GENERAL NOTES

- .) 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
- 4.) TRACT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. ON OR ABOUT SEPTEMBER, 2014.
- 5.) THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD SURVEY BY BENCHMARK ENGINEERING, INC. IN SEPTEMBER, 2014. EXISTING UTILITIES SHOWN ARE BASED ON A FIELD SURVEY BY BENCHMARK ENGINEERING, INC. IN SEPTEMBER, 2014. 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 DMV III.
- 7.) THE TRAFFIC STUDY WAS PREPARED BY MARS GROUP, INC. IN FEBRUARY, 2015 AND APPROVED UNDER S-15-005 ON JUNE 4, 2015 AND APPROVED UNDER F-1**8**-037.
- 8.) THE FOREST STAND DELINEATION AND WETLAND DELINEATION WAS PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC. IN SEPTEMBER, 2014 AND APPROVED UNDER F-17-037.
- 9.) THE GEOTECHNICAL REPORT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC. IN NOVEMBER, 2014 AND SUBMITTED UNDER F-13-037. THIS INFORMATION WAS SUPPLEMENTED BY GEOTECHNICAL LABORATORIES, INC. IN
- IO.) THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT, THE WATER AND SEWER IS PUBLIC. THE CONTRACT NUMBER IS 24-4902-D. 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-17-037/24-4902 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, 100YR 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).

) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.

- b) SURFACE 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN.) c) 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).
- e) DRAINAGE ELEMENTS CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT f) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
- 6.) FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THÉ JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT—OF—WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
- 17.) THE PRIVATE USE-IN-COMMON MAINTENANCE ACCESS AGREEMENT FOR LOTS 2 thru 7 WAS RECORDED SIMULTANEOUSLY WITH THE RECORDATION OF THE SUBDIVISION PLAT IN LIBER 17850 FOLIO 387

18.) 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, THREE (M-3) LANDSCAPE INFILTRATION PRACTICES AND EIGHT (M-5) DRY WELLS. MICRO BIO-RETENTION #1 AND LANDSCAPE INFILTRATION FACILITY #1 SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. ALL OTHER PRACTICES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE OWNER OF THE LOT ON

19.) 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 \$7,200.00 FOR THE REQUIRED PERIMETER LANDSCAPING AND ADDITIONAL TREES PER WP-16-148 APPROVAL WAS POSTED AS PART OF THE DEVELOPER'S AGREEMENT UNDER F-1 -037.

20.) THE FOREST CONSERVATION OBLIGATION FOR THESE LOTS WAS PROVIDED UNDER F-16-037. 21.) THE REQUIRED COMMUNITY MEETING FOR THIS PROJECT, PER SECTION 16.128 OF THE SUBDIVISION AND LAND

22.) THIS PROJECT IS SUBJECT TO SECTION 13.402 OF THE COUNTY CODE FOR MODERATE INCOME HOUSING UNITS (MIHU). THIS REQUIREMENT SHALL BE FULFILLED BY PAYMENT OF A FEE-IN-LIEU 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

23.) WP-16-148, A REQUEST FOR AN ALTERNATIVE COMPLIANCE TO SECTION 16.146 AND SECTION 16.1205(a)(7) WAS APPROVED ON AUGUST 22, 2016 SUBJECT TO THE FOLLOWING CONDITIONS:

- A) THE REMOVAL OF THE TWO (2) SPECIMEN TREES WILL REQUIRE REPLACEMENT MITIGATION AT A RATIO OF TWO (2) LARGER CALIPER TREES AT LEAST 3 INCHES dbh FOR EACH SPECIMEN TREE REMOVED (4 TREES TOTAL).
- C) SUBMISSION OF A FINAL PLAN APPLICATION, INCLUDING A FINAL SUBDIVISION PLAT AND A SUPPLEMENTAL PLAN.
- D) THE PROPOSED DRIVEWAY TO SERVE LOTS 2 thru 7 SHALL COMPLY WITH SECTION 16.120(b)(6)(vi) OF THE HOWARD COUNTY SUBDIVISION REGULATIONS.
- 24.) 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
- 25.) UTILIZE HO. CO. STD. R-6.03 FOR DRIVEWAY APRONS.

DEVELOPMENT REGULATIONS, WAS HELD ON SEPTEMBER 4, 2014.

26.) PREVIOUS HOWARD COUNTY FILE REFERENCES: ECP-15-021, S-15-005, WP-16-148, F-17-037

B) SPECIMEN TREE #1 AND #3 MUST BE PROTECTED DURING CONSTRUCTION

- 27.) THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410)-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- 28.) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

29.) WP-17-069, A REQUEST FOR AN ALTERNATIVE COMPLIANCE TO SECTION 16.1205(a)(7) WAS APPROVED ON FEBRUARY 28, 2017 SUBJECT TO THE FOLLOWING CONDITIONS:

A) THE REMOVAL OF THE SPECIMEN TREE (SPECIMEN TREE #3) WILL REQUIRE REPLACEMENT MITIGATION AT A RATIO OF TWO (2) LARGER CALIPER TREES (AT LEAST 3 INCHES dbh) FOR EACH ADDITIONAL SPECIMEN TREE REMOVED (6 TREES TOTAL INCLUDING THE PREVIOUSLY APPROVED ALTERNATE COMPLIANCE REQUEST WP-16-148). THE

MITIGATION PLANTING CAN BE PROVIDED AS PART OF THE REQUIRED PERIMETER LANDSCAPING FOR THIS PROJECT.

B) SPECIMEN TREE #1 MUST BE PROTECTED DURING CONSTRUCTION. A REGISTERED ARBORIST MUST INSPECT THE TREE AND IMPLEMENT RECOMMENDATIONS FOR THE PROFESSIONAL PRUNING OF ROOTS AND FOLIAGE, ALL PRUNING MUST BE PERFORMED BY A MARYLAND LICENSED TREE EXPERT. TREE PROTECTION FENCING MUST BE INSTALLED TO THE GREATEST EXTENT POSSIBLE AROUND SPECIMEN TREE #1 TO PREVENT ROOT AND FOLIAGE DAMAGE DURING CONSTRUCTION. ALTERNATIVE DESIGNS OF THE SITE MUST BE CONDUCTED BY THE CONSULTANT IN ORDER TO

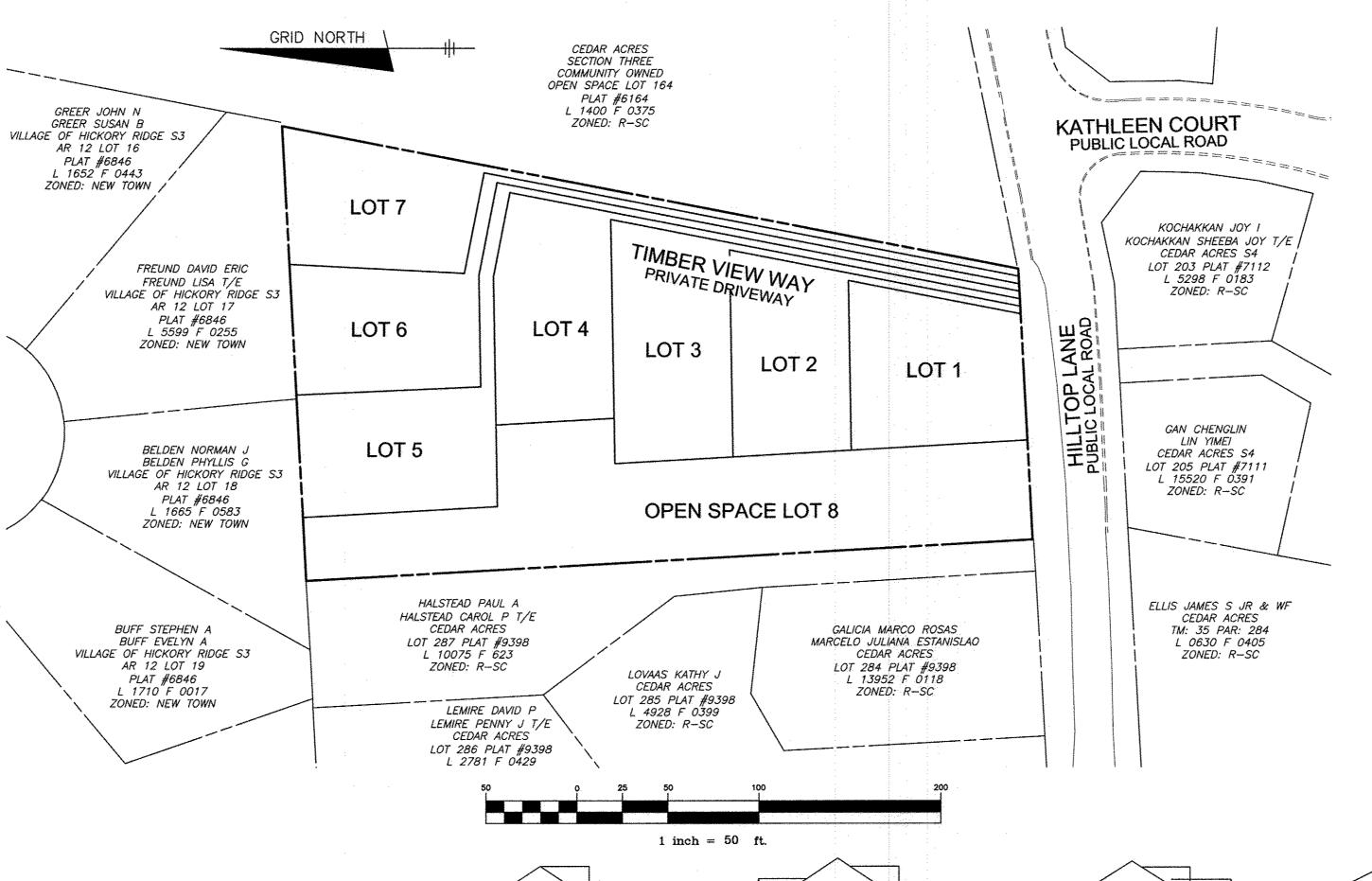
30.) IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD

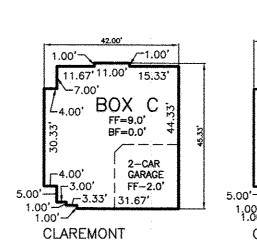
31.) ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.

HILLTOP LANDING

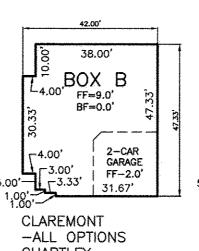
RESIDENTIAL DEVELOPMENT LOTS 1 thru 7 and OPEN SPACE LOT 8 PLAT #24376-24377

SITE DEVELOPMENT PLAN





-ALL OPTIONS CHARTLEY -ALL OPTIONS PARKER -NO REAR EXT.



CHARTLEY -ALL OPTIONS PARKER -ALL OPTIONS

BUILDING DETAILS

1 inch = 30 ft.

2,701

904

955

1,038

1,038

Totals per individual Drainage Area -> 49,501 24,425 50% 0.50

2. - The ESDv Required for the (M-6) pratices is based on 75% of ESDv.

9,998 3,685 37% 0.38

955 100% 0.95 1.8

955 100% 0.95

1,038 100% 0.95

1,038 100% 0.95

The Pe required column is based on total site Pe calculation. The Rv is based on individual drainage area percent impenious (per DED)

Practice

(M-6) Micro-Bioretention

(M-3) Landscape Infiltration

(M-3) Landscape Infiltration

(M-5) Drywell

Lot 1

Lot 2

Lot 1

Lot 1

Lot 5

Lot 5

Lot 6

Lot 6

10940 Hilltop Lane

10807 Timber View Way

10811 Timber View Way

10940 Hilltop Lane

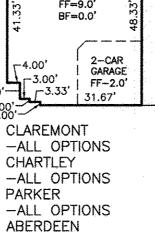
10940 Hilltop Lane

10819 Timber View Way

10819 Timber View Way

10823 Timber View Way

10823 Timber View Wa

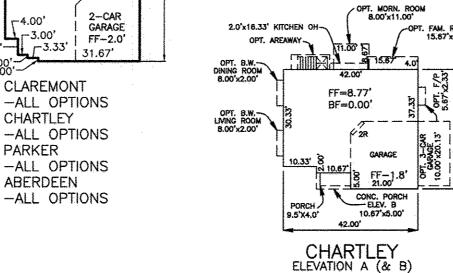


STORMWATER MANAGEMENT SUMMARY TABLE

1.8

200

3. - There is approximately 1,083 of of impervious area not treated via ESD for the driveway of Lot 1 and portion of use-in-common drive below the Landscape Infiltration. See justification in report.

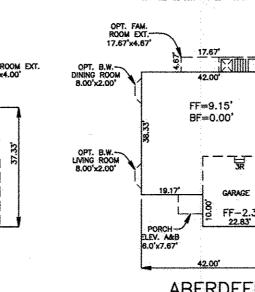


815 PASS

122 PASS

196 PASS

_FIRST_FLOOR___



FIRST FLOOR _____

HOA

HOA

Lot 2 owner

Lot 3 owner

Lot 1 owner

Lot 6 owner

Lot 6 owner

Private Lot 5 owner

Private Lot 5 owner

Private Lot 7 owner

Private Lot 7 owner

Private

Private

Private

Private

Private

Private

Private

M-3 and M-6

2.0

1.9

1.9

144

144

156

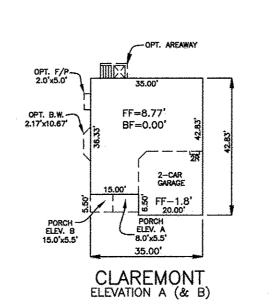
156

136

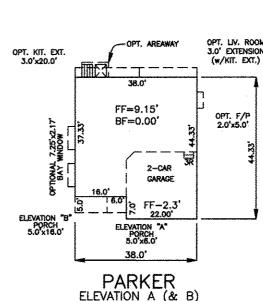
OPT. LIB. ROOM OH 2.0'x15.88'

NO.

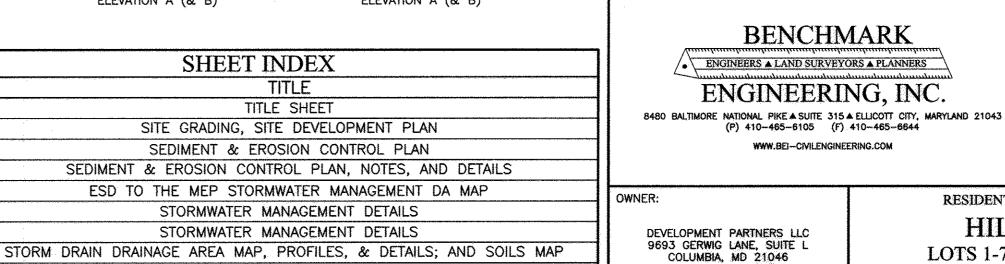
6



__ FIRST_FLOOR __



__ FIRST_FLOOR___



605601

NO.

DEVELOPER:

DESIGN: DBT | DRAFT: MCR

DATE

LANDSCAPE PLAN SOIL BORING LOGS AND SITE PLAN DETAILS PERMIT INFORMATION CHART SUBDIVISION NAME: PARCEL: SECTION/AREA: HILLTOP LANDING LOTS 1 THRU 7 & OPEN SPACE LOT 8 TAX MAP: BLOCK No ZONE: TRACT DISTRICT 24376-24377

R-SC

43

SHEET INDEX

11

TITLE SHEET

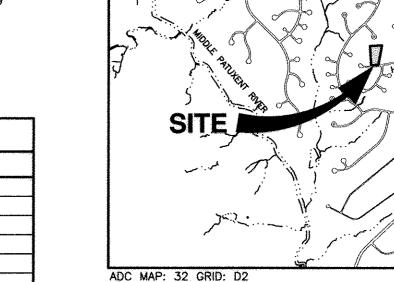
SEDIMENT & EROSION CONTROL PLAN

STORMWATER MANAGEMENT DETAILS

STORMWATER MANAGEMENT DETAILS

BENCHMARKS NAD'83 HORIZONTA STAMPED BRASS DISK SET ON TOP OF CONCRETE BASE. E 1344682.6389' ELEVATION: 410.329'

> STAMPED BRASS DISK SET ON TOP OF CONCRETE BASE N 557787,3788' E 1345217.2645' ELEVATION: 400.439'



VICINITY MAP SCALE: 1" = 2000

LOT	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZ
2	7,258	385	6,873
3	8,854	651	8,203
4	8,585	916	7,669
5	9,291	2,038	7,253
6	8,485	1,617	6,868
7	8,286	1,195	7,091

ADDRESS CHART

10807

10811

10815

10819

10823

10827

STREET ADDRESS

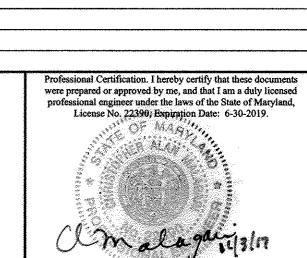
HILLTOP LANE

TIMBER VIEW WAY

SITE ANALYSIS DATA CHART

A.)	TOTAL PROJECT AREA	_1.84 acres
B.)	AREA OF PLAN SUBMISSION	_1.84 acres
C.)	LIMIT OF DISTURBED AREA	_1.64 acres
D.)	PRESENT ZONING:	_R-SC
E.)	PROPOSED USE OF SITE:	RESIDENTIAL, SINGLE FAMILY DETACHED
F.)	FLOOR SPACE ON EACH LEVEL OF BLDG PER USE	_ N/A
G.)	TOTAL NUMBER OF UNITS ALLOWED AS SHOWN ON FINAL PLAT(S)	_7
н.)	TOTAL NUMBER OF UNITS PROPOSED	_7
1.) 1	MAXIMUM NUMBER OF EMPLOYEES, TENANTS ON SITE PER USE	_ N/A
J.)	NUMBER OF PARKING SPACES REQUIRED BY HO. CO. ZONING REGS AND/OR FDP CRITERIA	_ 17.5 (7 UNITS x 2.5)
K.)	NUMBER OF PARKING SPACES PROVIDED ONSITE (INCLUDES HANDICAPPED SPACES)	_ 28 (2 PER GARAGE & 2 PER DRIVEWAY)
L.)	OPEN SPACE ON-SITE	- 0.49 AC. O.S. LOT 8 (PLAT F-16-037)
М.)	AREA OF RECREATIONAL OPEN SPACE REQUIREDAREA OF RECREATIONAL OPEN SPACE PROVIDED	
N.)	BUILDING COVERAGE OF SITEPERCENTAGE OF GROSS AREA	_ N/A _ N/A
0.)	APPLICABLE DPZ FILE REFERENCES:	ECP-15-021, S-15-005, WP-16-148, F-16-037

NOTE: THE MODERATE INCOME HOUSING UNIT REQUIREMENT (COUNCIL BILL 35-2013) SHALL BE FULFILLED BY PAYMENT ÒF A FEE-IN-LIEU 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.



IER:	RESIDENTIAL - SINGLE FAMILY DETACHED				
DEVELOPMENT PARTNERS LLC 9693 GERWIG LANE, SUITE L COLUMBIA, MD 21046 410-792-2565				LANDING EN SPACE LOT 8	The second secon
ELOPER:			ZONED:	D: 11 - PARCEL: 41 R-SC HOWARD COUNTY, MARYLAND	
DEVELOPMENT PARTNERS LLC 9693 GERWIG LANE, SUITE L COLUMBIA, MD 21046 410-792-2565		PMENT PLAN SHEET			
	DATE:	NOVEMBER 2, 2	2017	BEI PROJECT NO. 2615	

AS SHOWN

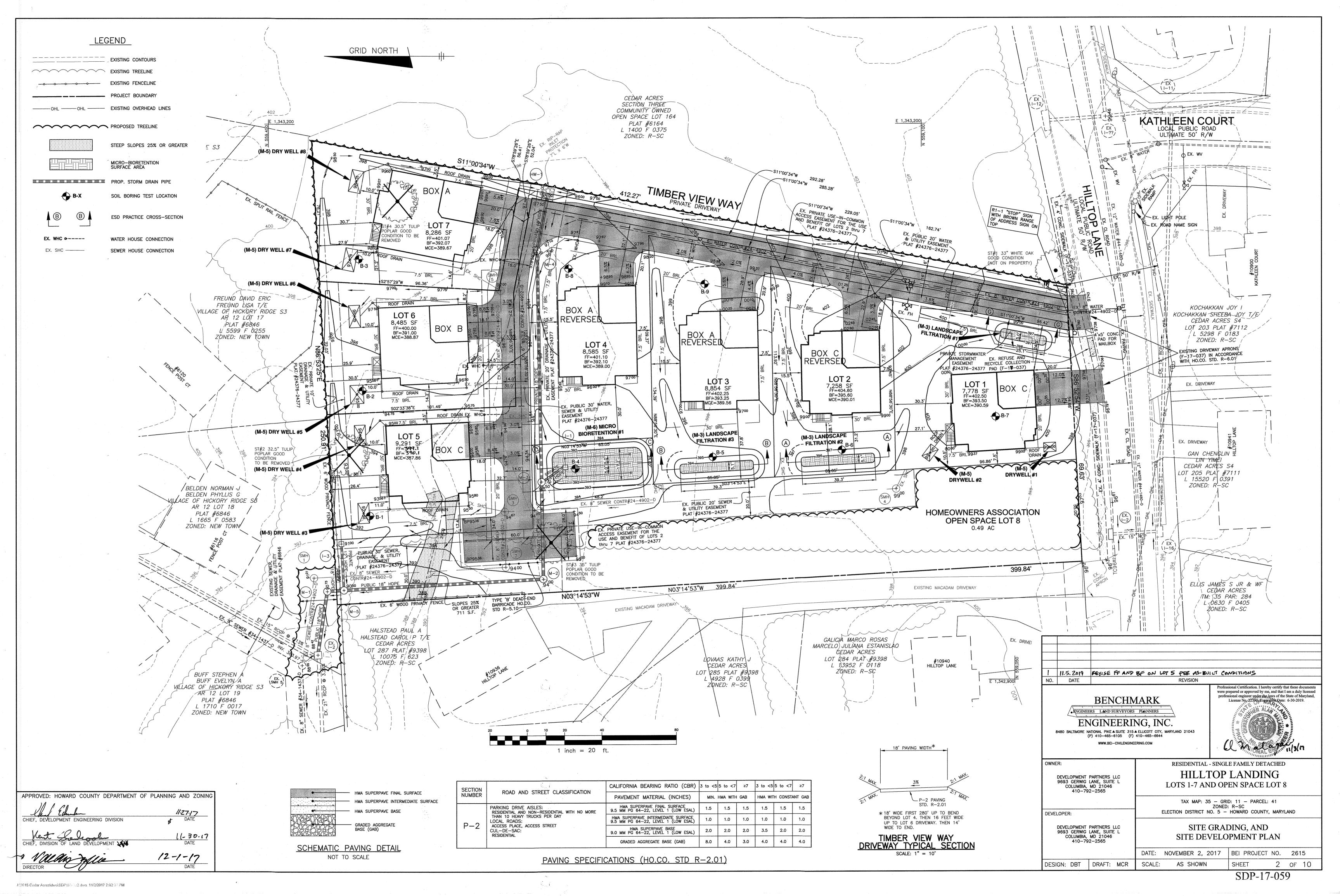
SCALE:

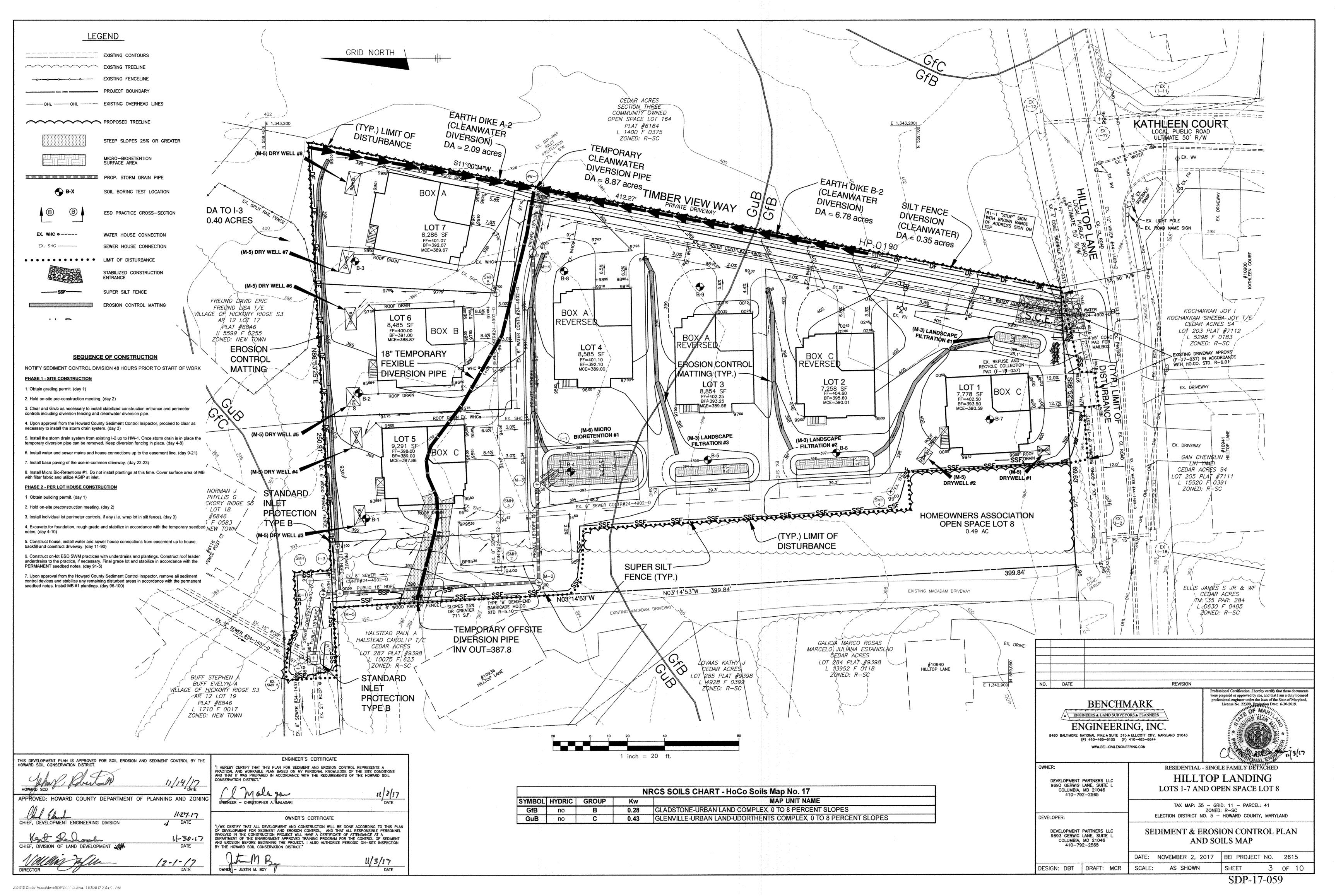
11:27:17 DATF CHIEF, DEVELOPMENT ENGINEERING DIVISION M-30.17 DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 12-1-17

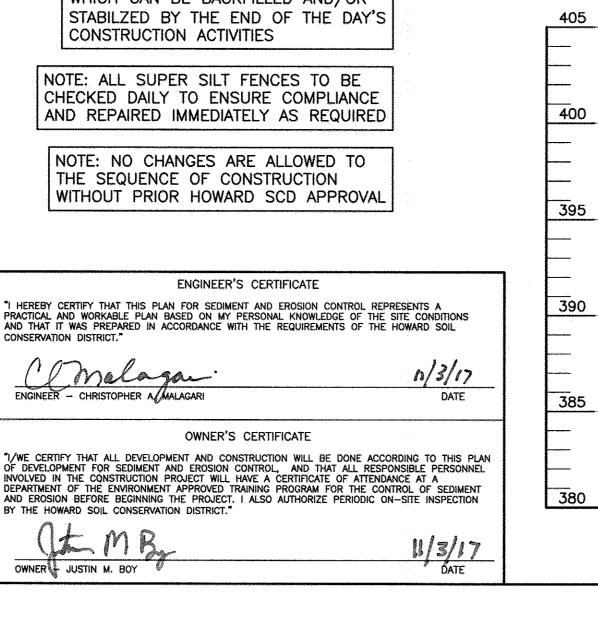
SDP-17-059

1 of 10





8-4 STANDARDS AND SPECIFICATIONS B-4-3 STANDARDS AND SPECIFICATIONS VEGETATIVE STABILIZATION Definition SEEDING AND MULCHING Using vegetation as cover to protect exposed soil from erosion. The application of seed and mulch to establish vegetative cover. To promote the establishment of vegetation on exposed soil. To protect disturbed soils from erosion during and at the end of construction Conditions Where Practice Applies Conditions Where Practice Applies On all disturbed areas not stabilized by other methods. This specification is divided into sections on To the surface of all perimeter controls, slopes, and any disturbed area not under active grading. tabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary and cermanent stabilization Effects on Water Quality and Quantity Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is tabilized 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 rates of 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 growth. 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 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 Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching permit dissipation of phyto-toxic materials. Adequate Vegetative Establishment Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and eseedings within the planting season. 1. Adequate vegetative stabilization requires 95 percent groundcover. 2. If an area has less than 40 percent groundcover, restabilize following the original recommendation seed to soil contact. 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 rate. b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. originally specified. 4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6. 8-4-1 STANDARDS AND SPECIFICATIONS seeding rate in each direction. INCREMENTAL STABILIZATION Definition stablishment 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. 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. iv. When hydroseeding do not incorporate seed into the soil. a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff 1. Mulch Materials (in order of preference) 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 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 ompletion of grading and placement of topsoil (if required) and permanent seed and mulch. Any nterruptions in the operation or completing the operation out of the seeding season will necessitate niformly spread slumy. he application of temporary stabilization . Incremental Stabilization - Fill Slopes factors. iii. WCFM materials are to be manufactured and processed in such a 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 4. 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 the growth of the grass seedlings. iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic. 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 water holding capacity of 90 percent minimum. d, Place Phase 2 fill, prepare seedbed, and stabilize a. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as a. Apply mulch to all seeded areas immediately after seeding. Note: Once the placement of fill has begun the operation should be continuous from crubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any terruptions in the operation or completing the operation out of the seeding season will necessitate the application rate to 2.5 tons per acre. ation of temporary stabilization B-4-2 STANDARDS AND SPECIFICATIONS SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS upon the size of the area and erosion hazard: ne process of preparing the soils to sustain adequate vegetative stabilization <u>Purpose</u> Fo provide a suitable soil medium for vegetative growth. Conditions Where Practice Applies Vhere vegetative stabilization is to be established Temporary Stabilization Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of 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 time as prescribed on the plans. incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means. a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil i. Soil pH between 6.0 and 7.0. B-4-8 STANDARDS AND SPECIFICATIONS ii Solishie salts less than 500 narts per million (nom) ii. Soil contains less than 40 percent clay but enough fine grained material (greater tha STOCKPILE AREA 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture 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 penetratio sedimentation, and changes to drainage patterns. Conditions Where Practice Applies Application of amendments or topsoil is required if on-site soils do not meet the above Stockpile areas are utilized when it is necessary to salvage and store soil for later use. 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 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 accordance with Section B-3 Land Grading. Runoff from the stockpile area must drain to a suitable sediment control practice. a heavy chain or other equipment to roughen the surface where site conditions will no eaving 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 t Topsoiling 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable so gradation. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type Maintenance can be found in the representative soil profile section in the Soil Survey published Topsoiling is limited to areas having 2:1 or flatter slopes where vegetative growth. b. The soil material is so shallow that the rooting zone is not deep enough to support accordance with Section B-3 Land Grading, plants or furnish continuing supplies of moisture and plant nutrients. The original soil to be vegetated contains material toxic to plant growth. The soil is so acidic that treatment with limestone is not feasible. Areas having slopes steeper than 2:1 require special consideration and design. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of onfrasting textured subsoils and must contain less than 5 percent by volume of cinde stones, stag, coarse fragments, gravel, sticks, roots, trash, or other materials larger that Tops of these of new or plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified. Topsoll substitutes or amendments, as recommended by a qualified agronomist or sol scientist and approved by the appropriate approval authority, may be used in lieu of NOTE: UTILITY WORK WITHIN EXISTING Topsoil Application ROADWAYS SHALL BE LIMITED TO THAT 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 WHICH CAN BE BACKFILLED AND/OR 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 STABILZED BY THE END OF THE DAY'S irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets. CONSTRUCTION ACTIVITIES Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition then the subsoil is excessively wet or in a condition that may otherwise be detr to proper grading and seedbed preparation oil Amendments (Fertilizer and Lime Specifications) NOTE: ALL SUPER SILT FENCES TO BE Soil tests must be performed to determine the exact ratios and application rates for both limit and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be CHECKED DAILY TO ENSURE COMPLIANCE erformed by a recognized private or commercial laboratory. Soil samples taken for ngineering purposes may also be used for chemical analyses. AND REPAIRED IMMEDIATELY AS REQUIRED entifizers must be uniform in composition, free flowing and suitable for accurate application by appropriate eguipment. 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 NOTE: NO CHANGES ARE ALLOWED TO Lime materials must be ground limestone (hydrated or burnt lime may be substituted except THE SEQUENCE OF CONSTRUCTION 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. WITHOUT PRIOR HOWARD SCD APPROVAL ime 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 ENGINEER'S CERTIFICATE THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE "I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONIN



B-4-4 STANDARDS AND SPECIFICATIONS

TEMPORARY STABLIZATION

<u>Conditions Where Practice Applies</u>

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

Criteria

Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant

completed, then Table B.1 plus fertilizer and lime rates must be put on the plan

alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season

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 an

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

When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch

B-4-5 STANDARDS AND SPECIFICATIONS

PERMANENT STABILIZATION

a Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardines

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

Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter

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

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

The summary is to be placed on the plan.

i. Kentucky Bluegrass: Full sun Mixture: For use in areas that receive intensive management

mixture by weight.

II. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid

which will receive a medium to high level of maintenance.

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose.

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

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

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

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:

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

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in

diameter. The resulting seedbed must be in such condition that future mowing of grasses will post

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

a. Class of turfgrass must be Maryland State Certified. Sod labels must be made available to the job

b. Sod must be machine cut at a uniform soil thickness of 34 inch, plus or minus 14 inch, at the time of

or uneven ends will not be acceptable.

c. Standard size sections of sod must be strong enough to support their own weight and retain their

size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section. d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted

a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the

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, pag or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact

exists between sod roots and the underlying soil surface.

d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as

necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to

c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by

H-5 STANDARDS AND SPECIFICATIONS

Purpose

To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including

Conditions Where Practice Applies

Areas subject to dust blowing and movement where on and off-site damage is likely without treatment

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.

Imigetion; Sprinkle site with water until the surface is moist. Repeat as needed. The site must

not 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

Specifications

Mulches: See Section B-4-2 Soil Preparation, Topsolling, and Soil Amendments, Section B-4-3

eding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to

It to roughen surface and bring clods to the surface. Begin plowing on windwar

prevent willing, b. After the first week, sod watering is required as necessary to maintain adequate moisture conte

the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

within this period must be approved by an agronomist or soil scientist prior to its installation.

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 lightly

cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and tom

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)

outhern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

nsumer protection and assures a pure genetic line.

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

1. General Specifications

foreman and inspector.

adversely affect its survival.

irrigating for any piece of sod within eight hours.

Controlling the suspension of dust particles from construction activities

Vegetative Cover: See Section B-4-4 Temporary Stabilization.
Tillage: Till to manches surface.

c. Ideal Times of Seeding for Turf Grass Mixtures

1 ½ to 3 pounds per 1000 square feet.

Notes:Select turfgrass varieties from those listed in the most current University of Maryland

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns

receiving low to medium management in full sun to medium shade. Recommended mixture includes;

square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown

Purpose

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

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

nermanent stabilization practices are required.

To stabilize disturbed soils with permanent vegetation

Summary is to be placed on the plan.

A. Seed Mixtures

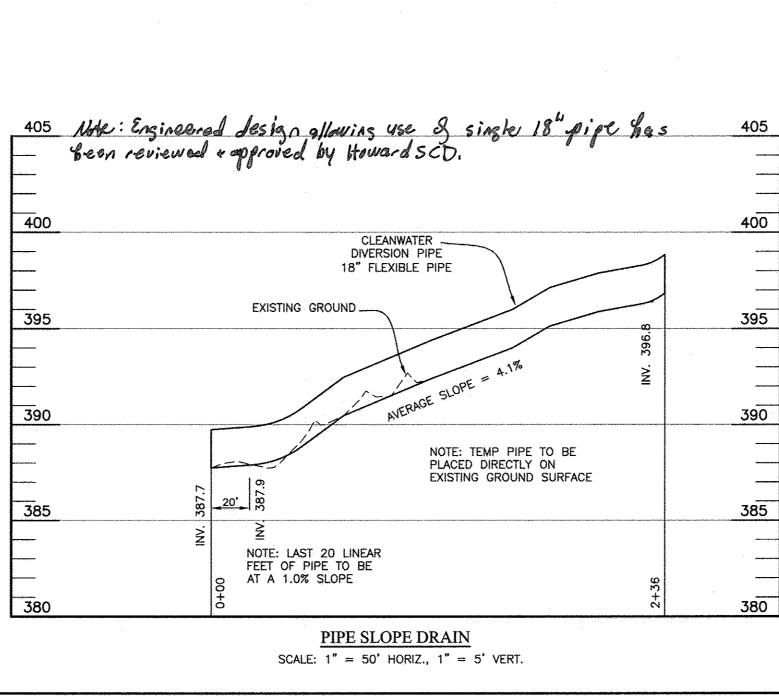
General Use

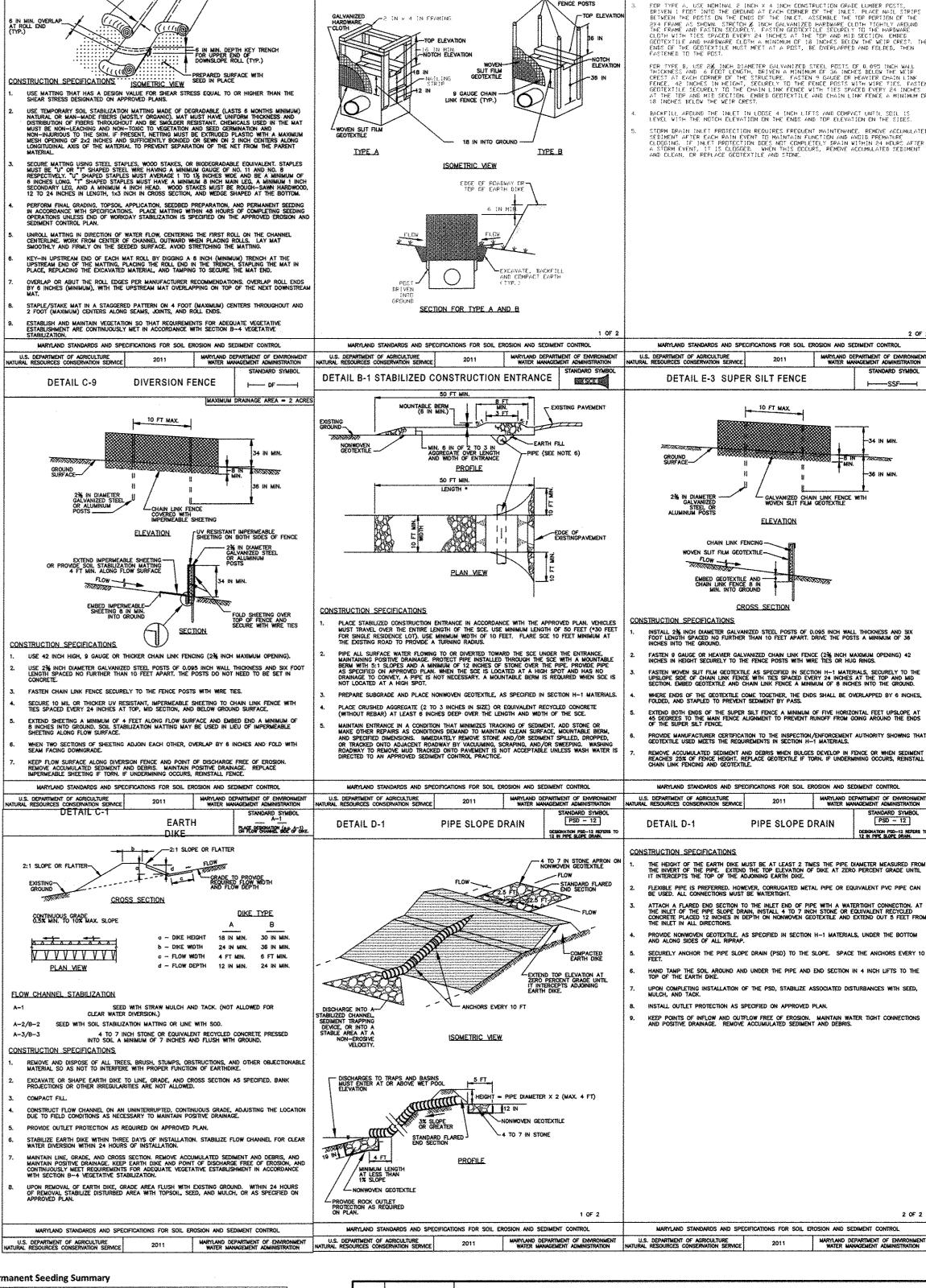
Conditions Where Practice Applies
Exposed soils where ground cover is needed for 6 months or more.

Field Office Guild, Section 342 - Critical Area Planting.

Purpose

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





NO.

DATE

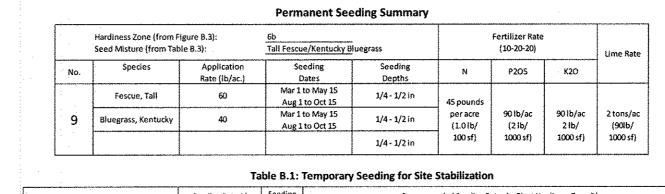
DESIGN: DBT | DRAFT: MCR

BENCHMARK

ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS

ENGINEERING, INC.

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION TSMC - #0.811b/n* DETAIL E-9-1 STANDARD INLET PROTECTION (* MILLION STANDARD INLET PROTECTION STANDARD INLET PROTECTION STANDARD INLET PROTECTION (* MILLION STANDARD INLET PROTECTION STANDARD INLET PROTECTION STANDARD INLET PROTECTION (* MILLION STANDARD INLET PROTECTION STANDARD INLET PROTECTION STANDARD INLET PROTECTION (* MILLION STANDARD INLET PROTECTION STANDARD STA



	Seeding Rate 1/		Seeding	Recommended Seeding Dates by Plant Hardiness Zone 3/			
Plant Species	lb/ac	lb/1000 ft2	Depth 2/ (inches)	Sb and 6a	6b	7a and 7b.	
Cool-Season Grasses							
Annual Ryegrass (Lolium perenne ssp. Multiflorum	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30	
Barley (Hordeum vulgare)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30	
Oats (Avena sativa)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30	
Wheat (Triticum aestivum)	120	2.8	. 1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30	
Cereal Rye (Secale cereale)	112	2,8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15	
Warm-Season Grasses					And the second s		
Foxtail Millet (Serataria italica)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14	
Pearl Millet (Pennisetum glaucum	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14	

1/ Seeding rates for the warm season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses. ieding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur very late fall beyond the seeding dates for other temporary seedings.

Oats are the recommended nurse crop for warm-season grasses.

8480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM OWNER: **RESIDENTIAL - SINGLE FAMILY DETACHED** HILLTOP LANDING DEVELOPMENT PARTNERS LLC 9693 GERWIG LANE, SUITE L LOTS 1-7 AND OPEN SPACE LOT 8 COLUMBIA, MD 21046 410-792-2565 TAX MAP: 35 - GRID: 11 - PARCEL: 41 ZONED: R-SC **DEVELOPER:**

ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

DETAIL E-9-1 STANDARD INLET PROTECTION

USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.

EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.

INSTRUCTION SPECIFICATIONS

DEVELOPMENT PARTNERS LLC SEDIMENT & EROSION CONTROL PLAN,

REVISION

9693 GERWIG LANE, SUITE L NOTES, AND DETAILS COLUMBIA, MD 21046 410-792-2565 DATE: NOVEMBER 2, 2017 BEI PROJECT NO. 2615

AS SHOWN

SCALE:

4 of 10

SHEET

Professional Certification. I hereby certify that these document

were prepared or approved by me, and that I am a duly license

professional engineer under the laws of the State of Maryland

License No. 22390 Expiration Date: 6-30-2019.

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Vallo Mi

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT 360

let Selvel

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. 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. Temperature above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant les

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders. 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. If Apply seed in two directions percendicular to each other Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good

 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 c. Hydroseeding: Apply seed uniformly with hydroseeder (sturry includes seed and

i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium 200 pounds per acre. ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when nyuroseeding.

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

 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 dust- 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

ii. WCFM, including dye, must contain no germination or growth inhibiting 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 v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeters. pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and

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 distrib so that the soil surface is not exposed. When using a mulch anchoring tool, increase the 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

 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 i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour. ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as

the edges where wind catches muich, 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.

To provide a designated location for the temporary storage of soil that controls the potential for erosion

Criteria

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

The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in

 Access the stockpile area from the upgrade side.
 Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.

Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization 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

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 at for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in

ENGINEER - CHRISTOPHER A MALAGARI

BY THE HOWARD SOIL CONSERVATION DISTRICT."

12-1-17

OWNER'S CERTIFICATE

HOWARD SOIL CONSERVATION DISTRICT (HSCD)
STANDARD SEDIMENT CONTROL NOTES

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

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

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

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

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is

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 feet must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization

5. All sediment control structures are to remain in place, and are to be maintained in

operative condition until permission for their removal has been obtained from the CID. 6. Site Analysis: 1.84 _ Acres Total Area of Site: 1.64 Area Disturbed: 0.54 *CUT/FILL NUMBERS Area to be roofed or paved: ARE FOR SEDIMENT 1.10 CONTROL PURPOSES Area to be vegetatively stabilized: Acres ONLY, CONTRACTOR 2,151* Total cut: _ Cu Yds TO VERIFY. 2,151* _ Cu Yds Total fill: SITE WITH AN ACTIVE GRADING PERMIT

7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance. R. 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 type (routine, pre-storm event, during rain event) Name and title of inspector • Weather information (current conditions as well as time and an=mount of last recorded • Brief description of project's status (e.g. percent complete) and/or current activities

• 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 Monitoring/sampling

and shall be back filled and stabilized by the end of each work day, whichever is shorter.

• Maintenance and/or corrective action performed • Other Inspection items as required by the General Permit for Stormwater Associated with 9. Trenches for the construction of utilities is limited to three pipe lengths or that which car

10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may be allowed by the CID per the list of HSCD-approved field changes. 11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that

grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) a a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at a given time. 12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be

treated in a sediment basin or other approved washout structure. 13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade. 14. All slit fence and super slit 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

• Use I and IP March 1 - June 15 • Use III and IIIP October 1 - April 30 • Use IV March 1 - May 31

Off-site waste/borrow area location:

16. A copy of this plan, the <u>2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL</u>, and associated permits shall be on-site and available when

2.0' **EROSION** CONTRO SLOPE = 3.6% MATTING Q10 = 2.01 cfs

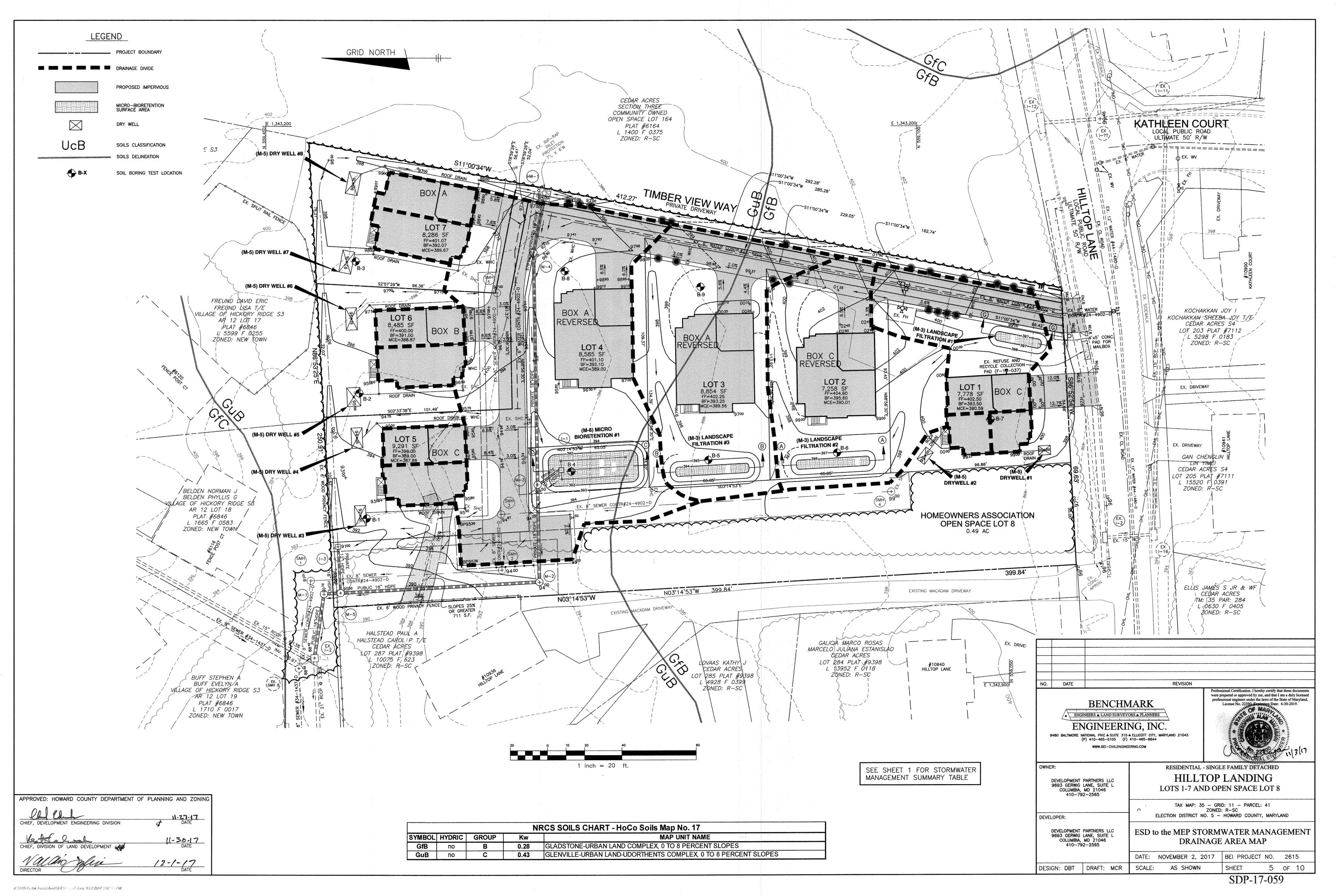
V10 = 1.81 fps**SWALE DETAIL**

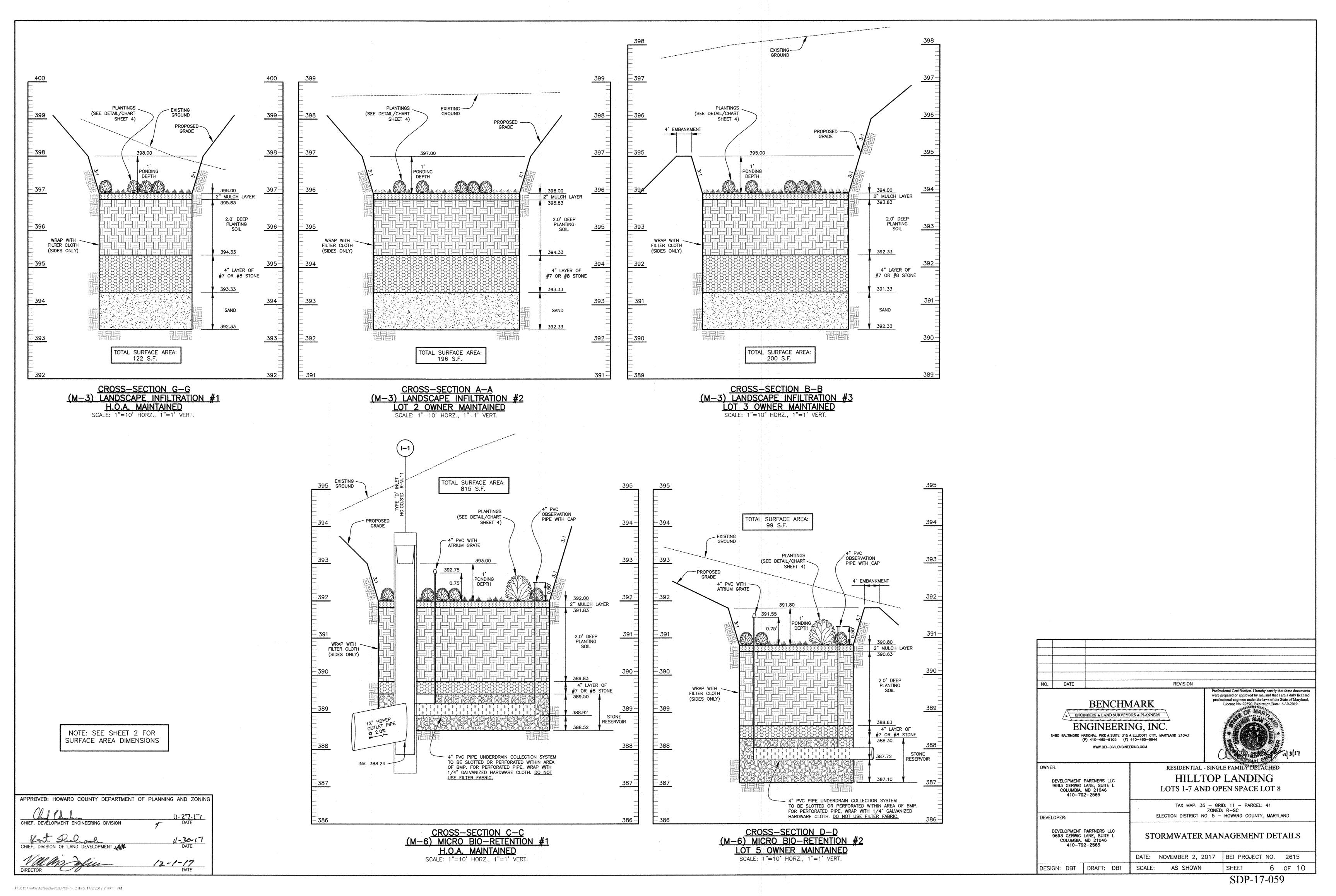
			~·~	remporary securing for site	4144111411411	
Olera Caradia	Seeding Rate 1/		Seeding	Recommended Seeding Dates by Plant Hardiness Zone 3/		
Plant Species	lb/ac	lb/1000 ft2	Depth 2/ (inches)	Sb and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (Lolium perenne ssp. Multiflorum	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov
Barley (Hordeum vulgare)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov
Oats (Avena sativa)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov
Wheat (Triticum aestivum)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov
Cereal Rye (Secale cereale)	112	2,8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec
Warm-Season Grasses						
Foxtail Millet (Serataria italica)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (Pennisetum glaucum	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

real rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

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

SDP-17-059





CONSTRUCTION SPECIFICATIONS

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

1. Material Specifications:

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

2. Filtering Media or Planting Soil:

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

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

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

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

3. Compaction:

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

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

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

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

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

4. Plant Material:

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

5. Plant Installation:

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

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

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

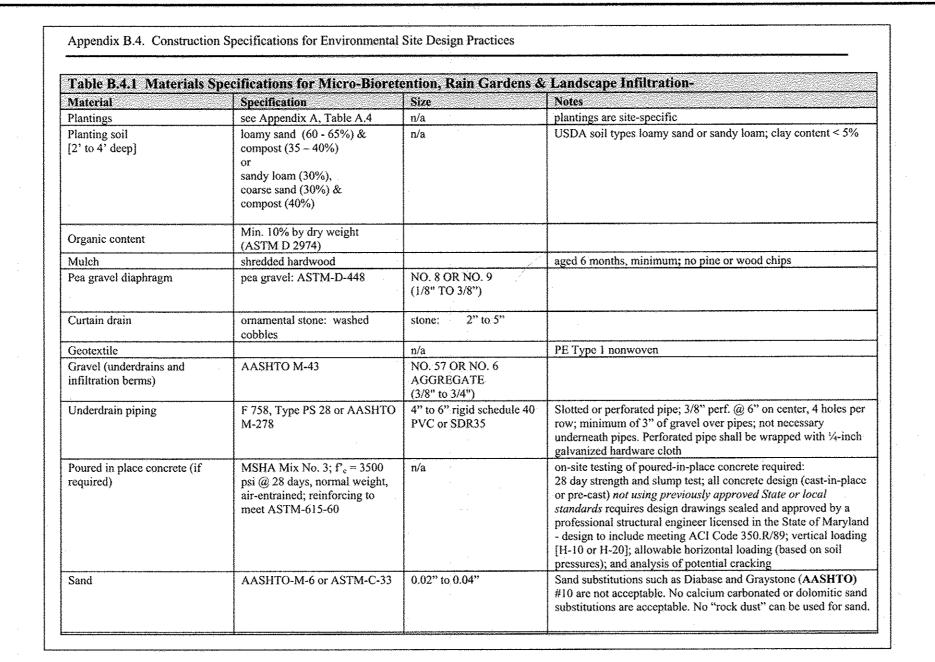
Underdrains should meet the following criteria:

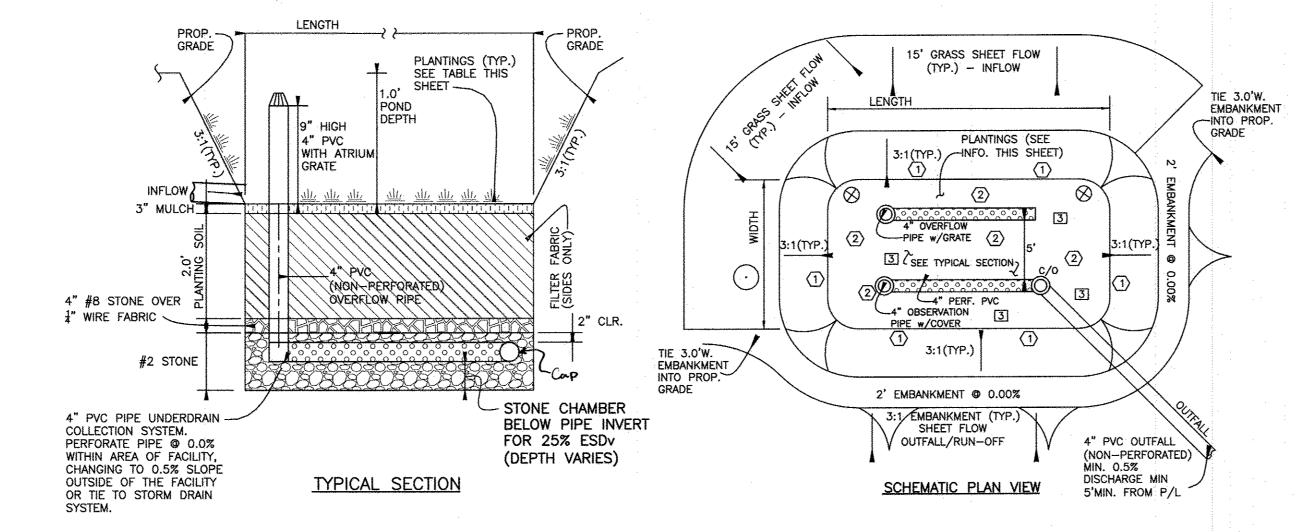
- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE). Perforations - If perforated pipe is used, perforations should be 3/" diameter located 6" on center with a
- minimum of four holes per row. Pipe shall be wrapped with a 1/2" (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
- 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 (1/4" to 3/4" 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

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

7. Miscellaneous:

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





UNDERDRAIN, OVERFLOW AND OUTFALL NOTES

FACILITY SHALL BE FITTED WITH A NON-CLOGGING SURFACE DRAIN (EXAMPLE: 4" ABS ROOF DRAIN W/CAST ALUMINUM DOME) AT THE

2. THE PVC WITHIN THE FACILITY SHALL BE PERFORATED.

SEPARATION AT ALL CROSSINGS.

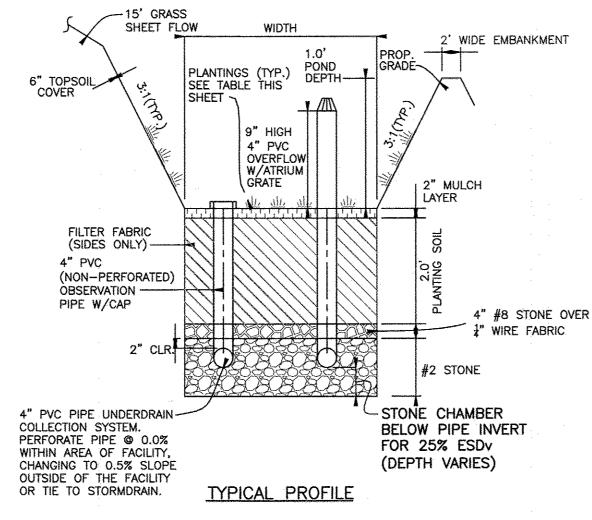
A MINIMUM DEPTH OF 2' BELOW FINISHED GRADE AND SHALL

POND SURFACE ELEVATION INDICATED IN THE CORRESPONDING TABLE

3. THE UNDER-DRAIN AND PIPE TO OUTFALL SHALL BE INSTALLED TO

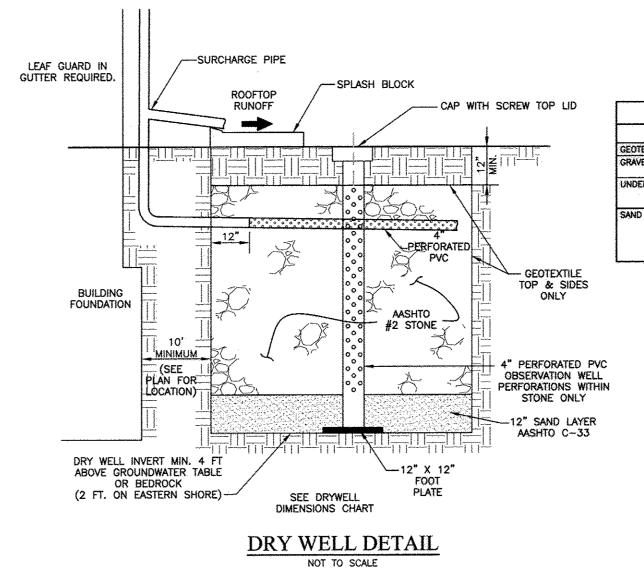
MAINTAIN A MINIMUM 1% SLOPE AND MAINTAIN A MINIMUM OF 1' OF

1. THE LAST CLEAN-OUT LOCATION WITHIN EACH MICRO-BIORETENTION



STANDARD MICRO-BIORETENTION DETAILS

Dry Well	Lot	Length (ft)	Width (ft)	Depth of Stone (Ft)	Bottom of Stone Elevation	Bottom of Sand Elevation
#1	Lot 1	6.5	5.0	4.0	395.00	394.00
#2	Lot 2	8.0	5.0	4.0	395.00	394.00
#3	Lot 5	11.0	6.0	5.0	387.50	386.50
#4	Lot 5	11.0	6.0	5.0	389.25	388.25
#5	Lot 6	12.0	6.0	5.0	390.00	389.00
#6	Lot 6	12.0	6.0	5.0	391.75	390.75
#7	Lot 7	12.0	6.5	5.0	392.75	391.75
#8	Lot 7	12.0	6.5	5.0	393.75	392.75



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

- 1. The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.
- 2. Water levels and sediment build up in the monitoring wells shall be recorded over a
- 3. A log book shall be maintained to determine the rate at which the facility drains

period of several days to insure trench drainage.

compliance with operation and maintenance criteria.

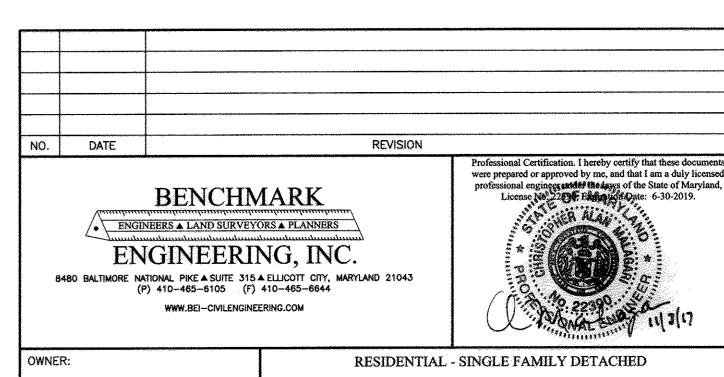
- 4. When the facility becomes clogged so that it does not drain down within the 72 hour time
- period, corrective action shall be taken. 5. The maintenance log book shall be available to Howard County for inspection to insure
- 6. Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

M/	ATERIALS & SPECII	FICATIONS FO	OR DRY WELLS
MATERIAL	SPECIFICATION	SIZE	NOTES:
TEXTILE (CLASS "C")		N/A	PE TYPE 1 NONWOVEN
ÆL	AASHTO M 43	1 1/2" TO 2 1/2"	
ERDRAIN 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.
	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.

(M-3) Landscape Infiltration and (M-6) Micro Bio-Retention Landscaping Chart TOTAL MB #1 LI #3 Surface Area 815 122 196 200 1333 QUANTITY **COMMON NAME** TYPE QUANTITY QUANTITY QUANTITY **QUANTITY PLANT NAME** 2.5'-3' ht Common Winterberry lex verticillata Lobelia cardinalis Cardinal flower perennial herbaceous plant quart bulb 13 Great Blue Lobelia quart bulb Lobelia siphilitica perennial herbaceous plant quart bulb Carex stricta Uptight Sedge quart bulb Blue Water Iris perennial herbaceous plant Iris versicolor perennial herbaceous plant quart bulb Liatris spicata Prairie Gay Feather

	PLANTING LEGEND	3:1(TYP.)
SYMBOL	NAME	
1	LOBELIA CARDINALIS	
2	LOBELIA SIPHILITICA	
	CAREX STRICTA	
Δ	IRIS VERSICOLOR	
0	LIATRIS SPICATA	
\odot	ILEX VERTICILLATA	3:1(TYP.) 4' EMBANKMENT
	COLEMATIO	4' EMBANKMENT 50

SCHEMATIC PLANTING DETAIL FUR



OWNER:	4.000 4.000 4.000 10 10 10 10 10 10 10 10 10 10 10 10	RESIDENTIAL - SINGLE FAMILY DETACHED				
9693 GERWIG COLUMBIA,	PARTNERS LLC LANE, SUITE L MD 21046 92-2565	HILLTOP LANDING LOTS 1-7 AND OPEN SPACE LOT 8				
		TAX MAP: 35 - GRID: 11 - PARCEL: 41 ZONED: R-SC				
DEVELOPER:		ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND				
9693 GERWIG COLUMBIA,	PARTNERS LLC LANE, SUITE L MD 21046 02-2565	ST	ORMWATER MAN	NAGEMENT DETAILS		
		DATE:	NOVEMBER 2, 2017	BEI PROJECT NO. 2615		
DESIGN: DBT	DRAFT: MCR	SCALE:	AS SHOWN	SHEET 7 OF 10		
		7		SDP-17-059		

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.

OPERATION AND MAINTENANCE SCHEDULE FOR

PRIVATELY OWNED AND MAINTAINED

(M-3) LANDSCAPE INFILTRATION

(M-6) MICRO-BIORETENTION

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

The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING CHIEF, DEVELOPMENT ENGINEERING DIVISION 11-30-17

