	SHEET INDEX
NO.	DESCRIPTION
1	COVER SHEET
2	EXISTING CONDITIONS PLAN
3	ROADWAY IMPROVEMENTS PLAN
4	STORMWATER MANAGEMENT & DRAINAGE AREA MAP
5	STORMWATER MANAGEMENT ESD NOTES & DETAILS
6	BORING LOGS AND TRAFFIC CONTROL DETAILS
7	STORM DRAIN DRAINAGE AREA MAP & PROFILES
8	GRADING AND SEDIMENT & EROSION CONTROL PLAN
9	SEDIMENT & EROSION CONTROL NOTES AND DETAILS

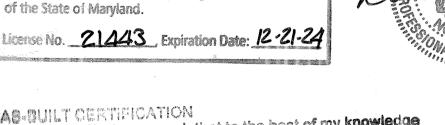
10 LANDSCAPE PLAN & FOREST CONSERVATION PLAN

	ADDRES	SS CHART	
LOT NO.		ADDRESS	
1	9456	VOLLMERHAUSEN DRIV	E
2	9454	VOLLMERHAUSEN DRIVI	E
3	9452	VOLLMERHAUSEN DRIVI	E
4	9450	VOLLMERHAUSEN DRIVI	Ε
5	9448	VOLLMERHAUSEN DRIVI	E
6	9446	VOLLMERHAUSEN DRIVI	E
7	9444	VOLLMERHAUSEN DRIVI	Ē
8	9442	VOLLMERHAUSEN DRIVI	E

Lot	Total Area (sf)	Flagstem Area (sf)	Min Lot Area (st
3	8,193	646	7,547
4	8,907	1,005	7,902
5	7,543	1,003	6,540
6	6,822	642	6,180

Note: Minimum lot size per zoning regulations (Section 110.0.D.2) is 6,000 sf

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.



AS-BUILT CERTIFICATION I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Doneld Mason, P.E.

Date: 12/2/22

0.51 AC±

0.70 AC±

0.03 AC±

0.67 AC±

33%

SITE DATA TABULATION

) GENERAL SITE DATA

a. PRESENT ZONING: R-SC b. LOCATION: TAX MAP 42 - GRID 22 - PARCEL 167

c. APPLICABLE DPZ FILE REFERENCES: ECP-19-042, S-19-08, WP-19-081,

P-20-004, 24-5125-D d. DEED REFERENCE: L.18641, F.320

el Proposed use of site: 8 single family detached residences,

& 1 OPEN SPACE LOT

a. REQUIRED OPEN SPACE (FULL OBLIGATION).

e. PERCENT OF CREDITED OPEN SPACE PROVIDED.

b. OPEN SPACE PROVIDED.

d. CREDITED OPEN SPACE

c. NON-CREDIT OPEN SPACE.

CHIEF, DEVELOPMENT ENGINEERING DIVISION

f. PROPOSED WATER AND SEWER: PUBLIC AND PUBLIC 2) AREA TABULATION a. TOTAL AREA OF SITE .. 2.02 AC± b. AREA OF 100 YEAR FLOODPLAIN (APPROX.). 0.00 AC c. AREA OF STEEP SLOPES (25% OR GREATER).. 0.00 AC d. NET AREA OF SITE.. 2.02 AC± e. AREA OF THIS PLAN SUBMISSION 2.02 AC± f. LIMIT OF DISTURBANCE (APPROX.). 1.88 AC± g. AREA OF PROPOSED BUILDABLE LOTS. 1.32 AC± h. AREA OF OPEN SPACE LOTS .. 0.70 AC± i. AREA OF PROPOSED PUBLIC ROAD. 0.00 AC j. AREA OF PROPOSED PUBLIC R/W DEDICATION. 0.00 AC 3) DENSITY TABULATION a. NET AREA OF SITE. 2.02 AC± b. TOTAL NUMBER OF LOTS ALLOWED PER ZONING. 4 UNITS PER NET ACRE ALLOWED BY RIGHT 4) UNIT/LOT TABULATION

f. FEE-IN-LIEU OF OPEN SPACE REQUIREMENT	NA
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
Jame	12/22/2020
CHIEF, BUREAU OF HIGHWAYS MK	DATE:
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND	ZONING
	July
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE:
Of the	1.4.76

J:\2952 9454 Vollmerhausen Drive\dwg\7009 Cover.dwg, 01-COVER, 11/13/2020 10:05:57 AM, mriedel

CONSTRUCTION PLANS HUNTINGTON POINT

LOTS 1-8, OPEN SPACE LOT 9 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

GENERAL NOTÉS

- 1. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- 2. SUBJECT PROPERTY ZONED R-SC PER THE 10-06-2013 COMPREHENSIVE ZONING PLAN.
- 3. THE EXISTING TOPOGRAPHY ON-SITE IS TAKEN FROM FIELD SURVEY WITH 2 FOOT CONTOUR INTERVALS PREPARED BY BENCHMARK ENGINEERING, INC. DATED FEBRUARY, 2019. SURROUNDING TOPOGRAPHY IS TAKEN FROM HOWARD COUNTY GIS. THE EXISTING UTILITIES SHOWN ARE TAKEN FROM FIELD SURVEY, CONTRACT
- 4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM AS ESTABLISHED FROM GIS OBSERVATION. MONUMENTS "TRAV.1" & "TRAV.2" WERE USED FOR THIS PROJECT.
- 5. PROJECT BOUNDARY IS BASED ON A SURVEY BY BENCHMARK ENGINEERING, INC., DATED FEBRUARY, 2019
- 6. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT AS IT DOES NOT MEET ANY OF THE REQUIREMENTS FOR A NOISE STUDY AS DEFINED IN SECTION 5.2.F.2 OF
- 7. THE FOREST STAND DELINEATION REPORT AND THE WETLANDS CERTIFICATION LETTER WERE PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH, 2019 AND APPROVED UNDER S-19-008.
- 8. TRAFFIC STUDY WAS PREPARED BY MARS GROUP FEBRUARY, 2019 AND APPROVED UNDER THE REVIEW OF S-19-008 ON 6/19/19.
- 9. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC., DATED SEPTEMBER, 2019 AND APPROVED UNDER P-20-004.
- 10. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- 11. THERE ARE NO HISTORIC SITES/STRUCTURES LOCATED ON THIS SITE. THE PREVIOUSLY EXISTING STRUCTURES ON-SITE HAVE BEEN REMOVED UNDER DEMO PERMIT
- 12. THERE ARE NO WETLANDS, WETLANDS BUFFERS, STREAMS, STREAM BANK BUFFERS, 100-YR FLOODPLAIN, OR STEEP SLOPES 25% AND GREATER THAT ARE MORE THAN 20,000 SF OF CONTIGUOUS AREA LOCATED ON THIS SITE PER THE WETLAND CERTIFICATION & FOREST STAND DELINEATION REPORT PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH, 2019 AND APPROVED UNDER S-19-008.
- 13. THERE APPEARS TO BE EXISTING WELL(S) ON THE PROPERTY. THOSE SHALL BE PROPERLY ABANDONED IN ACCORDANCE WITH THE HOWARD COUNTY BUREAU OF ENVIRONMENTAL HEALTH. THIS WILL BE DONE PRIOR TO FINAL PLAT APPROVAL.
- 14. THE REQUIRED PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON FEBRUARY 28, 2019 AT 6:00PM IN THE HOWARD COUNTY PUBLIC LIBRARY EAST COLUMBIA
- 15. THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND/OR SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS, THEREOF, EFFECTIVE _______, ON WHICH DATE, DEVELOPERS AGREEMENT NUMBER F-20-061 WAS FILED AND ACCEPTED.
- 16. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. PUBLIC WATER WILL CONNECT TO EX. CONTRACTS 24-0833-D & 24-0817-D; SEWER MAIN WILL CONNECT TO EX. CONTRACT 24-0833-D. DRAINAGE IS LITTLE PATUXENT WRP
- 17. FREE FLOW SPEED STUDY WAS PREPARED BY MARS GROUP ON MARCH, 2019 AND THE SIGHT DISTANCE ANALYSIS WAS APPROVED UNDER S-19-008. 18. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND
- 19. DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND
- EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS: A) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
- B) SURFACE 6" OF COMPACT CRUSHER RUN BASE WITH 1-1/2" MIN. TAR & CHIP COATING GEOMETRY - MAX. 15% GRADE, MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.
- STRUCTURES(CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
- MAINTENANCE SUFFICIENT TO ENSURE ALL WEATHER USE. S) STRUCTURE CLEARANCE - MINIMUM 12 FEET
- 20. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.
- THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE BASE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
- 22. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC 23. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED
- ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF
- 24. THE FOREST CONSERVATION REQUIREMENTS FOR THIS SUBDIVISION SHALL BE ADDRESSED PRIOR TO RECORDATION OF THE FINAL SUBDIVISION PLAT AND SHALL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.1200 OF THE SUBDIVISION REGULATIONS AND FOREST CONSERVATION MANUAL. THE FOREST CONSERVATION OBLIGATION FOR THIS SUBDIVISION SHALL BE SATISFIED BY THE USE OF ON—SITE RETENTION OF 0.4 ACRES WITHIN A FOREST CONSERVATION EASEMENT, REFORESTATION OF 0.06 ACRES WITHIN A FOREST CONSERVATION EASEMENT AND A FEE-IN-LIEU PAYMENT OF \$7,623.00 FOR 0.14 ACRES OF REMAINING
- 25. THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127 RESIDENTIAL INFILL DEVELOPMENT OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THIS PROJECT IS COMPATIBLE WITH THE ADJACENT RESIDENTIAL NEIGHBORHOOD BY CONSISTING OF THE SAME UNIT TYPES (SFD). THIS PROJECT IS INTEGRATED WITH THE SURROUNDING RESIDENTIAL DEVELOPMENT BY INTERCONNECTING SIDEWALKS & OPEN SPACE WITH THOSE LOCATED OFF-SITE, AND BY INCORPORATING & PRESERVING THE FOREST CONSERVATION & SPECIMEN TREE PROTECTION ALONG THE NORTHWESTERN BOUNDARY LINE. LOTS, BUILDINGS, & SITE IMPROVEMENTS ARE CONFIGURED TO PROVIDE PRIVACY BY THE LOCATION OF THE FOREST CONSERVATION EASEMENT, NON—CREDITED FOREST RETENTION, OPEN SPACE, ORIENTATION OF THE HOUSES, PERIMETER LANDSCAPING, AND MITIGATION TREE PLANTING ALONG THE BOUNDARY.
- 26. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS, AS AMENDED BY COUNCIL BILL 75-2003. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT.
- 27. LANDSCAPING FOR LOTS 1 THRU 8 IS PROVIDED WITH A CERTIFIED LANDSCAPE PLAN IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL, FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$14,820 FOR 37 SHADE TREES, 24 UNDERSTORY/ORNAMENTAL FREES, & 4 SHRUBS, SHALL BE POSTED WITH THE FINAL PLAT.
- 28. THIS PROJECT IS SUBJECT TO SECTION 13.402 OF THE COUNTY CODE FOR MODERATE INCOME HOUSING UNITS (MIHU), PER SECTION 13.402C.e., THIS REQUIREMENT SHALL BE MET BY A FEE-IN-LIEU PAYMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS AT THE TIME OF
- 29. PER SECTION 16.121(a)(2), THIS PROJECT IS SUBJECT TO 25% OPEN SPACE OR 21,998 SF. THERE IS NO RECREATIONAL OPEN SPACE REQUIREMENT FOR THIS PROJECT, SINCE THERE ARE LESS THAN 10 LOTS PER SECTION 16.121(a)(4)(i) OF THE SUBDIVISION REGULATIONS. OPEN SPACE LOT 9 SHALL BE ACCESSED THROUGH THE USE-IN-COMMON DRIVEWAY, PER SECTION 16.121(e)(2) OF THE SUBDIVISION REGULATIONS.
- 30. STORMWATER MANAGEMENT ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN PROVIDED IN ACCORDANCE WITH THE "MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT ACT OF 2007" AND THE "HOWARD COUNTY DESIGN MANUAL VOLUME I, CHAPTER 5" TO THE MAXIMUM EXTENT PRACTICAL. STORMWATER MANAGEMENT IS PROVIDED BY ONE (M-6) MICRO-BIORETENTION PRACTICES, NINE (M-5) DRY WELLS, AND FOUR (N-2) NON-ROOFTOP DISCONNECTION. ALL FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED. THE STORMWATER MANAGEMENT SYSTEM SHOWN ON THESE PLANS IS AN APPROXIMATION OF SIZE, SHAPE, AND LOCATION. IT IS UNDERSTOOD THAT THIS SYSTEM HAS NOT BEEN FINALIZED AND THE ACTUAL DESIGN MAY CHANGE ALTERING THE NUMBER OF UNITS
- 31. MODIFIED CURB & GUTTER AND ROADWAY IMPROVEMENTS SHALL BE INSTALLED APPROXIMATELY 250' TO THE WEST THRU THE CURVE ALONG VOLLMERHAUSEN DRIVE FROM THE SUBJECT SITE. THE DEVELOPMENT'S SIDEWALK IMPROVEMENTS SHALL EXTEND FROM THE BOUNDARY APPROXIMATELY 30' TO THE EAST AT THE INTERSECTION OF VOLLMERHAUSEN ROAD, AND APPROXIMATELY 127' TO THE WEST UNTIL THE DRIVEWAY OF REVELLE ESTATES, LOT 1
- 32. ALTERNATIVE COMPLIANCE, WP-19-081, WAS APPROVED BY THE DIRECTOR ON MAY 30, 2019, TO SECTION 16.1205(a)(7), WHICH ALLOWS FOR REMOVAL OF 22 SPECIMEN TREES. THE ALTERNATIVE TO SPECIMEN TREE RETENTION WAS PLANTING OF LANDSCAPE TREES AT A 2:1 RATIO. THE ALTERNATIVE COMPLIANCE WAS - REMOVAL OF THE TWENTY-TWO (22) SPECIMEN TREES WILL REQUIRE REPLACEMENT MITIGATION AT A RATIO OF TWO (2) LARGE CALIPER NATIVE TREE SPECIES (AT LEAST THREE (3) INCHES DBH) FOR EACH SPECIMEN TREE REMOVED (44 TREES TOTAL). THE MITIGATION PLANTING CAN BE PROVIDED AS PART OF THE REQUIRED LANDSCAPING FOR THIS PROJECT. YOU MUST SUBMIT A REVISED LANDSCAPE PLAN WITH YOUR FINAL SUBDIVISION PLAN FOR THIS PROPERTY, THAT SHOWS HOW YOU PLAN TO ADDRESS THIS ALTERNATIVE FOREST CONSERVATION MITIGATION.
- 33. HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING HAS REVIEWED AND APPROVED THE USE OF UPPER AND UNDERSTORY TREES TO ADDRESS THE SPECIMEN
- 34. DESIGN MANUAL WAIVER DMV2-20-006 WAS APPROVED BY LETTER DATED NOVEMBER 21, 2019, TO HOWARD COUNTY DESIGN MANUAL, VOL. II, SECTION 5.4.B.5 TO ALLOW FOR PERMANENT STRUCTURE TO BE WITHIN 10' OF A SHARED PUBLIC WATER, SEWER, & UTILITY EASEMENT. - IN REVIEW OF THE PROPOSED WAIVER, IT WAS NOTED THAT WHILE THE FULL 30' WATER & SEWER EASEMENT WILL BE PROVIDED FOR ACCESS TO THE UTILITIES, ACCESS WILL HAVE TO BE PERFORMED CAUTIOUSLY BECAUSE STRUCTURES WILL ONLY BE 7' FROM HEAVY CONSTRUCTION EQUIPMENT. HOWEVER, IN CONSIDERATION OF THE BUILDING CONSTRAINTS CITED, CONSIDERING THE THE UTILITIES ARE SMALL DIAMETER AND THE SEWER IS NOT EXCESSIVELY DEEP (APPROXIMATELY 13'
- MAXIMUM), AND THAT THE PROPOSED UTILITIES WILL BE NEW WITH A DESIGN LIFE OF 50 YEARS OR MORE, THIS WAIVER REQUEST IS APPROVED. 35. STREET LIGHT PLACEMENT AND TYPE OF FIXTURES AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (DECEMBER 2017) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN
- 36. THE PRIVATE USE-IN-COMMON MAINTENANCE ACCESS AGREEMENT FOR LOTS 3 THRU 6 & OPEN SPACE LOT 9 SHALL BE RECORDED SIMULTANEOUSLY WITH THE RECORDATION OF THE SUBDIVISION PLAT
- 37. THE ARTICLES OF INCORPORATION FOR THE HOMEOWNERS ASSOCIATION HAVE BEEN ACCEPTED BY THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION, ID #D20721072. THE HOMEOWNER'S DECLARATION OF COVENANTS AND RESTRICTIONS ARE RECORDED WITH THE PLAT.
- 38. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410)-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- 39. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE. 40. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS
- 41. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- 42. THE RESIDENTIAL DRIVEWAYS FOR LOTS 1, 2, 7, & 8, AND USE-IN-COMMON DRIVE CONNECTIONS ALONG VOLLMERHAUSEN DRIVE SHALL CONFORM TO HO.CO. STD.

NAD 83/ ADJOTAS PROJECTED BY GPS OBSERVATION. 2.) THE INSTRUMENTS USED IN PERFORMING THE AS BUILT WERE A 5" TOTAL STATION AND PRISM AND RIKGPS.

MARYLAND STATE REFERENCE SYSTEM

1.) HORIZONTAL AND VERTICAL DATUM FOR

THIS AS BUILT IS BASED ON THE

AS-BUILT NOTES:

3.) THIS AS - BUILT WAS PERFORMED BY BENCHMARK ENGINEERING INC 4.) SWM FACILITIES THAT ARECONSTRUCTED

ON LOT ARE NOT INCLUDED IN THIS AS-BUILT AS-BUILT INFORMATION FOR ON LOT SWIM FACILITIES ARE INCLUDED IN A SERBATE SUBMISSION AS PART OF THE GRADING USO ACCEPTANCE PROCEDURES.

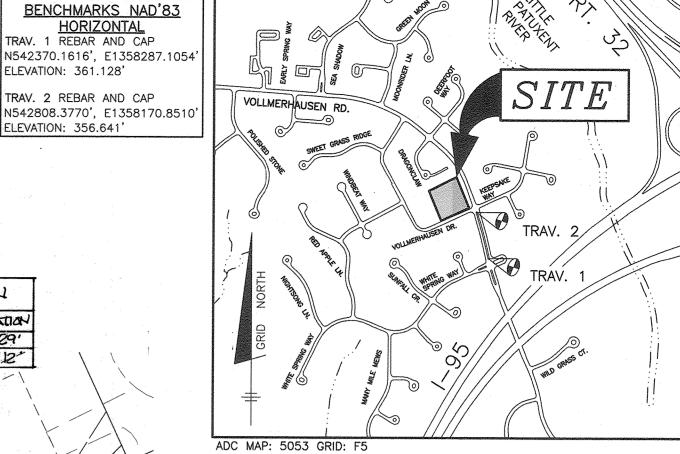
RIWPTHO	DESCRIPTION	ELEVATION
. [REBAR & CAP	356,29'
1/20	RON PIPETHO	364,12

HORIZONTAL

ELEVATION: 361.128'

ELEVATION: 356.641'

TRAV. 2 REBAR AND CAP



VICINITY MAP

LEGEND

EXISTING CONTOURS SOILS TYPE (ENTIRE SITE) PROJECT BOUNDARY EXISTING TREELINE EXISTING STRUCTURES SPECIMEN TREE TO REMAIN SPECIMEN TREE TO BE REMOVED SPECIMEN TREE TO REMAIN CRITICAL ROOT ZONE

PROPOSED CONTOURS . PROPOSED TREELINE PROPOSED SEWER PROPOSED WATER

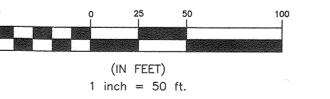
PROPOSED MICRO-BIORETENTION FACILITY (M-6)PROPOSED DRYWELL

(M-5)NON-ROOFTOP DISCONNECTION AREA (N-2)SWM DRAINAGE AREA TO MBR-1

SWM DRAINAGE AREA TO DRYWELLS DRAINAGE AREA DESIGNATION



BORING LOCATION FOREST CONSERVATION FASMENT



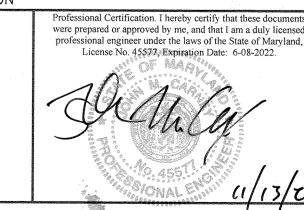
	PRIV	ATE ESC	STORMWATER MANA	GEMEN	T INFORM	TATION		
LOT	Street Address		Practice				HOA	Misc.
		MDE	Туре	Name	Quantity	Ownership	Maintenance	MIISC.
LOT 1	9456 Vollmerhausen Drive	(M-5)	Drywell	DW-1	1	Private	N/A	
LOTT	- Volumentadaen brive	(N-2)	Non-Rooftop Disconnection	NRDC-1	1	Private	N/A	
LOT 2	9454 Vollmerhausen Drive	(N-2)	Non-Rooftop Disconnection	NRDC-2	1	Private	N/A	
LOT 5	9448 Vollmerhausen Drive	(M-5)	Drywell	DW-2	0	Private	N/A	
2010	Volimentausen Drive	(M-5) Drywell DW-	DW-3	2	Private	N/A		
LOT 6	9446 Vollmerhausen Drive	(M-5)	Drywell	DW-4	0	Private	N/A	
2010	9440 Volimerrausen Drive	(M-5)	Drywell	DW-5	2	Private	N/A	
		(M-5)	Drywell	DW-6	0	Private	N/A	
LOT 7	9444 Vollmerhausen Drive	(M-5)	Drywell	DW-7	2	Private	N/A	
		(N-2)	Non-Rooftop Disconnection	NRDC-3	1	Private	N/A	
		(M-5)	Drywell	DW-8	^	Private	N/A	Sec. Sec.
LOT 8	9442 Vollmerhausen Drive	(M-5)	Drywell	DW-9	2	Private	N/A	
		(N-2)	Non-Rooftop Disconnection	NRDC-4	1	Private	N/A	

	H.	O.A. ESD S	TORMWATER MANA	GEMENT	INFORMA	TION		.,
LOT	Street Address	Practice				Ownership	НОА	Misc.
		MDE	Туре	No.	Quantity	Owneromp	Maintenance	141130.
OS 9	N/A	(M-6)	Micro-Bioretention	MB-1	1	H.O.A.	YES	

1 6/30/21 REVISE EX. & PROP. LOCATIONS OF 1-2 AND SO PIPE

BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS

ENGINEERING. INC 8480 BALTIMORE NATIONAL PIKEA SUITE 315A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM



OWNER/DEVELOPER: DEVELOPMENT PARTNERS, LLC 9693 GERWIG LANE SUITE L COLUMBIA, MARYLAND 21046 410-792-2565

MODERATE INCOME HOUSING UNIT (MIHU)

APPLICATION EXEMPTIONS TRACKING

Total Number of Lots/Units Proposed

Total Number of MIHU's Required

Number of MIHU's Provided Onsite

(Exempt from APFO allocations)

Number of APFO Allocations Required

(Remaining Lots/Units)

MIHU Fee-in-Lieu

(Indicate Lot/Unit numbers)

HUNTINGTON POINT LOTS 1 thru 8 and OPEN SPACE LOT 9

9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046 TAX MAP: 42, GRID: 22, PARCEL: 167 ZONED: R-SC ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

ECP-19-042, S-19-008,

RELEVANT FILE NUMBERS: WP-19-081, DMV2-20-006, P-20-004 DESIGN: MP/MR DRAFT: MP/MR

BEI PROJECT NO. 2952 DATE: NOVEMBER, 2020 AS SHOWN

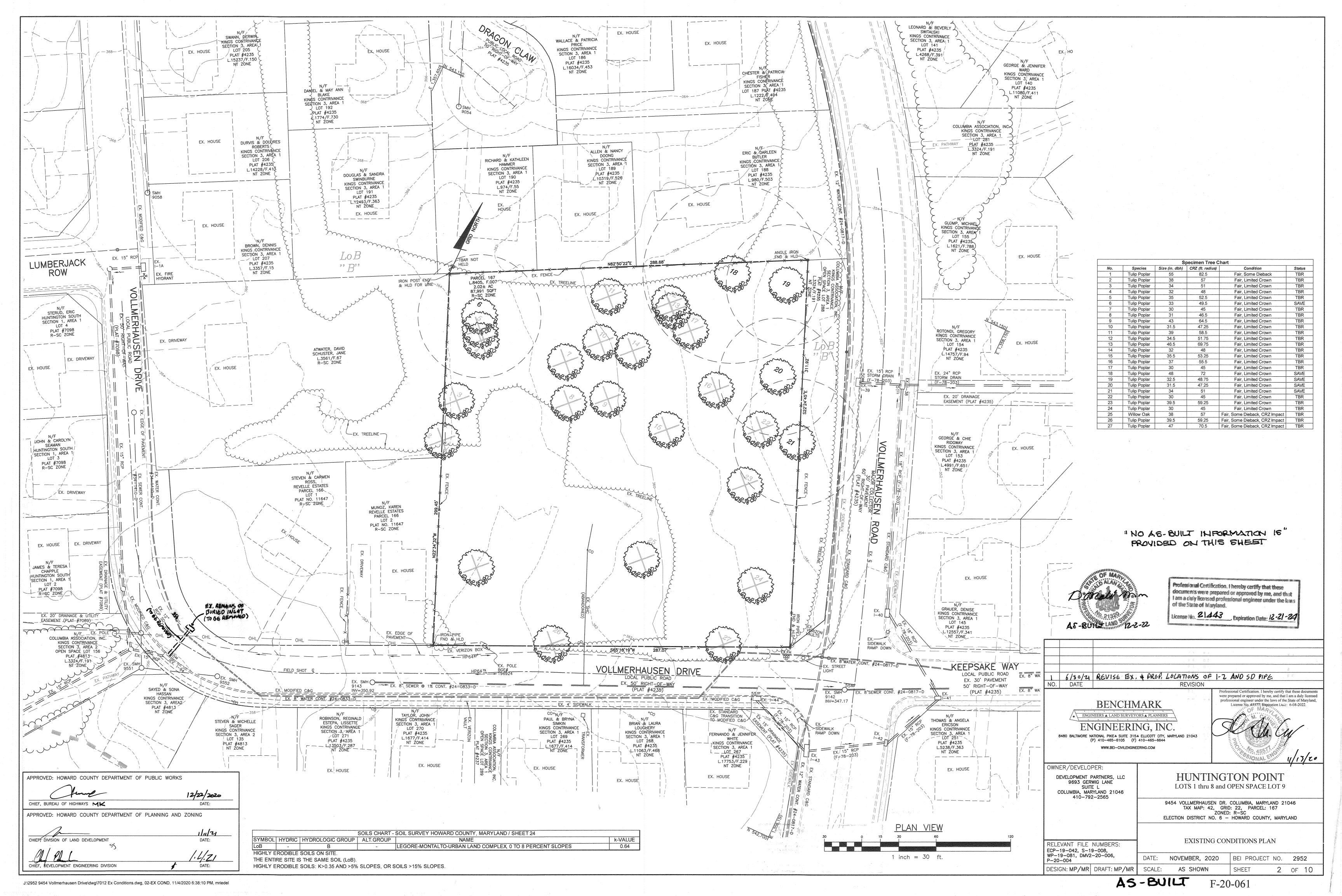
1 of 10

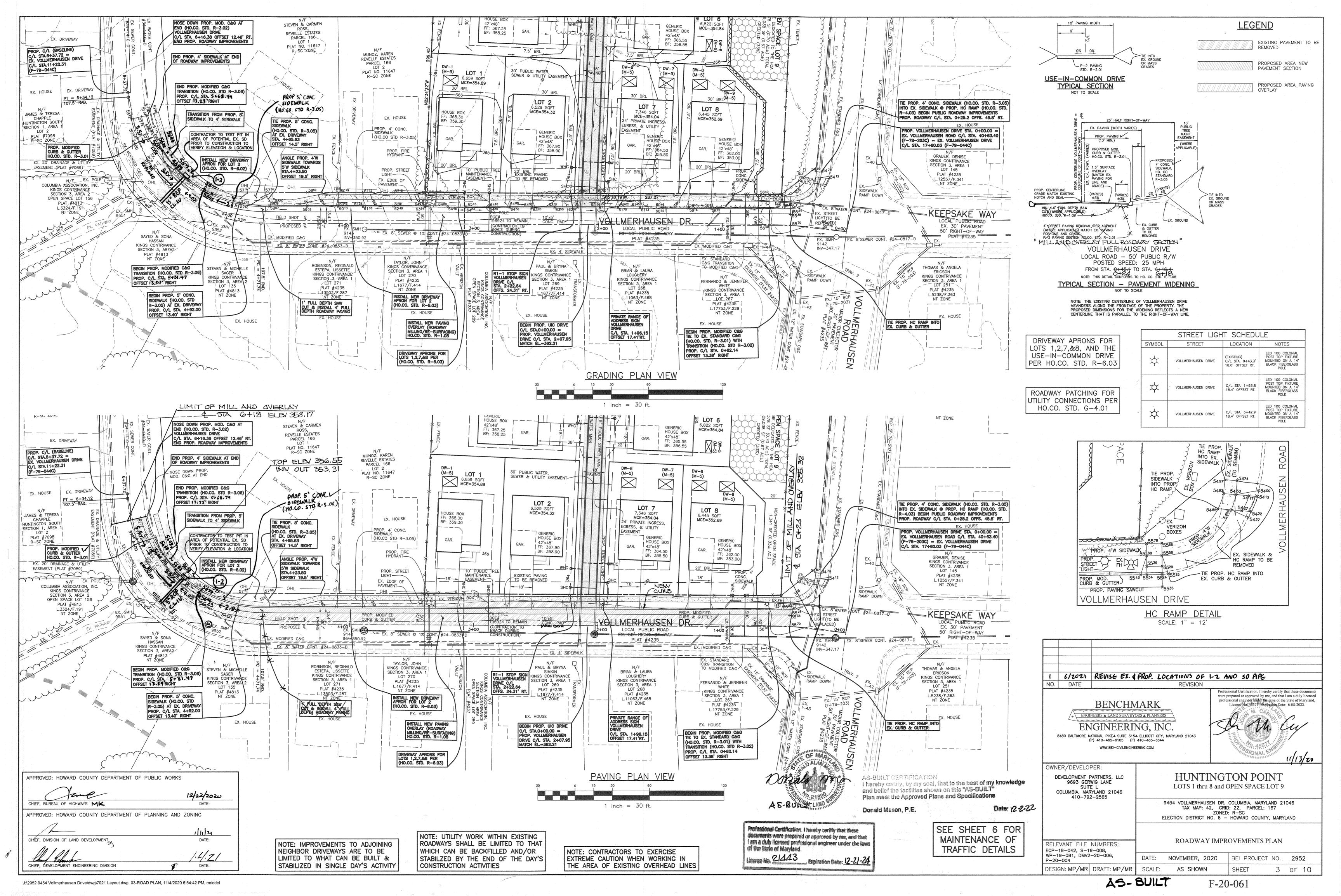
COVER SHEET

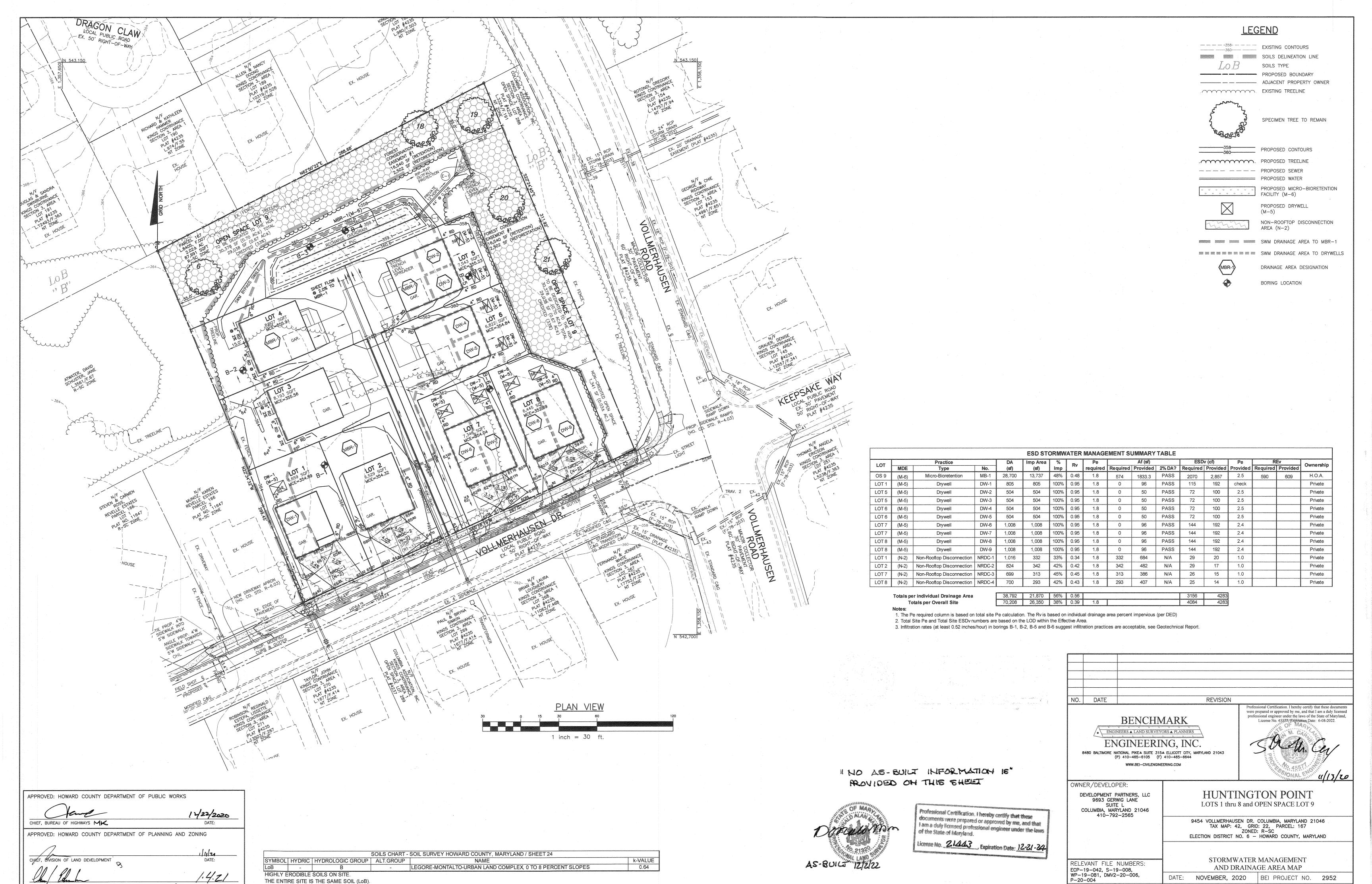
AS-BUILT

F-20-061

SCALE:







SHEET

4 of 10

DESIGN: MP/MR DRAFT: MP/MR SCALE: AS SHOWN AS- BUILT

F-20-061

DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952

DATE:

CHIEF, DEVELOPMENT ENGINEERING DIVISION

HIGHLY ERODIBLE SOILS ON SITE

THE ENTIRE SITE IS THE SAME SOIL (LoB).

HIGHLY ERODIBLE SOILS: K>0.35 AND >5% SLOPES, OR SOILS >15% SLOPES.

CONSTRUCTION SPECIFICATIONS

B.4.C Specifications for Micro-Bioretention. Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications:

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil:

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- Organic Content Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy and(60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content Media shall have a clay content of less than 5%. pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction:

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material:

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation:

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains:

Underdrains should meet the following criteria:

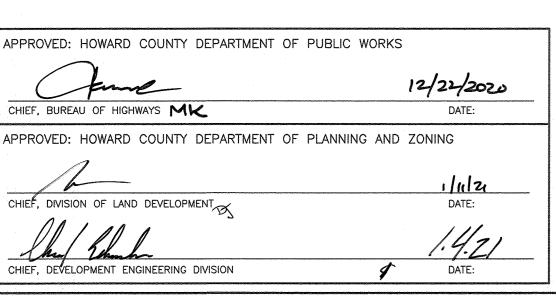
- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO-M-278) in a grayel
- laver. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE). Perforations - If perforated pipe is used, perforations should be 36" diameter located 6" on center with a minimum of four holes per
- row. Pipe shall be wrapped with a ¼" (No. 4 or 4x4) galvanized hardware cloth. Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrai
- The main collector pipe shall be at a minimum 0.5% slope.
- A rigid, non-perforated observation well must be provided (one per every 1,0000 square feet) to provide a clean-out port and monitor performance of the filter
- A 4" laver of pea gravel (1/8" to 3/8" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

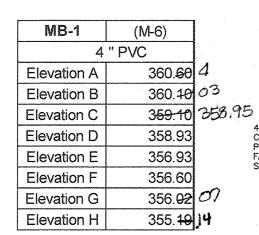
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

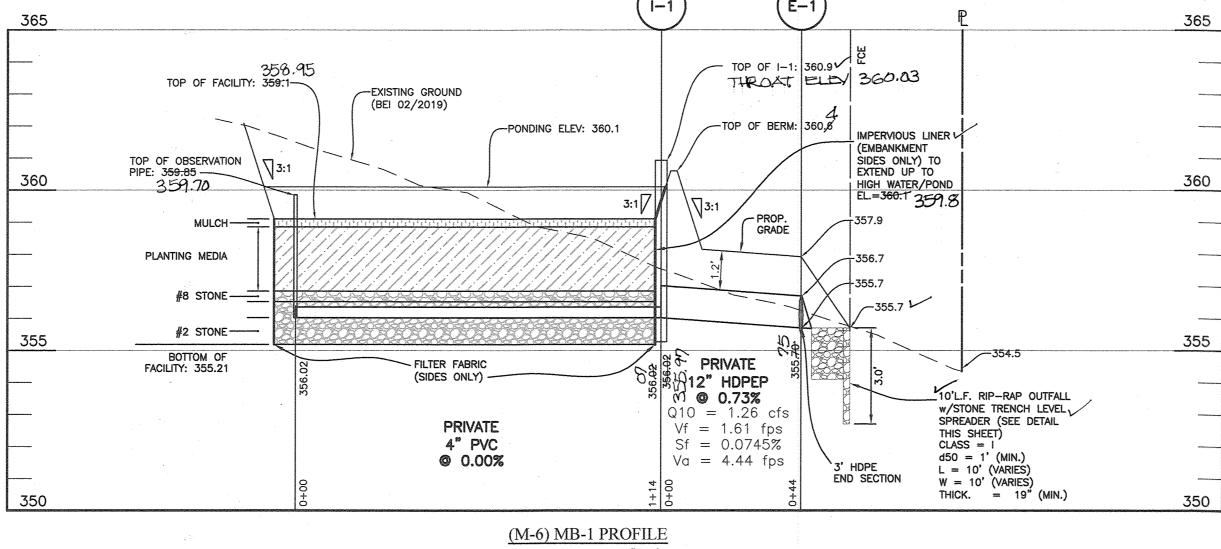
7. Miscellaneous:

These practices may not be constructed until all contributing drainage area has been stabilized

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND 60-65% COMPOST 35-40% OR SANDY LOAM 30% COARSE SAND 30% & COMPOST 40%	N/A	USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; CLAY CONTENT <5%
ORGANIC CONTENT	MIN 10% BY DRY WEIGHT ASTM D 2974		
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
GEOTEXTILE (CLASS "C")		N/A	PE TYPE 1 NONWOVEN
GEOTEXTILE (1/4" WIRE MESH)		1/4" WIRE MESH	1/4" WIRE MESH
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 6 0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC, SDR35 OR HDPE	3/8" PERF. © 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES. PIPE SHALL BE WRAPPED WITH 1/4-INCH GALVANIZED HARDWARE CLOTH
IMPERVIOUS LINER	ASTM-D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 LB., ELONGATION 200%) ASTM-D-624 (TEAR RESISTANCE - 150 LB./IN) ASTM-D-471 (WATER ADSORPTION: +8 TO -2% MASS)	30 MIL. THICK	LINER TO BE ULTRAVIOLET RESISTANT. A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
GEOTEXTILE (BELOW IMPERV. LINER)	ASTM-D-4833 (PUNCTURE STRENGTH 125LB) ASTM-D-4632 (TENSILE STRENGTH 300 LB.)		







HORIZONTAL SCALE: 1"=30' VERTICAL SCALE: 1"=3"

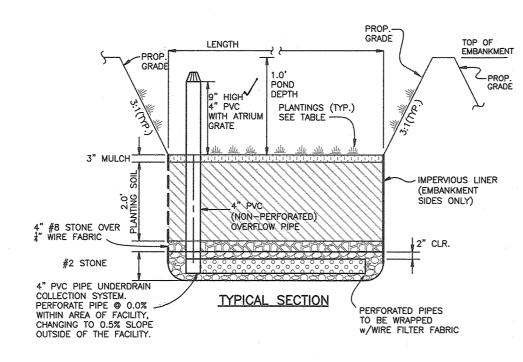
GRASS SHEET FLOW (TYP.) - INFLOW TIE 3.0'W. **EMBANKMENT** -INTO PROP GRADE 3:1(TYP.) PLANTINGS (SEE INFO. THIS SHEET) 3 (SEE TYPICAL SECTION) -4" OBSERVATION PIPE w/COVER 3 3:1(TYP.) TIE 3.0'W. 3.0'W. EMBANKMENT @ 0.00% **EMBANKMENT** INTO PROP. - IMPERVIOUS LINER EMBANKMENT (TYP.) OUTFALL/RUN-OFF

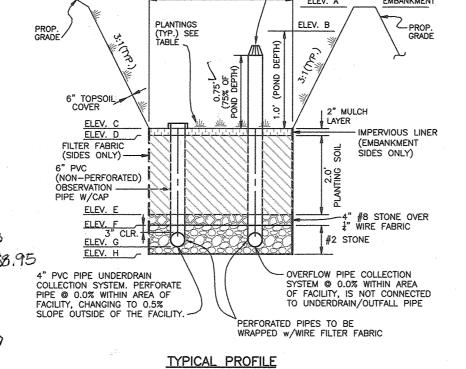
MICROBIORETENTION PLANTING DATA 1. PLANTINGS WITHIN THE PONDING AREA OF THE FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE 2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE 3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION NEAR O.B. PIPE AND UNDERDRAIN

	(IVI-O) IVIICTO BIO-RE	tention Landscaping Char	C .	
		Surface Area	>	MB-1 1833.3
PLANT NAME	COMMON NAME	ТҮРЕ	SIZE	QUANTITY
Iris Fulva	Copper Iris	perennial herbaceous plant	quart bulb	68
Lobelia cardinalis	Cardinal flower	perennial herbaceous plant	quart bulb	68
Rudbeckia Subtomentosa	Sweet Cornflower	perennial herbaceous plant	quart bulb	68
Calluna Vulgaris	Heather	shrub	2.5'-3' ht	
Acer Ginnala	Armur Maple	tree	2.5"-3.0" cal.	1

MICRO-BIORETENTION DETAILS NOT TO SCALE

SCHEMATIC PLAN VIEW





OPERATION AND MAINTENANCE SCHEDULE

- DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD
- REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL
- C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

HIGH 4" PVC OVERFLOW W/ATRIUM GRATE-

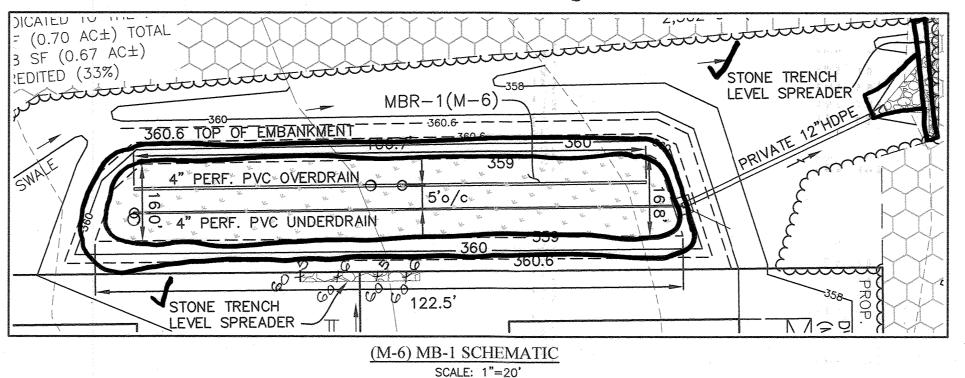
FOR MICRO-BIORETENTION (M-6)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL
- THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT,
- D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH

AS-SUILT CERTIFICATION I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications Donald Mason, P.E.

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. 21443 Expiration Date: 12-21-24

Professional Certification. I hereby certify that these



Field Infiltration Results

The follow	ing table summarizes our infiltrati	on test results:
	Boring No.	Average Infiltration Rate (inches/hour)
	B-1	1.14
	B-2	1.81
	B-5	1.57
	B-6	0.52

The field infiltration results indicated that a minimum infiltration rate of 0.52 inches per hour was obtained at Test Boring Nos. B-1, B-2, B-5 and B-6.

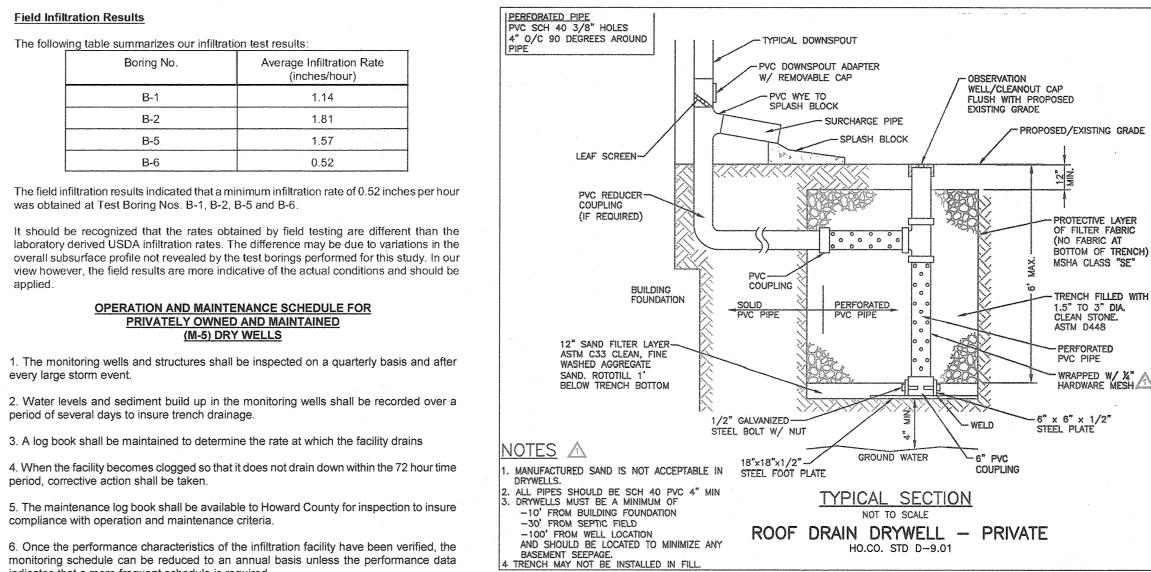
It should be recognized that the rates obtained by field testing are different than the laboratory derived USDA infiltration rates. The difference may be due to variations in the overall subsurface profile not revealed by the test borings performed for this study. In our view however, the field results are more indicative of the actual conditions and should be

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED (M-5) DRY WELLS

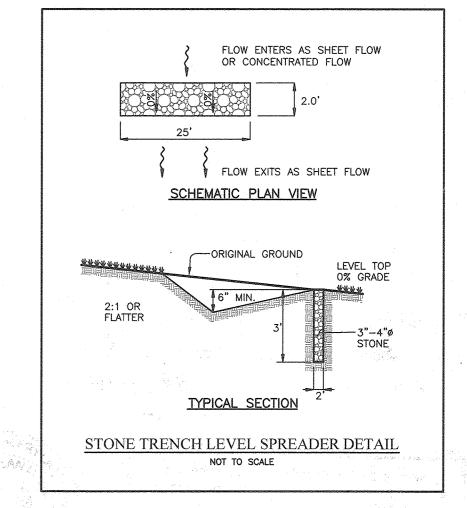
- 1. The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.
- 2. Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.
- 3. A log book shall be maintained to determine the rate at which the facility drains
- period, corrective action shall be taken. 5. The maintenance log book shall be available to Howard County for inspection to insure

compliance with operation and maintenance criteria.

6. Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.



	DRYWELL DIMENSION CHART									
ry Well	Lot No.	Lot No.	Lot No. Length (ft)	Width (ft)	Depth of	Grade	Top of Stone Elevation	Bottom of	Bottom of	Comment
		1000		Filter (Ft)	Elevation			Sand Elevation		
DW-1	LOT 1	12.00	8.00	5.00	365.00	363.00	359.00	358.00	(B-1)	
DW-2	LOT 5	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)	
DW-3	LOT 5	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)	
DW-4	LOT 6	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)	
DW-5	LOT 6	10.00	5.00	5.00	359.00	357.00	353.00	352.00	(B-5)	
DW-6	LOT 7	12.00	8.00	5.00	362.50	360.50	356.50	355.50	(B-6)	
DW-7	LOT 7	12.00	8.00	5.00	360.50	358.50	354.50	353.50	(B-6)	
DW-8	LOT 8	12.00	8.00	5.00	359.00	357.00	353.00	352.00	(B-6)	
DW-9	LOT 8	12.00	8.00	5.00	358.50	356.50	352.50	351.50	(B-6)	



PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

OPERATION AND MAINTENANCE SCHEDULE FOR

Date: 12.2-22



LOTS 1 thru 8 and OPEN SPACE LOT 9 COLUMBIA, MARYLAND 21046 410-792-2565 9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046 TAX MAP: 42, GRID: 22, PARCEL: 167 ZONED: R-SC ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND STORMWATER MANAGEMENT RELEVANT FILE NUMBERS: ESD NOTES & DETAILS ECP-19-042, S-19-008, WP-19-081, DMV2-20-006, DATE: NOVEMBER, 2020 BEI PROJECT NO. 2952 P-20-004

AS SHOWN

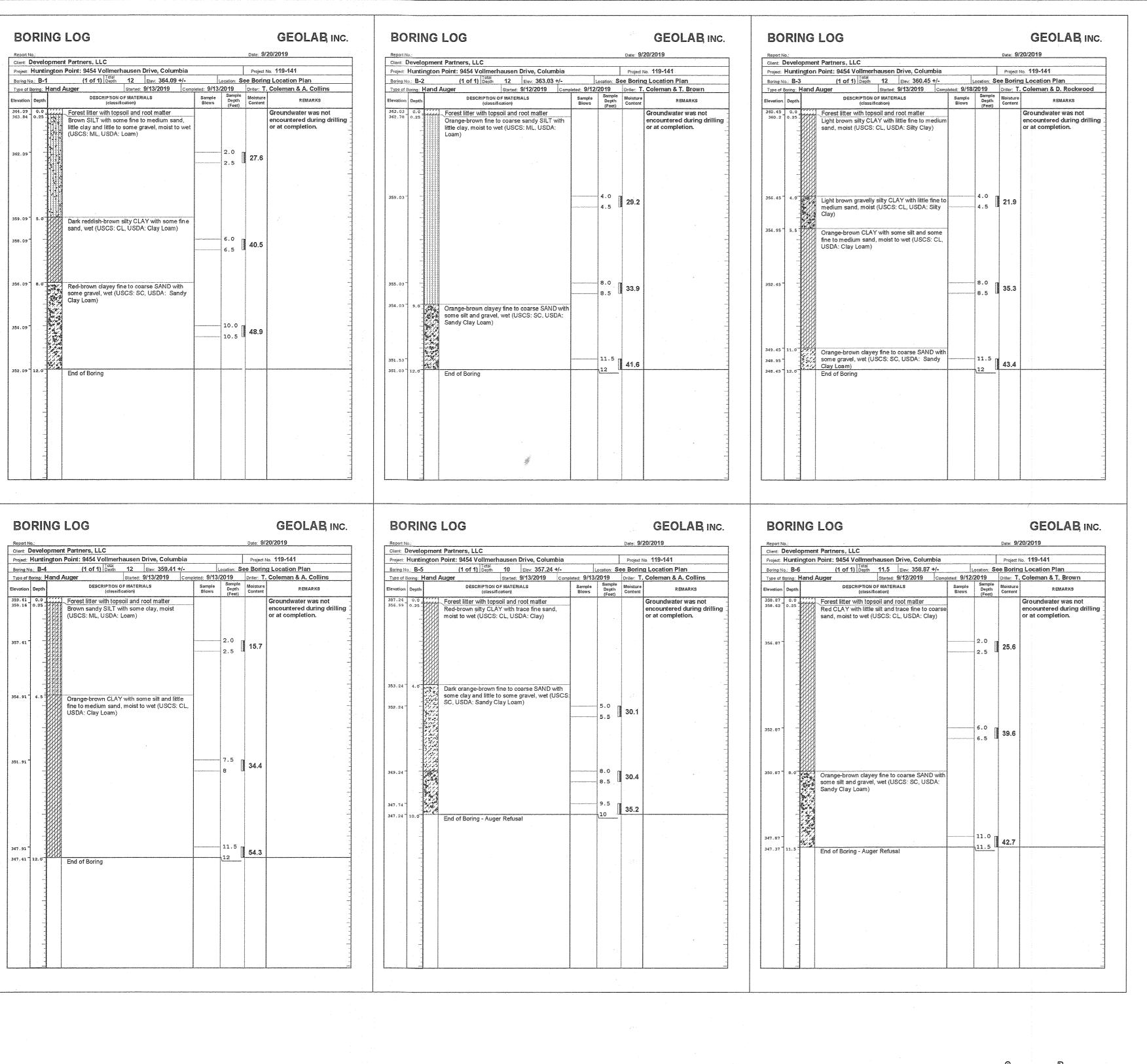
AS-BUILT

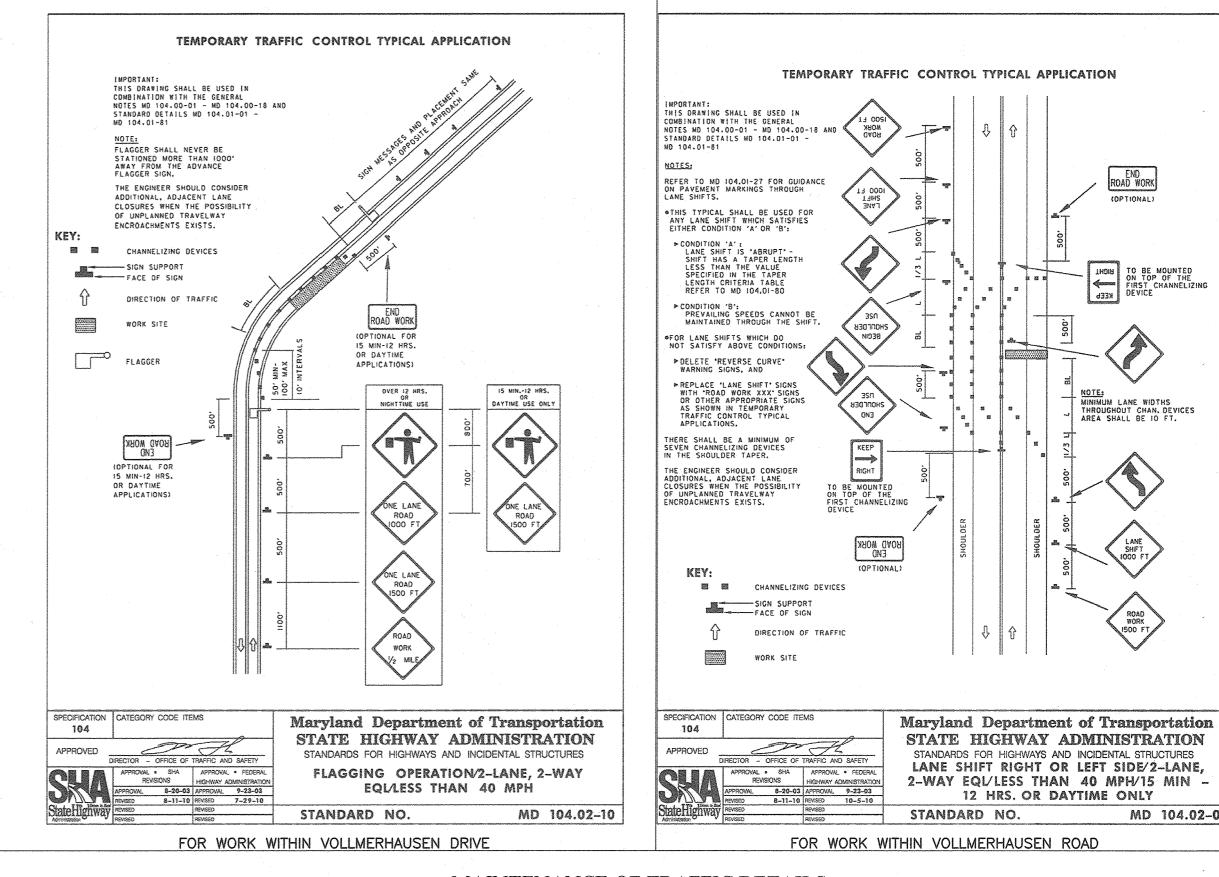
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DESIGN: MP/MR| DRAFT: MP/MR |

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5 of 10





MAINTENANCE OF TRAFFIC DETAILS

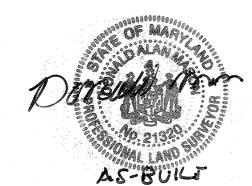
AS-BUILT CERTIFICATION I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.

Date: 12-2-22

12 HRS. OR DAYTIME ONLY

MD 104.02-04



DEVELOPMENT PARTNERS, LLC

9693 GERWIG LANE

COLUMBIA, MARYLAND 21046

410-792-2565

RELEVANT FILE NUMBERS:

DESIGN: MP/MR DRAFT: MP/MR

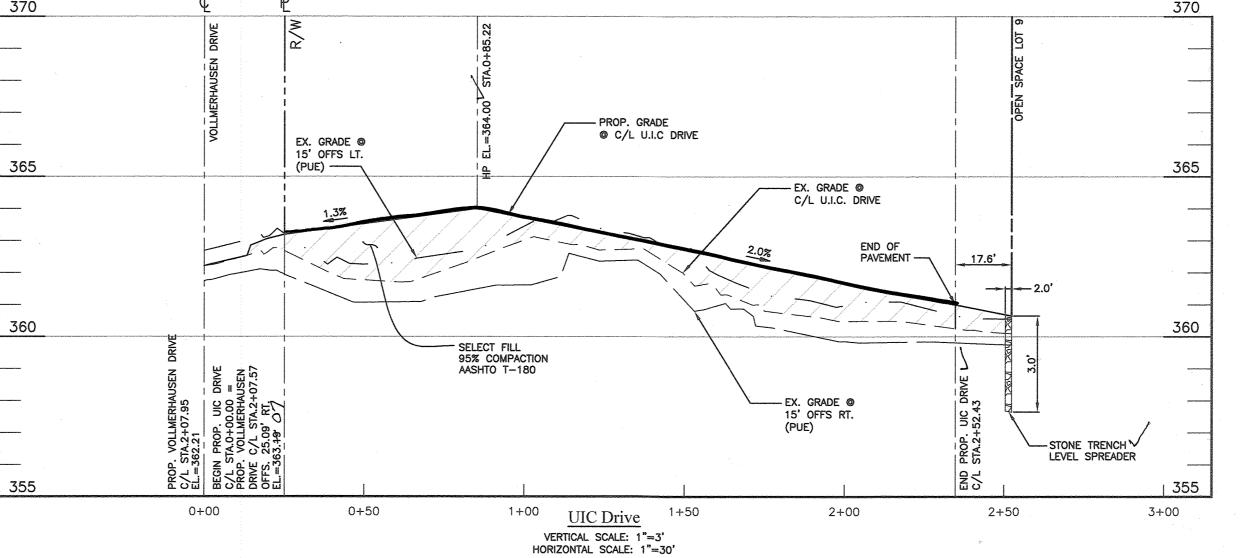
ECP-19-042, S-19-008,

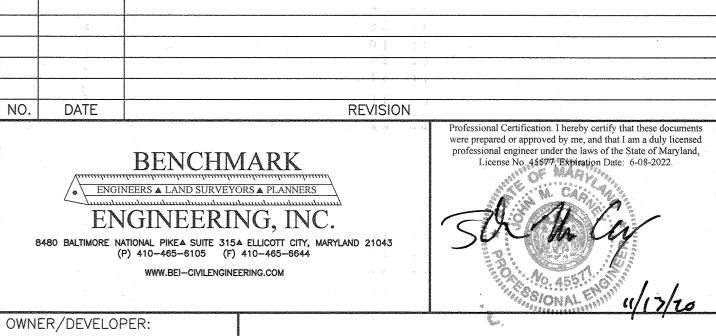
P-20-004

WP-19-081, DMV2-20-006,

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 Amia d

License No. 2(443 | Expiration Date: 12-21-24





HUNTINGTON POINT LOTS 1 thru 8 and OPEN SPACE LOT 9 9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046 TAX MAP: 42, GRID: 22, PARCEL: 167 ZONED: R-SC ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND BORING LOGS AND TRAFFIC CONTROL DETAILS NOVEMBER, 2020 BEI PROJECT NO. 2952

AS-BUILT

SCALE:

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6 of 10

12/22/2020

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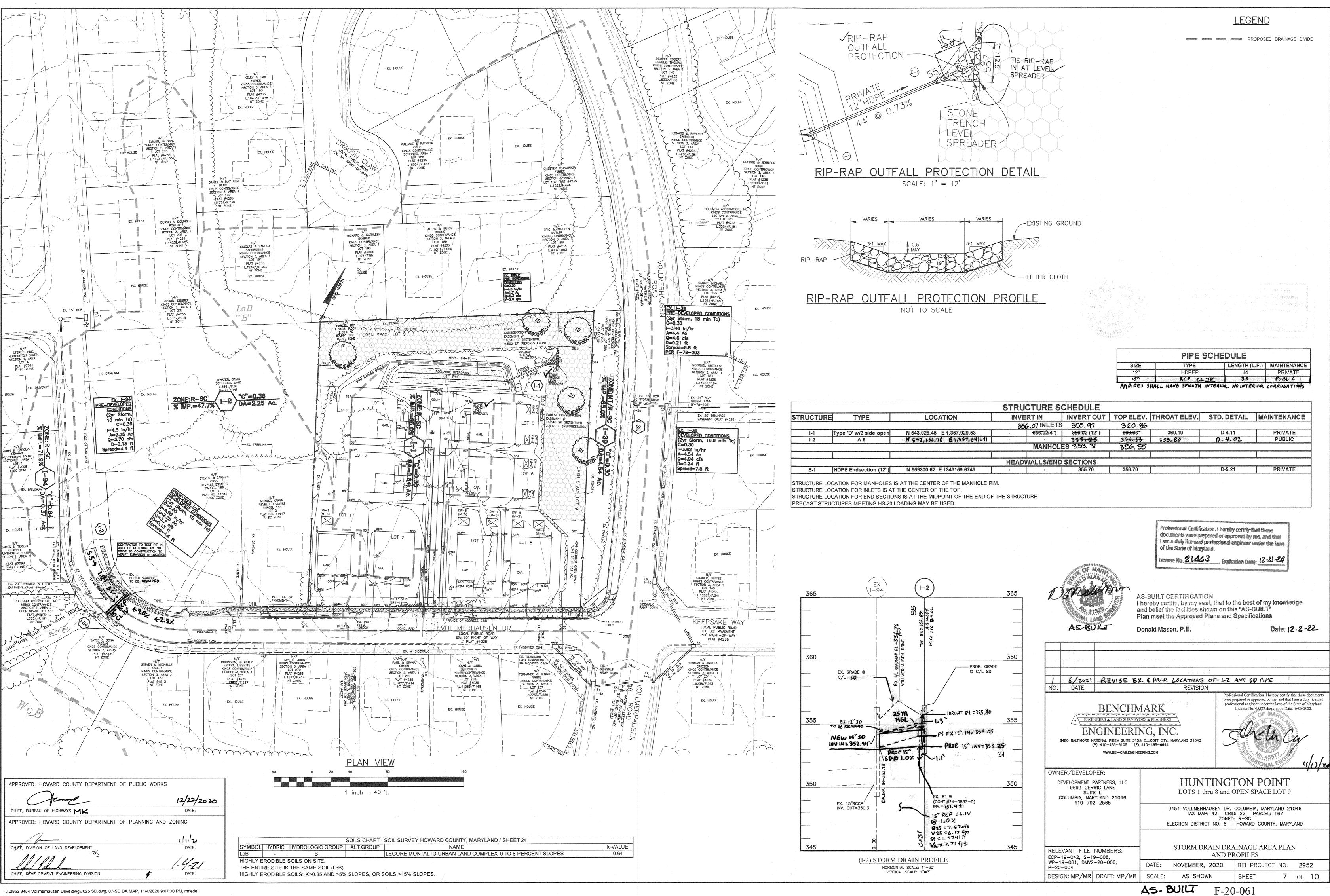
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

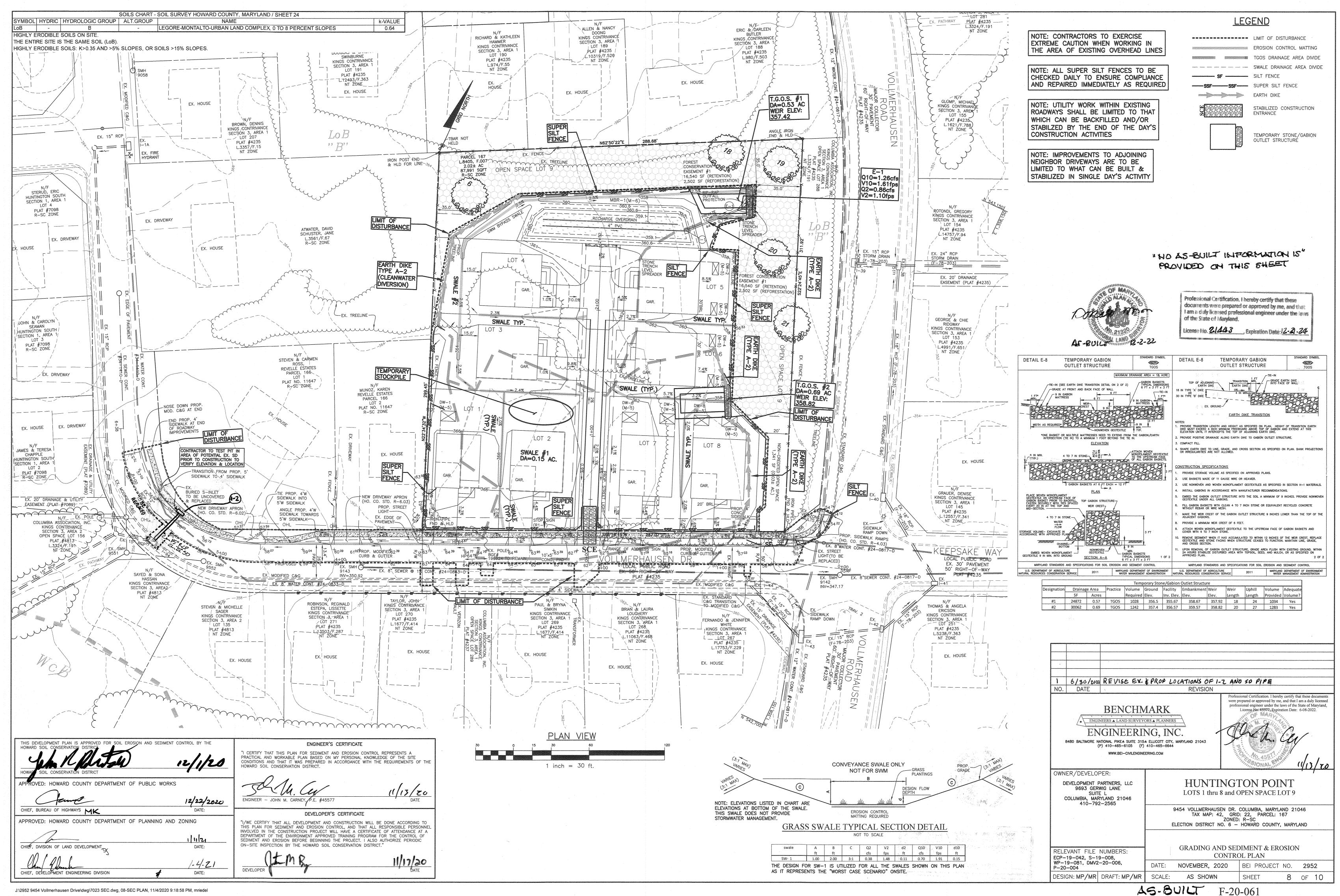
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, BUREAU OF HIGHWAYS MK

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION





B-4-3 STANDARDS AND SPECIFICATIONS SEEDING AND MULCHING The application of seed and mulch to establish vegetative cover o protect disturbed soils from erosion during and at the end of construction Conditions Where Practice Applies o the surface of all perimeter controls, slopes, and any disturbed area not under active grading. . Seeding 1. Specifications a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been

tested within 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 mus 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

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.

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

b, Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after

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 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; P2O5 (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 wher

iii. Mix seed and fertilizer on site and seed immediately and without interruption. iv. When hydroseeding do not incorporate seed into the soil.

B. Mulchina 1. Mulch Materials (in order of preference) a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably

Application

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

iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings. iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.

v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimete pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum. a. Apply mulch to all seeded areas immediately after seeding.

b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and dept 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. 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. Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer ecommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3.000 feet long.

B-4-8 STANDARDS AND SPECIFICATIONS

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

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. 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. 3. Runoff from the stockpile area must drain to a suitable sediment control practice. 4. Access the stockpile area from the upgrade side. 5. 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. 6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sedimen control practice must be used to intercept the discharge. 7. 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. 8. 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.

HIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THI

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

J:\2952 9454 Vollmerhausen Drive\dwg\7023 SEC.dwg, 09-SEC NOTES(2), 11/4/2020 9:19:28 PM, mriedel

CHIEF, BUREAU OF HIGHWAYS

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION

B-4-4 STANDARDS AND SPECIFICATIONS

TEMPORARY STABLIZATION To stabilize disturbed soils with vegetation for up to 6 months

To use fast growing vegetation that provides cover on disturbed soils

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

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant. Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan. 2. For sites having soil tests performed, use and show the recommended rates by the testing agency Soil tests are not required for Temporary Seeding. 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

B-4-5 STANDARDS AND SPECIFICATIONS PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils Conditions Where Practice Applies Exposed soils where ground cover is needed for 6 months or more. Criteria

A Seed Mixtures

 General Use a Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guild, Section 342 - Critical Area Planting. c For sites having disturbed areas over 5 acres, use and show the rates recommended by the soi

d For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ 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. Turfgrass Mixtures

a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. b. Select one or more of the species or mixtures listed below based on the site conditions or purpose Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan i. Kentucky Bluegrass: Full sun Mixture: For use in areas that receive intensive management Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified

Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total mixture by weight. ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified

Perennial Ryegrass 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. iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes;

Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended. iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns For establishment in high quality, intensively managed turf area. Mixture includes Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 ½ 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) d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is not especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites. B. Sod: to provide quick cover on disturbed areas (2:1 grade or flatter).

a. Class of turfgrass must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector. b. Sod must be machine cut at a uniform soil thickness of \(^4\) inch, plus or minus \(^4\) inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and tom or uneven ends will not be acceptable.

c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section. d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation. Sod Installation a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots. c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints.

Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface. d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

Sod Maintenance a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to b. After the first week, sod watering is required as necessary to maintain adequate moisture content.

c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

> H-5 STANDARDS AND SPECIFICATIONS DUST CONTROL

Controlling the suspension of dust particles from construction activities. Purpose To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage

including health and traffic hazards. Conditions Where Practice Applies <u>Specifications</u>

<u>Mulches:</u> See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3

Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing. Vegetative Cover: See Section B-4-4 Temporary Stabilization. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and

similar plows are examples of equipment that may produce the desired effect. 4. <u>Irrigation:</u> Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs 5. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar naterial can be used to control air currents and soil blowing.

6. <u>Chemical Treatment</u>: Use of chemical treatment requires approval by the appropriate plan

ENGINEER'S CERTIFICATE

CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF TH

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO

INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A

DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF

SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC

ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

S PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNE

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A

PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE

HOWARD SOIL CONSERVATION DISTRICT

DEVELOPER

ENGINEER - JOHN M. CARNEY, P.E. #45577

12/22/2020

DATE:

111/4

DATE:

DATE:

B-4 STANDARDS AND SPECIFICATIONS

VEGETATIVE STABILIZATION

Using vegetation as cover to protect exposed soil from erosion To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applie On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantit Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall,

reducing sediment loads and runoff to downstream areas. Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and

runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation increase organic matter content and improve the water holding capacity of the soil and subsequent plan Jegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances

within the root zone. Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching,

and vegetative establishment. Adequate Vegetative Establishment Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and

reseedings within the planting season. . Adequate vegetative stabilization requires 95 percent groundcover. 2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime. fertilizer, seedbed preparation, and seeding.

3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6. **B-4-1 STANDARDS AND SPECIFICATIONS**

INCREMENTAL STABILIZATION To provide timely vegetative cover on cut and fill slopes as work progresses Conditions Where Practice Applies Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

originally specified.

A. Incremental Stabilization - Cut Slopes 1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses. Construction sequence example (Refer to Figure B.1):

> a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff b. Perform Phase 1 excavation, prepare seedbed, and stabilize. c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as

d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously

seeded areas as necessary. Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

B. Incremental Stabilization - Fill Slopes 1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.

2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans. 3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner. Construction sequence example (Refer to Figure B.2):

a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.

c. Place Phase 1 fill, prepare seedbed, and stabilize. d. Place Phase 2 fill, prepare seedbed, and stabilize. e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

> **B-4-2 STANDARDS AND SPECIFICATIONS** SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

The process of preparing the soils to sustain adequate vegetative stabilization Conditions Where Practice Applies Where vegetative stabilization is to be established

A. Soil Preparation

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope. 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. 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.

ii. Soluble salts less than 500 parts per million (ppm). iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt.) plus clay) would be acceptable. iv. Soil contains 1.5 percent minimum organic matter by weight. v. Soil contains sufficient pore space to permit adequate root penetration.

b. Application of amendments or topsoil is required if on-site soils do not meet the above c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test. e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment

leaving the soil in an irregular condition with ridges running parallel to the contour of the

slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be

unnecessary on newly disturbed areas. 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 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

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. 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

can be found in the representative soil profile section in the Soil Survey published by

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 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. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil

sand. Other soils may be used if recommended by an agronomist or soil scientist and

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 tonsoil 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 and seedbed preparation 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 HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-3133-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hours notice to CID must be given at the following stages:

a. Prior to the start of earth disturbance, b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading, c. Prior to the start of another phase of construction or opening of another grading d. Prior to the removal or modification of sediment control practices,

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the <u>2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL</u>, and revisions thereto.

3. 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.

4. All disturbed areas must be stabilized within the time period specified above i 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' o cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 feet must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).

5. 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

Total Area of Site: _____1.88___ Acres Area Disturbed: _____1.00___ Acres Area to be roofed or paved Area to be vegetatively stabilized: Total cut ____ Cu Yds Off-site waste/borrow area location:

* IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY THE SPOIL/BORROW SITE ND NOTIFY AND GAIN APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR OF THE SITE AND ITS GRADING PERMIT NUMBER AT THE TIME OF CONSTRUCTION. (EARTHWORK QUANTITIES ARE APPROXIMATE AND ARE FOR SEDIMENT & FROSION CONTROL PURPOSES ONLY, CONTRACTOR SHALL COMPUTE THEIR OWN EARTHWORK QUANTITIES TO THEIR SATISFACTION)

7. Any sediment control practice which is disturbed by grading activity for placement of

8. 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 type (routine, pre-storm event, during rain event)

 Name and title of inspector Weather information (current conditions as well as time and an=mount of last recorded Brief description of project's status (e.g. percent complete) and/or current activities Evidence of sediment discharges

e Identification of plan deficiencie 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).

9. 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 work day, whichever is 10. 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. 11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that aradina activities begin on one grading unit (maximum acreage of 20 ac. per grading unit 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. 12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.

13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade 14. 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. 15. Stream channels must not be disturbed during the following restricted time periods

Permanent Seeding Summary

Seeding

Depths

1/4 - 1/2 in

1/4 - 1/2 in

1/4 - 1/2 in

Table B.1: Temporary Seeding for Site Stabilization

5b and 6a

Jun 1 to Jul 31

Jun 1 to Jul 31

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

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 rve generally should not be used as a nurse crop, unless planting will occur very late fall beyond the seeding dates for other temporary seeding.

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

The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone

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

all Fescue/Kentucky Bluegras

Seeding Dates

Mar 1 to May 15

Aug 1 to Oct 15

Mar 1 to May 15

Aug 1 to Oct 15

Fertilizer Rate

peracre 901b/ac 901b/ac

45 pounds

40 1.0 0.5 Mar 15 to May 31; Aug 1 to Sep 30 Mar 1 to May 15; Aug 1 to Oct 31 Feb 15 to Apr 30; Aug 15 to Nov 30

72 1.7 1.0 Mar 15 to May 31; Aug 1 to Sep 30 Mar 1 to May 15; Aug 1 to Oct 31 Feb 15 to Apr 30; Aug 15 to Nov 3

120 2.8 1.0 Mar 15 to May 31; Aug 1 to Sep 30 Mar 1 to May 15; Aug 1 to Oct 31 Feb 15 to Apr 30; Aug 15 to Nov 30

112 2.8 1.0 Mar 15 to May 31; Aug 1 to Oct 31 Mar 1 to May 15; Aug 1 to Nov 15 Feb 15 to Apr 30; Aug 15 to Dec 15

96 2.2 1.0 Mar 15 to May 31; Aug 1 to Sep 30 Mar 1 to May 15; Aug 1 to Oct 31 Feb 15 to Apr 30; Aug 15 to Nov 3

(10-20-20)

P2O5 K2O

100 sf) 1000 sf) 1000 sf) 1000 sf)

Recommended Seeding Dates by Plant Hardiness Zone 3/

6b

May 16 to Jul 31

May 16 to Jul 31

7a and 7b

May 1 to Aug 14

May 1 to Aug 14

• Use I and IP March 1 - June 15 • Use III and IIIP October 1 - April 30 • Use IV March 1 - May 31 16. A copy of this plan, the <u>2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL</u>, and associated permits shall be on—site and available

when the site is active.

Hardiness Zone (from Figure B.3)

Rate (lb/ac.)

60

40

tested. Adjustments are usually not needed for the cool-season grasses.

Oats are the recommended nurse crop for warm-season grasses

For sandy soils, plant seeds at twice the depth listed above.

Seeding Rate 1/

Seed Misture (from Table B.3):

Fescue, Tall

Bluegrass, Kentucky

Cool-Season Grasses

Multiflorum

Annual Ryegrass (Lolium perenn

arley (Hordeum vulgare)

Cereal Rye (Secale cereale)

Foxtail Millet (Serataria italica)

Pearl Millet (Pennisetum glaucum

Warm-Season Grasses

SEQUENCE OF CONSTRUCTION NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF WORK

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT NATURAL RESOURCES CONSERVATION SERVICE 2011 WATER MANAGEMENT ADMINISTRATION

1. Obtain grading permit. (day 1) 2 Hold on-site pre-construction meeting, (day 2)

9. Saw cut, mill, and pave roadway. (day 101-120)

DETAIL C-1

2:1 SLOPE OR FLATTER-

CONTINUOUS GRADE 0.5% MIN. TO 10% MAX. SLOPE

PLAN VIEW

FLOW CHANNEL STABILIZATION

CONSTRUCTION SPECIFICATIONS

A-3/B-3

EARTH DIKE

SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR

4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.

STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.

MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AN MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANC WITH SECTION B-4 VEGETATIVE STABILIZATION.

EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.

CROSS SECTION

A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.

PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN

PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.

DIKE TYPE

a - DIKE HEIGHT 18 IN MIN. 30 IN MIN

b - DIKE WIDTH 24 IN MIN. 36 IN MIN.

c - FLOW WIDTH 4 FT MIN. 6 FT MIN.

d - FLOW DEPTH 12 IN MIN. 24 IN MIN.

3. Clear and Grub as necessary to install stabilized construction entrance and perimeter controls including diversion swales and earth dikes. (day 3) 4. Install T.G.O.S. practices (day 5-10)

5. Upon approval from the Howard County sediment control inspector, begin mass grading of site. Install Tree Protection fencing as needed (day 11-30) 6. Construct water & sewer mains and install fire hydrants. (day 31-60)

7. Clear & grub offsite areas & Public R/W areas, install perimeter Super Silt Fence.

8. Remove ex. storm drain and install new inlet (and storm drain, if needed) in Vollmerhauser Drive. (day 66-80) 9. Install new curb & gutter (day 81-100)

7. Install sidewalk, driveway aprons, and conc. pad (day 121-130) 8. Upon approval from the Howard County sediment control inspector, install base paving of the use-in-common driveway. (day 131-135)

12. Install Micro Bio-Retention #1 and storm drain run from I-1 to E-1. Upon completion and approval from the Howard County sediment control inspector, remove T.G.O.S. #1 *if necessary, this step can be performed sooner in the Sequence of Construction 13. Stabilize site in accordance with the temporary seedbed notes, (day 141-145)

To a contract of the state of t

of the State of Marviand.

License No. 2443

Professional Certification. I hereby certify that these

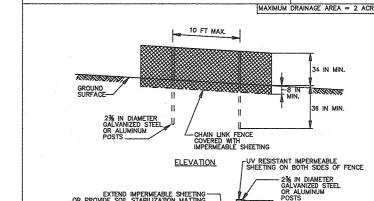
documents were prepared or approved by me, and that

I am a duly licensed professional engineer under the laws

_ Expiration Date: 12-21-24

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE 2011 WARYLAND DEPARTMENT OF ENVIRONM
WATER MANAGEMENT ADMINISTRATION DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE - HIGHLY VISIBLE FLAGGING OR 2"x2" TIMBER, 6"IN. LG. USE 2"x4" LUMBER FOR CROSS BRACING 8' FT. MAXIMUM --EARTH FILL NONWOVEN GEOTEXTILE ------ PIPE (SEE NOTE 6 PROFILE PLAN VIEW CONSTRUCTION SPECIFICATIONS PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN, VEHICLE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEAT. (*3) F
FOR SINGLE RESIDENCE LOT), USE MINIMUM WIDTH OF 10 FEAT. FLARE SCE 10 FEET MINIMUM A'
THE EXISTING ROAD TO PROVIDE A TURNING RADIUS. ANCHOR POSTS MUST BE PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE, PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTAINE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE, PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT. INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL HEIGHT OF THE POST

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL SCALE: NTS STANDARD SYMBO SUPER SILT FENCE SILT FENCE DETAIL E-1 SILT FENCE DETAIL E-3 DETAIL E-1 |-----SF-----|----SSF----|----SF----CENTER TO CENTER 36 IN MIN. FENCE POST LENGTH DRIVEN MIN. 16 IN INTO GROUND 10 FT MAX. USE WOOD POSTS 1% X 1% \pm % INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT. -34 IN MIN. 16 IN MIN. HEIGHT OF WOVEN SLIT FILM GEOTEXTILE USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTE GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THREQUIREMENTS IN SECTION H-1 MATERIALS. ELEVATION GALVANIZED CHAIN LINK FENCE WITH WOVEN SLIT FILM GEOTEXTILE EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AS COMPACT THE SOIL ON BOTH SIDES OF FABRIC. FENCE POST 18 IN MIN.
-- ABOVE GROUND WOVEN SLIT FILM -----WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST ACCORDANCE WITH THIS DETAIL. -UNDISTURBE GROUND CHAIN LINK FENCING -WOVEN SLIT FILM GEOTEXTILE-EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOF AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE. CROSS SECTION CROSS SECTION CONSTRUCTION SPECIFICATIONS INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SI. FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 4 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE A 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. STAPLE-FENCE SECTIONS (TOP VIEW



DETAIL C-9 DIVERSION FENCE

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL

CONSTRUCTION SPECIFICATIONS: OR PROVIDE SOIL STABILIZATION MATTING
4 FT MIN. ALONG FLOW SURFACE FLOW -FOLD SHEETING OVER TOP OF FENCE AND SECURE WITH WIRE TIES SECTION

STANDARD SYMBOL

DF -----

CONSTRUCTION SPECIFICATIONS USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2% INCH MAXIMUM OPENING). USE 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.

SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITTES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND, SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEFTING ALONG FLOW SIPPAOF WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.

OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT. THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MANTING IS KEYED AND STAPLED IN PLACE, FILL THE MAY VOIS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTL COMPACT OR ROLL TO MAXIMEE SOIL/MAT CONTACT WITHOUT CRUSHING MAT. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE ONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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

10 ARYLAND DEPARTMENT OF ENVIRONMENT

10 WATER MANAGEMENT ADMINISTRATION

11 WATER MANAGEMENT ADMINISTRATION 2011 MARYLAND DEPARTMENT OF ENVIRONME
WATER MANAGEMENT ADMINISTRATION

INO AS-BUILT INFORMATION IS' PROVIDED ON THIS SHEET

NO.

8480 BALTIMORE NATIONAL PIKEA SUITE 315A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

BENCHMARK

ofessional Certification. I hereby certify that these document were prepared or approved by me, and that I am a duly license rofessional engineer under the faws of the State of Maryland License No. 45577, Expiration Date: 6-08-2022.

OWNER/DEVELOPER: DEVELOPMENT PARTNERS, LLC 9693 GERWIG LANE COLUMBIA, MARYLAND 21046 410-792-2565

LOTS 1 thru 8 and OPEN SPACE LOT 9

TAX MAP: 42, GRID: 22, PARCEL: 167 ZONED: R-SC ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

SCALE:

AS-BUILT

NOTES AND DETAILS

USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESEN NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESEN NETTING MUST BE EXTRIBUTED PLASTIC WITH A MAXIMUM MESH OPENING OF 222 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 HATERIAL.

UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WOR FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AND STRETCHING THE MATTING.

AS SHOWN

9454 VOLLMERHAUSEN DR. COLUMBIA, MARYLAND 21046

PRIOR TO INSTALLING DEVICES. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS. . DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION

2011 PERMANENT SOIL STABILIZATION DETAIL B-4-6-C MATTING CHANNEL APPLICATION

ISOMETRIC VIEW

SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "I" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. IT AID NO. B RESPECTIVELY. "U" SHAPED STAPLES MUST HAVE A MINIMUM BY THE ALBERT OF THE STAPLES WILST HAVE A MINIMUM BY INCH MAIN LEG, A MINIMUM 4 NICH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 NICHES IN LESTING IN LS INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORD.
WITH SPECIFICATIONS. PLACE MATTING WITHIN 46 HOURS OF COMPLETING SEEDING OPERATIONS, UNILESS END OF
WORKDAY STREALIZATION IS SPECIFIED ON THE APPROVED ERSOIGN AMO SEDIMENT CONTROL, PLAN.

SEDIMENT & EROSION CONTROL PLAN

OVERLAP OR ABUT-

** BLAZE ORANGE PLASTIC MESH ** PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS . RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS. . BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED

MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE. AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING, WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE. . PROTECTIVE SIGNAGE IS ALSO REQUIRED. TEMPORARY TREE PROTECTION FENCE

> MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC.

DATE

RELEVANT FILE NUMBERS: ECP-19-042, S-19-008, WP-19-081, DMV2-20-006,

20-004

DESIGN: MP/MR | DRAFT: MP/MR |

DATE: NOVEMBER, 2020

HUNTINGTON POINT

F-20-061

BEI PROJECT NO. 2952

REVISION

9 of 10

