

## 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 1. Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction 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 means.

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:

### i. Soil pH between 6.0 and 7.0. ii. Soluble salts less than 500 parts per million (ppm).

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold 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.

v. Soil contains sufficient pore space to permit adequate root penetration.

b. Application of amendments or topsoil is required if on—site soils do not meet the above conditions. c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test. 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.

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or

unacceptable soil aradation. 2. 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

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.

4. 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: a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by

an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter. b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, 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.

6. Topsoil Application

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. A irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions

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 and seedbed preparation.

1. 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 ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at

least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve. 4. Lime and fertilizer are to be evenly distributed and incorporated into the top  $\ddot{3}$  to 5 inches of soil by disking or other suitable means.

STANDARD SYMBOL

H-SSF----

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MARYLAND DEPARTMENT OF ENVIRONMENT

WATER MANAGEMENT ADMINISTRATION

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.

10 FT MAX.

DETAIL E-3 SUPER SILT FENCE

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# B-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.

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

A. Seeding

1. 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. c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

## a. Dry Seeding: This includes use of conventional drop or broadcast spreaders. i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or

site—specific seeding summaries. 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. 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 1/4 inch of soil covering. Seedbed must be firm after planting. ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer). i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous),

200 pounds per acre; K20 (potassium), 200 pounds per acre. ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

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

iv. When hydroseeding do not incorporate seed into the soil.

available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

### B. Mulching 1. Mulch Materials (in order of preference)

a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired. b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose

processed into a uniform fibrous physical state. . WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual nspection of the uniformly spread slurry.

and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

. WCFM. including dve, must contain no germination or growth inhibiting factors. i. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter—like ground cover, on application, having moisture absorption and percolation properties

iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto—toxic. v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

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

b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 nches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre. c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard: . A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 nches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.

ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as 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 prohibited. iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually

# B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

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.

7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup.

Stockpiles containing contaminated material must be covered with impermeable

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.

# HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:

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

Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan. 2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3 calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B—4—1)specifications shall be enforced in areas with >15 of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with

stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6). 5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.

6. Site Analysis: Total Area of Site: \_\_\_\_9.007 \_\_\_ Acres
Area Disturbed: \_\_\_\_3.2 \_\_\_ Acres
Area to be roofed or paved: \_\_\_\_0.75 \_\_\_ Acres
Area to be vegetatively stabilized: \_\_\_\_2.45 \_\_\_ Acres

 Total Cut:
 300
 Cu. Yds.

 Total Fill:
 300
 Cu. Yds.

a. Prior to the start of earth disturbance,

areas under active grading.

Offsite waste/borrow area location: \_\_\_\_

7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same

8. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:

Inspection type (routine, pre-storm event, during rain event)

Weather information (current conditions as well as time and amount of last recorded precipitation) Brief description of project's status (e.g., percent complete) and/or current activities Evidence of sediment discharges

Identification of plan deficiencies Identification of sediment controls that require maintenance

Compliance status regarding the sequence of construction and stabilization requirements Photographs

Monitoring/sampling Maintenance and/or corrective action performed

DESIGN CERTIFICATION

46791

MD PE Registration No.

hereby certify that this plan has been designed in accordance with

standards, that it represents a practical and workable plan based on

current Maryland erosion and sediment control laws, regulations and

my personal knowledge of the site, and that it was prepared in

accordance with the requirements of the Howard Soil Conservation

Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE)

9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter

10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the CID per the list of HSCD—approved field changes. 11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when

12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.

at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless

otherwise specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at a given time.

13. Topsoil shall be stockpiled and preserved on—site for redistribution onto final grade.

James h

14. All Silt Fence and Super Silt Fence shall be placed on—the—contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.

15. Stream channels must not be disturbed during the following restricted time periods (inclusive): Use I and IP March 1 - June 15 Use III and IIIP October 1 - April 30 Use IV March 1 - May 31

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

arley (Hordeum vulgare)

real Rve (Secale cereale)

tail Millet (Setaria italica)

rl Millet (Pennisetum glaucum)

tested. Adjustments are usually not needed for the cool-season grasses.

Oats are the recommended nurse crop for warm-season grasses

(Avena sativa)

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

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

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

which will receive a medium to high level of maintenance.

To stabilize disturbed soils with permanent vegetation.

# A. Seed Mixtures

testing agency.

a. 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. b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA—NRCS Technical Field Office Guide, Section 342 — Critical Area Planting. c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil

d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3  $\frac{1}{2}$  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

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

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan. i. 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 10 to 35 percent of the total

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

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas 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.

iv. 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

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

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

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will

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.

Permanent Seeding Summary

	rdiness Zone (from Figure B.3): ed Mixture (from Table B.3):					F	Lime Rate		
No.	Species	Application	Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P 0 2 5	K <sub>2</sub> 0	
	Cool Season Tall Fescue & Kentucky Bluegrass or equal	1.F. 60 LB/AC		MAR 2 TO MAY 15 AUG 15 TO OCT 15	1/4-1/2 in	45lbs per acre (1.0lb/ 1000sf)	90lbs per acre (2 lb/ 1000sf)	90lbs per acre (2 lb/ 1000sf)	2 tons per acre (90 lb/ 1000sf)

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

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

the job foreman and inspector. b. Sod must be machine cut at a uniform soil thickness of ? inch, plus or minus ¼ 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 c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when

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

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

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

b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tigh wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots. c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.

and soil surface below the sod are thoroughly wet. Complete the operations of laving, tamping and irrigating for any piece of sod within eight hours.

otherwise specified.

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

as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day b. After the first week, sod watering is required as necessary to maintain adequate moisture

c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

d. Water the sod immediately following rolling and tamping until the underside of the new sod pad

# Sequence of Constrution

1. Obtain a Grading Permit. (1 day)

2. Install Stabilized Construction Entrance. (1 day) 3. Install the sediment control measures as shown on the plan. (1 day) 4. Install bypass swale and stablized the same day along parcel 251 and lot 3. (1 d

4. Perform necessary grading and construction of driveway and grass swale. (1 week) 5. Stabilize the site with topsoil and seeding. (1 day) 6. After the site is permanently stabilized and permission is granted by the Howard County Sediment Control Inspecor, remove sediment controls



and stabilize any remaining disturbed areas. (1 day)

PROFESSIONAL CERTIFICATION HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.4679, EXPIRATION DATE: 06/07/2025.

James Witmer

BALDWIN ESTATES GLENWOOD, MD 21738 PROPOSED LOTS 1-3, BUILDABLE PRESERVAION PARCEL A & NON-BUILDABLE PRESERVATION PARCEL B

OWNERS:

Recommended Seeding Dates by Plant Hardiness Zone 3

1.0 Mar 15 to May 31; Aug 1 to Oct 31 Mar 1 to May 15; Aug Feb 15 to Apr 30; Au 1 to Nov 15 Feb 15 to Dec 15

6b 7a and 7b

Mar 1 to May 15; Aug Feb 15 to Apr 30; Au

Mar 1 to May 15; Aug Feb 15 to Apr 30; A

Mar 1 to May 15; Aug Feb 15 to Apr 30; A

May 16 to Jul 31 May 1 to Aug 14

May 16 to Jul 31 May 1 to Aug 14

11416 OLD FREDERICK ROAD MARRIOTTSVILLE, MD 21104 (410) 810-4336

Table B.1: Temporary Seeding for Site Stabilization

0.5 Jun 1 to Jul 31

0.5 Jun 1 to Jul 31

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above

for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

B.20

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

5b and 6a

Mar 15 to May 31; Aug 1 to Sep 30

Mar 15 to May 31; Aug 1 to Sep 30

Mar 15 to May 31; Aug 1 to Sep 30

Seeding Rate 17

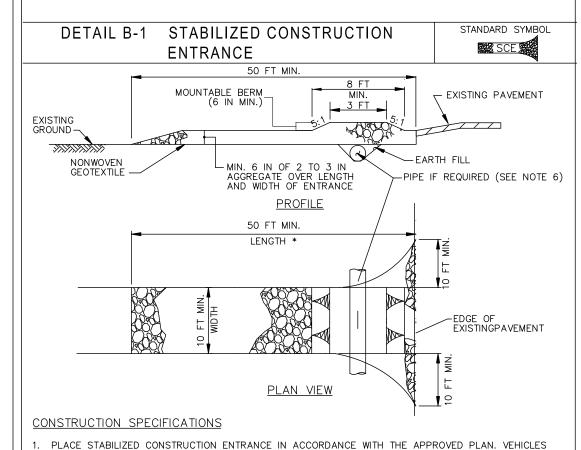
lb/ac | lb/1000 ft<sup>2</sup> | (inches)

FRANCESCA DIMARCO

PARCEL 78, TAX MAP 14, 9.007 ACRES SUPPLEMENTAL PLAN

2% IN DIAMETER GALVANIZED CHAIN LINK FENCE WITH WOVEN SLIT FILM GEOTEXTILE STEEL OF ALUMINUM POSTS **ELEVATION** CHAIN LINK FENCING — WOVEN SLIT FILM GEOTEXTILE -CROSS SECTION <u>CONSTRUCTION SPECIFICATIONS</u> 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 FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS. 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. 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 PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL



MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (\*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE 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

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 REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR

SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE

TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMENT

ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS

FRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHIN

DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

DATE

Printed Name WATER MANAGEMENT ADMINISTRATION

# DEVELOPER'S CERTIFICATE

District.

Designer's Signature

James Witmer

I/We hereby certify that any clearing, grading, construction, or develeopment will be done pursuant to this approved erosion sediment control plan, including inspection and maintaining controls, and the responsible personnel involved in the construction project will have a Certificate of Training at the Maryland Department of the Environment(MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard

APPROVED: DEPARTMENT OF PLANNING & ZONING 9/24/2024 (Hd1) Edmondson CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 9/25/2024

CHAIN LINK FENCING AND GEOTEXTILE.

U.S. DEPARTMENT OF AGRICULTURE

CHIEF, DIVISION OF LAND DEVELOPMENT

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. APPROVED: Olexander Bratchie 9/24/2024

HOWARD SOIL CONSERVATION DISTRICT

LOCATED AT A HIGH SPOT

Soil Conservation District and/or MDE."

James Witmer Signature of Developer

F-24-029

3 of 4

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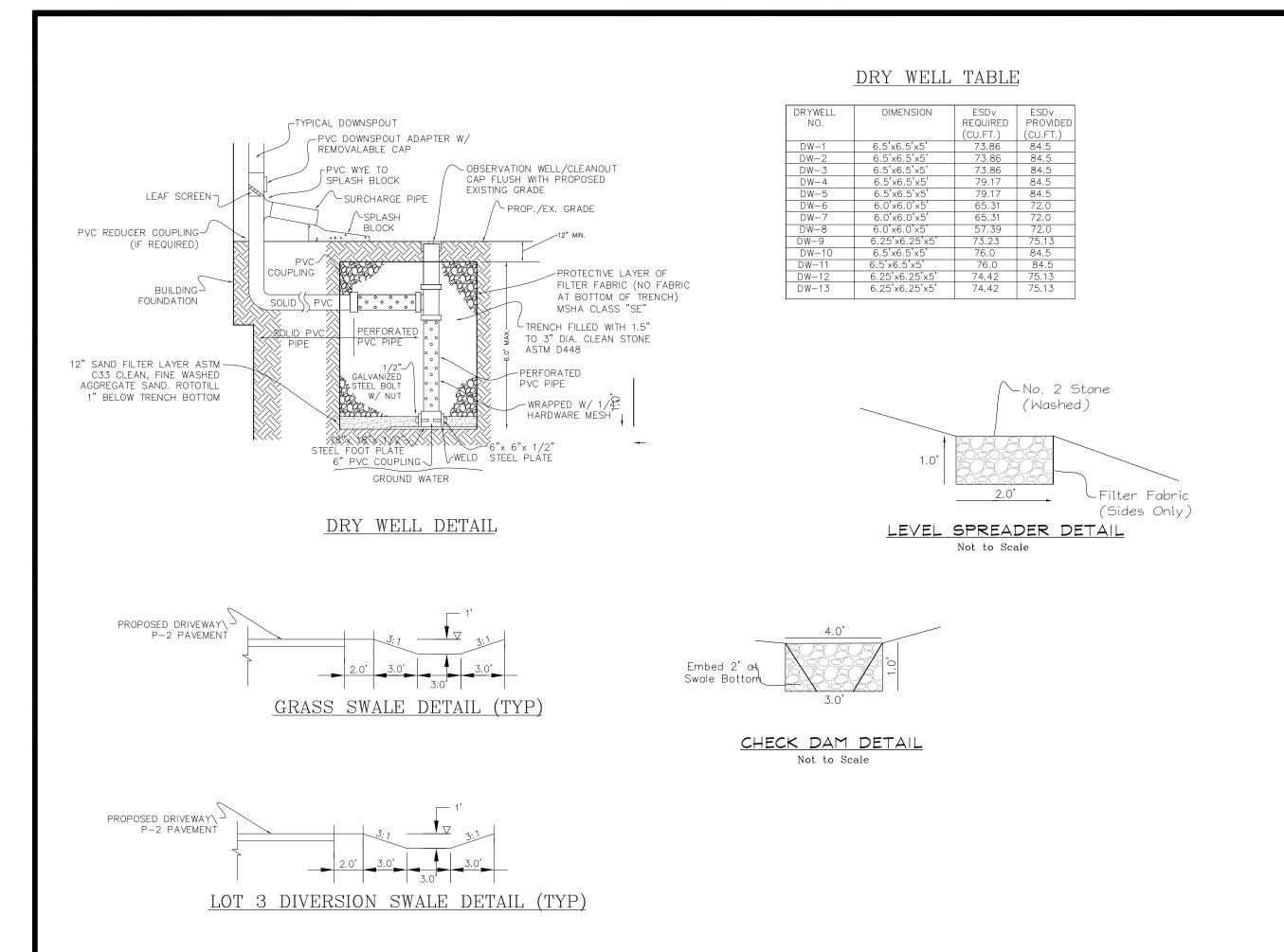
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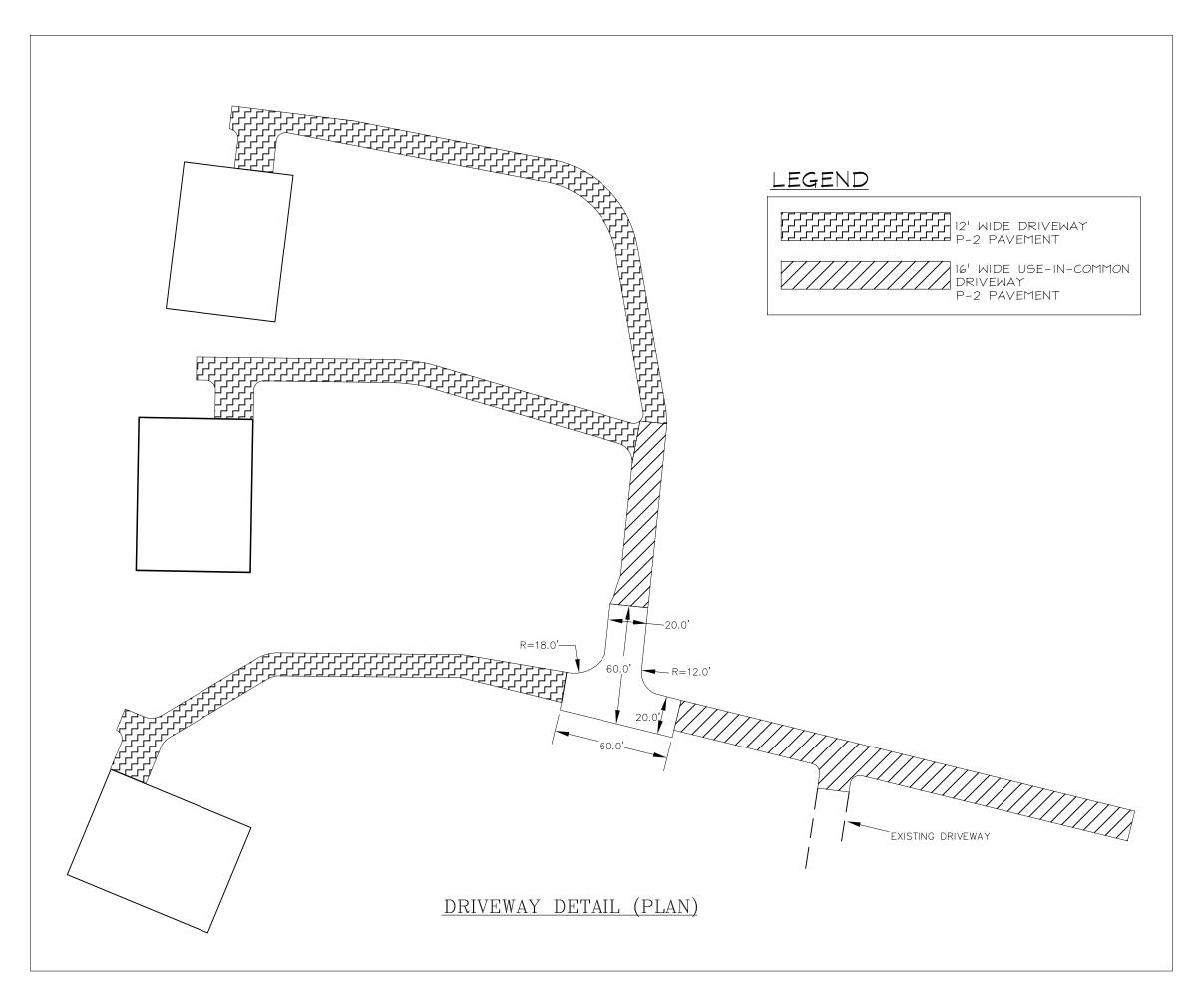
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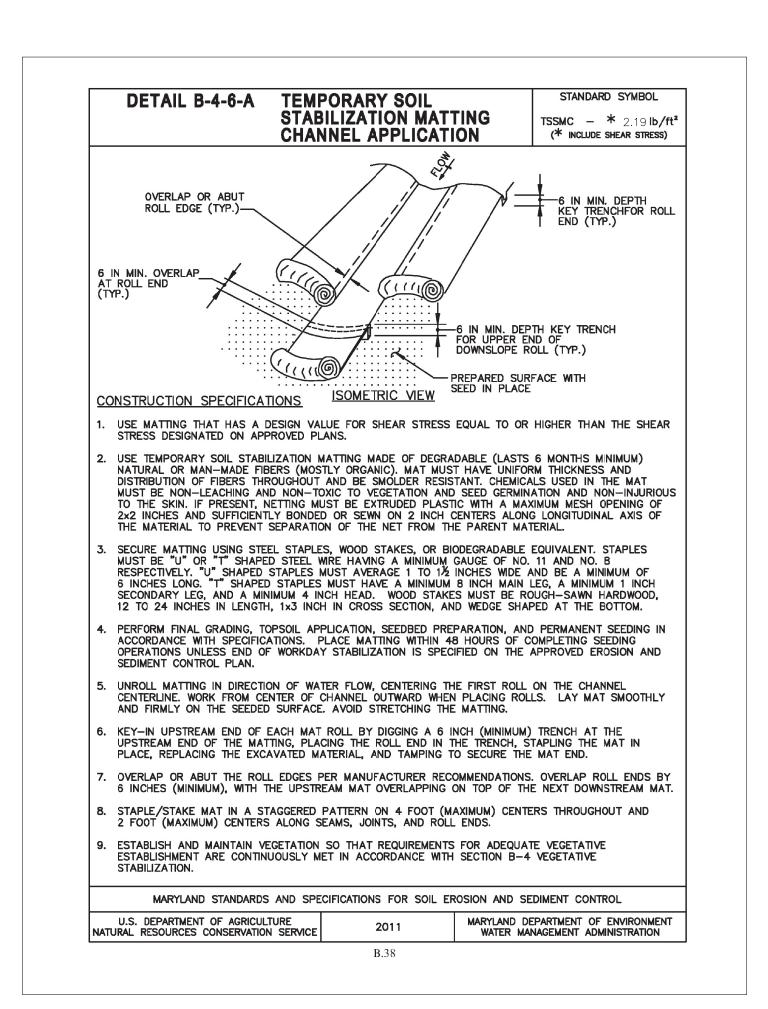
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M







ROAD AND STREET CLASSIFICATION / TYPE

RETROFIT PROJECTS ONLY

NUMBER

NEW STREET TYPE

P-1		PARKING BAYS:  RESIDENTIAL AND NON-REI PARKING DRIVE AISLES:  RESIDENTIAL AND NON-REI MORE THAN 2 HEAVY TRUE	SIDENTIAL WITH NO	SUPERPAVE ASPHALT MIX FINAL SURFA 9.5 MM PG 64-22S, LEVEL 1 (ESAI SUPERPAVE ASPHALT MIX INTERMEDIATE SI (NA) SUPERPAVE ASPHALT MIX BASE 19.0 MM, PG 64-22S, LEVEL 1 (ESAI GRADED AGGREGATE BASE (GAB)	JRFACE NA 2.0	1.5 NA 2.0 7.0	1.5 NA 2.0 5.0	1.5 NA 3.5 4.0	1.5 NA 3.0 4.0	1.5 NA 2.5 4.0
	ALLEY NEIGHBORHOOD YIELD STREET SINGLE FAMILY DETACHED ADT < 2,000 VEHICLES	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RE: MORE THAN 10 HEAVY TRI LOCAL ROADS: ACESS PLACE, ACCESS STI CUL-DE-SACS: RESIDENTIAL	JCKS PER DAY	SUPERPAVE ASPHALT MIX FINAL SURFA 9.5 MM, PG 64-22S, LEVEL 1 (ESA SUPERPAVE ASPHALT MIX INTERMEDIATE SI 9.5 MM, PG 64-22S, LEVEL 1 (ESA SUPERPAVE ASPHALT MIX BASE 19.0 MM, PG 64-22S, LEVEL 1 (ESA GRADED AGGREGATE BASE (GAB)	1.5 JRFACE 1.0	1.5 1.0 2.0 4.0	1.5 1.0 2.0 3.0	1.5 1.0 3.5 4.0	1.5 1.0 2.0 4.0	1.5 1.0 2.0 4.0
	RURAL DEVELOPMENT STREET NEIGHBORHOOD YIELD STREET EXCEPT SINGLE FAMILY DETACHED ADT < 2,000 TOWN CENTER STREET	PARKING DRIVE AISLES:  RESIDENTIAL AND NON-RE:  MORE THAN 10 HEAVY TRI LOCAL ROADS:  ACCESS PLACE, ACCESS S CUL-DE-SACS:  NON-RESIDENTIAL  MINOR COLLECTORS:  RESIDENTIAL	JCKS PER DAY	SUPERPAVE ASPHALT MIX FINAL SURFA 9.5 MM, PG 64-22S, LEVEL 1 (ESA SUPERPAVE ASPHALT MIX INTERMEDIATE SI 9.5 MM, PG 64-22S, LEVEL 1 (ESA SUPERPAVE ASPHALT MIX BASE 19.0 MM, PG 64-22S, LEVEL 1 (ESA GRADED AGGREGATE BASE (GAB)	JRFACE 1.0 3.0	1.5 1.0 3.0 6.0	1.5 1.0 3.0 3.0	1.5 1.0 4.5 6.0	1.5 1.0 3.0 6.0	1.5 1.0 2.0 6.0
	NEIGHBORHOOD STREET 1 NEIGHBORHOOD STREET 2 INDUSTRIAL STREET COUNTRY ROAD	MINOR COLLECTORS: NÖN-RESIDENTIAL MAJOR COLLECTORS		SUPERPAVE ASPHALT MIX FINAL SURFA 12.5 MM, PG 64-22S, LEVEL 2 (LOW E SUPERPAVE ASPHALT MIX INTERMEDIATE SI 12.5 MM, PG 64-22S, LEVEL 2 (LOW E SUPERPAVE ASPHALT MIX BASE 19.0 MM, PG 64-22S, LEVEL 2 (LOW E GRADED AGGREGATE BASE (GAB)	2.0 JRFACE (SAL) 2.0 4.0	2.0 2.0 4.0 7.0	2.0 2.0 3.0 4.0	2.0 2.0 6.0 6.0	2.0 2.0 5.0 6.0	2.0 2.0 3.0 6.0
NOTES  1. HEAVY TRUCKS ARE DEFINED AS THOSE WITH SIX (6) WHEELS OR MORE INCLUDING GARBAGE TRUCKS. 2. SUPERPAVE ASPHALT MIX LAYERS SHALL BE PLACED IN APPROPRIATE COMPACTED LIFT THICKNESS: 19.0 MM BASE (2.0" MIN. TO 4.0" MAX.), 12.5 MM SURFACE (1.5" MIN. TO 3.0" MAX.), AND 9.5 MM SURFACE (1.0" MIN. TO 2.0" MAX.) 3. GRADED AGGREGATE BASE (GAB) TO BE PLACED AND COMPACTED IN 6" MAX. COMPACTED THICKNESS LAYERS. 4. THE INTERMEDIATE SURFACE COURSE LAYER MUST BE PLACED WITHIN 2 WEEKS OF PLACEMENT OF BASE COURSE, AND IS REQUIRED PRIOR TO SUBSTANTIAL COMPLETION INSPECTION AND BOND REDUCTION. 5. IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL/INDUSTRIAL ENTRANCE APRONS WITHIN THE COUNTY RIGHT—OF—WAY WHERE AUXILIARY LANES ARE NOT REQUIRED, THE THICKNESS OF THE INTERMEDIATE PAVEMENT LAYER GAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE ASPHALT LAYER. 6. THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CBR VALUE FOR EACH ROADWAY.										
2/7/20 Revise 5/30/2 Revise 5/7/200 Approve	Departmen  Approved: Draw	County, Maryland t of Public Works nas & Sutles gineering		PAVING SECTION P-1 to P-4					Deta R <b>-2.</b>	

CALIFORNIA BEARING RATIO (CBR)

PAVEMENT MATERIAL (INCHES)

[OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1). 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 Owner shall ensure the areas receiving runoff are protected from future compaction or development of impervious area. In commercial areas, foot traffic should be discouraged as well.

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

- The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.
- Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.
- A log book shall be maintained to determine the rate at which the facility drains.
- When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
- The maintenance log book shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

# [OPERATION AND MAINTENANCE SCHEDULE FOR (M-8) GRASS SWALE

- For grassed swales, regular mowing (at lease bi-annually) is critical in order to reduce competition from weeds and irrigation may be needed during dry weather to establish vegetation. Sparsely vegetated areas need to be re-seeded to maintain dense coverage.
- If water does not drain within 48 hours, the bottom soil should be tilled and revegetated.
- Inspections should be performed once a year to assess slope integrity, vegetative health, soil stability, compaction, erosion, ponding and sedimentation. Periodic removal of sediment, litter, or obstructions should be done as needed. Eroded side slopes and the swale bottom should be repaired and stabilized where needed.



PROFESSIONAL CERTIFICATION HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.4679, EXPIRATION DATE: 06/07/2025.

JAMES WITMER

BALDWIN ESTATES GLENWOOD, MD 21738 PROPOSED LOTS 1-3, BUILDABLE PRESERVAION PARCEL A & NON-BUILDABLE PRESERVATION PARCEL B PARCEL 78, TAX MAP 14, 9.007 ACRES

APPROVED: DEPARTMENT OF PLANNING & ZONING CHAD Edmondson 9/24/2024 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 9/25/2024

DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

GRAPHIC SCALE

3 T0 <5 5 T0 <7 ≥ 7

MIN. SUPERPAVE ASPHALT MIX

WITH GAB

SUPERPAVE ASPHALT MI WITH CONSTANT GAB

<u>OWNERS:</u>

(410) 810-4336

FRANCESCA DIMARCO

11416 OLD FREDERICK ROAD MARRIOTTSVILLE, MD 21104

SWM NOTES AND DETAILS

F-24-029

James Witmer