GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF
- ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY
- WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III. A MINIMUM
- SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE. THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN SURVEY BY CLSI AND HOWARD COUNTY GIS WITH TWO FOOT CONTOUR INTERVALS PREPARED BY CLSI DATED JULY, 2012.
- CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 3 1AB & 3 1DA WERE USED FOR THIS PROJECT. WATER LINES ARE PRIVATE AND CONNECTED TO THE PUBLIC WATER SYSTEM AT THE
- RIGHT OF WAY. RIGHT OF WAY. THE EXISTING SEPTIC SYSTEM SERVING THE EXISTING HOUSE ON LOT 28 WAS NOT ABANDONED PRIOR TO RECORDATION OF THE PLAT. THE TANK AND DRYWELL
- MUST BE PUMPED OUT BY A LICENSED SEWAGE HAULER AND CRUSHED/FILLED WITH CLEAN DIRT WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO ISSUANCE OF WATER METERS TO ANY LOTS. 10. STORMWATER MANAGEMENT SHALL BE PRIVATELY OWNED AND MAINTAINED. THE STORMWATER MANAGEMENT WAS APPROVED WITH F- 13-116, A DECLARATION OF COVENANTS AND MAINTENANCE AND RIGHT OF ENTRY AGREEMENT, DATED MARCH 29.
- 20 19 IS RECORDED AMONG THE LAND RECORDS IN DEED BOOK 18722, PAGE 67. LOT 30: N-2 DISCONNECTION OF NON-ROOFTOP RUNOFF FOR DRIVEWAY, M-5 DRYWELLS LOT 3 1: N-2 DISCONNECTION OF NON-ROOFTOP RUNOFF FOR DRIVEWAY.
- 1 1. THE EXISTING WATER LINES ARE BASED ON AS-BUILT DRAWINGS DONE BY WHITMAN REQUARDT & ASSOCIATES AND APPROVED SEPTEMBER. 1966.
- 12. THE EXISTING SEWER LINES ARE BASED ON AS-BUILT DRAWINGS DONE BY PURDUM & JESCHKE AND APPROVED FEBRUARY, 1974.
- 13. THERE IS NO FLOODPLAIN ON THIS SITE. 14. THERE ARE NO WETLANDS ON THIS SITE.
- 15. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY LENHART TRAFFIC CONSULTING, INC., DATED MAY 6, 2014, AND WAS APPROVED ON MAY 8, 2014.
- 16. THIS SITE CONSISTS OF 3 PROPOSED LOTS. 17. a) THE ENVIRONMENTAL CONCEPT PLAN (ECP-13-022) WAS APPROVED ON MAY 21, 2013.
- b) DPZ REFERENCE NUMBER F- 13- 116. c) PRELIMINARY STORMWATER MANAGEMENT PLAN (ECP- 13-022) WAS APPROVED ON
- d) PRELIMINARY GRADING AND SEDIMENT CONTROL PLAN (ECP-13-022) WAS APPROVED
- e) FOREST STAND DELINEATION PLAN (ECP-13-022) WAS APPROVED ON MAY 21, 2013. 1) WP-14-070 WAS APPROVED ON FEBRUARY 27, 2014. SEE NOTE 26. g) RECORD PLAT WAS APPROVED ON JUNE 7, 2019. PLAT NO. 25039
- 18. A NOISE STUDY IS NOT REQUIRED. 19. GRAVITY SEWER SERVICE, FIRST FLOOR ONLY. BASEMENT SEWER SERVICE TO BE PROVIDED
- BY PRIVATE ON-SITE PUMP PER WAIVER DATED APRIL 17, 2014. 20. IN ACCORDANCE WITH SECTION 128.0 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. PORCHES, OR DECKS, OPEN OR
- ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK . THE SUBJECT PROPERTY IS ZONED R-20 PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING
- 22. 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

ZONING: R-20

AREA OF WETLANDS: O AC.

AREA OF FLOODPLAIN: O AC.

AREA OF STEEP SLOPES-

AREA OF WETLANDS BUFFER: O AC.

AREA OF FLOODPLAIN BUFFER: O AC.

AREA OF EXISTING FOREST: 1.68 AC.

25% OR GREATER: O. 11 AC.

15% - 25%: O. 58 AC.

ERODIBLE SOIL AREA: 1.94 AC

GREEN OPEN AREA: O. 36 AC.

TOTAL AREA OF SITE: 2.03 AC.

PARKING SPACES PROVIDED:

OWNERS CERTIFICATION

IN THE WORK IS MADE.

AREA OF FOREST TO REMAIN: 0.34 AC.

AREA OF LIMIT OF DISTURBANCE: 1.01 AC.

AREA OF PROPOSED IMPERVIOUS: O. 22 AC.

TOTAL NUMBER OF DWELLING UNITS PROPOSED: 2

I/WE HEREBY CERTIFY THAT ALL PROPOSED WORK SHOWN

BY ME/US AND THAT I/WE FULLY UNDERSTAND WHAT IS

NECESSARY TO ACCOMPLISH THIS WORK AND THAT THE

REVIEWED AND APPROVED BY THE HOWARD COUNTY

BY THE HOWARD SOIL CONSERVATION DISTRICT.

BY:

WORK WILL BE CONDUCTED IN STRICT ACCORDANCE WITH

TO THESE PLANS WILL REQUIRE AN AMENDED PLAN TO BE

PLANNING AND ZONING COMMISSION BEFORE ANY CHANGE

ON THESE CONSTRUCTION DRAWING(S) HAS BEEN REVIEWED

THESE PLANS. INVE ALSO UNDERSTAND THAT ANY CHANGES

HOWARD SOIL CONSERVATION DISTRICT

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL

PARKING SPACES REQUIRED: 2 SPACES PER DWELLING UNIT PLUS O. 5 SPACE

PER DWELLING UNIT FOR VISITOR PARKING

2 SPACES IN DRIVEWAY & 2 SPACES IN GARAGE

2 SPACES IN DRIVEWAY & 3 SPACES IN GARAGE

PROJECT CERTIFICATIONS

2. 5 SPACES PER UNIT REQUIRED

4 TOTAL SPACES PROVIDED

5 TOTAL SPACES PROVIDED

AREA OF EXISTING IMPERVIOUS: O. 20 AC.

TOTAL AREA OF IMPERVIOUS: 0.42 AC.

- 1. WIDTH 12' (16' SERVING MORE THAN ONE RESIDENCE): 2. SURFACE - 6" OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
- 4. STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS
- (H25 LOADING); 5. DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE
- THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE; 6. MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- 7. FOR DRIVEWAY ENTRANCE DETAILS REFER TO THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD DETAIL R-6.05.
- 23. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S), OR THEIR REQUIRED
- BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS. 24. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD
- MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY. 25. LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH THE LANDSCAPE
- PLAN AND SECTION 16. 124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL AND WILL BE COMPLETED AT THE SDP STAGE. 26. WAIVER PETITION FILE NUMBER WP-14-070 FOR ELLICOTT WOODS WAS APPROVED
- BY THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING ON FEBRUARY 27, 2014. THE SPECIFICATIONS WAIVED WERE SECTIONS 16. 120(B)(II)(B), 16. 1205(A)(7), AND 16. 125(A)(10) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. WAIVER APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
- A) THE FOREST CONSERVATION EASEMENT AREA IS TO BE PROPERLY IDENTIFIED AND PROTECTED ON THE SUBJECT LOTS BY POSTING FOREST CONSERVATION EASEMENT SIGNS EVERY 50' AROUND THE PERIMETER OF THE EASEMENT AREA. THE FOREST CONSERVATION EASEMENT SIGNS ARE TO REMAIN POSTED AND VISIBLE IN PERPETUITY.
- B) THE FOREST CONSERVATION EASEMENT IS TO BE PROTECTED BY FENCING SUCH AS A SPLIT

WITHIN OR AFFECTING THE FOREST CONSERVATION EASEMENT

- RAIL FENCE ALONG THE PERIMETER FACING INTERNALLY TO THE SUBJECT LOTS. C) THE PROPERTY OWNER/DEVELOPER MUST ENSURE THAT ALL FUTURE RESIDENTS OF THE 3 LOTS USE THE LOTS IN WAYS THAT DO NOT VIOLATE THE FOREST CONSERVATION EASEMENT RESTRICTIONS. THEY MUST BE EDUCATED ABOUT THE PERMITTED AND PROHIBITED ACTIVITIES
- D) THE PROPOSED SINGLE FAMILY DWELLINGS ON LOTS 30 & 32 MUST BE LOCATED AS CLOSE TO THE FRONT BRL AS POSSIBLE TO PERMIT A USEABLE BACK YARD ON BOTH LOTS AND TO PROVIDE ADEQUATE ROOM FOR A DECK, PATIO OR FUTURE ADDITION. PLEASE NOTE THAT THE HOUSE SETTING WILL BE EVALUATED AS PART OF THE SITE DEVELOPMENT PLAN REVIEW AND APPROVAL PROCESS FOR LOTS 30 AND 32.
- E) THE FINAL PLAT MUST PROVIDE THE REQUIRED 35' SETBACK FROM THE EDGE OF THE FOREST CONSERVATION EASEMENT AS DEPICTED ON THE WAIVER PETITION PLAN EXHIBIT IN ACCORDANCE WITH SECTION 16. 120(B)(4)(III) OF THE SUBDIVISION REGULATIONS.
- F) THE REMAINING PORTION OF THE FOREST CONSERVATION OBLIGATION WILL BE ADDRESSED AT AN OFF-SITE PROPERTY, FOREST MITIGATION BANK CREDITS OR A FEE-IN-LIEU PAYMENT. G) NO, GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, PAVING AND NEW STRUCTURES
- ARE PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. 27. THE FOREST CONSERVATION EASEMENTS AND FEE-IN-LIEU HAVE BEEN ESTABLISHED TO FULFILL! THE REQUIREMENTS OF SECTION 16. 1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. FOREST CONSERVATION WAS APPROVED WITH F- 13- 116, A DEED OF FOREST CONSERVATION EASEMENT, DATED MARCH 29, 2019 IS RECORDED AMONG THE LAND RECORDS IN DEED BOOK 18722 PAGE 86. 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. 28. FINANCIAL SURETY FOR THE REQUIRED 14 SHADE TREES MUST BE POATED WITH THE BUILDER'S GRADING PERMIT IN THE AMOUNT OF 4,200.00.
- 29. THERE ARE NO CEMETERIES OR HISTORIC FEATURES/STRUCTURES LOCATED ON THIS SITE. THIS SITE
- IS NOT LOCATED ON A SCENIC ROAD. 30. GRAVITY SEWER SERVICE, FIRST FLOOR ONLY. BASEMENT SEWER SERVICE TO BE PROVIDED BY PRIVATE
- 31. A COMMUNITY WAS HELD ON JUNE 28, 2013 AT WORTHINGTON ELEMENTARY SCHOOL

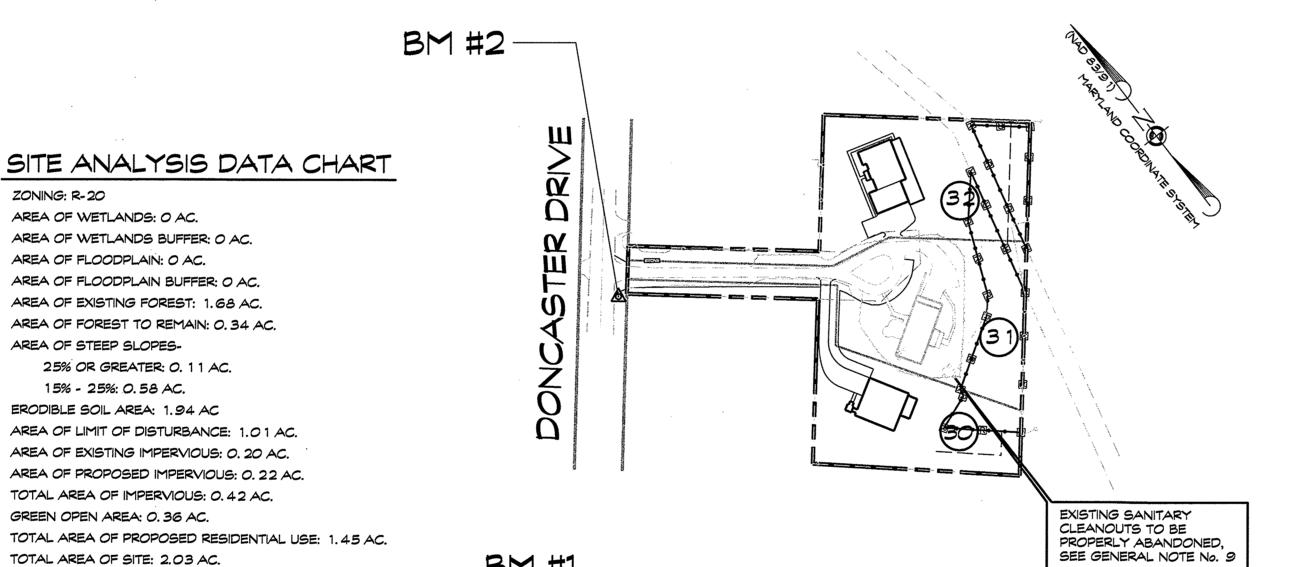
SITE DEVELOPMENT PLAN

LOTS 30 & 32 ELLICOTT WOODS

RECORDED IN PLAT 25039

2nd ELECTION DISTRICT * HOWARD COUNTY, MD. OWNER/ DEVELOPER

> MATTHEW SHANLEY 4633 DONCASTER DRIVE ELLICOTT CITY, MD 21043 (443) 786-1583



LOCATION MAP

BENCHMARKS:

E: 1370392.3710

N: 573752.9678

E: 1370597.6922

HOWARD COUNTY FILES

WATER CONTRACT NO.

SEWER CONTRACT NO.

OWNER/ DEVELOPER

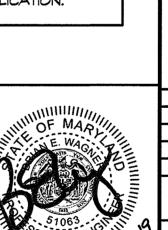
MATTHEW SHANLEY

4633 DONCASTER DRIVE

ELLICOTT CITY, MD 21043

(443) 786-1583

- . FOREST CONSERVATION EASEMENT IS RECORDED IN LIBER 18722, FOLIO 86.
- 2. STORMWATER MANAGEMENT DECLARATION OF COVENANTS & MAINTENANCE IS RECORDED IN LIBER 18722, FOLIO 67.
- 3. DECLARATION OF MAINTENANCE FOR WORTHINGTON MILL DRIVE IS RECORDED IN LIBER 18708, FOLIO 37.
- 4. THE MIHU AGREEMENT IS RECORDED IN LIBER 15708, FOLIO 43. THE MIHU FEE-IN-LIEU WILL BE PAID FOR LOTS 30 \$ 32 AT THE BUILDING PERMIT APPLICATION.



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 51063, EXPIRATION DATE: JUNE 7, 2019

REBAR CAP SET

REBAR CAP SET

ELEV. 490.42

ELEV. 508.06

Brian E. Wagner, P.E.

REVISION ADDRESS CHART LOT NO. STREET ADDRESS

ADC MAP NO. 28, B4

2. GRADING & SEDIMENT CONTROL PLAN

6. SEDIMENT CONTROL NOTES & DETAILS

15% - 25% SLOPES

EX. EASEMENT LINE

4. STORMWATER MANAGEMENT PLAN & DAM

5. STORMWATER MANAGEMENT NOTES & DETAILS

SOIL LINE / SOIL DESIGNATION

3. LANDSCAPE NOTES & DETAILS

---- 100 STREAM BUFFER

M.B.L. — BUILDING SETBACK LINE

OVERHEAD UTILITY LINE

COOPERATING AGENCIES.

VICINITY MAP Scale: 1"=2000'

INDEX OF SHEETS

LEGEND

100 YR. FEMA FLOODPLAIN

SPECIMEN TREE

FOREST STAND LIN

EVERGREEN / CONIFER

PROP. SEWER HOUSE

PROP. WATER HOUSE CONNECTION

PROPOSED DWELLING

PROPOSED LOT NUMBER

EX. 2 CONTOUR

SSF SUPER SILT FENCE

 $X \times X$ HOUSE

4635 DONCASTER DRIVE 4631 DONCASTER DRIVE

CERTIFY THAT THIS PLAN OF SEDIMENT CONTROL WILL BE IMPLEMENTED

TO THE FULLEST EXTENT, AND ALL STRUCTURES WILL BE INSTALLED TO THE

DESIGN AND SPECIFICATIONS AS SPELLED OUT IN THIS PLAN, AND THAT ANY

A CERTIFICATION OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT

BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE

APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION

EVALUATION BY THE HOWARD SOIL CONSERVATION DISTRICT PERSONNEL AND

RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE

SUBDIVISION NAME **ELLICOTT WOODS** 28/22 PLAT NO. BLOCK NO. ZONE CENSUS TRACT 25039 R-20 602700

SITE DEVELOPMENT PLAN

ELLICOTT WOODS

RECORDED IN PLAT 25039

DEED REFERENCE: 14212/ 00084 TAX MAP: 31 BLOCK: 8 PARCEL: 22 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: NOV, 2019

RELATED DPZ FILE NUMBERS: ECP-13-022, F-13-116

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DIRECTOR AM GV CHIEF, DIVISION OF LAND DEVELOPMENT

Professional Engineer Registration No. 51063

Brian E. Wagner, P.E.

I CERTIFY THAT THIS PLAN OF SEDIMENT CONTROL IS DESIGNED

WITH MY PERSONAL KNOWLEDGE OF THE SITE CONDITION AND

ADOPTED BY THE HOWARD SOIL CONSERVATION DISTRICT.

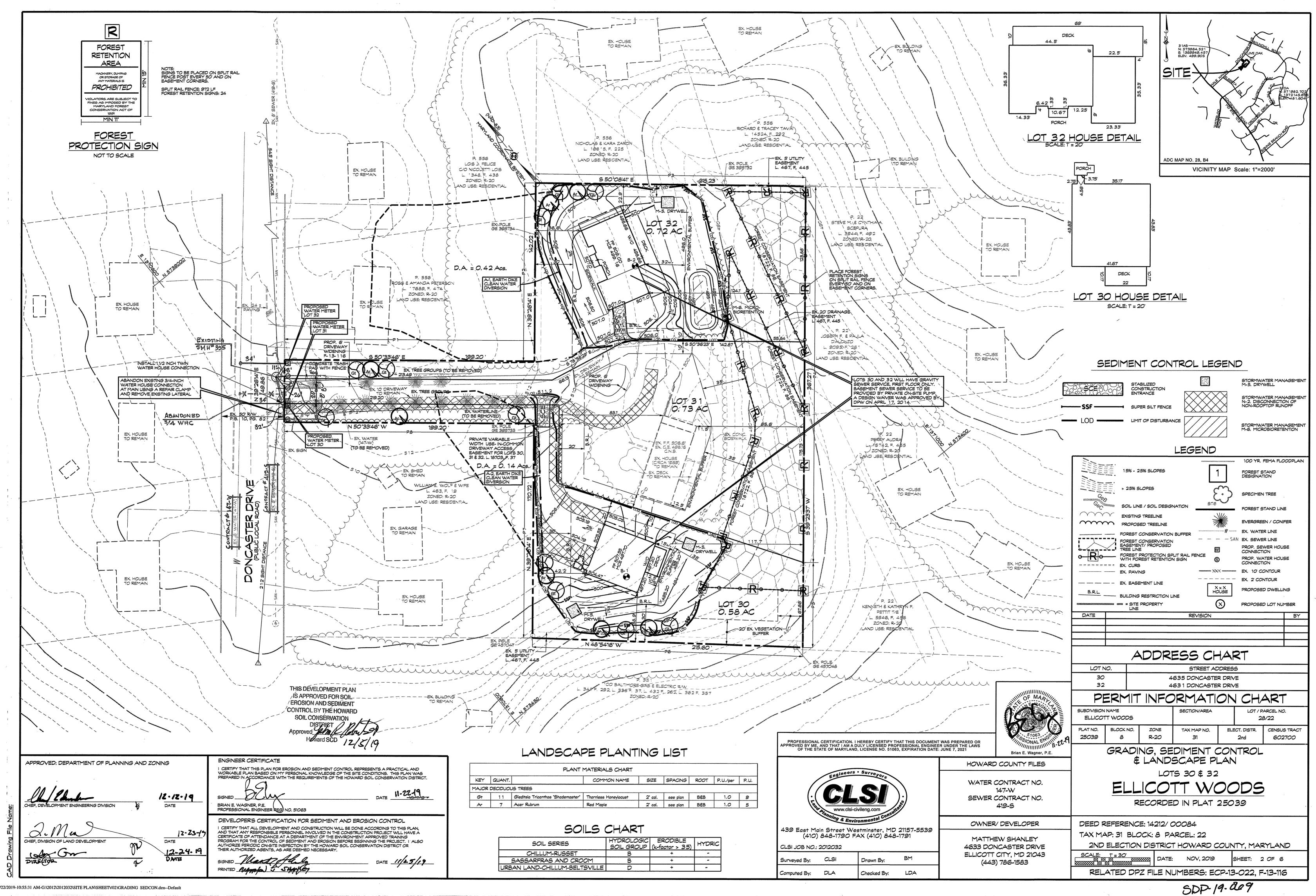
HAS BEEN DESIGNED TO THE STANDARDS AND SPECIFICATIONS

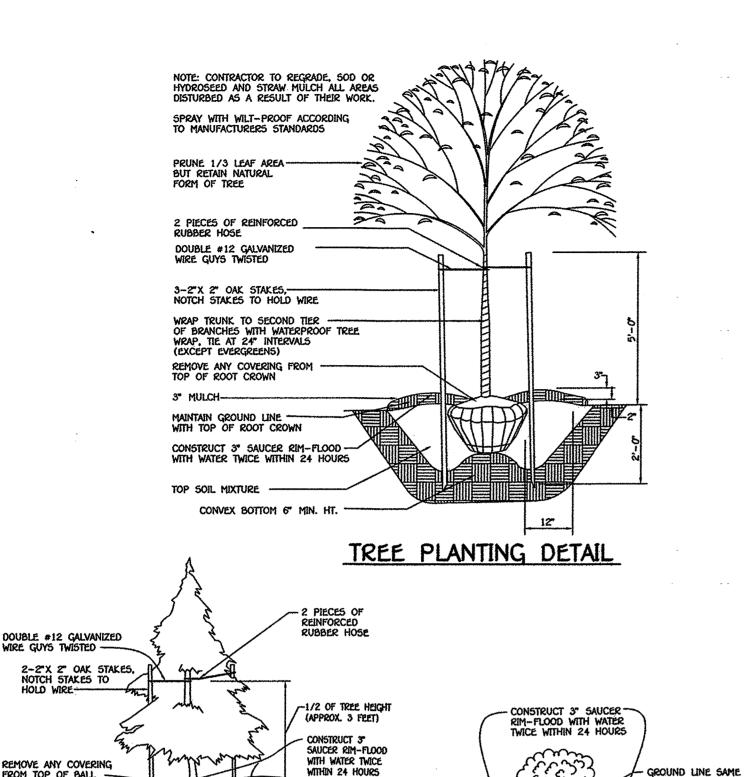
12.12.19 DATE 12.23-19 72.54-16 DATE

11-22-19

439 East Main Street Westminster, MD 21157-5539 (410) 848-1790 FAX (410) 848-1791 CLSI JOB #: 2012032

Surveyed By: Drawn By: Checked By: Computed By:





GROUND LINE SAME

EVERGREEN PLANTING DETAIL SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

NOT TO SCALE

as in nursery

PRE-CONSTRUCTION MEETING 1. AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:

A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTIONS, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;

B. INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;

C. MAKE ALL NECESSARY ADJUSTMENT: C. MAKE ALL NECESSARY ADJUSTMENT; D. ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

 THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.

2. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORIST. 3. THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

- THIS PLAN COMPLIES WITH REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE ON-SITE RETENTION OF 0.57 ACRES OF FOREST.
 THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A LANDSCAPE SURETY FOR 14 SHADE TREES @ \$300.00 EACH FOR A TOTAL OF \$4,200.00.
- 3. AT THE TIME OF 194,200.00.

 3. AT THE TIME OF INSTALLMENT, ALL SHARES AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AN/OR REVISIONS ARE
- MADE TO APPLICABLE PLANS AND CERTIFICATIONS. 4. THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

 5. SEE THE RECORD PLAT FOR THE BEARING AND DISTANCE DESCRIPTIONS OF THE FOREST CONSERVATION
- 6. NO GRADING OR REMOVAL OF VEGETATIVE COVER OR TREES, PAING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- CONSERVATION EASEMENT AREAS.

 1. 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. SHOULD DISTURBANCE OCCUR IN THE FOREST CONSERVATION EASEMENT AREAS DURING OR AFTER CONSTRUCTION, CIVIL PENALTIES OR MITIGATION MAY BE IMPOSED.
- 8. THE FOREST CONSERVATION REFORESTATION EASEMENT PLANTINGS ARE NOT TO BE CONSIDERED LANDSCAPING AS IT IS USUALLY PRACTICED. THE REFORESTATION PLANTINGS ARE TO CREATE NEW FOREST COMMUNITIES THAT WILL REPLACE TO SOME DEGREE THE FOREST RESOURCES THAT HAVE BEEN LOST DURING RECENT DECADES OF FARMING AND LAND DEVELOPMENT. THEIR PRIMARY PURPOSE IS ENVIRONMENTAL AND NOT AESTHETIC. THESE REFORESTATION STANDS WILL REQUIRE SPECIAL MANAGEMENT AND INITIALLY MAY NOT LOOK ATTRACTIVE.

Brian E. Wagner, P.E.

HOWARD COUNTY FILES

WATER CONTRACT NO.

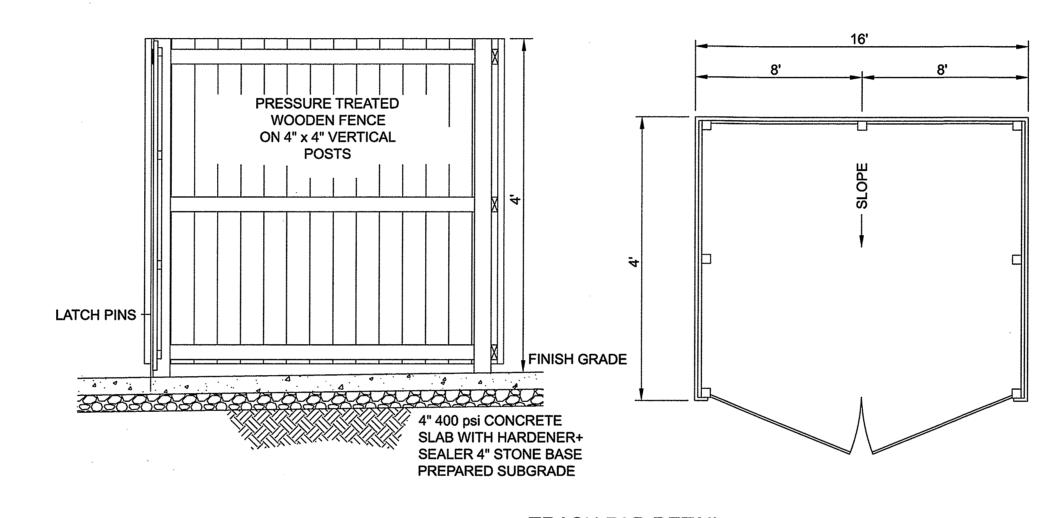
147-W SEWER CONTRACT NO.

OWNER/ DEVELOPER

MATTHEW SHANLEY

4633 DONCASTER DRIVE

ELLICOTT CITY, MD 21043



TRASH PAD DETAIL

DEVELOPERS / BUILDER'S CERTIFICATE I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. IWE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

REVISION

				<u> </u>		
	ADDRESS CHART					
	LOT NO.		STREET ADDRES	S		
	30	4	635 DONCASTER DRIV	/E .		
	32	4	631 DONCASTER DRIV	Æ		
PERMIT INFORMATION CHAR						
	SUBDIVISION NAME		SECTION/AREA	LOT / PARCEL NO.		

ELLICOTT WOODS 28/22 PLAT NO. BLOCK NO. ELECT. DISTR. CENSUS TRACT ZONE TAX MAP NO. R-20 602700

LANDSCAPING NOTES & DETAILS

LOTS 30 & 32 ELLICOTT WOODS

RECORDED IN PLAT 25039

DEED REFERENCE: 14212/00084 TAX MAP: 31 BLOCK: 8 PARCEL: 22

2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: NOV, 2019 SHEET: 3 OF 6 RELATED DPZ FILE NUMBERS: ECP-13-022, F-13-116

SCHEDULE A - PERIMETER LANDSCAPE EDGE

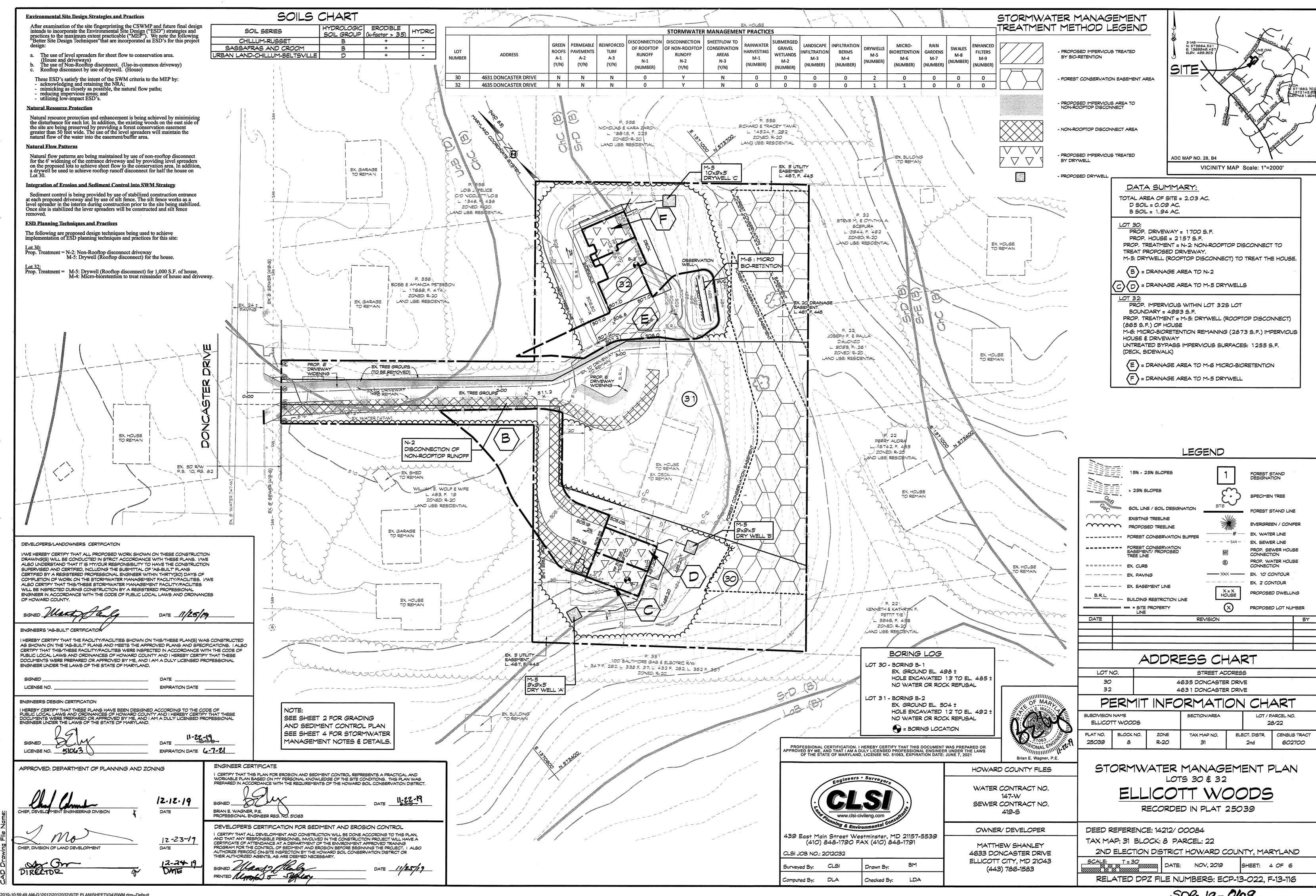
PERIMETER	· P-1	P-2	P-3	P-4	P-5	. P-6	P-7	P-8	TOTAL
CATEGORY	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	
LANDSCAPE TYPE	A	A	A	A	A	A	A	A	13,100
LINEAR FEET OF PERIMETER	200 LF	142 LF	215 LF	123.88 LF	67.66 LF	215.6 LF	170.72 LF	199.2 LF	
NUMBER OF PLANTS REQUIRED SHADE TREES	(200/60) = 3.3 = 3	(142/60) = 2.3 = 2	215-61.62(FCE) = =(153.38/60) = 3	(123.88/60) = 2 =2	(67.66/60) = 1 = 1	(215.6/60) = 3.59 = 4	(170.72/60) = 2.8 = 3	(199.2/60) = 3.3 = 3	21
CREDIT FOR EXISTING VEGETATION	. 0	0	0	0	0	. 0	0	0	0
NUMBER OF PLANTS PROVIDED SHADE TREES	3	2	SEE NOTE 1 3	SEE NOTE 1	SEE NOTE 1	SEE NOTE 2	3	3	14

1. CREDIT TAKEN FOR FOREST CONSERVATION EASEMENT (RETENTION) ALONG PERIMETER: P-3, P-4, P-5 2. CREDIT FOR EXISTING FOREST TO REMAIN.

APPROVED: DEPARTMENT OF PLANNING AND ZONING 12-13-19 HIEF, DEVELOPMENT ENGINEERING DIVISION DATE DIRECTOR WAY GW DATE CHIEF, DIVISION OF LAND DEVELOPMENT DATE

439 East Main Street Westminster, MD 21157-5539 (410) 848-1790 FAX (410) 848-1791 CLSI JOB NO.: 2012032 Surveyed By: CLSI Computed By: DLA Checked By:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 51063, EXPIRATION DATE: JUNE 7, 2021



B.4.A Green Roof Specification

1. Material Specifications Because there is significant variation in green roof assemblies and methods, providing

comprehensive specifications is not feasible. Material specifications for green roofs will vary based on each roofing system and specific information should be obtained from the appropriate manufacturer or retailer. The following information and specifications, which include acceptable materials for generic applications, is not exclusive or limiting.

2. Planting Media

Planting media should be a soil-like mixture with an organic content of 15% or less. The grain size distribution is necessary for to attain proper moisture content, permeability, nutrient management and non-capillary porosity, and soil structure. Grain size guidelines vary for single and dual media green roof assemblies.

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

Non-Capillary Pore Space at Field Capacity, 0.333 bar (TMECC 93 01 A)	≥ 15% (volume)
(TMECC 03.01, A) Moisture Content at Field Capacity	≥ 12% (volume)
(TMECC 03.01, A)	
Maximum Media Water Retention (FLL)	≥ 30% (volume)
 Alkalinity, CaCO₃ equivalents (MSA) 	≤ 2.5%
 Total Organic Matter by Wet Combustion (MSA) 	$\leq 3-15\%$ (dry wt.)
pH (RCSTP)	6.5 - 8.0
Soluble Salts (DTPA saturated media extraction – B. GGTP)	≤6 mmhos/cm

Mineral Fraction Grain Size Distribution (ASTM D422)

Cation Exchange Capacity (MSA)

o Dual Media Assemblies

 Saturated Hydraulic Conductivity (FLL): o Single Media Assemblies

	*	Single Media	Dual Media
0	Clay Fraction (2 micron)	0	0
0	% Passing #200 Sieve	≤5%	5 – 15%
0	% Passing # 60 Sieve	≤ 10%	10 - 25%
0	% Passing #18 Sieve	5 – 50%	20 - 50%
0	% Passing 1/4 inch Sieve	20 70%	55 – 90%
0	% Passing ¾ inch Sieve	75 – 100%	90 - 100%

 $\geq 10 \text{ meg/} 100 \text{ g}$

≥ 0.05 in/min

≥ 0.30 in/min

Appendix B.4. Construction Specifications for Environmental Site Design Practices

3. Green Roof Layers

Root Barriers - should be thermoplastic membranes with minimum thickness of 30 mils. Membranes certified for use as root barriers are recommended. However, only FLL currently offers a recognized certification test. Many FLL-certified materials are locally available.

Granular Drainage Media - should be a non-carbonate mineral aggregate meeting the following specifications

•	Saturated Hydraulic Conductivity
•	Total Organic Matter (by wet combustion)
•	Abrasion Resistance (ASTM C131-96)
•	Soundness (ASTM C88 or T103 or T103-91)
•	Porosity (ASTM C29)

< 5% loss ≥ 25% Alkalinity, CaCO3 equivalents (MSA) ≤ 1% Grain Size Distribution (ASTM C136) Percent Passing #18 Sieve ≤30% o Percent Passing 1/4 inch Sieve

Separation Fabric - should be a lightweight, non-woven geotextile that is easily penetrated by roots while providing a durable separation between drainage and growth media layers. Separation fabrics should meet the following:

B.4.2

I HEREBY CERTIFY THAT THE FACILITY/FACILITIES SHOWN ON THIS/THESE PLAN(S) WAS CONSTRUCTED

CERTIFY THAT THIS/THESE FACILITY/FACILITIES WERE INSPECTED IN ACCORDANCE WITH THE CODE OF PUBLIC LOCAL LAWS AND ORDINANCES OF HOWARD COUNTY AND I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

EXPIRATION DATE

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN DESIGNED ACCORDING TO THE CODE OF PUBLIC LOCAL LAWS AND ORDINANCES OF HOWARD COUNTY AND I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. I ALSO

DATE 11-22-19

12.12.19

12-23-19

12-24-19 DATE

EXPIRATION DATE 6-7-2

Unit Weight (ASTM D3776)

ENGINEER'S "AS-BUILT" CERTIFICATION

ENGINEER'S DESIGN CERTIFICATION

EVELOPMENT ENGINEERING DIVISION

THIEF, DIVISION OF LAND DEVELOPMENT

 Grab Tensile Strength (ASTM D4632) Mullen Burst Strength (ASTM D4632) Permittivity (ASTM D4491)

o Percent Passing 3/8 inch Sieve

≤4.25 ounces per square yard ≥ 135 lbs/inch

 $\geq 2 \text{ sec-1}$

≥ 25 inches/minute

≤ 25% loss

≤ 80%

Appendix B.4. Construction Specifications for Environmental Site Design Practices

B.4.B Specifications for Permeable Payements & Reinforced Turf

These specifications include information on acceptable materials for typical applications and are not exclusive or limiting. The designer is responsible for developing detailed specifications for individual projects and specific conditions.

1. Pervious Concrete Specifications

Design Thickness - Pervious concrete applications shall be designed so that the thickness of the concrete slab shall support the traffic and vehicle types that will be carried. Applications may be designed using either standard pavement procedures (e.g., AASHTO, ACI 325.9R, ACI 330R) or using structural values derived from flexible pavement design procedures.

Mix & Installation - Traditional Portland cements (ASTM C 150, C 1157) may be used in pervious concrete applications. Phosphorus admixtures may also be used. Materials should be tested (e.g., trial batching) prior to construction so that critical properties (e.g., settling time, rate of strength development, porosity, permeability) can be determined.

Aggregate – Pervious concrete contains a limited fine aggregate content. Commonly used gradations include ASTM C 33 No. 67 (¾ in. to No. 4), No. 8 (¾ in. to No. 16) and No. 89 (¾ in. to No. 50) sieves. Single-sized aggregate (up to 1 inch) may also be used.

Water Content - Water-to-cement ratios between 0.27 and 0.30 are used routinely with proper inclusion of chemical admixtures. Water quality should meet ACI 30a. As a general rule, potable water should be used although recycled concrete production water meeting ASTM C 94 or AASHTO M 157 may also be used.

Admixtures - Chemical admixtures (e.g., retarders or hydration-stabilizers) are used to obtain special properties in pervious concrete. Use of admixtures should meet ASTM C 494 (chemical admixtures) and ASTM C 260 (air entraining admixtures) and closely follow manufacturer's

Base Course - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

2. Permeable Interlocking Concrete Pavements (PICP)

Paver Blocks - Blocks should be either 31/8 in. or 4 in. thick, and meet ASTM C 936 or CSA A231.2 requirements. Applications should have 20% or more (40% preferred) of the surface area open. Installation should follow manufacturer's instructions, except that infill and base course materials and dimensions specified in this Appendix shall be followed.

Infill Materials and Leveling Course - Openings shall be filled with ASTM C-33 graded sand or sandy loam. PICP blocks shall be placed on a one-inch thick leveling course of ASTM C-33

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Base Course - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

3. Reinforced Turf

Reinforced Grass Pavement (RGP) - Whether used with grass or gravel, the RGP thickness shall be at least 134" thick with a load capacity capable of supporting the traffic and vehicle types that

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

1. Material Specifications

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

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 microbioretention 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 sand (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 decrease pH.

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

DEVELOPER'S/LANDOWNER'S CERTIFICATION

COMPLETION OF WORK ON THE STORMWATER MANAGEMENT

CONSTRUCTION BY A REGISTERED PROFESSIONAL ENGINEER IN

ACCORDANCE WITH THE CODE OF PUBLIC LOCAL LAWS AND

ORDINANCES OF HOWARD COUNTY.

WE HEREBY CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) WILL BE CONDUCTED IN STRICT ACCORDANCE WITH THESE PLANS. IWE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND

CERTIFIED, INCLUDING THE SUBMITTAL OF "AS-BUILT" PLANS CERTIFIED BY REGISTERED PROFESSIONAL ENGINEER WITHIN THIRTY(30) DAYS OF

FACILITY/FACILITIES. IWE ALSO CERTIFY THAT THIS/THESE STORMWAT MANAGEMENT FACILITY/FACILITIES WILL BE INSPECTED DURING

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

Appendix B.4. Construction Specifications for Environmental Site Design Practices

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

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.

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

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

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

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

Appendix B.4. Construction Specifications for Environmental Site Design Practices

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 outside of the tree ball.

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 gravel layer. The preferred material is slotted, 4" rigid pipe (e.g.,
- Perforations If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 or 4x4) galvanized
- Gravel The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the
- 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" layer 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).

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

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' 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		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; P _c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling

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 bioretention facility, place soil in lifts 12" to 18". Do not use heavy compact loader or a dozer/loader with marsh tracks.

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

cover after installation.

Chapter 5. Environmental Site Design.....Nonstructural and Micro-Scale Practices

> Setbacks:

Chapter 5. Environmental Site Design......

Figure 5.13 Dry Well

....Nonstructural and Micro-Scale Practices

Gutter Drain Filter (Typical)

o Dry wells shall be located down gradient of building structures and shall be setback at least 10 feet from buildings, 50 feet from confined water supply wells, 100 feet

> Observation Wells: An observation well consisting of an anchored, 4 to 6-inch diameter

- from unconfined water supply wells, and 25 feet from septic systems. o Dry wells shall be setback a minimum of 100 feet from fill slopes of 15% and 200 feet from fill slopes of 25%.
- perforated pipe shall be required. The top of the observation well shall be at least six inches
- Underground Distribution Pipe: This pipe (4 to 6 inch diameter) will be perforated to fill the trench along its entire length.
- Landscaping: A minimum one-foot of soil cover shall be provided from the top of the trench to the ground surface elevation. The soil should be stabilized with a dense cover of vegetation. In areas where frost heave is a concern, soil cover may need to be as much as four feet. In these cases, a geotechnical engineer should be consulted.

Construction Criteria:

The following items should be addressed during construction of projects with dry wells:

- > Erosion and Sediment Control: Final grading for proposed dry wells should not take place until the surrounding site is completely stabilized. If this cannot be accomplished, runoff from disturbed areas shall be diverted.
- > Soil Compaction: Excavation should be conducted in dry conditions with equipment located outside of the practice to minimize bottom and sidewall compaction. Construction of a dry well shall be performed with lightweight, wide-tracked equipment to minimize disturbance and compaction. Excavated materials shall be placed in a contained area.
- > Underground Chamber: A subsurface prefabricated chamber may be used.
- > Dry Well Bottom: The bottom shall be as level as possible to minimize pooled water in small areas that may reduce overall infiltration and longevity. Filter Cloth: Filter cloth shall not be installed on the bottom of the well. Non-woven filter
- cloth should be used to line the top and sides of the dry well to prevent the pore space between the stones from being blocked by the surrounding native material. > Gravel Media: The aggregate shall be composed of an 18 to 48-inch layer of clean washed,

open graded material with 40% porosity (e.g., ASTM D448 4,5, or 6 stone or equal).

> Regular inspections shall be made during the following stages of construction: During excavation to subgrade.

During construction of the appurtenant conveyance.

o During placement of backfill and perforated inlet pipe and observation well. During placement of geotextiles and all filter media.

o Upon completion of final grading and establishment of permanent stabilization.

The following items should be addressed to ensure proper maintenance and long-term performance of dry wells:

- Privately owned practices shall have a maintenance plan and shall be protected by easement, deed restriction, ordinance, or other legal measures preventing its neglect, adverse alteration, and removal.
- > Dry wells shall be inspected and cleaned annually. This includes pipes, gutters, downspouts
- > Ponding, standing water, or algal growth on the top of a dry well may indicate failure due to sedimentation in the gravel media. If water ponds for more than 48 hours after a major storm or more than six inches of sediment has accumulated, the gravel media should be excavated and replaced.

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS,

FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL. OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES (I-1), DRYWELLS (M-5).

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.

4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE

5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE 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

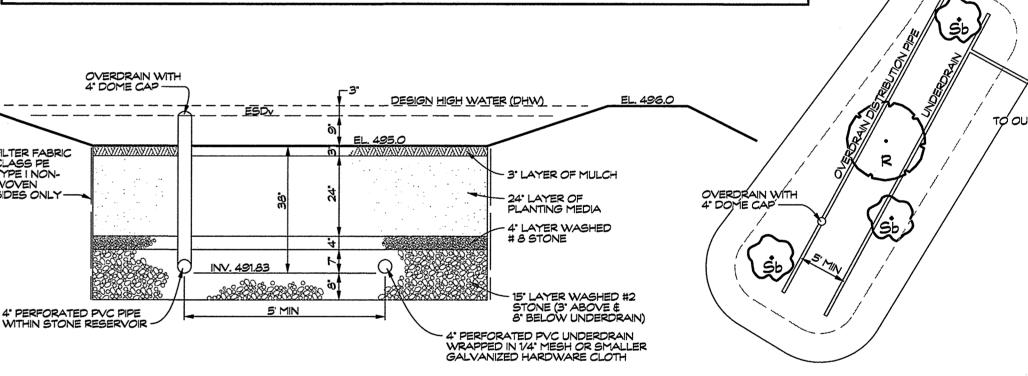
SCHEDULE IS REQUIRED. OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6) AND RAIN GARDENS (M-7)

1. 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 DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES. 3. 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. 4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

INSPECTION CHART FOR MICRO-BIORETENTION FACILITY INSTALLATION APPROVAL INITIALS DATE 1. ONCE THE INDIVIDUAL HOUSE HAS BEEN CONSTRUCTED AND FINAL GRADING IS COMPLETE. 2. EXCAVATE TO BOTTOM OF STONE RESERVOIR, PLACEMENT OF FILTER FABRIC ON SIDES OF FACILITY AS . INSTALLATION OF 10" NO. 2 STONE. 4" SLOTTED PIPE AND 4" SOLID PVC TO OUTFALL 4. INSTALL 18' OF PLANTING SOIL 5. INSTALL 3" OF HARDWOOD MULCH OVER SURFACE OF FACILITY 6. INSTALL LANDSCAPING PER PLANTING PLAN PLEASE NOTIFY CERTIFYING ENGINEER 48 HRS PRIOR TO CONSTRUCTION . ENGINEER'S NAME: 410 - 848-1790

INSPECTION CHART FOR DRYWELL INSTALLATION ENGINEER'S APPROVAL LOT 30 DRYWELL 'B' LOT 32 DRYWELL 'C' STAGE LOT 30 DRYWELL 'A' INITIALS DATE INITIALS DATE INITIALS ONCE THE INDIVIDUAL HOUSE HAS BEEN CONSTRUCTED AND FINAL GRADING IS COMPLETE. 2. PLACEMENT OF SAND 3. PLACEMENT OF NO. 2 STONE AND PIPE 4. PLACEMENT OF 4" PVC PIPE 5. FINE GRADE & STABILIZATION OF AREAS DISTURBED DURING CONSTRUCTION OF DRYWELL *PLEASE NOTIFY CERTIFYING ENGINEER 48 HRS PRIOR TO CONSTRUCTION ENGINEER'S NAME 410 - 848-1790 PHONE NUMBER:



LOT NO.

MICRO-BIORETENTION FACILITY LOT 32 TYPICAL SECTION NOT TO SCALE

PLANTING PLAN SCALE: 1" = 10"

STREET ADDRESS

Υ	QUANTITY	BOTANIC NAME	COMMON NAME	MINIMUM SIZE
	1	Betula nigra	RIVER BIRCH	2° CAL.
,	w	Lindera benzoin	SPICEBUSH	#3 CONT. (18")
	1/3 MIX	Vernonia noveboracensis	NEW YORK IRONWEED	SEE NOTE BELOW
	1/3 MIX	Scirpus pungens	THREE SQUARE BULRUSH	SEE NOTE BELOW
	1/3 MIX	Panicum virgatum	SWITCHGRASS	SEE NOTE BELOW

SPECIES SEED MIXTURE CONSISTING OF 1/3 NEW YORK IRONWEED, 1/3 THREE SQUARE BULRUSH AND & SWITCHGRASS.

Brian E. Wagner, P.E

PLAT NO. 25039

WATER CONTRACT NO. 147-W SEWER CONTRACT NO.

419-5 OWNER/ DEVELOPER

MATTHEW SHANLEY

BLOCK NO. ELECT. DISTR. TAX MAP NO. R-20 NOTES & DETAILS LOTS 30 & 32

ELLICOTT WOODS

DEED REFERENCE: 14212/00084

NOV, 2019 SHEET: 5 OF 6

b-11/22/2019-11:02:33 AM-G:\2012\2012032\SITE PLAN\SHEET\(05\SWM DETAILS.den--Default

APPROVED: DEPARTMENT OF PLANNING AND ZONING

SDP 19-069

PHONE NUMBER:

<u>LOT 32 MICRO-BIORETENTION PLANT LIST</u> KEY QUANTITY BOTANIC NAME COMMON NAME MINIMI IM GIZE

REMAINING FILTER SURFACE AREA SHALL BE PLANTED WITH A HERBACEOUS

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR PROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 51063, EXPIRATION DATE: JUNE 7, 2021 HOWARD COUNTY FILES

439 East Main Street Westminster, MD 21157-5539 (410) 848-1790 FAX (410) 848-1791

CLS

Surveyed By:

Computed By:

CLSI JOB NO.: 2012032

Drawn By:

Thecked By:

4633 DONCASTER DRIVE ELLICOTT CITY, MD 21043 (443) 786-1583

CENSUS TRACT

MICRO-BIORETENTION FACILITY LOT 32

ADDRESS CHART

30 4635 DONCASTER DRIVE 4631 DONCASTER DRIVE INFORMATION CHART SUBDIVISION NAME LOT / PARCEL NO. **ELLICOTT WOODS** 28/22

STORMWATER MANAGEMENT

RECORDED IN PLAT 25039

TAX MAP: 31 BLOCK: 8 PARCEL: 22 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

RELATED DPZ FILE NUMBERS: ECP-13-022, F-13-116

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

- A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:
 - a. Prior to the start of earth disturbance,

coordination and to avoid conflicts with this plan.

- 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 unit, d. Prior to the removal or modification of sediment control practices.
- Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.
- 4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
- All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.

Acres

Acres

Acres

Acres

Cu. Yds.

Cu. Yds.

Site Analysis

Total Area of Site Area Disturbed Area to be roofed or paved: Area to be vegetatively stabilized: Total Cut: Total Fill: 30___

Offsite waste/borrow area location:

- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:
 - Inspection date Inspection type (routine, pre-storm event, during rain event)
 - Name and title of inspector Weather information (current conditions as well as time and amount of last recorded
 - Brief description of project's status (e.g., percent complete) and/or current activities
 - Evidence of sediment discharges Identification of plan deficiencies
 - Identification of sediment controls that require maintenance
 - Identification of missing or improperly installed sediment controls
 - Compliance status regarding the sequence of construction and stabilization requirements Photographs
 - Monitoring/sampling
 - Maintenance and/or corrective action performed
 - Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
- Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.
- 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 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 grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the CID, no
- 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.
- 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 (inclusive): Use I and IP March 1 - June 15
 - Use III and IIIP October 1 April 30
- Use IV March 1 May 31
- A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when

REQUIRED SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT
- 2. NOTIFY THE HOWARD COUNTY SEDIMENT CONTROL DIVISION 24 HOURS PRIOR TO START OF CONSTRUCTION ACTIVITIES. ALL PROTECTION FENCING AND PERMANENT SIGNS REQUIRED UNDER THE HOWARD COUNTY CODE OF PUBLIC LAWS AND ORDINANCES. FOREST CONSERVATION SHALL BE INSTALLED PRIOR TO THE PRE-CONSTRUCTION
- MEETING WITH THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 3. INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 DAY)
- 4. INSTALL SILT FENCE AND CLEAN WATER DIVERSIONS. (2 DAYS) 5. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN THE LIMITS OF DISTURBANCE. VEGETATIVE MATTER MAY BE GROUND ON-SITE AND USED AS MULCH AT THE DISCRÈTION OF THE CONTRACTOR, ANY VEGETATIVE MATTER NOT CONVERTED TO MULCH AND
- USED ON-SITE SHALL BE DISPOSED OF AT AN APPROVED OFF-SITE LOCATION. (1 WEEK) 6. ROUGH GRADE LOT AND DRIVEWAY IMPROVEMENTS. (1 WEEK) 7. CONSTRUCT HOUSE AND ROOFTOP DISCONNECT AND DRYWELLS. (8 MONTHS)
- 8. FINE GRADE LOT AND COMPLETE DRIVEWAY TO BASE COURSE PAVING. (1 WEEK) 9. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR REMOVE TEMPORARY SILT FENCE, STABILIZED CONSTRUCTION ENTRANCE AND STABILIZE REMAINING DISTURBED AREAS. (3 DAYS) 10. SUBMIT "AS-BUILT" SWM DRAWINGS TO HOWARD COUNTY.

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

To provide a suitable soil medium for vegetative growth.

Where vegetative stabilization is to be established.

- Soil Preparation 1. Temporary Stabilization
 - a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running
 - parallel to the contour of the slope
 - b. Apply fertilizer and lime as prescribed on the plans c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable

- 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
- d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil
- 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.

- 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- 2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found B. in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- 3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
- b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
- c. The original soil to be vegetated contains material toxic to plant growth. d. The soil is so acidic that treatment with limestone is not feasible.
- 4. Areas having slopes steeper than 2:1 require special consideration and design.
- 5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria: a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand.
- Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, 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.
- c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
- 6. Topsoil Application
- a. Erosion and sediment control practices must be maintained when applying topsoil.
- b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
- c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.
- Soil Amendments (Fertilizer and Lime Specifications)
 - 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
 - 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.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by

- 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
- 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means
- 5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

DUST CONTROL SCHEDULE

May-October - All graded areas not being immediately stabilized as noted in the "Required Sequence of Construction" shall be watered on a continuing basis as necessary to provide for dust proofing. Contractor shall provide tank truck with spray bar on site at any time the disturbed area exceeds three (3) acres

ALL STOCKPILE AREAS SHALL BE CONFINED WITHIN PERIMETER CONTROLS. IN THE EVENT THAT STOCKPILE AREAS MUST BE LOCATED OUTSIDE OF DISTURBED AREAS, THE LOCATION SHALL BE AS DIRECTED BY THE INSPECTOR IN THE FIELD

ALL SEDIMENT CONTROL MEASURES SHOWN HEREON ARE TEMPORARY UNLESS OTHERWISE NOTED.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD

SOIL CONSERVATION DISTRICT.

B-4-8 STANDARDS AND SPECIFICATIONS

STOCKPILE AREA

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

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

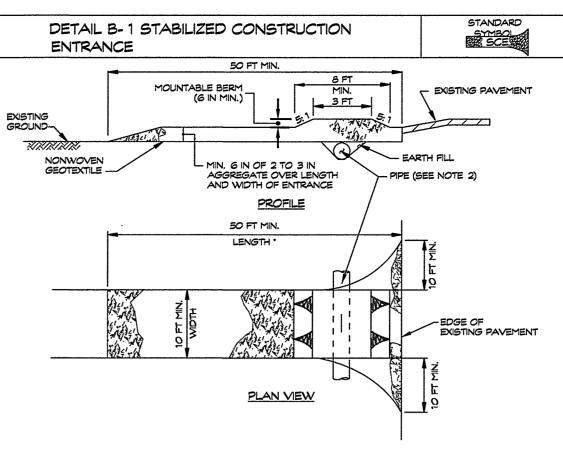
Conditions Where Practice Applies Stockpile areas are utilized when it is necessary to salvage and store soil for later use

- 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.

1. The stockpile location and all related sediment control practices must be clearly indicated on the

- 3. Runoff from the stockpile area must drain to a suitable sediment control practice.
- 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/sediment
- 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.

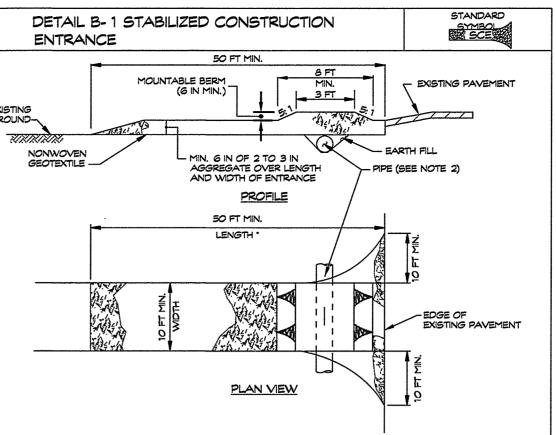
The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile 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



CONSTRUCTION SPECIFICATIONS

- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN, VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET ('30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO
- 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.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
- REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO SEDIMENT CONTROL PRACTICE.

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



- 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 MOUNTABLE BERM WITH 5: 1
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS
- . MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT, ADD STONE OR MAKE OTHER 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

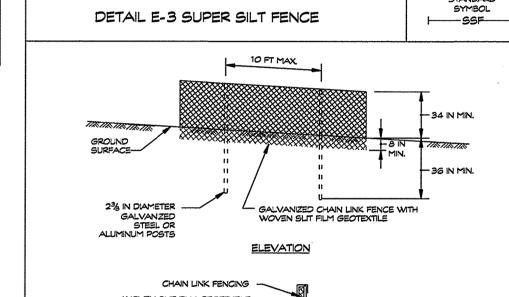
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL						
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION	2011	MARYLAND DEPARTMENT OF ENVIRONMENT				

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

- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE
- CONSTRUCTION SPECIFICATIONS

- OR OTHER IRREGULARITIES ARE NOT ALLOWED . COMPACT FILL
- . CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE
- IVERSION WITHIN 24 HOURS OF INSTALLATION
- MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE, KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH
- . UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED

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



CHAIN LINK FENCE 8 IN MIN. INTO GROUND CROSS SECTION

CONSTRUCTION SPECIFICATIONS

- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 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 pags.
- . PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.

REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN

J.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATIO

ENVIRONMENT MAGEMENT ADMINISTRATION DATE REVISION

ADDRESS CHART

LOT NO. STREET ADDRESS 30 4635 DONCASTER DRIVE 32 4631 DONCASTER DRIVE

SUBDIVISION NAME LOT / PARCEL NO. **ELLICOTT WOODS** 28/22 PLAT NO. BLOCK NO. ZONE ELECT. DISTR. CENSUS TRACT TAX MAP NO.

> SEDIMENT CONTROL NOTES & DETAILS LOTS 30 & 32

ELLICOTT WOODS

DEED REFERENCE: 14212/00084

25039

TAX MAP: 31 BLOCK: 8 PARCEL: 22

SDP. 19-069

more than 30 acres cumulatively may be disturbed at a given time.

12.12.19

AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A

BRIAN E. WAGNER, P.E. PROFESSIONAL ENGINEER REG. NO. 51063 DEVELOPER'S CERTIFICATION FOR SEDIMENT AND EROSION CONTROL I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN

ENGINEER CERTIFICATE

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 OR HEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

HOWARD SOIL CONSERVATION DISTRICT

FOR

SEEDING AND MULCHING

Definition

B-4-3 STANDARDS AND SPECIFICATIONS

The application of seed and mulch to establish vegetative cover.

To protect disturbed soils from erosion during and at the end of construction. Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading

1. Specification

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 erify type of seed and seeding rate.

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws. c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture

of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used

later than the date indicated on the container. Add fresh inoculants as directed on the package

Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

- 2. Application a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
- i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries. ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in
- each direction. Roll the seeded area with a weighted roller to provide good seed to soil 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 planting.

- ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer). i. If fertilizer is being applied at the time of seeding, the application rates should not exceed
- 200 pounds per acre; K2O (potassium), 200 pounds per acre. ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous),

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

- Mulch Materials (in order of preference)
- a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.

b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose

processed into a uniform fibrous physical state. i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry. ii. WCFM, including dye, must contain no germination or growth inhibiting factors

iii. WCFM materials are to be manufactured and processed in such a manner that the wood

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

v. WCFM must conform to the following physical requirements: fiber length of

cellulose fiber mulch will remain in uniform suspension in water under agitation and will

approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

- a. Apply mulch to all seeded areas immediately after seeding.
- 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.

b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a

uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth

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,

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

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000

this practice should follow the contour ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra

Hardiness Zone (from Figure B.3): 7A Seed Mixture (from Table B.1): Rate (lb/ac)

436 lb/ac (10 lb/1000 sf) PERMANENT SEEDING SUMMARY Hardiness Zone (from Figure B.3): 7a Seed Mixture (from Table B.3): 9 (10-20-20) K₂O Rate (lb/ac)

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR PPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 51063, EXPIRATION DATE: JUNE 7, 2021

1/4 - 1/2 in

40 lb/ac

EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE

SEDIMENT CONTROL. WHICHEVER IS MORE STRINGENT.

TEMPORARY SEEDING SUMMARY

PROVIDED AT THE DIRECTION OF THE CID INSPECTOR OR

AT THE INTERVALS PROVIDED WITHIN THE 2011 MARYLAND

STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND

Feb. 15 - Apr. 30 Aug. 15 - Nov. 30 0.5"

90 lb/ac (2.0 lb/1000 sf)

90 lb/ac (2.0 lb/1000 sf)

1/4 - 1/2 in per acre (1.0 lb/1000 sf) 40 lb/ac 1/4 - 1/2 in

CLSI JOB NO.: 2012032

Computed By:

CLSI

60 lb/ac

439 East Main Street Westminster, MD 21157-5539

(410) 848-1790 FAX (410) 848-1791

Checked By:

HOWARD COUNTY FILES WATER CONTRACT NO.

Lime Rate

2 tons/ac. (90 lb/ 1000 sf)

OWNER/ DEVELOPER MATTHEW SHANLEY 4633 DONCASTER DRIVE ELLICOTT CITY, MD 21043

Brian E. Wagner, P.E.

SEWER CONTRACT NO. 419-5

(443) 786-1583

DIKE TYPE 30 IN

--- 2:1 SLOPE OR FLATTER

SYMBOL A

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

36 IN MIN

a - DIKE HEIGH k A A A A A A 6 - DIKE WIDTH \lor \lor \lor \lor \lor \lor \lor \lor c - FLOW WIDTH 4 FT MIN. 6 FT MIN. d - FLOW DEPTH 12 IN MIN. 24 IN MIN. PLAN VIEW

CROSS SECTION

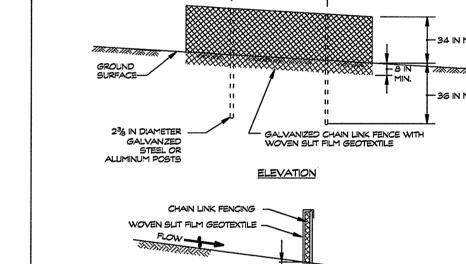
FLOW CHANNEL STABILIZATION A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)

DETAIL C- 1 EARTH DIKE

A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7

SECTION B-4 VEGETATIVE STABILIZATION

- EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS
- . PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN. 6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER



- INSTALL 2^3 // INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE
- FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION, EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

R-20

DATE: NOV, 2019 SHEET: 6 OF 6 RELATED DPZ FILE NUMBERS: ECP-13-022, F-13-116

602700

RECORDED IN PLAT 25039

2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: DEPARTMENT OF PLANNING AND ZONING CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS REPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

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