

B-4-2 STANDARDS AND SPECIFICATIONS FOR 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.

A. Soil Preparation

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

b. Apply fertilizer and lime as prescribed on the plans. c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable

2. 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:

. Soil pH between 6.0 and 7.0. i. Soluble salts less than 500 parts per million (ppm). III. Soil contains less than 40 percent clay but enough fine grained material (greater than 30

percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable. iv. Soil contains 1.5 percent minimum organic matter by weight.

r. 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 the above

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scanfied or otherwise loosened to a depth of 3 to 5 inches. B.13 d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil

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 the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

. Topsoilina . Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil 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-NRCS. 3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth. 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 nutrients.

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. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria: . Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2 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 iv, thistle, or others as specified. c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

. Topsoil Application a. Erosion and sediment control practices must be maintained when applying topsoil. 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 soil preparation and tillage. Any irregularities in the surface

resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets. 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 may otherwise be detrimental to proper grading B.14 and seedbed preparation

. Soil Amendments (Fertilizer and Lime Specifications) . 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.

2. 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 around 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.

-4-3 STANDARDS AND SPECIFICATIONS FOR 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.

onditions Where Practice Applies To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

A. Seeding . Specifications

a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws. :. Inoculants: The moculant 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 noculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

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 issipation of phyto-toxic materials.

. Dry Seeding: This includes use of conventional drop or broadcast spreaders. . Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B. I., ermanent Seeding Table B.3, or site-specific seeding summanes. . Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact. B.16

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. . Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 14 inch of soil covering. Seedbed must be firm after planting. . Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in

each direction. . Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer) . 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; P2

05 (phosphorous), 200 pounds per acre; K2 ) (potassium), 200 pounds per acre.

Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by ydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one me. Do not use burnt or hydrated lime when hydroseeding

. Mix seed and fertilizer on site and seed immediately and without interruption. v. When hydroseeding do not incorporate seed into the soil.

. Mulch Materials (in order of preference)

i. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not nusty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.

. 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.

**APPROVED** 

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

HIEF, DEVELOPMENT ENGINEERING DIVISION

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: 1. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour. 11. 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.

of wood cellulose fiber per 100 gallons of water.

application rate to 2.5 tons per acre.

without inhibiting the growth of the grass seedlings.

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

2. Application

III. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly 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

ii. WCFM, including dye, must contain no germination or growth inhibiting factors.

v. WCFM must conform to the following physical requirements: fiber length of

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

iv. WCFM material must not contain elements or compounds at concentration levels that will

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. B.17

uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth

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

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

b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a

c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per

III. WCFM materials are to be manufactured and processed in such a manner that the wood

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

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

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.

Select one or more of the species or seed mixtures listed in Table B. I for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B. I plus fertilizer and lime rates must be put on

For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding. When stabilization is required outside of a seeding season, apply seed and mulch or straw

0.	mulch alone as prescribed in Section B-4-3.A. I. b and maintain until the next seeding season.	
	Hardiness Zone (from Figure B.3): 6b	_

Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-20-20)	Lime Rate
	1		i e	1
40	MAR, 1 - MAY 15 AUG, 1 - OCT, 15	O.5 INCHES		2 tons/ac (90 lb/1 000 sf)
30	UNE I - JULY 3 I	O.5 INCHES	- 436 lb/ac (10 lb/1000 sf)	
	30			436 lb/ac

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation.

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

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

1. General Use

Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the

Permanent Seeding Summary. The Summary is to be placed on the plan. 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. For sites having disturbed area over 5 acres, use and show the rates recommended by

the soil testing agency. 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 Seeding Summary.

2. Turfgrass Mixtures Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the

Permanent Seeding Summary. The summary is to be placed on the plan. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 1.0 to 35 percent of the total mixture by

Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where B.22 rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35

percent of the total mixture by weight.
Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent. Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

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: 11/2 to 3 pounds per 1000 square feet.

Select turfarass 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

Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August I to October I (Hardiness Zones: 5b, Ga) Central MD: March I to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15,

August 15 to October 15 (Hardiness Zones: 7a, 7b) 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 11/2 inches in diameter. The resulting seedbed must be in such condition that

future mowing of grasses will pose no difficulty. e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Hardiness Zone (from Figure B.3):         6b         Fertilizer Rate           Seed Mixture (from Table B.3):         11         (10-20-20)														Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P2O5	K20							
	KENTUCKY BLUEGRASS	50 ;	MAR. 1 - MAY 15 AUG. 1 - OCT. 15	1/4-1/2 m	45 pounds		90 lb/ac (90							
			·	1/4-1/2 m	per acre (1.01b/	ib/1000 sf)	ib/1000 sf)	(90 lb/						
				1/4-1/2 in	1000 sf)									

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

WARD SOIL CONSERVATION DISTRICT

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

 General Specifications Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available

to the job foreman and inspector. Sod must be machine cut at a uniform soil thickness of 34 inch, plus or minus 14 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable. 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

Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

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

Sod Installation During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod. 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.

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.

Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to

Water the sod immediately following rolling and tamping until the underside of the ne

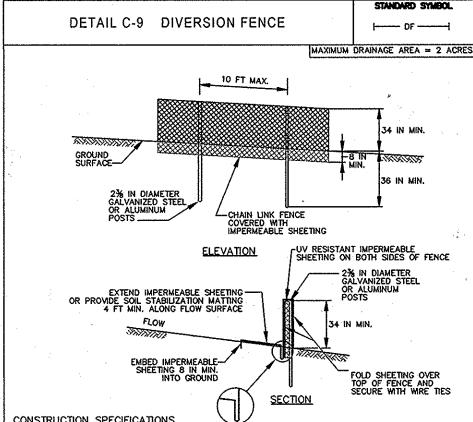
a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the

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

Do not mow until the sod is firmly rooted. No more than % of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

	SIZE RANGE	D <sub>50</sub>	D100 .	AASHTO	WEIGHT
NUMBER 57*	3/8"-1 1/2"	1/2*	1 1/2*	M-43	N/A
NUMBER !	2" - 3"	2 1/2*	3*	M-43	N/A
RIP-RAP**	4* - 7"	2 1/2*	7"	N/A	N/A
CLASS I	N/A	9 1/2* 1	5*	N/A	150 LB MAX
CLASS II	NA	.16"	24"	N/A	700 LB MAX
CLASS III	N/A	23"	34*	N/A	2000 LB MAX

\* THIS CLASSIFICATION IS TO BE USED ON THE INSIDE FACE OF STONE OUTLETS AND CHECK DAMS. \*\* THIS CLASSIFICATION IS TO BE USED WHENEVER SMALL RIP-RAP IS REQUIRED. THE STATE HIGHWAY ADMINISTRATION DDESIGNATION FOR THIS STONE IS STONE FOR GABIONS (905.01.04)



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.

SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.

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

ł	FACING DOWNGRADE.						
	7. KEEP FLOW SURFACE ALONG DIVERSIGN ACCUMULATED SEDIMENT AND DEBRIS SHEETING IF TORN, IF UNDERMINING C	. MAINTAIN POSITIVE DR	AINAGE. REPLACE IMPERMEAS				
	MARYLAND STANDARDS AND SPE	CIFICATIONS FOR SOIL EF	ROSION AND SEDIMENT CONTRO	L .			
***************************************	U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF E WATER MANAGEMENT ADMIN				

TEMPORARY STOCKPILE NOTE SITE EARTHWORK HAS BEEN BALANCED SUCH THAT A TEMPORARY STOCKPILE SHOULD NOT BE NECESSARY. SHOULD CONTRACTOR DECIDE TO USE A STOCKPILE CONTRACTOR SHALL PLACE STOCKPILE ON SUITABLE AREA OF THE SITE AND FOLLOW TEMPORARY

FOR UTILITY WORK ONLY OR FOR OFF-SITE UTILITY WORK CAN NOT EXCEED 5,000 SQUARE FEET

STABILIZATION NOTES.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

PLACE ALL EXCAVATED MATERIAL ON HIGH SIDE OF TRENCH ONLY DO AS MUCH WORK AS CAN BE DONE IN ONE DAY SO BACKFILLING, FINAL GRADING, SEEDEING AND MULCHING CAN OCCUR.
 ANY SEDIMENT CONTROL MEASURES DISTURBED BY CONSTRUCTION WILL BE

REPAIRED THE SAME DAY.

1. NO STOCKPILING ALLOWED ON ASPHALT. 2. ALL STOCKPILES LEFT AT THE END OF THE NEXT DAY NEED TO BE STABILIZED UNTIL THE NEXT REDISTURBANCE. SHOULD THE STOCKPILE AREA EXCEED 15 FEET IN HEIGHT, IT MUST

EARTHWORK CUT AND FILL QUANTITIES AND AREA OF DISTURBANCE INDICATED ON THIS PLAN ARE SHOWN FOR PURPOSE OF OBTAINING SEDIMENT CONTROL PLAN APPROVAL AND ARE NOT TO BE USED FOR CONTRACTUAL OBLIGATION.

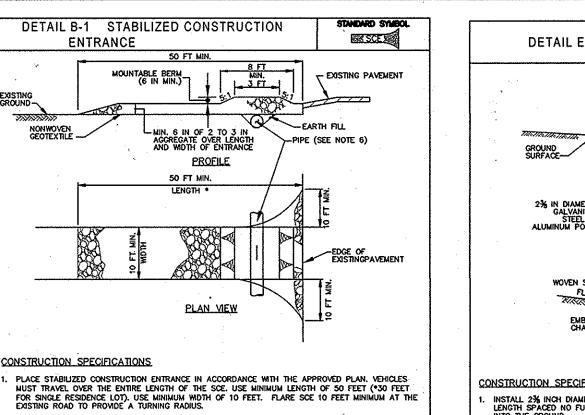
A mound or pile of soil protected by appropriately designed erosion and sediment control measures. To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns. Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use. 1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.

3. Runoff from the stockpile area must drain to a suitable sediment control practice. 4. Access the stockpile area from the upgrade side. 5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge. '. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to acilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with \*Section B-3 Land Grading.



TANDARD SYMBOL

PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAG 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 MATERIALS

4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT

MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT, ADD STONE OR MAKE 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.

DETAIL D-2 STONE CHECK DAM

CROSS SECTION

PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2, STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN.

2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED 4 T 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SIDE SLOPES OF 2:1 OR FLATTER AND A MINIBUM TOP WIDTH OF 12 INCHES, PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS. FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 COOL THEY LAKE OF WASHED ACCREGATE (\$2.70.1% INCH!)

SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE-HALF THE DEPTH OF THE CHANNEL OR DITCH TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET.

. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

SHÖÜLDER

24.58%

Q10 = 8.17CFS

VIO = II.OFPS

CULVERT PROFILE

SCALE: HOR: 1"=20' VERT: 1"=2'

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR

RE-DISTURBANCE, PERMANENT OR TEMPORARY

A. THREE (3) CALENDAR DAYS AS TO THE SURFACE

PERIMETER SLOPES, AND ALL SLOPES STEEPER

THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

DISTURBED OR GRADED AREAS ON THE PROJECT

OF ALL PERIMETER DIKES, SWALES, DITCHES,

B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER

SITE NOT UNDER ACTIVE GRADING.

STABILIZATION MUST BE COMPLETED WITHIN:

604

602

PROFESSIONAL CERTIFICATION

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME,

AND THAT I AM A DULY LICENCED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE

STATE OF MARYLAND, LICENSE NO. 43203, EXPIRATION DATE: 12-20-16

PROP. GRADE

FACE OF THE DAM WITH A 1 FOOT THICK LAYER OF WASHED AGGREGATE (% TO 1% INCH).

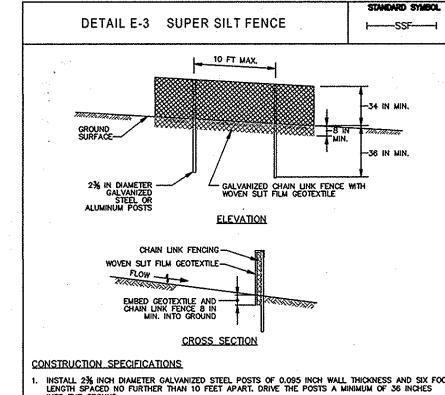
CONSTRUCTION SPECIFICATIONS

604

602

EX. GRADE-

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL



INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.

6) Site Analysis: Total Area of Site . FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO TH UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND. Area Disturbed Area to be roofed or paved

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

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 WARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION 2011

## SEQUENCE OF CONSTRUCTION

1. OBTAIN ALL REQUIRED GRADING, MDE PERMITS, APPROVALS AND

2. NOTIFY SEDIMENT CONTROL INSPECTOR AT LEAST THREE (3) WORKING

DAYS PRIOR TO STARTING WORK. (I DAY) 3. INSTALL STABILIZED CONSTRUCTION ENTRANCES. INSTALL SUPER SILT FENCE

RIP RAP PROTECTION. (1 WEEK)

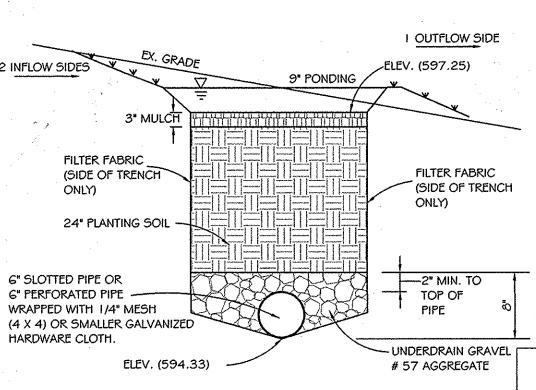
OF GRADING AS PER PERMANENT SEEDING NOTES. (2 WEEKS) 6. ONCE THE SEDIMENT CONTROL DEVICES ARE INSTALLED THE PERMITTEE MUST OBTAIN APPROVAL FROM THE INSPECTOR BEFORE PROCEEDING WITH

8. ANY AREAS THAT CAN BE TEMPORARILY SEEDED DURING CONSTRUCTION MUST BE TEMPORARILY STABILIZED PER SEEDING NOTES. 9. CONSTRUCT HOME AND SWM FACILITIES, M-G: MICRO BIORETENTION

10. FINAL GRADING OF SITE, STABILIZE DISTURBED AREAS PER PERMANENT SEEDING NOTES.

II. UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR; REMOVE ALL

12. NOTIFY INSPECTOR FOR FINAL INSPECTION.



TYPICAL SECTION FOR PROPOSED PRIVATE BIORETENTION FACLITIES N.T.S.

LICENSES FROM APPROPRIATE AGENCIES. (1 WEEK)

AS SHOWN IN THE SEDIMENT CONTROL PLAN. (1 WEEK) 4. INSTALL DIVERSION FENCE AND DRIVEWAY CULVERT AND ASSOCIATED

5. STABILIZE ALL THE GRADED AREAS UP TO 20' OUTSIDE OF THE LIMIT

ADDITIONAL CLEARING, GRUBBING OR GRADING. (I WEEK) 7. INSTALL DRIVEWAY, (1 WEEK)

AND M-8: GRASS SWALE. (8 MONTHS)

TEMPORARY SEDIMENT CONTROL DEVICES FOR HOUSE CONSTRUCTION.

## OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1) A minimum of 48 hours notice must be given to the Howard County

Division prior to the start of any construction, (313-1855).

3) Following initial soil disturbance or redisturbance, permanent or

graded areas on the project site.

Area to be vegetatively stabilized

Offsite waste/borrow area location NA.

Total Cut

agency is made.

construction.

whichever is shorter.

Total Fill

germination and establishment of grasses.

Department of Inspections, Licenses and Permits, Sediment Control

2) All vegetative and structural practices are to be inscalled according to

the provisions of this plan and are to be in conformance with the most

EROSION AND SEDIMENT CONTROL", and revisions thereto.

current "MARYLAND STANDARDS AND SPECIFICATIONS FOR THE SOIL

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

4) All disturbed areas must be stabilized within the time period specified

above in accordance with the 2011 MARYLAND STANDARDS AND

be done when recommended seeding dates do not allow for proper

maintained in operative condition until permission for their removal has

Location must have active grading permit and as approved by inspector

placement of utilities must be repaired on the same day of disturbance.

inspection agency shall be requested upon completion of installation of

perimeter erosion and sediment controls, but before proceeding with any

other earth disturbance or grading. Other building or grading inspection

approvals may not be authorized until this initial approval by the inspection

Any sediment control practice which is disturbed by grading activity for

8) Additional sediment control must be provided, if deemed

necessary by the Howard County Sediment Control Inspector.

9) On all sites with disturbed areas in excess of 2 acres, approval of the

10) 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,

11) Any changes or revisions to the sequence of construction must be reviewed

and approved by the plan approval authority prior to proceeding with

12) A project is to be sequenced so that grading activities begin on one

and approved by the approval authority, no more than 30 acres

13) Either temporary or permanent stabilization is to be performed at the

"IWE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE

IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF

ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED

TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION

BEFORE BEGINNING THE PROJECT, I ALSO AUTHORIZE PERIODIC ON-

SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND

EROSION CONTROL. AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED

cumulatively may be disturbed at a given time.

grading unit (maximum acreage of 20 ac. per grading unit) at a time.

Work may proceed to a subsequent grading unit when at least 50 percent

direction of the sediment control inspector or at the intervals required by

DEVELOPER'S CERTIFICATE:

ENGINEER'S CERTIFICATE:

'I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL

ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION

DISTRICT AND THE 2011 MARYLAND STANDARDS & SPECIFICATIONS FOR SOIL

REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL

KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN

EROSION AND SEDIMENT CONTROL.

the 2011 Maryland Standards and Specifications whichever is more

of the disturbed area in the preceeding grading unit has been stabilized

and approved by the enforcement authority. Unless otherwise specified

6 64 Acres.

7 Acres.

8 4 2015

28 Acres.

been obtained from the Howard County Sediment Control Inspector.

5) All sediment control structures are to remain in place and are to be

SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for

for permanent seeding (Sec. B-4-4), temporary seeding (Sec. B-4-4) and

mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only

A. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS ( \* EROSION OR WASH OUT ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATER AL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DE NO MATERIAL AND PRUNING SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BY YOUR TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT CO ALL DEFICIENT STAKES

MULCH SHALL BE INSPECTED EACH SPRING, REMOVE PREVIOUS MULCH. AYER BEFORE APPLYING NEW LAYER EVERY 2 TO 3 YEARS. D. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A VIN MUM OF ONCE PER MONTH

> OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREA, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL

SUPPLEMENTAL PLAN

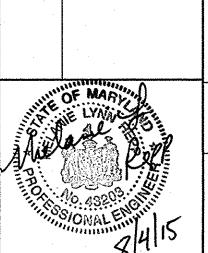
SEDIMENT & EROSION CONTROL AND STORMWATER

MANAGEMENT NOTES AND DETAILS

LOTS | AND 2

(LIBER 10720 AT FOLIO 120)

MILLARD TAYLOR SUBDIVISION



DATE REVISIONS

OWNER:

MILLARD TAYLOR

G. ARLENE TAYLOR

I 195 HOODS MILL ROAD

COOKSVILLE, MARYLAND 21723

(410) 381-7899

TAX MAP: 8 GRID NO: 11

ELECTION DISTRICT: No. 4

AND AFTER HEAVY STORM EVENTS.

HOWARD COUNTY, MARYLAND PARCEL NO: 221 EX. ZONING: RC-DEO

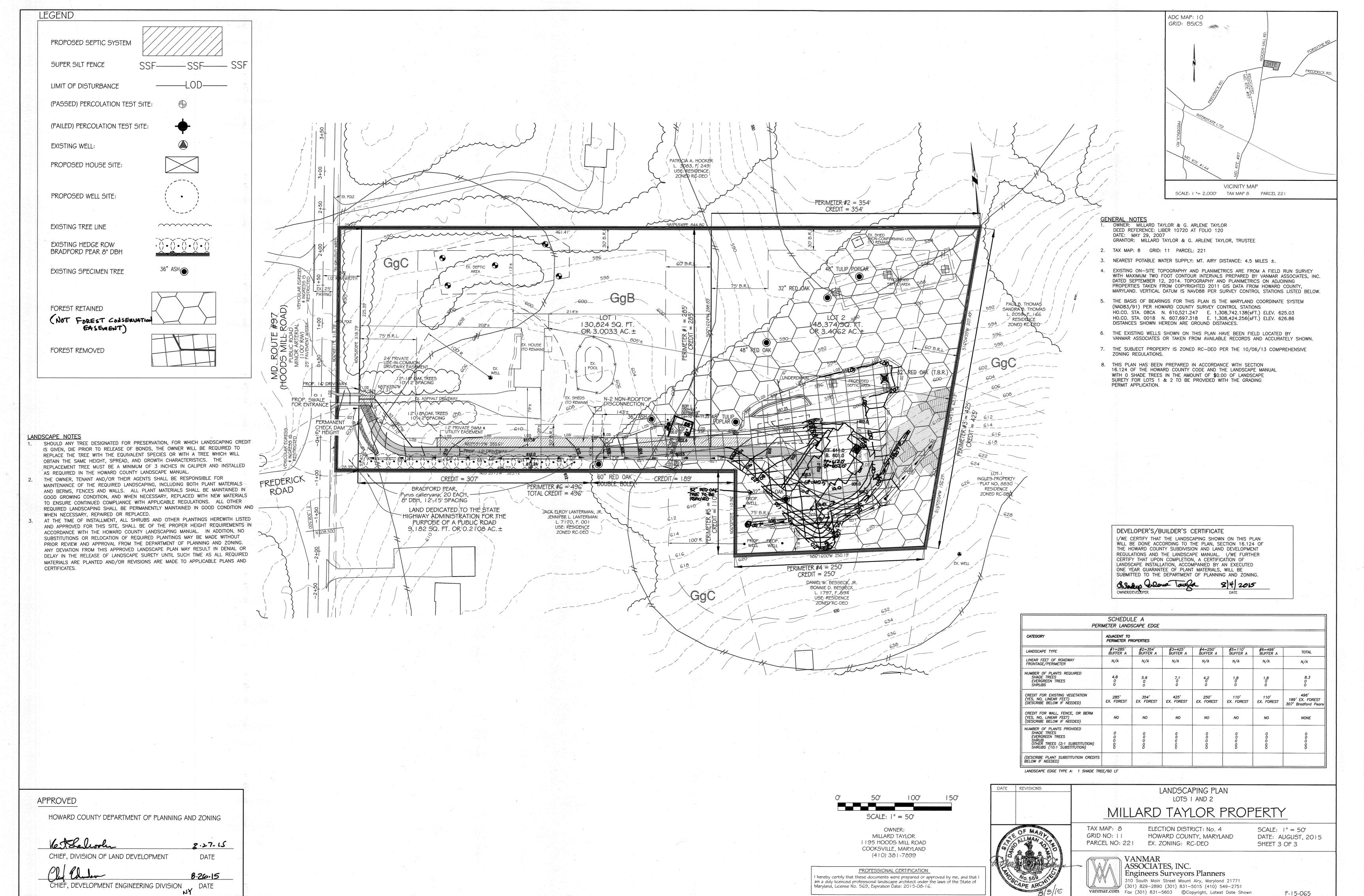
VANMAR ASSOCIATES, INC. **Engineers Surveyors Planners** 310 South Main Street Mount Airy, Maryland 21771

(301) 829-2890 (301) 831-5015 (410) 549-27:1 

SCALE: I'' = 50'

SHEET 2 OF 3

DATE: AUGUST, 2015



F-15-065