help protect existing public infrastructure (walkways, natural resources) in Wilde Lake Park.
- 5. Disturbance is returned to its natural condition to the greatest extent possible:**
The proposed gabion riprap replacement will temporarily disturb 14,922 square feet of floodplain and 4,834 square feet of the perennial stream buffer. These impacts will be returned to their natural state and seeded with native seed mixed and planted with shrubs as shown on the landscape plan. The intent of the project is to prevent further erosion and sedimentation into the Little Patuxent River.
- 6. Mitigation is provided to minimize adverse impacts to water quality and fish, wildlife, and vegetative habitat; and**
The project is also reviewed by the Howard Soil Conservation District (EP-23-009), MDE (22-NT-3264) and the USACE (NAB-2022-61906). These agencies consider natural resources and best management practices for project implementation. These includes use of required sediment and erosion control methods and devices, timing of activities outside stream closure periods, and monitoring post construction. The project is self-mitigating as the repair will improve water quality, reduce erosion and prevent sedimentation.
- 7. Grading, removal of vegetative cover and trees, or construction shall only be the minimum necessary to afford relief and to the extent required to accommodate the necessary improvements. In these cases, the least damaging designs shall be required, such as bridges, bottomless culverts or retaining walls, as well as environmental remediation, including the planting of the areas where grading or removal of vegetative cover or trees has taken place, utilizing best practices for ecological restoration and water quality enhancement projects.**
The project is finalizing County erosion and sediment control review and MDE review. All necessary measures were taken to reduce or eliminate impacts to the stream, stream buffer and floodplain by minimizing the size of the LOD to the area necessary for construction. There is no existing forest and the LOD avoids all specimen trees located in the area of work. The proposed design and associated impacts are the minimum necessary to achieve the project goals.

Directors Action: Approval of alternative compliance of Section 16.116(a)(2) is subject to the following conditions:

1. The alternative compliance plan exhibit shall serve as the substitute for a site development plan for development. No disturbance is permitted beyond the 21,482 square feet limit of disturbance as shown on the Alternative Compliance Plan Exhibit and dated November, 2022 unless it can be sufficiently demonstrated by the applicant to be justified.
2. The applicant shall obtain all required authorizations and permits from the Department of Inspections, Licenses and Permits, Maryland Department of the Environment and U.S. Army Corps of Engineers for disturbances within

the floodplain, streams and their buffers. Reference the applicable MDE or USACOE permits or tracking numbers on the alternative compliance plan exhibit and any County permits.

DocuSigned by:

Mary Kendall

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Mary Kendall, Acting Director
Department of Planning and Zoning

DocuSigned by:

Yosef Kebede

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Yosef Kebede, Director
Department of Public Works

DocuSigned by:

Lindsay DeMarzo

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Lindsay DeMarzo, Acting Administrator
Office of Community Sustainability

cc: Research
OCS, Lindsay DeMarzo
DPW, Yosef Kebede



Howard County Maryland
Department of Planning and Zoning
 3430 Courthouse Drive, Ellicott City, MD 21043

(410) 313-2350

DPZ Office Use only:

File No.

Date Filed

ALTERNATIVE COMPLIANCE APPLICATION

Site Description:

Subdivision Name/Property Identification:

Location of property:

Existing Use:

Proposed Use:

Tax Map:

Grid:

Parcel No:

Election District:

Zoning District:

Total site area:

Please list all previously submitted or currently active plans on file with the County (subdivision plans, Board of Appeals petitions, alternative compliance petitions, etc.). If no previous plans have been submitted, please provide a brief history of the site and related information to the request:

In the area below, the petitioner shall enumerate the specific numerical section(s) from the Subdivision and Land Development Regulations for which an alternative compliance is being requested and provide a brief summary of the request. Please use the additional page if needed.

Section Reference No.	Brief Summary of Request

Section Reference No.	Brief Summary of Request
Sec. 16.155(a)(1)(ii) Waiver of site development plan	The proposed project is primarily a maintenance project to replace a failed gabion riprap bank protection to prevent future stream channel erosion. Due to the simplicity of the project goals, impacts, and design, the project can be completed expeditiously to protect public infrastructure, park property, and to decrease sediment and nutrient loading to downstream reaches. Without the waiver of the site development plan requirement, the timeline for completion of the project would be significantly delayed.

Signature of Property Owner:  Date: 1/25/23

Signature of Petitioner Preparer: _____ Date: _____

Name of Property Owner: Columbia Association Name of Petition Preparer: Straughan Environmental, Inc.

Address: 9450 Gerwig Lane Address: 10245 Old Columbia Road

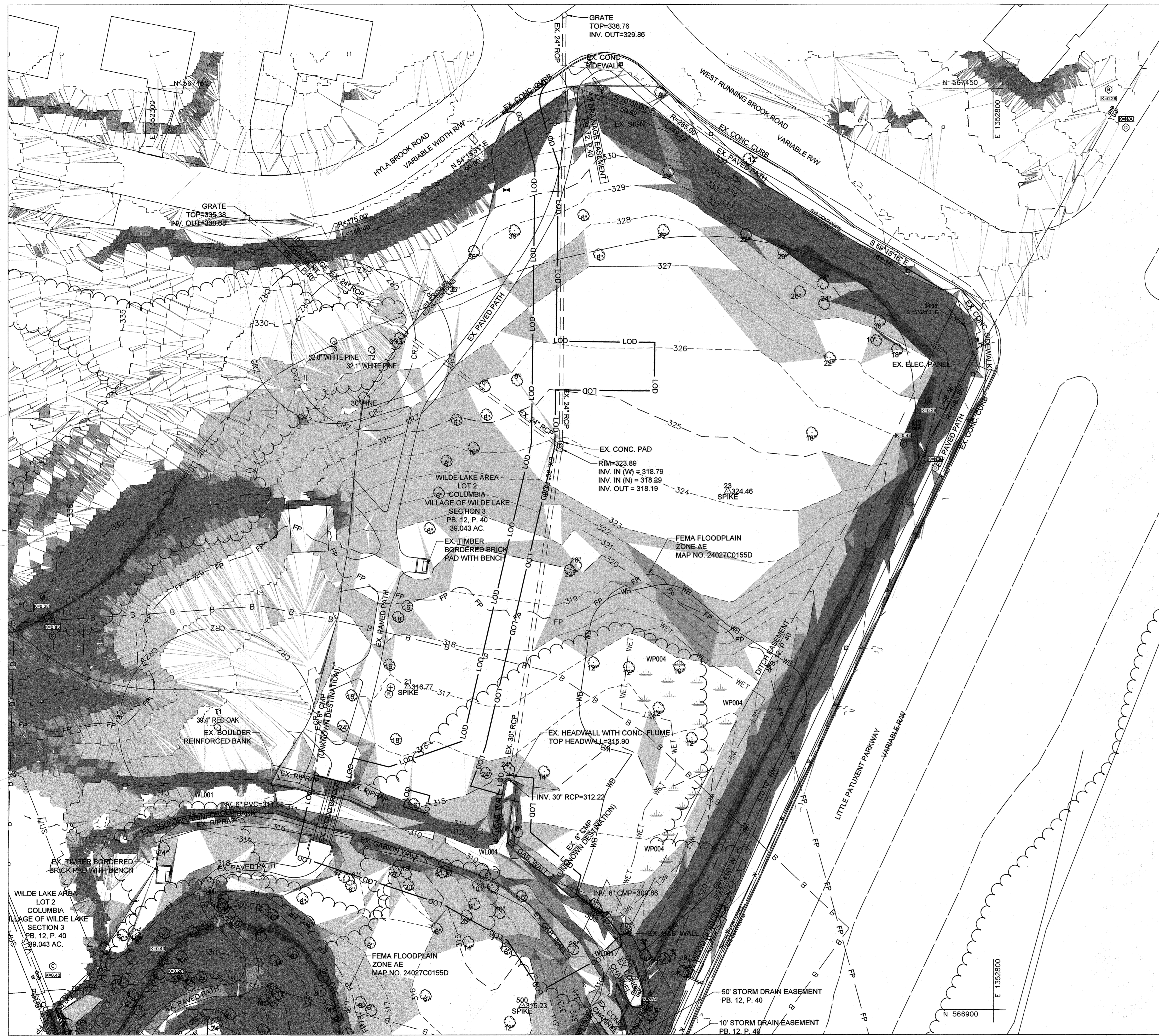
City, State, Zip: Columbia, MD 21045 City, State, Zip: Columbia, MD 21046

E-Mail: Dennis.matthey@columbiaassociation.org E-Mail: jwade@straughanenvironmental.com

Phone No.: 410-715-3000 Phone No.: 443-539-2554

Contact Person: Dennis Matthey Contact Person: James Wade

Owner's Authorization Attached



EXISTING CONDITIONS LEGEND

- EXISTING TRAVERSE POINT
- BENCHMARK
- EXISTING STORMWATER PIPE
- EXISTING STORMWATER MANHOLE
- PROPERTY BOUNDARY
- EXISTING EASEMENT
- EX. EDGE OF PAVEMENT
- EXISTING FENCE
- SURVEYED TREELINE
- EVERGREEN TREE
- DECIDUOUS TREE
- SURVEYED SPECIMEN TREE
- 34" RED MAPLE
- CRZ
- EXISTING PATH
- EXISTING 5' MAJOR CONTOUR
- EXISTING 1' MINOR CONTOUR
- EXISTING WOODEN BRIDGE
- WATERWAY CENTERLINE
- SURVEYED WATERS OF THE US
- WATERWAY BUFFER (100 FT)
- SURVEYED WETLAND
- 25' WETLAND BUFFER
- SOIL BOUNDARY
- HYDROLOGIC SOIL GROUP
- EX. FEMA FLOODPLAIN
- HIGHLY ERODIBLE SOILS (>5% SLOPES AND K<0.35)
- HIGHLY ERODIBLE SOILS (>15% SLOPES)
- STEEP SLOPES (20% OR GREATER)
- LOD

SPECIMEN TREE LIST			
TREE ID	DBH, IN	SPECIES	REMOVED?
T1	39.4	RED OAK	NO
T2	32.1	WHITE PINE	NO
T3	32.8	WHITE PINE	NO

SOIL GROUPS			
SOIL NAME	SOIL SYMBOL	HSG	K FACTOR
MANOR LOAM	McD	B	0.28
GLENELG-URBAN LAND COMPLEX	GhB	B	0.28
GLENVILLE-CODORUS SILT LOAMS	GoB	C	0.43
HATBORO-CODORUS SILT LOAMS	Ha	B/D	0.37
UDORTHENTS	UaF	D	N/A
WATER	W	N/A	N/A

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division *[Signature]* 10/16/23 Date

Chief, Division of Land Developments *[Signature]* 10/19/23 Date

Director *[Signature]* 10/19/23 Date

SCD GP #: 23-009

STRAUGHAN ENVIRONMENTAL
 10245 Old Columbia Road | Columbia, MD 21046
 301.362.9200 | www.straughanenvironmental.com



JOSEPH D. ARROWSMITH, P.E.
 PROFESSIONAL CERTIFICATION
 I, JOSEPH D. ARROWSMITH, 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 NO. 44918 EXPIRATION DATE: DECEMBER 22, 2023
 JOSEPH D. ARROWSMITH, P.E.
 10245 OLD COLUMBIA ROAD
 COLUMBIA, MARYLAND 21046
 BUSINESS PH. 443.539.2548
 9/12/2023



DES:	BY:	NO.	REVISIONS	DATE
JW				
DRN:	JW			
CHK:	JA			
DATE:	7/2023			

EXISTING CONDITIONS PLAN

NAD83/NAVD88

COLUMBIA ASSOCIATION VILLAGE OF WILDE LAKE

MINOR GRADING IN SUPPORT OF WILDE LAKE BANK RIPRAP REPLACEMENT ELECTION DISTRICT 4, HOWARD COUNTY MD TAX MAP 30 GRID 20 PARCEL 242 LOT 2

SCALE
 1" = 30'
 SHEET
 2 OF 10

WP-23-075

**HOWARD SOIL CONSERVATION DISTRICT (HSCD)
STANDARD SEDIMENT CONTROL NOTES**

- A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:
 - Prior to the start of earth disturbance,
 - Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
 - Prior to the start of another phase of construction or opening of another grading unit,
 - Prior to the removal or modification of sediment control practices.

Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.
- 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.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, 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 areas on the project site except for those areas under active grading.
- 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 topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
- 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 CID.
- Site Analysis:

Total Area of Site:	0.493	Acres
Area Disturbed:	0.493	Acres
Area to be roofed or paved:	0.000	Acres
Area to be vegetatively stabilized:	0.00	Acres
Total Cut:	87	Cu. Yds.
Total Fill:	0	Cu. Yds.
Offsite waste/borrow area location:	SITE WITH 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.
- Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:
 - Inspection date
 - Inspection type (routine, pre-storm event, during rain event)
 - Name and title of inspector
 - Weather information (current conditions as well as time and amount of last recorded precipitation)
 - Brief description of project's status (e.g., percent complete) and/or current activities
 - Evidence of sediment discharges
 - Identification of plan deficiencies
 - Identification of sediment controls that require maintenance
 - Identification of missing or improperly installed sediment controls
 - Compliance status regarding the sequence of construction and stabilization requirements
 - Photographs
 - Monitoring/sampling
 - Maintenance and/or corrective action performed
 - Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
- Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.
- Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may be allowed by the CID per the list of HSCD-approved field changes.
- Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at a given time.
- Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
- Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.
- All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.
- Stream channels must not be disturbed during the following restricted time periods (inclusive):
 - Use I and IP March 1 - June 15
 - Use III and IIIP October 1 - April 30
 - Use IV March 1 - May 31
- A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

Rev. 8.2016

B-4-5 STANDARDS AND SPECIFICATIONS

**FOR
PERMANENT STABILIZATION**

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use

- 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.
- 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.
- For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- 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 Seeding Summary.

2. Turfgrass Mixtures

- Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - 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.
 - Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"
Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

c. Ideal Times of Seeding for Turf Grass Mixtures

- Western MD:** March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

- Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- If soil moisture is deficient, supply new seedlings 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 seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)			Lime Rate
					N	P ₂ O ₅	K ₂ O	
1	Switch Grass	10	03/01 - 08/15 08/01 - 10/01	1/4 - 1/2 in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	Creeping Red Fescue	15	03/01 - 06/15 08/01 - 10/01	1/4 - 1/2 in				
	Partridge Pea	4	03/01 - 06/15 08/01 - 10/01	1/4 - 1/2 in				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications

- Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
- 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.
- 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.
- Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

- During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
- 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.
- 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.
- 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.

B-4-4 STANDARDS AND SPECIFICATIONS

**FOR
TEMPORARY STABILIZATION**

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- 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.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 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

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)	Lime Rate
	Annual Ryegrass	40	03/01-05/15 08/01-10/15	1/2 IN	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	Pearl Millet	30	05/16-07/31	1/2 IN		

ESC GENERAL NOTES

- THE CONTRACTOR SHALL STAY WITHIN THE LIMIT OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORKING AREA WHENEVER POSSIBLE.
- CONTRACTOR SHALL TAKE EXTRA PRECAUTION FOR TRANSPORTING MATERIALS FROM THE STORAGE AREA TO THE CONSTRUCTION SITE. CONTRACTOR SHALL MINIMIZE IMPACT ON THE EXISTING TREES, WETLANDS, U.S. WATERS, EXISTING UTILITY AND OTHER EXISTING FEATURES.
- ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY IS TO BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A PUMP AROUND DURING ANY IN-STREAM CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR MONITORING WEATHER AND PLANNING IN-STREAM WORK SUCH THAT EACH SECTION OF STREAM DISTURBED SHALL BE STABILIZED WITHIN THE SAME DAY. UPON COMPLETION OF DAILY WORK, A STABLE OUTFALL/CONNECTION SHALL BE ESTABLISHED AND THE PUMP AROUND REMOVED. PUMP CAPACITY FOR 2X BASEFLOW = 2 X 0.593 CFS = 531 GPM.
- WORK SHALL BE PERFORMED WHILE A STREAM PUMP AROUND OR DIVERSION IS ACTIVE. EVERY ATTEMPT SHALL BE MADE TO COMPLETE IN-STREAM CONSTRUCTION DURING A TIME PERIOD WITH NO FORECASTED PRECIPITATION FOR A PERIOD OF FIVE (5) DAYS. NO IN-STREAM CONSTRUCTION SHALL BE ALLOWED BETWEEN MARCH 1ST AND MAY 31ST.
- FOLLOWING COMPLETION OF DAILY WORK, ALL DISTURBANCE SHALL BE STABILIZED THE SAME DAY WITH SOIL STABILIZATION MATTING AND TEMPORARY SEED.

SEQUENCE OF CONSTRUCTION

PROJECT INITIATION

- CONDUCT ON-SITE PROJECT INITIATION MEETING WITH THE PROJECT ENGINEER AND CONSTRUCTION REPRESENTATIVE. THE PROJECT HAS MDE PERMIT TRACKING NUMBER 22-NT-3264/2022-61906. CONTRACTOR SHALL NOTIFY THE WATER AND SCIENCE ADMINISTRATION'S COMPLIANCE PROGRAM AT LEAST FIVE (5) DAYS BEFORE STARTING AUTHORIZED ACTIVITIES AND FIVE (5) DAYS AFTER COMPLETION AT 301-665-2850. VERIFY THE MDE PERMIT NUMBER. OBTAIN GRADING PERMIT FROM HOWARD COUNTY.
- NOTIFY "MISS UTILITY" AT 1-800-252-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

EROSION AND SEDIMENT CONTROL SETUP (6 WORKDAYS)

- MOBILIZE TO SITE AND INSTALL THE PERIMETER EROSION AND SEDIMENT CONTROLS INCLUDING (2 DAYS):

- STAKE LOCATION OF LOD, STRUCTURES, STOCKPILE
- STABILIZED CONSTRUCTION ENTRANCE
- ORANGE CONSTRUCTION FENCING AROUND THE ENTIRE LOD, EXCLUDING STREAM CROSSINGS

- FOLLOWING EROSION CONTROL SETUP, CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ONSITE WITH THE PROJECT ENGINEER, CONSTRUCTION SUPERVISOR, AND HOWARD COUNTY CID INSPECTOR TO REVIEW THE EROSION AND SEDIMENT CONTROL REQUIREMENTS, SEQUENCE OF CONSTRUCTION, LIMITS OF DISTURBANCE, PROJECT LAYOUT, AND TREE IMPACT BEFORE WORK BEGINS. NO IN-STREAM CONSTRUCTION SHALL BE ALLOWED BETWEEN MARCH 1ST AND MAY 31ST. (1 DAY).

- UPON APPROVAL, COMPLETE THE EROSION AND SEDIMENT CONTROL SETUP INCLUDING (3 DAYS):

- WOODCHIP ACCESS ROAD
- TEMPORARY ACCESS BRIDGE
- CLEARING AND GRUBBING
- STREAM DIVERSION PUMP AROUND, MINIMUM 480 GPM

IMBRICATED RIPRAP WALL CONSTRUCTION (18 WORKDAYS)

- BEGIN WORK AFTER ALL EROSION AND SEDIMENT CONTROL DEVICES ARE INSTALLED AND APPROVED BY THE CID INSPECTOR.
- BEGINNING DOWNSTREAM, REMOVE GABION BASKETS AND INSTALL THE IMBRICATED RIPRAP WALL. STABILIZE ALL DISTURBED AREAS ADJACENT TO THE STREAM WITH 3-INCHES OF COMPOST AND TYPE D TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION (15 DAYS).
- WITH APPROVAL OF THE CID INSPECTOR, REMOVE THE SEDIMENT CONTROL DEVICES, ACCESS, AND STAGING AREAS. CONTRACTOR SHALL REPAIR/RESTORE IN-KIND ANY DAMAGED SECTIONS OF ASPHALT TRAILS. INSTALL 3-INCHES COMPOST ON AREAS DISTURBED BY DEVICE REMOVAL. STABILIZE DISTURBED AREAS WITH TYPE D TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION. (1 DAY)
- FOLLOWING COMPLETION AND CID INSPECTOR APPROVAL OF ALL WORK ITEMS, REMOVE ORANGE CONSTRUCTION FENCING AND WOODCHIP ACCESS ROAD. RESEED ANY LAWN AREAS IMPACTED BY ACCESS ROAD USE AND REMOVAL WITH TURFGRASS SEED MIX. (2 DAYS)

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division 10/4/23
 Chief, Division of Land Development 10/19/23
 Director 10/19/23

HOWARD SCD SIGNATURE BLOCK:
 THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 9/21/23
 HOWARD SOIL CONSERVATION DISTRICT DATE

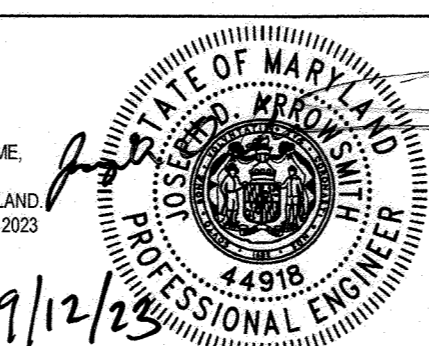
SCD GP#: 23-009



JOSEPH D. ARROWSMITH, P.E.
PROFESSIONAL CERTIFICATION

I, JOSEPH D. ARROWSMITH, 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 NO. 44918, EXPIRATION DATE: DECEMBER 22, 2023

JOSEPH D. ARROWSMITH, P.E.
10245 OLD COLUMBIA ROAD
COLUMBIA, MARYLAND 21046
BUSINESS PH. 443.539.2548



DES:	BY:	NO.	REVISIONS	DATE
JW				
JW				
JA				
DATE:	9/20/23			

EROSION & SEDIMENT CONTROL NOTES

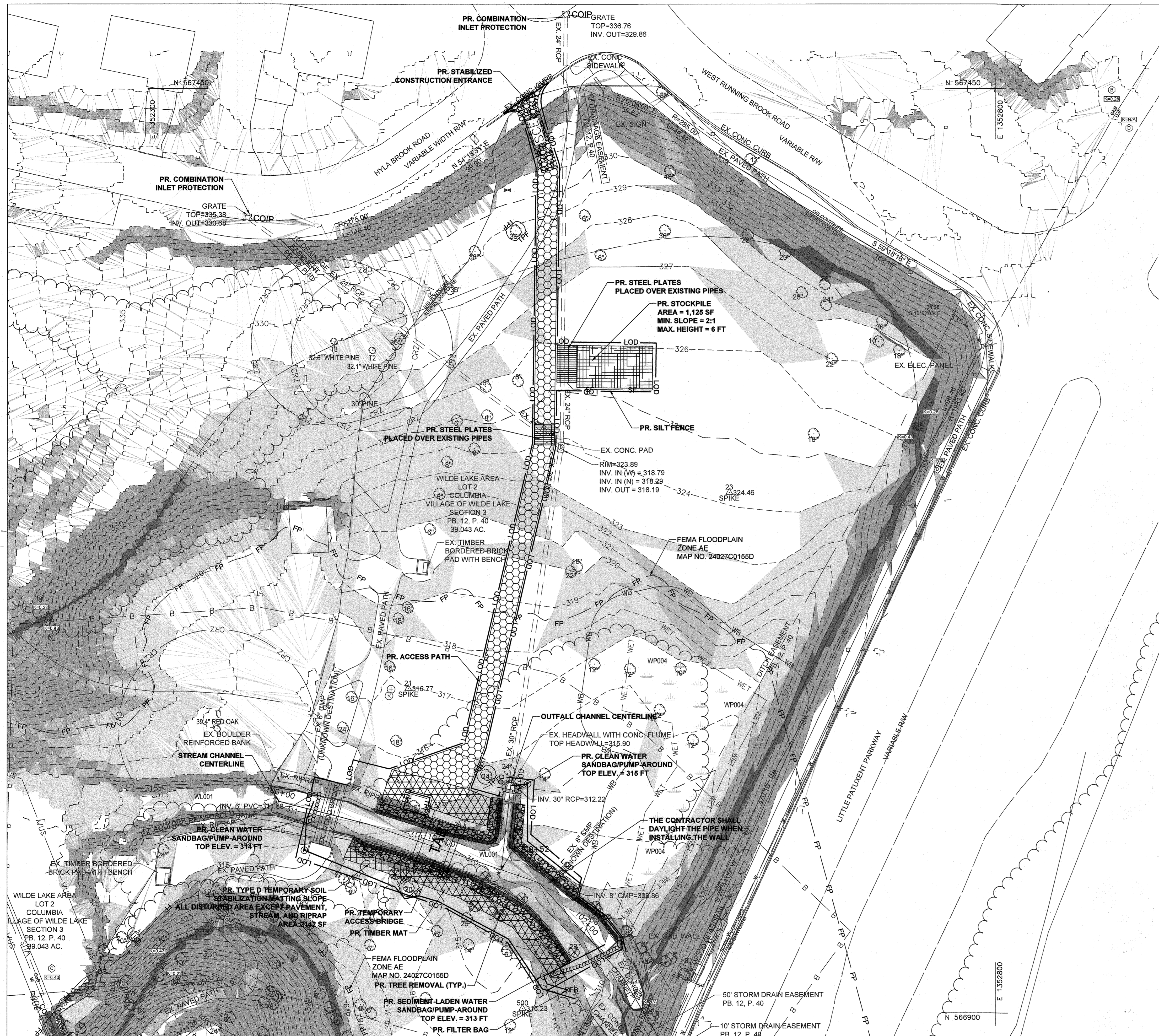
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**COLUMBIA ASSOCIATION
VILLAGE OF WILDE LAKE**

MINOR GRADING IN SUPPORT OF WILDE LAKE BANK RIPRAP REPLACEMENT ELECTION DISTRICT 4, HOWARD COUNTY MD TAX MAP 30 GRID 20 PARCEL 242 LOT 2

SCALE N/A
SHEET 5 OF 10

WP-23-075



EROSION AND SEDIMENT CONTROL LEGEND

- EXISTING TRAVERSE POINT BENCHMARK
- EXISTING STORMWATER PIPE
- EXISTING STORMWATER MANHOLE
- SURVEYED WATERS OF THE US
- WATERWAY BUFFER (100 FT)
- SURVEYED WETLAND
- 25' WETLAND BUFFER
- SOIL BOUNDARY
- HYDROLOGIC SOIL GROUP
- EX. FEMA FLOODPLAIN
- HIGHLY ERODIBLE SOILS (>5% SLOPES AND K>0.35)
- HIGHLY ERODIBLE SOILS (>15% SLOPES)
- STEEP SLOPES (20% OR GREATER)
- LIMITS OF DISTURBANCE
- PROPOSED RIPRAP
- PROPOSED BOULDERS
- ORANGE CONSTRUCTION FENCE
- TREE PROTECTION FENCE
- SILT FENCE
- PR. WOODCHIP ACCESS ROAD
- PR. STOCKPILE AREA
- TYPE D TEMPORARY SOIL STABILIZATION MATTING SLOPE
- PROPOSED TIMBER MAT
- PROPOSED SAND BAG DIKE
- PUMP
- FILTER BAG
- TEMPORARY ACCESS BRIDGE
- STABILIZED CONSTRUCTION ENTRANCE
- COMBINATION INLET PROTECTION
- PROPOSED TREE REMOVAL
- PROPOSED STEEL PLATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division *[Signature]* Date *10/19/23*

Chief, Division of Land Development *[Signature]* Date *10/19/23*

Director *[Signature]* Date *10/19/23*

SPECIMEN TREE LIST

TREE ID	DBH, IN	SPECIES	REMOVED?
T1	39.4	RED OAK	NO
T2	32.8	WHITE PINE	NO
T3	32.1	WHITE PINE	NO

NOTE: ALL LOD IS TO BE STABILIZED WITH SOIL STABILIZATION MATTING OR SEEDING EXCEPT WHERE NOTED.

10-YEAR STORM SUBCRITICAL FLOW HYDRAULICS

FEATURE	V10 (FT/S)	d10 (FT)	τ10 (PSF)	MAX ALLOWABLE V (FT/S)
CHANNEL	9.53	5.60	2.74	12.50
LEFT OVERBANK	1.32	1.30	0.24	4.00
RIGHT OVERBANK	1.98	1.46	0.53	4.00

SOIL GROUPS

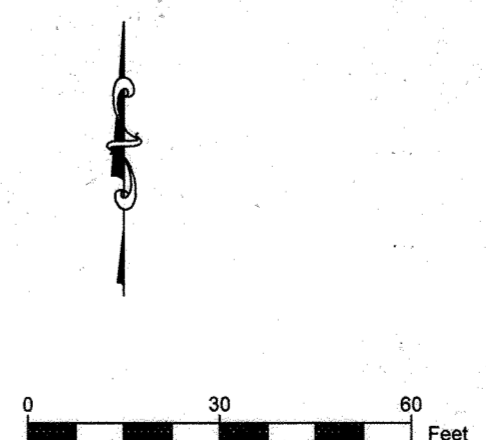
SOIL NAME	SOIL SYMBOL	HSG	K FACTOR
MANOR LOAM	McD	B	0.28
GLENELG-URBAN LAND COMPLEX	GhB	B	0.28
GLENVILLE-CODORUS SILT LOAMS	GoB	C	0.43
HATBORO-CODORUS SILT LOAMS	Ha	B/D	0.37
UDORTMENTS	UaF	D	N/A
WATER	W	N/A	N/A

HOWARD SCD SIGNATURE BLOCK:

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 9/21/23 DATE

HOWARD SOIL CONSERVATION DISTRICT



STRAUGHAN ENVIRONMENTAL

10245 Old Columbia Road | Columbia, MD 21046
301.362.9200 | www.straughanenvironmental.com

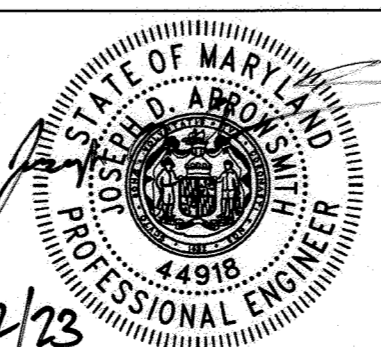
Columbia Association

JOSEPH D. ARROWSMITH, P.E.
PROFESSIONAL CERTIFICATION

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JOSEPH D. ARROWSMITH, P.E.
10245 OLD COLUMBIA ROAD
COLUMBIA, MARYLAND 21046
BUSINESS PH: 443.538.2548

9/12/23



DES:	BY:	NO.:	REVISIONS:	DATE:
JW				
DRN:	JW			
CHK:	JA			
DATE:	7/2023			

EROSION & SEDIMENT CONTROL PLAN

NAD83/NAVD88

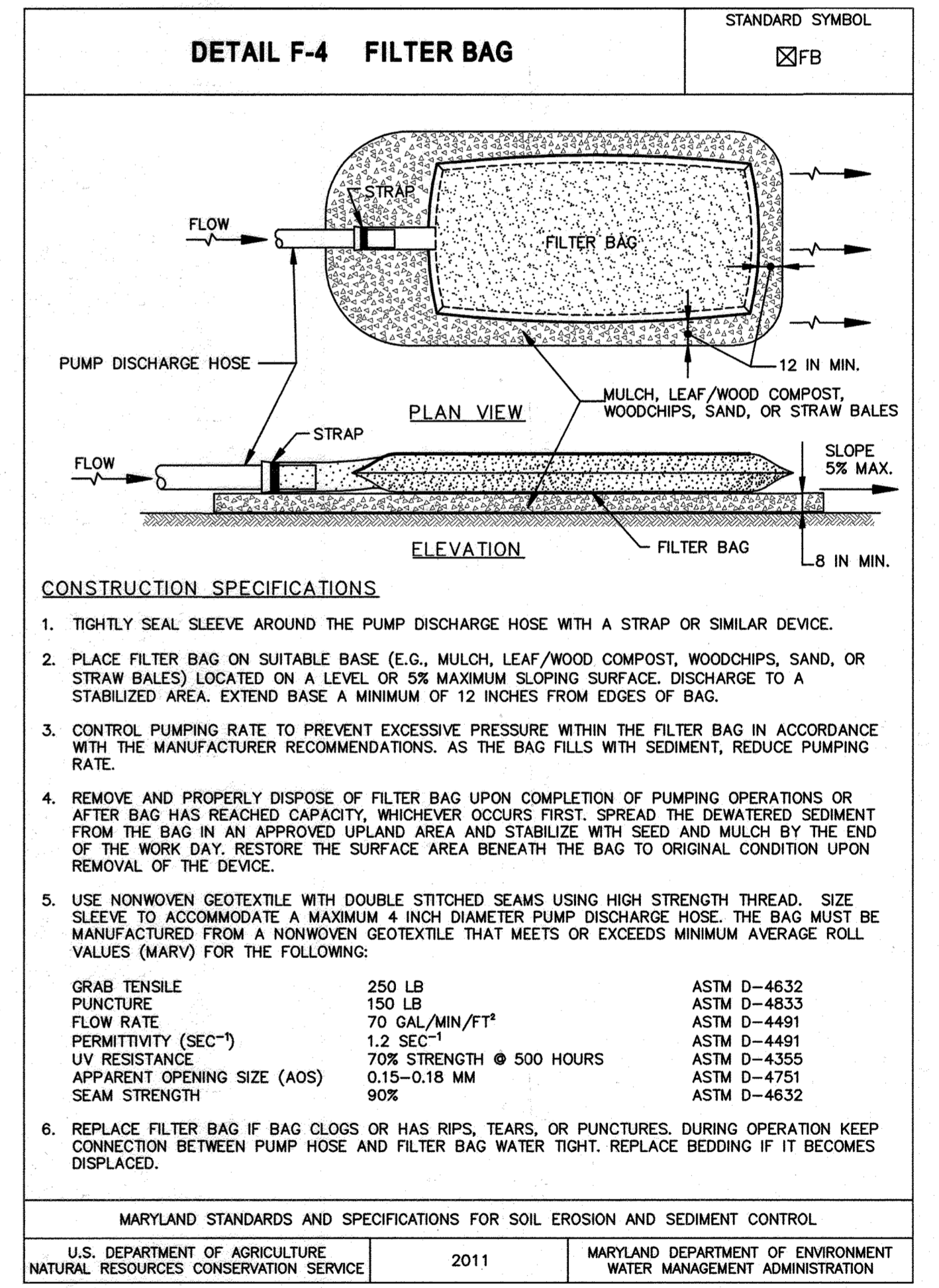
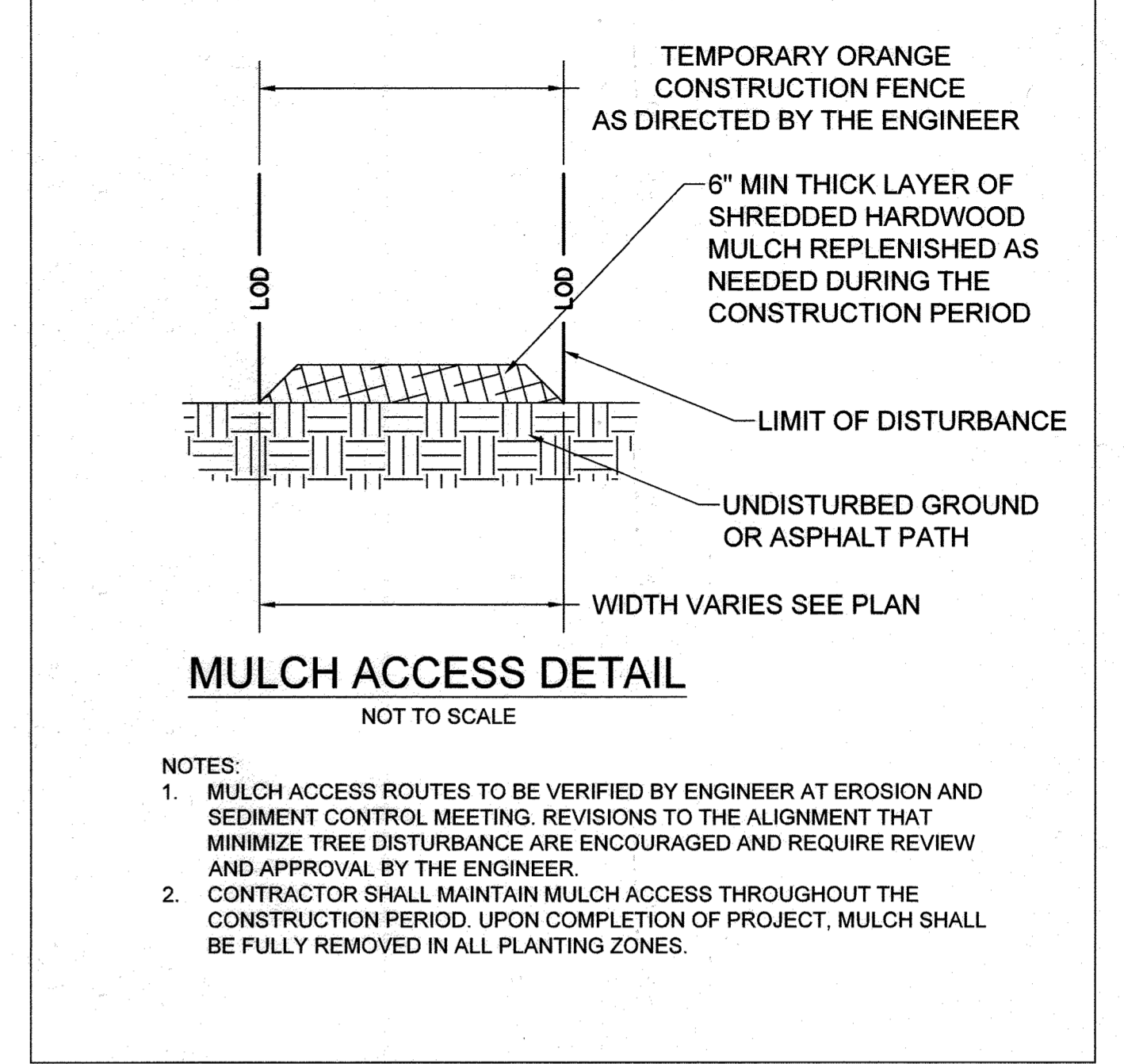
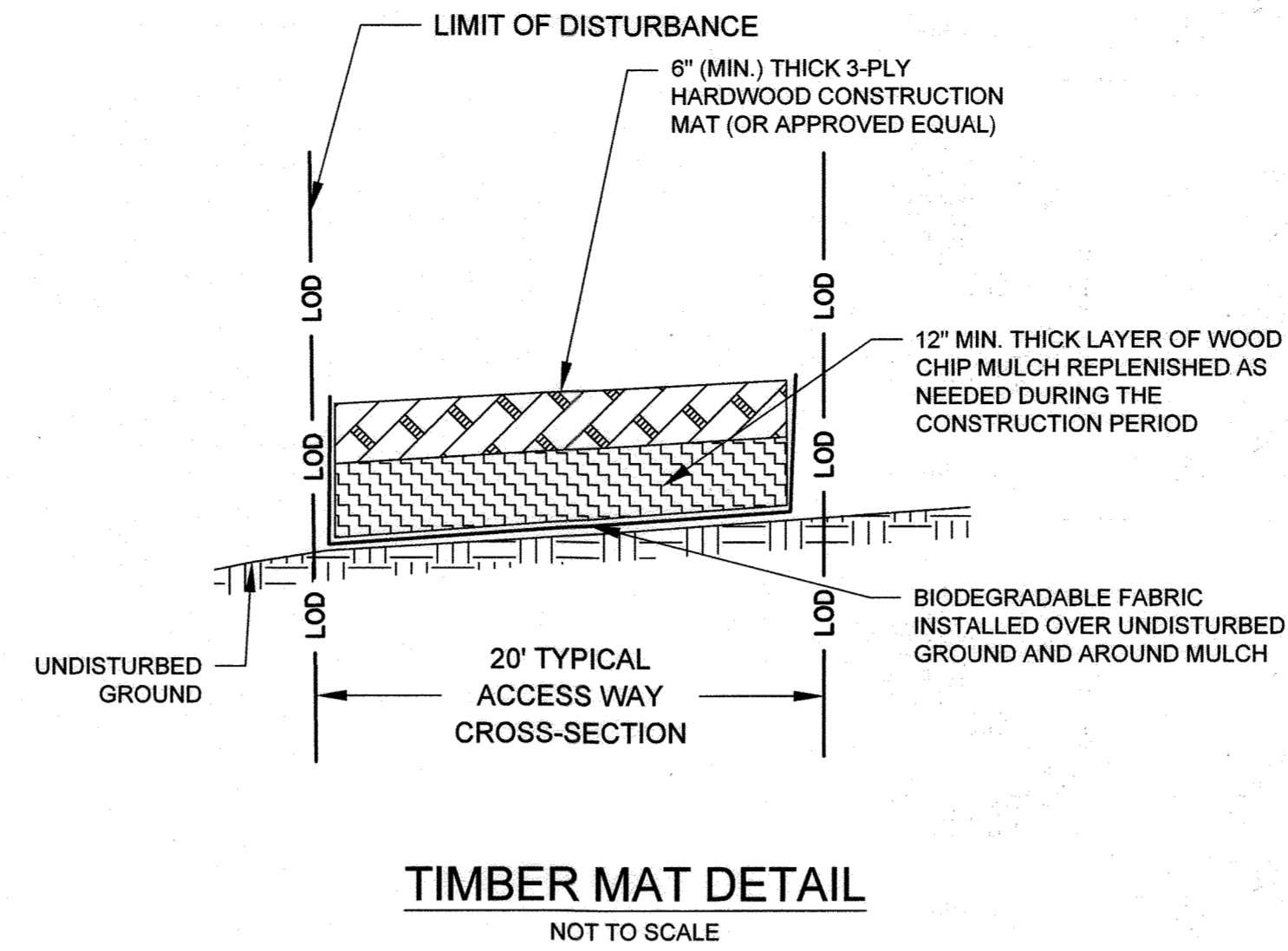
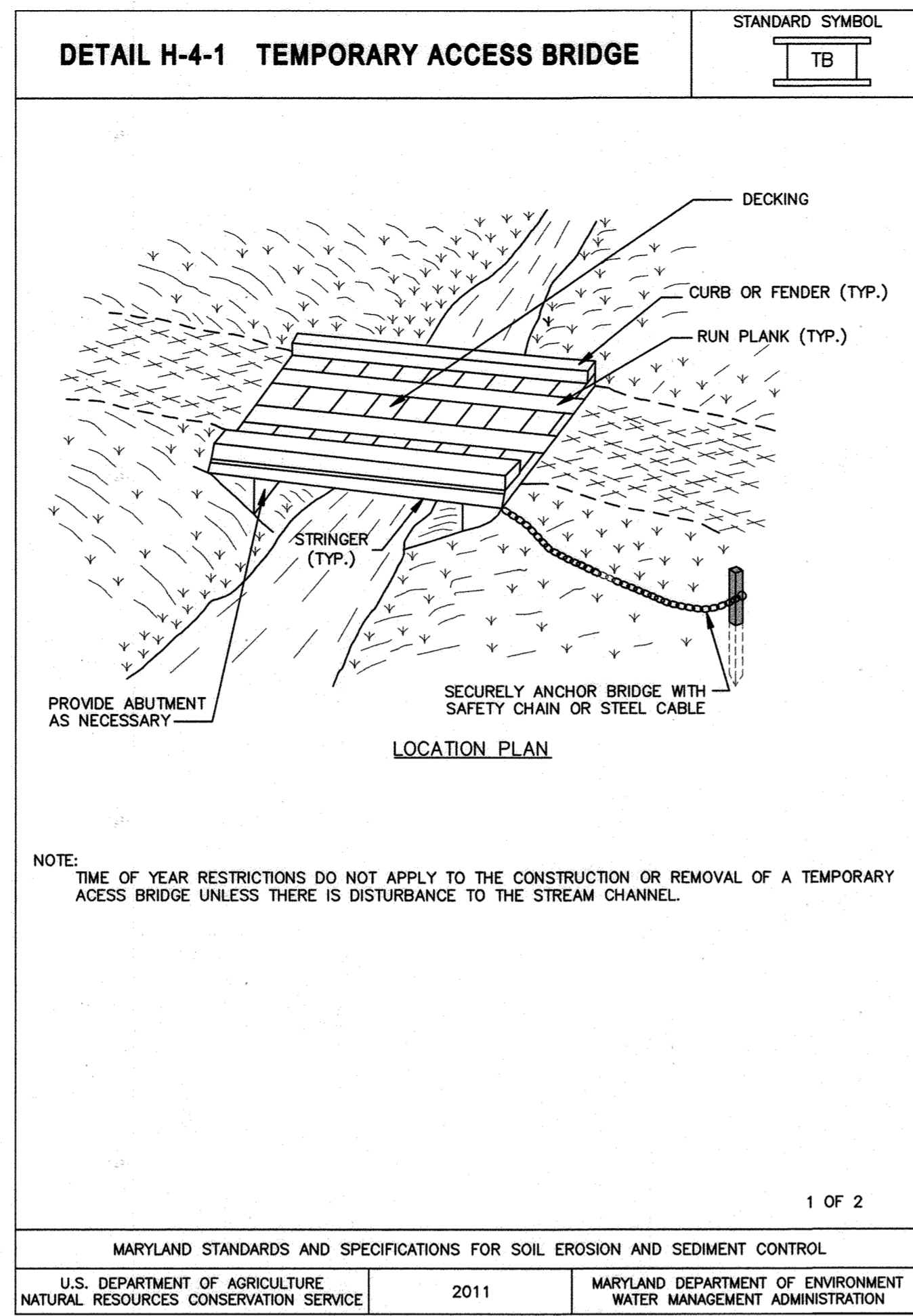
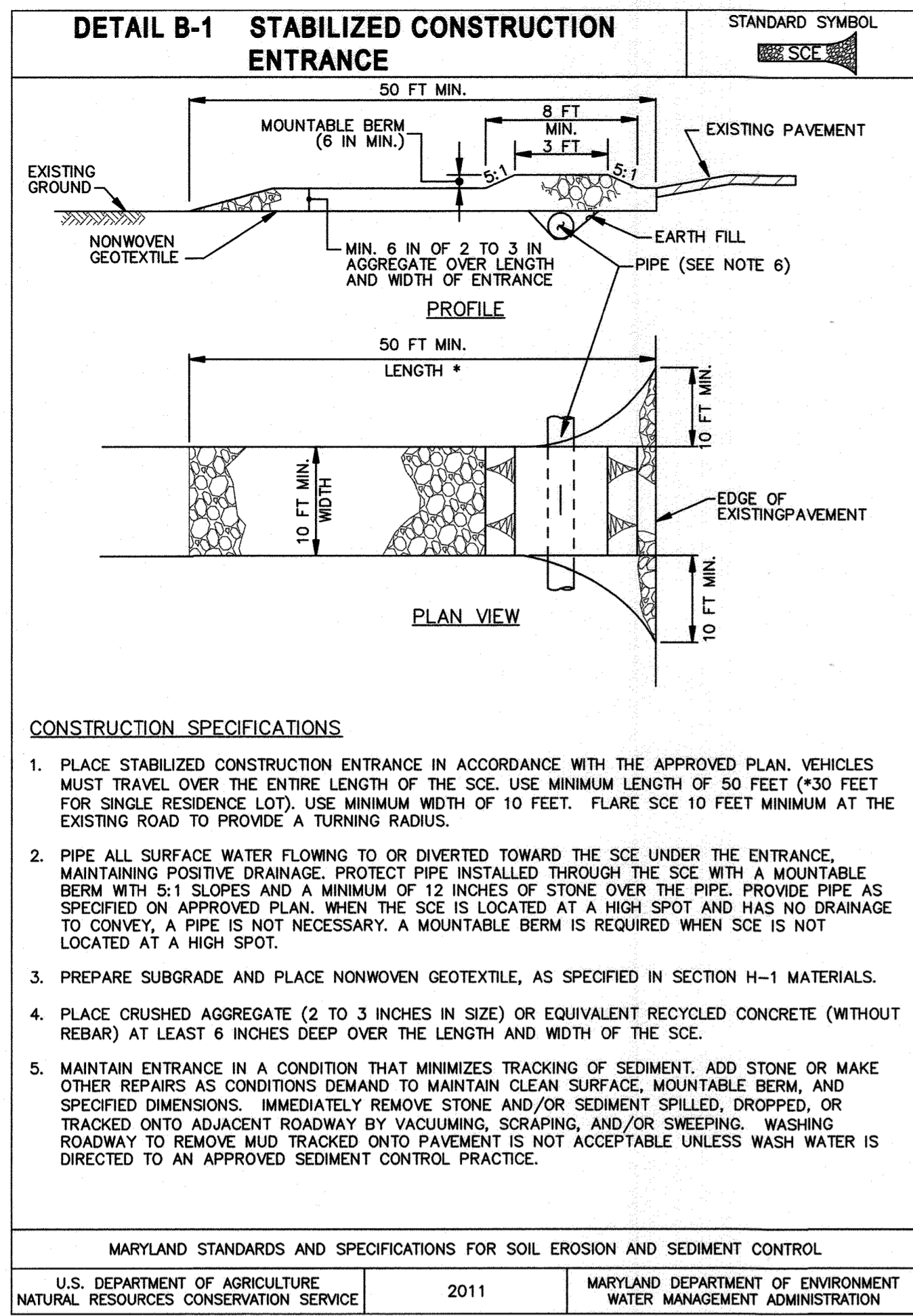
COLUMBIA ASSOCIATION VILLAGE OF WILDE LAKE

MINOR GRADING IN SUPPORT OF WILDE LAKE BANK RIPRAP REPLACEMENT ELECTION DISTRICT 4, HOWARD COUNTY MD TAX MAP 30 GRID 20 PARCEL 242 LOT 2

SCALE: 1" = 30'

SHEET: 6 OF 10

SCD GP #: 23-009



MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

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

IMPLEMENTATION SEQUENCE

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

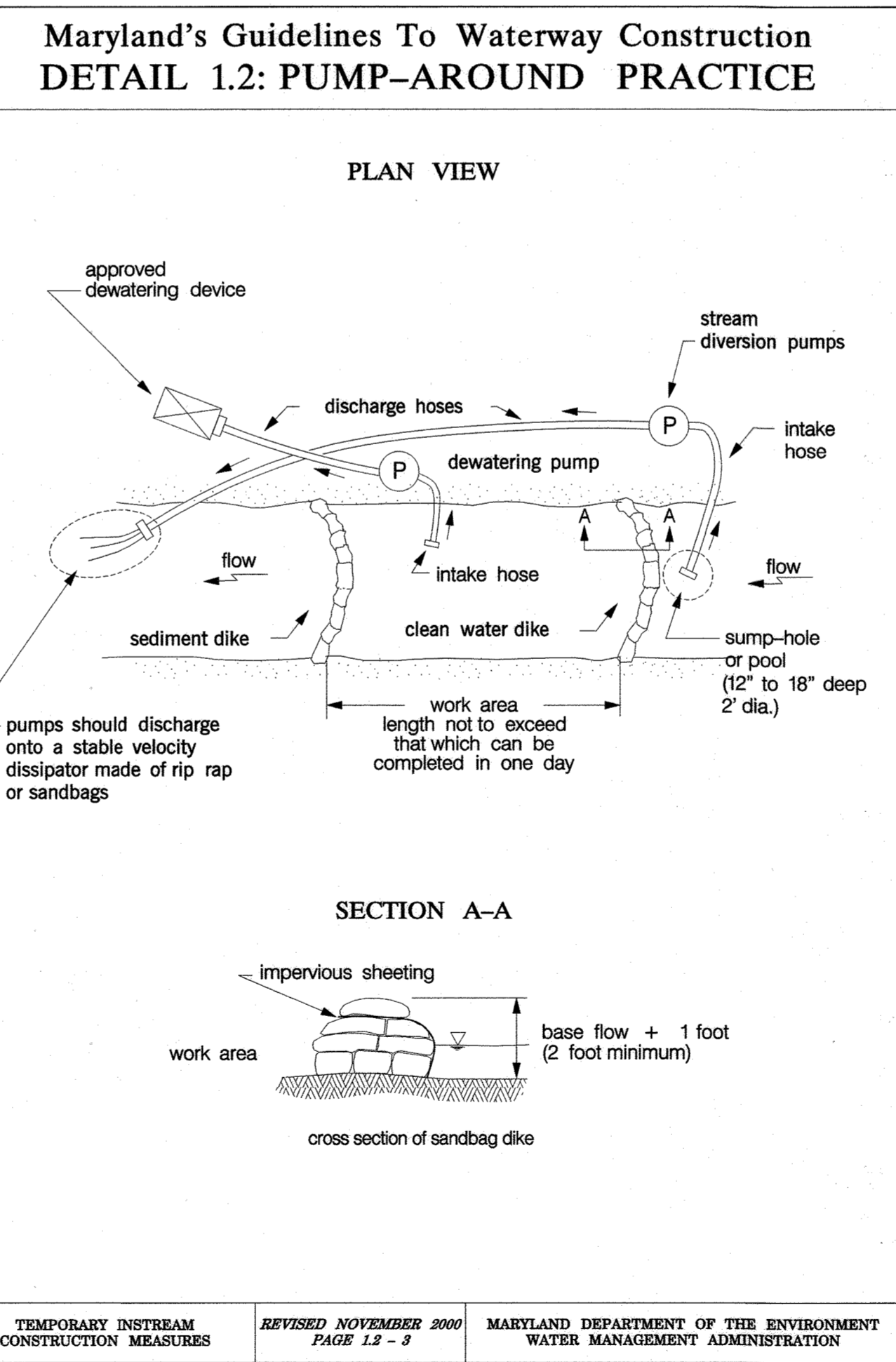
- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage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

TEMPORARY INSTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000
PAGE 1.2 - 1

MGWC 1.2: PUMP-AROUND PRACTICE

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

TEMPORARY INSTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000
PAGE 1.2 - 2



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 10/16/23
Date

Chief, Division of Land Development 10/16/23
Date

Director 10/16/23
Date

HOWARD SCD SIGNATURE BLOCK:

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

9/21/23
DATE

STRAUGHAN ENVIRONMENTAL

10245 Old Columbia Road | Columbia, MD 21046
301.362.9200 | www.straughanenvironmental.com

Columbia Association

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BUSINESS PH. 443.539.2548

9/12/23

DES:	BY:	NO.	REVISIONS	DATE
JW				
JW				
JA				
DATE:	7/2023			

EROSION & SEDIMENT CONTROL DETAILS

NAD83/NAVD88

COLUMBIA ASSOCIATION VILLAGE OF WILDE LAKE

MINOR GRADING IN SUPPORT OF WILDE LAKE BANK RIPRAP REPLACEMENT ELECTION DISTRICT HOWARD COUNTY MD TAX MAP 30 GRID 20 PARCEL 242 LOT 2

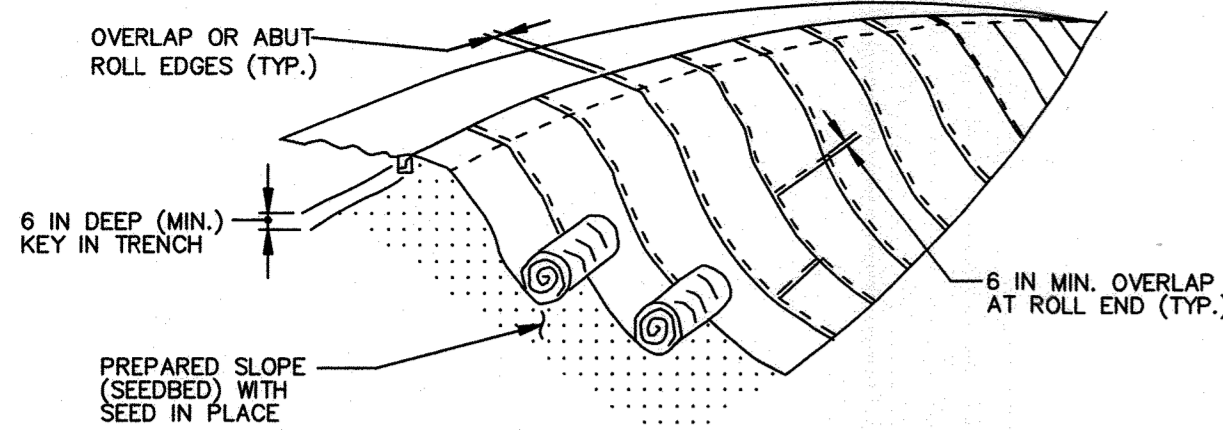
SCALE N/A
SHEET 7 OF 10

WP-23-075

SCD GP #: 23-009

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL
TSSMS - 2.0 lb/ft²
(* INCLUDE SHEAR STRESS)



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 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 A MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- 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.
- UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
- 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 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.
- 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 NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-8 STANDARDS AND SPECIFICATIONS

FOR

STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the upgrade side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

- Soil Preparation
 - Temporary Stabilization
 - 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.
 - Apply fertilizer and lime as prescribed on the plans.
 - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
 - Permanent Stabilization
 - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - Soil pH between 6.0 and 7.0.
 - Soluble salts less than 500 parts per million (ppm).
 - 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.
 - Soil contains 1.5 percent minimum organic matter by weight.
 - Soil contains sufficient pore space to permit adequate root penetration.
 - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
 - 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.

- Topsoiling
 - 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.
 - 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.
 - Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - 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.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
 - Areas having slopes steeper than 2:1 require special consideration and design.
 - Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - 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 1 1/2 inches in diameter.
 - 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.
 - 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
 - Erosion and sediment control practices must be maintained when applying topsoil.
 - 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.
 - 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

- Soil Amendments (Fertilizer and Lime Specifications)
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division 10/14/23
 Chief, Division of Land Development 10/19/23
 Director 10/19/23

HOWARD SCD SIGNATURE BLOCK:
 THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Director 9/21/23
 DATE

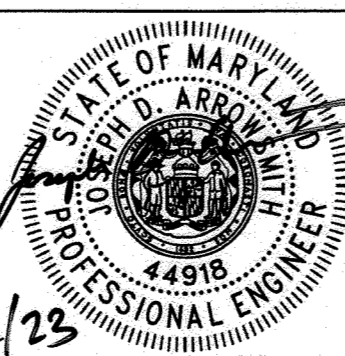
STRAUGHAN ENVIRONMENTAL
 10245 Old Columbia Road | Columbia, MD 21046
 301.362.9200 | www.straughanenvironmental.com



JOSEPH D. ARROWSMITH, P.E.
 PROFESSIONAL CERTIFICATION

I, JOSEPH D. ARROWSMITH, 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 NO. 44918, EXPIRATION DATE: DECEMBER 22, 2023

JOSEPH D. ARROWSMITH, P.E.
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DES:	BY	NO.	REVISIONS	DATE
JW				
JW				
JA				
DATE:	7/2023			

EROSION & SEDIMENT CONTROL DETAILS

NAD83/NAVD88

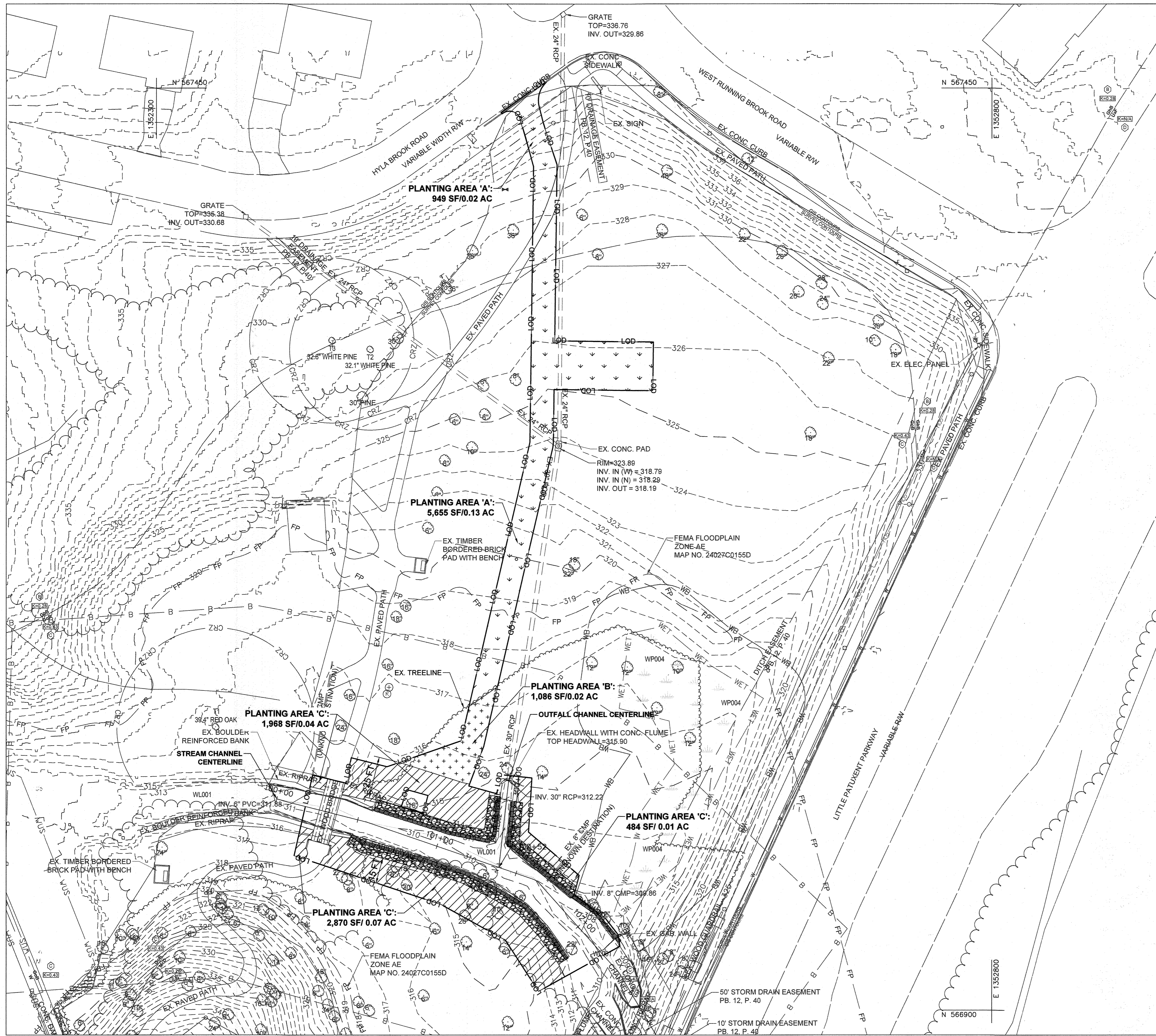
COLUMBIA ASSOCIATION VILLAGE OF WILDE LAKE

MINOR GRADING IN SUPPORT OF WILDE LAKE BANK RIPRAP REPLACEMENT ELECTION DISTRICT 4, HOWARD COUNTY MD TAX MAP 30 GRID 20 PARCEL 242 LOT 2

SCALE N/A SHEET 8 OF 10

SCD GP#: 23-009

WP-23-075



LANDSCAPE PLANTING LEGEND

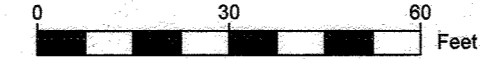
	EXISTING TRAVERSE POINT
	BENCHMARK
	EXISTING STORMWATER PIPE
	EXISTING STORMWATER MANHOLE
	SURVEYED WATERS OF THE US
	WATERWAY BUFFER (100 FT)
	SURVEYED WETLAND
	25' WETLAND BUFFER
	EX. FEMA FLOODPLAIN
	LIMITS OF DISTURBANCE
	PROPOSED RIPRAP
	PROPOSED BOULDERS
	TREE PROTECTION FENCE
	PROPOSED TREE REMOVAL
	PROPOSED PLANTING & SEED MIX AREA
	PROPOSED SEED MIX ONLY AREA
	PROPOSED TURFGRASS AREA

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division *[Signature]* 10/19/23 Date

Chief, Division of Land Development *[Signature]* 10/19/23 Date

Director *[Signature]* 10/19/23 Date



SCD GP #: 23-009

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 COLUMBIA, MARYLAND 21046
 BUSINESS PH. 443.538.2548
 9/12/23



DES:	BY:	NO.	REVISIONS	DATE
JW				
JW				
JA				
DATE:	7/2023			

LANDSCAPE PLANTING PLAN

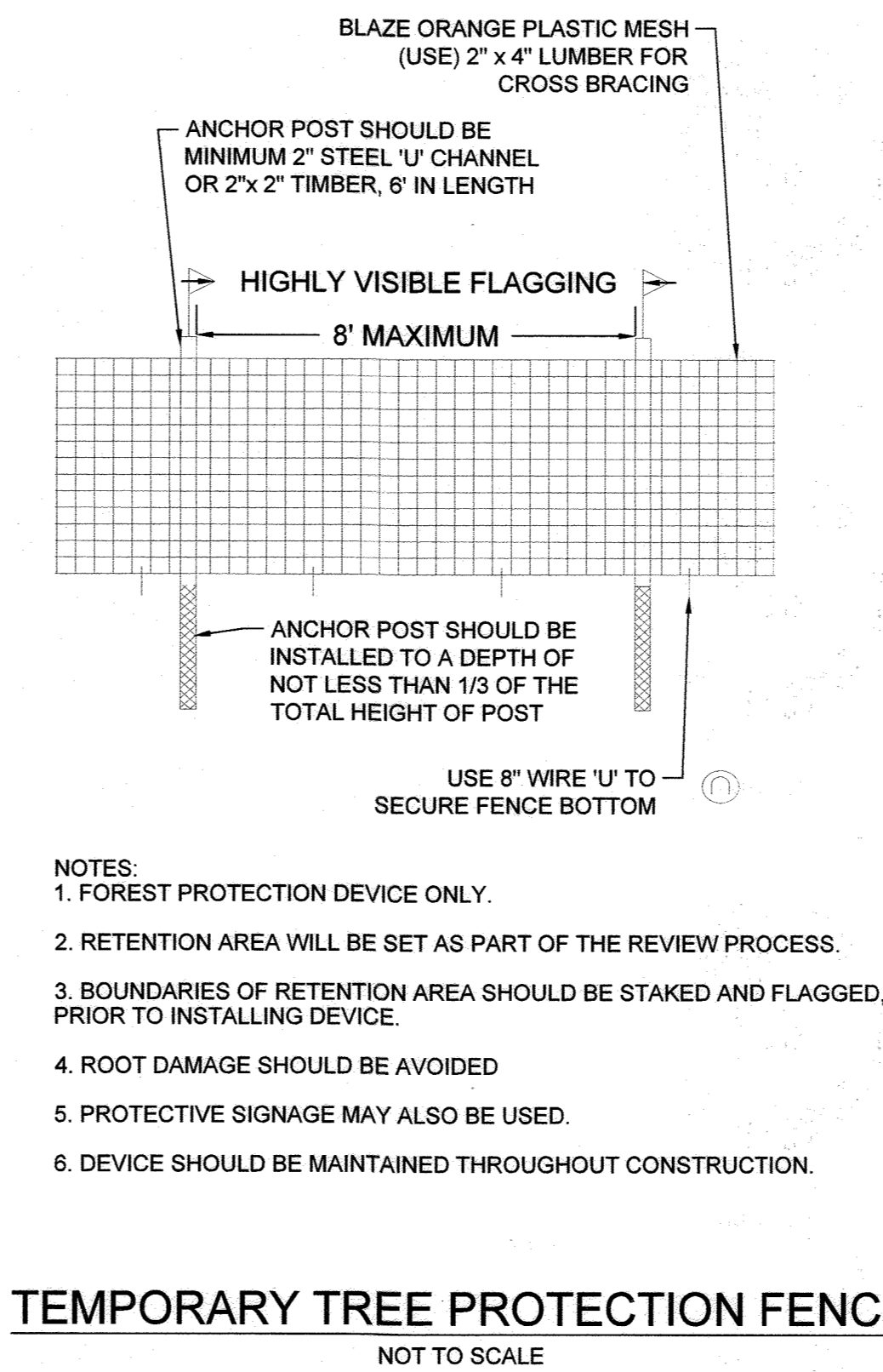
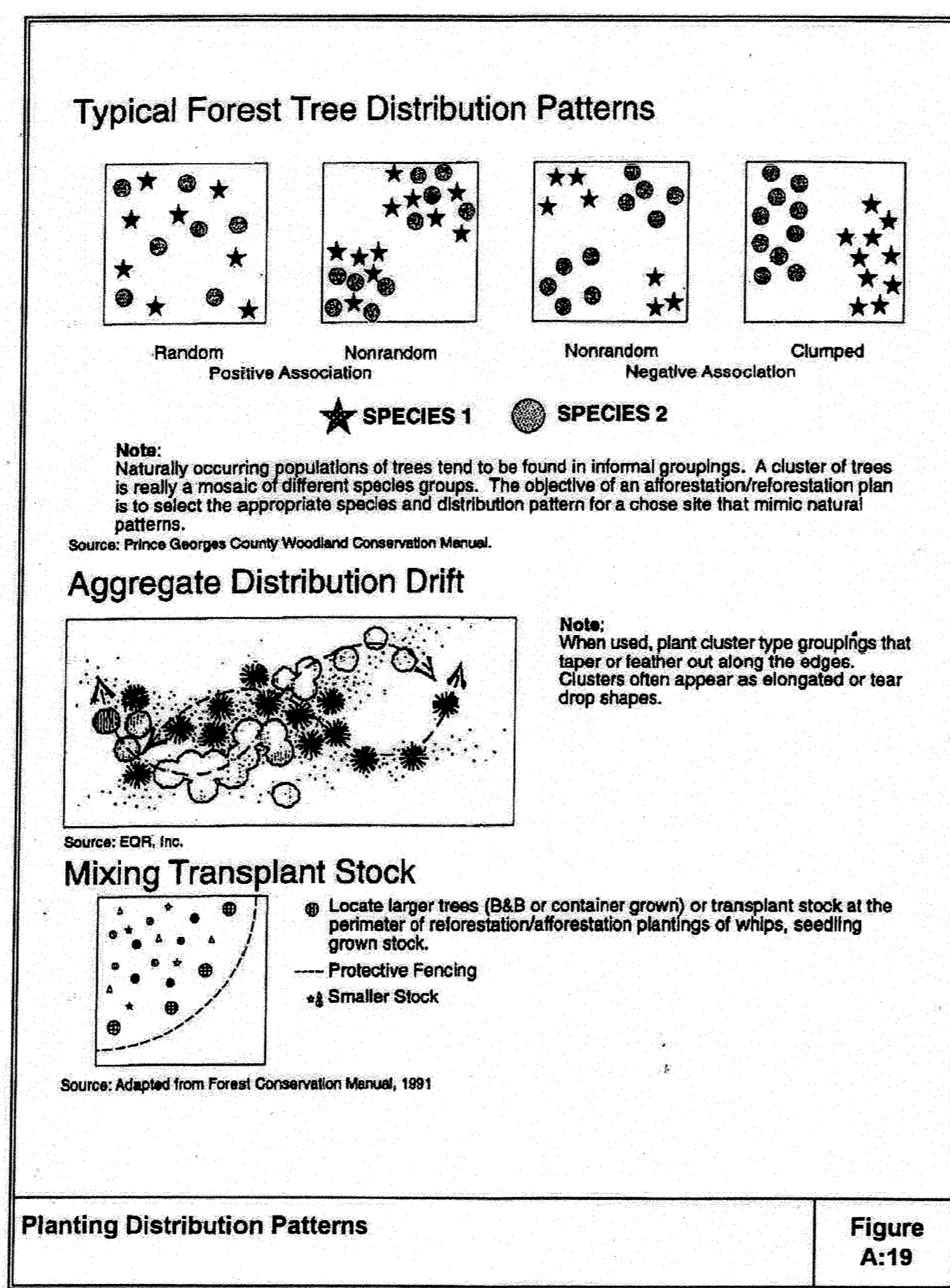
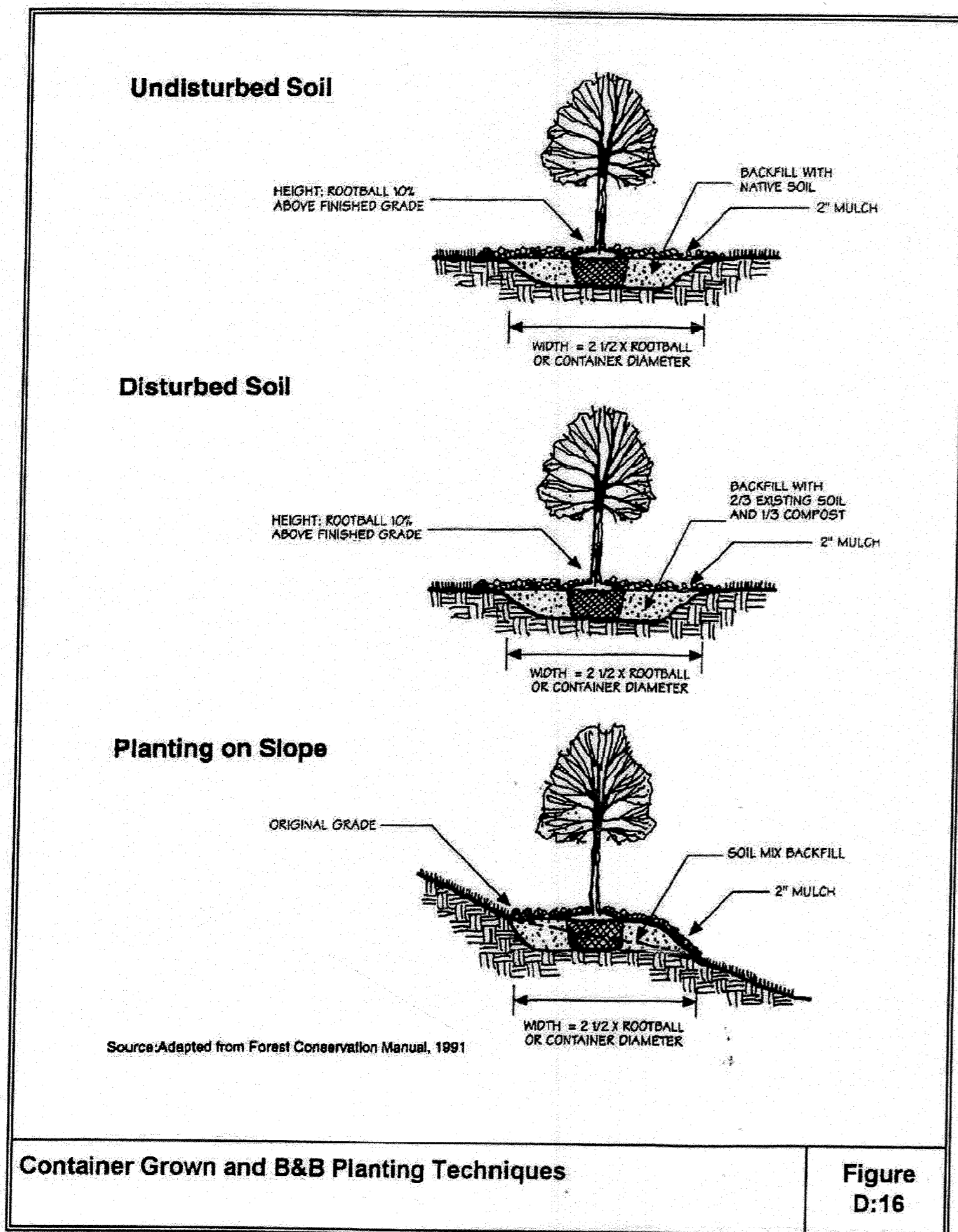
NAD83/NAVD88

COLUMBIA ASSOCIATION VILLAGE OF WILDE LAKE

MINOR GRADING IN SUPPORT OF WILDE LAKE BANK RIPRAP REPLACEMENT ELECTION DISTRICT 4, HOWARD COUNTY MD TAX MAP 30 GRID 20 PARCEL 242 LOT 2

SCALE
1"=30'
SHEET
9 OF 10

WP-23-075



DETAIL NOTE:
USE THIS METHOD FOR ALL SHRUB PLANTINGS. NO TREES ARE PROPOSED.

GENERAL NOTES

- ALL TREE PROTECTION, TREE INSTALLATION AND TREE MAINTENANCE WORK SHALL BE DONE IN ACCORDANCE WITH ANSI A300 STANDARDS, ANSI Z60 STANDARDS, SECTION 710 OF THE HOWARD COUNTY VOLUME IV DESIGN MANUAL: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ASSOCIATED PROJECT SPECIFICATIONS.
- PLANTS MAY BE SUBSTITUTED FOR OTHER NATIVE SPECIES IF A CERTAIN SPECIES IS NOT AVAILABLE. THE CONTRACTOR SHALL NOTIFY THE COUNTY OR COUNTY REPRESENTATIVE OF WHICH PLANTS ARE NOT AVAILABLE AND WHICH PLANTS ARE SELECTED FOR SUBSTITUTION BEFORE PLANTING. PRIOR APPROVAL FOR SUBSTITUTIONS FROM THE COUNTY OR COUNTY REPRESENTATIVE IS REQUIRED.
- ALL PLANT MATERIAL SHALL BE SOURCED WITHIN 100 MILES OF THE PROJECT SITE.
- SHRUBS SHALL BE INSTALLED USING DETAILS ON THIS SHEET. THESE DETAILS ARE DERIVED FROM THE MARYLAND STATE FOREST CONSERVATION TECHNICAL MANUAL. ALTHOUGH TYPICALLY USED FOR TREE PLANTING, THE METHODS AND PROCEDURES CAN BE UTILIZED FOR THE SHRUB PLANTINGS OUTLINED BY THIS PLAN.
- PLANTS SHALL CONFORM TO THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1).
- THE CONTRACTOR SHALL PROPERLY WATER ALL PLANTS THE DAY THEY ARE INSTALLED.
- DO NOT HANDLE, MOVE, BIND, TIE, OR OTHERWISE TREAT PLANTS SO AS TO DAMAGE THE ROOT BALL, ROOTS, TRUNK, OR BRANCHES IN ANY WAY.
- PLANTS WHICH ARE NOT PLANTED WITHIN A DAY AFTER DELIVERY SHALL BE PROTECTED FROM DESICCATION THROUGH SHADING, WATERING, SHIELDING FROM WIND OR OTHER METHODS. TRANSPLANTED OR DELIVERED MATERIALS MAY BE STORED IN TREE BANKS IF NECESSARY IN UNDISTURBED AREAS.
- THE DESIGNATED REGULATORY AGENCY SHALL INSPECT THE SITE.
- ALL SHRUBS MUST BE SET SO THAT THE ROOT COLLAR SITS JUST ABOVE THE FINISH GRADE. PLANTS SHALL REST ON UNDISTURBED EXISTING SOIL OR WELL-COMPACTED BACKFILL. CARE SHALL BE EXERCISED IN SETTING ALL PLANTS VERTICAL.
- THE COUNTY OR COUNTY REPRESENTATIVE SHALL HAVE THE RIGHT, AT ANY STAGE OF THE OPERATION, TO REJECT ANY AND ALL WORK AND MATERIALS WHICH, IN HIS OR HER OPINION, DOES NOT MEET THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS. ALL MATERIALS SHALL BE INSPECTED TO BE FREE FROM DISEASE, DAMAGES, AND INSECT INFESTATION UPON DELIVERY TO THE SITE. ALL PLANTS SHOULD BE HEALTHY AND WELL STRUCTURED. PLANTS IN POOR CONDITION SHALL BE REJECTED, REMOVED FROM THE SITE, AND REPLACED WITH ACCEPTABLE MATERIALS.

PLANT INSTALLATION DATES

- PERMANENT SEED MIXES INCLUDING COVER CROP SHALL BE APPLIED WITHIN 3 DAYS FOLLOWING FINAL GRADING AND BEFORE INSTALLATION OF MATTING, WHERE APPLICABLE. SEE PERMANENT SEEDING SCHEDULE, THIS SHEET.

PERMANENT SEEDING

- SEEDING IS REQUIRED IN ALL LANDSCAPED AREAS FOR STABILIZATION AND HABITAT CREATION.
- ONE SEED MIX WILL BE USED THROUGHOUT THE PLANTING AREAS. ALL MIXES WILL CONSIST OF NATIVE PLANT SPECIES THAT CURRENTLY COLONIZE ON-SITE, IN ADDITION TO HIGH VALUE SPECIES FOR ENHANCEMENT OF OVERALL RIPARIAN HABITAT VALUE.
- WILDFLOWER SEEDING - WET MEADOW SEED MIX SHALL BE APPLIED TO ALL RIPARIAN ZONES. THIS MIX SHALL CONTAIN COVER CROP SPECIES (NATIVE AND/OR NON-PERSISTENT ANNUALS) AND NATIVE GRASSES, RUSHES, SEDGES, AND FLOWERING SPECIES.

SEQUENCE

- PERMANENT SEEDING SHALL BE APPLIED IMMEDIATELY FOLLOWING COMPLETION OF GRADING AND PRIOR TO INSTALLMENT OF MATTING, WHERE APPLICABLE.
- PLANT SHRUBS ACCORDING TO SPACING AS PRESENTED IN THE PLANTING SCHEDULE, THIS SHEET, AND NO CLOSER THAN 10' FROM EXISTING TREES.
- PLANTS SHALL BE WATERED TO THE POINT OF OVERFLOW OR SATURATION TWICE WITHIN 48 HOURS OF PLANTING.
- AS NEEDED, INITIATE CORRECTIVE MEASURES, INCLUDING: REMOVAL AND REPLACEMENT OF DEAD/DYING SHRUBS, PRUNING OF DEAD/DYING BRANCHES, SOIL AERATION, FERTILIZATION, WATERING, WOUND REPAIR, PLANTING AREA CLEAN UP, MOWING, INVASIVE SPECIES REMOVAL.

LANDSCAPE PLANTING SUMMARY TABLE

PLANTING AREA A		6,604 SQUARE FEET		0.15 ACRES		
BOTANICAL NAME	COMMON NAME	INDICATOR RATING	MINIMUM SIZE*	CONDITION	QUANTITY	MINIMUM SPACING
TURFGRASS SEEDING		N/A	200	SEED MIX	30	LBS.

*For seed = LBS/ACRE

PLANTING AREA B		1,086 SQUARE FEET		0.02 ACRES		
BOTANICAL NAME	COMMON NAME	INDICATOR RATING	MINIMUM SIZE*	CONDITION	QUANTITY	MINIMUM SPACING
ERNST MARYLAND UPLAND MIX		N/A	35	SEED MIX	1	LBS.
<i>Avena sativa</i>	COMPANION COVER CROP**	N/A	30	SEED	1	LBS.
<i>Hordeum effusum</i>						
<i>Viburnum dentatum</i>	Arrowwood Viburnum	FAC	3 FT.	#5 CONT.	5	8 FT. O.C.
<i>Lindera benzoin</i>	Northern Spicebush	FAC	3 FT.	#5 CONT.	2	8 FT. O.C.
<i>Ilex verticillata</i>	Winterberry Holly	FACW	3 FT.	#5 CONT.	6	8 FT. O.C.
<i>Hamamelis virginiana</i>	American Witch-Hazel	FACU	3 FT.	#5 CONT.	2	10 FT. O.C.
<i>Morella pensylvanica</i>	Northern Bayberry	FAC	3 FT.	#5 CONT.	2	8 FT. O.C.

*For seed = LBS/ACRE

**If seeding is to occur within the spring/summer, *Avena sativa* should be used, if seeding is to occur in the fall/winter, *Hordeum effusum* should be used.

PLANTING AREA C		5,322 SQUARE FEET		0.12 ACRES		
BOTANICAL NAME	COMMON NAME	INDICATOR RATING	MINIMUM SIZE*	CONDITION	QUANTITY	MINIMUM SPACING
ERNST MARYLAND LOWER MIDLAND RIPARIAN MIX		N/A	35	SEED MIX	4	LBS.
<i>Avena sativa</i>	COMPANION COVER CROP**	N/A	30	SEED	4	LBS.
<i>Hordeum effusum</i>						

*For seed = LBS/ACRE

**If seeding is to occur within the spring/summer, *Avena sativa* should be used, if seeding is to occur in the fall/winter, *Hordeum effusum* should be used.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division *[Signature]* 10/14/23 Date

Chief, Division of Land Development *[Signature]* 10/16/23 Date

Director *[Signature]* 10/19/23 Date

SCD GP#: 23-009

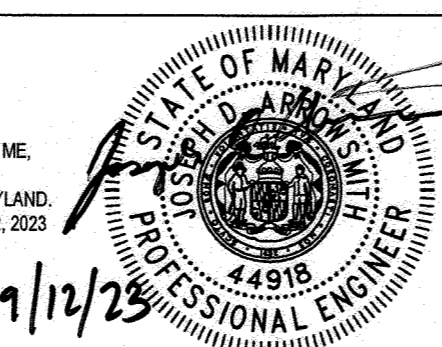
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Columbia Association

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DES:	BY:	NO.	REVISIONS	DATE
JW				
DRN:	JW			
CHK:	JA			
DATE:	7/2023			

LANDSCAPE PLANTING PLAN - NOTES & DETAILS

NAD83/NAVD88

COLUMBIA ASSOCIATION VILLAGE OF WILDE LAKE

MINOR GRADING IN SUPPORT OF WILDE LAKE BANK RIPRAP REPLACEMENT ELECTION DISTRICT 4, HOWARD COUNTY MD TAX MAP 30 GRID 20 PARCEL 242 LOT 2

SCALE
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10 OF 10

WP-23-075