### GENERAL NOTES

- 1. SUBJECT PROPERTY ZONED R-SC PER THE 10-6-13 COMPREHENSIVE ZONING PLAN.
- 2. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- 3. TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN SURVEY PREPARED BY BENCHMARK ENGINEERING, INC. DATED DECEMBER 2012 AND HOWARD COUNTY 2008 GIS AND ARE 2' INTERVALS.
- 4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 47GA AND 47GB WERE USED FOR THIS
- 5. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE STREAMS, OR THEIR REQUIRED BUFFERS AND FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- 6. THERE ARE ONSITE STEEP SLOPES GREATER THAN 25%.
- 7. FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. MARCH JULY 2013.
- 8. THERE IS NO FLOODPLAIN, STREAMS, WETLANDS OR THEIR BUFFERS LOCATED ONSITE LOCATED IN THE LIMIT OF DISTURBANCE.
- 9. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES LOCATED ON THIS SITE.
- 10. THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- 11. THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. THE TOTAL FOREST CONSERVATION OBLIGATIONS HAVE BEEN MET BY THE ON-SITE RETENTION OF 1.26 ACRES UNDER F-14-080.
- 12. PREVIOUS DPZ FILES: ECP-13-065, WP-14-021, F-14-080
- 13. WATER CONNECTION FOR THIS PROPERTY WILL BE FROM PUBLIC WATER MAIN CONTRACT NUMBER 24-4850-D.
- 14. SEWER CONNECTION FOR THIS PROPERTY WILL BE FROM PUBLIC SEWER MAIN CONTRACT 24-4850-D.
- ◆ 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.)
  - 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 DEPTH OVER DRIVEWAY.
  - f) STRUCTURE CLEARANCES MINIMUM 12 FEET. g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- 16. 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 SETBACK.
- 17. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$3,600.00 FOR THE 9 STREET TREES AND 3 TULIP POPLAR TREES HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT UNDER F-14-080.
- 18. A PRE-SUBMISSION COMMUNITY MEETING FOR THIS PROJECT WAS HELD AT 6:00PM ON JANUARY 8, 2013 AT THE NORTH LAUREL COMMUNITY CENTER.
- 19. 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.
- 20. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 21. EXISTING UTILITIES SHOWN ARE BASED ON A FIELD SURVEY AND HOWARD COUNTY GIS.
- 22. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- 23. SHC ELEVATIONS SHOWN ARE LOCATED AT THE PUBLIC EASEMENT LINE.
- 24. A 6' HIGH NOISE BARRIER IS LOCATED WITHIN HOA OWNED OPEN SPACE LOT 10 FOR THE PURPOSES OF NOISE MITIGATION AS APPROVED UNDER F-14-080. THE NOISE BARRIER IS TO BE OWNED AND
- 25. THIS PLAN IS SUBJECT TO A DESIGN MANUAL WAIVER APPROVED OCTOBER 31, 2013 TO ALLOW LOTS ACCESSING FROM A USE-IN-COMMON EASEMENT SUBJECT TO THE FOLLOWING: 1. THE DRIVEWAY MUST BE BUILT 18' WIDE (ASPHALT TO ASPHALT) WITH P-2 PAVING WITH CONCRETE FLUSH CURB ON BOTH SIDES AND A TURNAROUND AREA AT THE END. THIS DRIVEWAY MUST BE WITHIN A 40' ACCESS EASEMENT.
- COMPLIANCE OF ANY APPROVAL CONDITIONS FOR WP-14-021. 26. THIS PLAN IS SUBJECT TO WAIVER PETITION WP-14-021 APPROVED OCTOBER 31, 2013 TO THE FOLLOWING SECTIONS OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS:

SECTION 16.120(C)(2)(IV) OF THE AMENDED FIFTH EDITION — SHARED USE AND MAINTENANCE OF A SINGLE USE-IN-COMMON DRIVEWAY WILL BE REQUIRED ONLY IF THE TOTAL DEVELOPMENT POTENTIAL OF THE SUBDIVISION UNDER CURRENT ZONING WILL NOT EXCEED 6 UNITS (IN CONJUNCTION WITH SECTION 2.6B, VOLUME III [ROADS AND BRIDGES] OF THE DESIGN MANUAL). THE APPLICANT IS SEEKING TO UTILIZE A SHARED DRIVEWAY FOR MORE THAN SIX USERS.

SECTION 16.1205(A) (7) OF THE AMENDED FIFTH EDITION -ON- SITE FOREST RETENTION; SPECIMEN TREES ARE CONSIDERED PRIORITY FOR ON-SITE RETENTION AND PROTECTION IN THE COUNTY. THE APPLICANT PROPOSES TO REMOVE THREE (3) SPECIMEN TREES (TREES HAVING A 30" DIAMETER AT BREAST HEIGHT). SECTION 16.14 AND SECTION 16.1450F THE AMENDED FIFTH EDITION - REQUIRES THE SUBMISSION OF A SKETCH PLAN AND/OR PRELIMINARY EQUIVALENT SKETCH PLAN. THE APPLICANT IS PROPOSING 9 SINGLE - FAMILY DETACHED IN-FEE SIMPLE LOTS WHICH IS, BY DEFINITION, A MAJOR

APPROVAL IS SUBJECT TO THE FOLLOWING EIGHT (8) CONDITIONS:

- 1) SUBJECT TO SUBMISSION OF A FINAL SUBDIVISION PLAN FOR PROCESSING 2) REPLACEMENT MITIGATION FOR THE 3 SPECIMEN TREES TO BE REMOVED AT A 1 TO 1 RATIO REPLACEMENT WITH LARGER 3 1/2" CALIPER NATIVE SPECIES TO BE PLANTED WITHIN OR NEAR THE PROPOSED FOREST CONSERVATION EASEMENT AREA.
- 3) ALL OF THE PLANNED RESIDENTIAL LOTS SHALL FRONT ON AND OBTAIN ACCESS FROM THE PROPOSED PRIVATE SHARED DRIVEWAY WITHIN THE PROJECT AREA. THE DEVELOPER SHALL BE RESPONSIBLE FOR ESTABLISHING SAFE VEHICULAR ACCESS TO ALL RESIDENTIAL LOTS ONTO BALTIMORE AVENUE.
- 4) A USE-IN-COMMON DRIVEWAY MAINTENANCE AGREEMENT MUST BE PREPARED AND RECORDED WITH THE PLAT. ALL FUTURE LOT OWNERS WILL BE SUBJECT TO THE REQUIREMENTS AND OBLIGATIONS OF THIS AGREEMENT. A NOTE MUST BE ADDED TO THE PLAT AND SITE DEVELOPMENT PLAN REGARDING THIS USE-IN-COMMON AGREEMENT, INCLUDING THE RECORDED LIBER AND FOLIO REFERENCE ONCE IT HAS BEEN RECORDED WITHIN THE LAND RECORDS OFFICE.
- 5) THE PROPOSED PRIVATE DRIVEWAY MUST BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED DESIGN MANUAL REQUIREMENTS ISSUED BY THE DEVELOPMENT ENGINEERING DIVISION. FURTHERMORE, THIS DRIVEWAY MUST BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ANY ADDITIONAL REQUIREMENTS AND PLAN REVIEW COMMENTS PROVIDED BY THE DEVELOPMENT ENGINEERING DIVISION, THE DEPARTMENT OF FIRE AND RESCUE SERVICES AND THE DEPARTMENT OF PUBLIC WORKS AS PART OF THE FINAL PLAN PROCESS.
- 6) A COMPLETE TITLE REPORT MUST BE SUBMITTED TO THE OFFICE OF DPW, REAL ESTATE SERVICES FOR THE PREPARATION OF PUBLIC EASEMENT DOCUMENTS WITH THE 7) A COMPLETE DEED HISTORY THAT PROVIDES A CHRONOLOGICAL DESCRIPTION OF HOW
- TAX PARCEL 257 WAS CREATED TO BE SUBMITTED WITH THE FINAL PLAN. 8) ON THE FINAL PLAT AND THE SITE DEVELOPMENT PLAN, PROVIDE A BRIEF DESCRIPTION OF THIS WAIVER PETITION, WP-14-021, AND DESIGN MANUAL WAIVER AS A GENERAL NOTE THAT INCLUDES THE WAIVER REQUESTS, SECTIONS OF THE

REGULATIONS, ACTION AND DATE OF WAIVER APPROVAL.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF! DIVISION OF LAND DEVELOPMENT

- JNIS63\dwg\3000V2.dwg, 5/9/2017 7/46 E) AM, coale

- 27. THE MODERATE INCOME HOUSING UNIT REQUIREMENTS PER COUNCIL BILL 35-2015 FOR THIS SUBDIVISION WILL BE FULFILLED BY PAYMENT OF FEE-IN-LIEU OF CONSTRUCTION IN THE AMOUNT OF \$2.04 PER SQUARE FOOT OF EACH NEW HOUSE PROPOSED BY THIS SUBDIVISION. PLEASE NOTE THAT ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MIHU FEE-IN-LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICATION.
- 28. 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 AND NOT THE PIPESTEM LOT
- 29. THE 65dba NOISE LINE ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPT OF HOUSING AND URBAN DEVELOPMENT.

6-14-17

30. TRAFFIC CONTROL DEVICES:

BEFORE THE BASE PAVING IS COMPLETE.

MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.

A. THE R1-1 (STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED

B. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY

C. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE

ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

THE PRIVATE ROAD WITH A PUBLIC ROAD SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY

31. A PRIVATE ROAD NAME SIGN (SNS) ASSEMBLY THAT NEEDS TO BE INSTALLED AT THE INTERSECTION OF

BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPANSE. CONTACT HOWARD COUNTY TRAFFIC

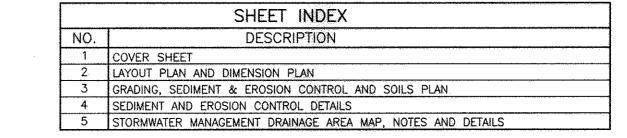
HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL

D. 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 POSTED (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO HOLES

# RESIDENTIAL SITE DEVELOPMENT PLAN PATUXENT OVERLOOK

LOTS 1-9 AND OPEN SPACE LOTS 10 - 12 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND



### BENCH MARKS

HO. CO. #47GA (NAD '83) ELEV. 350.468 STANDARD DISC ON CONCRETE MONUMENT MD RTE 216 AT I 95 BRIDGE N 532404.179 E 1351627.363

HO. CO. #47GB (NAD '83) ELEV. 259.239 STANDARD DISC ON CONCRETE MONUMENT ISLAND IN MD RTE 216 NORTH OF ALL SAINTS ROAD E 1353526.704 N 529917.139

	COORDINAT	E CHART
NO.	NORTH	EAST
1	N 525998.5152	E 1354153.5249
2	N 526039.6577	E 1354217.6752
3	N 526046.4740	E 1354219.1371
4	N 526110.7651	E 1354500.5923
5	N 525950.7366	E 1354646.0085
6	N 525863.5512	E 1354599.1075
7	N 525811.7363	E 1354469.0490
8	N 525461.3678	E 1354366,7412
9	N 525642.4385	E 1354090.8547
10	N 525650.9873	E 1354060.5993
11	N 525683.4561	E 1354069.9916
12	N 525711.9981	E 1354064.0688
13	N 525809.6972	E 1354087.5875

. 2.0 AC. (0.2 AC. OUTSIDE STEEP

. 9 (2.3 AC.\*4)

2.04 AC.

. 0.02 AC.

0.66 AC.

GROSS AREA PIPESTEM AREA | MINIMUM LOT SIZE

MINIMUM LOT SIZE CHART

213 SF

365 SF

530 SF

616 SF

652 SF

617 SF

156 SF

LOT NUMBER

6518 SF

8033 SI

7433 SI

8092 SF

7861 SF

7595 SF

7604 SF

11949 SF

.. 1.2 AC. OR 25%

SLOPES AND FLOODPLAIN)

SINGLE FAMILY DWELLINGS

ADDRESS CHART

**ADDRESS** 

9603 PATUXENT OVERLOOK DRIVE

9607 PATUXENT OVERLOOK DRIVE

3 9611 PATUXENT OVERLOOK DRIVE

4 9615 PATUXENT OVERLOOK DRIVE

5 9619 PATUXENT OVERLOOK DRIVE

6 9623 PATUXENT OVERLOOK DRIVE

8 9614 PATUXENT OVERLOOK DRIVE

9 9610 PATUXENT OVERLOOK DRIVE

NO. DATE

9618 PATUXENT OVERLOOK DRIVE

7820 SF

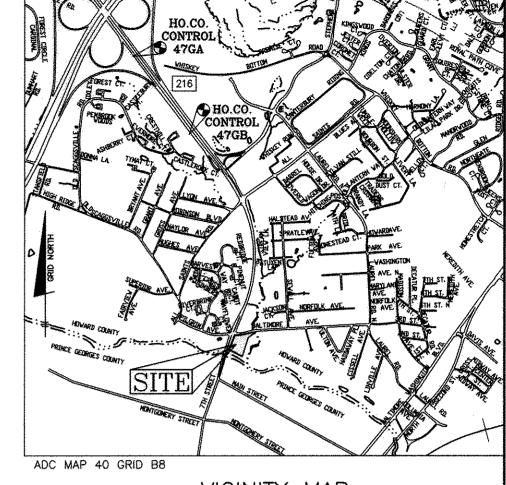
7068 SF

7562 SF

7245 SF

11332 SF

8074 SF



VICINITY MAP SCALE : 1'=2000'

--- 452

450

\_\_\_\_\_

\_\_\_\_\_\_

## LEGEND

EXISTING CONTOURS

**EXISTING TREELINE** PROPOSED TREELINE

EXISTING STREAM

APPROXIMATE 100 YEAR

EXISTING STREAM BUFFER

. 3.2 AC OR 65% (LOTS 10 & 11, LOT 12 IS FLOODPLAIN LIMITS

SLOPES 25% OR GREATER

PROPOSED STRUCTURE

SLOPES 15% TO 24.9%

SOIL DELINEATION

GnA SOILS DELINEATION

100 YEAR FLOODPLAIN

EROSION CONTROL MATTING

FOREST CONSERVATION EASEMENT (CREDITED) PLAT 23226

FOREST CONSERVATION EASEMENT (NON-CREDITED) PLAT 23226

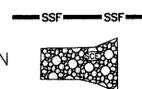
PROP. MICRO-BIORETENTION **FACILITY** 

PROP. BIO-SWALE

EX. PUBLIC SEWER, WATER & UTILITY EASEMENT PLAT 23226 EX. PRIVATE

USE-IN-COMMON ACCESS EASEMENT PLAT 23226 SUPER SILT FENCE F-14-080

STABILIZED CONSTRUCTION



ENTRANCE F-14-080

12.4.17 DEVISE GWM CHART LOT 5

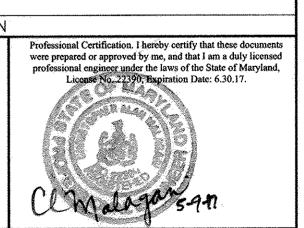
**BENCHMARK** 

ENGINEERING, INC

(P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

10.25-17 REMOVE MBR-3 LOT

ENGINEERS LAND SURVEYORS PLANNERS



OWNER: 1 inch = 50 ft.

THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICANT.

SUBDIVISION NAME:

PATUXENT OVERLOOK

GRID No.

02

R-SC

50

PERMIT INFORMATION CHART LOT/PARCEL SECTION/AREA: LOTS 1-9 CENSUS TRACT ZONE TAX MAP ELECTION DISTRICT

6069.06

6TH

DEVELOPMENT PARTNERS, LLC 11807 WOLLINGFORD COURT CLARKSVILLE, MD 21029 301-490-0388

EVELOPER:

DEVELOPMENT PARTNERS, LLC 11807 WOLLINGFORD COURT CLARKSVILLE, MD 21029 301-490-0388

PATUXENT OVERLOOK LOTS 1-9 AND OPEN SPACE LOTS 10 - 12

> TAX MAP 50, GRID 02, PARCELS 257 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

RESIDENTIAL SITE DEVELOPMENT PLAN **COVER SHEET** BEI PROJECT NO. 1583 DATE: MAY 2017

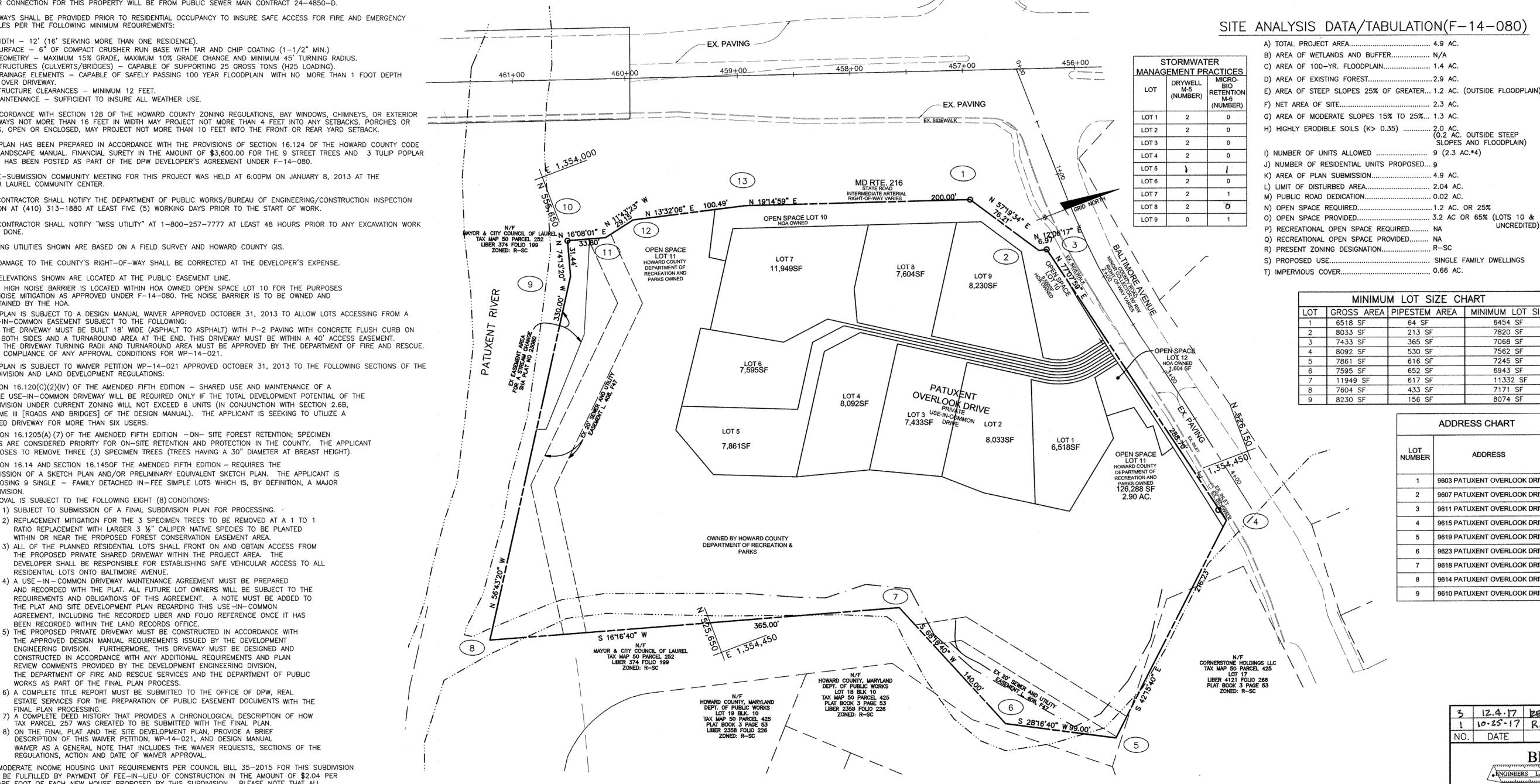
AS SHOWN

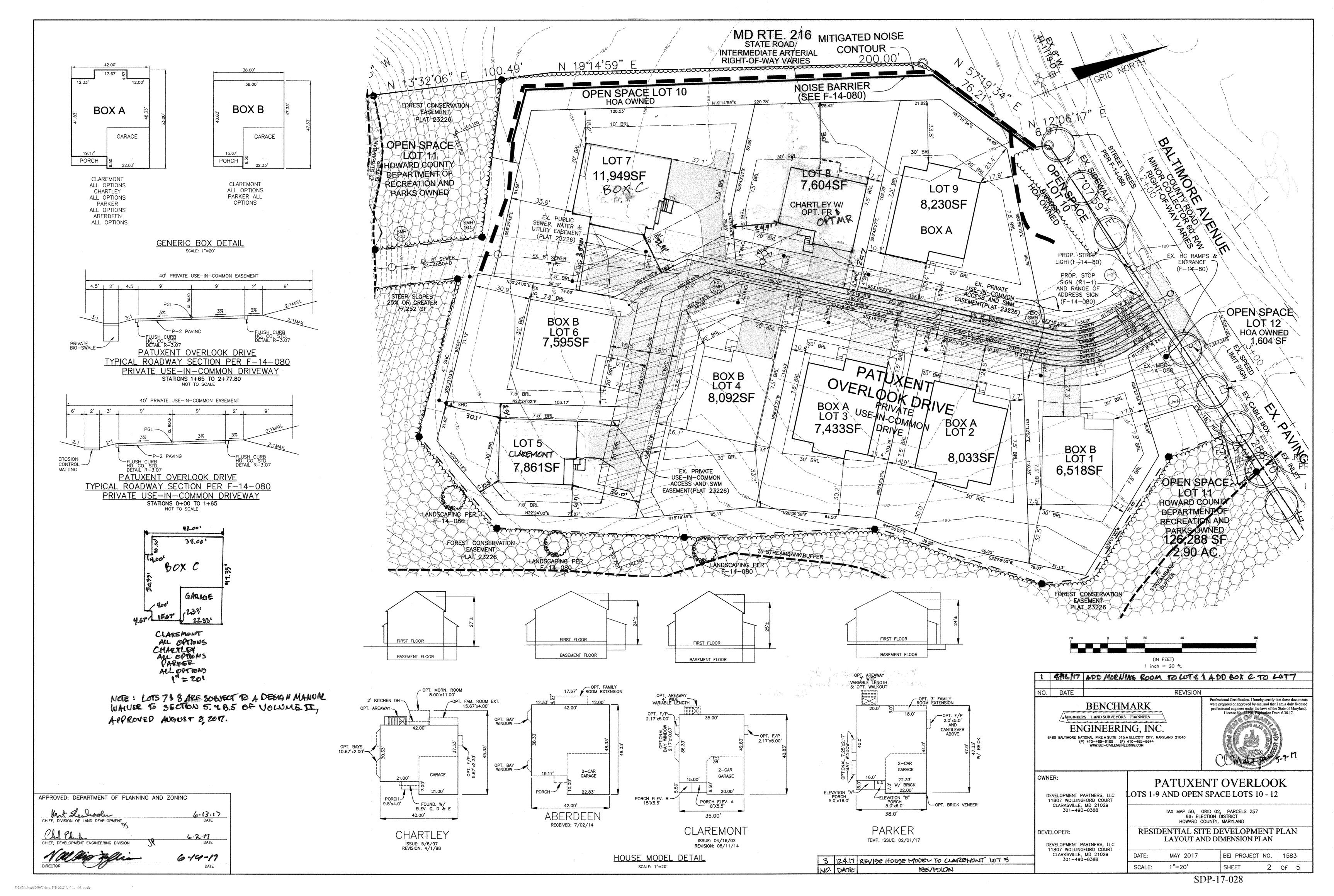
SCALE:

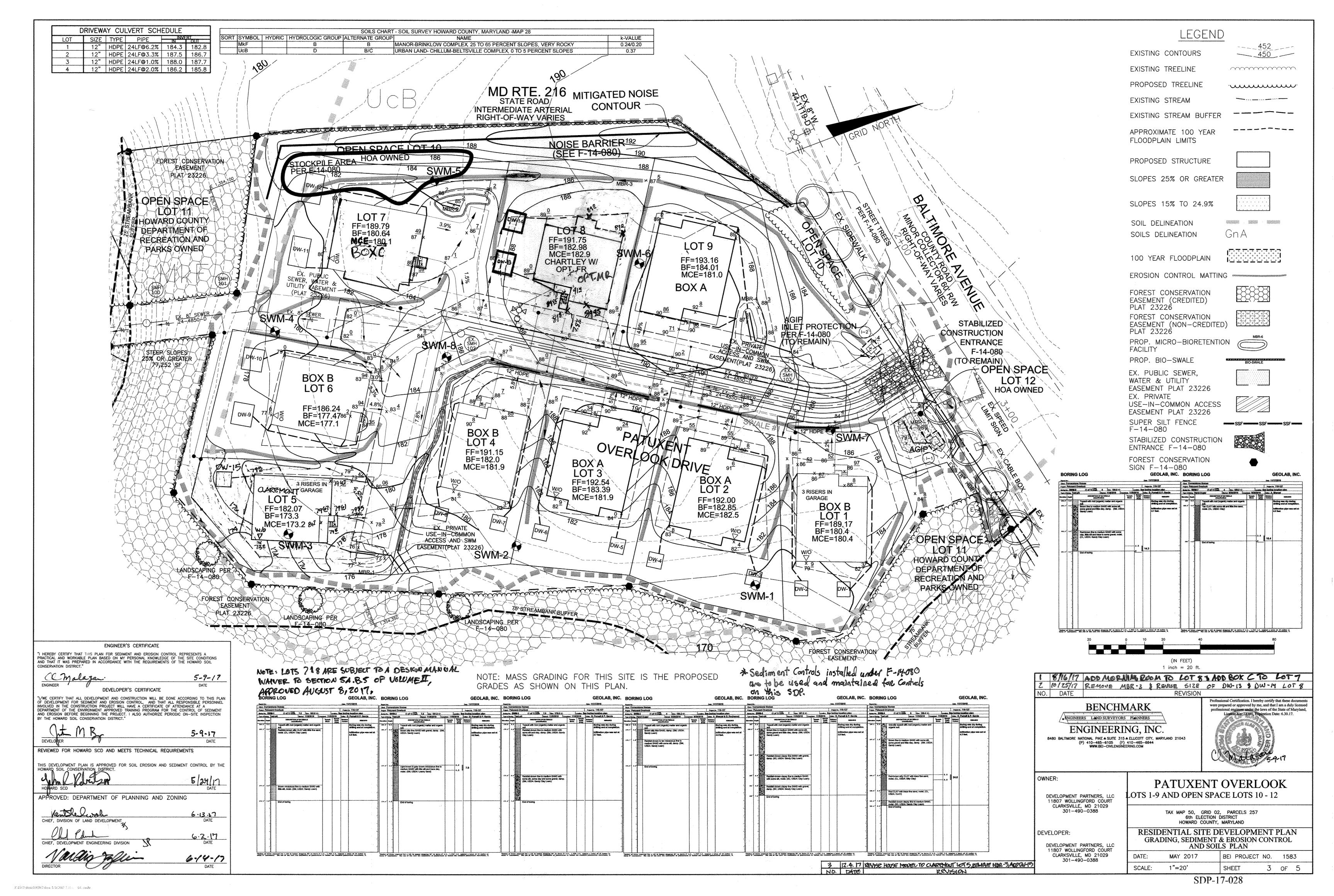
SDP-17-028

SHEET

1 of 5







Definition

Purpose

5-9-17

5-9-17

DATE

6-13-17

6.2.17

# CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION

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SEEDING AND MULCHING
                     SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS
                                                                                                                                                                                                              To stabilize disturbed soils with permanent vegetation.
                                                                                                    The application of seed and mulch to establish vegetative cover
The process of preparing the soils to sustain adequate vegetative stabilization
                                                                                                                                                                                                              To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.
                                                                                                    To protect disturbed soils from erosion during and at the end of construction.
 To provide a suitable soil medium for vegetative growth.
                                                                                                                                       Conditions Where Practice Applies
                                   Conditions Where Practice Applies
                                                                                                                                                                                                              Exposed soils where ground cover is needed for 6 months or more.
                                                                                                    To the surface of all perimeter controls, slopes, and any disturbed area not under active grading
Where vegetative stabilization is to be established.
     Soil Preparation
                                                                                                                                                                                                              1. General Use

    Specifications

            Temporary Stabilization
                                                                                                                                                                                                                   a Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness
                                                                                                               a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be

    Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of

                                                                                                                                                                                                                     Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter
                                                                                                                      subject to re-testing by a recognized seed laboratory. All seed used must have been
                   suitable agricultural or construction equipment, such as disc harrows or chisel plows or
                                                                                                                                                                                                                     selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The
                                                                                                                      tested within the 6 months immediately preceding the date of sowing such material on
                   rippers mounted on construction equipment. After the soil is loosened, it must not be
                                                                                                                                                                                                                     Summary is to be placed on the plan.
                                                                                                                      any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be
                   rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to
                                                                                                                                                                                                                   b Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or
                                                                                                                       available upon request to the inspector to verify type of seed and seeding rate.
                  be tracked with ridges running parallel to the contour of the slope.
                                                                                                                                                                                                                     for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical
                                                                                                                b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is
                 Apply fertilizer and lime as prescribed on the plans.
                                                                                                                                                                                                                      Field Office Guild, Section 342 - Critical Area Planting.
                                                                                                                      frozen. The appropriate seeding mixture must be applied when the ground thaws.
                 Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other
                                                                                                                                                                                                                   c For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil
                                                                                                                c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure
                   suitable means.
                                                                                                                                                                                                                     testing agency.
                                                                                                                      culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must
             Permanent Stabilization
                                                                                                                                                                                                                   d For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000
                                                                                                                       not be used later than the date indicated on the container. Add fresh inoculants as

    A soil test is required for any earth disturbance of 5 acres or more. The minimum soil

                                                                                                                                                                                                                     square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown
                                                                                                                       directed on the package. Use four times the recommended rate when hydroseeding.
                   conditions required for permanent vegetative establishment are:
                                                                                                                                                                                                                     in the Permanent Seeding Summary.
                                                                                                                       Note: It is very important to keep inoculant as cool as possible until used. Temperatures
                   i, Soil pH between 6.0 and 7.0.
                                                                                                                                                                                                                 Turforass Mixtures
                                                                                                                      above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less
                   ii. Soluble salts less than 500 parts per million (ppm).
                                                                                                                                                                                                                    a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites
                   iii. Soil contains less than 40 percent clay but enough fine grained material (greater than
                                                                                                                                                                                                                     which will receive a medium to high level of maintenance.
                                                                                                                d. Sod or seed must not be placed on soil which has been treated with soil sterilants or
                   30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture.
                                                                                                                                                                                                                   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose.
                                                                                                                      chemicals used for weed control until sufficient time has elapsed (14 days min.) to
                   An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt
                                                                                                                                                                                                                     Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. excavated using a loader, the contractor should use wide track or marsh track equipment, or
                                                                                                                       permit dissipation of phyto-toxic materials.
                   plus clay) would be acceptable.
                                                                                                                                                                                                                     The summary is to be placed on the plan.
                   iv. Soil contains 1.5 percent minimum organic matter by weight.
                                                                                                                                                                                                                    . Kentucky Bluegrass: Full sun Mixture: For use in areas that receive intensive management
                                                                                                                a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
                   v. Soil contains sufficient pore space to permit adequate root penetration.
                                                                                                                     i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table
                   Application of amendments or topsoil is required if on-site soils do not meet the above
                                                                                                                           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
                 Graded areas must be maintained in a true and even grade as specified on the
                                                                                                                                                                                                                     mixture by weight.
                                                                                                                            in each direction. Roll the seeded area with a weighted roller to provide good
                   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
                                                                                                                b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
                 Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable
                                                                                                                      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
                   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
                                                                                                                       ii. Apply seed in two directions, perpendicular to each other. Apply half the
                                                                                                                            seeding rate in each direction.
                   permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment
                                                                                                                c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and
                   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
                                                                                                                      i. If fertilizer is being applied at the time of seeding, the application rates should
                   unnecessary on newly disturbed areas.
                                                                                                                            not exceed the following: nitrogen, 100 pounds per acre total of soluble
                                                                                                                             nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium),
            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
                                                                                                                             200 pounds per acre.
            moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil
                                                                                                                       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
             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
                                                                                                                       iii. Mix seed and fertilizer on site and seed immediately and without interruption.
                                                                                                                      iv. When hydroseeding do not incorporate seed into the soil.
            Topsoiling is limited to areas having 2:1 or flatter slopes where:
                                                                                                         1. Mulch Materials (in order of preference)
            a. The texture of the exposed subsoil/parent material is not adequate to produce
                                                                                                               a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably
                   vegetative growth.
                                                                                                                      bright in color. Straw is to be free of noxious weed seeds as specified in the
                  The soil material is so shallow that the rooting zone is not deep enough to support
                                                                                                                       Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty
                   plants or furnish continuing supplies of moisture and plant nutrients.
                                                                                                                       Note: Use only sterile straw mulch in areas where one species of grass is desired.
                   The original soil to be vegetated contains material toxic to plant growth.
                                                                                                                b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose
                 The soil is so acidic that treatment with limestone is not feasible.
                                                                                                                       processed into a uniform fibrous physical state.
            Areas having slopes steeper than 2:1 require special consideration and design.
                                                                                                                            i. WCFM is to be dyed green or contain a green dye in the package that will
            Topsoil Specifications: Soil to be used as topsoil must meet the following criteria
                                                                                                                                  provide an appropriate color to facilitate visual inspection of the
           a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy
                   sand. Other soils may be used if recommended by an agronomist or soil scientist and
                                                                                                                                   uniformly spread slurry.
                                                                                                                            ii. WCFM, including dye, must contain no germination or growth inhibiting
                   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
                                                                                                                            iii. WCFM materials are to be manufactured and processed in such a
                   stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than
                                                                                                                                  manner that the wood cellulose fiber mulch will remain in uniform
                   11/2 inches in diameter.
                                                                                                                                   suspension in water under agitation and will blend with seed,

    Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack

                                                                                                                                   fertilizer and other additives to form a homogeneous slurry. The
                      grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
                   Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil
                                                                                                                                  mulch material must form a blotter-like ground cover, on application
                                                                                                                                   having moisture absorption and percolation properties and must
                   scientist and approved by the appropriate approval authority, may be used in lieu of
                                                                                                                                   cover and hold grass seed in contact with the soil without inhibiting
                   natural topsoil.
                                                                                                                                  the growth of the grass seedlings.
             Topsoil Application
                  Erosion and sediment control practices must be maintained when applying topsoil.
                                                                                                                            iv. WCFM material must not contain elements or compounds at
                                                                                                                                   concentration levels that will be phyto-toxic.
                  Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum
                                                                                                                             v. WCFM must conform to the following physical requirements: fiber length
                   thickness of 4 inches. Spreading is to be performed in such a manner that sodding or
                                                                                                                                  of approximately 10 millimeters, diameter approximately 1 millimeter,
                   seeding can proceed with a minimum of additional soil preparation and tillage. Any
                                                                                                                                  pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and
                   irregularities in the surface resulting from topsoiling or other operations must be
                                                                                                                                   water holding capacity of 90 percent minimum.
                   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. 2. Application

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

                   when the subsoil is excessively wet or in a condition that may otherwise be detrimental
                                                                                                                b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a
                   to proper grading and seedbed preparation.
                                                                                                                      uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth
      Soil Amendments (Fertilizer and Lime Specifications)
            Soil tests must be performed to determine the exact ratios and application rates for both lime
                                                                                                                       so that the soil surface is not exposed. When using a mulch anchoring tool, increase the
             and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be
                                                                                                                       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
             performed by a recognized private or commercial laboratory. Soil samples taken for
              engineering purposes may also be used for chemical analyses
                                                                                                                       acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pour
            Fertilizers must be uniform in composition, free flowing and suitable for accurate application by
                                                                                                                      of wood cellulose fiber per 100 gallons of water.
            appropriate equipment. Manure may be substituted for fertilizer with prior approval from the 3. Anchoring
                                                                                                                a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind
             appropriate approval authority. Fertilizers must all be delivered to the site fully labeled
                                                                                                                     or water. This may be done by one of the following methods (listed by preference), depending
            according to the applicable laws and must bear the name, trade name or trademark and
                                                                                                                       upon the size of the area and erosion hazard:
             warranty of the producer.
                                                                                                                            i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor
           Lime materials must be ground limestone (hydrated or burnt lime may be substituted except
                                                                                                                                  mulch into the soil surface a minimum of 2 inches. This practice is most effective
             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
                                                                                                                                   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.
             pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
                                                                                                                            ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net
            Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of
                                                                                                                                  dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a
             soil by disking or other suitable means.
            Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone
                                                                                                                                   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,
            at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of
                                                                                                                                   Terra Tack AR or other approved equal may be used. Follow application rates as
                                          H-5 STANDARDS AND SPECIFICATIONS
                                                                                                                                   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.
                                                       DUST CONTROL
                                                                                                                                   Use of asphalt binders is strictly prohibited.
                                                                                                                            iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer
    Controlling the suspension of dust particles from construction activities.
                                                                                                                                   recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to
                                                           Purpose
     To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including
                                                                                                                                        B-4-8 STANDARDS AND SPECIFICATIONS
    health and traffic hazards
                                                                                                                                                            FOR
                                              Conditions Where Practice Applies
     Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.
                                                                                                                                                     STOCKPILE AREA
          Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 A mound or pile of soil protected by appropriately designed erosion and sediment control measures
             eeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to
                                                                                                           To provide a designated location for the temporary storage of soil that controls the potential for erosion,
          prevent blowing.
           Vegetative Cover: See Section B-4-4 Temporary Stabilization.
                                                                                                           sedimentation, and changes to drainage patterns.
            fillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward
                                                                                                                                              Conditions Where Practice Applies
                                                                                                           Stockpile areas are utilized when it is necessary to salvage and store soil for later use.
           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.
                                                                                                                                                          Criteria
                                                                                                                1. The stockpile location and all related sediment control practices must be clearly indicated on the
          Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must
                                                                                                                   erosion and sediment control plan.
           not be irrigated to the point that runoff occurs.
                                                                                                                2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material
          Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar
                                                                                                                  and based on a side slope ratio no steeper than 2:1. Benching must be provided in
              aterial can be used to control air currents and soil blowing.
          Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan
                                                                                                                  accordance with Section B-3 Land Grading
                                                                                                                 Runoff from the stockpile area must drain to a suitable sediment control practice.
                                                                                                                  4. Access the stockpile area from the upgrade side.
          B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION(CONTINUED)
                                                                                                                5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as

    Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level

                                                                                                                  an earth dike, temporary swale or diversion fence. Provisions must be made for discharging
              and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches
                                                                                                                   concentrated flow in a non-erosive manner.
               in diameter. The resulting seedbed must be in such condition that future mowing of grasses
                                                                                                                6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment
                                          will pose no difficulty.
                                                                                                                   control practice must be used to intercept the discharge.
       e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch-
                                                                                                                  7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as
              every 3 to 4 days depending on soil texture) until they are firmly established. This is not
                                                                                                                  Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
              especially true when seedings are made late in the planting season, in abnormally dry or hot
                                                                                                                8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile
                                      seasons, or on adverse sites.
                                                                                                                  to facilitate cleanup. Stockpiles containing contaminated material must be covered with
 A.Sod: to provide quick cover on disturbed areas (2:1 grade or flatter).
                                                                                                                  impermeable sheeting.
 1. General Specifications
     a. Class of turfgrass must be Maryland State Certified. Sod labels must be made available to the job The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in
       foreman and inspector.
                                                                                                           accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a
     b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20
       cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in
       uneven ends will not be acceptable.
                                                                                                           accordance with Section B-3 Land Grading.
     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.
                                                                                                                              SEQUENCE OF CONSTRUCTION
     d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may
       adversely affect its survival.
                                                                                                                          NOTIFY SEDIMENT CONTROL DIVISION 48 HOUR
     e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted
                                                                                                                                PRIOR TO START OF CONSTRUCTION
       within this period must be approved by an agronomist or soil scientist prior to its installation.
 2. Sod Installation
                                                                                                                                                                                                     DAY 1
     a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the
                                                                                                            1.) OBTAIN GRADING PERMIT.
       subsoil immediately prior to laying the sod.
                                                                                                                                                                                                  DAY 2-6
                                                                                                             2.) INSTALL SEDIMENT CONTROLS THAT ARE INCLUDED UNDER THIS SDP.
     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.
                                                                                                                                                                                                DAY 7-10*
                                                                                                             3.) EXCAVATE FOR FOUNDATIONS, ROUGH GRADE AND STABILIZE IN
       Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent
                                                                                                                ACCORDANCE WITH TEMPORARY SEEDBED NOTES.
        voids which would cause air drying of the roots.
                                                                                                                                                                                                DAY 11-80*
                                                                                                             4.) CONSTRUCT HOUSES, BACKFILL AND CONSTRUCT DRIVEWAYS.
     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
                                                                                                             5.) FINAL GRADE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDBED DAY 81-86
       exists between sod roots and the underlying soil surface.
                                                                                                                 NOTES. CONSTRUCT ON LOT STORMWATER MANAGEMENT FACILITIES AND
     d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and
                                                                                                                 STABILIZE DISTURBED AREAS.
       soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and
                                                                                                            6.) WITH THE APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL
       irrigating for any piece of sod within eight hours.
                                                                                                                 INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE
 3. Sod Maintenance
                                                                                                                 ANY REMAINING DISTURBED AREAS.
     a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as
                                                                                                                * - INDICATES SINGLE HOUSE CONSTRUCTION.
       necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to
       prevent wilting.
     b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
                                                                                                                 EROSION CONTROL MATTING SHALL BE PLACED IN SWALES WHERE DEEMED
     c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by
                                                                                                                  NECESSARY UNTIL VEGETATION IS ESTABLISHED OR SOLID SOD SHOULD
       the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless
```

**B-4-3 STANDARDS AND SPECIFICATIONS** 

**B-4-2 STANDARDS AND SPECIFICATIONS** 

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 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 10 to 35 percent of the total mixture by weight. Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 1 1/4 to 3 nounds 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 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)

**B-4-5 STANDARDS AND SPECIFICATIONS** 

PERMANENT STABILIZATION

Conditions Where Practice Applies

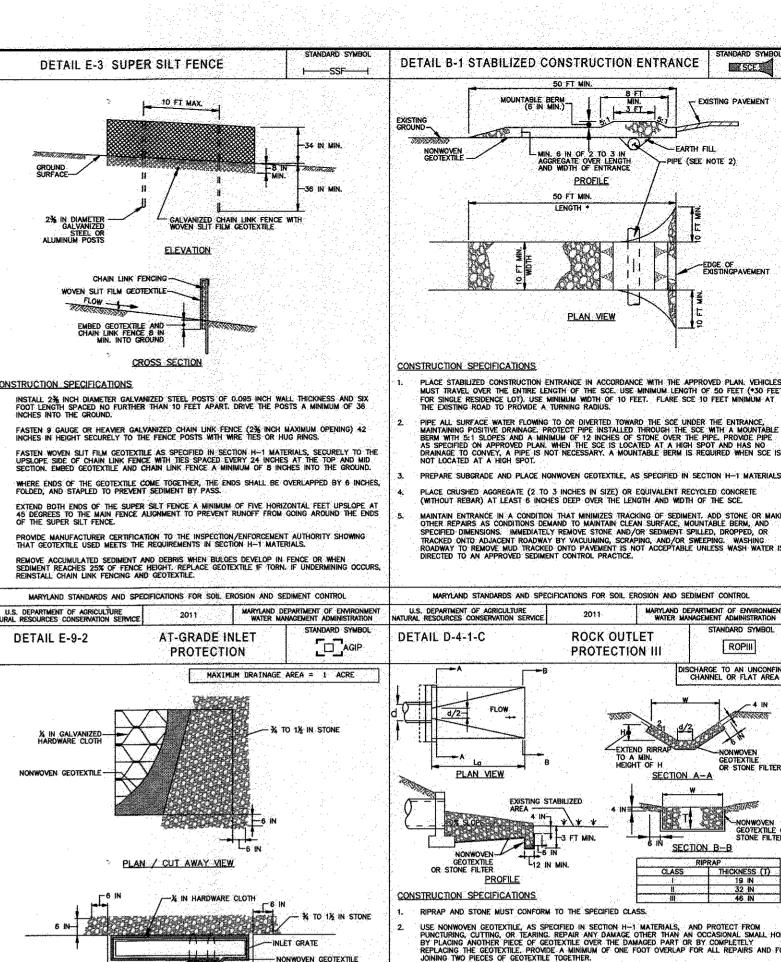
infiltration rates and is not acceptable. Compaction will significantly contribute to design failure. Compaction can be alleviated at the base of the bioretention facility by using a primary tilling minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total operation 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 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 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 iii, Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the receiving low to medium management in full sun to medium shade. Recommended mixture includes; topsoil to final grade When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended. equipment within the bioretention basin. Heavy equipment can be used around the perimeter of iv.Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. the basin to supply soils and sand. Grade bioretention materials with light equipment such as a For establishment in high quality, intensively managed turf area. Mixture includes Certified Kentucky compact loader or a dozer/loader with marsh tracks. DETAIL E-9-2 Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 4. Plant Material: Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3. 5. Plant installation certified material. Certified material is the best guarantee of cultivar purity. The certification program. 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. 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 36" diameter located 6 on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 CONSTRUCTION SPECIFICATIONS or 4x4) galvanized hardware cloth. Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE. 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 PLACE CLEAN % TO 1% INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE feet) to provide a clean-out port and monitor performance of the filter. 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. 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 or 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL square feet of surface area). 7. Miscellaneous: These practices may not be constructed until all contributing drainage area has been stabilized STANDARD SEDIMENT CONTROL NOTES 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE 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, PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT, PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND RE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. AND REVISIONS THERETO. 3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2). PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN, INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL, STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. 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: TOTAL AREA OF SITE: \*CUT/FILL NUMBERS AREA DISTURBED: ARE FOR SEDIMENT O BE ROOFED OR PAVED: CONTROL PURPOSES AREA TO BE VEGETATIVELY STABILIZED: ACRES ONLY. CONTRACTOR TO VERIFY OFFSITE WASTE/BORROW AREA LOCATION: ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE. 8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION 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 AMOUNT OF LAST RECORDED PRECIPITATION) BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES EVIDENCE OF SEDIMENT DISCHARGES 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 MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE). TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.

10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF ISCD-APPROVED FIELD CHANGES. 11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE. 13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE. 14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS WITH LOWER ENDS CURLED LIPHILL BY 2' IN ELEVATION 15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE): • USE | AND IP MARCH 1 - JUNE 15 USE III AND HIP OCTOBER 1 - APRIL 30 USE IV MARCH 1 - MAY 31 16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE. REV. 8/2015 DATE REVISION



CONSTRUCTION SPECIFICATIONS

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than

micro-bioretention practice that may be harmful to plant, growth, or prove a hindrance to the

Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)

pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus

There shall be at least one soil test per project. Each test shall consist of both the standard so

required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be

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

light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubbe

tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced

test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is

Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be

met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loan

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

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

two inches. No other materials or substances shall be mixed or dumped within the

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

sulfur) may be mixed into the soil to increase or decrease pH.

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

(30%), coarse sand (30%), and compost (40%).

performed for each location where the topsoil was excavated

planting or maintenance operations. The planting soil shall be free of Bermuda grass,

2. Filtering Media or Planting Soil:

3. Compaction:

Professional Certification. I hereby certify that these docume were prepared or approved by me, and that I am a duly license professional engineer under the laws of the State of Maryland tion Date: 6.30.17 8480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELLICOTT CITY, MARYLAND 21043

PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (% TO 1% INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING LINDIST IRSED MATERIAL

EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHE AT SIDES OF RIPRAP.

CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HODEOROUS WITH THE SMALLET STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNI TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT

WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDT IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET! A MINIMUM OF 18 INCHES.

CONSTRUCT APRON WITH DX SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STON SO THAT IT BLENDS IN WITH EXISTING GROUND.

MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP, MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL

PERMANENT SOIL

MARYLAND DEPARTMENT OF ENVIRONMEN
WATER MANAGEMENT ADMINISTRATION

STABILIZATION MATTING PSSMC - \*<2.01b/
CHANNEL APPLICATION (\* INCLIDE SHEAR STRESS

ISOMETRIC VIEW

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

USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBER OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MU 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 2½2 INCHES AND SUFFICIENTLY BOADED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL

3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL.
WRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE
1 TO 1 % INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A
MINIMUM B 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.

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 8 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTIN ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE REY.

ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION 8-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND DEPARTMENT OF ENVIRONMEN
WATER MANAGEMENT ADMINISTRATION

STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

U.S. DEPARTMENT OF AGRICULTURE
TURAL RESOURCES CONSERVATION SERVICE 2011

DETAIL B-4-6-C

CONSTRUCTION SPECIFICATIONS

OWNER: DEVELOPMENT PARTNERS, LLC 11807 WOLLINGFORD COURT CLARKSVILLE, MD 21029

CLARKSVILLE, MD 21029

301-490-0388

CROSS SECTION

2011

PATUXENT OVERLOOK LOTS 1-9 AND OPEN SPACE LOTS 10 -12

TAX MAP 50, GRID 02, PARCELS 257

6th ELECTION DISTRICT

U.S. DEPARTMENT OF AGRICULTURE
TURAL RESOURCES CONSERVATION SERVICE 2011

301-490-0388 **DEVELOPER:** 

**BENCHMARK** 

ENGINEERING, INC.

ENGINEERS LAND SURVEYORS PLANNERS

HOWARD COUNTY, MARYLAND RESIDENTIAL SITE DEVELOPMENT PLAN SEDIMENT AND EROSION CONTROL DETAILS DEVELOPMENT PARTNERS, LLC 11807 WOLLINGFORD COURT

DATE:

SCALE:

4 of 5

SHEET

AS SHOWN

SDP-17-028

BEI PROJECT NO. 1583 MAY 2017

(P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

