

MARINER POINT PARK STORMWATER MANAGEMENT IMPROVEMENTS

HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS HARFORD COUNTY, MD

BID # 25-078

BEFORE YOU DIG CALL
1-800-257-7777 OR DIAL 811



GENERAL NOTES

- TOPOGRAPHIC SURVEY PERFORMED BY BAYLAND CONSULTANTS & DESIGNERS, INC., DATED DECEMBER 2022.
- HORIZONTAL AND VERTICAL CONTROL ESTABLISHED FROM REAL TIME KINEMATIC (RTK) GLOBAL POSITIONING SYSTEM (GPS) CONTROL POINTS. TRAVERSE POINTS ARE IRON REBAR UNLESS OTHERWISE SPECIFIED. COORDINATES AND BEARINGS SHOWN HEREON ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD83/1991). ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88).
- CONTOURS AND PLANIMETRICS ARE BASED ON HARFORD COUNTY 2018 GIS TOPOGRAPHY.
- THE EXISTING UTILITIES, GRADES, AND OBSTRUCTIONS SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR TO HIS SATISFACTION PRIOR TO CONSTRUCTION. NECESSARY PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT EXISTING SERVICES AND MAINS AND ANY DAMAGE TO THEM SHALL BE REPAIRED IMMEDIATELY AT HIS OWN EXPENSE.
- EXISTING UTILITIES ARE BASED ON HARFORD COUNTY GIS & HAVE NOT BEEN FIELD LOCATED.
- PROPERTY LINES AND EASEMENTS SHOWN ARE BASED ON HARFORD COUNTY 2018 CADASTRAL DATA.
- TAYLOR CREEK AND FOSTER BRANCH ARE TRIBUTARIES TO GUNPOWDER RIVER (021308) AND ARE USE II STREAMS.
- PROJECT SITE IS WITHIN FEMA FLOODPLAIN LIMITS (ZONE AE). MAP #24025C0263E.
- THERE ARE NO NON-TIDAL WETLANDS OR ASSOCIATED BUFFERS WITHIN THE PROJECT LIMITS.
- PROJECT SITE IS WITHIN RESOURCE CONSERVATION AREA (RCA) OF CHESAPEAKE BAY CRITICAL AREA.
- PROJECT IS WITHIN THE 100' CRITICAL AREA BUFFER.

GENERAL CONSTRUCTION NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS AND MATERIALS, LATEST EDITION AND ANY ADDENDA THERETO.
- THE EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR TO THEIR SATISFACTION PRIOR TO CONSTRUCTION. NECESSARY PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT EXISTING SERVICES AND MAINS AND ANY DAMAGE TO THEM SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS OWN EXPENSE.
- THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-7777 A MINIMUM OF 48 HOURS IN ADVANCE OF ANY EXCAVATION, BORING, PILE DRIVING AND/OR DIGGING FOR THE LOCATION OF GAS, ELECTRIC, TELEPHONE, WATER AND SEWER LINES.
- MECHANICAL EXCAVATION SHALL NOT BE CONDUCTED WITHIN 3 FEET HORIZONTALLY OR WITHIN 2 FEET VERTICALLY OF KNOWN UTILITY LOCATIONS. HAND OR SOFT DIGGING SHALL BE DONE WITHIN THESE LIMITS. UNDERGROUND UTILITIES, ONCE UNCOVERED, SHALL BE PROTECTED FROM BEING STRUCK BY EQUIPMENT.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NATURALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLETE SUCH WORK.
- NO TREES SHALL BE REMOVED UNLESS PRIOR APPROVAL IS OBTAINED OR EXPLICITLY SHOWN ON THE PLANS TO BE REMOVED. ALL TREES TO REMAIN WITHIN AND/OR NEAR THE WORK AREA SHALL BE PROTECTED AS NECESSARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS TESTING INCLUDING CONCRETE, FLOWABLE FILL, HOT MIX ASPHALT AND FILL COMPACTION. ALL MATERIALS TESTING SHALL BE PERFORMED BY THE CONTRACTOR AND SHALL BE COMPENSATED FOR AS PART OF THE APPROPRIATE PAY ITEM.
- ALL DISTURBED AREAS SHALL HAVE PERMANENT OR TEMPORARY STABILIZATION COMPLETED WITHIN:
8.A. END OF THE WORK DAY FOR AREAS WITHIN WATERWAYS.
8.B. THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1 AND TO THE SURFACE OF ALL PERIMETER SEDIMENT CONTROLS.
8.C. SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS.
8.D. ALL STABILIZATION MUST BE IN ACCORDANCE WITH MARYLAND DEPARTMENT OF AGRICULTURE (MDA) FERTILIZER LAW.
- ALL DISTURBED AREAS WITH SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH 100% BIODEGRADABLE SOIL STABILIZATION MATTING THAT HAS A SUFFICIENT DESIGN SHEAR STRESS FOR THE APPLICATION OR AS SHOWN ON THE APPROVED SEDIMENT AND EROSION CONTROL PLANS.
- ALL PERMANENTLY STABILIZED AREAS SHALL INCLUDE A MINIMUM OF 4" OF TOPSOIL PER THE 2011 MDE SPECIFICATIONS.
- ALL STAKING, RESTAKING, AND CUT SHEETS SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL ENGINEER AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION TO BE PERFORMED IN ACCORDANCE WITH STATE OF MARYLAND OCCUPATIONAL SAFETY LAWS.
- ALL ROADS SHALL BE CLEANED AND CLEARED BY THE END OF EACH DAY. ANY MUD OR ROCKS TRACKED ON THE ROADWAYS SHALL BE SWEEPED BEFORE THE END OF SHIFT EACH DAY.
- CONTRACTOR SHALL RESTORE ALL AREAS IMPACTED BY CONSTRUCTION ACTIVITY. THIS SHALL INCLUDE BUT IS NOT LIMITED TO GRASS AREAS, ROADS, PAVED AREAS, ETC...

PROJECT INFORMATION

- | | | | |
|---------------------------------|---|--------------------|---|
| 1. OWNER/DEVELOPER: | HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS WATERSHED PROTECTION AND RESTORATION OFFICE
CONTACT: BETSY COLLINS
EMAIL: BACOLLINS@HARFORDCOUNTYMD.GOV | 8. DEED REF: | 1149/363 |
| 2. OWNER/DEVELOPER INFORMATION: | 212 SOUTH BOND STREET, 1ST FLOOR
BEL AIR, MD 21014 | 9. DISTRICT: | 01 |
| 3. ENGINEER: | BAYLAND CONSULTANTS & DESIGNERS, INC. | 10. ZONING: | R3 URBAN RESIDENTIAL |
| 4. ENGINEER INFORMATION: | 7455 NEW RIDGE ROAD, SUITE T
HANOVER, MARYLAND 21076
PH: 410-694-9401 | 11. USE: | PARK |
| 5. TAX MAP: | 69 | 12. PROPERTY AREA: | 37.73 ACRES |
| 6. PARCEL: | 92 | 13. WATERSHED: | GUNPOWDER RIVER |
| 7. LOT: | N/A | 14. LOCATION: | NORTHING: 632,641
EASTING: 1,495,683 |

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www.baylandinc.com
BAYLAND JOB NO. 4_3209

Phone: (410) 694-9401
Fax: (410) 694-9105



LOCATION MAP

SCALE: 1"=2000'

LEGEND

TRAVERSE POINT	TPS #10B	EX. UTILITY POLE
EX. PROPERTY LINE		EX. TRAIL
EX. MAJOR CONTOUR		EX. SIDEWALK
EX. MINOR CONTOUR		EX. SIGN
EX. SHORELINE		EX. SANITARY SEWER & MANHOLE
EX. ROAD		PR. MAJOR CONTOUR
EX. TREELINE		PR. MINOR CONTOUR
EX. PILE & CHAIN ROPE FENCE		EX. TREE
EX. CONCRETE		EX. TREE (TO BE REMOVED)
EX. STORM DRAIN, INLET, & MANHOLE		PR. BIORETENTION LANDSCAPING
EX. SWALE		
EX. BUILDING		

SHEET LIST TABLE

SHEET	DESCRIPTION
1	COVER SHEET
2	EXISTING CONDITIONS & DEMOLITION PLAN
3	SITE PLAN
4	BIO-SWALES 1 & 2 PLAN
5	PROFILES & SECTIONS
6	DETAILS
7	DRAINAGE AREA MAP
8	EROSION & SEDIMENT CONTROL PLAN
9	EROSION & SEDIMENT CONTROL NOTES & DETAILS
10	TRAFFIC CONTROL PLAN
11	BUFFER MANAGEMENT PLAN - IMPACT PLAN
12	BUFFER MANAGEMENT PLAN - PLANTING PLAN

POLLUTANT REMOVAL SUMMARY

DRAINAGE AREA (AC)	IMPERVIOUS AREA (AC)	IMPERVIOUS AREA (%)	DIRECT ANNUAL POLLUTANT LOAD			BMP POLLUTANT REMOVAL RATE			TARGET WQV (AC-FT)	DESIGN P _e (IN)	PROVIDED WQV (AC-FT)	RAINFALL DEPTH TREATED, P _e (IN)	PROPOSED ANNUAL POLLUTANT LOAD REMOVAL			IMPERVIOUS AREA TREATED* (AC)
			TN (LB/YR)	TP (LB/YR)	TSS (TON/YR)	TN (%)	TP (%)	TSS (%)					TN (LB/YR)	TP (LB/YR)	TSS (TON/YR)	
9.67	2.37	24.5	128.0	23.9	32.3	62.0	72.5	77.7	0.22	1.00	0.25	1.18	79.4	17.3	25.1	3.34

* INCLUDES CSI CREDIT = 0.06 AC.

DEVELOPER'S/LANDOWNER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) WILL BE ACCOMPLISHED PURSUANT TO THESE PLANS. I/WE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED, INCLUDING THE SUBMITTAL OF "AS-BUILT" PLANS WITHIN 30 DAYS OF COMPLETION, BY A REGISTERED PROFESSIONAL ENGINEER.

SIGNATURE _____ DATE _____

PRINT NAME _____

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME, OR UNDER MY SUPERVISION, AND MEETS THE MINIMUM STANDARDS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR THE UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION.

SIGNATURE _____ 7/2-2024
ENGINEER'S SIGNATURE DATE

CHRISTOPHER STEPP, P.E. 33146
PRINTED NAME MD P.E. REGISTRATION NO.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE _____ DATE _____

PRINTED NAME _____ MD P.E. REGISTRATION NO. _____

FIELD VERIFICATION CERTIFICATION

I HEREBY CERTIFY THAT I COMPLETED A FIELD VERIFICATION TO THE INFORMATION SHOWN ON THE PLANS ON 10/13/2022 AND THAT THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS.

SIGNATURE _____ 3-18-2024
DATE

CHRISTOPHER STEPP, P.E.
PRINTED NAME

EROSION AND SEDIMENT CONTROL
PLAN # _____

TECHNICAL REVIEW BY:

HARFORD SOIL CONSERVATION DISTRICT

APPROVED BY:

HARFORD SOIL CONSERVATION DISTRICT

SWM APPROVAL

HARFORD COUNTY BILLING NUMBER 97130
THESE PLANS HAVE BEEN REVIEWED BY HARFORD COUNTY AND MEET THE TECHNICAL REQUIREMENTS FOR STORMWATER MANAGEMENT ONLY.

REVIEWED FOR TECHNICAL SUFFICIENCY

STORMWATER MANAGEMENT

DATE

REVIEW AND APPROVAL RECOMMENDED:

CHIEF ENGINEER

DATE

APPROVAL RECOMMENDED:

DEPUTY DIRECTOR OF PUBLIC WORKS

APPROVED:

DIRECTOR OF PUBLIC WORKS

DATE

FINAL DESIGN PLANS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
COVER SHEET

DRAWN BY : JWS

SCALE : AS SHOWN

DESIGNED BY : MB/JWS

DATE : 7/2/2024

REVIEWED BY : MB

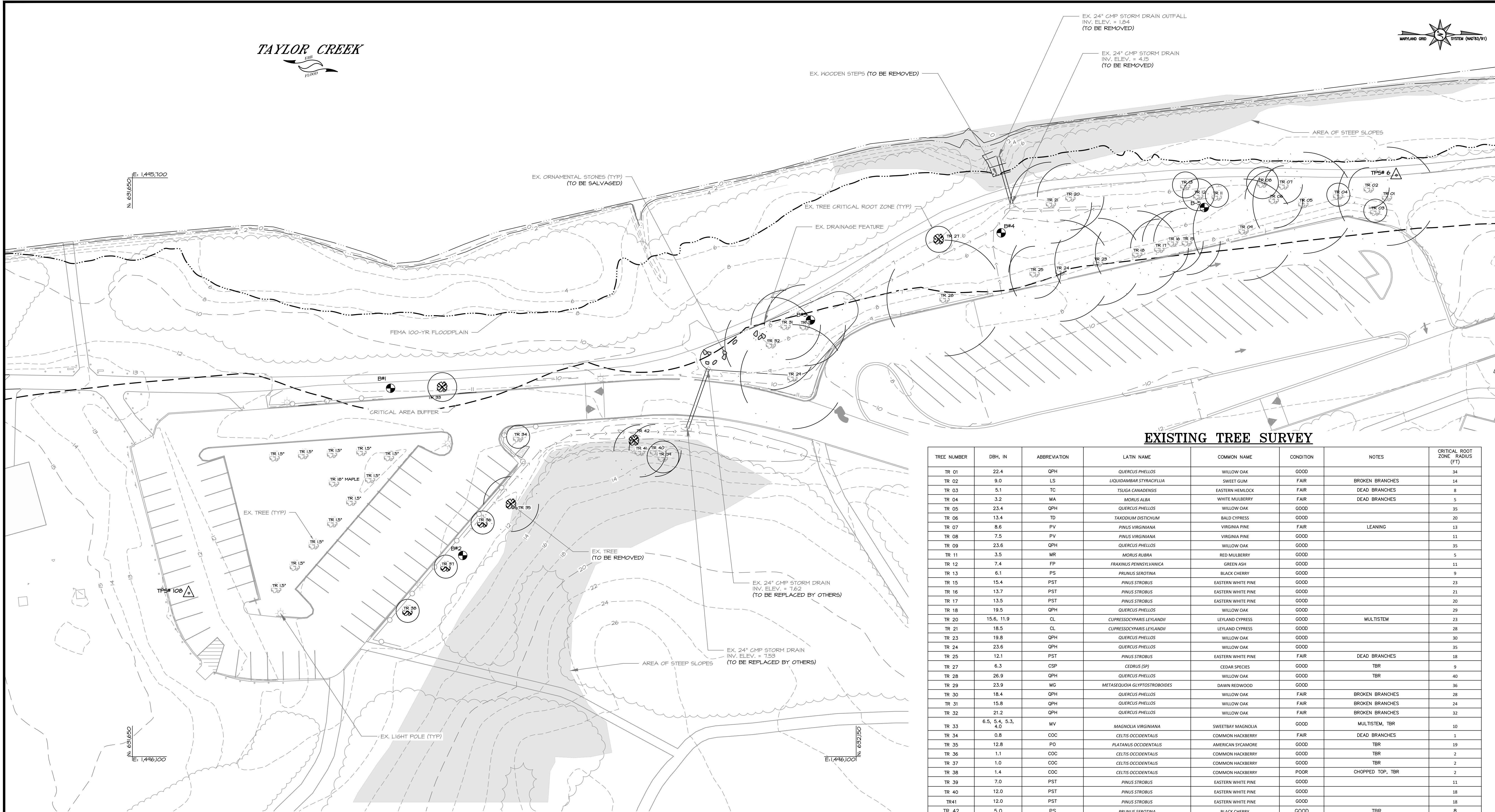
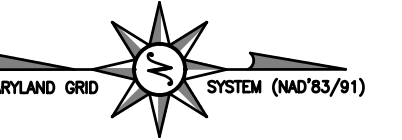
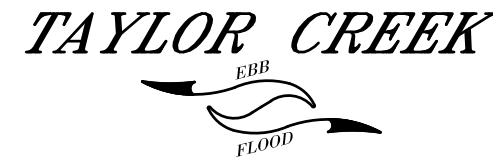
DRAWING NO. SHEET NO. 1 OF 12

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BID No.: 25-078

HCG DWG ID No.:

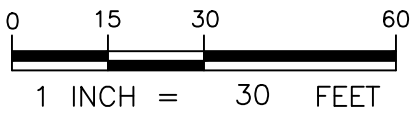
SCALE: 1"=200'



EXISTING TREE SURVEY

TREE NUMBER	DBH, IN	ABBREVIATION	LATIN NAME	COMMON NAME	CONDITION	NOTES	CRITICAL ROOT ZONE, RADIUS (FT)
TR 01	22.4	QPH	QUERCUS PHELLOS	WILLOW OAK	GOOD		34
TR 02	9.0	LS	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	FAIR	BROKEN BRANCHES	14
TR 03	5.1	TC	TSUGA CANADENSIS	EASTERN HEMLOCK	FAIR	DEAD BRANCHES	8
TR 04	3.2	MA	MORUS ALBA	WHITE MULBERRY	FAIR	DEAD BRANCHES	5
TR 05	23.4	QPH	QUERCUS PHELLOS	WILLOW OAK	GOOD		35
TR 06	13.4	TD	TAXODIUM DISTICHUM	BALD CYPRESS	GOOD		20
TR 07	8.6	PV	PINUS VIRGINIANA	VIRGINIA PINE	FAIR	LEANING	13
TR 08	7.5	PV	PINUS VIRGINIANA	VIRGINIA PINE	GOOD		11
TR 09	23.6	QPH	QUERCUS PHELLOS	WILLOW OAK	GOOD		35
TR 11	3.5	MR	MORUS RUBRA	RED MULBERRY	GOOD		5
TR 12	7.4	FP	FRAXINUS PENNSYLVANICA	GREEN ASH	GOOD		11
TR 13	6.1	PS	PRUNUS SEROTINA	BLACK CHERRY	GOOD		9
TR 15	15.4	PST	PINUS STROBUS	EASTERN WHITE PINE	GOOD		23
TR 16	13.7	PST	PINUS STROBUS	EASTERN WHITE PINE	GOOD		21
TR 17	13.5	PST	PINUS STROBUS	EASTERN WHITE PINE	GOOD		20
TR 18	19.5	QPH	QUERCUS PHELLOS	WILLOW OAK	GOOD		29
TR 20	15.6, 11.9	CL	CUPRESSOCYPARIS LEYLANDII	LEYLAND CYPRESS	GOOD	MULTISTEM	23
TR 21	18.5	CL	CUPRESSOCYPARIS LEYLANDII	LEYLAND CYPRESS	GOOD		28
TR 23	19.8	QPH	QUERCUS PHELLOS	WILLOW OAK	GOOD		30
TR 24	23.6	QPH	QUERCUS PHELLOS	WILLOW OAK	GOOD		35
TR 25	12.1	PST	PINUS STROBUS	EASTERN WHITE PINE	FAIR	DEAD BRANCHES	18
TR 27	6.3	CSP	CEDRUS (SP)	CEDAR SPECIES	GOOD	TBR	9
TR 28	26.9	QPH	QUERCUS PHELLOS	WILLOW OAK	GOOD	TBR	40
TR 29	23.9	MG	METASEQUOIA GLYPTOSTROBODES	DAWN REDWOOD	GOOD		36
TR 30	18.4	QPH	QUERCUS PHELLOS	WILLOW OAK	FAIR	BROKEN BRANCHES	28
TR 31	15.8	QPH	QUERCUS PHELLOS	WILLOW OAK	FAIR	BROKEN BRANCHES	24
TR 32	21.2	QPH	QUERCUS PHELLOS	WILLOW OAK	FAIR	BROKEN BRANCHES	32
TR 33	6.5, 5.4, 5.3, 4.0	MV	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	GOOD	MULTISTEM, TBR	10
TR 34	0.8	COC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	FAIR	DEAD BRANCHES	1
TR 35	12.8	PO	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	GOOD	TBR	19
TR 36	1.1	COC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	GOOD	TBR	2
TR 37	1.0	COC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	GOOD	TBR	2
TR 38	1.4	COC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	POOR	CHOPPED TOP, TBR	2
TR 39	7.0	PST	PINUS STROBUS	EASTERN WHITE PINE	GOOD		11
TR 40	12.0	PST	PINUS STROBUS	EASTERN WHITE PINE	GOOD		18
TR41	12.0	PST	PINUS STROBUS	EASTERN WHITE PINE	GOOD		18
TR 42	5.0	PS	PRUNUS SEROTINA	BLACK CHERRY	GOOD		8

PLAN VIEW
SCALE: 1" = 30'



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BAYLAND JOB NO. 4_3209

BILLING NO. 97130

EG-SWMENG-000106-2023

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. 33146, EXPIRATION DATE: 01/14/2025.



REVISIONS

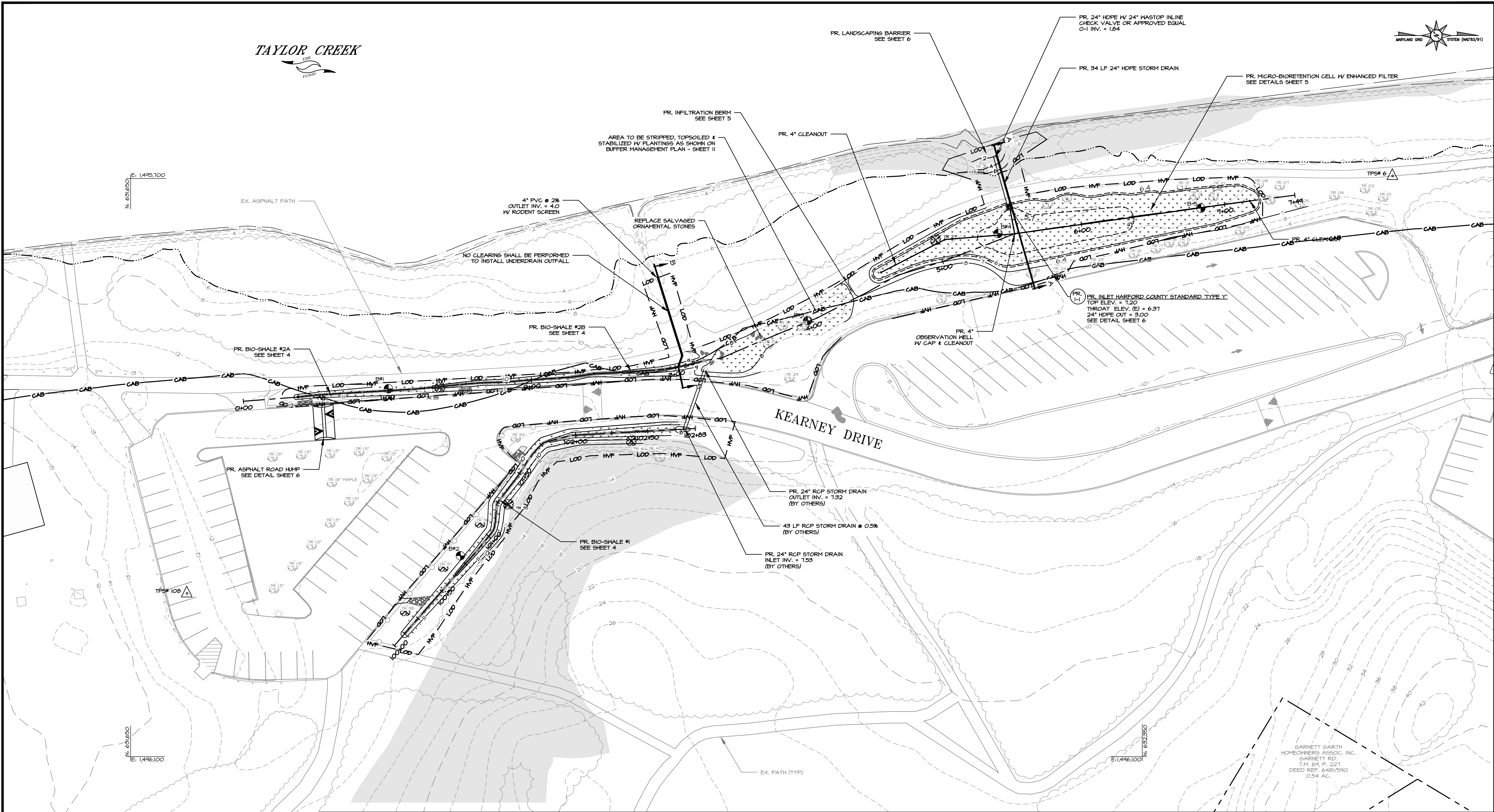
HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY : JWS
DESIGNED BY : MB/JWS
REVIEWED BY : MB

SCALE : 1" = 30'
DATE : 7/2/2024

DRAWING NO. SHEET NO. 2 OF 12



PLAN VIEW
SCALE: 1" = 30'

STRUCTURE TABLE

ID	LOCATION	TOP ELEV.	THROAT ELEV.	INVERT. ELEV.	DETAIL	NOTES
I-1	N: 632,258.20 E: 1,495,719.68	7.20	6.37	PR. 24" HDPE OUT = 3.00	HARFORD CO. STANDARD Y-1 INLET	OPENING ON 1 SIDE (EAST)
O-1	N: 632,248.12 E: 1,495,685.11	-	-	PR. 24" HDPE IN = 1.84		

1. HDPE PIPE SHALL BE ADS HP STORM DUAL WALL PP PIPE OR APPROVED EQUIVALENT.

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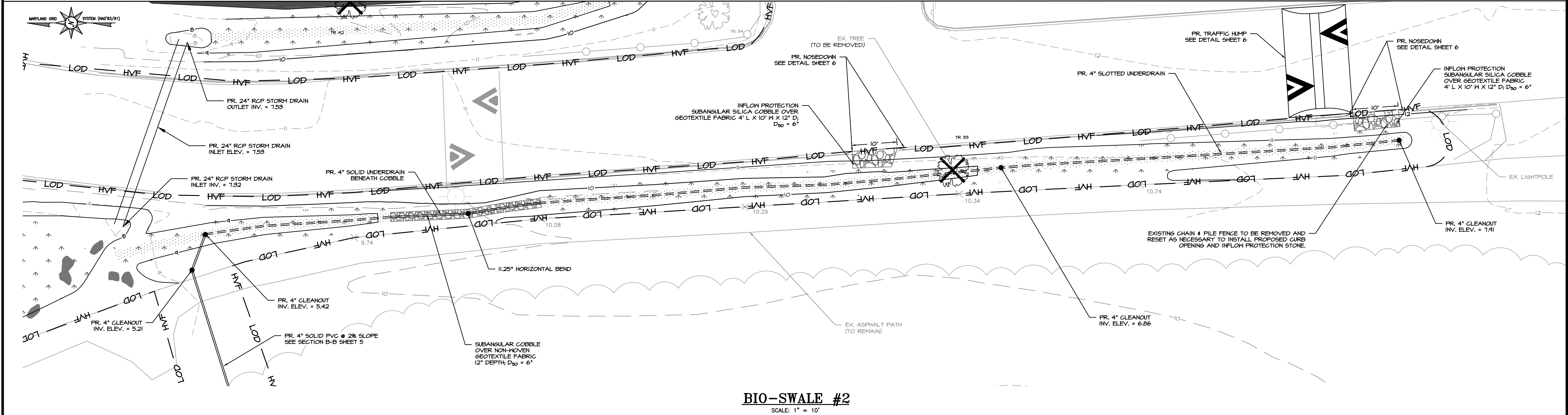
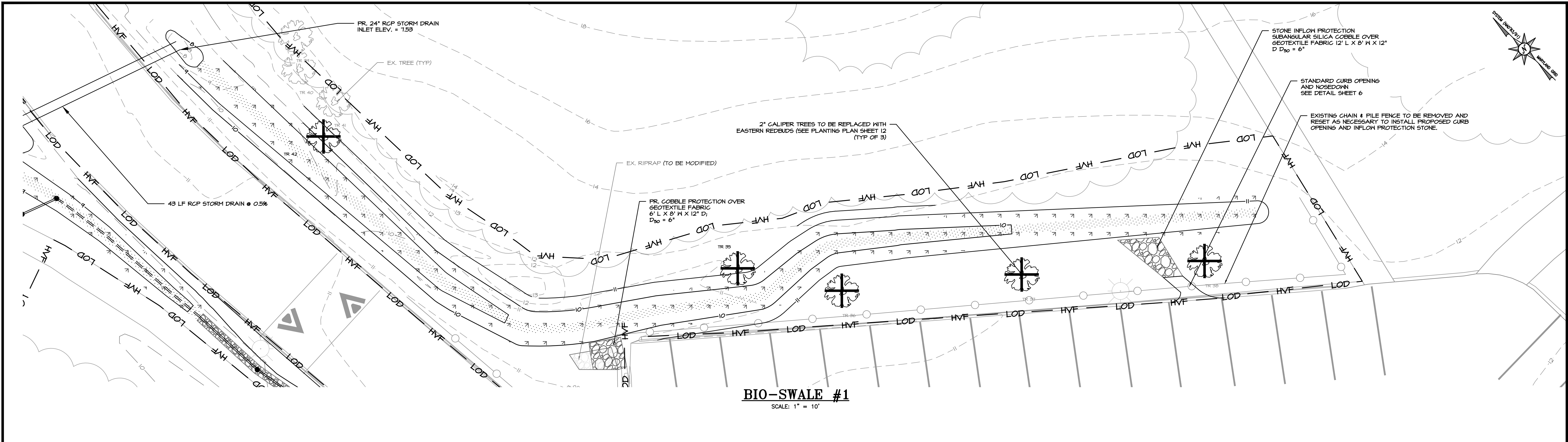
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REVISIONS	

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
SITE PLAN

DRAWN BY : JWS	SCALE : 1" = 30'
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 3 OF 12



FINAL DESIGN PLANS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
BIO-SWALES 1 & 2 PLAN

DRAWN BY : JWS	SCALE : 1" = 10'
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 4 OF 12

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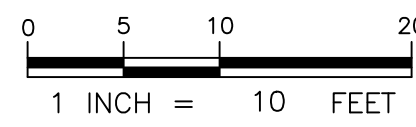
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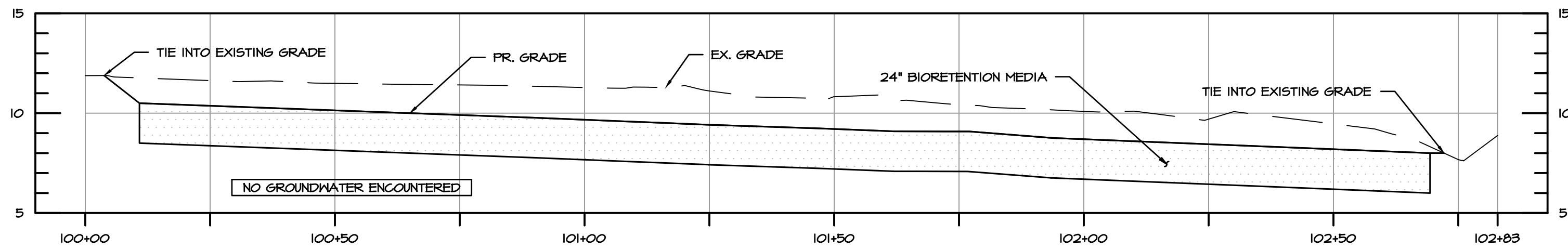
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REVISIONS

STATE OF MARYLAND
CHRISTOPHER TORRES
REGISTERED PROFESSIONAL ENGINEER
NO. 33146

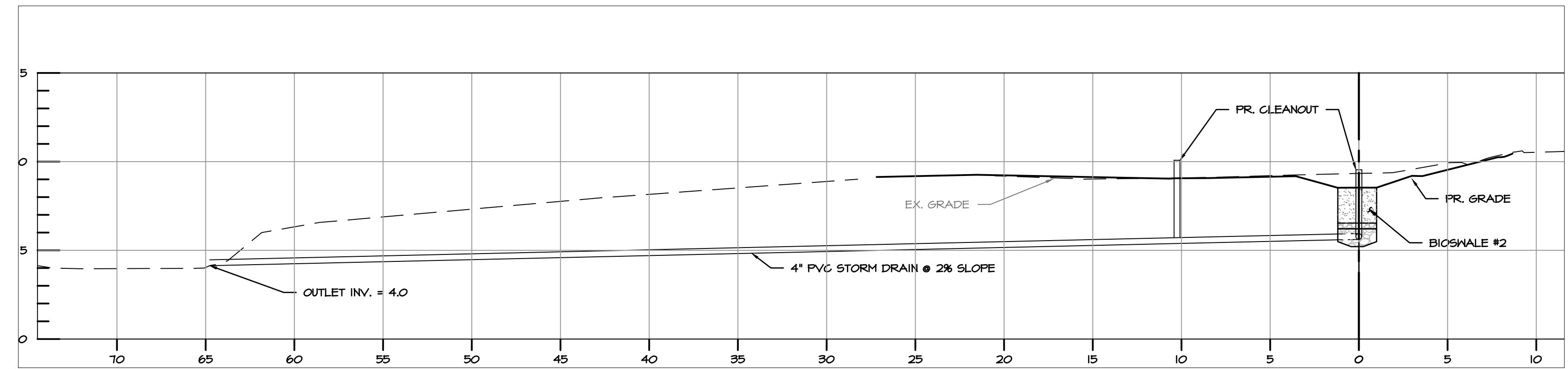


BID No.: 25-078
HCG DWG ID No.:
SCALE: 1" = 10'



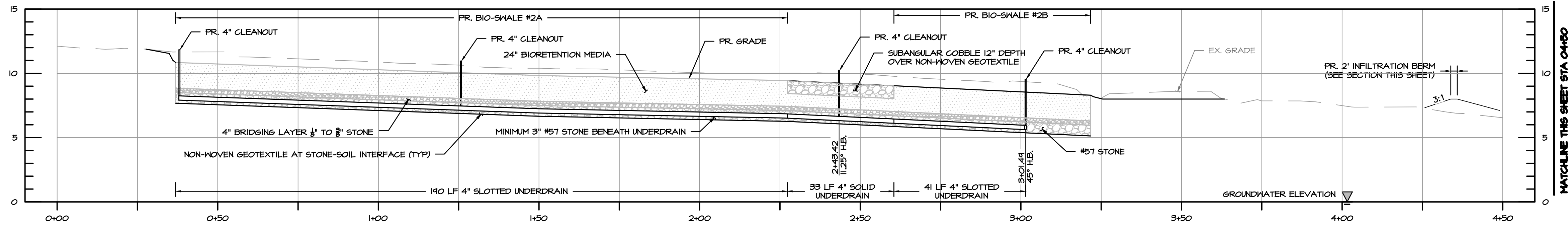
PROFILE BIO-SWALE #1 STA: 100+00 TO STA: 102+83

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



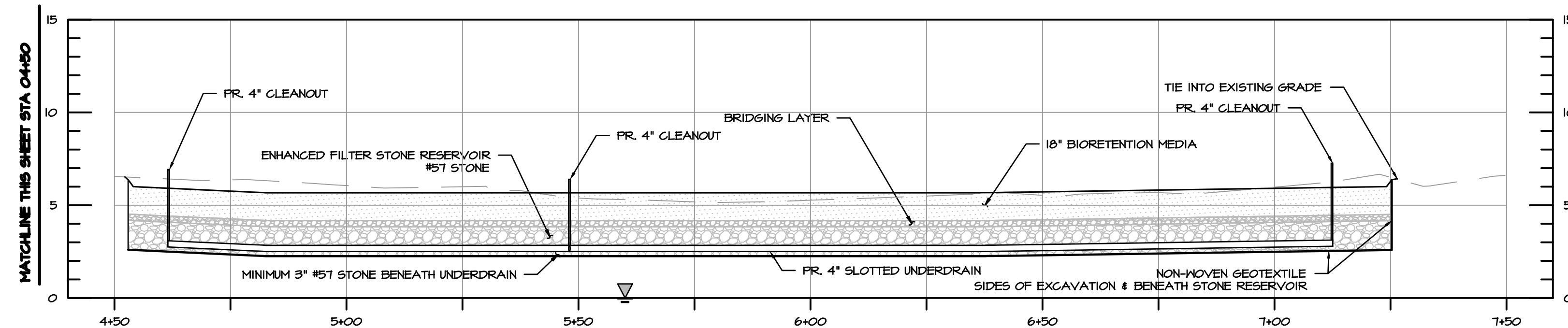
BIOSWALE #2 SECTION B-B

SCALE: 1" = 5'



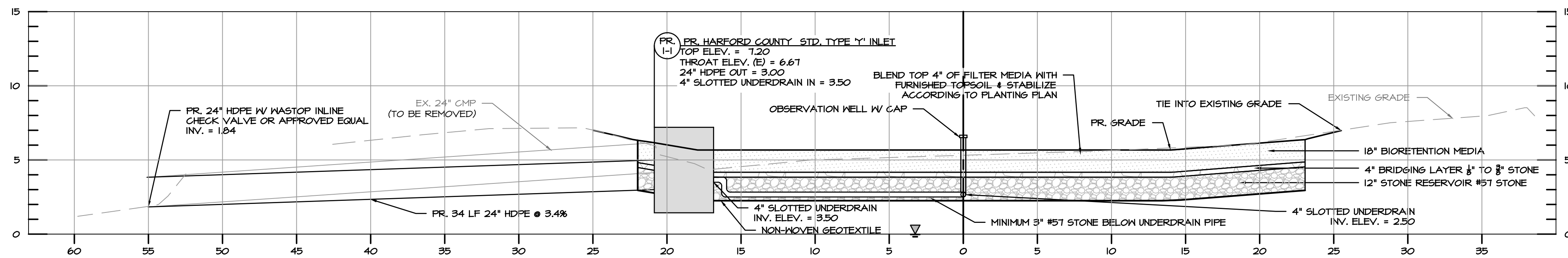
BIO-SWALE #2 & FILTER (1) STATION 0+00.00 TO STATION 4+50.00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



PROFILE ENHANCED FILTER STA: 4+50 TO STA: 7+50

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



MICRO-BIORETENTION W/ ENHANCED FILTER SECTION A-A

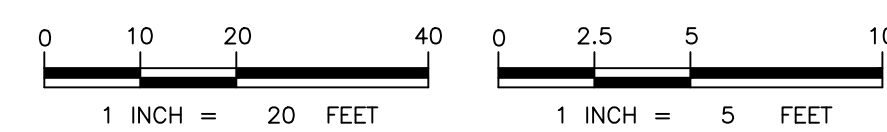
SCALE: 1" = 5'

BIOSWALE QUANTITY ANALYSIS

BIOSWALE #1:	BIOSWALE #2:
Q ₁ :	Q ₁ :
Q ₁₀ :	Q ₁₀ :
ESD:	ESD:
FLOW: 2.29 CFS	FLOW: 1.84 CFS
VELOCITY: 0.99 FPS	VELOCITY: 0.94 FPS
FLOW DEPTH: 0.60 FT	FLOW DEPTH: 0.54 FT
FLOW: 6.42 CFS	FLOW: 4.25 CFS
VELOCITY: 1.31 FPS	VELOCITY: 1.17 FPS
FLOW DEPTH: 0.98 FT	FLOW DEPTH: 0.81 FT
FLOW: 1.00 CFS	FLOW: 0.93 CFS
VELOCITY: 0.79 FPS	VELOCITY: 0.77 FPS
FLOW DEPTH: 0.4 FT	FLOW DEPTH: 0.38 FT



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BILLING NO. 97130

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REVISIONS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK STORMWATER MANAGEMENT IMPROVEMENTS PROFILES & SECTIONS

DRAWN BY : JWS	SCALE : AS SHOWN
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 5 OF 12

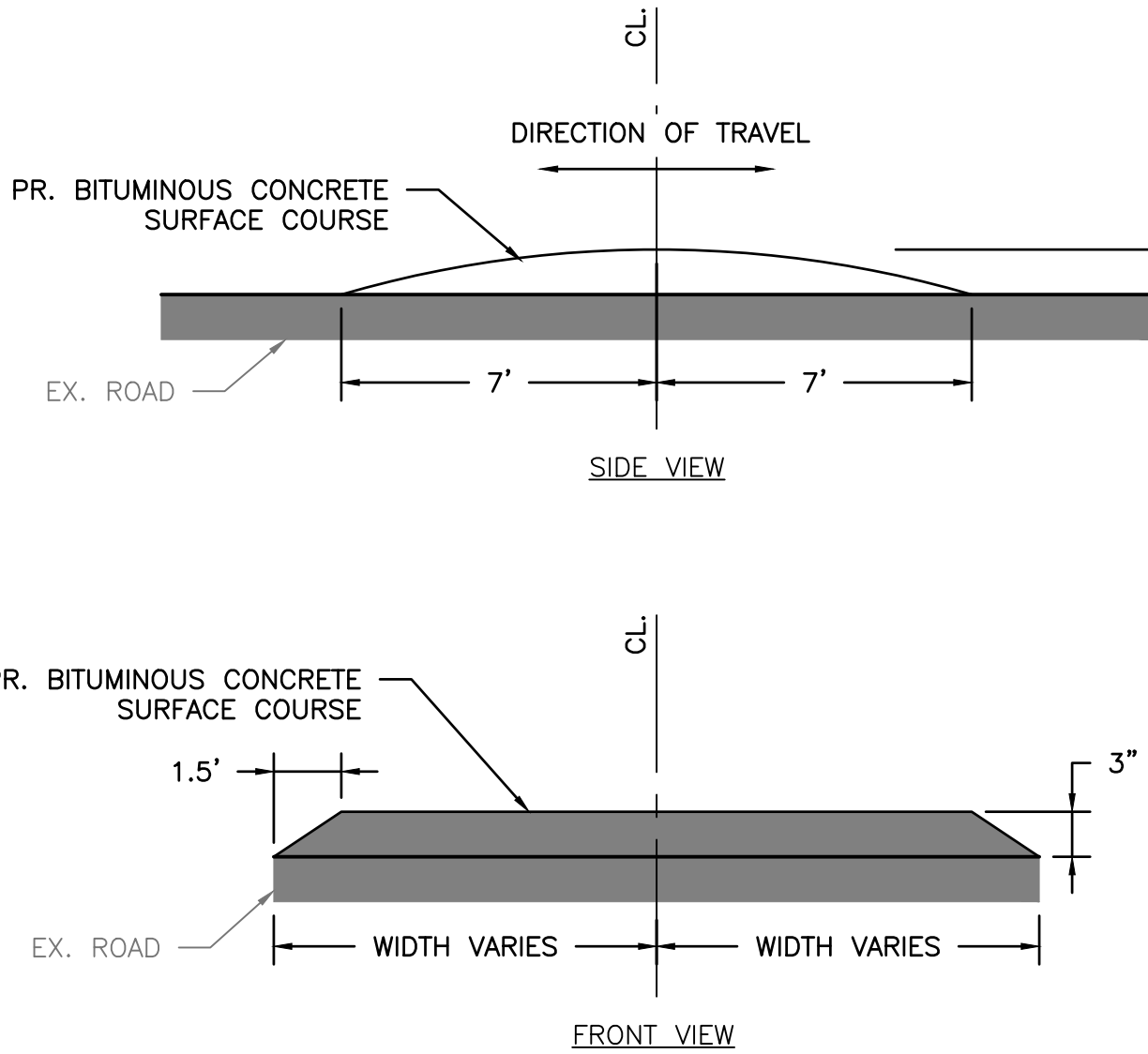
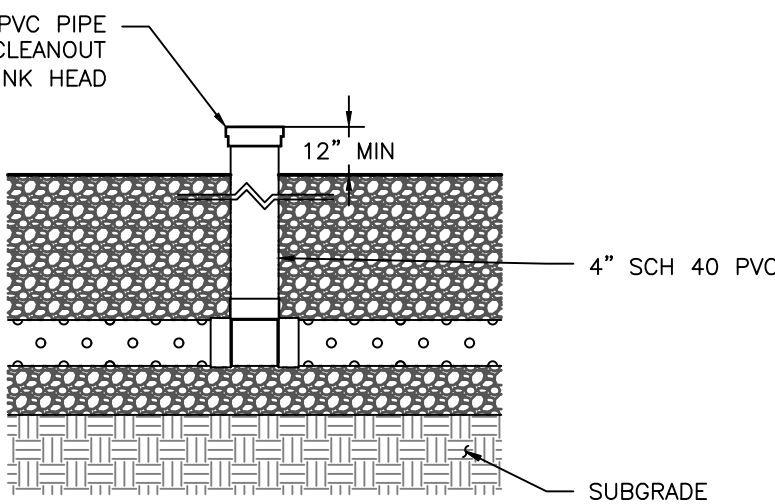
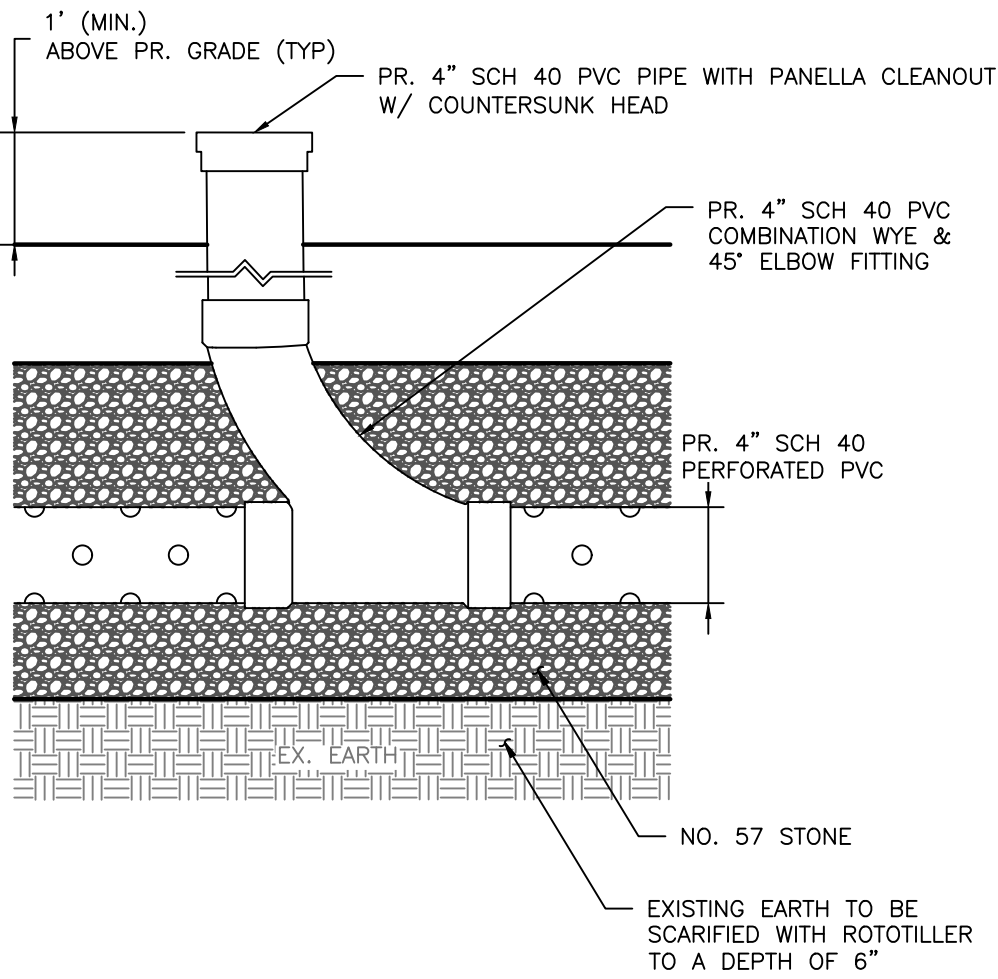
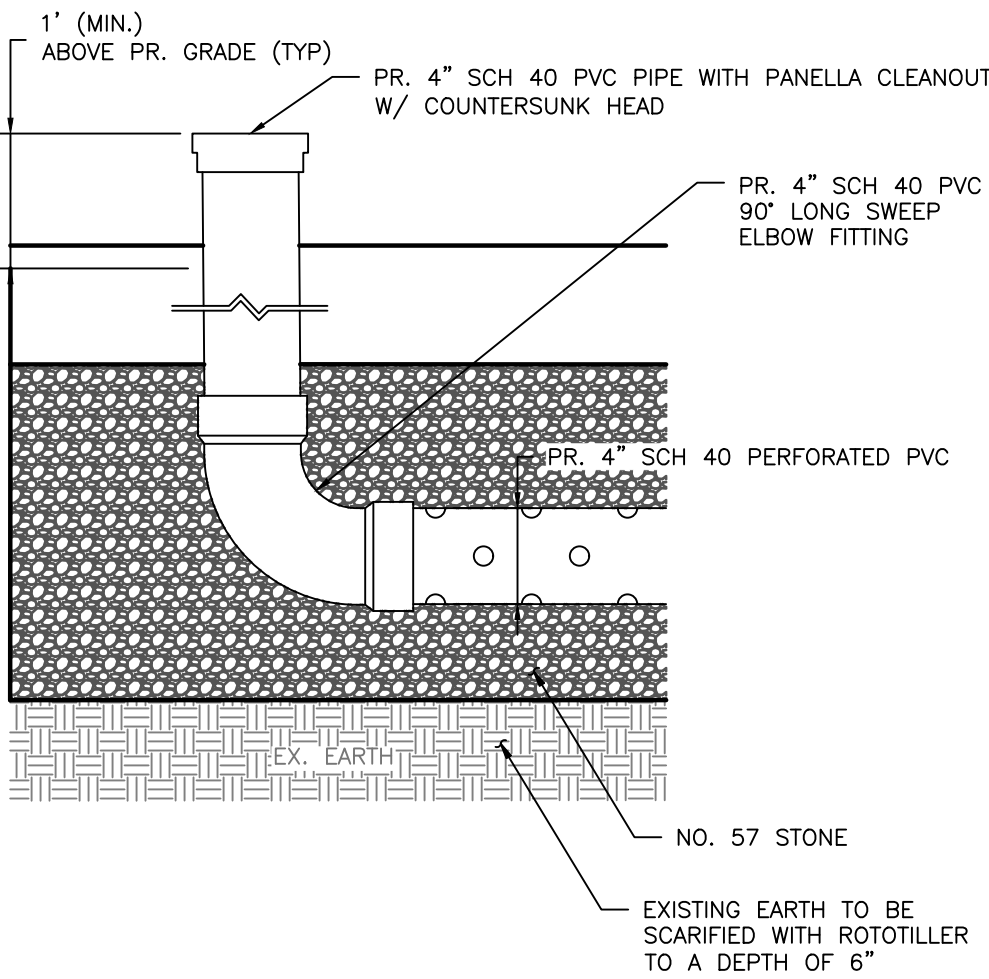
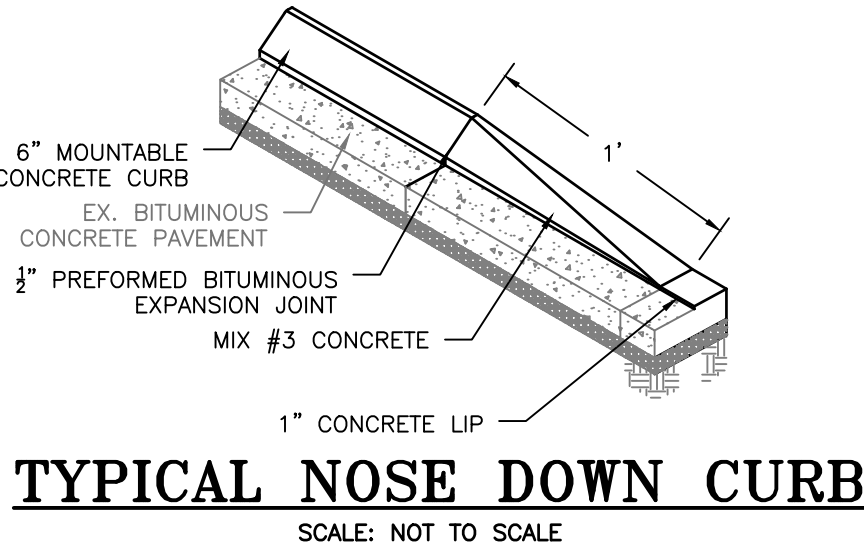
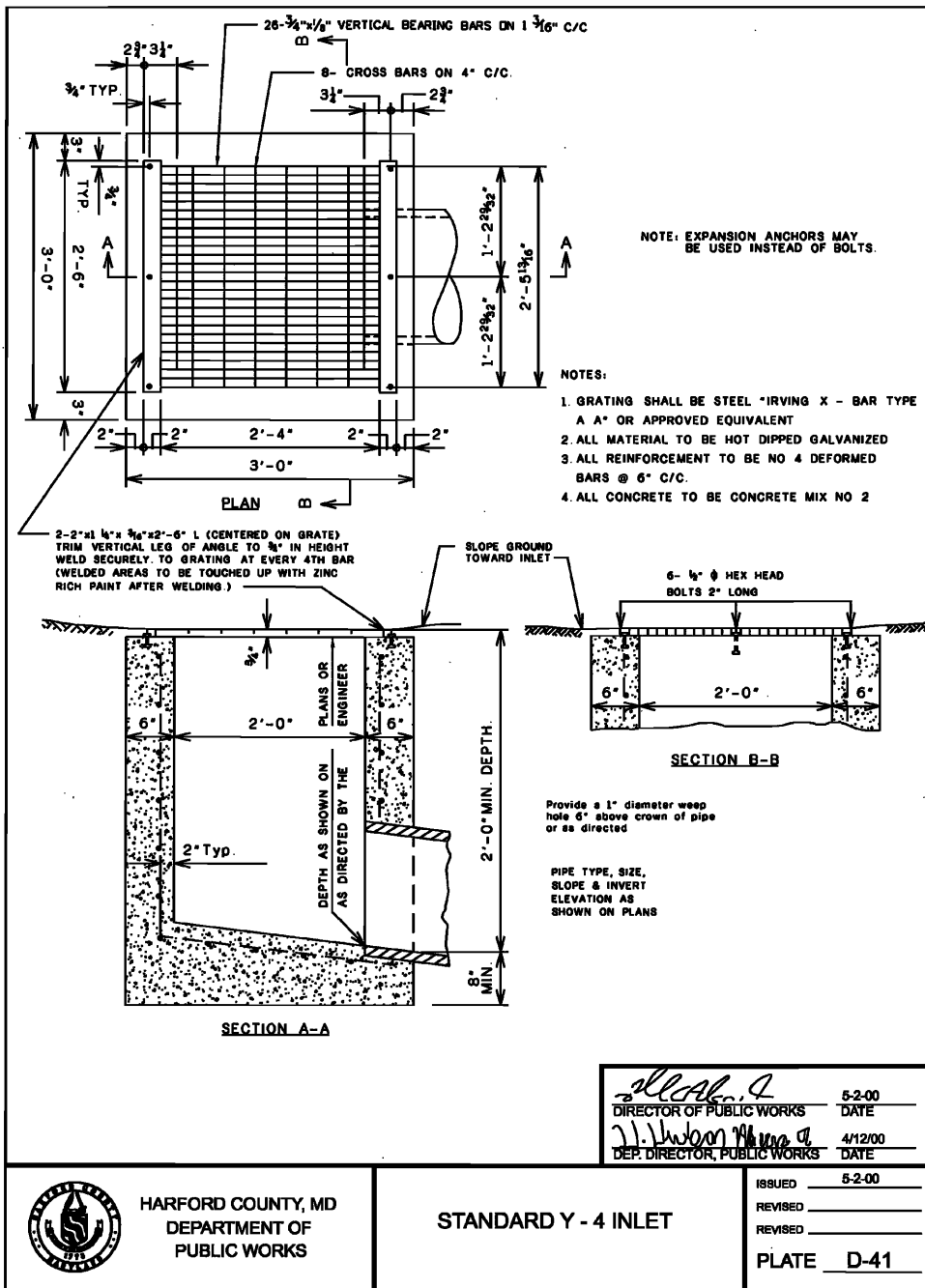
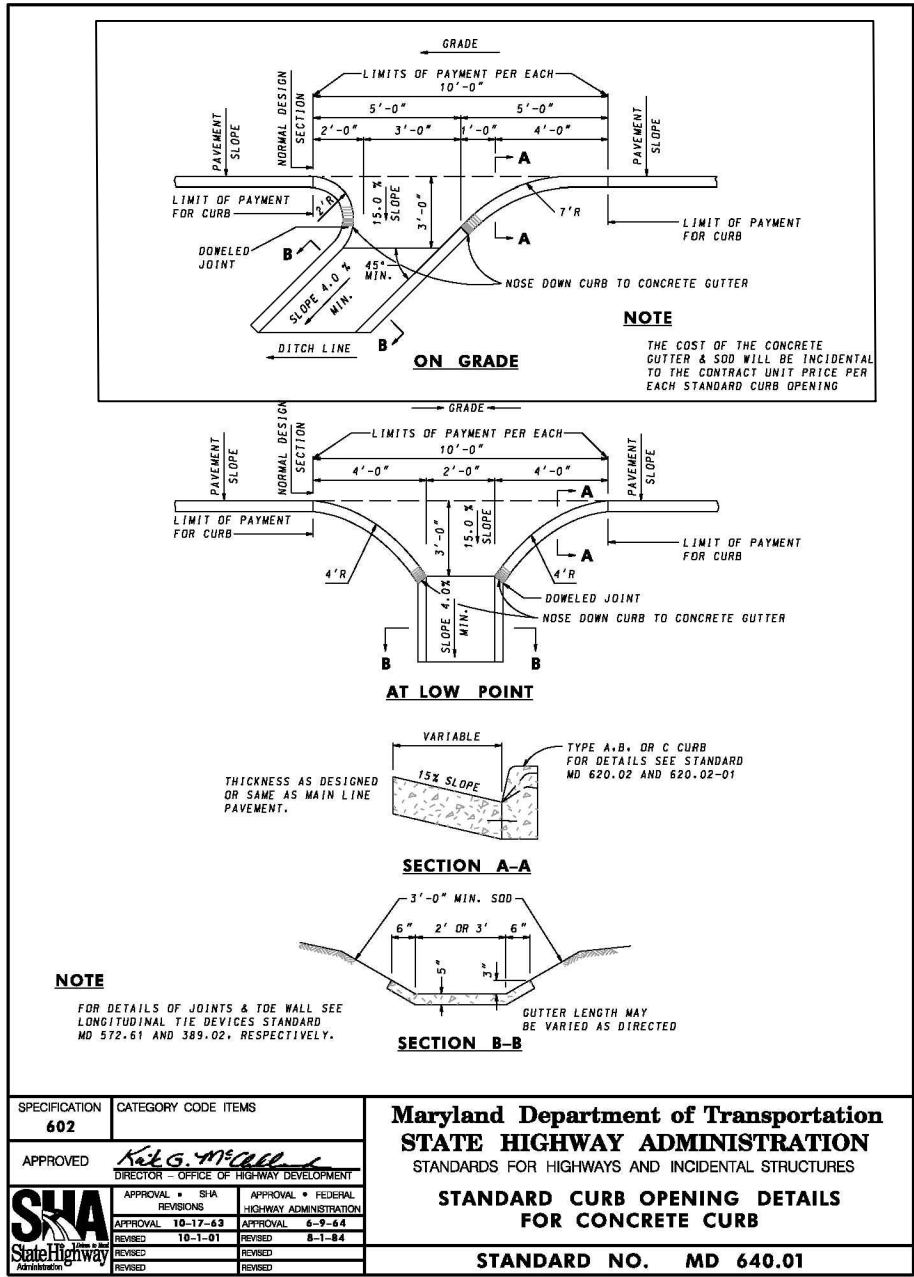
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BID No.: 25-078

HCG DWG ID No.:
SCALE: 1" = 5'

STORMWATER MANAGEMENT BMPs
MATERIAL SPECIFICATION

MATERIAL	SPECIFICATION	SIZE	NOTES
BIORETENTION MEDIA/PLANTING SOIL (BIORETENTION, BIOSWALES)	LOAMY SAND (60 - 65%) & COMPOST (35 - 40%) OR SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)		USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT <5% ORGANIC CONTENT > 10% PH RANGE: 5.5 - 7.0
BRIDGING LAYER STONE (BIORETENTION, BIOSWALES)	PEA GRAVEL: ASTM-D-448	1" TO 1.5" (NO. 8 OR NO. 9)	
GEOTEXTILE (BIORETENTION, BIO-SWALES, COBBLE)	GRAB STRENGTH: 250 LB (ASTM D4632) PUNCTURE STRENGTH: 90 LB (ASTM D4833) PERMITTIVITY: 0.20 SEC ⁻¹ (ASTM D4491) TRAPEZOID TEAR STRENGTH: 90 LB (ASTM D4533)	APPARENT OPENING SIZE, MAX: 0.30 MM (ASTM D4751)	NON-WOVEN GEOTEXTILE SHALL UNDERLAY ALL ROCK-SOIL INTERFACES
GRAVEL (UNDERDRAINS, BIO-SWALES BIORETENTION, INFILTRATION BERM, ENHANCED FILTER RESERVOIR)	AASHTO M-43	0.375" (NO. 57)	MINIMUM 3" OF GRAVEL OVER & UNDER PIPES
UNDERDRAIN PIPING (BIORETENTION, BIOSWALES)	F 758, TYPE PS 28 OR AASHTO M-278	RIGID SCH 40 PVC	SMOOTH INNER WALLS; IF PERFORATED, PERFORATIONS SHALL BE 3/8" DIA. SPACED 6" O.C. (HORIZONTALLY), ROWS OF HOLES SPACED 6" O.C. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4-INCH GALVANIZED HARDWARE CLOTH
SUITABLE FILL	SOIL WITH A MINIMUM MAXIMUM DRY DENSITY OF 100 P.C.F PER T 180	N/A	HOMOGENEOUS MIXTURE FREE FROM VEGETATIVE MATTER, ORGANIC MATTER SLUDGE, GRIT, TRASH, MUCK, ROOTS, LOG, STUMPS OR FROZEN MATERIAL. NO ROCKS EXCEEDING 6" IN DIA.
COBBLE PROTECTION	SUBANGULAR ROUNDED ROCK OF THE APPROPRIATE COLOR (DARK BROWN, TAN, GRAY) FROM AN APPROVED SOURCE	D ₅₀ SHALL BE EQUAL TO THE GRADATION SPECIFIED ON PLANS	NON-WOVEN GEOTEXTILE SHALL UNDERLAY ALL ROCK-SOIL INTERFACES



ROAD HUMPS DETAIL
SCALE: NOT TO SCALE

FINAL DESIGN PLANS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
DETAILS

DRAWN BY : JWS	SCALE : AS SHOWN
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 6 OF 12

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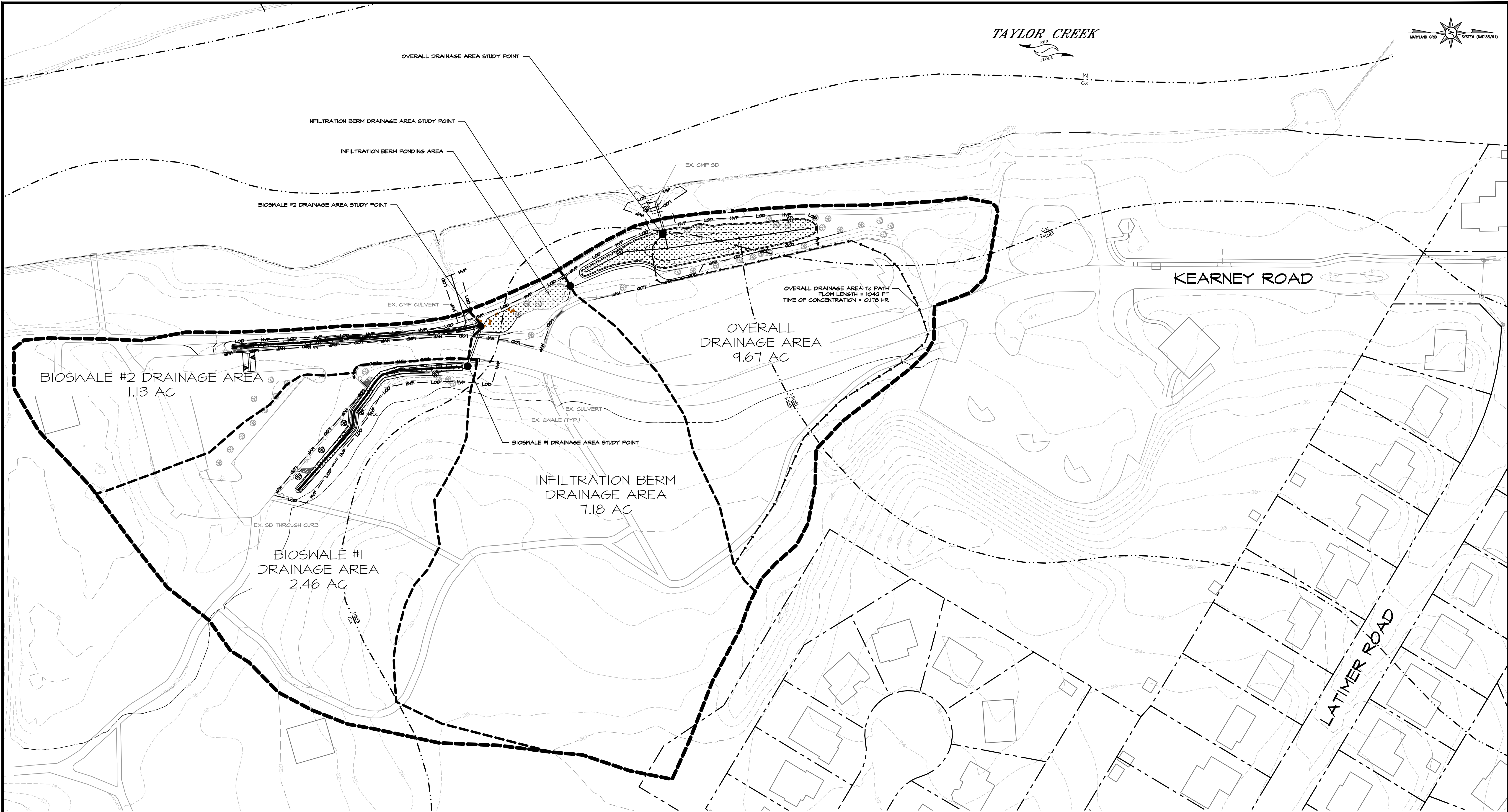
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3209

BILLING NO. 97130
EG-SWMENG-000106-2023
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. 33146, EXPIRATION DATE: 01/14/2025.

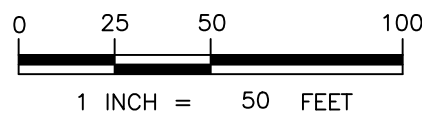


BID No.: 25-078

HCG DWG ID No.:
SCALE: 1"=10'



PLAN VIEW



SOILS CHART

SYMBOL	SOIL	HSG	K-FACTOR
Cx	CUT AND FILL LAND	ASSUME D	N/A
MkB	MATAPEAKE SILT LOAM, 2 TO 5% SLOPES	C	0.49
MicB	MATAPEAK SILT LOAM, 2 TO 5% SLOPES, NORTHERN COASTAL PLAIN	C	0.49

SCALE: 1" = 50'

BayLand Consultants & Designers, Inc.

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REVISIONS	

FINAL DESIGN PLANS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
DRAINAGE AREA MAP

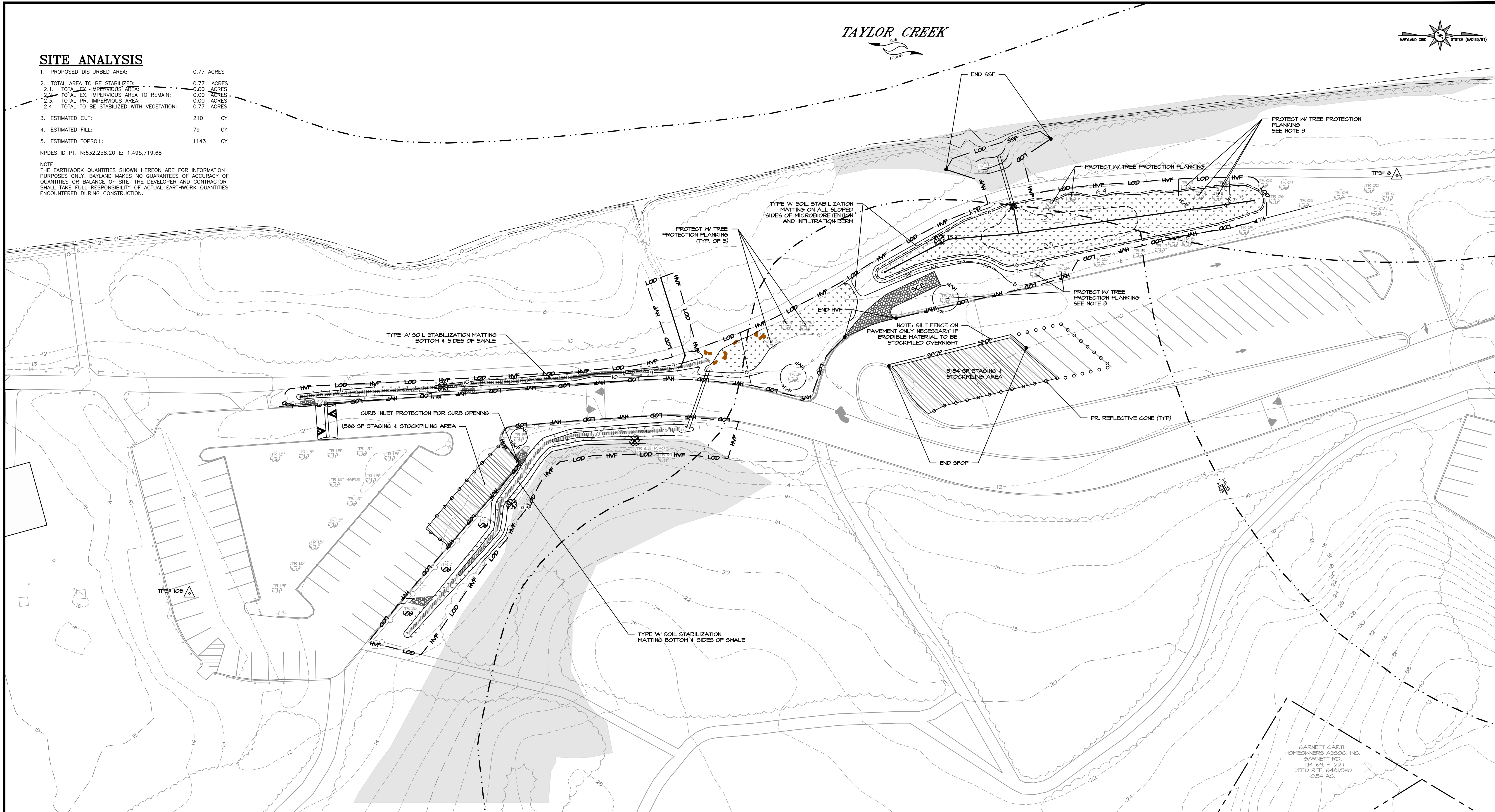
DRAWN BY : JWS	SCALE : 1" = 50'
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 7 OF 12

SITE ANALYSIS

1. PROPOSED DISTURBED AREA:	0.77 ACRES
2. TOTAL AREA TO BE STABILIZED:	0.77 ACRES
2.1. TOTAL EX. IMPERVIOUS AREA:	0.00 ACRES
2.2. TOTAL EX. IMPERVIOUS AREA TO REMAIN:	0.00 ACRES
2.3. TOTAL PR. IMPERVIOUS AREA:	0.00 ACRES
2.4. TOTAL TO BE STABILIZED WITH VEGETATION:	0.77 ACRES
3. ESTIMATED CUT:	210 CY
4. ESTIMATED FILL:	79 CY
5. ESTIMATED TOPSOIL:	1143 CY

NPDES ID PT. N:632,258.20 E: 1,495,719.68

NOTE:
THE EARTHWORK QUANTITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. BAYLAND MAKES NO GUARANTEES OF ACCURACY OF QUANTITIES OR BALANCE OF SITE. THE DEVELOPER AND CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF ACTUAL EARTHWORK QUANTITIES ENCOUNTERED DURING CONSTRUCTION.



SEDIMENT CONTROL LEGEND

LIMIT OF DISTURBANCE	LOD
LIMIT OF DISTURBANCE/ HIGH VISIBILITY FENCE	LOD HVF
LIMIT OF DISTURBANCE/ SUPER SILT FENCE	LOD SSF
STAGING & STOCKPILING AREA	
REFLECTIVE CONE	O
SILT FENCE ON PAVEMENT	SFOP
STABILIZED CONSTRUCTION ENTRANCE	

SUMMARY OF ESC QUANTITIES

SUPER SILT FENCE:	82 LF
HIGH VISIBILITY FENCE / TREE PROTECTION FENCE:	2,511 LF
SILT FENCE ON PAVEMENT:	102 LF

NOTE: THIS SUMMARY OF SEDIMENT CONTROL QUANTITIES IS FOR USE BY THE HARFORD COUNTY SOIL CONSERVATION DISTRICT ONLY. THIS SUMMARY IS NOT INTENDED TO BE USED BY THE CONTRACTOR FOR ESTIMATING AND BIDDING PURPOSES. ALL TREES WITHIN LOD SHALL BE PROTECTED UNLESS OTHERWISE NOTED ON PLANS.

NOTES

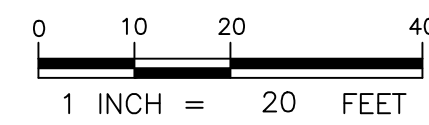
1. NO MORE AREA SHALL BE DISTURBED THAN CAN BE STABILIZED BY THE END OF THE WORKDAY.
 2. SOIL STABILIZATION MATTING SHALL BE INSTALLED FOR ALL SWALES, BOTTOM AND SIDES, AND ON ALL SLOPED SIDES OF MICRO-BIORETENTION AND INFILTRATION BERM.
 3. NO HEAVY EQUIPMENT SHALL BE USED NEAR EXISTING TREES. FINE GRADE BY HAND AS NECESSARY TO AVOID DAMAGING CRITICAL ROOT ZONE.
 4. ANY DISTURBED AREA OUTSIDE OF PLANNED PLANTING AREA AS SHOWN ON SHEET
- SHALL BE STABILIZED WITH TURFGRASS IN ACCORDANCE WITH THE SPECIFICATIONS.

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PLAN VIEW

SCALE: 1" = 30'



BILLING NO. 97130

EG-SWMENG-000106-2023

PROFESSIONAL CERTIFICATION

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REVISIONS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
EROSION & SEDIMENT CONTROL PLAN

DRAWN BY : JWS	SCALE : 1" = 30'
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 8 OF 12

GARNETT GARTH
HOMESOWNERS ASSOC. INC.
GARNETT RD.
T.M. 64 P. 221
DEED REF. 6461/540
0.54 AC.

BID No.: 25-078

HCG DWG ID No.:

SCALE: 1" = 30'

STANDARDS AND SPECIFICATIONS
FOR SOIL PREPARATION,
TOPSOILING, AND SOIL AMENDMENTS

- A. SOIL PREPARATION
1. TEMPORARY STABILIZATION
 - a. SEEDED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENEED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 - a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - i. SOIL PH BETWEEN 6.0 AND 7.0.
 - ii. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOW GRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - iv. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENEED TO A DEPTH OF 3 TO 5 INCHES.
 - d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
 4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
 - a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLUG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
 - b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
 6. TOPSOIL APPLICATION
 - a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDED PREPARATION.
 - C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #200 MESH SIEVE.
 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200–400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

- NOTES:
1. SEEDING RATES FOR THE WARM–SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL–SEASON GRASSES. SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS, AND WHEAT. FOR SMALLER–SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET), DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS. CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE. OATS ARE THE RECOMMENDED NURSE CROP FOR WARM–SEASON GRASSES.
 2. FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.
 3. THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR THE BOUNDARIES OF THE ZONE.

STANDARDS AND SPECIFICATIONS
FOR SEEDING AND MULCHING

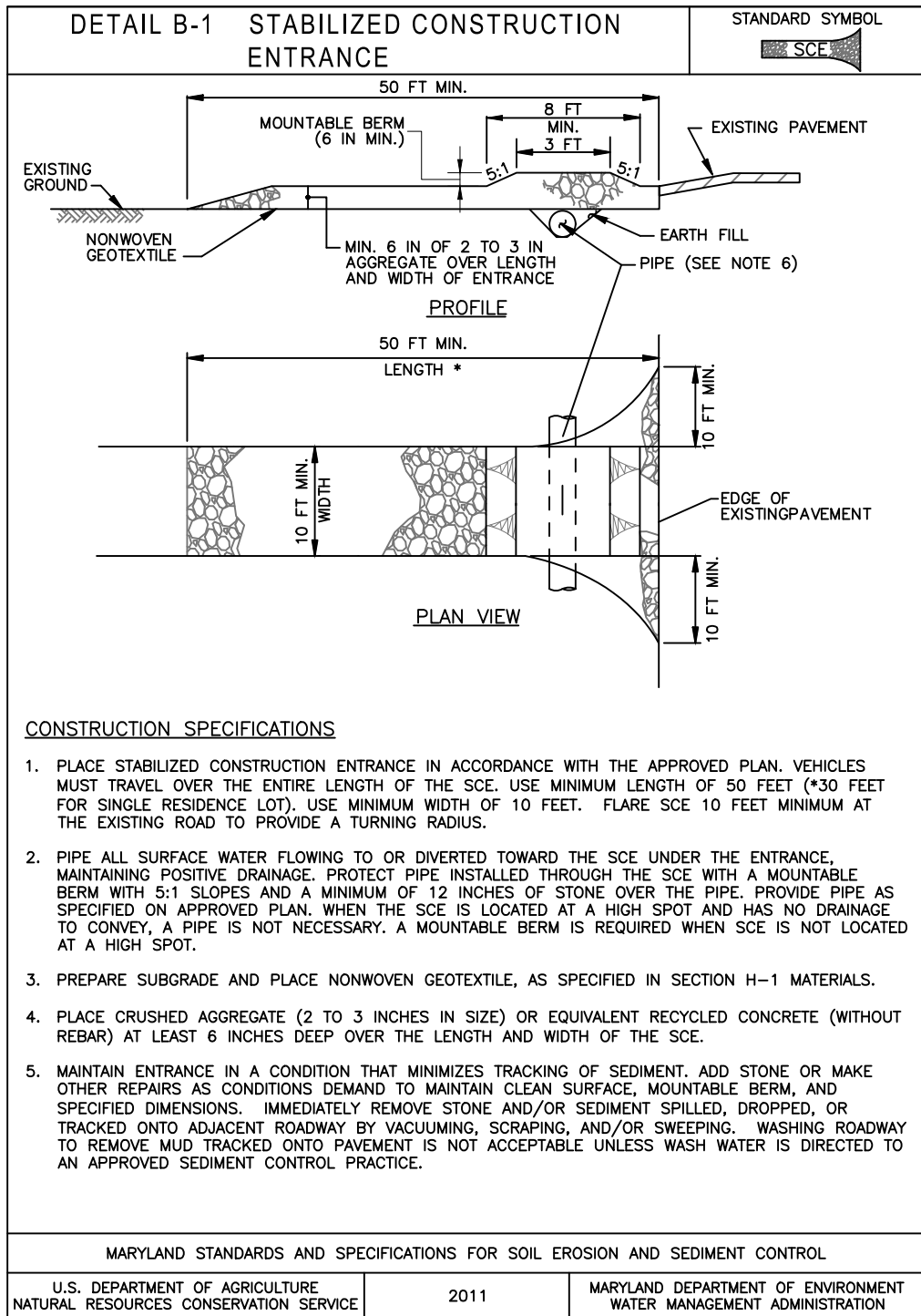
- A. SEEDING
1. SPECIFICATIONS
 - a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SEED MUST BE TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT.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

- B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER–LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEEDS IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO–TOXIC.
 - v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
 2. APPLICATION
 - a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
 - c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 3. ANCHORING
 - a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO–TACK), DCA–70, PETROSET, TERRA TAX II, TERRATACK AR, OR OTHER APPROVED EQUIPMENT MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

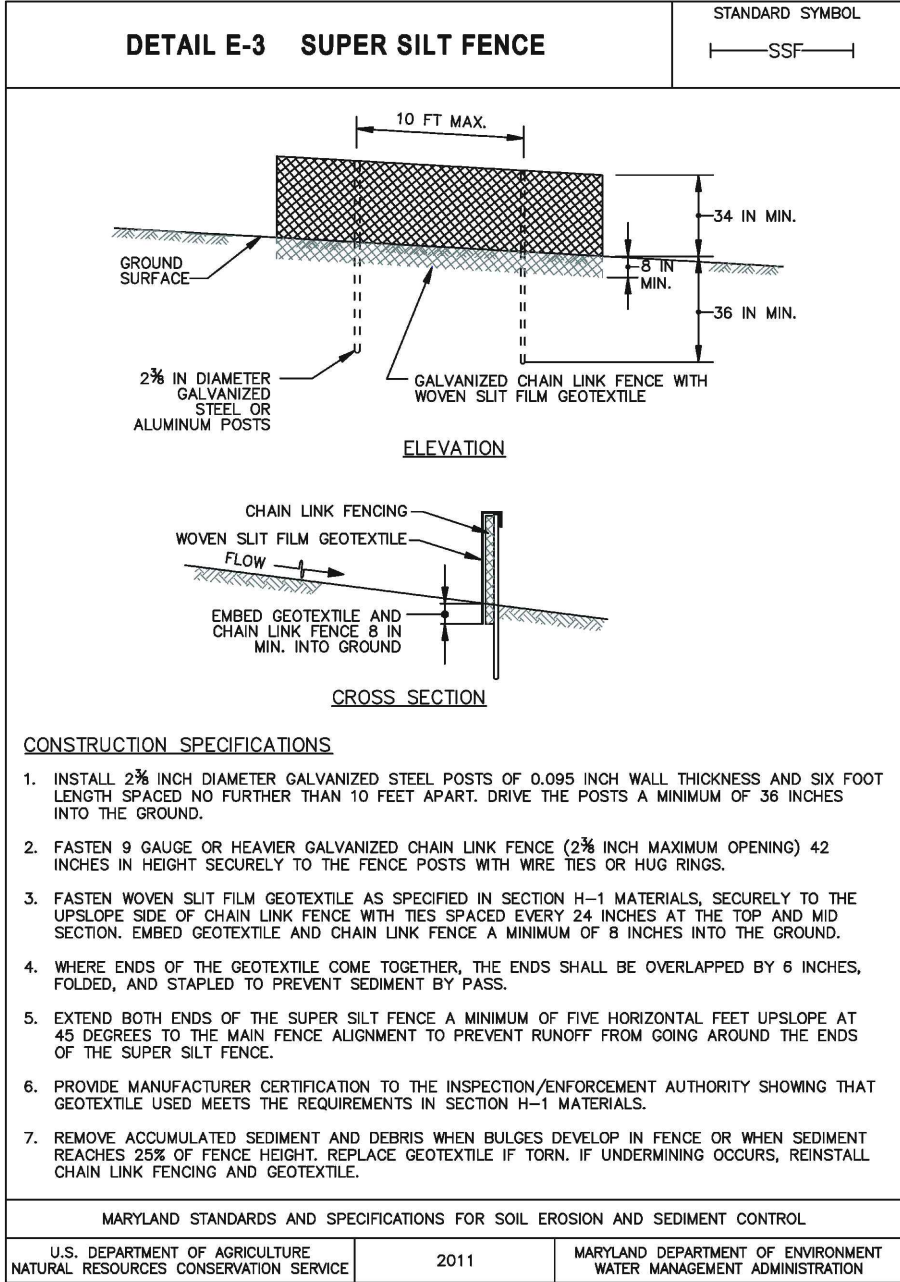
SEQUENCE OF CONSTRUCTION

1. ESTABLISH ALL PERMITS HAVE BEEN OBTAINED. PERMITS SHALL BE DISPLAYED ON SITE AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT. 1 DAYS
2. THE CONTRACTOR SHALL CALL "MISS UTILITY" (1–800–257–7777) A MINIMUM OF 48 HOURS IN ADVANCE OF ANY EXCAVATION TO MARK GAS, ELECTRIC, TELEPHONE, WATER AND/OR SEWER LINES. 2 DAYS
3. THE CONTRACTOR SHALL NOTIFY THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF CONSTRUCTION MANAGEMENT (410–638–3217) AT LEAST THREE (3) DAYS PRIOR TO STARTING CONSTRUCTION. 3 DAYS
4. CLEAR MINIMUM AREA NECESSARY TO INSTALL PERIMETER SEDIMENT CONTROLS MEASURES. INSTALL STAGING/STOCKPILING AREAS AND TRAFFIC CONTROL MEASURES. 1 DAYS
5. INSTALL ALL EROSION AND SEDIMENT CONTROLS. APPROVAL BY THE SEDIMENT AND EROSION CONTROL INSPECTOR SHALL BE REQUIRED UPON COMPLETION OF THE INSTALLATION OF EROSION AND SEDIMENT CONTROLS AND PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. THIS WILL REQUIRE FIRST PHASE INSPECTION. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE SEDIMENT AND EROSION CONTROL INSPECTOR IS GIVEN. 1 DAYS
6. BEGIN ROUGH EXCAVATION OF BIORETENTION FACILITY. REMOVE WOODEN STOPS AND ROUGH GRADE SLOPE. REMOVE & REPLACE 24" STORM DRAIN AND INSTALL CHECK VALVE AT OUTFALL. 3 DAYS
7. UPON COMPLETION OF ROUGH GRADING; FINE–GRADE FEATURES, INSTALL #57 RESERVOIR STONE & UNDERDRAIN PIPING. INSTALL BRIDGING STONE LAYER AND BIORETENTION FILTER MEDIA. PERMANENTLY STABILIZE ANY DISTURBED AREAS. 3 DAYS
8. REMOVE & REPLACE 24" STORM CULVERT BENEATH KEARNEY DRIVE. RESTORE ROADWAY/CURB TO PRE–CONSTRUCTION CONDITIONS. 1 DAYS
9. BEGIN ROUGH EXCAVATION OF BIO–SWALE #1 & 2 AND INFILTRATION BERM. FINE–GRADE FEATURES, INSTALL #57 STONE, UNDERDRAIN, BRIDGING LAYER STONE, AND BIORETENTION FILTER MEDIA AT BIO–SWALE #2, AND BIO–RETENTION FILTER MEDIA AT BIO–SWALE #1. PERMANENTLY STABILIZE ALL DISTURBED AREAS. 8 DAYS
10. INSTALL COBBLE INFLOW PROTECTION AND CURB–CUTS/NOSE DOWNS. 1 DAYS
11. REMOVE STAGING/STOCKPILE AREAS, PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREAS, AND REPAIR PAVEMENT AS NECESSARY. 1 DAYS
12. ONCE ALL AREAS ARE 95% STABILIZED AND WITH SEDIMENT CONTROL INSPECTOR APPROVAL, REMOVE ANY REMAINING EROSION AND SEDIMENT CONTROLS INCLUDING CURB INLET PROTECTIONS, SILT FENCE, AND SUPER SILT FENCE. STABILIZE ANY AREAS DISTURBED AND RESTORE ANY EXISTING PAVEMENT OR GRAVEL TO PREDEVELOPMENT CONDITIONS. 1 DAYS

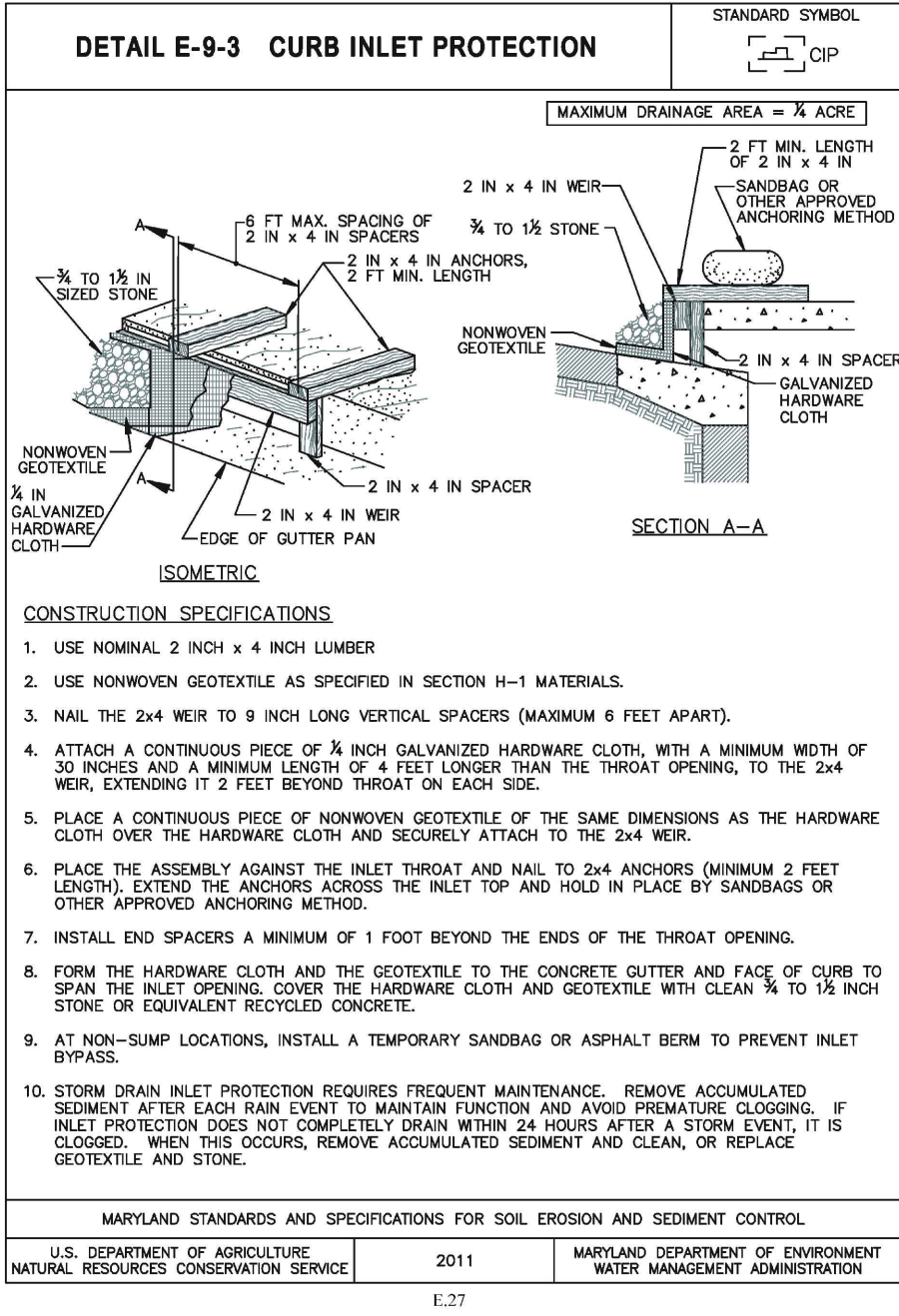
TOTAL: 26 WORKING DAYS



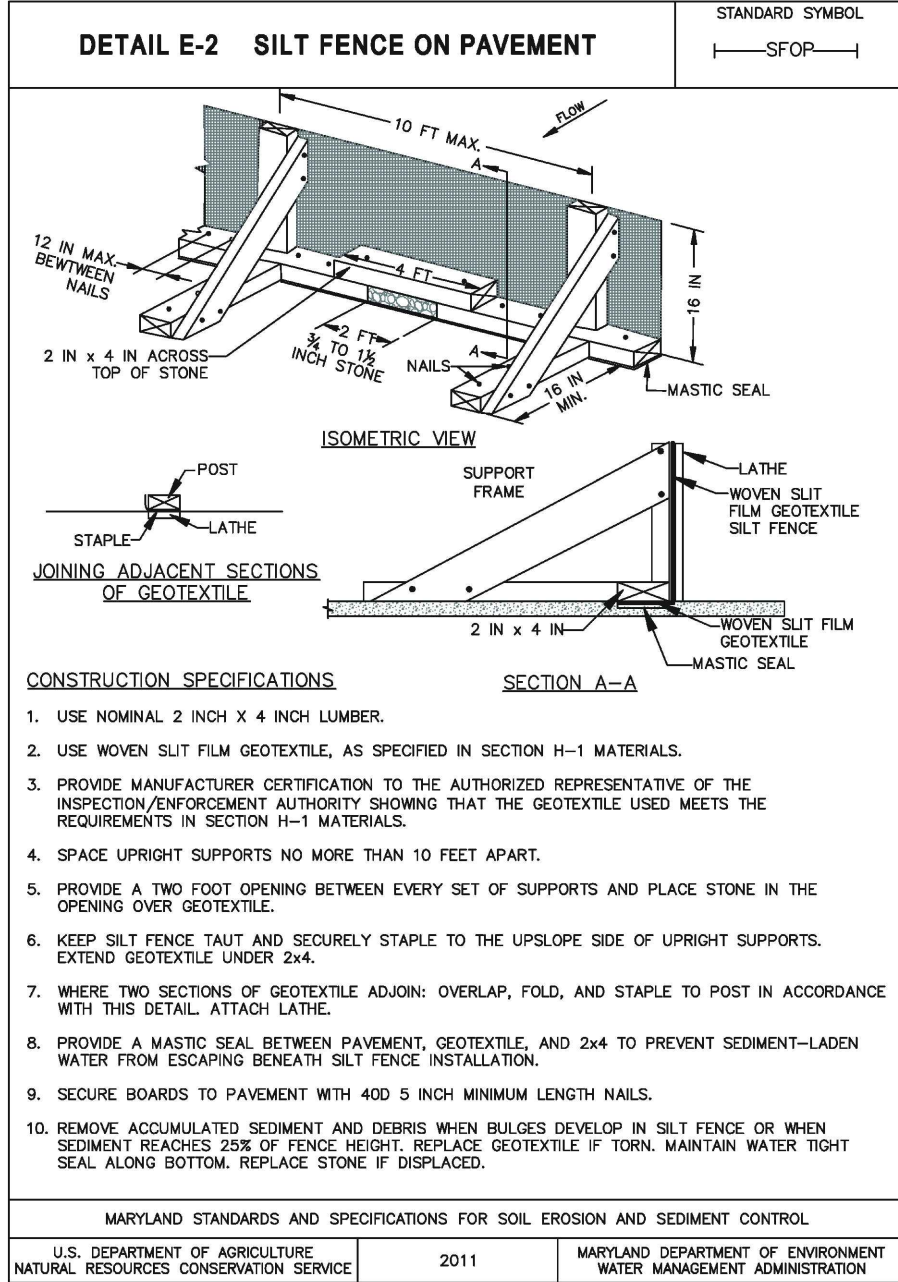
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL			
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	



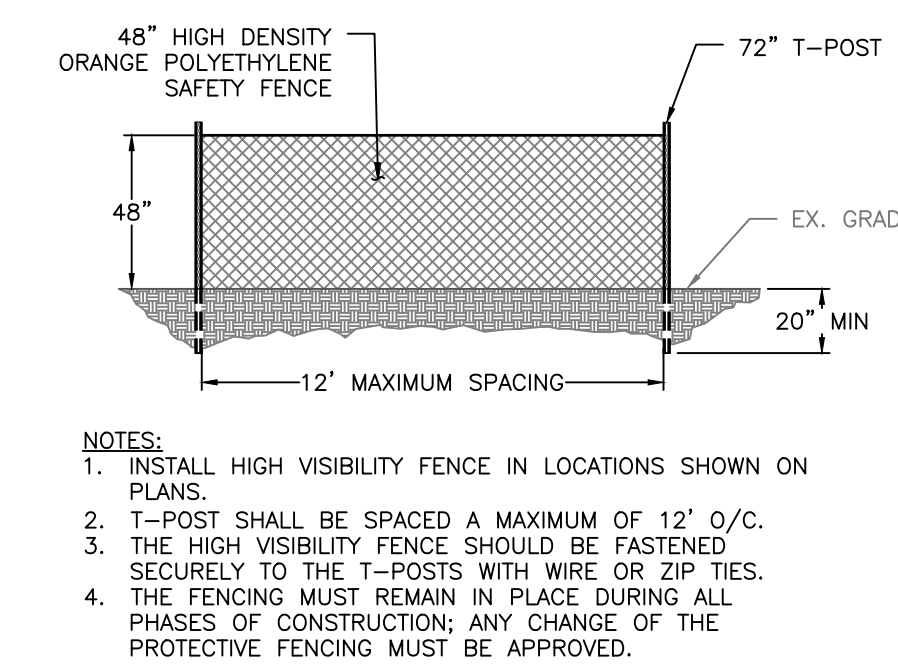
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL			
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL			
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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	



HIGH VISIBILITY FENCE DETAILS

NOT TO SCALE

- NOTES:
1. INSTALL HIGH VISIBILITY FENCE IN LOCATIONS SHOWN ON PLANS.
 2. T–POST SHALL BE SPACED A MAXIMUM OF 12' O/C.
 3. THE HIGH VISIBILITY FENCE SHOULD BE FASTENED SECURELY TO THE T–POSTS WITH WIRE OR ZIP TIES.
 4. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION. ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

FINAL DESIGN PLANS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
EROSION & SEDIMENT CONTROL NOTES & DETAILS

DRAWN BY : JWS	SCALE : AS SHOWN
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 9 OF 12

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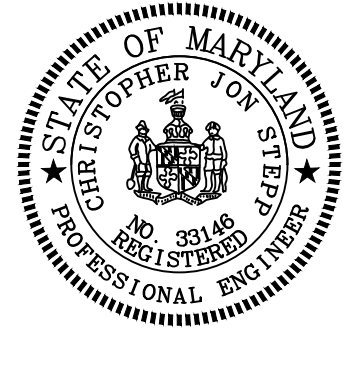
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3209

BILLING NO. 97130

EG–SWMENG–000106–2023

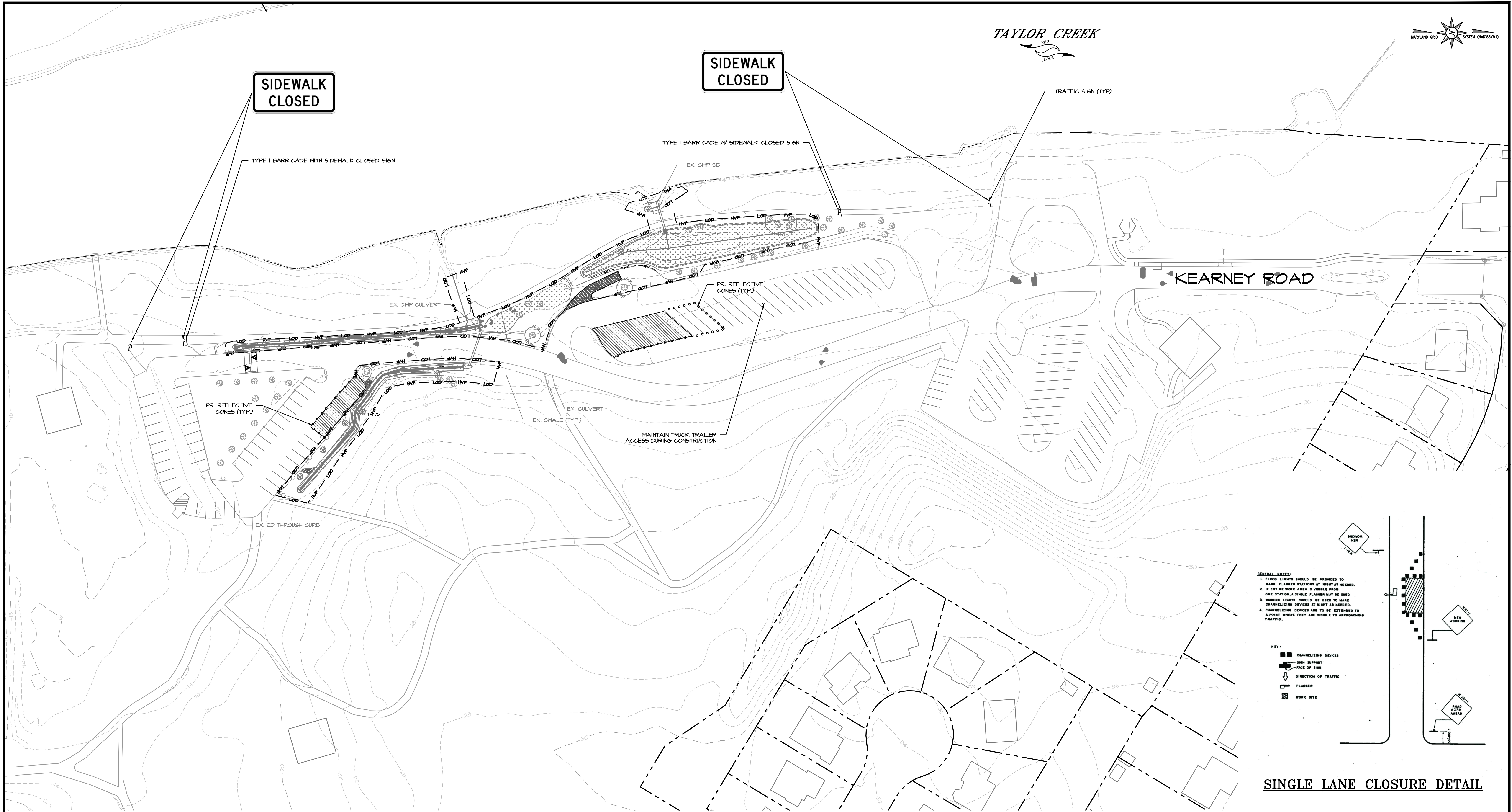
PROFESSIONAL CERTIFICATION

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. 33146, EXPIRATION DATE: 01/14/2025.



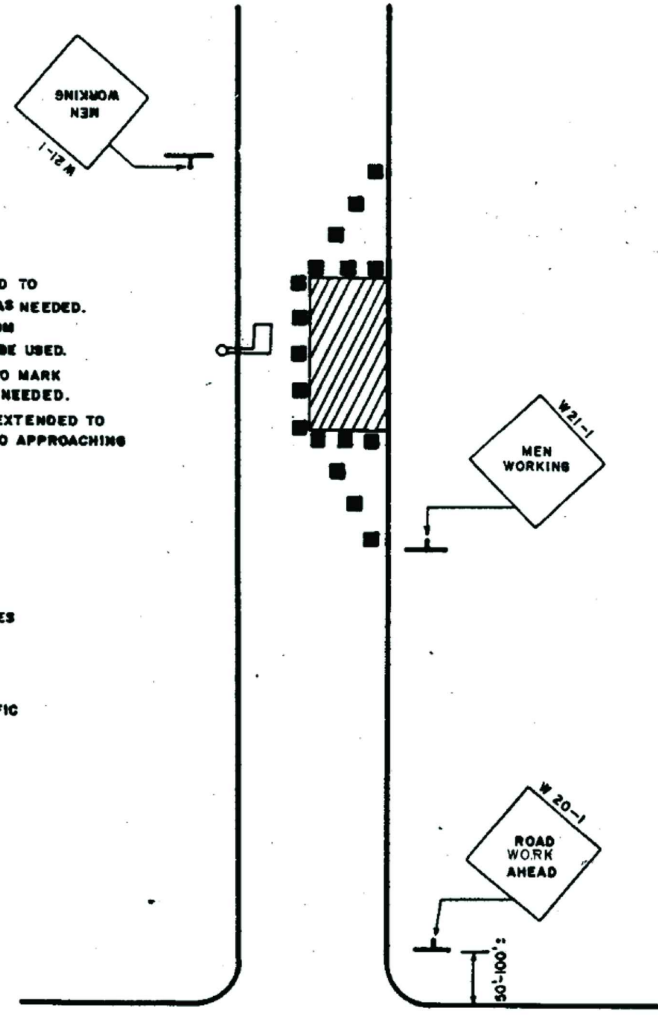
BID No.: 25–078

HCG DWG ID No.:
SCALE: 1"=10'



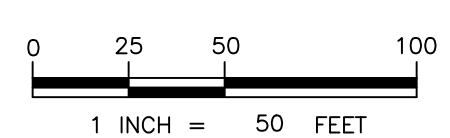
GENERAL NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK PLANNER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLASHER MAY BE USED.
3. WARNING LIGHTS SHOULD BE USED TO MARK CHANNELIZING DEVICES AT NIGHT AS NEEDED.
4. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.

- KEY:
- CHANNELIZING DEVICES
 - SIGN SUPPORT
 - FACE OF SIGN
 - DIRECTION OF TRAFFIC
 - FLASHER
 - WORK SITE



SINGLE LANE CLOSURE DETAIL

PLAN VIEW



NOTES

1. TRAFFIC CONTROL/PEDESTRIAN BARRICADES SHALL BE RELOCATED AS APPROPRIATE AS WORK PROGRESSES.

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BILLING NO. 97130
EG-SWMENG-000106-2023

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REVISIONS	

HARFORD COUNTY, MARYLAND

MARINER POINT PARK
STORMWATER MANAGEMENT IMPROVEMENTS
TRAFFIC CONTROL PLAN

DRAWN BY : JWS	SCALE : 1" = 50'
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 10 OF 12

BID No.: 25-078
HCG DWG ID No.:
SCALE: 1" = 50'

PROJECT INFORMATION

- | | | | |
|---------------------------------|---|--------------------|----------------------------|
| 1. OWNER/DEVELOPER: | HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS WATERSHED PROTECTION AND RESTORATION OFFICE
CONTACT: BETSY COLLINS
EMAIL: BACOLLINS@HARFORDCOUNTYMD.GOV | 8. DEED REF: | 1149/383 |
| 2. OWNER/DEVELOPER INFORMATION: | 212 SOUTH BOND STREET, 1ST FLOOR
BEL AIR, MD 21014 | 9. DISTRICT: | 01 |
| 3. ENGINEER: | BAYLAND CONSULTANTS & DESIGNERS, INC. | 10. ZONING: | R3 URBAN RESIDENTIAL |
| 4. ENGINEER INFORMATION: | 7455 NEW RIDGE ROAD, SUITE T
HANOVER, MARYLAND 21076
PH: 410-694-9401 | 11. USE: | PARK |
| 5. TAX MAP: | 69 | 12. PROPERTY AREA: | 37.73 ACRES |
| 6. PARCEL: | 92 | 13. WATERSHED: | GUNPOWDER RIVER |
| 7. LOT: | N/A | 14. DESIGNATION: | RESOURCE CONSERVATION AREA |



LOCATION MAP

SCALE: 1" = 2000'

GENERAL NOTES

- THE PURPOSE OF THIS BUFFER MANAGEMENT PLAN IS TO COMPLY WITH THE BUFFER MITIGATION REQUIREMENTS FOR CONSTRUCTION OF STORMWATER BEST MANAGEMENT PRACTICES (BMP) ON THE SUBJECT PROPERTY.
- THE PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA.
- THE CHESAPEAKE BAY CRITICAL AREA DESIGNATION FOR THIS PROPERTY IS RCA (RESOURCE CONSERVATION AREA).
- THE PROJECT WILL RESULT IN NO NET INCREASE IN LOT COVERAGE IN THE BUFFER.
- THE PROJECT WILL RESULT IN NO NET INCREASE IN LOT COVERAGE OUTSIDE OF THE BUFFER.
- THE PROPERTY IS LOCATED AT 100 KEARNEY DRIVE, JOPPA, MD 21085 AND ACCESS TO PROPERTY IS FROM KEARNEY DRIVE.
- THIS PLAN WAS PREPARED WITHOUT BENEFIT OF REVIEW OF AN ABSTRACT OF TITLE.
- INDIVIDUAL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED SHALL BE PRESERVED AND PROTECTED DURING CONSTRUCTION.

SEQUENCE OF IMPLEMENTATION

- CONTRACTOR SHALL ARRANGE PRE-PLANTING MEETINGS WITH COUNTY PLANNING AND ZONING DEPARTMENTS STAFF AT LEAST 5 DAYS IN ADVANCE OF DISTURBANCES OF ANY LAND ON SITE.
- REMOVE/ELIMINATE TURF GRASS AND TILL AREAS TO BE PLANTED TO A DEPTH OF 12 INCHES. DO NOT TILL AREAS INSIDE TREE PROTECTION FENCING. SCORIFY TOP 2" OF SOIL WITH HAND TOOLS PRIOR TO PLANTING IN THESE AREAS TO PROTECT CRITICAL ROOT ZONE.
- MULCH AROUND LANDSCAPING STOCK TO REDUCE COMPETITION FROM INVASIVE SPECIES.
- MONITOR THE PLANTINGS OFTEN TO REDUCE PLANT STRESS SUCH AS WATER DEFICIENCY, NUTRIENT DEFICIENCY, INVASIVE SPECIES COMPETITION, PEST DAMAGE, AND DISEASE.
- THE CONTRACTOR SHALL OBSERVE MINIMAL SITE PREPARATION/DISTURBANCE, PROTECTION, OF PLANTS AFTER DELIVERY UNTIL THEY ARE PLANTED. PROPER DIGGING AND HANDLING OF PLANT MATERIALS, PROPER EXCAVATION OF PLANTING AREAS, PLANTING OPERATIONS, STABILIZATION OF THE PLANTING AREAS WITH MULCH AFTER PLANTING, STAKING, PRUNING, AND INSTALLATION OF BUFFER PROTECTION SIGNAGE.

MAINTENANCE AND LONG TERM PROTECTION PLAN

- MONITOR THE PLANTINGS OFTEN TO REDUCE PLANT STRESS SUCH AS WATER DEFICIENCY, NUTRIENT DEFICIENCY, INVASIVE SPECIES COMPETITION, PEST DAMAGE, AND DISEASE.
- WATER ONLY AS NECESSARY BUT AT LEAST ONCE EVERY 10 DAYS WITHOUT RAINFALL FROM MAY THROUGH SEPTEMBER, DEPENDING ON SOIL MOISTURE LEVELS. MONITOR TO ENSURE THAT OVER-WATERING DOES NOT FREQUENTLY OCCUR.
- USE ONLY LOW NITROGEN AND SLOW RELEASE FERTILIZERS AND APPLY IN LATE FALL OR EARLY SPRING.
- AT THE END OF THE 2-YEAR MONITORING PERIOD, THE SURVIVAL OF THE PLANTINGS SHALL BE ASSESSED TO DETERMINE THE NEED FOR REPLACEMENT PLANTINGS.
- ALL OF THE PLANTS ARE REQUIRED TO SURVIVE PER COMAR 27.01.09.01-2J. ANY LANDSCAPE STOCK PLANT OR PLANTS THAT DID NOT SURVIVE SHALL BE REPLACED.

BUFFER MANAGEMENT AND PROTECTION STANDARDS

- REMOVAL OF NATURAL VEGETATION WITHIN THE 100-FOOT BUFFER AND EXPANDED BUFFER IS PROHIBITED. CUTTING AND CLEARING OF NATURAL VEGETATION WITHIN THE BUFFER AND EXPANDED BUFFER SHALL BE AS SHOWN ON THIS BUFFER MANAGEMENT PLAN AS SUBMITTED AND/OR AS SUBSEQUENTLY AMENDED. SUBJECT TO APPROVAL BY THE COUNTY PLANNING AND ZONING OFFICE. ADDITIONAL INFORMATION CAN BE OBTAINED BY CONTACTING THE PLANNING AND ZONING OFFICE AT 2664 RIVA ROAD, ANNAPOLIS MARYLAND 21401.
- THE CRITICAL AREA BUFFER ON THIS LOT SHALL BE PLANTED IN ACCORDANCE WITH THIS PLAN. ALL EXISTING AND PLANTED VEGETATION WITHIN THE BUFFER SHALL BE MAINTAINED AND SURVIVAL OF PLANTED AND NATURALLY OCCURRING REGENERATED AREAS OF THE BUFFER SHALL BE AS DESCRIBED IN THIS PLAN.
- NEW LAWN AREAS SHALL NOT BE CREATED WITHIN THE BUFFER OR EXPANDED BUFFER UNLESS SPECIFICALLY ADDRESSED IN THIS BUFFER MANAGEMENT PLAN.

INSPECTION AGREEMENT

I, AN AUTHORIZED REPRESENTATIVE OF THE HARFORD COUNTY GOVERNMENT WHO OWNS THIS PROPERTY, DO HEREBY GRANT PERMISSION TO THE APPROVING AUTHORITY TO INSPECT THE PLANTINGS AT APPROPRIATE TIMES AT THE ADDRESS PROVIDED BELOW.

STREET ADDRESS: 100 KEARNEY DRIVE, JOPPA, MD 21085
TAX MAP: 69
PARCEL: 92
SECTION: N/A
LOT: N/A

OWNER

DATE



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0 15 30 60
1 INCH = 30 FEET

BILLING NO. 97130

EG-SWMENG-000106-2023

PROFESSIONAL CERTIFICATION

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STAFF NAME

STAFF TITLE

DATE

SOILS TABLE

SOIL LABEL	SOIL SERIES	SLOPES (%)	K-FACTOR	HYDRIC RATING
MiaB	MATTAPEX SILT LOAM, NORTHERN COASTAL PLAIN	2-5	0.49	5
MkB	MATTAPEAKE SILT LOAM	2-5	0.49	0
Cx	CUT AND FILL LAND	-	NOT RATED	0
W	WATER	-	NOT RATED	0

BUFFER MANAGEMENT PLAN APPROVAL

THIS MAJOR BUFFER MANAGEMENT PLAN HAS BEEN REVIEWED AND APPROVED FOR CONSISTENCY WITH THE LOCAL CRITICAL AREA PROGRAM AND THE PROVISIONS OF COMAR 27.01.09.01-1-7.

STAFF NAME

STAFF TITLE

DATE

REVISIONS

06/25/2024: REPLACEMENT PLANTINGS ADDED



BUFFER MANAGEMENT & MITIGATION CALCULATIONS

BUFFER MANAGEMENT CALCULATIONS	AREA
SITE AREA CALCULATIONS	
TOTAL LOD	31,051 SF

LOD IN BUFFER	
EX. LOT COVERAGE TO REMAIN OR BE RESTORED UPON PROJECT COMPLETION	324 SF
EX. LOT COVERAGE REMOVAL	150 SF
PR. LOT COVERAGE	16 SF
EX. PERVIOUS AREA TO REMAIN	16,746 SF
TOTAL LOD IN BUFFER	17,204 SF

LOD OUT OF BUFFER	
EX. LOT COVERAGE TO REMAIN OR BE RESTORED UPON PROJECT COMPLETION	0 SF
EX. LOT COVERAGE REMOVAL	0 SF
PR. LOT COVERAGE	0 SF
EX. PERVIOUS AREA TO REMAIN OR BE RESTORED UPON PROJECT COMPLETION	13,847 SF
TOTAL LOD OUT OF BUFFER	13,847 SF

MITIGATION REQUIREMENTS FOR TREE CANOPY REMOVAL OUTSIDE OF BUFFER	
TREE 35	433 SF
TREE 42	90 SF
TOTAL MITIGATION REQ'D FOR TREE CANOPY REMOVAL OUTSIDE OF BUFFER	523 SF

BUFFER MITIGATION REQUIREMENT CALCULATIONS	
BUFFER LOD MITIGATION REQUIREMENTS	
EXISTING PERVIOUS AREA IN BUFFER	16,746 SF
MITIGATION RATIO	1:1
SUBTOTAL	16,746 SF
DEDUCTION FOR EX. LOT COVERAGE REMOVAL	150 SF
NET LOD MITIGATION REQUIRED	16,596 SF

BUFFER TREE CANOPY REMOVAL MITIGATION REQUIREMENTS	
TREE 27	80 SF
TREE 33	157 SF
TOTAL BUFFER TREE CANOPY MITIGATION REQUIRED	237 SF

TOTAL BUFFER MITIGATION CREDIT REQUIRED	17,356 SF
---	-----------

MITIGATION PROVIDED (SEE ALSO BMP SHEET 2)	
TREE AND SHRUB MITIGATION PLANTING PROVIDED (SEE LANDSCAPING SCHEDULE)	950 SF
SWM CONSERVATION PLANTING IN BUFFER	7,709 SF
UPLAND CONSERVATION PLANTING IN BUFFER IN LOD	6,785 SF
UPLAND CONSERVATION PLANTING IN BUFFER IN LOD	2,666 SF
TOTAL	18,130 SF
MITIGATION REQUIREMENT SATISFIED	YES

FINAL DESIGN PLANS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK STORMWATER MANAGEMENT IMPROVEMENTS BUFFER MANAGEMENT PLAN - IMPACT PLAN

DRAWN BY : JWS

DESIGNED BY : MB/JWS

REVIEWED BY : MB

DRAWING NO.

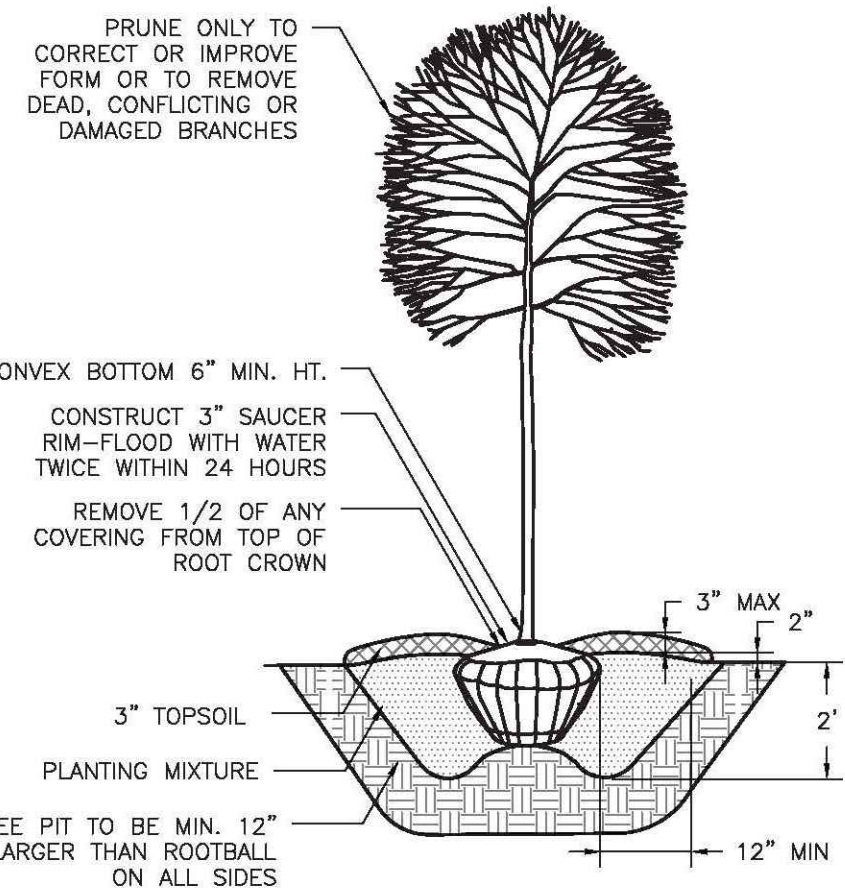
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DATE : 7/2/2024

SHEET NO.

11 OF 12

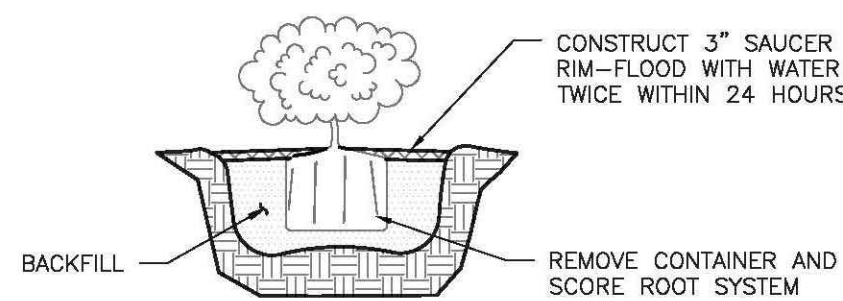
Z:\4_3209_MARINER_POINT_PARK_SWM_IMPROVEMENTS\CAD Files\Sheet Files\4_3209_BMP01.dwg



- NOTES:
1. CONTRACTOR TO REGRADE, SOD OR HYDROSEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.
 2. SPRAY WITH WILT-PROOF ACCORDING TO MANUFACTURES STANDARD.
 3. USE STAKING FOR 2" CALIPER NYSSA

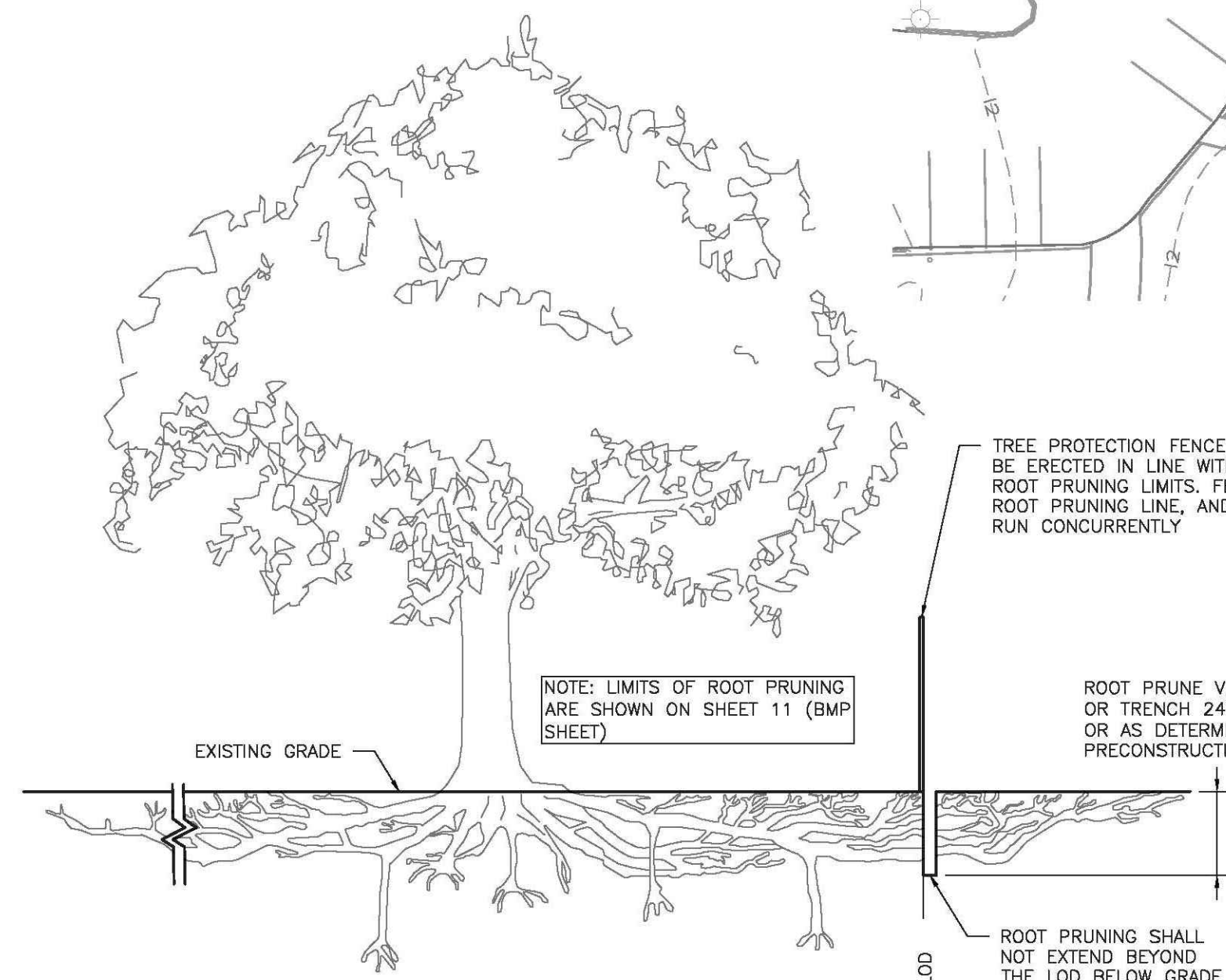
TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE



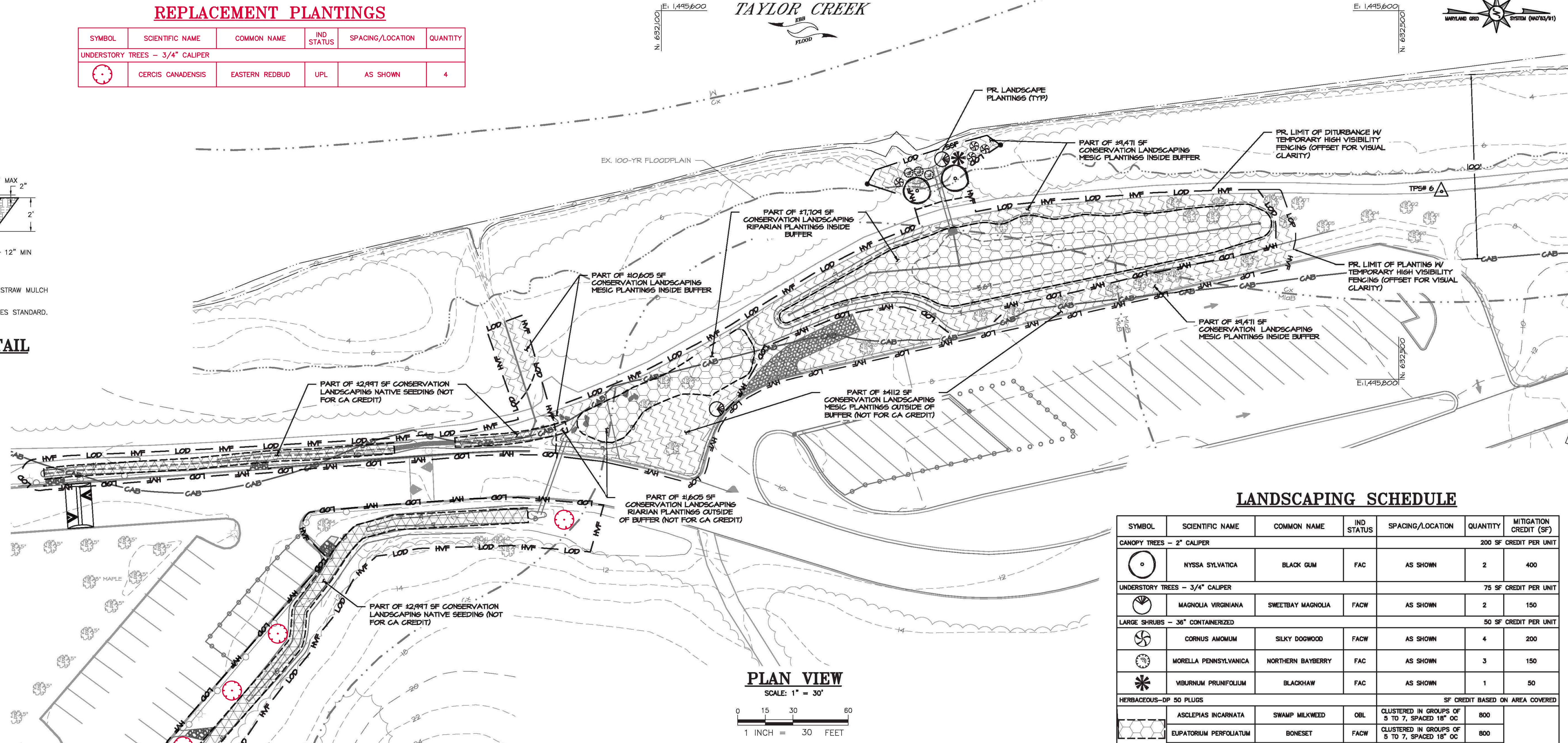
ROOT PRUNING DETAIL

SCALE: NOT TO SCALE

- NOTES:
1. ROOT PRUNING BOUNDARIES MUST BE STAKED AT THE PRECONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
 2. EXCAVATED AREA MUST BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN, BY THE FORESTRY INSPECTOR.
 3. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROOT PRUNING SHALL BE DETERMINED AT THE PRECONSTRUCTION MEETING.
 4. PRUNING MEANS AND METHODS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
 5. SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.

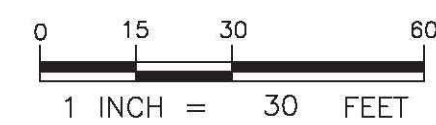
REPLACEMENT PLANTINGS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	IND STATUS	SPACING/LOCATION	QUANTITY
UNDERSTORY TREES - 3/4" CALIPER					
	CERCIS CANADENSIS	EASTERN REDBUD	UPL	AS SHOWN	4



PLAN VIEW

SCALE: 1" = 30'








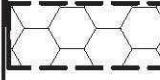
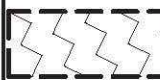
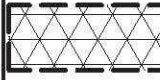
NATIVE DETENTION SEED MIX

% COMPOSITION	BOTANICAL NAME	COMMON NAME
25.00%	PANICUM CLANDESTINUM	DEERTONGUE
25.00%	PANICUM VIRGATUM	SWITCHGRASS
24.00%	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
20.00%	CAREX VULPINOIDEA	FOX SEDGE
3.00%	JUNCUS EFFUSUS	SOFT RUSH
1.00%	JUNCUS TENUIS	PATH RUSH
1.00%	PANICUM RIGIDULUM	REDTOP PANICGRASS

COVER/NURSE CROP SEED TABLE

SEEDING RATE	BOTANICAL NAME	COMMON NAME	SEEDING DATE
30 LB/AC	SECALE CEREALE	CEREAL RYE	11/1-2/28
30 LB/AC	AVENA SATIVA	GRAIN OATS	3/1-4/30
10 LB/AC	SETARIA ITALICA	FOXTAIL MILLET	5/1-8/31
10 LB/AC	LOLIUM MULTIFLORUM	ANNUAL RYEGRASS	9/1-10/31

LANDSCAPING SCHEDULE

SYMBOL	SCIENTIFIC NAME	COMMON NAME	IND STATUS	SPACING/LOCATION	QUANTITY	MITIGATION CREDIT (SF)
CANOPY TREES – 2" CALIPER					200 SF	CREDIT PER UNIT
	NYSSA SYLVATICA	BLACK GUM	FAC	AS SHOWN	2	400
UNDERSTORY TREES – 3/4" CALIPER					75 SF	CREDIT PER UNIT
	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	FACW	AS SHOWN	2	150
LARGE SHRUBS – 36" CONTAINERIZED					50 SF	CREDIT PER UNIT
	CORNUS AMOMUM	SILKY DOGWOOD	FACW	AS SHOWN	4	200
	MORELLA PENNSYLVANICA	NORTHERN BAYBERRY	FAC	AS SHOWN	3	150
	VIBURNUM PRUNIFOLIUM	BLACKHAW	FAC	AS SHOWN	1	50
HERBACEOUS-OP 50 PLUGS					SF CREDIT BASED ON AREA COVERED	
 9,134 SF TOTAL RIPARIAN PLANTING AREA*	ASCLEPIAS INCARNATA	SWAMP MILKWEED	OBL	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	800	7,709
	EUPATORIUM PERFOOLIATUM	BONESET	FACW	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	800	
	HELIANTHUS ANGUSTRIFOLIUM	SWAMP SUNFLOWER	FACW	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	800	
	PANICUM VIRGATUM	SWITCHGRASS	FAC	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	800	
	SYMPHYOTRICHUM NOVAE-ANGLIAE	NEW ENGLAND ASTER	FACW	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	800	
 13,583 SF TOTAL MESIC PLANTING AREA*	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	NI	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	1200	9,471
	LIATRIS SPICATA	DENSE BLAZINGSTAR	FAC	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	1200	
	MONARDA PUNCTATA	SPOTTED BEEBALM	FACU	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	1200	
	PANICUM VIRGATUM	SWITCHGRASS	FAC	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	1100	
	RUDBECKIA FULGIDA	ORANGE CONEFLOWER	FAC	CLUSTERED IN GROUPS OF 5 TO 7, SPACED 18" OC	1200	
HERBACEOUS – SEEDING					NOT COUNTED FOR CA CREDIT	
 2,977 SF TOTAL SEEDING AREA	ERNMX-183 MIX OR EQUIVALENT	NATIVE DETENTION SEED MIX	N/A	N/A	2.0 LB	0
	COVER/NURSE CROP, SEE TABLE FOR RATE & DATES	N/A	N/A	THROUGHOUT ZONE	SEE TABLE	0
TOTAL CRITICAL AREA MITIGATION CREDIT						18,130

* ONLY AREA IN CRITICAL AREA BUFFER IS COUNTED AS MITIGATION CREDIT

FINAL DESIGN PLANS

HARFORD COUNTY, MARYLAND

MARINER POINT PARK STORMWATER MANAGEMENT IMPROVEMENTS BUFFER MANAGEMENT PLAN - PLANTING PLAN

DRAWN BY : JWS	SCALE : 1" = 30'
DESIGNED BY : MB/JWS	DATE : 7/2/2024
REVIEWED BY : MB	
DRAWING NO.	SHEET NO. 12 OF 12

BayLand
Consultants & Designers, Inc.
"Integrating Engineering and Environment"

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Hanover, Maryland 21076 Fax: (410) 694-9105
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EG-SWMENG-000106-2023

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. 33146, EXPIRATION DATE: 01/14/2025.

REVISIONS

06/25/2024: REPLACEMENT PLANTINGS ADDED

STATE OF MARYLAND
JAMES H. JOHNSON
NO. 33146
REGISTERED PROFESSIONAL ENGINEER

BID No.: 25-078

HCG DWG ID No.:
SCALE: 1" = 30'