### **GENERAL SITE NOTES**

- THE SPECIFICATIONS FOR THIS PROJECT SHALL BE THOSE OF THE MARYLAND STATE HIGHWAY ADMINISTRATION TITLED "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS", JULY 2008 AS CURRENTLY
- SAMPLING OF MATERIALS (BANK RUN GRAVEL, ETC.) SHALL BE DONE IN ACCORDANCE WITH THE ST. MARY'S COUNTY SUBDIVISION ROAD CONSTRUCTION AND INSPECTION PROCEDURES TO INSURE COMPLIANCE WITH THE CURRENT MARYLAND STATE HIGHWAY ADMINISTRATION SPECIFICATIONS.
- STABILIZATION OF ALL DRAINAGE CHANNELS, ROAD SHOULDERS, SLOPES AND OTHER DISTURBED AREAS WILL BE COMPLETED PRIOR TO ACCEPTANCE OF THE ROAD INTO THE ST. MARY'S COUNTY HIGHWAY MAINTENANCE
- STANDARD END SECTIONS (SHA STANDARD NO. 370.01 AND 371.01). ALL REINFORCED CONCRETE PIPE SHALL BE MINIMUM CLASS IV. ALL REINFORCED PIPE END SECTIONS SHALL BE IN ACCORDANCE WITH SHA STANDARD NO.
- STONE OR RIPRAP SHALL BE CLASS I AS PER MARYLAND STATE HIGHWAY ADMINISTRATION SPECIFICATIONS, SECTION 901.02.01 AS CURRENTLY AMENDED.
- ALL RIPRAP IS TO BE PLACED ON DRY FILTER CLOTH. FILTER CLOTH SHALL MEET THE REQUIREMENTS OF SECTION 921.09 OF THE MARYLAND SHA SPECIFICATIONS AS CURRENTLY AMENDED.
- SOD OR SEED MIXTURES USED IN LINING DRAINAGE CHANNELS SHALL BE KENTUCKY 31 TALL FESCUE, UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION, AND SHALL BE IN ACCORDANCE WITH MARYLAND STATE HIGHWAY ADMINISTRATION SPECIFICATIONS SECTION 920,04.

**GENERAL PERMIT NOTES** 

as possible.

UTILIZATION OF ENVIRONMENTAL SITE DESIGN:

is proposed to provide Environmental Site Design Volume treatment as close to the source

MAINTENANCE OF LIMITS OF DISTURBANCE TO PROTECT NATURAL AREAS:

control measures shall be inspected and repaired at the end of each work day.

All construction traffic shall enter and leave the site via the construction entrance.

CONTROL OF CONSTRUCTION EQUIPMENT AND VEHICLES:

EVALUATION AND APPROPRIATE LIMITATION OF SITE CLEARING:

No vehicles are allowed beyond the limits of disturbance.

All erosion and sediment control measures shall be in place prior to any earthwork,

and all measures shall be maintained until disturbed areas are stabilized. All erosion

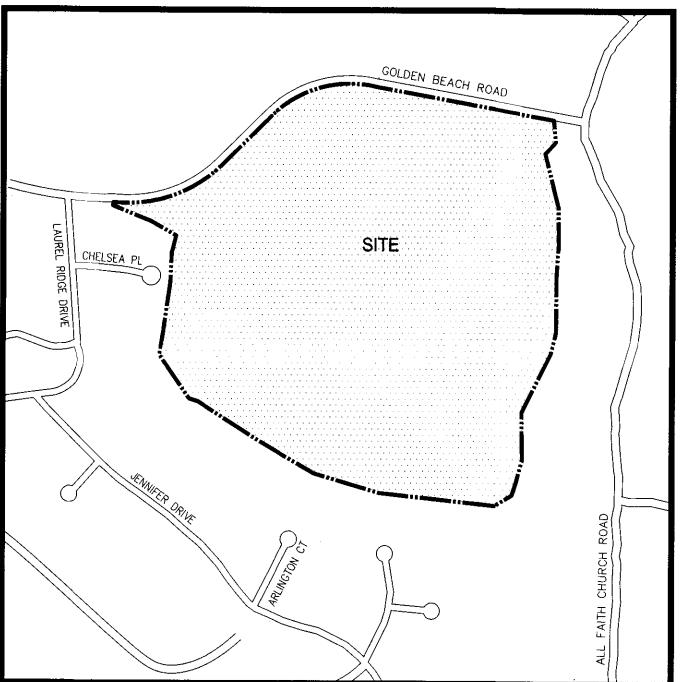
- SOILS FOUND TO BE UNSUITABLE FOR CONSTRUCTION SHALL BE EXCAVATED AND REMOVED AS ENCOUNTERED DURING CONSTRUCTION OF ROAD.
- AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ST. MARY'S COUNTY DEPARTMENT OF PUBIC WORKS AND TRANSPORTATION AT 301-475-4200, EXT \*3531
- ATTENTION IS CALLED TO PUBLIC SERVICE COMMISSION ORDER NUMBER 60838, CHAPTER 863, EFFECTIVE DATE AUGUST 1, 1974, AND SECTION 28A, ARTICLE 78 OF THE ANNOTATED CODE OF MARYLAND, 1994, REGARDING THE PROTECTION OF UNDERGROUND UTILITIES AND THE RESPONSIBILITY OF THE CONTRACTOR CONTAINED THEREIN. THE CONTRACTOR SHALL CONTACT OTHER UTILITY COMPANIES WHICH OPERATE IN THE AREA AND NOT IN THE "MISS UTILITY" PROGRAM.
- THE CONTRACTOR SHALL USE MIRAFI 140N NON WOVEN FABRIC (FOR PRACTICES THAT REQUIRE INFILTRATION)
- 12. ALL HANDICAP SPACES SHALL BE CONSTRUCTED TO MEET THE AMERICAN WITH DISABILITIES ACT REQUIREMENTS.
- 13. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE
- 14. ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE
- CONTRACTOR SHALL REFER TO THE ARCHITECTURAL/BUILDING PLANS FOR EXACT LOCATIONS AND DIMENSIONS

- CONTRACTOR TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. THAT ARE TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DAMAGE DONE TO ANY EXISTING ITEM DURING CONSTRUCTION SUCH AS BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAYEMENT STRIPING, CURBS, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND REPLACE ALL SIGNAL INTERCONNECT CABLE, CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING
- ALL CONCRETE SHALL HAVE THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS INDICATED IN

# CONCEPT DEVELOPMENT PLAN

# CORTEAU VINEYARD CHARLOTTE HALL, MARYLAND

FIFTH ELECTION DISTRICT ST. MARY'S COUNTY, MARYLAND



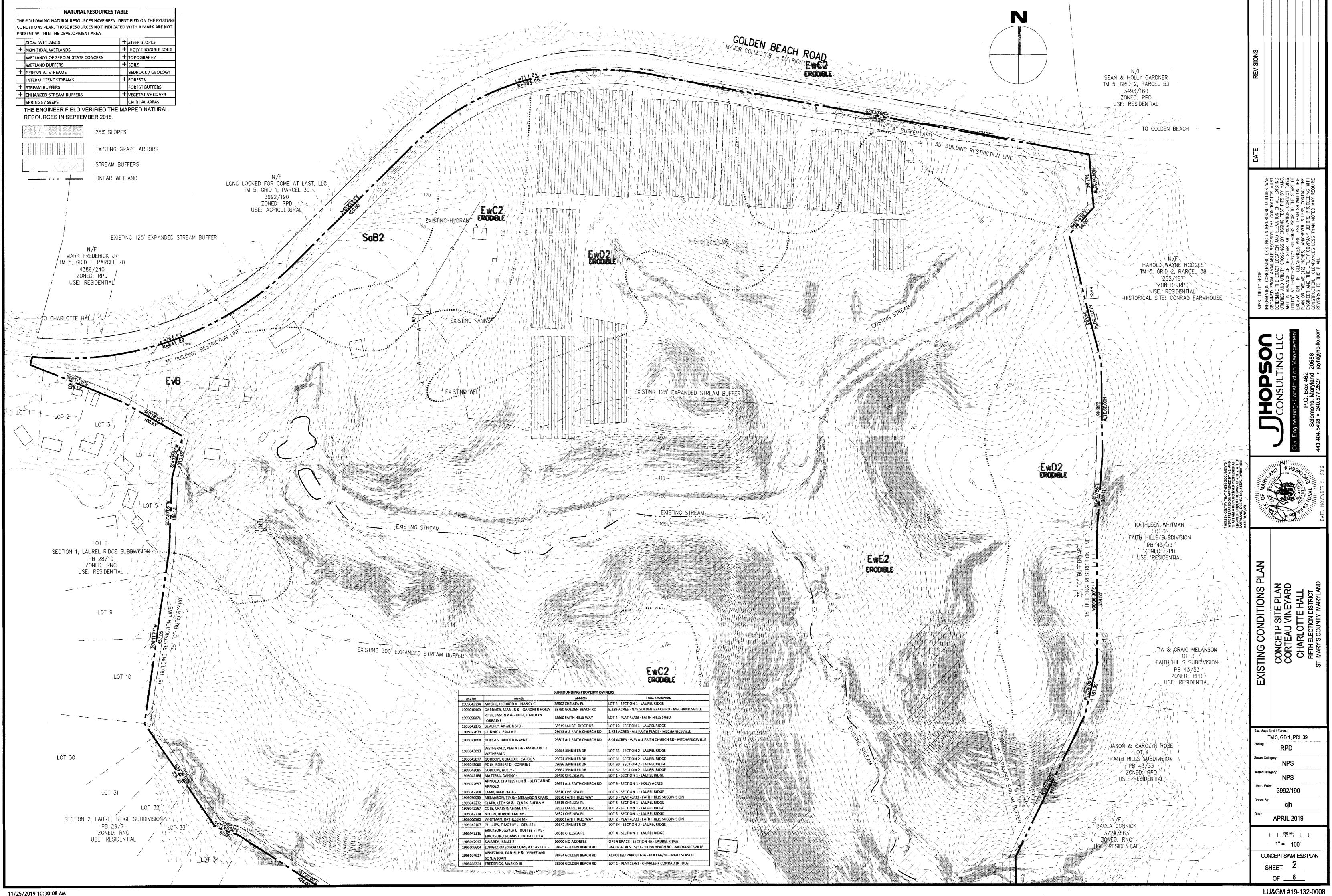
**VICINITY MAP** SCALE: 1" = 2000'

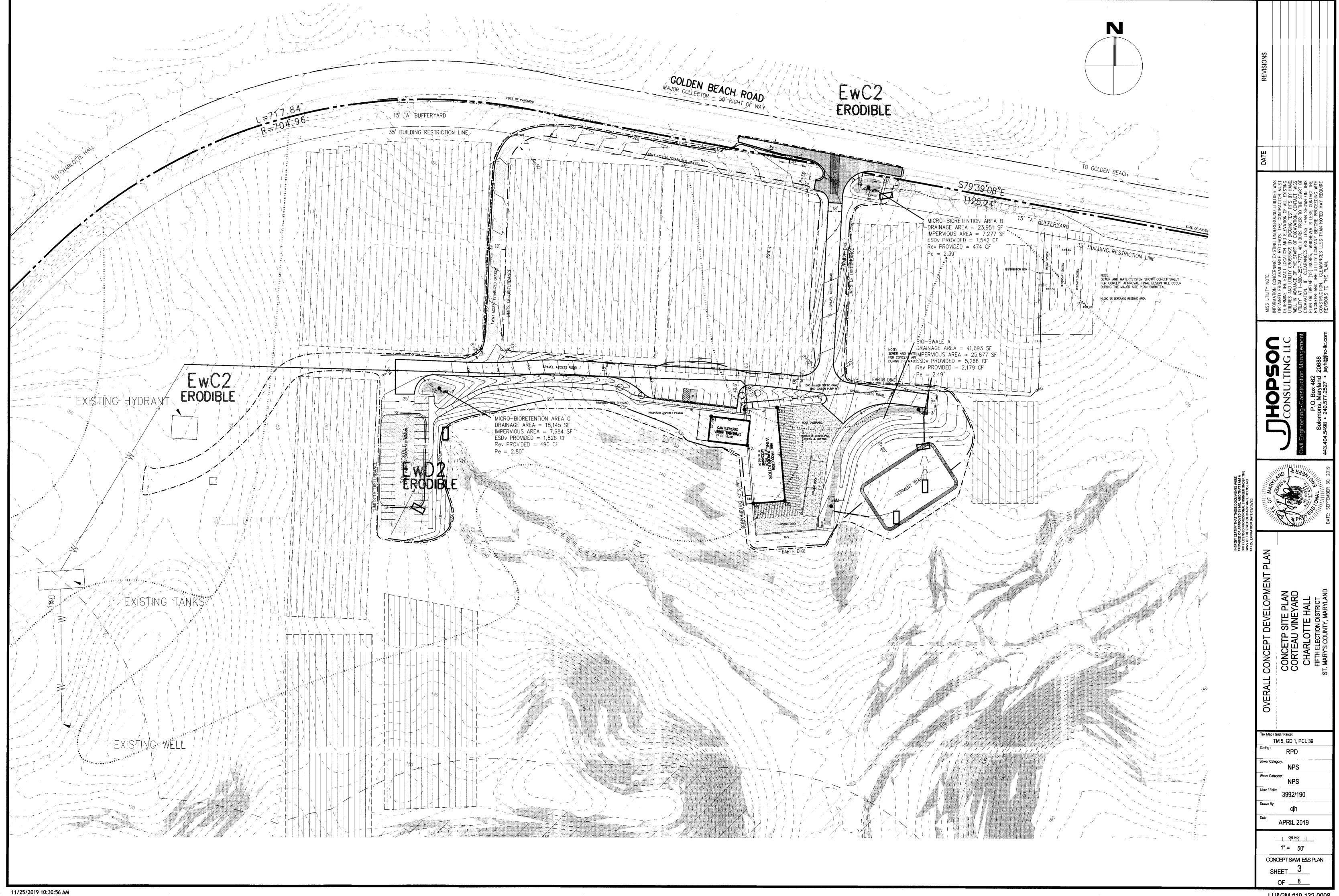
GENERAL NOTES

LONG LOOKED FOR COME AT LAST, LLC 29555 CHARLOTTE HALL ROAD CHARLOTTE HALL, MD 20622. CONTACT: PETER BYRN

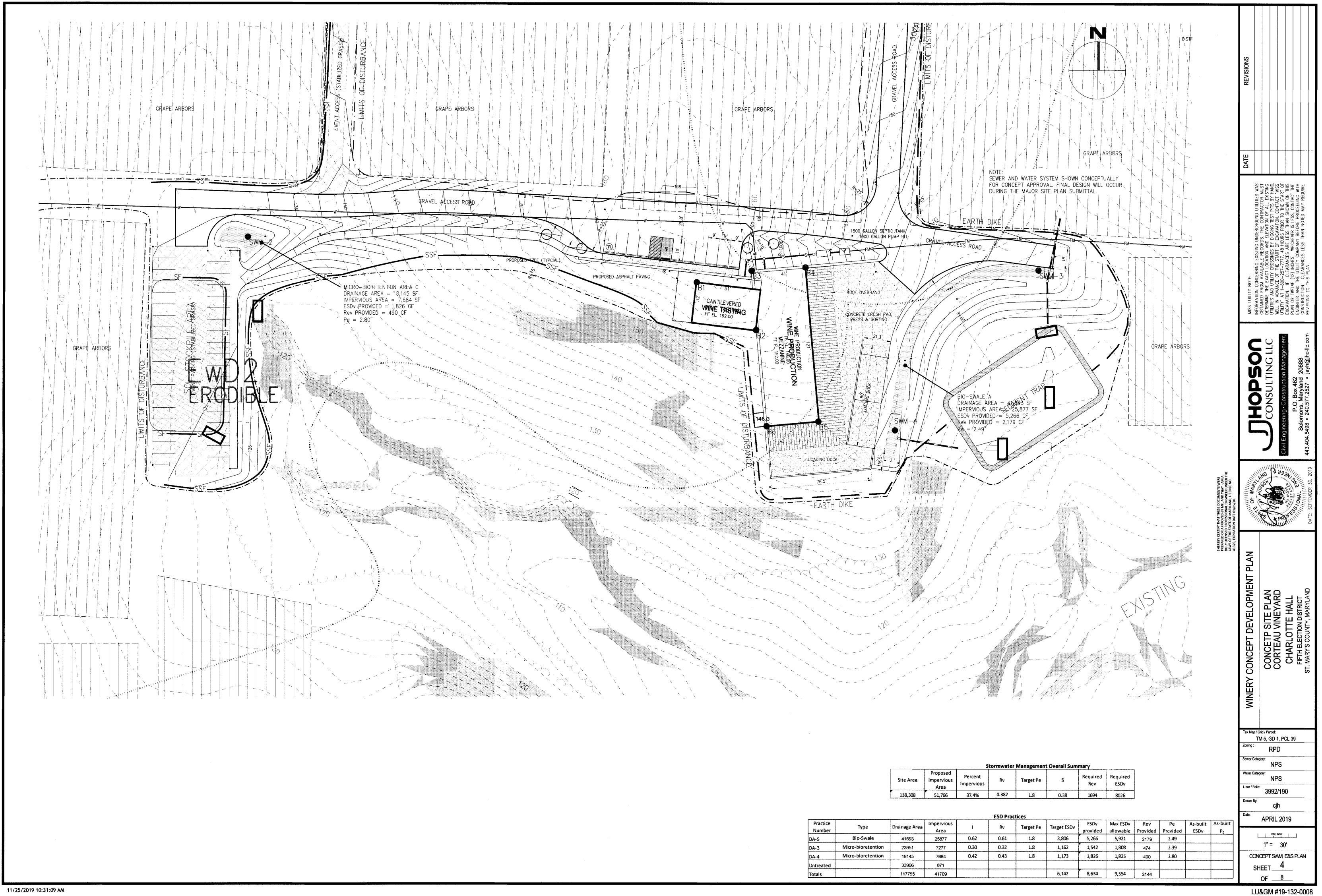
ENGINEER: J HOPSON CONSULTING, LLC SOLOMONS, MD 20688 410.404.5498 (OFFICE) 240.577.2527 (CELL) CONTACT: JAY HOPSON, PE

It is necessary to clear and grade the entire "site area" in order to excavate the site to assure positive drainage CHESAPEAKE TRAILS SURVEYING, LLC P.O. BOX 957 EVALUATION AND DESIGNATION OF SITE AREA FOR PHASING OR SEQUENCING: LEONARDTOWN, MD 20650 REQUIREMENTS AND STANDARDS OF ST. MARY'S COUNTY AGENCIES. The total disturbed area is 3.2 acres and will be constructed in a single phase. CONTACT: BARRY VUKMER, PLS IDENTIFICATION OF SOILS AT HIGH RISK FOR EROSION AND ADVANCED STABILIZATION PROJECT ADDRESS: 38625 GOLDEN BEACH ROAD (EXISTING HOME, Highly erodible soils have been identified on this site. Disturbed area shall be immediatley 38713 GOLDEN BEACH ROAD (PROPOSED WINERY) stabilized utilizing curlex erosion control matting as neccesary. CURRENT PROPERTY DESCRIPTIONS: PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN. TAX ID # - 05-005604 IDENTIFICATION OF STEEP SLOPES AND DESIGNATION OF LIMITATIONS ON CLEARING TAX MAP 05; BLOCK 1; PARCEL 39 LIBER 3992 FOLIO 190 0 OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS. Steep slopes have been identified on this site. Clearing of steep slopes shall be avoided. 1. TOTAL SITE ACREAGE: 244.07 ACRES When cleared they should be immediatley stabilized with toposil seed, and curlex erosion DEBRIS SHALL NOT BE BURIED ON SITE AND ALL UNSUITABLE MATERIAL AND SOLID WASTE SHALL BE DISPOSED control matting. 2. CURRENT ZONING: RPD OF IN ACCORDANCE WITH ALL COUNTY, STATE AND FEDERAL LAWS AND APPLICABLE CODES. EVALUATION AND DESIGNATION OF STABILIZATION REQUIREMENTS AND TIME LIMITS 3. BUILDING RESTRICTION LINES 17. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH OSHA STANDARDS) AND ANY ADDITIONAL PROVISIONS TO FRONT 35' AND PROTECTION MEASURES FOR DISCHARGE TO THE CHESAPEAKE BAY, IMPAIRED SIDE ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE. WATERS, OR WATERS WITH ESTABLISHED TOTAL MAXIMUM DAILY LOAD (TMDL): REAR Following initial soil disturbance or redisturbance, permanent or temporary stabilization 4. CURRENT USE: CROP PRODUCTION AND HORTICULTURE (5) A) Three calendar days for all perimeter controls, dikes, swales, ditches, perimeter PROPOSED USE: WINERY (12B) slopes and all slopes greater than 3 horizontal to 1 vertical (3:1), and 6. BUILDING INFORMATION: B) Seven days as to all disturbed or graded areas in the project site. WINERY = 6,562 SF All areas are to be stabilized with a minimum of 2" of top soil seed and mulch. HEIGHT = 28'CONSTRUCTION. REPAIR SHALL BE EQUAL TO OR BETTER THAN EXISTING. 7. FLOOR AREA RATIO PERMITTED = 0.05 (BASE)FORMWATER MANAGEMENT NARRATIVE WINERY = 6.562 SF SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND/OR GEOTECHNICAL REPORT This Stormwater Management plan is for the construction of a winery. Stormwater Management for the site has TOTAL FAR:  $6,562 \text{ SF} / (244.07 \times 43560) = 0.00062$ been evaluated using Environmental Site Design to the Maximum Extent Practicable. The most suitable ESD 8. PARKING: devices for this project are micro-bioretention areas and bio-swales. The site consist of soils with a Hydrological Soil Group of 'A'. 1 PARKING SPACE PER 1,000 SF FOR THE WINERY OPERATION 1 PARKING SPACE PER 5 VISITORS AT ESTIMATED PEAK CROWD FOR THE NATURAL RESOURCE PROTECTION AND ENHANCEMENT: The site conditions are generally a result of existing TASTING ROOM development that has occurred around the site and agricultural activities that have occurred on-site. 4,961 / 1,000 = 5 SPACES REQUIREDESTIMATED 30 PERSONS AT PEAK / 5 = 6 SPACES REQUIRED MAINTENANCE OF NATURAL FLOW PATTERNS: The site in it's current condition drains to south with a discharge into the natural stream bed. The proposed development drainage for the site will direct runoff into a TOTAL SPACES PROVIDED: micro-bioretention areas or bio-swales and then discharge to the natural drainage channel. Discharge will be 10 STANDARD SPACES 1 ADA SPACE to stabilized outfall. 11 SPACES PROVIDED **LOCATION MAP** REDUCTION OF IMPERVIOUS AREAS THROUGH BETTER SITE DESIGN. ALTERNATIVE 8. INTERIOR LANDSCAPE REQUIRED: SURFACES. AND NON STRUCTURAL PRACTICES: The site has been designed such that all impervious 10% OF THE NET PARKING FACILITY REQUIRED: 21,641 SF FACILITY x 0.1 = 2,164 SF surfaces will be directed to ESD devices. Alternative Surfaces have been proposed for the "Event Access Road" and Event Parking Area. Impervious surfaces have been reduced by minimizing the footprint of the development to the extent practical and removing all un-neccessary impervious surfaces. TREES REQUIRED IN PARKING FACILITY: 1 TREE/10 SPACES TREES PROVIDED IN PARKING FACILITY: 4 TREES INSPECTION AGENCY APPROVALS INTEGRATION OF EROSION AND SEDIMENT CONTROLS INTO THE STORMWATER STRATEGY: 8. THE DEVELOPMENT WILL BE SERVED BY AN ON-SITE SEWERAGE SYSTEM AND A DRILLED WELL. A. APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON Sediment control will be accomplished by placing super silt fence and earth dike around the perimeter of the COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT site This will ensure that sediment laden runoff does not leave the site. 9. THE CONTRACTOR SHALL CONTACT THE DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION AT LEAST CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH 48 HOURS PRIOR TO STARTING CONSTRUCTION. DISTURBANCE OR GRADING. IMPLEMENTATION OF ESD PLANNING TECHNIQUES AND PRACTICES TO THE MEP: B. APPROVAL SHALL BE REQUESTED UPON FINAL STABILIZATION OF ALL 10. THE PROJECT DOES NOT LIE WITHIN THE CHESAPEAKE BAY CRITICAL AREA. The criteria for sizing ESD practices are based on capturing and retaining enough rainfall so that the runoff SITES BEFORE REMOVAL OF SEDIMENT CONTROLS. leaving the site is reduced to a level equivalent to woods in good condition. The proposed site has 1.19 acres 11. LANDSCAPING REQUIREMENTS: C. THE CONTRACTOR SHALL NOTIFY MDE, ENVIRONMENT DIVISION, AT LEAST 48 USEABLE OPEN SPACE: 5% of impervious cover or 37.4% of the "site area". The total ESD volume required for the site is 8,026 cf. HOURS PRIOR TO COMMENCING CLEARING OR GRADING AT: (410)537-3510 3.2 ACRES (LOD)x0.05= 0.16 ACRES REQUIRED OR MDE. SEDIMENT AND STORMWATER ADMIN, 1800 WASHINGTON BLVD, 0.2 ACRES PROVIDED Two (2) micro-bioretention areas, 1 bio-swale has been provided to treatment volume for small areas near the BALTIMORE, MD 21230-1708. TOTAL DISTURBED AREA: 3.2 ACRES source of the runoff. The ESD facilities provide 8,634 cf storage volume. UNDEVELOPED OPEN SPAPCE: 50% 120 ACRES REQUIRED AREA TO BE VEGETATIVELY STABILIZED 2.0 ACRES 120 ACRES PROVIDED \*\* CUT 2.250 CUBIC YARDS Adequate Outfall: \*\*FILL 12. THE ENTIRE PROJECT AREA LIES WITHIN THE FLOOD HAZARD ZONE C PER FIRM PANEL 24037C076E. 2,250 CUBIC YARDS Outfall Calculations will show runoff leaving the site at a non-erosive velocity. \*\*EARTHWORK AND ESTIMATED QUANTITIES 13. PREDOMINATE SOIL ON THE PROPERTY ARE EVESBORO WESTPAHLIA (TYPE "A"), EARTHWORK QUANTITIES SHOWN HEREON ARE PROVIDED TO THE OWNER FOR LEGEND ABBREVIATIONS SOIL CONSERVATION DISTRICT APPROVAL AND BONDING PURPOSES ONLY. 14 THE EXISTING TOPOGRAPHY SHOWN ON THIS PLAN IS LIDAR TOPOGRAPHY SUPPLEMENTED WITH FIELD RUN TOPOGRAPGHY FIELD LOCATED BY CHESAPEAKE TRAILS SURVEYING. THE CONTRACTOR SHOULD BE AWARE THAT THESE QUANTITIES SHOULD NOT BE EXISTING TREELINE PROPOSED SIDEWALK BACK OF CURB USED FOR BIDDING PURPOSES. QUANTITIES ARE BASED ON ENGINEERING 15. FOREST INTERIOR DWELLING SPECIES HABITAT NOTES; EST MANAGEMENT PRACTICE DRAWINGS AND CALCULATIONS AND NO ALLOWANCE HAS BEEN MADE FOR EXISTING CONTOURS PROPOSED PAVEMENT DEVELOPMENT ACTIVITIES INCLUDING CLEARING, GRADING AND CONSTRUCTION SHALL BE MINIMIZED BOTTOM OF WALL UNSUITABLE SOILS, COMPACTION, SHRINKAGE, HAUL LOSS, OR OTHER SIMILAR DURING MAY TO AUGUST BREEDING SEASON. CORRUGATED METAL PIPE PROPOSED CONTOURS EXISTING PAVEMENT UNAVOIDABLE DEVELOPMENT ACTIVITIES OR OTHER DISTURBANCES DURING THE MONTHS OF MAY ERROR SOURCES. CLEAN OUT **CONSULTANT CERTIFICATION:** TO AUGUST BREEDING SEASON SHALL BE FOCUSED ON THE PERIPHERY OF THE AREA (ROADS, DEPTH EXISTING BUILDING PROPOSED DRAINAGE AREA UT:LITY LINES, CORRIDORS, AND STRUCTURES). ELEVATION Tax Map / Grid / Parcel: C. CONTINUOUS COVER OF BRANCHES AND FOILAGE FORMED BY THE CROWNS OF ADJACENT TREES I CERTIFY THAT THIS CONCEPT EROSION AND SEDIMENT CONTROL AND EDGE OF PAVE EXISTING WATER TM 5, GD 1, PCL 39 (FOREST CANOPY) AND TREES AND SHRUBS UNDERNEATH THE CANOPY (UNDERSTORY END SECTION STORMWATER MANAGEMENT PLAN REPRESENTS ALL SIGNIFICANT NATURAL SHEET INDEX X" WATER LINE VEGETATION) SHOULD BE RETAINED IN SO FAR AS POSSIBLE EASEMENT PROPOSED WATER SOIL STOCKPILE AREA RESOURCES BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT THIS CLEARINGN AND DEVELOPMENT ACTIVITIES SHOULD BE CLUSTERED AND CREATION OF SMALL X" SS FORCEMAIN PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CLEARINGS SHOULD BE MINIMIZED. EXISTING SEWER FINISHED FLOOR DESCRIPTION PROPOSED STORM DRAIN REVIEW AGENCIES. I HAVE REVIEWED THIS CONCEPT EROSION AND SEDIMENT FLOW LINE WHERE FOREST MUST BE CLEARED, THE CLEARED FOREST SHOULD BE ALLOWED OR ENCOURAGED NPS SEWER FORCEMAIN W/ MANHOLE TO RETURN TO NATIVE VEGETATION IN SO MUCH AS POSSIBLE. PROPOSED SEWER CONTROL PLAN WITH THE OWNER/DEVELOPER. COVER SHEET HIGH POINT **EXISTING CONDITIONS** 16. DEVELOPMENT PROPOSALS LOCATED ON LANDS IN THE PATUXENT RIVER WATERSHED SHALL BE BUILDING RESTRICTION LINE -PROPOSED STORM DRAIN REQUIRED TO DESIGN AND IMPLEMENT THE FOLLOWING ADDITIONAL MEASURES TO PREVENT SEVERE OVERALL SITE DEVELOPMENT PLAN LENGTH EROSION OF HIGHLY ERODIBLE SOILS LOCATED ON AND OFF-SITE FROM THE EFFECTS OF ALTERED LINEAR FEFT LIMITS OF DISTURBANCE WINERY CONCEPT DEVELOPMENT PLAN 9/30/19 DRAINAGE PATTERNS AND DISCHARGE OF CONCENTRATED RUNOFF: L.O.D. LIMIT OF DISTURBANCE SWM DETAILS 1) ANY CONCENTRATION OF RUNOFF THAT WILL FLOW ACROSS HIGHLY ERODIBLE SOILS LOCATED EXPANDED BRL PROPOSED INLET PROTECTION MANHOLE BETWEEN THE POINT OF CONCENTRATION OF RUNOFF TO THE POINT OF ENTRY OF THE RUNOFF SCS NOTES PROP PROPOSED C. JAY HOPSON, P.E. DATE INTO A PERENNIAL STREAM OR OTHER WATERS OF THE STATE SHALL BE MANAGED USING BOTH SUBJECT PROPERTY LINE PROPOSED FIRE HYDRANT ASSEMBLY PRE-DEVELOPED DRAINAGE AREA MAP MD LICENSE #41325 STRUCTURAL AND NONSTRUCTURAL BEST MANAGEMENT PRACTICES ON-SITE AND OFF-SITE. RCP REINFORCED CONC. PIPE POST-DEVELOPED DRAINAGE AREA MAP **APRIL 2019** 2) PROVISIONS FOR ACCESS, INSTALLATION, AND MAINTENANCE OF THE BMP'S SHALL BE REQUIRED ADJACENT PROPERTY LINE ROW RIGHT OF WAY +EX\_XX.XX FOR BOTH ON SITE AN OFFSITE MEASURES. SAN. SANITARY SEWER PROPOSED BUILDING XX.XX + STORM DRAIN ONE INCH 17 AVERAGE DAILLY TRAFFIC FOR THE WINERY IS 47 VEHICLES PER DAY. NOSE DOWN CURB SQUARE FEET PROPOSED CURB AND GUTTER -AS SHOWN TELEPHONE & CABLE EXISTING WETLAND 120V 25 2019 TOP OF WALL CONCEPT SWM, E&S PLAN SLOPES 15% OR GREATER TYPICAL WIDTH SHEET\_\_\_\_ WITH





LU&GM #19-132-0008



### **B.3.B Specifications for Bioretention**

#### 1. Material Specifications

The allowable materials to be used in bioretention area are detailed in Table B.4.1.

## 2. 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 bioretention area 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, Quack grass, 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:

pH range 1.5 - 4% (by weight) organic matter magnesium 35 lb./ac phosphorus (phosphate - P2O5) 75 lb./ac potassium (potash - K2O) 85 lb./ac

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium 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 top soil was excavated. Since different labs calibrate their testing equipment differently, all testing results shall come from the same testing facility. Should the pH fall out of the acceptable range, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur.

not to exceed 500 ppm

#### 3. Compaction

soluble salts

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

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

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

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

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

Recommended plant material for bioretention areas can be found in Appendix A, Section A.2.3.

Mulch should be placed to a uniform thickness of 3". Shredded 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.

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

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

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

# 6. Underdrains

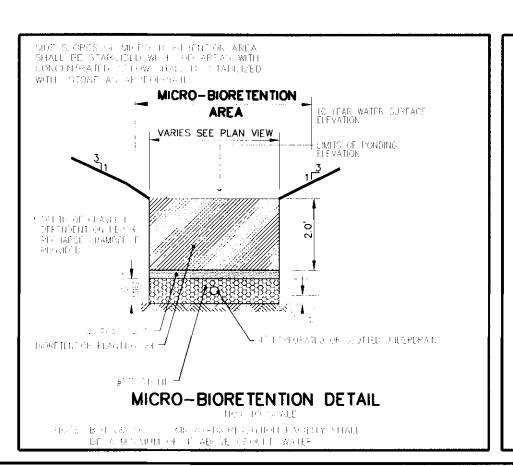
Underdrains are to be placed on a 3'-0" wide section of filter cloth. Pipe is placed next, followed by the gravel bedding. The ends of underdrain pipes not terminating in an observation well shall be capped.

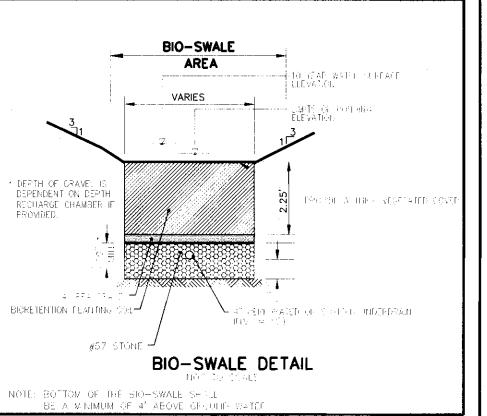
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5 %. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

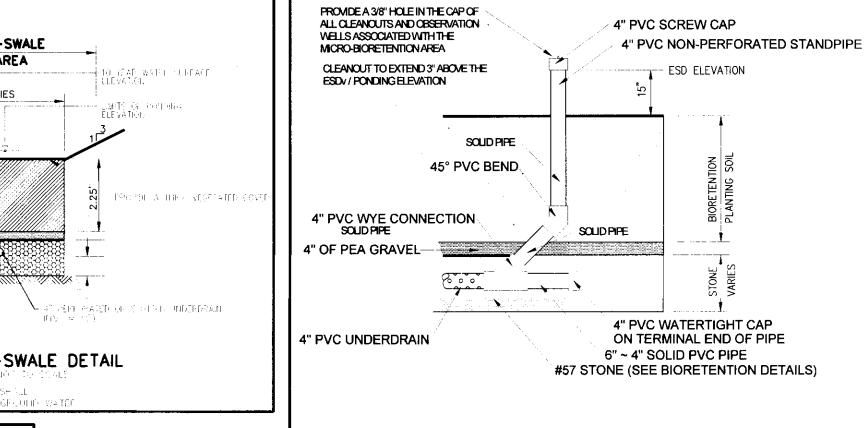
# 7. Miscellaneous

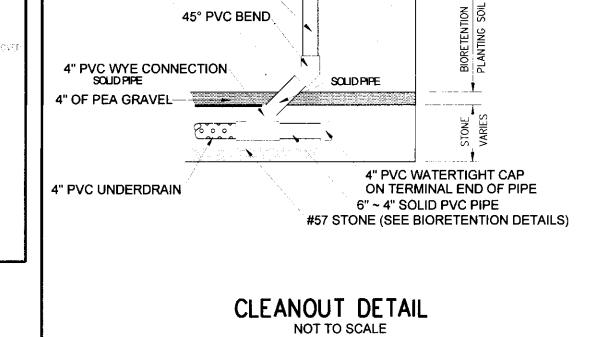
The bioretention facility may not be constructed until all contributing drainage area has been stabilized.

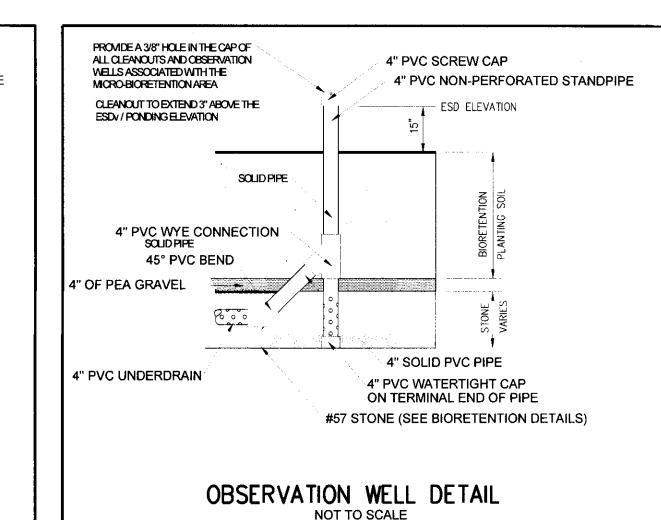
MATERIAL	SPECIFICATION	SIZE	NOTES			
PLANTINGS	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC			
PLANTING SOIL	LOAMY SAND 60-65% & COMPOST 35-40% OR	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM, CLAY CONTENT <5%			
	SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)					
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D 2974)					
MULCH	SHREDDED HAYDWCCD	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS			
PEA GRAVEL DIAPHRAGM	PEA GRAVEL: ASTM-D448	NO. 8 OR NO. 9 (1/8' TO 3/8')				
CURTAIN DRAIN	ORNAMENTAL STONE: WASHED COBBLES	STONE: 2' TO 5'	STONE: 2' TO 5'			
GEOTEXTILE		NA	PE TYPE I NONWOVEN			
GRAVEL (UNDERDRAINS AND INFILTRATION BERINS)	AASHTOM43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")				
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	SLOTTED OR PERFORATED PIPE; 3/8" PERF. @6" ON CENTER, 4 HOLES PER ROW, MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4 INCH GALVANIZED HARDWARE CLOTH			
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHAMIX NO. 3; f' = 350g PSI @ 28 DAYS, NORWAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWING SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE MARYLAND-DESIGN TO INCLUDE MEETING ACI CODE 350.R/89; VERTICAL LOADING (H-10 OR H-20 ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING			
SAND [1' DEEP]	AASHTOM6 OR ASTIMC-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.			











BIO-SWALE CHECK DAM NOT TO SCALE

# MICRO-BIORETENTION DESIGN AND INSTALLATION

- Materials and construction shall be in accordance with the 2000 Maryland Stormwater Design Manual including, but not limited to, Appendix "B.4" Section B.4.C for construction specifications.
- Structure to be located at least 10' away from foundation walls, 25' from septic easements and 50' from confined water supplies.
- 3. Micro-bioretention shall not be constructed until the contributing drainage area is
- 4. During site construction, structures shall be delineated with highly visible stakes. Runoff shall be be diverted away from and use of heavy equipment avoided on top of proposed
- saturated conditions. Filter media should be placed in horizontal layers (12" max) and allowed to compact.

5. Planting soil may be mixed on-site prior to installation. Soils should not be placed under

- 6. Gravel for the underdrain system shall be clean, washed, and free of fines. The upstream end of the pipe should be capped.
- 7. Optimum planting time for landscaping is during the fall. Spring planting is acceptable,
- 8. Micro-bioretention shall be inspected at a minimum: a) During excavation to subgrade and placing of soil. b) during placement of soil media. c) during construction of appurtenant conveyance

# **INSPECTION & MAINTENANCE FOR ALL ESD FACILITIES**

Visual inspection of the stormwater management faciliteis after major rain events. Any sign of erosion should be repaired immediatly.

d) Upon completion of final grading and establishment of permanent stabilization.

Trash and debris shall be removed as necessary. Silt/sediment shall be removed from the filter bed when the accumulation exceeds one inch.

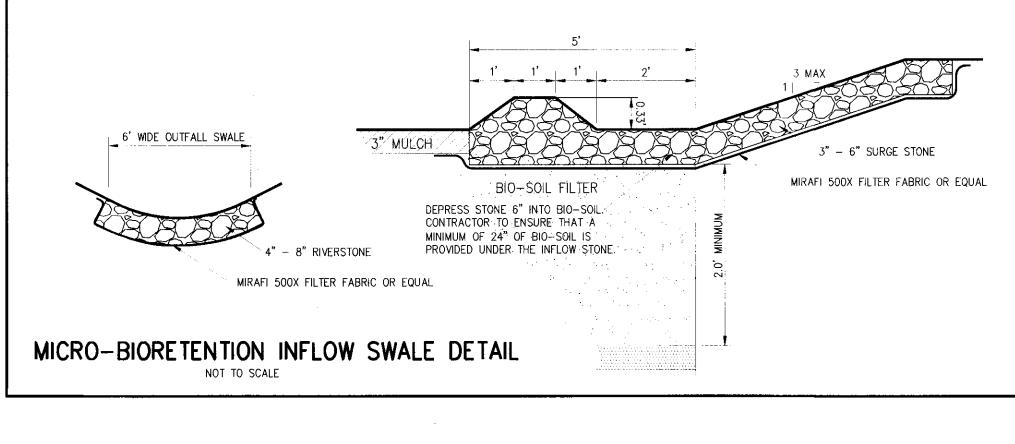
When the filtering capacity of the filter diminishes substantially (i.e., when water ponds

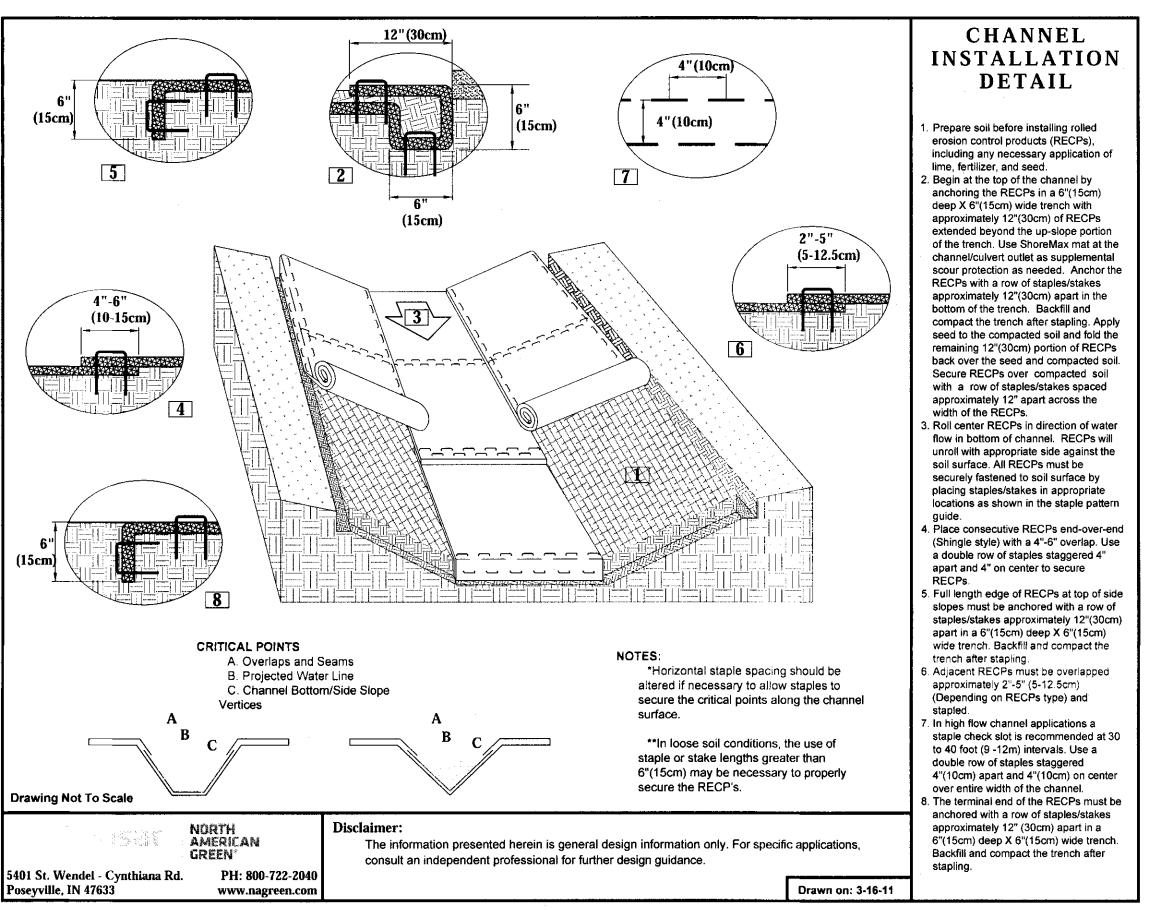
on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material. The removed sediments should be disposed in an acceptable manner (i.e., landfill) If ponding continues to be an issue then removal and replacement of the pea gravel

bridging layer or the filter material itself may be necessary (Does not apply to Submerged Gravel Wetlands)

Grass cover should be mowed a minimum of 3 times per growing season to maintain maximum grass heights less than 12 inches. Areas devoid of mulch should be re-mulched on an annual basis.

Dead or diseased plant material shall be replaced





THIS DETAIL TO BE UTILIZED FOR ALL PERMANENT EROSION CONTROL MATTING

# SUITABILITY OF ESD DEVICES

Micro-bioretention and Bio-Swales have been proposed on this site. Soil in this area is generally C. Underdrains will be provided in all micro-bioretention areas and bio-swales. Drainage areas must be kept below the 30,000 SF threshold for micro-bioretention areas and

Rain Gardens have not been proposed because of the relatively large drainage areas with little opportunity to minimize the size.

Grass Swales have been utilized in areas that are linear in nature.

under 1.0 acres for bio-swales.

11/25/2019 10:31:03 AM

LU&GM #19-132-0008

STORMWATER

Tax Map / Grid / Parcel TM 5, GD 1, PCL 39 RPD Sewer Category:

Water Category: Liber / Folio: 3992/190 Drawn By: **APRIL 2019** 

ONE INCH

CONCEPT SVM, E&S PLAN SHEET \_\_\_ 3

- THE CONTRACTOR SHALL NOTIFY THE ST. MARY'S SOIL CONSERVATION DISTRICT (SCD) AT (301) 475-8402 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY. THE APPLICANT SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF ST. MARY'S SOIL CONSERVATION DISTRICT
- THE CONTRACTOR MUST NOTIFY WMA IN WRITING AND BY

TELEPHONE AT THE FOLLOWING POINTS:

F. PRIOR TO FINAL ACCEPTANCE.

STRUCTURE(S).

- A. THE REQUIRED PRE-CONSTRUCTION MEETING.
- B. FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES. C. DURING THE INSTALLATION OF SEDIMENT BASINS (TO BE CONVERTED INTO PERMANENT STORMWATER MANAGEMENT STRUCTURES) AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKEST ON PLAN), NOTIFICATION PRIOR 1 COMMENCING CONSTRUCTION OF EACH STEP IS MANDATORY.
- D. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL
- E. PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES.
- THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND, SHALL HAVE THEM INSPECTED AND APPROVED BY THE AGENCY INSPECTOR OF WMA PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE INSPECTOR. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES, AND SHALL NOT REMOVE ANY FROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM THE WMA INSPECTOR AND AGENCY INSPECTOR. THE CONTRACTOR MUST OBTAIN PRIOR AGENCY AND WMA APPROVAL FOR CHANGES TO THE SEDIMENT CONTROL PLAN AND/OR SEQUENCE OF CONSTRUCTION.
- 4. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.
- 5. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR.
- ALL SEDIMENT BASINS, TRAP EMBANKMENTS AND SLOPES. PERIMETER DIKES, SWALES AND ALL DISTURBED SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES, AS SOON AS POSSIBLE BUT NO LATER THAN THREE (3) CALENDAR DAYS AFTER ESTABLISHMENT. ALL AREAS DISTURBED OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST BE MINIMIZED. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT FOR STABILIZATION MAY BE REDUCED.) TO THREE (3) DAYS FOR SENSITIVE AREAS.)
- THE CONTRACTOR SHALL APPLY SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS AND STOCKPILES WITHIN SEVEN (7) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED IN THE AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION, (REQUIREMENT MAY BE REDUCED TO THREE (3) DAYS FOR SENSITIVE AREAS.)
- PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND HAVE ESTABLISHED PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHERE THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED CRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NOT LATER THAN SEVEN '7) CALENDAR DAYS AFTER ESTABLISHMENT. WHEN PROPERTY IS UGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 13 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.
- THE SITE'S APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, DAILY LOG BOOKS AND TEST REPORTS SHALL BE, AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF WMA AND AGENCY RESPONSIBLE FOR THE PROJECT.
- . SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO LOWER THE WATER DOWNSLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF CUT OR FILL SLOPES UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED, AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE PROTECTIVE METHODS MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.
- 11. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SOD OR SEED WITH AN APPROVED EROSION CONTROL MATTING, RIPRAP, OR BY OTHER APPROVED STABILIZATION MEASURES.
- 12. TEMPORARY SEDIMENT CONTROL DEVICES MAY BE REMOVED WITH PERMISSION OF WMA INSPECTOR AND AGENCY INSPECTORS, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS, STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO MEET PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS
- 13. NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON-MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.
- 14. FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS SO AS TO PREVENT WATER FROM STANDING ON THE SURFACE MORE THAN TWENTY FOUR (24) HOURS AFTER THE END OF A RAINFALL EXCEPT IN DESIGNATED DRAINAGE COURSES AND SWALE FLOW AREAS WHICH MAY DRAIN AS LONG AS FORTY-FIGHT (48) HOURS AFTER THE END OF A RAINFALL, AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT
- 15. SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A FOUNDATION WHICH IS EXISTING OR UNDER CONSTRUCTION. NO STRUCTURE MAY BE CONSTRUCTED WITHIN 20 FEET OF AN ACTIVE SEDIMENT TRAP OR BASIN.
- 6. THE WMA INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES, IF DEEMED NECESSARY.
- 17. ALL TRAP DEPTH DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. ALL TRAPS MUST HAVE A STABLE OUTFALL. ALL TRAPS AND BASINS SHALL BE STABLE INFLOW POINTS.
- 18. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SODDING AND GROUND COVERS.

- 19. TEMPORARY SEDIMENT TRAP(S) SHALL BE CLEANED OUT AND RESTORED TO THE ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO A POINT ONE HALF (1/2) THE DEPTH BETWEEN THE OUTLET CREST AND THE BOTTOM OF THE TRAP. SEDIMENT BASINS SHALL BE CLEANED OUT AND RESTORED TO THE ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO ONE HALF (1/2) THE DEPTH BETWEEN THE DEWATERING ELEVATION AND THE BOTTOM OF THE BASIN.
- 20. SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED ON STABILIZED APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN. WETLAND OR TREE-SAVE AREA. WHEN PUMPING SEDIMENT LADEN WATER, THE DISCHARGE MUST BE DIRECTED TO A SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE. A SUMP PIT MAYBE USED IF SEDIMENT TRAPS THEMSELVES ARE BEING PUMPED
- 21. WHERE DEEMED APPROPRIATE BY THE ENGINEER OR INSPECTOR, SEDIMENT BASINS AND TRAPS MAY NEED TO BE SURROUNDED WITH AN APPROVED SAFETY FENCE. THE FENCE MUST CONFORM TO LOCAL ORDINANCES AND REGULATIONS. THE DEVELOPER OR OWNER SHALL CHECK WITH LOCAL BUILDING OFFICIALS ON APPLICABLE SAFETY REQUIREMENTS. WHERE SAFETY FENCE IS DEEMED APPROPRIATE AND LOCAL ORDINANCES DO NOT SPECIFY FENCING SIZES AND TYPES, THE FOLLOWING SHALL BE USED. AS A MINIMUM STANDARD THE SAFETY FENCE MUST BE MADE OF WELDED WIRE AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN 2 INCHES IN WIDTH AND 4 INCHES HEIGHT WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED AND IN GOOD CONDITION AT ALL TIMES.
- 22. SEDIMENT CONTROL FOR UTILITY CONSTRUCTION FOR AREAS OUTSIDE OF DESIGNED CONTROLS OR AS DIRECTED BY ENGINEER OR
- (A) CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE
- (B) EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
- (C) TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED. COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED THE SAME DAY, UNLESS:
- (D) TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.
- 23. OFF-SITE SPOIL OR BORROW AREAS ON STATE OR FEDERAL PROPERTY MUST HAVE PRIOR APPROVAL BY WMA AND OTHER APPLICABLE STATE, FEDERAL, AND LOCAL AGENCIES OTHERWISE, APPROVAL MUST BE GRANTED BY THE LOCAL AUTHORITIES. ALL WASTE AND BORROW AREAS OFF-SITE MUST BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.
- 24. SITES WHERE INFILTRATION DEVICES ARE USED FOR THE CONTROL OF STORMWATER, EXTREME CARE MUST BE TAKEN TO PREVENT RUNOFF FROM UNSTABLIZED AREAS FROM ENTERING THE STRUCTURE DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES PLACED IN CONSTRUCTION. SEDIMENT CONTROL DEVICES PLACED IN INFILTRATION AREAS MUST HAVE BOTTOM ELEVATIONS AT LEAST TWO (2) FEET HIGHER THAN THE FINISH GRADE BOTTOM ELEVATION OF THE INFILTRATION PRACTICE. WHEN CONVERTING A SEDIMENT TRAP TO AN INFILTRATION DEVICE, ALL ACCUMULATED SEDIMENT MUST BE REMOVED AND DISPOSED OF PRIOR TO FINAL GRADING OF INFILTRATION DEVICE.
- 25. WHEN A STORM DRAIN SYSTEM OUTFALL IS DIRECTED TO A SEDIMENT TRAP OR SEDIMENT BASIN AND THE SYSTEM IS TO BE USED FOR TEMPORARILY CONVEYING SEDIMENT LADEN WATER, ALL STORM DRAIN INLETS IN NON-SUMP AREAS SHALL HAVE TEMPORARY ASPHALT BERMS CONSTRUCTED AT THE TIME OF BASE PAVING TO DIRECT GUTTER FLOW INTO INLETS TO AVOID SURCHARGING AND OVERFLOW OF INLETS IN SUMP AREAS.
- 26. DRIVEWAY GRADES OF 12% OR GREATER MUST BE TREATED WITH BITUMINOUS CONCRETE PAVEMENT OR OTHER SIMILAR MATERIAL.

## STANDARD STABILIZATION NOTE:

"FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE. PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE."

# NOTE TO CONTRACTOR

SEDIMENT AND EROSION CONTROL WILL BE STRICTLY ENFORCED

- INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
- ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING
- iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREAS OVER, 5 ACRES.
- B. 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 OVER 5 ACRES. SOIL ANALYSIS MAYBE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL
- FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR APPLICATION BY APPROVED EQUIPMENT. MANURE MAYBE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME TRADE NAME, OR TRADEMARK AND WARRANTEE OF THE PRODUCER.
- iii. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE), LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98 - 100% WILL PASS THROUGH A #20 MESH
- iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3" 5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- C. SEEDBED PREPARATION
- i. TEMPORARY SEEDING
- a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION, EQUIPMENT, SUCH-AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED. IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH BUT LEET IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING HE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
- b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
- c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3" 5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS. ii. PERMANENT SEEDING
- a. MINIMUM SOIL CONDITION REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT.
- 1. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0. 2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION 3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH
- FINE GRAINED MATERIAL (> 30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF (LOVEGRASS OR SERICIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (< 30% SILT PLUS CLAY) WOULD BE ACCEPTABLE. 4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY
- 5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION. 6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATIONS FOR TOPSOIL. b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE
- DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3" -TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
- c. APPLY SOIL AMENDMENTS, AS PER SOIL TEST OR AS INCLUDED ON
- d. MIX SOIL AMENDMENTS INTO THE TOP 3" 5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED. PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVYCHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (GREATER THAN 3:1) SHOULD BE TRACKED BY A DOOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OR THE SLOPE. THE TOP 1"- 3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED
- D. SEED SPECIFICATIONS
- i. ALL SEED MUST MEET THE REQUIREMENT OF THE MARYLAND STATE SEEDLAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB. (NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED).
- I. INOCULANT THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON 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 75-80 F. CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
- E. METHODS OF SEEDING
- I. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.
- a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN, MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 LBS/AC; K20 (POTASSIUM): 200
- b. LIME USE ONLY GROUND AGRICULTURAL LIMESTONE, (UP TO 5 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDOSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
- c. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

- ii. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
  - a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES. THE SEEDED AREA SHALL THEN BE ROLLED WITH A II. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
  - b. Where practical, seed should be applied in two directions iii. At the end of each day, temporary berms and pipe slope drains PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT EACH DIRECTION.
- iii. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
- A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
- b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION
- F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE OR

OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY

MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

GROWTH INHIBITING FACTORS.

- i. WOOD CELLULOSE FIBER MULCH (WCFM)
  - a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE

PACKACE THAT WILL PROVIDE AN APPROPRIATE COLOR TO

c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR

FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD

- d. WCFM MATERIALS SHALL 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 SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT NHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
- e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
- f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM., DIAMETER APPROXIMATELY 1 MM., pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.
- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
- G. MULCHING SEEDED AREAS MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
- WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A INSTALLATION. UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE.
- iii. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:
- A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSISLE.
- WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- III. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SUCH AS ACRYLIC DLR (AGRO- WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT TACK). DCA-70. PETROSET, TERRA TAX 11. TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
- iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.
- . INCREMENTAL STABILIZATION CUT SLOPES
- . ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED
- ii. CONSTRUCTION SEQUENCE TO BE DESCRIBED IF UTILIZED.
- NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

- J. INCREMENTAL STABILIZATION OF EMBANKMENTS FILL SLOPES EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON
- THE PLANS. HEIGHT OF THE MULTIPLE LIFTS REACHES 15 FEET, OR, WHEN THE
- GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS. TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A

NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.

iv. CONSTRUCTION SEQUENCE TO BE DESCRIBED IF UTILIZED. NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH COMPLETION AND GRADING AND PLACEMENT OF TOPSOIL ( REQUIRED) AND PERMANENT SEED AND MUICH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

#### SECTION II - TEMPORARY SEEDING

		_ 11	MPORARY SEE	DING SUMMAI	₹Y		
SEED	MIXTURE H	IARDNESS ZONE 7a) FR	OM TABLE 26				
MIX NO.	SPECIES	APPLICATION RATE SEEDING (LB,/AC.)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-10-10)	LIME RATE	
1	RYE 39	2.5 BU. (140 LBS.)	2/1-4/30 8/15-11/30	1/4"-1/2"	600 LB./AC.	2 TONS./AC.	
-	-	-	-	-	(15 LB./1000 S.F.)	(100LB./1000S.F.)	

#### SECTION II - PERMANENT SEEDING

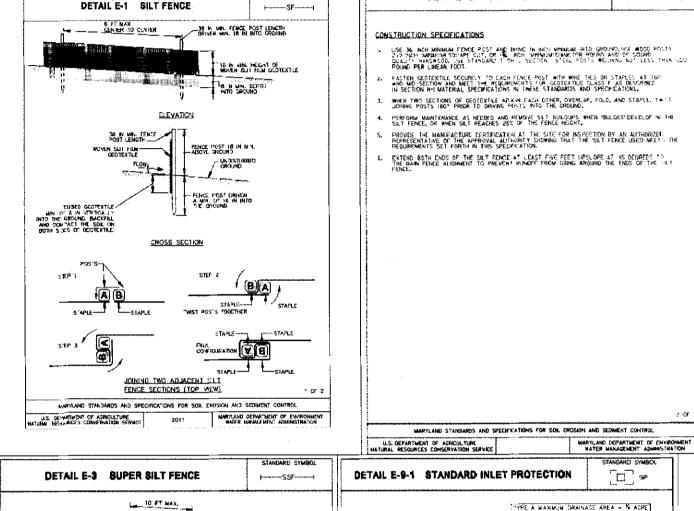
			PERMANE	nt seeding	SUMMARY			
SEED MIXTURE HARDNESS ZONE 7a) FROM TABLE 25								
MIX NO.	SPECIES	APPLICATION RATE SEEDING (LB./AC.)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10- 20- 20)		LIME RATE.	
3	TALL FESCUE (85%), PERENNIAL RYEGRASS (10%), KENTUCKY BLUEGRASS (5%)	125 15 10	3/1-5/15 B/ <del>1</del> 5-11/15		90 LB./AC.	175 LB./AC.	175 LB./AC.	2 TONS./AC.
-	-	-	-	-	(2.0 LB./1000 S.F.)	(4.0 LB./1000 S.F.)	(4.0 LB./1000 S.F.)	(100 LB./1000 S.F.)
_	_	-	-	-				

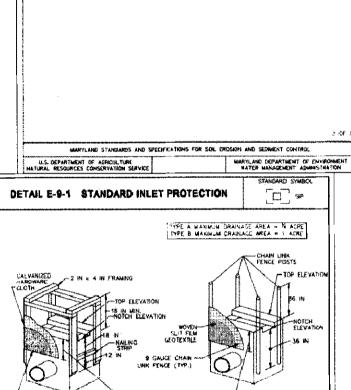
SECTION IV — SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

- A. GENERAL SPECIFICATIONS
- CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- i. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" PLUS OR MINUS 1/4" AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND MATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
- III. STANDARD SIZE SECTIONS OF SOD SHALL 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
- iv. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS
- v. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY A ACRONOMIST OR SOIL SCIENTIST PRIOR TO ITS
- DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOL
- . THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

iii. WHEREVER POSSISLE, SOD SHALL BE LAID WITH THE LONG EDGES

- PARRALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED. PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE. iv. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING
- UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.
- C. SOD MAINTENANCE
- i. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4".
- ii. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- ii. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUITING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE





DETAIL E-I SILT FENCE

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CHAIN LINK FENCING --MOVEN SUIT FILM GESTEXTEE ----FLOW THE PARTY OF EMBED GEDTEXTILE AND -CHAIN LINK FENCE 8 IN MIN. INTO CROSUND CROSS SECTION CONSTRUCTION SPECIFICATIONS INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKHESS AND SIX FOOT LENGTH SPACEU NO FURTHER THAN 10 FEET APART, DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND. FASTEN 9 GAUGE OF HEAVIER CALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OF HUG RINGS. . MHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDER, AND STAPLED TO PREVENT SEDMENT BY PASS. extend both ends of the super srit fence a minimum of five morizontal feet upslope at 45 degrees to the main fence alignment to prevent runoff from going arbuind the ends of the super site fence. . PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION N=1 MATERIALS.

REMOVE ACCUMULATED SECTION AND DEBRIS WHEN BUILDES DEVALOP IN FENCE OF WHEN SEDIMENT REACHES 28% OF FENCE HEIGHT, REPLACE GEOTEXTILE IF TORN, IF UNDERMINING DOCURS, REINSTALL CHAIN LINK FENCHIG AND ECOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSYN AND SEDIMENT CONTROL

- CALVANIZED CHAIN LINK FENCE WITH WOVEN SUIT FILM GEOTEXTILE

GROUND SURFACE---

WOVEN SOIT FRAM TO IN INTO GROUND --IYPE A IYPE B SOMETRIC VIEW EDGE OF ROADWAY OR FOR TO SECTION FOR TYPE A AND B MARYLAND STANDARDS AND SPECIFICATIONS, FOR SOIL EROSION AND SEDMENT CONTRO S. DEPARTMENT OF AGRICULTURE ZOI: MARYLAND DEPARTMENT OF ENVIRONMENT ADMINISTRATION WATER MADIAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE 2019 WARYLAND DEPARTMENT OF ENVIRONMENT ATURAL RESOURCES CONSERVATION SERVICE 2019 WATER MANAGEMENT ADMINISTRATION DETAIL D-3-1 RIPRAP INFLOW PROTECTION RHP COMPACTED EMBANKMENT OF CLASS I REPAP CROSS SECTION PROFILE ALONG CENTERLINE CONSTRUCTION SPECIFICATIONS PROVIDE NONMOVEN GEOFERTILE, AS SPECIFIED IN SECTION MAIL MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP. Construct invector channel with class I reprais or equivalent recycled concrete lining to a minimum defeth of 19 fiches (2 x D<sub>80</sub>) and a 3 foot defe from Channel Inflow reprase protection channel must have a trajezoidal cross section with 2:1 or flatter side slopes and a 4 foot minimum bottom width.

A INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE

5. MAINTAIN LEME, GRADE, AND GROSS SECTION. HEMOVE ACCUMULATED SEDMENT AND DEBRES. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF ERDISON.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDMENT CONTRO

U.S. DEPARTMENT OF ADRICULTURE 2017 WARYLAND DEPARTMENT OF ENVIRONMENT NATURAL RESOURCES CONSERVADON SOMICE 2017 WATER MANAGEMENT ADMINISTRATION

I. BLEND RIPRAF INTO EXISTING GROUND.

HONWOVEN SECTEMBER HIN. S IN OF 2 TO 3 IN ACCREGATE OVER LENGTH AND MOTH OF ENTRANCE PROFILE PLAN YIEW ONSTRUCTION SPECIFICATIONS PLACE STABILIZED CONSTRUCTION ENTHANCE IN ACCORDANCE WITH THE APPROVED PLAN. MEMICLES MAJET TRAVEL OVER "THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF SO FEET (\*30 FEET )
FOR SMALE RESIDENCE LOTE, USE MINIMUM MIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING MAJOR TO PHOTMER A UNITARY BLADAYS PIPE ALL SURFACE WATER FLOWING TO OR OVERTED TOWARD THE SCE UNDER THE ENTRANCE WATERANCE POSITIVE DRAWAGE, PROTECT THE WATERACE THROUGH THE SIGH WITH A MOUNTAINE BETWING HE STUDIES WAS A MANUAL OF TO MORE OF STONE CAST THE PIPE. PROVINCE PIPE AS SPECIALLY OF THE PIPE. PROVINCE PIPE AS SPECIALLY OF THE PIPE. PROVINCE PIPE AS SPECIALLY OF THE PIPE. PROVINCE PIPE AS SPECIALLY A POPE IN THE PIPE AS THE STONE WAS A POPE OF THE PIPE. PROVINCE PIPE AS THE CONTRACT OF THE PIPE. PROVINCE PIPE AS THE PI PREPARE SUBGRADE AND PLACE NONMOVEN CEDTEXTILE, AS SPECIFIED IN SECTION H 1 MATERIAL MLACE CRUISHED AGGREGATE (2 TO J INCHES IN SZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.

MANITAN ENTRANCE: HI A CONDITION THAN MINISTS. TRACKING OF SEDIMENT, AND STONE OR MAKE THER REPORTS AS CONDITIONS DIMAND TO MINISTAN CLAIM SURFACE, MONITABLE REAL, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILED, DROPPED, OR TRACKED DATO ADJACCHY ROADINAY OF WALCHIMAN, SCHARMED, AND OR SHEETWAY, WASHING ROADINAY TO REMOVE MINISTANCED ON TO PANISHENT IS NOT ACCEPTABLE UNLESS WASH MATER IS DIRECTED TO AN APPROVED REDIMENT CONTROL PROTICE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF ACRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT ADMINISTRATION SERVICE 2011 MATER MANAGEMENT ADMINISTRATION

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ETAIL B-1 STABILIZED CONSTRUCTION W. 501 W. 50 FT MIN. MOUNTABLE BERN - FRINTING PAYFUEN

TM 5, GD 1, PCL 39 RPD **NPS** Water Category NPS

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CONTROL

**EROSION** 

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SEDIMENT

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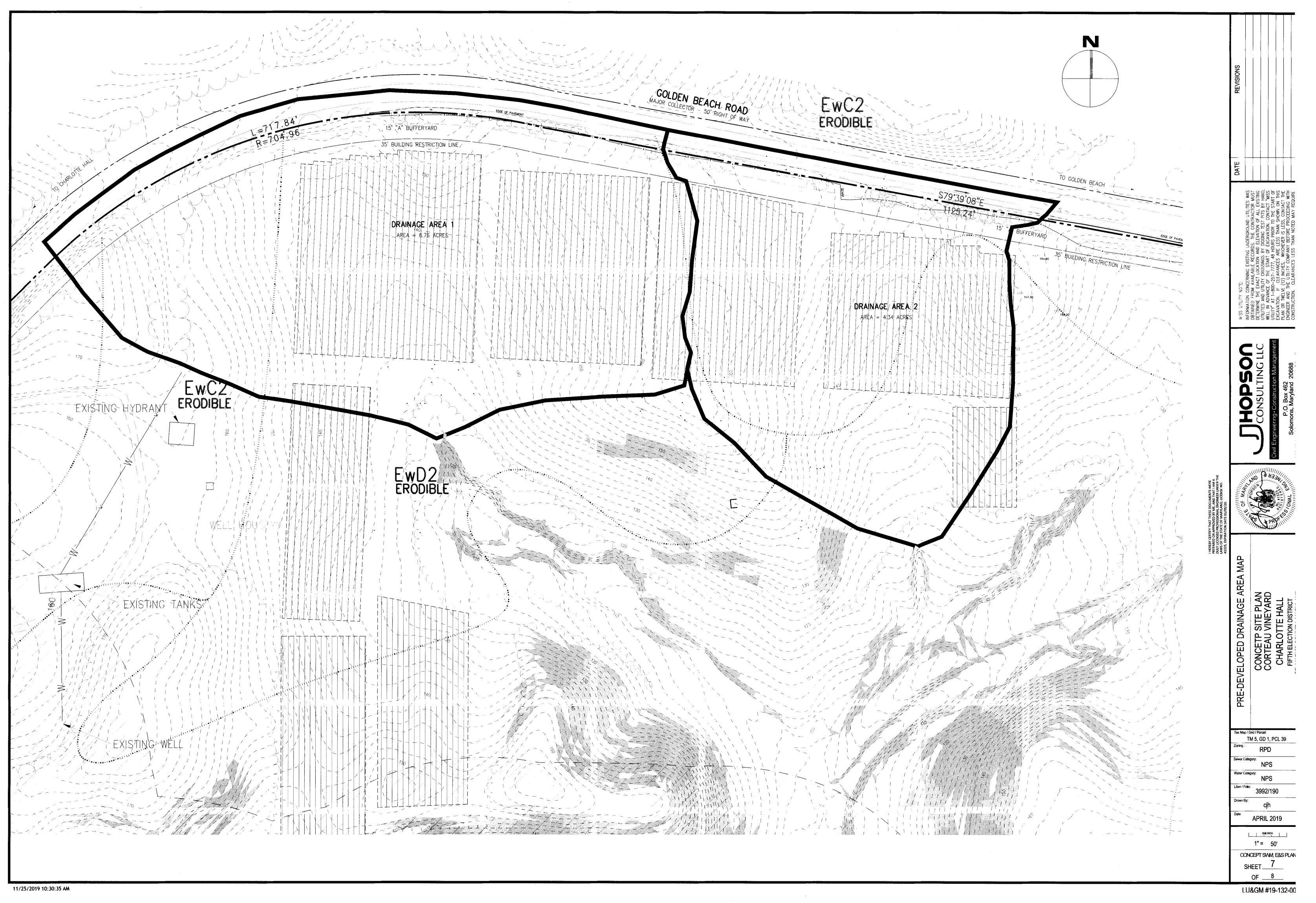
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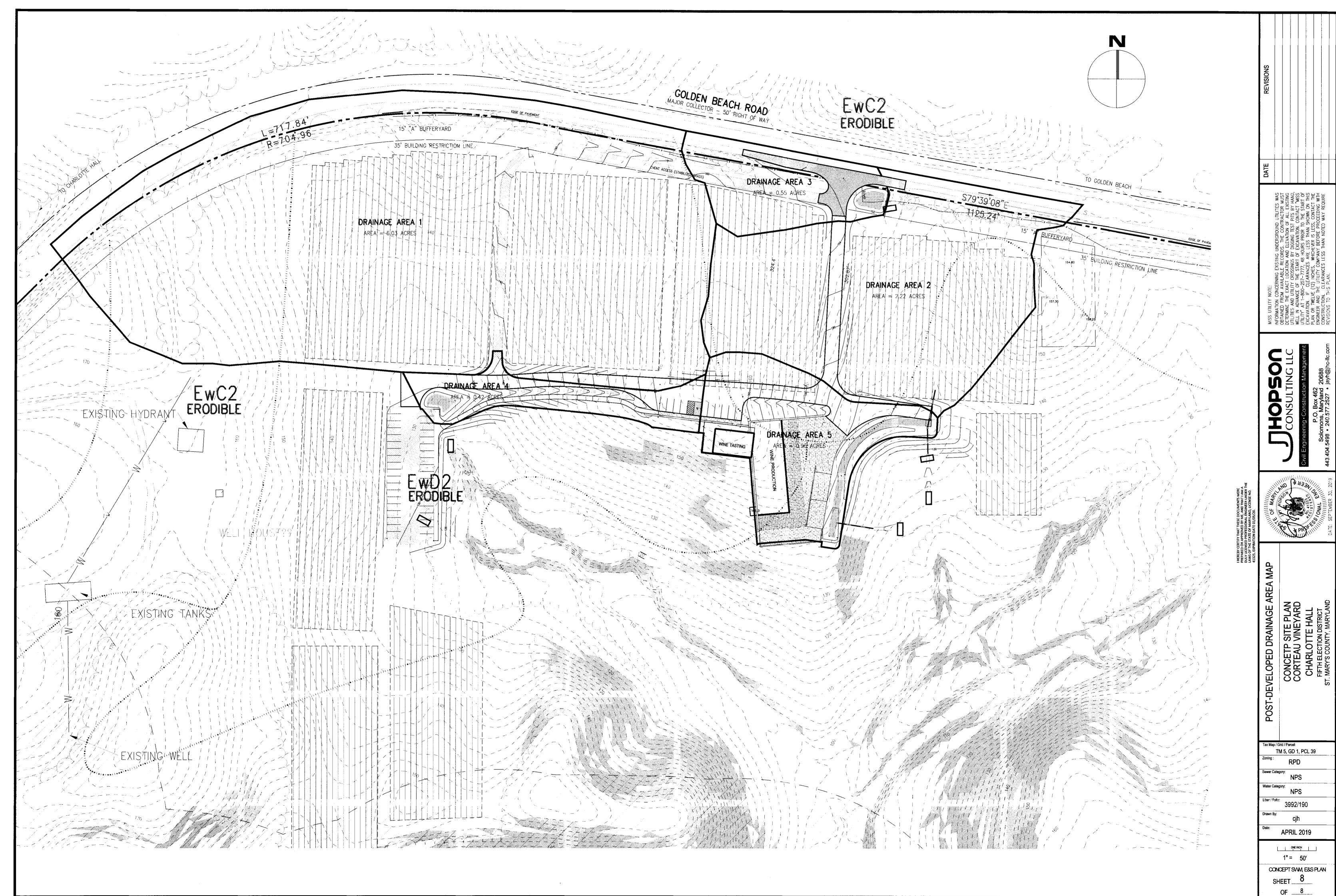
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CONCEPT SWM, E&S PLAN SHEET\_

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