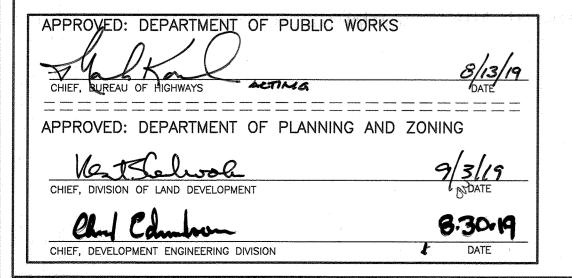
GENERAL NOTES

- 1. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCE(S) HAVE BEEN SUBMITTED AND APPROVED.
- 2. THE SUBJECT PROPERTY IS ZONED R-SC PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN. 3. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NO. 35F1 AND 35FA WERE USED FOR THIS PROJECT.
- 4. TRACT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. ON OR ABOUT AUGUST, 2018.
- 5. THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD SURVEY BY BENCHMARK ENGINEERING, INC. IN SEPTEMBER, 2018. EXISTING UTILITIES SHOWN ARE BASED ON A FIELD SURVEY BY BENCHMARK ENGINEERING, INC. IN SEPTEMBER, 2018 AND HOWARD COUNTY GIS.
- 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 DESIGN MANUAL VOLUME III.
- 7. THE TRAFFIC STUDY WAS PREPARED BY MARS GROUP AND APPROVED UNDER THE SKETCH PLAN (S-19-006) ON 3-14-2019.
- 8. THE FOREST STAND DELINEATION AND WETLAND DELINEATION WAS PREPARED BY J. CHRIS OGLE ON
- 9. THE GEOTECHNICAL REPORT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC. ON DECEMBER 20.
- 10. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. THE WATER AND SEWER IS PUBLIC. THE WATER/SEWER UTILITIES HAVE BEEN APPROVED THROUGH AN ADVANCE DEPOSIT ORDER (ADO). THE DRAINAGE AREA IS THE MIDDLE PATUXENT.
- 11. 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 DATE TO BE DETERMINED, ON WHICH DATE, DEVELOPERS AGREEMENT NUMBER F-19-049 WAS FILED AND ACCEPTED.
- 12. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- 13. THERE ARE NO HISTORIC SITES/STRUCTURES LOCATED ON THIS SITE.
- 14. THERE ARE NO WETLANDS, WETLANDS BUFFERS, STREAMS, 100-YR FLOODPLAIN, OR STEEP SLOPES 25% AND GREATER THAT ARE MORE THAN 20,000 SF OF CONTIGUOUS AREA LOCATED ON THIS SITE.
- 15. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY 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 TAR AND CHIP COATING (1-1/2" MIN.) E) GEOMETRY — MAXIMUM 15% GRADE. MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
- d) STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING). DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN FOOT DEPTH OVER DRIVEWAY.
- f) STRUCTURE CLEARANCES MINIMUM 12 FEET. g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- 16. 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
- 17. THE PRIVATE USE-IN-COMMON MAINTENANCE ACCESS AGREEMENT FOR LOTS 1 thru 5 SHALL BE RECORDED SIMULTANEOUSLY WITH THE RECORDATION OF THE SUBDIVISION PLAT.
- 18. PER SECTION 16.121.a.2, THIS PROJECT IS SUBJECT TO 25% OPEN SPACE OR 10,890 sf. A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF \$6,000.00 SHALL BE MADE AS PART OF THE DEVELOPERS AGREEMENT FOR OPEN SPACE BASED ON SECTION 16.121.b.2 SINCE; THIS PROJECT DOES NOT USE OPTIONAL LOT SIZE METHOD, SINCE THE SIZE OF THE REQUIRED AREA IS LESS THAN ONE-HALF ACRE, AND SINCE THE OPEN SPACE WOULD HAVE LITTLE ENVIRONMENTAL OR RECREATIONAL PURPOSE. HOWEVER, A SMALL OPEN SPACE LOT IS BEING ESTABLISHED TO ENCOMPASS THE STORMWATER MANAGEMENT DEVICE NEEDED TO TREAT THE USE-IN-COMMON DRIVEWAY. ACCESS AND FRONTAGE FOR THIS OPEN SPACE IS IN CONFORMANCE WITH SECTION 16.121.e.2.iv.
- 19. THE ARTICLES OF INCORPORATION FOR THE HOMEOWNERS ASSOCIATION WILL BE ACCEPTED BY THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION PRIOR TO RECORDATION OF THE PLAT.
- 20. THE RECREATIONAL OPEN SPACE REQUIREMENT FOR THIS PROJECT IS NOT REQUIRED SINCE THERE ARE LESS THAN 10 LOTS PER SECTION 16.121(a)(4)(i) OF THE SUBDIVISION REGULATIONS.
- . 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 (MEP) VIA ONE (M-6) MICRO BIO-RETENTION PRACTICE, EIGHT (M-5) DRY WELLS, AND ONE AREA OF (N-2) DISCONNECTION OF NON-ROOFTOP RUNOFF. THE MICRO BIO-RETENTION SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE DRY WELLS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE OWNER OF THE LOT ON WHICH THEY RESIDE.
- 22. LANDSCAPING IS PROVIDED WITH A CERTIFIED LANDSCAPE PLAN IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$5,100,00 FOR THE REQUIRED 15 PERIMETER SHADE TREES AND ADDITIONAL 2 SHADE TREES PER APPROVAL OF WP-19-050 SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.
- 23. THE FOREST CONSERVATION OBLIGATION AMOUNT OF 0.2 ACRES SHALL BE MET BY A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF \$6,534.00.
- 24. THE REQUIRED COMMUNITY MEETING FOR THIS PROJECT, PER SECTION 16.128 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, WAS HELD ON DECEMBER 4, 2018.
- 25. 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 MET BY A FEE-IN-LIEU PAYMENT IN AN AMOUNT THAT IS TO BE CALCULATED BY THE DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT. THE FEE-IN-LIEU SHALL BE PAID FOR ALL LOTS/RESIDENTIAL UNITS WITHIN THIS SUBDIVISION AT TIME OF BUILDING PERMIT ISSUANCE.
- 26. THE EXISTING WELL AND SEPTIC WAS PROPERLY ABANDONED ON 9-26-2018 AND 10-19-2018. RESPECTIVELY BY A LICENSED WELL DRILLER. THE ABANDONMENT LETTERS HAVE BEEN PROVIDED.
- 27. A PRIVATE RANGE OF ADDRESS SIGN SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- 28. UTILIZE HO. CO. STD. R-6.03 FOR DRIVEWAY APRON.
- 29. 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
- 30. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY
- 31. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE 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 ASPHALT.
- 32. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- 33. PREVIOUS HOWARD COUNTY FILE REFERENCES: ECP-19-023, WP-19-050, S-19-006
- 34. WP-19-050, A REQUEST FOR AN ALTERNATIVE COMPLIANCE TO SECTION 16.1205(a)(7) WAS APPROVED ON JANUARY 4, 2019 SUBJECT TO THE FOLLOWING CONDITIONS:
- 1) PROVIDE TWO (2) 3" MINIMUM CALIPER NATIVE TREES AS MITIGATION TO BE PROVIDED AS LANDSCAPING 2) ADD THE ALTERNATIVE COMPLIANCE WP-19-050 AS A GENERAL NOTE STATING THE REQUEST, THE APPROVAL DATE AND CONDITIONS IN WHICH IT WAS APPROVED UNDER THE ECP AND ALL FUTURE PLANS.



HILLTOP LANDING II

LOTS 1 thru 4 and OPEN SPACE LOT 5

A RESUBDIVISION OF CEDAR ACRES BLOCK B, LOT 16 PLAT BOOK 24, FOLIO 19

CONSTRUCTION PLANS

GALICIA MARCO ROSAS

MARCELO JULIANA ESTANISLAO

CEDAR ACRES

LOT 284 PLAT #9398

ZONED: R-SC

LOT 3

1 inch = 50 ft.

LOT 4

OPEN SPACE

LOT 5

ESDv REQ: ESDv Prov:

132

132

132

132

132

132

132

1,211

2,296

128

128

128

128

128

128

128

906

30

1,961

→ 2,264

128

L 13952 F 0118

HILLTOP LANE

35. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

36. 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

EVERETT JONES TRUSTEE

CEDAR ACRES S4

LOT 264 PLAT #7471

PAUL R TREFFINGER AND

LISA A TREFFINGER

CEDAR ACRES S4

LOT 265 PLAT #7471 L 1850 F 37

ZONED: R-SC

STORMWATER MANAGEMENT SUMMARY TABLE

1.7

#1

#2

#3

#4

#5

#7

#8

#1

2264 cf

Total Site Pe:

(M-5)

(M-5)

(M-5)

2. Total ESDv provided exceeds total ESDv required.

Street Address

10949 Hilltop Lane

10953 Hilltop Lane

10957 Hilltop Lane

10961 Hilltop Lane

N/A

N/A

OS Lot 5

ROW

Total Site ESDv:

Practice

Drywell

Drywell

Drywell

Drywell

Drywell

Drywell

Drywell

Drywell

Totals per individual Drainage Area ->

(M-6) Micro Bio-Retention

(N-2) Disconn Non-Rooftop

Totals per Overall Site -

3. All on-site impervious areas are being treated via ESD practices

1. Total Site Pe and Total Site ESDv numbers are based on the project boundary

JOEL WISDOM AND

KATHERINE LEE WISDOM

CEDAR ACRES S4

LOT 266 PLAT #7471

L 6789 F 608 ZONED: R-SC

L 6716 F 645 ZONED: R-SC

RIGHT C	F WAY ELEV	MOITAL
R/W PT.NO.	DESCRIPTION	ELEVATION
101 · / ·	REBAR & CAP	397.42'
101	REBAR & CAP	395.71'

CEDAR ACRES S4

LOT 205 PLAT #7111

L 15520 F 039

STEVEN D HOUSTON

JEMELLIE HOUSTON

CEDAR ACRES S4

LOT 204 PLAT #7111

15137 F 0134

PETER C. HULL AND

KATHLEEN M. HULL

CEDAR ACRES S4

LOT 200 PLAT #7111

L 1815 F 70

ZONED: R-SC

ZONED: R-SC

DOMINIC B. LAMB AND

CEDAR ACRES S4

LOT 199 PLAT #711

L 6789 F 608

ZONED: R-SO

Ownership

Private

Private

Private

Private

Private

Private

Private

CEDAR ACRES S4 LOT 198 PLAT #7111

ZONED: R-SC

ABDALLA BASHEER CEDAR ACRES S4

LOT 202 PLAT #711 L 6457 F 473

PETER C. HULL AND KATHLEEN M. HULL

LOT 201 PLAT #7111

1.) HORIZONTAL DATUM FOR THIS AS-BUILT IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM HAD 83 / ADU 07 AS PROJECTED FROM HO CO- GEODETIC CONTROL STATIONS 35FA AND 35F1 VERTICAL DATUM FOR THIS AS-BUILT IS NORTH AMERICAN VERTICAL DATUM NGVD 88 AS PROJECTED FROM THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATIONS

2.) THE INSTRUMENTS USED IN PERFORMING THE AS-BUILT WERE A 5" TOTAL STATION

Number of APFO Allocations Required (Remaining Lots/Units) MIHU Fee-in-Lieu (Indicate Lot/Unit numbers) * Previously existing house on proposed Lot 2 is exempt

3.) THIS AS-BUILT WAS PERFORMED BY BENCHMARK ENGINEERING, INC. FOREST CONSERVATION WORKSHEET

NET TRACT AREA

A. Total tract area=	*	1.00
B. Area within 100 year floodplain=		0.00
C. Area to remain in agricultural production=		0.00
D. Net tract area=	. [1.00

zoning, and limit to only one entry.

0	0	0	. 1	0	0	
 ation Thre ation Thre				15% x 20% x	(D = [(D = [0.2

BRE	EAK EVEN	POINT (BEP):		
J. F	orest retent	ion above thre	eshold with no r	mitigation (BEP)	

W. Total area of lotest to be retained		L
PLANTING REQUIREMENTS:		
N Reforestation for clearing above conservation threshold	=	

I otal reforestation and afforestation required....

		SPEC	IMEN TR	EE CHART
KEY	SPECIES	SIZE (IN. DBH)	CRZ (FT RADIUS)	COMMENTS
ST-1	> PINE	36"	54"+/-	POOR CONDITION — TO BE REMOVED SEE GENERAL NOTE 34

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)

BENCHMARKS NAD'83 HORIZONTA

HO. CO. #35FA STAMPED BRASS DISK SET ON TOP OF

N 559266.1334' E 1344682.6389'

ELEVATION: 410.329

STAMPED BRASS DISK SET ON TOP OF

N 557787.3788' E 1345217.2645'

ELEVATION: 400.439'

CONCRETE BASE.

HO. CO. #35F1

CONCRETE BASE

VERSION 1.0 (Enter in Yellow Cells)

A. Total tract area=	*	1.00
B. Area within 100 year floodplain=		0.00
C. Area to remain in agricultural production=		0.00
D. Net tract area=		1.00

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Input the number "1" under the appropriate land use

	ARA	MDR	IDA	HDR	MPD	CIA	
	0	0	0	. 1	0	0	
Afforest	ation Thro	eshold	,		15%		0.2
Conserv	ation Thr	eshold			20%	(D =	0.2

EXISTING FOREST COVER

G. Existing forest cover (excluding floodplain)=	0.0
H. Area of forest above afforestaion threshold=	0.0
I. Area of forest above conservation threshold=	0.0

. .	····
J. Forest retention above threshold with no mitigation (BEP)	
K. Clearing permitted without mitigation=	

PROPOSED FOREST CLEARING: L. Total area of forest to be cleared...

L. Total area of lorest to be cleared	Ċ
M. Total area of forest to be retained=	(
PLANTING REQUIREMENTS:	

	N. Reforestation for clearing above conservation threshold=	
	P. Reforestation for clearing below conservation threshold=	-
	Q. Credit for retention above conservation threshold=	
	R. Total reforestation required=	
	S. Total afforestation required=	
2	T Total reforestation and afforestation required =	

		SPEC	IMEN TR	EE CHART
KEY	SPECIES	SIZE (IN. DBH)	CRZ (FT RADIUS)	COMMENTS
ST-1	> PINE	36"	54"+/-	POOR CONDITION - TO BE REMOVED SEE GENERAL NOTE 34

	ADDRESS CHART									
LOT		STREET ADDRESS								
1	10949	HILLTOP LANE								
2	10953	HILLTOP LANE	- Carlos							
3	10957	HILLTOP LANE								
4	10961	HILLTOP LANE								

ADC MAP: 32 GRID: D2

MINIMUM LOT SIZE CHART										
LOT	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE							
2	9,293 SF	610 SF	8,683 SF							
3	9,905 SF	1,210 SF	8,695 SF							
4	11,249 SF	1,770 SF	9,479 SF							

MINIMUM LOT SIZE ALLOWED PER ZONING (SECTION 110.0.D.2): 6,000 SF

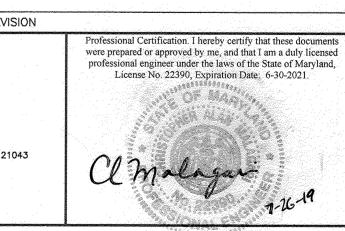
Site Analysis Data Cha	rt
Zoning	R-SC
Gross Area	1.00 ac
100yr Floodplain	0.00 ac
Steep Slopes 25% or greater (outside floodplain)	0.00 ac
Net Area	1.00 ac
Number of lots/units allowed (4 d.u. per net acre)	4
Number of lots/units proposed	4
Area of Buildable Lots	0.91 ac
Area of Open Space Lots	0.09 ac.
Area of Proposed Right-of-way Dedication	0.00 ac
Open Space Calculations	
Area of Open Space Required (25% of net)	0.25 ac
Area of Open Space Provided	0.09 ac.
Area of Non-Credited Open Space	0.06 ac.
Area of Credited Open Space	0.03 ac.
Recreational Open Space Required	NA *
Recreational Open Space Provided	NA

* Recreational open space is not required since there are less than 10 lots/units proposed (Section 16.121.a.4.i)

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC 8480 BALTIMORE NATIONAL PIKE& SUITE 315& ELLICOTT CITY, MARYLAND 21043

(P) 410-465-6105 (F) 410-465-6644

WWW.BEI-CIVILENGINEERING.COM



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

410-792-2565

DATE

DEVELOPMENT PARTNERS LLC 9693 GERWIG LANE COLUMBIA, MARYLAND 21046

HILLTOP LANDING II LOTS 1 thru 4 and OPEN SPACE LOT 5 A RESUBDIVISION OF LOT 16 BLOCK B OF CEDAR ACRES PREVIOUSLY RECORDED AS PB 24 FOLIO 19 TAX MAP: 35 - GRID: 17 - PARCEL: 284 ZONED: R-SC ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

COVER SHEET

JULY 25, 2019 BEI PROJECT NO. 2921 AS SHOWN SHEET

SHEET INDEX COVER SHEET SITE GRADING, UTILITY, AND ROAD IMPROVEMENT PLAN STORMWATER MANAGEMENT DETAILS: MICRO BIO-RETENTION STORMWATER MANAGEMENT DETAILS: DRY WELLS AND SOIL BORING LOGS ESD TO THE MEP STORMWATER MANAGEMENT MAP STORM DRAIN DRAINAGE MAP, PROFILES, DETAILS, AND SOILS MAP LANDSCAPE PLAN SEDIMENT AND EROSION CONTROL PLAN SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

Private Private **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.

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. <u>21443</u>, Expiration Date: <u>12-21-22</u>

AS-BUILT

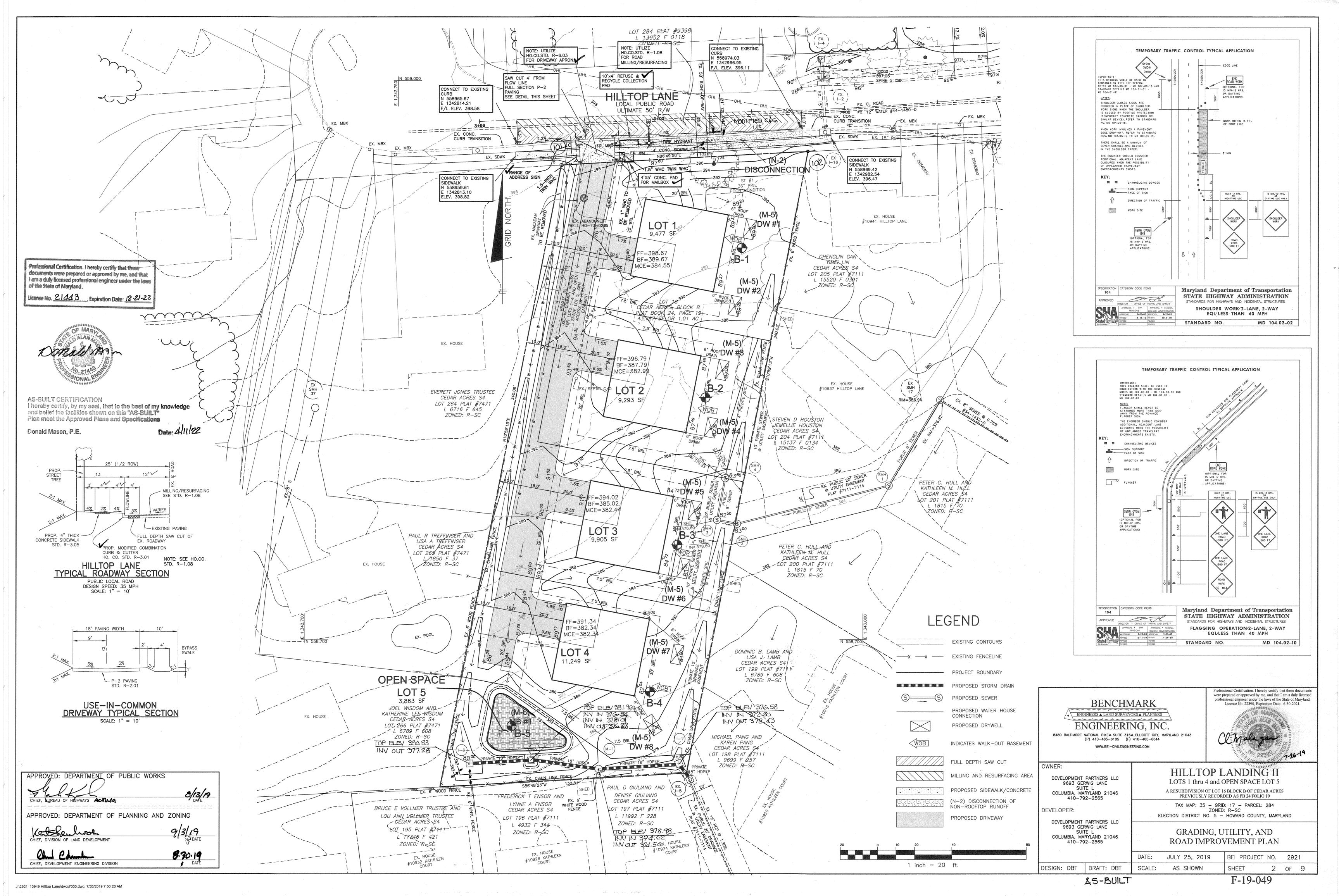
1 of 9

J:\2921 10949 Hilltop Lane\dwq\7000.dwq, 7/26/2019 7:40:28 AM

Date: 4/11/22

DESIGN: DBT | DRAFT: DBT

F-19-049



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	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
	sandy loam (30%), coarse sand (30%) & compost (40%)		
Organic content	Min. 10% by dry weight (ASTM D 2974)	٨.	
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 ½-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f' _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

B.4.7

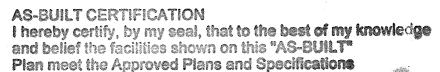
Supp.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

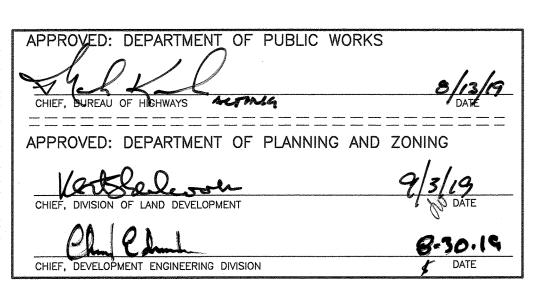
- The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.
- 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, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.
- 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 the new layer is applied.
- The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

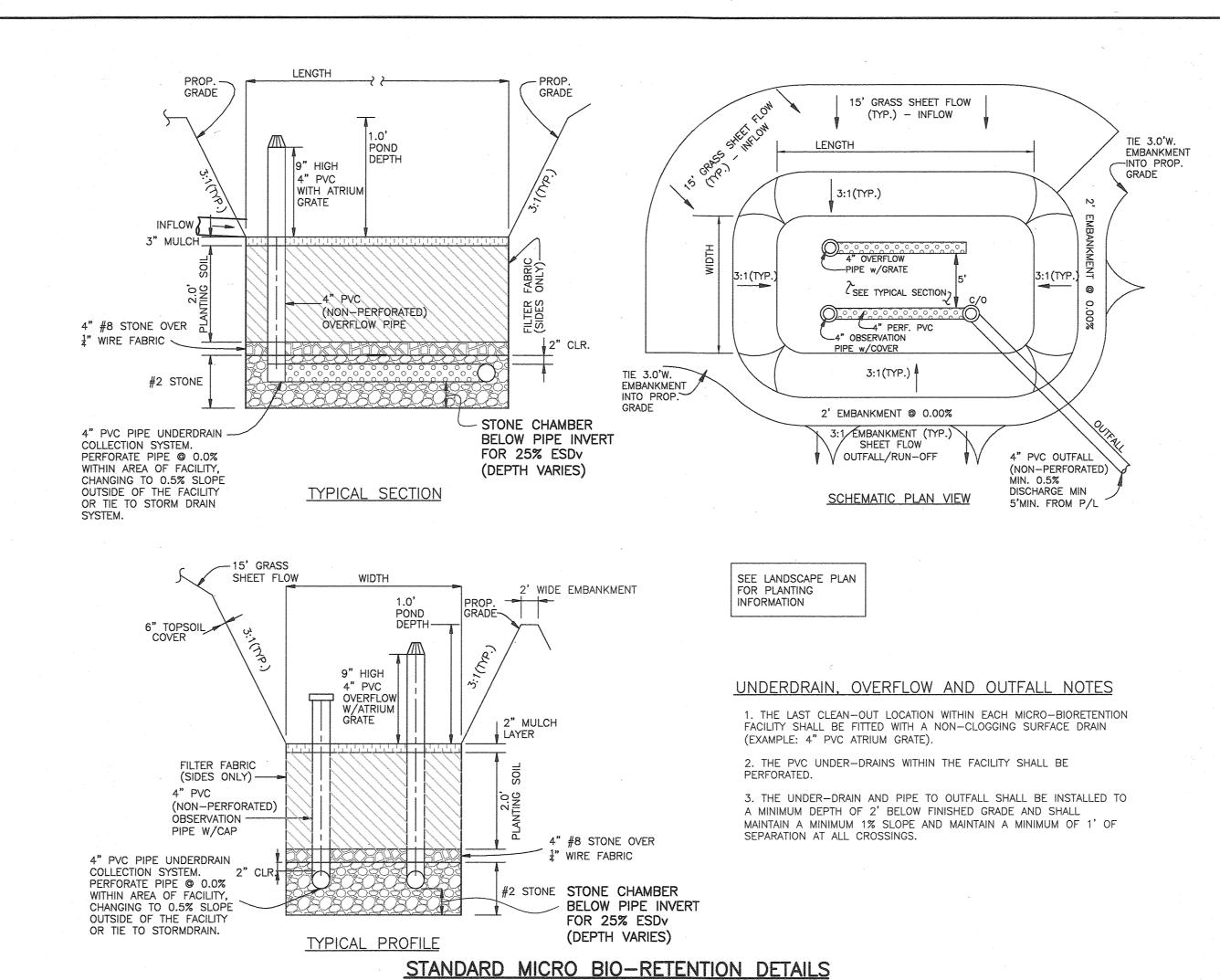
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.



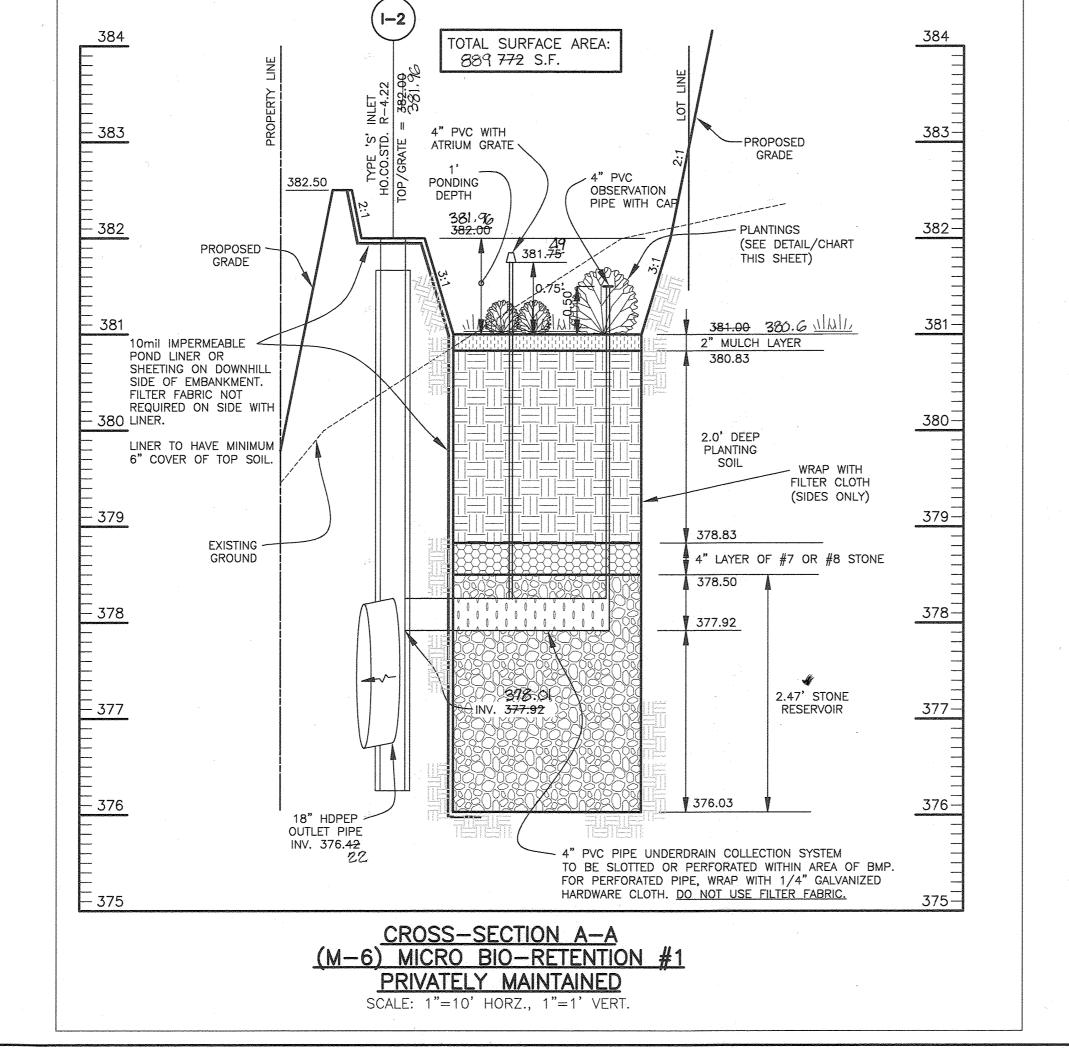


Donald Mason, P.E.





NOTE: SEE SHEET 7 FOR MICRO BIO-RETENTION PLANTING.



RIP-RAP **INFLOW** PROTECTION LOT 4 OPEN SPACE LOT TO BE DEDICATED TO 4" UNDERDRAIN PERFORATED PVC PIPE 15" HDPEP 18" HDPEP _____382.5-_--(M-6) MICRO BIO-RETENTION #1 1 inch = 10 ft.

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

Clay Content - Media shall have a clay content of less than 5%.

- 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%).
- 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

pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil

- 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
- 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 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., PVC or HDPE). • Perforations - If perforated pipe is used, perforations should be 3/6" 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 hardware cloth.
- Gravel The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain • 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 (%" to %" 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



DATE:

SCALE:

JULY 25, 2019

AS SHOWN

AS-BUILT

410-792-2565

DESIGN: DBT | DRAFT: DBT

F-19-049

BEI PROJECT NO. 2921

3 of 9

MICRO BIO-RETENTION

SHEET

Report N						Date: 12	/18/2018	
			t Partners, LLC					
			ding II: 10949 Hilltop Lane, Columbia				No. 118-187	
	lo.: B-1		(1 of 1) Total Depth 12.25 Elev: 390.2			ee Boring Location Plan		
Type of I	Boring: I	Hand A		oleted: 12/1	2/2018 Sample	1	Rockwood	
levation	Depth		DESCRIPTION OF MATERIALS (classification)	Sample Blows	Depth (Feet)	Moisture Content	REMARKS	
390.2	0.0		Grass with topsoil and root matter Brown silty fine to medium SAND with some				Groundwater was encountered at a depth of 11.9 feet. The following day	
	-		gravel, wet. (USCS: SM, USDA: Loam)	, ,	***************************************		the water level was at 11.42 feet. Proposed bottom of drywell:	
							383.0	
386.7	3.5							
			Light tan to gray-brown fine to medium micaceous SAND with some silt and clay, wet to saturated. (USCS: SM, USDA: Sandy Loam)		4.5			
385.7	-				5	26.8	 	
	-						, I	
							an Imaal cas	
381.7					8.5	27.1	Territoria	
	70 mm							
378.45					11.75	35.0		
77.95	12.25		End of Boring		12.25		,	

Report N	lo,:							Date: 12	2/18/2018		
Client: [Develo		t Partners, LLC								
Project:	Hillto	o Land	ding II: 10949 Hilltop L	ane, Columbia				Project N	vo. 118-187		
Boring N	io.: B-2		(1 of 1) Total Depth	10 Elev: 386.0			ocation: Se	ee Boring Location Plan			
Type of E	Boring:	land A	Auger	Started: 11/30/2018	Comple	ted: 11/30		Driller: D	Rockwood		
Elevation			DESCRIPTION O (classific			Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS		
386 385.67	0.0		Grass with topsoil an Orange-brown silty fit moist. (USCS: SM, U	ne micaceous SAND	,				Groundwater was not encountered during drill or at completion.	ing	
	-	0000013 0000013 0000013 0000113 0000113							Proposed bottom of dryv 381.0	wel	
	-						in the state of th				
383 -	-	000000					3.0				
363	-	1-1-1-1-1-1 1-1-1-1-1-1-1 1-1-1-1-1-1-1			- Control of the Cont	alarina ana and an ana ana ana ana ana ana an	3.5	20.9			
		0000013					Andreas de la constitución de la	*			
381 -	5.0		Orange-brown to gray	fine to medium SAI	ND		The second secon				
	-		with little silt and little USDA: Sandy Loam)	clay, moist. (USCS:	SM,				·		
_							7.0				
379 ~	500						7.5	17.1			
376.5					l an	uer ausmonissuurensenskoomen	9.5				
	10.0		End of Boring				10	24.8			
	-				Anny is the first of the first						
	-				***************************************						

eport N									Date: 12	2/18/2018		
			t Partners, LL		Columbi				T Desires	No. 118-187		
	o.: B-3		ding II: 10949 I (1 of 1)	Total Depth 10.					·			
			Auger		ted: 12/12/2		mpleted: 12/1			e Boring Location Plan Driller: D. Rockwood		
evation					F MATERIALS Sa			Sample Depth (Feet)	Moisture Content			
384.4	0.0	3333	Grass with to					1		Groundwater was not encountered during drilling		
383.9	0.5		Brown silty fir gravel, moist.	e to mediui (USCS: SÑ	m SAND wi //, USDA: L	th some oam)				or at completion. Proposed bottom of drywell: 379.0		
381.9	2.5		Brown to tan with some silt Sandy Loam)	, moist. (US			D	2.5	15.0			
4-								en personale en estado en esta				
378.4 ⁻ 377.9 ⁻	6.0		Off-white to lig with little silt a USDA: Loamy	nd clay, mo	e to mediun pist. (USCS	n SAND : SM,		6.5	11.4			
374.9								9.5	12.3			
								10	12.0			
73.9	10.5		End of Boring	**************************************						- - - - -		
	-				,							

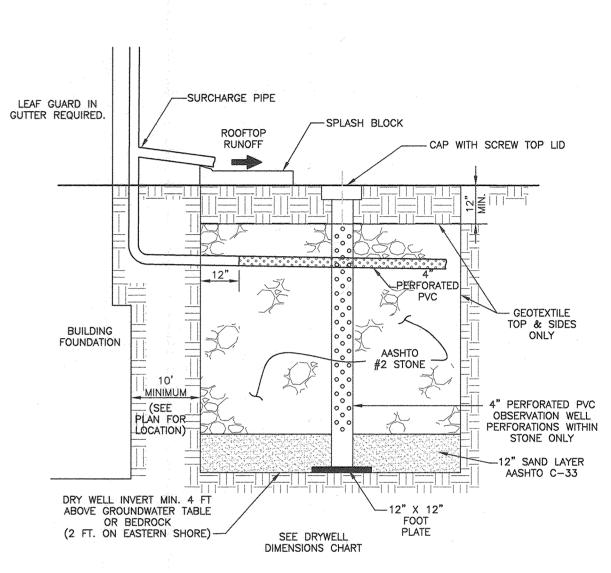
Report N		amont Borthous II C			Date: 12	2/18/2018
		pment Partners, LLC Landing II: 10949 Hilltop Lane, Columbia			Project !	No. 118-187
Boring N		Total		ocation: Se		g Location Plan
			oleted: 12/1		1	. Rockwood
Elevation		DESCRIPTION OF MATERIALS (classification)	Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS
380.4 379.4	1.0	Grass with topsoil and root matter Orange-brown to brown fine to medium SAND with little silt, little clay and little fine gravel, moist. (USCS: SM, USDA: Sandy Loam)				Groundwater was encountered at a depth of 9.6 feet. The following day the water level was at 7.75 feet. Proposed bottom of drywell: 374.0 Infiltration pipe set at 375.37
376.9	3.5	Orange-brown to brown fine to medium SAND with little silt and little clay, moist to saturated. (USCS: SM, USDA: Sandy Loam)		4.25	11.1	
373.65				7.25	17.9	
371.4 ⁻ 370.9 ⁻	9.0	Brown gravelly micaceous fine to coarse SAND with some silt, saturated. (USCS: SM, USDA: Sandy Loam)		9.5	29.0	
41414	-	End of Boring - Boring terminated due to groundwater				}

Project: H Boring No. Type of Bo Elevation I 382 381.5	lilltop L B-5	anding	DESCRIP'	9.75 Starte	Columbia Elev: 382.0 d: 12/12/2018			<u> </u>		No. 118-187
Boring No. Type of Bo Elevation I 382 381.5	B-5 pring: Hai	nd Aug	(1 of 1) To	9.75 Starte	Elev: 382.0		Т			VO. 110-107
Type of Bo Elevation I 382 381.5	Depth	Ğ	DESCRIP	Starte					a Darin	g Location Plan
382 381.5	Depth 0.0	Ğ	DESCRIP'	TION OF MATE	u, 12/12/2010		oleted: 12/12	***************************************	7	. Rockwood
381.5 - 379.75 ~	1	***	ass with tone	classification)		Tooms	Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS
			rown fine to m		ND with some			(Feet)		Groundwater was not encountered during dr or at completion.
	- 60 - 60 - 60 - 60 - 60 - 60 - 60 - 60		SDA: Sandy L		moist. (0000	. GIVI,		2.25	14.0	Proposed bottom of m bioretention facility: 37
379	3.0	G	ray-brown fine	e to mediun	n SAND with s	some		2.75	14.0	
		sil	it and clay, mo pam)					7.7		·
376 7	6.0	ar	ray-brown fine Id trace clay, r Damy Sand)							
374.75			arry Sarry					7.25	47.0	
								7.75	17.2	·
373	9.0	, D	own gravelly i	migagogua	fine to coorse	CAND				
372.75	9.75	wi SI	th trace silt an M, USDA: Loa	nd trace cla imy Sand)	y, moist. (US0		a orna Bara organin na artika a r	9.25	13.1	
7,4,43		Er	nd of Boring - A	Auger Refu	ısal					

MA	ATERIALS & SPEC	CIFIC	CATIONS FO	OR DRY WELLS
MATERIAL	SPECIFICATION		SIZE	NOTES:
GEOTEXTILE (CLASS "C")			N/A	PE TYPE 1 NONWOVEN
GRAVEL	AASHTO M 43		1 1/2" TO 2 1/2"	
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 2" OF GRAVEL OVER PIPES.
SAND	AASHTO M-6 OR ASTM-C-33		.02" TO .04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NT ROCK DUST CAN BE USED FOR SAND.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND PRIVATELY MAINTAINED DRY WELLS (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 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.



DRY WELL DETAIL

Dry Well Dimension Chart												
Dry Well	Lot	Width (ft)	Length (ft)	Depth of	Ground	Top of	Bottom of	Bottom of				
Diy wcii	a. C	***************************************	congen (re)	Stone (Ft)	Elevation	Storage Elevation	Stone Elevation	Sand Elevation				
#1	Lot 1	6.0	11.0	5.0	389.00	388.00	384.00	383.00				
#2	Lot 1	6.0	11.0	5.0	389.00	388.00	384.00	383.00				
#3	Lot 2	6.0	11.0	5.0	387.00	386.00	382.00	381.00				
#4	Lot 2	6.0	11.0	5.0	387.00	386.00	382.00	381.00				
#5	Lot 3	6.0	11.0	5.0	383.50	382.50	378.50	377.50				
#6	Lot 3	6.0	11.0	5.0	383.50	382.50	378.50	377.50				
#7	Lot 4	6.0	11.0	5.0	381.00	380.00	376.00	375.00				
#8	Lot 4	6.0	11.0	5.0	380.00	379.00	375.00	374.00				
							· · · · · · · · · · · · · · · · · · ·					

"NO AS-BUILT INFORMATION IS" PROVIDED ON THIS SHEET



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. <u>21443</u>, Expiration Date: <u>12-21-22</u>

NO. DATE REVISION 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, BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS

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

OWNER: HILLTOP LANDING II DEVELOPMENT PARTNERS LLC 9693 GERWIG LANE SUITE L COLUMBIA, MARYLAND 21046 410-792-2565 LOTS 1 thru 4 and OPEN SPACE LOT 5 A RESUBDIVISION OF LOT 16 BLOCK B OF CEDAR ACRES PREVIOUSLY RECORDED AS PB 24 FOLIO 19 TAX MAP: 35 - GRID: 17 - PARCEL: 284 ZONED: R-SC DEVELOPER: ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND DEVELOPMENT PARTNERS LLC 9693 GERWIG LANE SUITE L COLUMBIA, MARYLAND 21046 410-792-2565

ENGINEERING, INC.

WWW.BEI-CIVILENGINEERING.COM

DESIGN: DBT DRAFT: DBT

STORMWATER MANAGEMENT DETAILS: DRY WELLS AND SOIL BORING LOGS JULY 25, 2019 BEI PROJECT NO. 2921 SHEET AS SHOWN 4 of 9

F-19-049

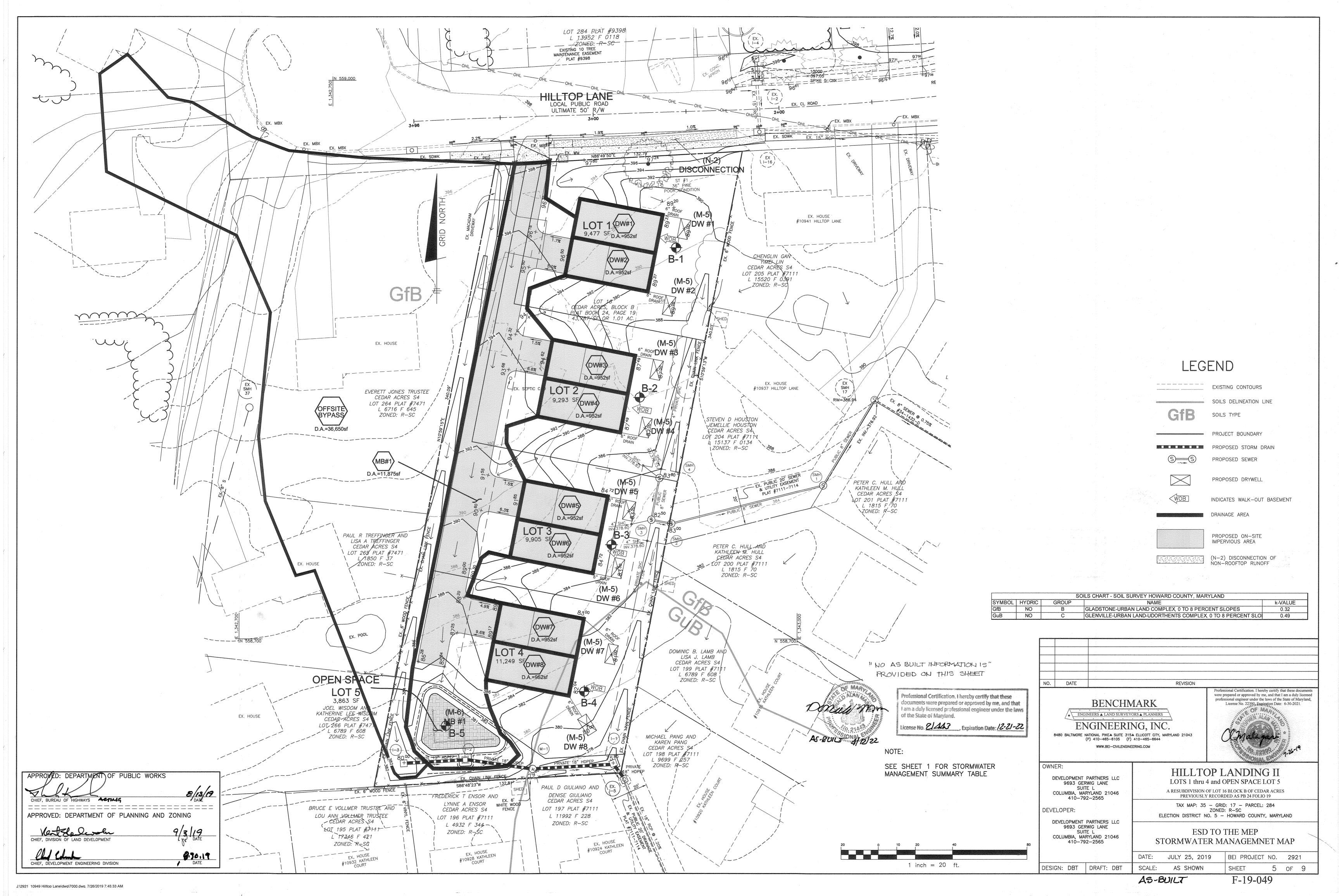
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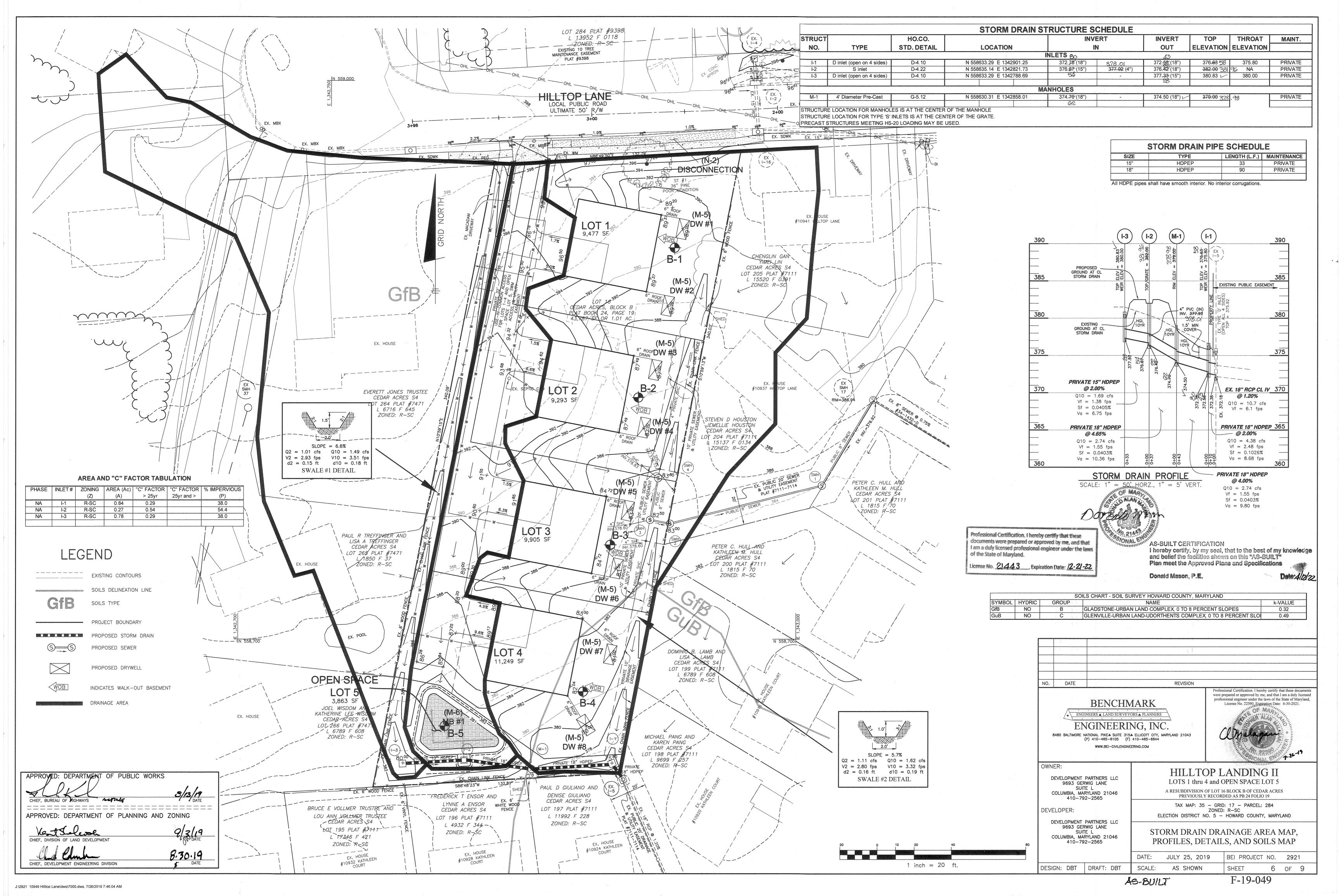
CHIEF, DEVELOPMENT ENGINEERING DIVISION

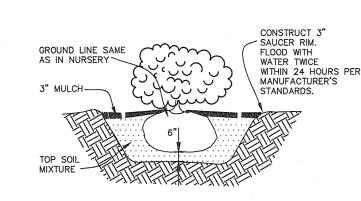
APPROVED: DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

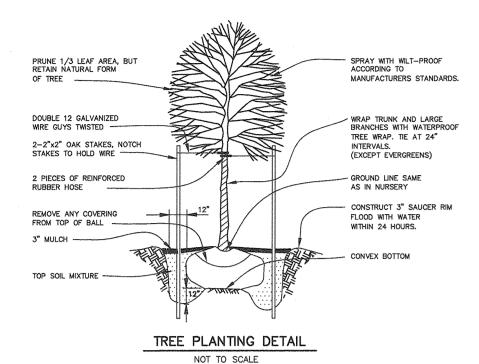
AS-BUILT







SHRUB PLANTING DETAIL NOT TO SCALE



(M-6) Micro Bio-Retention Landscaping Chart							
		Surface Area		MB #1 772			
PLANT NAME	COMMON NAME	TYPE	SIZE	QUANTITY			
Cornus Amomum	Silky Dogwood	deciduous shrub	18-24" ht. #3 CAN	8			
Echinacea Purpurea	Purple Coneflower	perennial	2 gal. container	257			
Juncus Effusus	Common Rush	perennial	1 qt.	257			

LANDSCAPE NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.

2. STREET TREE LOCATIONS: A. WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS 6 FEET OR GREATER. THE TREES SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY AND SHALL BE CENTERED BETWEEN THE CURB AND SIDEWALK. B. WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS LESS THAN 6 FEET, TREES MAY BE PLANTED 3 FEET FROM THE SIDEWALK IN THE DIRECTION AWAY FROM THE ROAD. A 10-FOOT WIDE TREE MAINTENANCE EASEMENT SHALL BE REQUIRED IF THE RIGHT-OF-WAY IS LIMITED.

C. TREES SHALL BE PLANTED 6 FEET BEHIND CURB WHEN THERE ARE NO SIDEWALKS.
D. TREES TO BE PLANTED MINIMUM 30 FEET FROM SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB. TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A STORM DRAIN INLET, OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.

3. AT THE TIME OF INSTALLMENT, ALL SHRUBS 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 RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.

4. THE OWNER, TENANTS 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. FINANCIAL SURETY IN THE AMOUNT OF \$5,100.00 FOR THE REQUIRED 15 PERIMETER SHADE TREES AND 2 ADDITIONAL SHADE TREES WP-19-050 APPROVAL SHALL BE POSTED AS PART OF THE DEVELOPERS AGREEMENT.

DEVELOPER'S/BUILDER'S CERTIFICATE

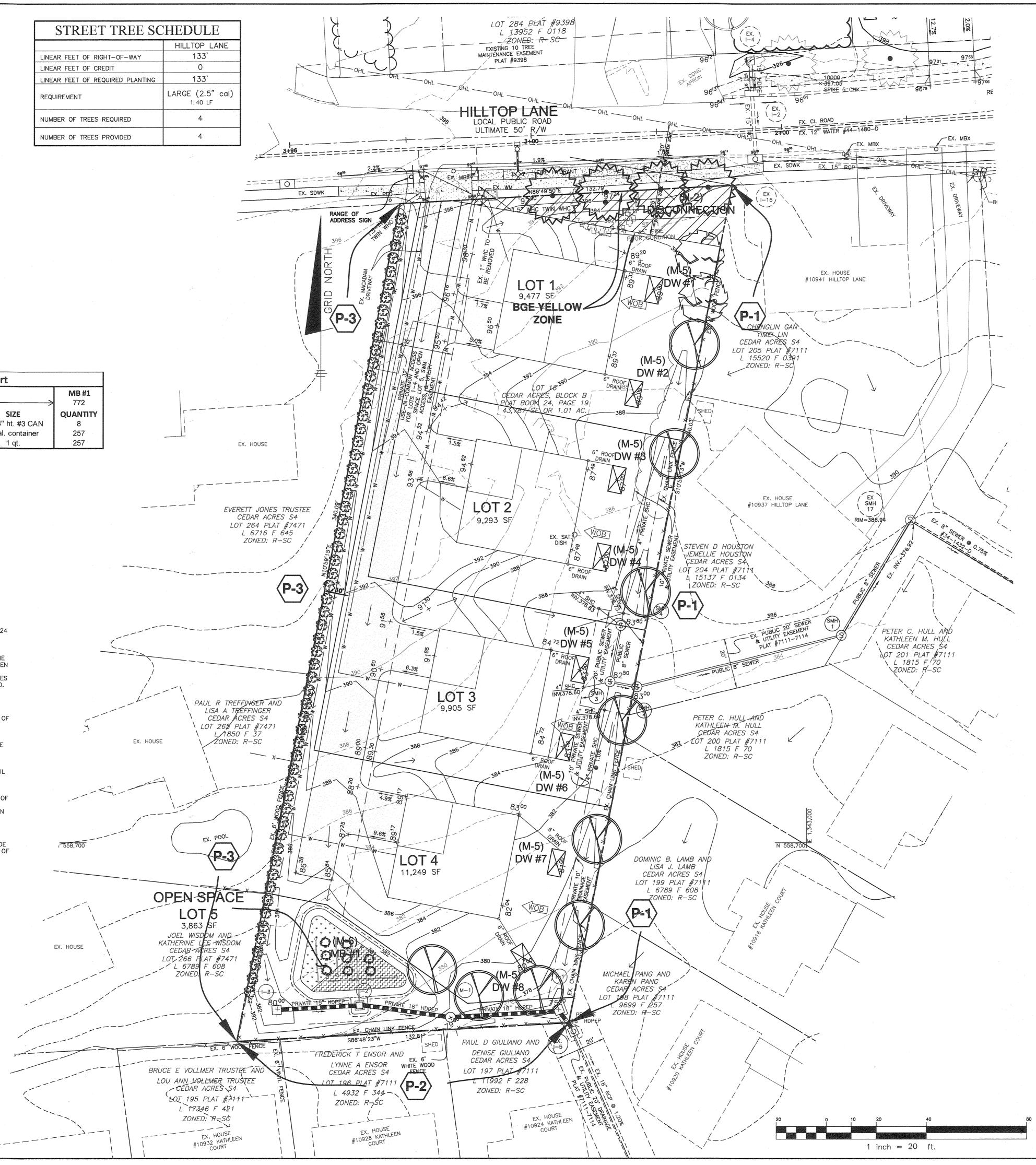
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT

OF PLANNING AND ZONING. JUSTIM M. BOY

7.25.2019

DEVELOPMENT PARTNERS, LLC

APPROVED: DEPARTMENT_OF PUBLIC WORKS APPROVED: DEPARTMENT OF PLANNING AND ZONING DATE 8.30.19 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



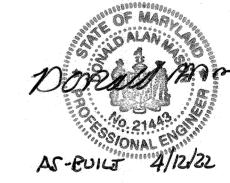
PE	SCHED RIMETER LAI		GE	
CATEGORY	ADJACENT TO PERIMETER PROPERTY 1	ADJACENT TO PERIMETER PROPERTY 2	ADJACENT TO PERIMETER PROPERTY 3	
LANDSCAPE TYPE	A — LIGHT 1:60 shade	A — LIGHT 1:60 shade	A — LIGHT 1:60 shade	T
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	340 LF	133 LF	340 LF	TA
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	L
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO S	ALCONOMINA DE LA CANTONIO DEL CANTONIO DE LA CANTONIO DEL CANTONIO DE LA CANTONIO DEL CANTONIO DE LA CANTONIO DE LA CANTONIO DE LA CANTONIO DEL CANTONIO DE LA CANTONIO DEL CANTONIO DEL CANTONIO DE LA CANTONIO DEL CANT
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTE) SHRUBS	340 LF 6 0 0	133 LF 3 0 0 0	340 LF 6 0 0	15 0 0 0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTE) SHRUBS (10:1 SUBSTITUTE)	8° 0° 0°	3 0 0 0	0 0 0 60*	11 0 0 60

AT A 10:1 RATIO.

REQUIREMENT HAVE BEEN PROVIDED AS A CONDITION OF APPROVAL OF WP-19-050. (SEE PLAN VIEW FOR THESE LOCATIONS)

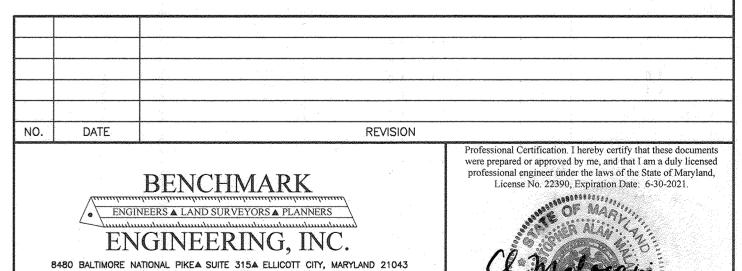
A CONTROL OF THE CONT	LANDSCAPE LEGEND						
-	SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION		
		9	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2.5" — 3"cal.	SHADE TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE BUILDER.		
	The state of the s	2	QUERCUS PHELLOS (Willow Oak)	3" min. dbh	SHADE TREES AS REQUIRED BY THE APPROVAL OF WP-19-050		
	**************************************	4	ACER CAMPESTRE (Hedge/Field Maple)	2.5" — 3"cal.	STREET TREES TO BE PLANTED ALONG HILLTOP LANE BY THE DEVELOPER		
-	£\$3	60	JUNIPERUS CHINENSIS (Pfitzerana Compacta) Compact Pfitzer Juniper	2' — 2.5' hgt.	NEEDLE EVERGREEN SHRUBS PLANTED AROUND REFUSE PAD AND USE—IN—COMMON DRIVE TO BE PROVIDED BY THE BUILDER.		
	0	8	CORNUS AMOMUM (Silky Dogwood)	18"-24"	DECIDUOUS SHRUB TO BE PLANTED IN MICRO BIO—RETETNION TO BE PROVIDED BY THE DEVELOPER.		
	* * * * * * * * * * * * * * * * * * *	257	ECHINACEA PURPUREA (Purple Coneflower	2 gal.	PERENNIAL TO BE PLANTED IN MICRO BIO—RETETNION TO BE PROVIDED BY THE DEVELOPER.		
		257	JUNCUS EFFUSUS (Common Rush)	1 qt	PERENNIAL TO BE PLANTED IN MICRO BIO—RETETNION TO BE PROVIDED BY THE DEVELOPER.		

I NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 Expiration Date: 12-21-22



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DEVELOPMENT PARTNERS LLC

9693 GERWIG LANE

SUITE L

COLUMBIA, MARYLAND 21046 410-792-2565

DEVELOPMENT PARTNERS LLC

9693 GERWIG LANE

SUITE L COLUMBIA, MARYLAND 21046

410-792-2565

DESIGN: DBT | DRAFT: DBT

OWNER:

DEVELOPER:

(P) 410-465-6105 (F) 410-465-6644

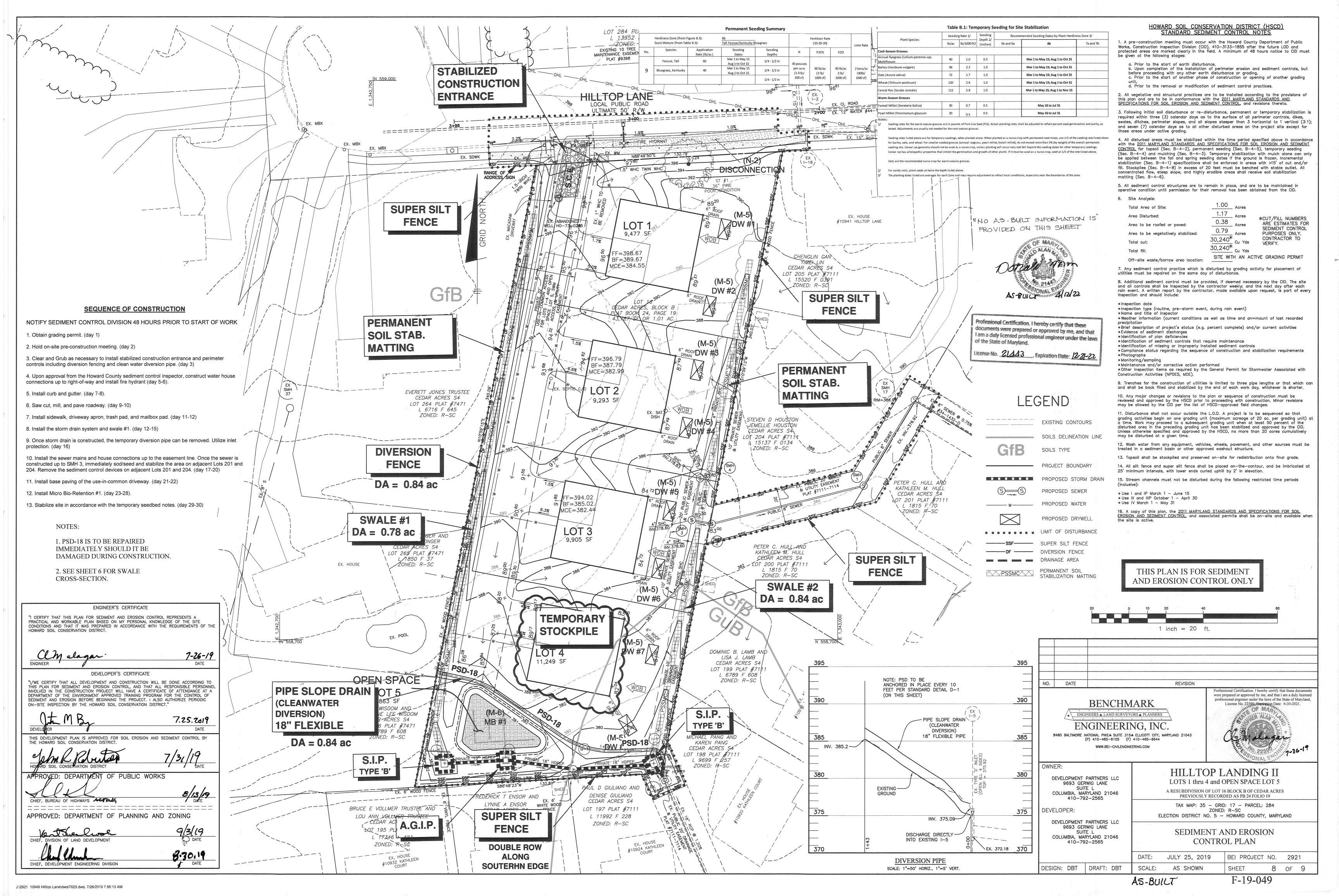
HILLTOP LANDING II LOTS 1 thru 4 and OPEN SPACE LOT 5 A RESUBDIVISION OF LOT 16 BLOCK B OF CEDAR ACRES PREVIOUSLY RECORDED AS PB 24 FOLIO 19 TAX MAP: 35 - GRID: 17 - PARCEL: 284 ZONED: R-SC

ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND LANDSCAPE PLAN

DATE: JULY 25, 2019 BEI PROJECT NO. 2921 7 OF 9 SCALE: AS SHOWN SHEET

AS-BUILT

F-19-049



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

stabilization and permanent stabilization Effects on Water Quality and Quantity 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 plant

Vegetation 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, Adequate Vegetative Establishment

inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the

 Adequate vegetative stabilization requires 95 percent groundcover. 2. If an area has less than 40 percent groundcover, restabilize following the original recommendations

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

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

NCREMENTAL STABILIZATION

B-4-1 STANDARDS AND SPECIFICATIONS

Establishment of vegetative cover on cut and fill slopes.

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.

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

around the excavation b. Perform Phase 1 excavation, prepare seedbed, and stabilize. c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.

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 C. Soil Amendments (Fertilizer and Lime Specifications) 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 Figure B.

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

The process of preparing the soils to sustain adequate vegetative stabilization. To provide a suitable soil medium for vegetative growth. Conditions Where Practice Applies Where vegetative stabilization is to be established

Temporary Stabilization

i. Soil pH between 6.0 and 7.0.

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

suitable means. Permanent Stabilization A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

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. Application of amendments or topsoil is required if on-site soils do not meet the above

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

USDA-NRCS. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth. The soil material is so shallow that the rooting zone is not deep enough to support

plants or furnish continuing supplies of moisture and plant nutrients. The original soil to be vegetated contains material toxic to plant growth. The soil is so acidic that treatment with limestone is not feasible. Areas having slopes steeper than 2:1 require special consideration and design

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria: Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders. stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter

Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

Topsoil Application Erosion and sediment control practices must be maintained when applying topsoil Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

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 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. 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

STABILIZED CONSTRUCTION

B-4-3 STANDARDS AND SPECIFICATIONS SEEDING AND MULCHING

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. 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 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

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

seed to soil contact. 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),

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 iii. Mix seed and fertilizer on site and seed immediately and without interruption.

iv. When hydroseeding do not incorporate seed into the soil.

1 Mulch Materials (in order of preference)

200 pounds per acre.

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

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

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

b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre. c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per

of wood cellulose fiber per 100 gallons of water. a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind 3. Sod Maintenance

or water. This may be done by one of the following methods (listed by preference), depending a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as upon the size of the area and erosion hazard: i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor

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 otherwise specified. 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 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

recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3.000 feet long.

STANDARD SYMBOL

B-4-5 STANDARDS AND SPECIFICATIONS

PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation

which will receive a medium to high level of maintenance.

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.

A. Seed Mixtures 1. 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 Summary is to be placed on the plan. 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 soil

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. a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites

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, leve and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty. e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch

every 3 to 4 days depending on soil texture) until they are firmly established. This is not especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

 General Specifications 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 \(^3\)/ inch, plus or minus \(^1\)/ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.

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

DETAIL E-9-2

U.S. DEPARTMENT OF AGRICULTURE ATURAL RESOURCES CONSERVATION SERVICE

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 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. 2. 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. acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds 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.

necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting. mulch into the soil surface a minimum of 2 inches. This practice is most effective b. After the first week, sod watering is required as necessary to maintain adequate moisture content. on large areas, but is limited to flatter slopes where equipment can operate safely. 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

PSD - 12 SLOPE DESIGNATION PSD-12 REFERS TO 12 IN PIPE SLOPE DRAIN. DISCHARGE INTO ATABILIZED CHANNEL, SEDIMENT TRAPPING DEVICE, OR INTO A STABLE AREA AT A NON-EROSIVE VELOCITY. ISOMETRIC VIEW - DISCHARGES TO TRAPS AND BASINS MUST ENTER AT OR ABOVE WET POOL FLEVATION HEIGHT = PIPE DIAMETER X 2 (MAX. 4 FT) NONWOVEN GEOTEXTILE 4 TO 7 IN STONE ∠NONWOVEN GEOTEXTILE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL **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.

. 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-4-8 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 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.

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 Gradino 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/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 Land Grading.

STANDARD INLET

H-5 STANDARDS AND SPECIFICATIONS

DUST CONTROL

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

|---- DF -----

MAXIMUM DRAINAGE AREA = 2 ACF

UV RESISTANT IMPERMEABLE SHEETING ON BOTH SIDES OF FENCE

ELEVATION

USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2% INCH MAXIMUM OPENING).

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 SHEETING ALONG FLOW SURFACE.

WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTRO

FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES

CONSTRUCTION SPECIFICATIONS

SECTION

Conditions Where Practice Applies Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Mulches: 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.

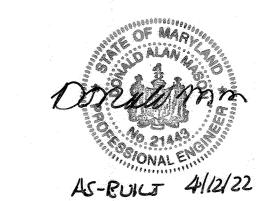
Vegetative Cover: See Section B-4-4 Temporary Stabilization. illage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and

similar plows are examples of equipment that may produce the desired effect. Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must ot be irrigated to the point that runoff occurs.

Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.

Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan

I'NO AS-BUILT INFORMATION IS' PROVIDED ON THIS SHEET



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that l am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 _____, Expiration Date: 12-21-22

DATE REVISION **BENCHMARK** ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING. INC. 8480 BALTIMORE NATIONAL PIKE▲ SUITE 315▲ ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644

WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these document were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland

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

NO.

DEVELOPER: DEVELOPMENT PARTNERS LLC 9693 GERWIG LANE COLUMBIA, MARYLAND 21046

410-792-2565

DESIGN: DBT | DRAFT: DBT

HILLTOP LANDING I LOTS 1 thru 4 and OPEN SPACE LOT 5 A RESUBDIVISION OF LOT 16 BLOCK B OF CEDAR ACRES PREVIOUSLY RECORDED AS PB 24 FOLIO 19 TAX MAP: 35 - GRID: 17 - PARCEL: 284 ZONED: R-SC ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS JULY 25, 2019 BEI PROJECT NO. 2921

AS-BUILT

AS SHOWN

7-26-19 DEVELOPER'S CERTIFICATE "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO HIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL 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. 7.25.2019 DATE THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY

ENGINEER'S CERTIFICATE

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

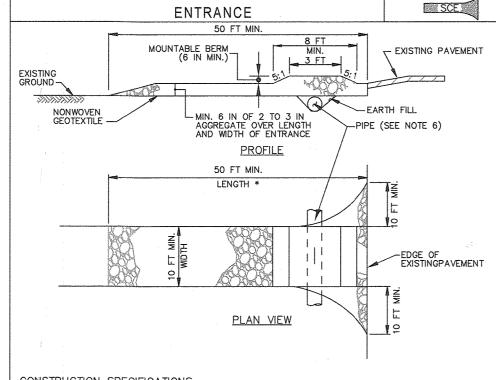
PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE

APPROMED: DEPARTMENT) OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

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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 FEE FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.

CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS 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 MAKI 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

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

DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

INSTALL 2¾ 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

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. E MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING

FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS

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MAXIMUM DRAINAGE AREA = 1 ACRE NONWOVEN GEOTEXTILE-L6 IN PLAN / CUT AWAY VIEW ──¼ IN HARDWARE CLOTH -INLET GRATE - NONWOVEN GEOTEXTILE OVERLAP CROSS SECTION CONSTRUCTION SPECIFICATIONS USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE

AT-GRADE INLET

AGIP PROTECTION PROTECTION TYPE A MAXIMUM DRAINAGE AREA = 1/4 ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE FENCE POSTS TOP ELEVATION -2 IN × 4 IN FRAMING TOP FLEVATION −16 IN MIN, →NOTCH ELEVATION GEOTEXTILE _36 IN 9 GAUGE CHAIN -LINK FENCE (TYP.) -WOVEN SLIT FILM **GEOTEXTILE** 18 IN INTO GROUND -TYPE A TYPE B ISOMETRIC VIEW 6 IN MIN -EXCAVATE, BACKFI SECTION FOR TYPE A AND B 1 OF 2 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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DETAIL E-9-1

CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. CONSTRUCTION SPECIFICATIONS 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 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 , BUREAU OF HIGHWAYS ACTING 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.

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DETAIL E-3 SUPER SILT |----SSF------| FENCE THE THE THE THE GROUND SURFACE— GALVANIZED CHAIN LINK FENCE WITH WOVEN SLIT FILM GEOTEXTILE ALUMINUM POSTS **ELEVATION** CHAIN LINK FENCING -WOVEN SLIT FILM GEOTEXTILE-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,

THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT CHAIN LINK FENCING AND GEOTEXTILE.

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WITH WIRE TIES AND SET GRATE BACK IN PLACE. PLACE CLEAN 34 TO 11/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING, IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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9 of 9

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 MUS BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2×2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE
1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A
MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES
MUST BE ROUGH—SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE
SHAPE AT THE BOTTOM.

ISOMETRIC VIEW

USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.

TING CHANNEL PSSMC - * 0.58 lb/ft² (* include shear stress)

UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LIN WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL END BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLEI ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.

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ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

CONSTRUCTION SPECIFICATIONS: