GENERAL NOTES

TAX MAP 37 GRID 5 LOCATION: 320 & 354 PARCELS: ZONING R-20 & R-12 SUBDIVISION MONTGOMERY CROSSING

TOTAL LOT AREA 3.34 AC. DISTURBED AREA: 3 21 AC

AREA OF PLAN SUBMISSION: 3.21 AC. MINIMUM LOT SIZE: 12,000 SF (R-12)/20,000SF (R-20)

PROPOSED USE FOR SITE: RESIDENTIAL

TOTAL NUMBER OF UNITS: TYPE OF PROPOSED UNIT:

DEED REFERENCES: LIBER 13552 FOLIO 512 & LIBER 13552 FOLIO 519 DPZ REFERENCES: PLATS #17089-17093, F-04-095, F-96-066, F-96-062, F-96-030, SDP-10-078, S-88-86, S-89-80, S-89-19, P-90-28, P-92-17, F-93-36, WP-91-90, WP-94-89, F-95-19, F-94-101. WP-94-90, F-95-182, F-97-124, SP-98-06, SP-11-002, F-10-080, F-13-039, GP 13-060, SDP-13-056, F-14-029, ECP-11-034.

2. 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 START OF WORK.

3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK 4. ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.

5. TRAFFIC CONTROL DEVICES: a)THE R1-1 SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE

THE BASE PAVING IS COMPLETED. b)THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES. c)ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MdMUTCD)"

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 POST (14 GAUGE) INSERTED IN TO A 2-1 "GALVANIZED STEEL, PERFORATED "QUICK PUNCH", SQUARE TUBE SLEEVE (12 GAUGE)-3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL TOPOGRAPHY PERFORMED BY WINGS AERIAL MAPPING, DATE DECEMBER 2009 AND FIELD TOPOGRAPHY COMPLIED BY ROBERT H. VOGEL ENGINEERING, INC. AUGUST 2014.

THE PROJECT BOUNDARY IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY MILDENBERG, BOENDER, AND ASSOCIATES, ON OR ABOUT JANUARY 2012.

8. 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. 37BA AND 37BB WERE USED FOR THIS PROJECT 9. THE SUBJECT PROPERTY IS ZONED "R-12 AND R-20" IN ACCORDANCE WITH THE COMPREHENSIVE ZONING PLAN, EFFECTIVE

OCTOBER 6, 2013. 10. STORMWATER MANAGEMENT REQUIREMENTS HAVE BEEN SATISFIED UNDER APPROVED F-96-30, ECP 11-034 AND PER THIS F-14-029 PLAN THROUGH THE USE OF PRIVATELY OWNED AND MAINTAINED PERMEABLE SURFACE DRIVEWAYS A-2 AND MICRO-BIORETENTION / RAINGARDEN M-7. THE DEVELOPER WILL BE REQUIRED TO EXECUTE THE DECLARATION OF COVENANTS AND/OR A DEVELOPER'S AGREEMENT FOR THE CONSTRUCTION OF THE STORMWATER MANAGEMENT PRACTICES AND A MAINTENANCE

11. EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS, FIELD SURVEY, ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.

12. ANY DAMAGE TO THE COUNTY'S RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES SHALL BE CORRECTED AT THE

13. ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.06 UNLESS OTHERWISE NOTED.

14. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING

1-800-252-1133 BGE (CONSTRUCTION SERVICES) 410-637-8713 BGE (EMERGENCY) 410-685-0123 BUREAU OF UTILITIES 410-313-4900 COLONIAL PIPELINE CO 410-795-1390 MISS UTILITY 1-800-257-7777 STATE HIGHWAY ADMINISTRATION 410-531-5533 VERIZON 1-800-743-0033

AGREEMENT FOR THE PRIVATELY OWNED AND MAINTAINED ESD PRACTICES.

15. 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 FRONT OR REAR YARD SETBACK.

PER F-14-029; NO WETLANDS, STREAMS, 25% STEEP SLOPES OR FLOODPLAINS EXIST ON SITE.

17. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.

WATER AND SEWER SERVICE FOR THIS PROJECT WILL BE PUBLIC - WATER SERVICE CONNECTIONS WILL BE CONNECTIONS FROM CONTRACT 34-W AND 14-4697-D.

- SEWER SERVICE CONNECTIONS WILL BE CONNECTIONS FROM CONTRACT 10-1043-D AND 14-4697-D.

19. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.

20. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.

21. NO STEEP SLOPES OVER 20,000 SF CONTIGUOUS ARE LOCATED ONSITE.

22. THE LANDSCAPE PLAN, IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY LANDSCAPE MANUAL WAS APPROVED UNDER F-14-029. FINANCIAL SURETY IN THE AMOUNT OF \$11,700.00 SHALL BE POSTED WITH THE BUILDERS GRADING PERMIT.

23. ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES AND ARE BASED

UPON EXISTING AND PROPOSED CONTOURS. 24. ALL SINGLE FAMILY DWELLINGS WILL HAVE A MINIMUM OF A 1-1/2" WHC WITH A 1" OUTSIDE METER SETTING.

25. 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 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE)

B) SURFACE -6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING $(1-\frac{1}{2})^n$ MIN.)

C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45-FOOT TURNING RADIUS STRUCTURES - (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING)

.) DRAINAGE ELEMENTS — CAPABLE OF SAFELY PASSING 100—YEAR FLOOD WITH NO MORE THAN 1—FOOT DEPTH OVER DRIVEWAY SURFACE

) STRUCTURE CLEARANCES - MINIMUM 12 FEET

MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE

26. THE 65 dBA NOISE CONTOUR LINE DRAWN ON THIS DEVELOPMENT PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNT DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992, AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 dBA NOISE EXPOSURE. THE 65dBA NOISE LINE WAS 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. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT. ESTABLISHED UNDER PLAT NO. 22558. (F13-039)

27. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.

28. A PRIVATE STREET SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT BOTH THE MONTGOMERY ROAD AND THE MARSHALEE DRIVE (SDP10-079/SDP13-056) INTERSECTIONS. COST OF THESE STREET NAME SIGNS SHALL BE THE DEVELOPER'S/OWNER'S RESPONSIBILITY. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.

29. FOREST STAND AND WETLAND DELINEATION WAS COMPLETED BY MILDENBERG, BOENDER AND ASSOCIATES., INC. DATED NOVEMBER, 2010 WAS APPROVED UNDER SP-11-002/F13-039.

30. AN 85TH PERCENTILE SPEED STUDY AND SIGHT DISTANCE ANALYSIS WAS COMPLETED BY MILDENBERG, BOENDER AND ASSOCIATES., INC. UNDER SP-11-002.

31. FOREST CONSERVATION, IN ACCORDANCE WITH SECTION 16.1202 OF THE FOREST CONSERVATION MANUAL HAS BEEN PROVIDED BY THE PLACEMENT OF 1.08 ACRES OF AFFORESTATION INTO AN OFF-SITE EASEMENT ON THE PROPERTY IDENTIFIED AS THE ROSEBAR PROPERTY, PRESERVATION PARCEL A. REFER TO THE SUPPLEMENTAL PLAN FOR MONTGOMERY CROSSING, F 14-029 FOR FURTHER DETAILS.

32. THE OPEN SPACE REQUIREMENT HAS BEEN MET BY A FEE IN LIEU PAYMENT OF \$12,000 UNDER F-14-029.

Chil Edula	7.24.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION JP	DATE
Ve t Electron	7-29-15
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

ADDRESS CHART LOT NO STREET ADDRESS 6323 STARBOARD WAY 6319 STARBOARD WAY 6315 STARBOARD WAY 6311 STARBOARD WAY 6418 MONTGOMERY ROAD 6314 STARBOARD WAY 6320 STARBOARD WAY

6493 MARSHALEE DRIVE

SITE DEVELOPMENT PLAN MONTGOMERY CROSSING PHASE 2

LOT 3 THRU 10 L. 13552 / F. 526 HOWARD COUNTY, MARYLAND



33. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED IN TO A $2-\frac{1}{2}$ " GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 30' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF

34. WP-94-90 GRANTED 1-13-95 TO WAIVE (A) SECTION 16.119(f)(2). TO PERMIT PRIVATE SHARED DRIVEWAYS TO HAVE DIRECT ACCESS TO A MINOR ARTERIAL ROADWAY, MARSHALEE DRIVE. (B) SECTION 16.116(A)(2) TO NOT REQUIRE A USEABLE YARD 25' MINIMUM BETWEEN THE 75' STREAM BUFFER AND THE REAR OF THE PROPOSED UNITS (LOTS 87-90).

35. HORIZONTAL GEOMETRY OF THE MICRO- BIORETENTION FACILITIES MAY BE MODIFIED WHILE MAINTAINING SURFACE AREA.

STORMWATER MANAGEMENT PRACTICES CHART

LOT #	IMP. AREA	ESD PRACTICE
LOT 3	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (2) DRYWELL (M-5)
LOT 4	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (2) DRYWELL (M-5)
LOT 5	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (4) DRYWELL (M-5)
LOT 6	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (2) DRYWELL (M-5)
LOT 7	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (2) DRYWELL (M-5)
LOT 8	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (1) MICRO-BIORETENTION (M-6)
LOT 9	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (1) MICRO-BIORETENTION (M-6)
LOT 10	HOUSE & DRIVEWAY	PERMEABLE SURFACE (A-2) (2) PRYWELL (M·S)

SITE ANALYSIS DATA

TOTAL PROJECT AREA: AREA OF PLAN SUBMISSION: LIMIT OF DISTURBANCE: PRESENT ZONING DESIGNATION: PROPOSED USES FOR SITE AND STRUCTURES: F. FLOOR SPACE ON EACH LEVEL OF BUILDING PER USE:

> H. TOTAL NUMBER OF UNITS PROPOSED ON SUBMISSION MAXIMUM NUMBER OF EMPLOYEES, TENANTS ON SITE PER USE: J. NUMBER OF PARKING SPACES REQUIRED BY HO.CO. ZONING REGULATIONS:

K. NUMBER OF PARKING SPACES PROVIDED OPEN SPACE ON SITE: M. AREA OF RECREATION OPEN SPACE REQUIRED BY SUBDIVISION & LAND DEVELOPMENT REGULATIONS: BUILDING COVERAGE OF SITE: APPLICABLE DPZ FILE REFERENCES:

ANY OTHER INFORMATION WHICH MAY BE RELEVANT: Q. FLOOR AREA RATIO:

3.34 AC (LOTS 3-10) R-12 / R-20 SINGLE FAMILY DETACHED TOTAL NUMBER OF UNITS ALLOWED

8 BUILDABLE LOTS TOTAL FOR PROJECT AS SHOWN ON FINAL PLAT:

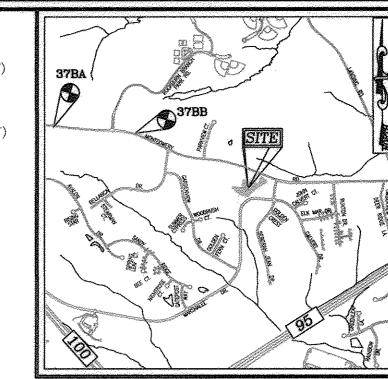
2 PER SFD HOUSE 2 PER SFD HOUSE PER FEE IN LIEU F-14-029 SEE NOTE 1

TAX MAP 37, GRID 5, PARCELS 320, 354 AND 682 1ST ELECTION DISTRICT

BENCHMARKS

HOWARD COUNTY BENCHMARK - 37BA (CONC. MONUMENT) N 563785.6421 E 1376343.2088 ELEV. 393.94 LOCATION: MONTGOMERY ROAD 0.4 MILES EAST OF MEADOWRIDGE ROAD

HOWARD COUNTY BENCHMARK - 37BB (CONC. MONUMENT) N 563663.4488 E 1378040.5059 ELEV. 373.01 LOCATION: MONTGOMERY ROAD BY ROCKBURN ELEMENTARY SCHOOL



VICINITY MAP

SCALE: 1"=2000' ADC MAP COORDINATE: PG. 4936 J7

& SEWER EASEMENT

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 6
SITE LAYOUT AND LANDSCAPE PLAN	2 OF 6
SOILS MAP, GRADING AND SOIL EROSION AND SEDIMENT CONTROL PLAN	3 OF 6
GRADING AND SOIL EROSION AND SEDIMENT CONTROL PLAN - DETAILS	4 OF 6
STORMWATER MANAGEMENT DETAILS	5 OF 6
HOUSE TYPE DETAILS	6 OF 6

PROPERTY LINE RIGHT-OF-WAY LINE CENTERLINE OF EXISTING STREAM EXISTING UTILITY POL

EXISTING LIGHT POLE EXISTING MAILBOX

EXISTING SIGN

AND BENEFIT OF LOTS 1,2 & PARCEL 'B' OF MONTGOMERY CROSSING AND LOTS 150-152 OF MARSHALFE WOODS USE-IN-COMMON ACCESS EASEMENT

WATER & UTILITY FASEMENT

PERMIT INFORMATION CHART SUBDIVISION NAME | SECTION/ AREA 3 - 10 PHASE 2- F-14-029 PLAT REF. BLOCK NO ZONE TAX MAP ELECT DIST. CENSUS TR. 1ST R-12/R-20

OWNER/DEVELOPER PROPERTIES. LLO ELKRIDGE, MD 21075

9720 PATUXENT WOODS DR COLUMBIA, MD. 21046

BUILDER

REPLACE MBR WITH DRYWELLS LOTS 3-7 REPLACE MBR W/ DRYWELLS LOT 10 DATE

> SITE DEVELOPMENT PLAN **COVER SHEET**

MONTGOMERY CROSSING

(SFD RESIDENTIAL) LOT 3 THRU 10 L. 13552 / F. 526

AX MAP: 37 GRID: 05

AT DPZ REF'S: (SEE GENERAL NOTE 1
ON COVER SHEET) HOWARD COUNTY, MARYLAN ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS · SURVEYORS · PLANNERS 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961



OBEST H. VOGEL, PE No.16192

DESIGN BY: DRAWN BY: CHECKED BY:

JULY, 2014 ____AS_SHOWN w.o. No.: 12-42

SHEET _ OF __

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS

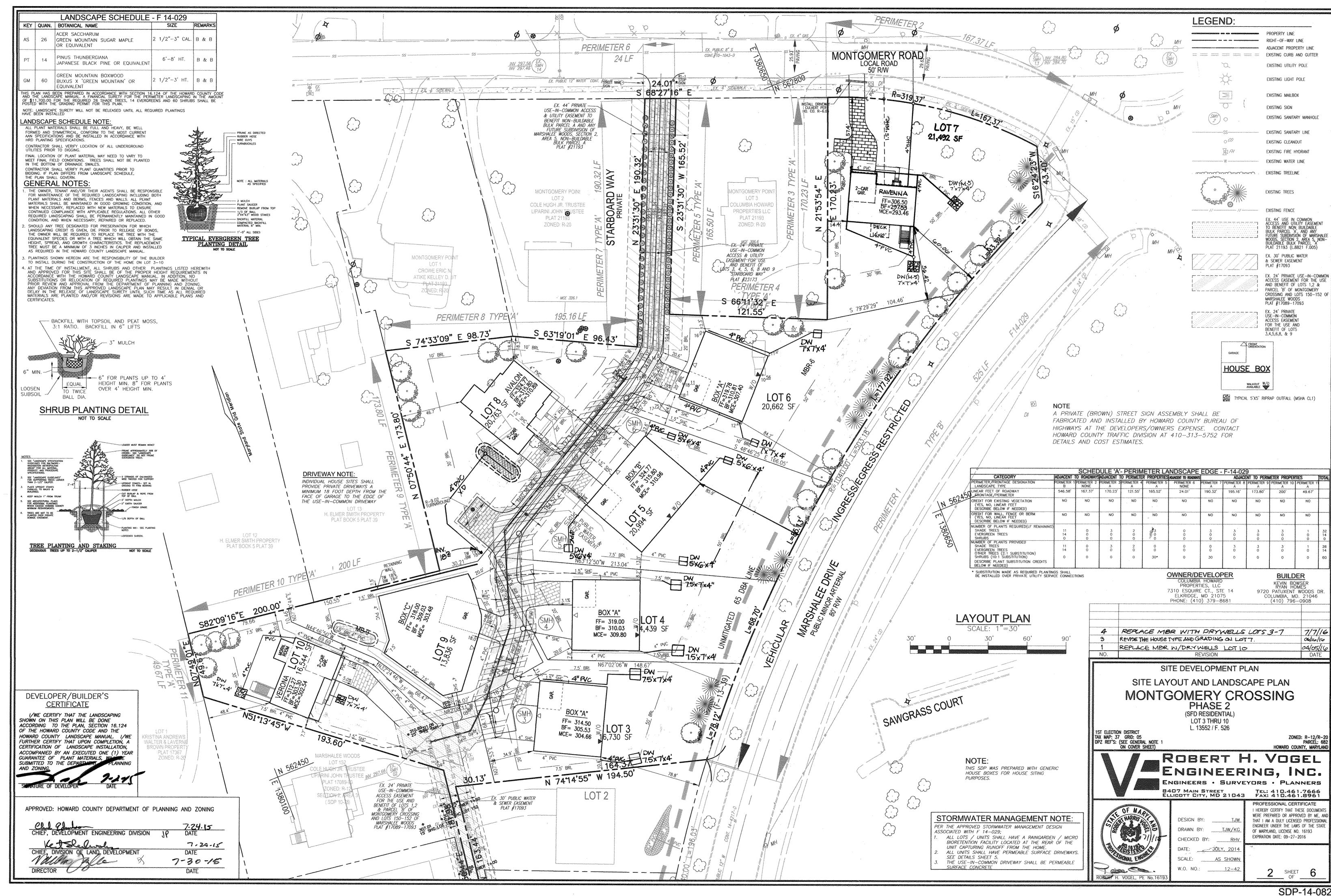
WERE PREPARED OR APPROVED BY ME, AND

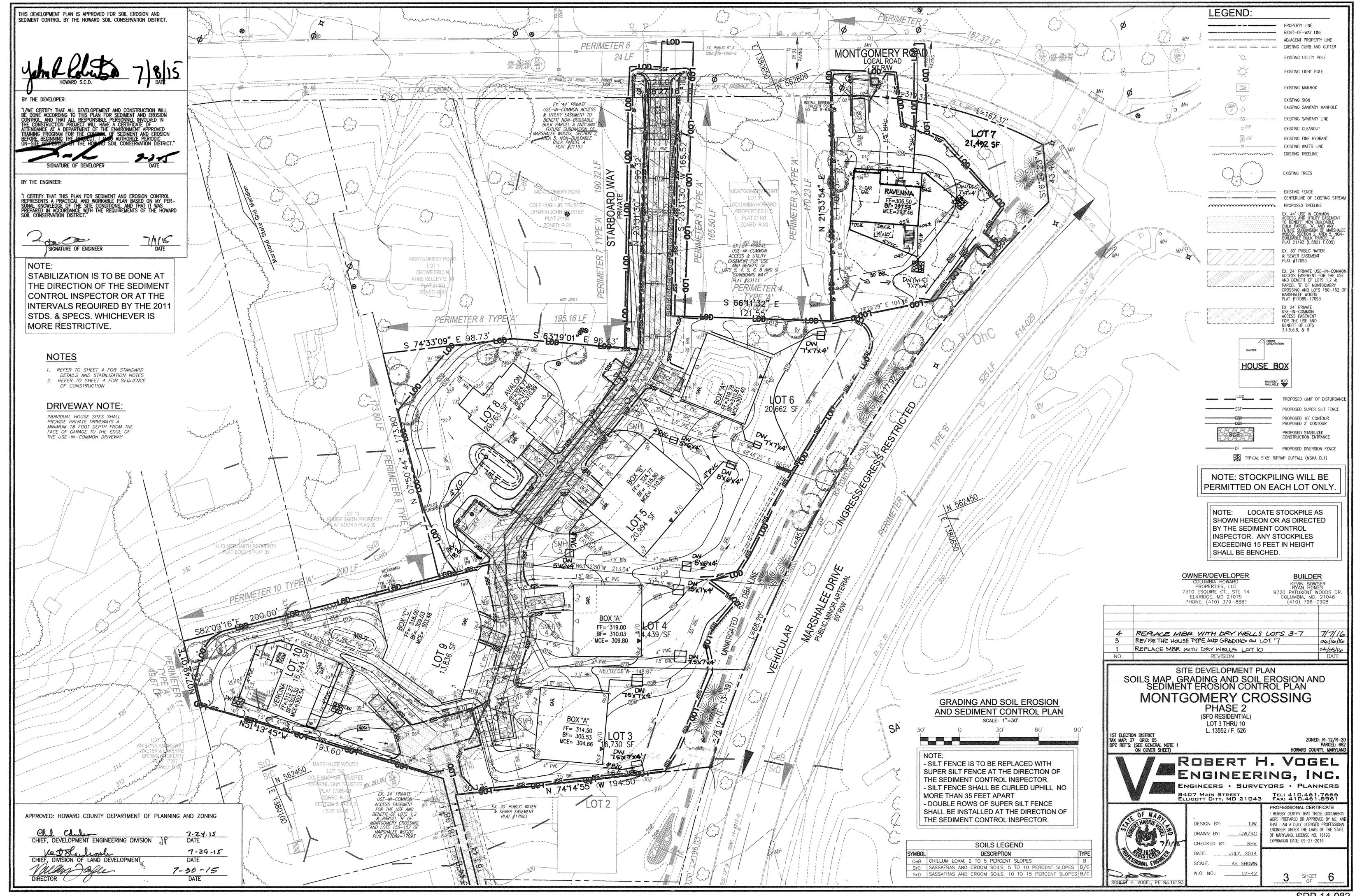
THAT I AM A DULY LICENSED PROFESSIONAL

FNGINEER UNIDER THE LAWS OF THE STATE

OF MARYLAND, LICENSE NO. 16193

EXPIRATION DATE: 09-27-2016





A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1855). ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE

"MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL",

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 PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. 8-4-4) AND MULCHING (SEC 8-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

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 HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

> TOTAL AREA OF SITE AREA TO BE ROOFED OR PAVED AREA TO BE VEGETATIVELY STABILIZED OFFSITE WASTE/BORROW AREA LOCATION

ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH AN OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION approvals may not be authorized until this initial approval by the inspection

TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY,

A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 ACRES 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 ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED ATA GIVEN TIME.

ESTIMATE ONLY; CONTRACTOR SHALL VERIFY QUANTITIES TO HIS OWN SATISFACTION TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, WITH AN APPROVED AND ACTIVE GRADING PERMIT

> B-4-4 STANDARDS AND SPECIFICATIONS TEMPORARY STABILIZATION

DEFINITION TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

Purpose

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

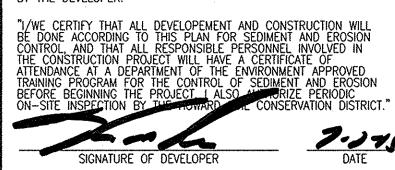
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE 8.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3). AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE 8.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT 2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY, SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY . WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

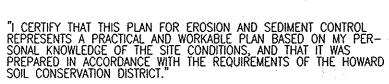
TEMPORARY SEEDING SUMMARY

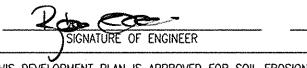
	HARDINESS ZO SEED MIXTUR	FERTLIZER RATE	LIME RATE			
NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	(10-20-20)	Line 10112
1	COOL SEASON ANNUAL RYEGRASS OR EQUAL	40 LB / AC	MAR 1 TO MAY 15 AUG 1 TO OCT 15	1/2 iN.	436 LB/AC (10 L8 PER 1000 SF)	
2	WARM SEASON FOXTAIL MILLET OR EQUAL	30 LB / AC	MAY 16 TO JUL 31	1/2 IN.		

BY THE DEVELOPER:



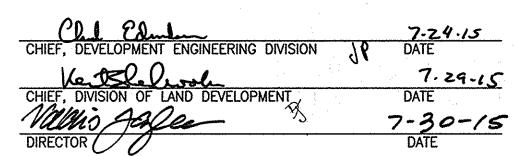
BY THE ENGINEER:





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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING



B-4-5 STANDARDS AND SPECIFICATIONS PERMANENT STABILIZATION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

ACRES

ACRES

A SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE 8.2. ENTER SELECTED MIXTURE(S) APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. TH SUMMARY IS TO BE PLACED ON THE PLAN B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING. C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY. D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT

TURFGRASS MIXTURES A AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE, ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED

 KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMU OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.

. Kentucky bluegrass/perennial rye: full sun mixture: for use in full sui 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 PFR 1000 QUARE 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 DROUGH PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FUL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE cultivars 95 to 100 percent, certified kentucky bluegrass cultivars 0 to : PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED. N. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT.

SEEDING RATE: 1½ TO 3 POUNDS PER 1000 SQUARE FEET. SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

(HARDINESS ZONES: 7A, 7B)

- WESTEM MD: MARCH 15 TO JUNE 1, AUGUST ITO OCTOBER 1 (HARDINESS ZONES: SB, 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

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% INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY. 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 ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR. B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF . MINITS WINCH AT THE TIME OF CUTTING MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TOM OR UNEVEN ENDS WILL NOT BE ACCEPTABLE. C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION. D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL. E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION A DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD. B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER, STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH FINGURE 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. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.). WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE

THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT

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 PREVENT WILTING. B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT. C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS EAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b

SEED MIXTURE (FROM TABLE 8.3): 9

COOL SEASON T.F. 60 LB / AC MAR 1 TO MAY 15

BLUEGRASS K.B. 40 LB / AC AUG 15 TO.

NO SPECIES RATE (LB/AC) DATES

GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED. PERMANENT SEEDING SUMMARY

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED

1. TEMPORARY STABILIZATION A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION FOUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMEN AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

B. APPLY FERTILIZER AND LINE AS PRESCRIBED ON THE PLANS. C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING PERMANENT STABILIZATION A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

1. SOIL PH BETWEEN 6.0 AND 7.0. II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM) III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD À MODERATE AMOUNT OF MOISTURE. AN EXCÉPTION: IF LOVEGRASS WILL BE

PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET

C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON

THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO

D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS, RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES. AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN PREPARATION, TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE, LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE.

SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

I. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANEN VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCEM HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL 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 CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-

Topsoiling is limited to areas having 2:1 or flatter slopes where: A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE T PRODUCE VEGETATIVE GROWTH. B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH. D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE. 4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING

A TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER. B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON MY, THISTLE, OR OTHERS

TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL authority, may be used in lieu of natural topsoil. 5. TOPSOIL APPLICATION A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES, SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM

TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS. C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT WAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS) I. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE, SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT, MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND

WARRANTY OF THE PRODUCER. 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE. 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS

PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

NOTE:

EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

Table B.1: Temporary Seeding for Site Stabilization Seeding Rate t Recommended Seeding Dates by Plant Hardiness Zone N 1b/ac 1b/1000 ft² 5b and 6a 6b 7s and 7b 0.5 Mar 15 to May 31; Aug 1 to Sep 30 Mar 1 to May 15; Aug 15 to Apr 30; Aug 1 to Oct 15 Feb 15 to Nov 30 nnual Ryegrass (Lolhum perenn 1.0 Mar 15 to May 31; Aug 1 to Sep 30 Mar 1 to May 15; Aug Feb 15 to Apr 30; Aug Mar I to May 15; Aug | Feb 15 to Apr 30; Au 1.0 Mar 15 to May 31; Aug 1 to Sep 30 rsis (Avena sativa) Mar 1 to May 15; Aug Feb 15 to Apr 30; Aug 1 to Oct 15 15 to Nov 30 Mar I to May 15; Aug | Feb 15 to Apr 30; Aug 1.0 Mar 15 to May 31; Aug 1 to Oct 31 Cereal Rye (Secale cereale) oxtail Millet (Setaria italica) 0.5 JunitoJul 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

45 LB/AC 90 LB/AC 90 LB/AC 2 TONS/AC

1000 SF) 1000 SF) 1000 SF) 1000 SF)

11/4-1/2 IN (1 LB PER (2 LB PER (2 LB PER (90 LB PER

presses are in pounds of Purc Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as

for barley, cots, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, fostall millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal tyre generally should not be used as a norse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings.

For sandy soils, plant seeds at twice the depth listed above. W The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zon

R-4-2 STANDARDS AND SPECIFICATIONS

-EARTH FILL PIPE (SEE NOTE 6) PROFILE

DETAIL B-1 STABILIZED CONSTRUCTION

CONSTRUCTION SPECIFICATIONS PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF SO FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET, FLARE SCE 10 FEET MINIMUM AT THI EXISTING ROAD TO PROVIDE A TURNING RADIUS. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE, PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE, PROVIDE PIPE A SPECIFIED ON APPROVED PLAN, WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINA TO CONVEY, A PIPE IS NOT NECESSARY, A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.

PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIAL PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR M. OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

PLAN VIEW

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL 2011

B-4-3 STANDARDS AND SPECIFICATIONS SEEDING AND MULCHING

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION. CONDITIONS WHERE PRACTICE APPLIES

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE

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 8.4 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

. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER, ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL-USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO

PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS. 2. APPLICATION A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS 1. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE 8.1. PERMANENT SEEDING TABLE 8.3. OR SITE-SPECIFIC SEEDING SUMMARIES.

II. APPLY SEED IN TWO DIRECTIONS. PERPENDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL I CUITIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING, SEEDBED MUST BE FIRM AFTER PLANTING. II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING

RATE IN EACH DIRECTION. C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING. THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.

II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEFDING) NORMALLY NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEFDING AT ANY ONE TIME, DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING. III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION. IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

I. MULCH MATERIALS (IN ORDER OF PREFERENCE) A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LYE, OAT, OR BARLEY AND REASONABLY

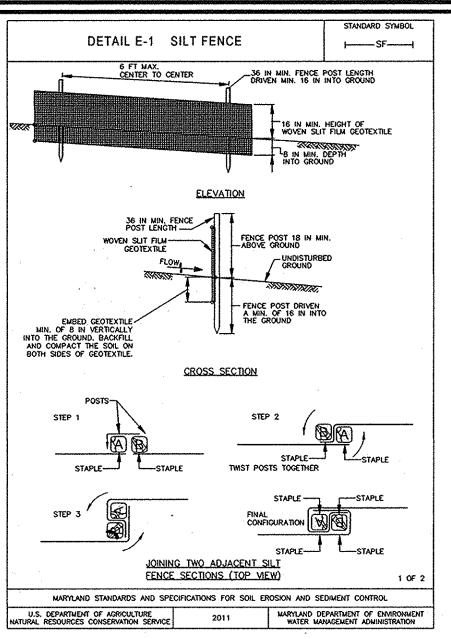
3. ANCHORING

BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY, NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED. B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE. . WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY. II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS

II. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED. FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS. IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE V. WOFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE. : WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE). DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD: I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT s 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 SPECIFIED BY THE MANUFACTURER, APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS, USE OF ASPHALT BINDERS 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



B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS. CONDITIONS WHERE PRACTICE APPLIES

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE. 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. 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 IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAININATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE establishment in accordance with section B-4 vegetative stabilization. Side slopes must BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION

7400 METRO BLVD, SUITE 185
EDINA, MN

ALLAN BLOCK TEL: (612)-835-5309 RETAINING WALLS FAX: (612)835-0013

GROUND COVER TO FRONT EDGE

SPECIFICATIONS:

BACKFILL

EXCAVATE AREA TO LINE AND GRADES AS SHOWN ON CONSTRUCTION DRAWNGS SUBGRADE TO BE FIRM AND UNDISTURBED AND COMPACTED TO 95% S.P.D.

2. SUBGRADE TO BE FIRM AND UNDISTURBED AND COMPACTED TO 95% S.P.D.

3. BASE MATERIAL SHALL BE GRANULAR A COMPACTED TO 95% S.P.D. AND GRADED TO PROVIDE LEVEL HARD SURFACE ON WHICH TO PLACE THE FIRST COURSE OF UNITS, MIN. THICKNESS — 6" (150mm)

4. PLACE FIRST COURSE A MINIMUM OF 4" (100mm) BELOW FINISHED GRADE, WITH THE RAISED LIP FACING OUT AND THE FRONT EDGES TIGHT TOGETHER. FILL CAVITYS WITH SAND OR CLEAR CRUSHED STONE AND COMPACT. SWEEP CLEAN AND CHECK THE UNITS FOR LEVEL AND ALIGNMENT. BACKFILL FRONT AND BACK OF ENTIRE BASE ROW TO FIRMLY LOCK IN PLACE.

5. INSTALL SUBSEQUENT COURSES IN SIMILAR FASHION PROVIDING A MIN. 3" (76mm) OVERLAP OF SEAMS AND A MIN. OF 12" (305mm) GRANULAR BACKFILL.

6. ALLAN BLOCKS COME IN 3 STYLES: STANDARD BLOCK, ANGLE BLOCK, AND CORNER BLOCK AS WELL AS A STANDARD CAPPING STONE. THE BLOCKS HAVE A COMPRESSIVE STRENGTH OF OVER 4000 psi (28MPa)

7. A WIDE VARIETY OF DESIGNS CAN BE ACHIEVED INCLUDING INSIDE AND OUTSIDE CORNERS, CURVES AND STEPS. BLOCKS COME IN 5 STANDARD COLORS: NATURAL, BUFF, BROWN, EARTH RANGE, SMOKE BLEND.

8. WALLS HIGHER THAN 6" REQUIRE GEOGRIDS OR REBAR AND MASONRY CONSTRUCTION—CONSULT MANUF.

TYP. GRAVITY WALL OR EQUAL

- OPTIONAL CAPPING BLOCK

GRANULAR BACKFILL-COMPACTED

PERFORATED DRAIN TILE - 4"

GRANULAR A COMPACTED TO 95% S.P.D.

- PLANTING

TOPSOIL BACKFILL

- UNDISTURBED SOIL

ALLAN BLOCK

REE PLANTING

PLANTING

TOP COURSE FILLED WITH TOPSOIL-

USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION $H\!-\!1$ MATERIALS. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACTHE SOIL ON BOTH SIDES OF FABRIC. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DECREES TO THE MAIN FENCE AUGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE. B. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011 DETAIL C-9 DIVERSION FENCE ---- DF -----10 FT MAX.

USE WOOD POSTS 1 % 1 % 1 % 1 inch (minimum) square cut of sound quality hardwood. As an alternative to wooden post use standard "t" or "u" section steel posts weighing not less than 1 pound per linear foot.

DETAIL E-1 SILT FENCE

CONSTRUCTION SPECIFICATIONS

-----SF----

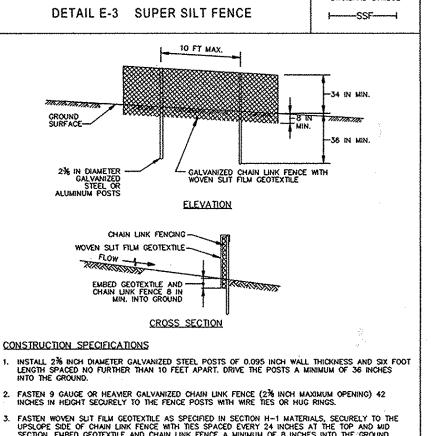
MAXIMUM DRAINAGE AREA = 2 ACRES TUV RESISTANT IMPERMEABLE SHEETING ON BOTH SIDES OF FENCE SECTION CONSTRUCTION SPECIFICATIONS

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

FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.

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

WARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MARYLAND DEPARTMENT OF ENVIRONMEN WATER MANAGEMENT ADMINISTRATION 2011



WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.

5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT CEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011

SEQUENCE OF CONSTRUCTION

OBTAIN GRADING PERMIT. (1 DAY) DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO BEGINNING

NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS AT (410) 313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.

4. CLEAR AND GRUB, IF REQUIRED, FOR THE INSTALLATION OF PERIMETER CONTROLS (1 DAY)

5. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND PERIMETER CONTROLS AS SHOWN HEREON AND STABILIZE DISTURBANCES. (2 DAYS) AFTER OBTAINING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED, COMPLETE ANY REMAINING GRADING WITHIN THE INSTALLED

PERIMETER CONTROLS. (5 DAYS) INSTALL PRIVATE UTILITY CONNECTIONS AS REQUIRED BY PLAN. (1 WEEK) -UTILITY INSTALLATION SHALL BE IMMEDIATELY STABILIZED WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. OR GAB BASE OF USE-IN-COMMON DRIVEWAY PAVEMENT

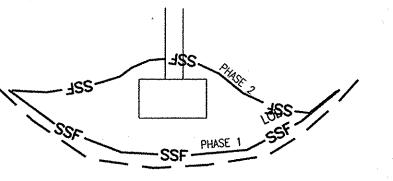
- ONLY THAT PORTION OF THE UTILITIES WHICH CAN BE COMPLETED ON A GIVEN DAY SHALL BE INSTALLED. BEGIN & COMPLETE HOUSE CONSTRUCTION (6 MONTHS) UPON COMPLETION OF PRIVATE UTILITIES, INSTALL AND WIDEN EXISTING DRIVEWAY AS SHOWN HEREON. COMPLETE ANY FINE GRADING ALONG THE

EDGES OF DRIVEWAY AND IMMEDIATELY STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (1 DAY) 10. INSTALL STORMWATER MANAGEMENT FEATURES, MICRO-BIORETENTION AND

COMPLETE ANY REMÁINING FINE GRADING DRIVEWAY INSTALLATIONS WITHIN THE INSTALLED PERIMETER CONTROLS AND STABILIZE WITH PERMANENT

SEEDING MIXTURE AND STRAW MULCH, (5 DAYS) UPON STABILIZATION OF ALL DISTURBED AREAS AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES AND STABILIZE DISTURBANCES WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH.

NOTE: ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.



OWNER/DEVELOPER PROPERTIES. LLC 7310 ESQUIRE CT., STE 14 ELKRIDGE, MD 21075 PHONE: (410) 379-8681

BUILDER KEVIN BOWSER RYAN HOMES 9720 PATUXENT WOODS DR. COLUMBIA, MD. 21046 (410) 796-0908

DATE

ZONED: R-12/R-20

HOWARD COUNTY, MARYLAND

PHASE 1 SILT FENCE LOCATION SHALL BE REMOVED AND RELOCATED ABOVE AN OUTFALL ONCE OUTFALL INSTALLATION IS COMPLETE, area stabilized and permission has been OBTAINED BY THE SEDIMENT CONTROL

INSPECTOR

SILT FENCE PHASING DETAIL

SITE DEVELOPMENT PLAN GRADING AND SOIL EROSION. AND SEDIMENT CONTROL PLAN - DÉTAILS **MONTGOMERY CROSSING** PHASE 2 (SFD RESIDENTIAL) LOT 3 THRU 10

REVISION

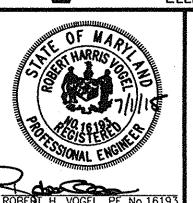
L. 13552 / F. 526

TAX MAP: 37 GRID: 05 DPZ REF'S: (SEE GENERAL NOTE 1 ON COVER SHEET)

ST ELECTION DISTRICT

NO

ROBERT H. VOGEL Engineering, Inc. ENGINEERS • SURVEYORS • PLANNERS 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961



WERE PREPARED OR APPROVED BY ME, AND DESIGN BY: THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE TJW/KG DRAWN BY: OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016 CHECKED BY: DATE: SCALE: ____AS_SHOWN W.O. NO.: 12-42

SHEET __ OF ___

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A

HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS. OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION). ORGANIC CONTEN - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).

CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%. * PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH. THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION

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 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 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 BIORETENION 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 HE 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

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:

MANUAL VOLUME II, TABLE A.4.1 AND 2.

* 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 OF HOPE). * PERFORATIONS — IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.

* GRAVEL — THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES

THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA). 7. MISCELLANEOUS

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

F14-029 M-3 - M-9 MICRO-BIORETENTION DETAILS CLEANOUT WITH CAP ON EACH UNDERDITAIN COTTOM EL THE TENNET TO

TYPICAL RAINGARDEN/MICRO-BIORETENTION PROFILE OPERATION AND MAINTENANCE SCHEDULE FOR (M-3 - M-9) MICROBIORETENTION AREA i. Annual maintenance of Plant Material, mulch layer and soil layer is required. 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

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

3. MULCH SHALL BE INSPECTED EACH SPRING, REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS. 4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

ON-LOT MICRO-BIORETENTION - DESIGN ELEVATION CHART									
ÆIR ESI	D TOP	BOTTON	1 INV	INV					
LEV WSI	EL MULC	H PLANTSC	IL STONE	UD					
A	В	C	D	OUTFALL					
		LEV WSEL MULC	LEV WSEL MULCH PLANTSO	LEV WSEL MULCH PLANT SOIL STONE					

8	322.50	322.50	321.50	319.25	318.25	318.20
9	309.80	309.80	308.80	306.55	30555	305.80
<i>a</i> :	16			y,	- ~	<

BR FACILITY		REQUIRED RANTINGS	PLANTINGS	10
18R#8	356 SF	6	3 ILEX GLABRA, INKBERRY 3 MYRICA PENNSYLVANICA, BAY BERRY	
BR#9	180 SF		2 ILEX GLABRA, INKBERRY B MYRICA PENNSYLVANICA, BAYBERRY	To place

APPROVED: HOV	VARD COUNTY DEPA	RTMENT OF	PLANNING AN	D ZONING
Clud	92			7.24.15
CHIEF, DEVEL	OPMENT ENGINEERI	NG DIVISION	D 91.	ATE
Vet	Electroli			7-29-15
CHIEF, DIVISION	ON OF LAND DEVEL	OPMENT ,	D	ATE
Mille	solle-	N.	7-	30-15
DIRECTOR >	70		C.)ATE

LOT 3 - 10 - ESDv COMPUTATIONS F14-029 AC SITE AREA: HOUSE = 2500 SF IMP TARGET Pe: 1.60 IN PER F13-039

PER F-13-039/F14-029

ALL DRIVEWAYS ARE PERMEABLE SURFACE PROVIDING

STORMWATER MANAGEMENT FOR DRIVEWAY IMPERVIOUS AREA

SITE IMPERVIOUS: 25.3 PERCENT

0.2800

SITE RV:

ON-LOT DRYWELL DESIGN ELEVATION CHART

303.00 302.00 298.00 7.5x7

308.00 | 307.00 | 303.00 | 7.5x7

307.50 306.50 302.50 7.5x7

30950 30850 30450 7.5x7

317.00 316.00 312.00 5x6

311.00 310.00 306.00 5x6

313.00 | 312.00 | 308.00 |

316.00 315.00 311.00

311.00 310.00 306.00

309.00 308.00 304.00

302.00 | 301.00 | 297.00 |

301.80 300.80 296.80

SURFACE STONE SAND

FIXET FT

DEPTH DEPTH

PIT

302.00

301.50

SIZE

5x6

5x6

TXT

717

7×7

7x7

MICRO BIO RETENTION ARE #3

MICRO BIO RETENTION ARE #7

PROP TOP

OF DW'S GRADE* STONE STONE

OVER

NUMBER

Rv=0.05+0.009XI

tv=0.05+0.009XI			:		22	:				STORMW	ATER MAN	IAGEMENT FO	OR DRIVEWAY IMPERVIOUS AREA	:
min=1.0° rainf				(1.0x0.95x/	5-	:			:					
max= 1yr rainf	all=2.6"			(2.6x0.95x/	4)/12			:	;					-
r's A	% IMPERV	{ R∨	Da	1 04			1.6"	VOLUME	IMPERV	IMPERV	CDECA	1	DESABBLE	
DA #	20 HAILCKA	KV	DA (SF)	DA (AC)	VOLUME	MAXIMUM VOLUME	VOLUME.	1	(SF)	(AC)	GREEN		REMARKS	
((<u> </u>			<u> </u>							-			
UIC DRIVEWAY	100.00	0.9500	5145	0.12	407	1059	652	0	5145	0.12	0.00	N/A PUBLIC	CEASEMENT	;
		Ex	l cess Volum	l le to be pro	। vided among	l rall UIC Lots	109	cuft		looniin queen				:
	***************************************	***************************************	5-		espective M	7-	}- ·		į	**************************************	**************************************			
	1.0.		0.50	0.55		200								:
LOT 3 HSE	100,00	0.95	2010	0.05	REQ	398c0A	-	420	200	0.05	0.00		ce, microscale DRYWELLS 2=420 - 2 DRYWEL	
UIC Requir	t ement			resident de la company de la c	Antitro de	negative services	109	4.00			deposition of the second	2101	2-420 - 2 DRIVIEL	دب.
LOT 3 DRIVEWAY	100.00	0.9500	1100	0.03	87	226	139	33	1100	0.03	0.00	33	PERM SURFACE DW @ . 196	170
	herewoods -			alian and a second			567	613			will fall the state of the stat			
LOT 4	100.00	0.05	2010	0.05	REQ	200.0	?	420	2010		000	ALTCHINEA	CE MEDOCCALE TOO A VINCE OF	·
LU1 4	100.00	0.45	2010	0.05	KEW	398:04	, ř	420	2010	0.05	0,00	210x2	CE, MICROSCALE DRYWELLS = 420 2 DRYWELLS	•
UIC Requir	ement		A COLUMN TO THE TAXABLE PROPERTY.			A Company of the Comp	109						120 200111000	
LOT 4 DRIVEWAY	100.00	0.9500	705	0.02	56	145	89	67	705	0.02	0.00	67	PERM SURFACE DW @ .196	340
	**************************************			of princes of the state of the		A Property Value	535	542			-			-
					 							 		
LOT 5	100.00	0.95	2340	0.05	REQ	46Acuf	-	480	2350	0.05	0.00	ALT SURFACE	CE, MICROSCALE DRYWELLS	i La resi
				***				,				120×4	= 480 - 4 DRYNEUS	5
UIC Requir	ement I		ŀ	Paramate A			109					-		-
LOTS DRIVEWAY	100.00	0.9500	475	0.01	38	98	60	28	475	0.01	0.00	28 F	PERM SURFACE DW @ .196	145
	-		1		7		519	528			hys drive Amore			:
LOT 6 HSE	100,00	0.95	1850	0.04	REQ	300 cuf		392	1850	0.04	0.00	ALT SURFAC	CE, MICROSCALE DRYNELLS	
	1			mily and a second								196×2	1=392 - 2 DRYWELL	ら
UIC Requir	\$						109							
LOT 6 DRIVEWAY	100.00	0.9500	440	0.01	35	91	56 503	43 508	440	0.01	0.00	43 F	PERM SURFACE DW @ .196	221
	-		Total Control			APPENDITURE APPEND	300	. 500		-	**************************************			
LOT 7	100.00	0.95	1725	0.04	REQ	342 cut	†	392	1725	0.04	0.00	ALT SURFAC	CE, MICROSCALE DRYWELLS	
LOT 7 DRIVEWAY	100.00	0.9500	975	0.02	77	201	124	144	975	0.02	0.00		2 = 392 - 2 DRYWEL	JS 736
TO A DUACANI	100.00	0.5500	3/3	0.02	11	201	473	484	3/3	0.02	0.00	144 [ENW SUNFACE DW @ .130	; /30
											ļ. <u></u>		**************************************	·
LOT 8	52.74	0.5247	4740	0.11	207	539	332	475	2500	0.06	0.05	1	CE, MICROSCALE MICRO-BIO RETENTIO	N #3
UIC Requir	l ement						109					475	356 SF MICRO BIO	
LOT 8 DRIVEWAY	100.00	0.9500	448	0.01	35	92	57	29	448	0.01	0.00	29 P	PERM SURFACE DW @ .196	148
And the series the series		2.000	1	0.02			497	504	/~.	"""	1			
			ļ	·». ·• · · · · · · · · · · · · · · · · · ·	<u> </u>					ļ	<u> </u>			
LOT 9	58.82	0.5794	4250	0.10	205	534	328	350	2500	0.06	0.04	1	CE, MICROSCALE MICRO-BIO RETENTION 248 SF MICRO BIO	N #9
LOT 9 DRIVEWAY	100.00	0.9500	240	0.01	19	49	30	47	240	0.01	0,00	330 =	Old ONDHAL PERSON	1
												47 P	PERM SURFACE DW @ . 196	240
LOT 10	65.79	0.6421	3800	0.09	203	529	325	108.4	2010	0.06	0.03			
LOT 10 DRIVEWAY	100.00	0.9500	272	0.01	22	56	34	53	272	0.01	0.00	108.4	ALT SURFACE DRYWELLS	
P-1 VA WITH APANA	144.40	5.2300	1 -/-	U.U.		30	J.,	J.5			0.00	53 P	PERM SURFACE DW @ . 196	272
<>								i i						

ONLOT MICRO-BIORETENTION PLANTING SCHEDULE REMARK 5 GALLON CONT MYRICA PENNSYLVANICA BAYBERRY 3 GALLON CONT 297.00 TYP. 100 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS

303.50 MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

311.00 ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL 30500 FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH 307.00 HOWARD COLINTY PLANTING SPECIFICATIONS CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND 310.00 FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO 305,00 MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED 303.00 N THE BOTTOM OF DRAINAGE SWALES CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO 296.00 BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE 29580

PLAN SHALL GOVERN. SEE SHEET 10 FOR TYPICAL PLANTING SPECIFICATIONS AND DETAILS. 6. MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE

BE APPLIED TO THE AREAS PROVIDED IN THE ESDV SUMMARY.

(.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO

MICRO BIO RETENTION ARE #4

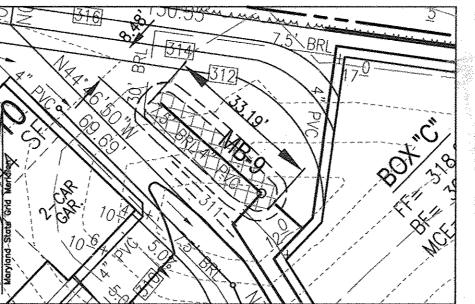
MICRO BIO RETENTION ARE #8

SCALE: 1"=20'

YPICAL PLANTING DETAIL

FOR MICRO BIO-RETENTION

MICRO BIO RETENTION ARE #5



MICRO BIO RETENTION ARE #9

SCALE: 1"=20"

MICRO BIO RETENTION ARE #6

LOT 10 (TYP 2)

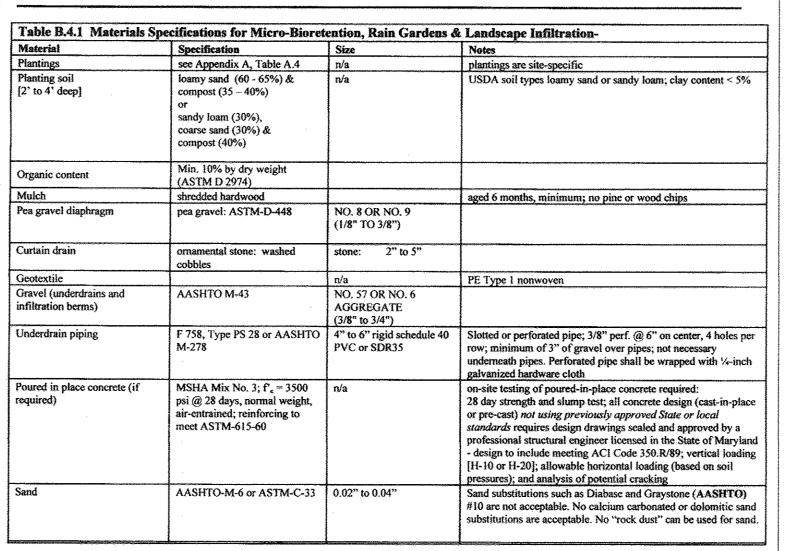
ROOF DRAIN DRYWELL DIMENSIONS REF: HOWARD CO. SHO DETAIL D-9.01 FOR DETAILS. OPERATION AND MAINTENANCE SCHEDULE SHT. G.

SCALE : 1 = 10'

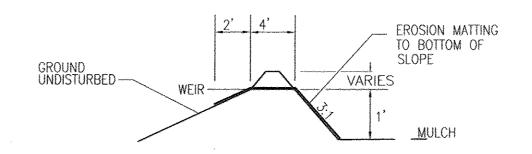
HOWARD COUNTY - OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)

- A. THE OWNER SHALL PERIODICALLY SWEEP (OR VACUUM POROUS CONCRETE PAVEMENT) THE PAVEMENT SURFACES TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED. SURFACE POROSITY, SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- B. THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBAS
- C. THE OWNER SHALL USE DEICERS IN MODERATION, DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT
- D. THE OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BLADES SET ONE-INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

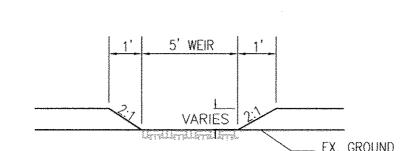
Appendix B.4. Construction Specifications for Environmental Site Design Practices



WEIR OUTLET MICRO-BIORETENTION/RAINGARDEN



TYPICAL SPILLWAY SECTION NOT TO SCALE



TYPICAL SPILLWAY PROFILE NOT TO SCALE

B.4.B SPECIFICATIONS FOR PERMEABLE PAVEMENTS & REINFORCED TURF

THESE SPECIFICATIONS INCLUDE INFORMATION ON ACCEPTABLE MATERIALS FOR TYPICAL APPLICATIONS AND ARE NOT EXCLUSIVE OR LIMITING. THE DESIGNER IS RESPONSIBLE FOR DEVELOPING SPECIFICATIONS FOR INDIVIDUAL PROJECTS AND SPECIFIC CONDITIONS.

DESIGN THICKNESS - PERVIOUS CONCRETE APPLICATIONS SHALL BE DESIGNED SO THAT THE THICKNESS OF THE CONCRETE SLAB SHALL SUPPORT THE TRAFFIC

AND VEHICLE TYPES THAT WILL BE CARRIED. APPLICATIONS MAY BE DESIGNED USING EITHER STANDARD PAVEMENT PROCEDURES (E.G., AASHTO, ACI 325.9R, ACI 330R) OR USING STRUCTURAL VALUES DERIVED FROM FLEXIBLE PAVEMENT DESIGN PROCEDURES. MIX & INSTALLATION - TRADITIONAL PORTLAND CEMENTS (ASTM C 150, C 1157) MAY BE USED IN PERVIOUS CONCRETE APPLICATIONS. PHOSPHORUS ADMIXTURES MAY ALSO BE USED. MATERIALS SHOULD BE TESTED (E.G., TRIAL BATCHING) PRIOR TO CONSTRUCTION SO THAT CRITICAL PROPERTIES (E.G., SETTLING TIME, RATE OF STRENGTH DEVELOPMENT, POROSITY, PERMEABILITY) CAN BE DETERMINED.

AGGREGATE - PERVIOUS CONCRETE CONTAINS A LIMITED FINE AGGREGATE CONTENT. COMMONLY USED GRADATIONS INCLUDE ASTM C 33 NO. 67 (3/4 IN. TO NO. 4), NO. 8 (3/8 IN. TO NO.16) AND NO. 89 (3/8 IN. TO NO.50) SIEVES. SINGLE-SIZED AGGRÉGATE (UP TO 1 INCH) MAY ALSO BE USED WATER CONTENT - WATER-TO-CEMENT RATIOS BETWEEN 0.27 AND 0.30 ARE USED ROUTINELY WITH PROPER INCLUSION OF CHEMICAL ADMIXTURES, WATER QUALITY SHOULD MEET ACI 30A. AS A GENERAL RULE, POTABLE WATER SHOULD BE USED ALTHOUGH RECYCLED CONCRETE PRODUCTION WATER MEETING ASTM C 94 OR

ADMIXTURES - CHEMICAL ADMIXTURES (E.G., RETARDERS OR HYDRATION-STABILIZERS) ARE USED TO OBTAIN SPECIAL PROPERTIES IN PERVIOUS CONCRETE. USE IF ADMIXTURES SHOULD MEET ASTM C 494 (CHEMICAL ADMIXTURES) AND ASTM C 260 (AIR ENTRAINING ADMIXTURES) AND CLOSELY FOLLOW MANUFACTURER'S

BASE COURSE - THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30). 2. PERMEABLE INTERLOCKING CONCRETE PAVEMENTS (PICP) PAVER BLOCKS - BLOCKS SHOULD BE EITHER 3? IN. OR 4 IN. THICK, AND MEET ASTM C 936 OR CSA A231.2 REQUIREMENTS. APPLICATIONS SHOULD HAVE 20% OR MORE (40% PREFERRED) OF THE SURFACE AREA OPEN. INSTALLATION SHOULD FOLLOW MANUFACTURER'S INSTRUCTIONS, EXCEPT THAT INFILL AND BASE COURSE

MATERIALS AND DIMENSIONS SPECIFIED IN THIS APPENDIX SHALL BE FOLLOWED. INFILL MATERIALS AND LEVELING COURSE - OPENINGS SHALL BE FILLED WITH ASTM C-33 GRADED SAND OR SANDY LOAM, PICP BLOCKS SHALL BE PLACED ON A ONE-INCH THICK LEVELING COURSE OF ASTM C-33 SAND. BASE COURSE - THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

TYP. HOUSE LENGTH VARIES STD HOWARD COUNTY GARAGE DRIVEWAY APRON STANDARD CONCRETE - PERMEABLE CONCRETE 7" (1) -#8 STONE OVER OVERDRAIN PIPE REQUIRED 12" ASTM C 33 OVERDRAIN 2" MIN. WITHIN SUBBASE UNDERDRAIN 3"MIN. SLOPED OUTLET PERFORATED OR SLOTTED WITHIN SUBBASE

> 1. CONCRETE SECTION TO BE CONFIRMED BY GEOTECHNICAL ENGINEER 2. UNDERDRAIN SHALL BE LOCATED SUCH THAT IT CAN DAYLIGHT TO THE CURB

> INTO A BIO-RETENTION FACILITY OR TO THE REAR OF THE LOT 3. OVERDRAIN SHALL COMBINE WITH UNDERDRAIN OR DAYLIGHT AS DETAILED FOR UNDERDRAIN, SEE NOTE 2.

DETAIL - A-2 PERMEABLE CONCRETE DRIVEWAY - 5% OR LESS NOT TO SCALE

A-2. PERMEABLE PAVEMENTS

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH PERMEABLE PAVEMENT:

EROSION AND SEDIMENT CONTROL: FINAL GRADING FOR INSTALLATION SHOULD NOT TAKE PLACE UNTIL THE SURROUNDING SITE IS STABILIZED. IF THIS CANNOT BE ACCOMPLISHED, RUNOFF FROM DISTURBED AREAS SHALL BE DIVERTED AROUND PROPOSED PAVEMENT

SUB SOILS SHALL NOT BE COMPACTED, CONSTRUCTION SHOULD BE PERFORMED WITH LIGHTWEIGHT, WIDE TRACKED EQUIPMENT TO MINIMIZE COMPACTION. EXCAVATED MATERIALS SHOULD BE PLACED IN A CONTAINED AREA. OVERDRAIN, UNDERDRAIN, AND DISTRIBUTION PIPES SHALL BE CHECKED TO FINSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS (SEE APPENDIX B. 4). THE UPSTREAM ENDS OF PIPES SHOULD BE CAPPED PRIOR TO INSTALLATION. ALL UNDERDRAIN OR DISTRIBUTION PIPES USED SHOULD BE INSTALLED FLAT ALONG THE BED BOTTOM.

SUBBASE AGGREGATE SHALL BE CLEAN AND FREE OF FINES. THE SUBBASE SHALL BE PLACED IN LIFTS AND LIGHTLY ROLLED ACCORDING TO THE SPECIFICATIONS (SEE APPENDIX 8.4).

REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION: DURING EXCAVATION TO SUB GRADE.

DURING PLACEMENT AND BACKFILL OF ANY DRAINAGE OR DISTRIBUTION SYSTEM(S). DURING PLACEMENT OF THE CRUSHED STONE SUBBASE MATERIAL

DURING PLACEMENT OF THE SURFACE MATERIAL.

UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

MAINTENANCE CRITERIA:

THE FOLLOWING PROCEDURES SHOULD BE CONSIDERED ESSENTIAL FOR MAINTAINING PERMEABLE PAVEMENT SYSTEMS:

PAVEMENTS SHOULD BE USED ONLY WHERE REGULAR MAINTENANCE CAN BE PERFORMED. MAINTENANCE AGREEMENTS SHOULD CLEARLY PAVEMENT SURFACES SHOULD BE SWEPT AND VACUUMED TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT, WASHING SYSTEMS AND COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING

DRAINAGE PIPES, INLETS, STONE EDGE DRAINS, AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE SHOULD BE CLEANED OUT

TRUCKS AND OTHER HEAVY VEHICLES CAN GRIND DIRT AND GRIT INTO THE POROUS SURFACES, LEADING TO CLOGGING AND PREMATURE FAILURE. THESE VEHICLES SHOULD BE PREVENTED FROM TRACKING AND SPILLING MATERIAL ONTO THE PAVEMENT.

DEICERS SHOULD BE USED IN MODERATION, WHEN USED, DEICERS SHOULD BE NON-TOXIC AND ORGANIC AND CAN BE APPLIED EITHER is calcium magnesium acetate or as pretreated salt. Snow plowing should be done carefully with blades set one—inch HIGHER THAN NORMAL. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

> OWNER/DEVELOPER PROPERTIES. LLC 7310 ESQUIRE CT., STE 14 ELKRIDGE, MD 21075 PHONE: (410) 379-8681

KEVIN BOWSER RYAN HOMES 9720 PATUXENT WOODS DR COLUMBIA, MD. 21046 (410) 796-0908

BUILDER

REPLACE MBR WITH DRYWELLS LOTS 3-7 REPLACE MBR WITH DRYWELLS LOT 10 04/05/16

SITE DEVELOPMENT PLAN

STORMWATER MANAGEMENT DETAILS

MONTGOMERY CROSSING PHASE 2 (SFD RESIDENTIAL) LOT 3 THRU 10

L. 13552 / F. 526

ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS • SURVEYORS • PLANNERS B407 MAIN STREET TEL: 410.461.7666 ELLIGOTT CITY, MD 21043 FAX: 410.461.8961



ROBERT H. VOGEL, PE No.1619.

1ST ELECTION DISTRICT

TAX MAP: 37 GRID: 05 DPZ REF'S: (SEE GENERAL NOTE 1 ON COVER SHEET)

DESIGN BY: CHECKED BY: DATE: SCALE: W.O. NO.: 12-42

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE TJW/KG OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016 JULY, 2014 AS SHOWN

SHEET __ OF __

SDP-14-082

ZONED: R-12/R-20 PARCEL: 682

HOWARD COUNTY, MARYLAND

