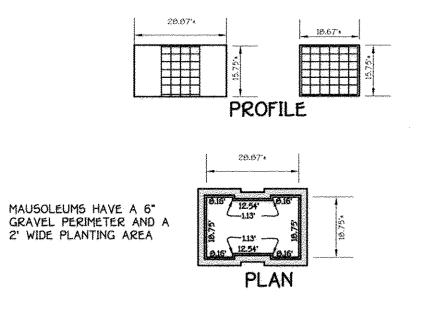


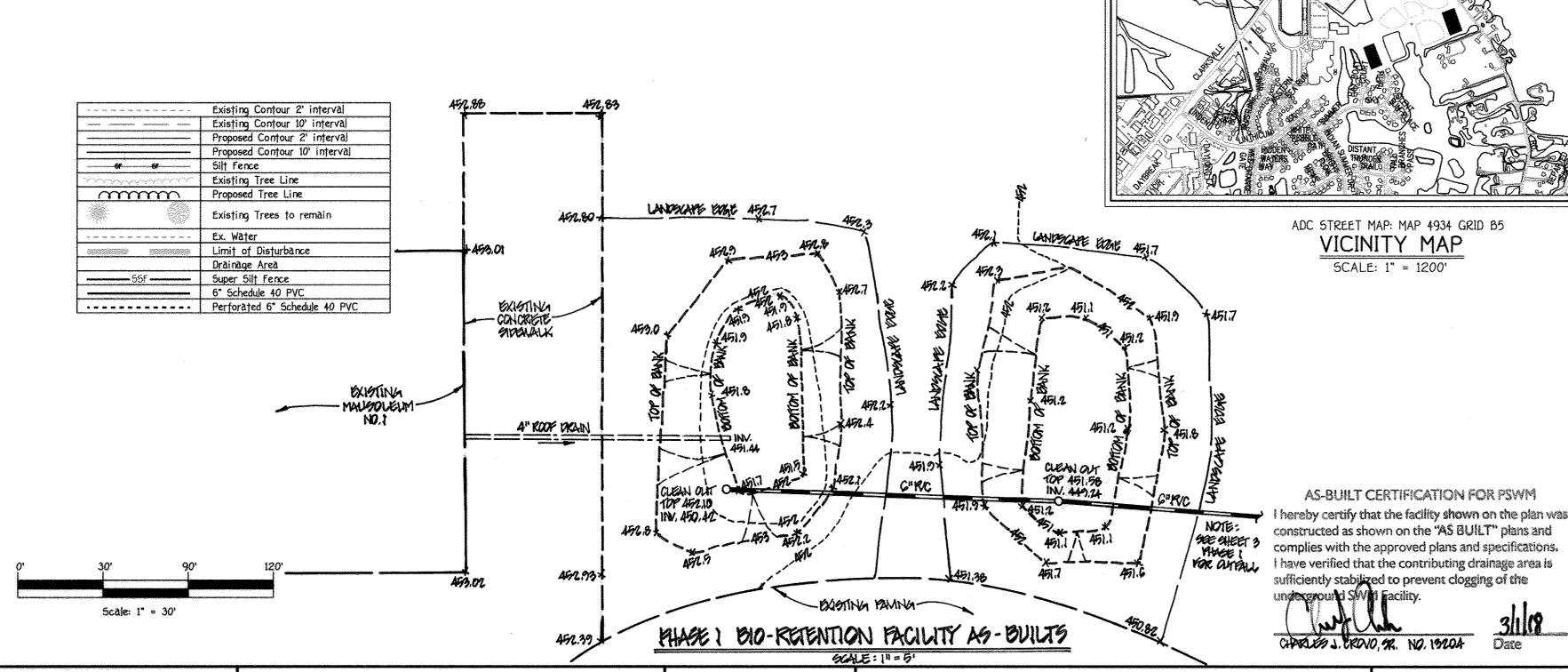
SITE DEVELOPMENT PLAN COLUMBIA MEMORIAL PARK FIVE PROPOSED MAUSOLEUMS

LOT 1 ZONING: NT TAX MAP No. 29 GRID No. 19 PARCEL Nos. 371 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE: 1" = 1200'



120 CRYPT GARDEN MAUSOLEUM



HO, CO. MON. 29GC

BENCH MARKS

HO. CO. MON. 29GB N566026.1700 E1333265.0543 ELEV. 455.965 CONCRETE MONUMENT SET CORNER MEADOW VISTA ROAD & RT-100

N565530.8138 E1332248.7022 ELEV. 490.718 CONCRETE MONUMENT SET RT-108 ACROSS FROM CLARKSVILLE ELEM. SCH.

PARKING ANALYSIS

- A. ESTIMATED PARKING NEEDS FOR MAUSOLEUMS: 20 SPACES
- B. ESTIMATE IS BASED ON A NUMBER PROVIDED IN A LETTER FROM COLUMBIA
- C. THESE ESTIMATES WERE DETERMINED BY NUMBERS GENERATED BY PAST SERVICES AT COLUMBIA MEMORIAL PARK, AS WELL AS OTHER CEMETERIES CURRENTLY UNDER THE SAME MANAGEMENT.

PARKING IS PROVIDED ALONG EXISTING PAVED SURFACE, AS IS THE NORMAL PRACTICE AT TYPICAL CEMETERY SERVICES. BASED ON THE HOWARD COUNTY DESIGN MANUAL VOLUME III PARALLEL PARKING STALLS SHALL BE A MINIMUM OF 8' X 22' WITH A MINIMUM ADJACENT AISLE WIDTH OF 12 FEET.

COLUMBIA MEMORIAL CEMETERY HAS APPROXIMATELY 950' OF 20' WIDE EXISTING PAVED DRIVEWAY, CAPABLE OF PROVIDING 43 SPACES DURING AN

- 1. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1000 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- 2. THE CONTRACTOR SHALL NOTIFY (MISS UTILITY) AT 1-000-257-7777 AT LEAST 40 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 3. THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN SURVEY WITH 2' CONTOURS INTERVALS PREPARED I
- FISHER, COLLINS & CARTER, INC. DATED NOVEMBER 19, 2010. 4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED
- UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 29GB AND 29GC WERE
- 5. STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II.
- PROPOSED ON THIS PROJECT.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE 8. THERE IS CURRENTLY NO KNOWN SEWER ON THIS PROPERTY.
-). THE SUBJECT PROPERTY IS ZONED NT-OPEN SPACE CREDITED PER FDP-188-A-1 (PER 02/02/04 (ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS DATED 07/28/06>
- IO. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES. PAVING AND NEW STRUCTURES SHALL BE
- THIS SITE AT THIS TIME. ON APRIL 7, 2011 HOWARD RESEARCH AND DEVELOPMENT CORPORATION REVIEWED AND
- REQUIREMENT TO FILE A FOREST CONSERVATION PLAN -- A PLANNED UNIT DEVELOPMENT WHICH HAD PRELIMINARY
- THE ENACTMENT OF THE FOREST CONSERVATION ACT EFFECTIVE DECEMBER 31, 1992.
- 13. THERE IS NO 100 YEAR FLOODPLAIN ON THIS PROPERTY. 14. PARKING IS PROVIDED ALONG ROAD DURING FUNERAL SERVICES OR VISITATIONS.
- 15. NO GRADING OR CONSTRUCTION SHALL BE PERMITTED WITHIN 10 FEET OF INDIVIDUAL GRAVE SITES, IN ACCORDANCE
- WITH SECTION 16.116 (c) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. 16. THE BURIAL GROUND HAS NOT AND WILL NOT BE DISTURBED EXCEPT AS PERMITTED BY STATE LAW.
- 17. NO EXTERIOR LIGHTING EXISTS ON OR IS PROPOSED FOR THIS SITE.

SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION = 435,200 SQFt. or 9.99 AC. t. LIMIT OF DISTURBED AREA = 0.21 Ac.+
- PRESENT ZONING DESIGNATION = NT-OPEN SPACE CREDITED PER FDP-188-A-1 (PER 02/02/04 COMPREHENSIVE ZONING PLAN AND
- THE COMP-LITE ZONING AMENDMENTS DATED 07/20/06) PROPOSED USE: MAUSOLEUMS
- FLOOR SPACE ON EACH LEVEL OF BUILDING: N/A
 TOTAL NUMBER OF UNITS ALLOCATED: N/A
 TOTAL NUMBER OF UNITS PROPOSED: N/A
- TOTAL NUMBER OF EMPLOYEES, TENANTS ON SITE PER USE: N/A
- OPEN SPACE ON SITE: 9.99 AC. RECREATIONAL AREA PROVIDED: N/A BUILDING COVERAGE OF SITE: 0.10 AC+
- EXISTING BUILDING COVER 0.02 AC* (MAUSOLEUM)
 PROPOSED BUILDING COVERAGE 0.07 AC* (5 MAUSOLEUMS)
 MAXIMUM ALLOWED COVERAGE IS 10% OF THE SITE
- PREVIOUS HOWARD COUNTY FILES: FDP-188-A1 F-83-116, SDP-84-280
- M. TOTAL AREA OF FLOODPLAIN LOCATED ON SITE 0.00 AC. TOTAL AREA OF SLOPES IN EXCESS OF 25% = 0.000 AC.
- (9.99 Ac 0.00 Ac 9.99 Ac)

 TOTAL SITE AREA FLOODPLAIN STEEP SLOPES AREA)

 (9.99 Ac 0.00 Ac 9.99 Ac)

 TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC.
- Q. TOTAL AREA OF FOREST = 2.94 AC+

5. TOTAL IMPERVIOUS AREA = 0.79 AC+

APPROVED PLANNING BOARD OF HOWARD COUNTY 1105,51 YAM

ADD	ress chart
LOT/PARCEL •	STREET ADDRESS
1	12005 CLARKSVILLE PIKE

FISHER, COLLINS & CARTER, INC. MENTS WERE PREPARED OR APPROVED BY ELLICOTT CITY, MARYLAND 21042 PROFESSIONAL ENGINEER UNDER THE LAWS (410) 461 - 2855 NO. 20784, EXPIRATION DATE: 2/22/13. DATE

OWNER & DEVELOPER

COLUMBIA MEMORIAL PARK LLC C\O MR. WALKER 4111 PENNSYLVANIA AVE. SUITLAND, MARYLAND 20746

Date Date 7-14-11 7.14.11 SECTION/AREA SUBDIVISION COLUMBIA CEMETERY SITE SECTION 1 AREA PARCEL NO. ZONE TAX MAP ELEC. DIST. CENSUS TR. 371 NT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

TITLE SHEET 5 PROPOSED MAUSOLEUMS

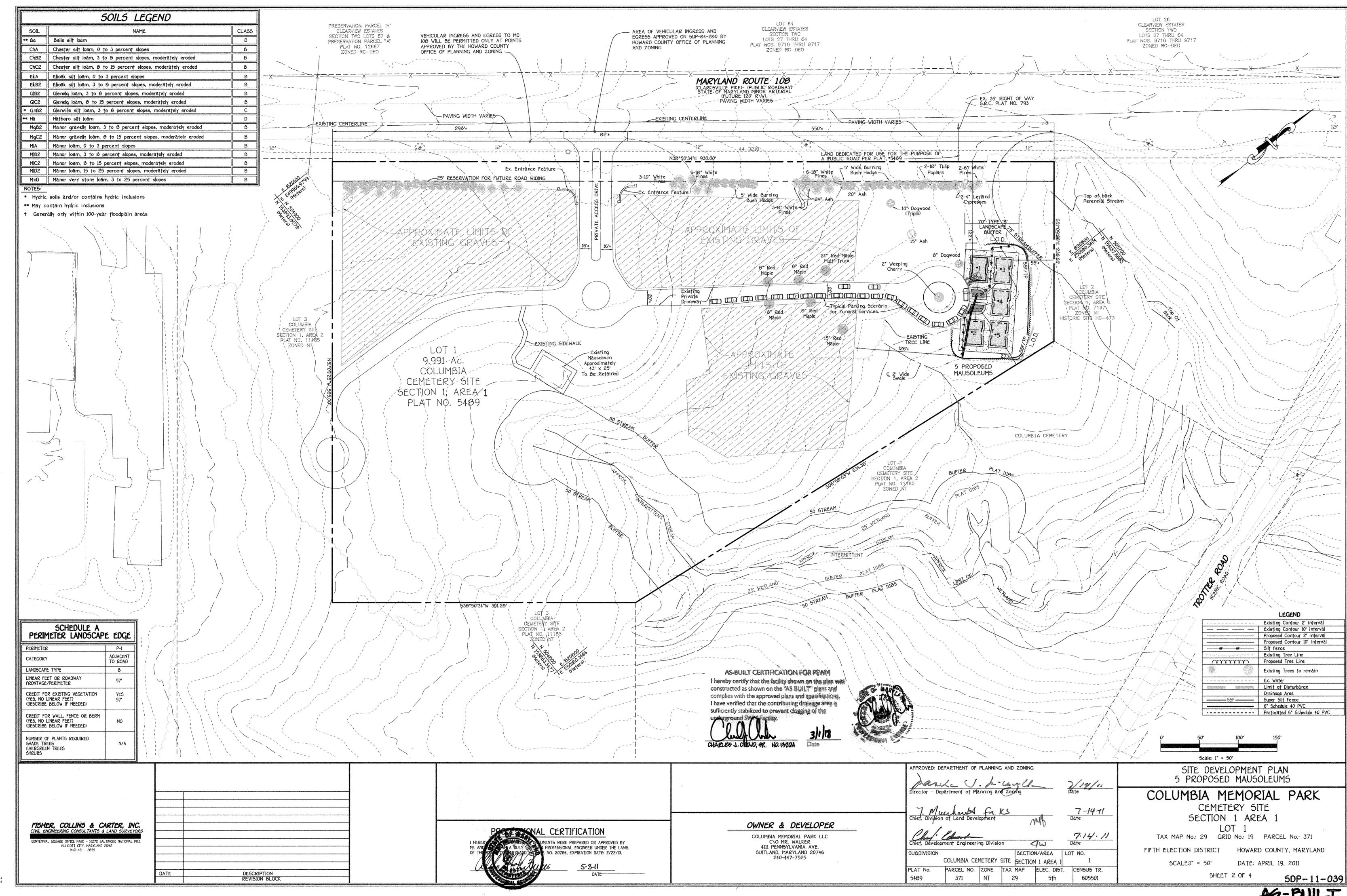
COLUMBIA MEMORIAL PARK

CEMETERY SITE SECTION 1 AREA 1

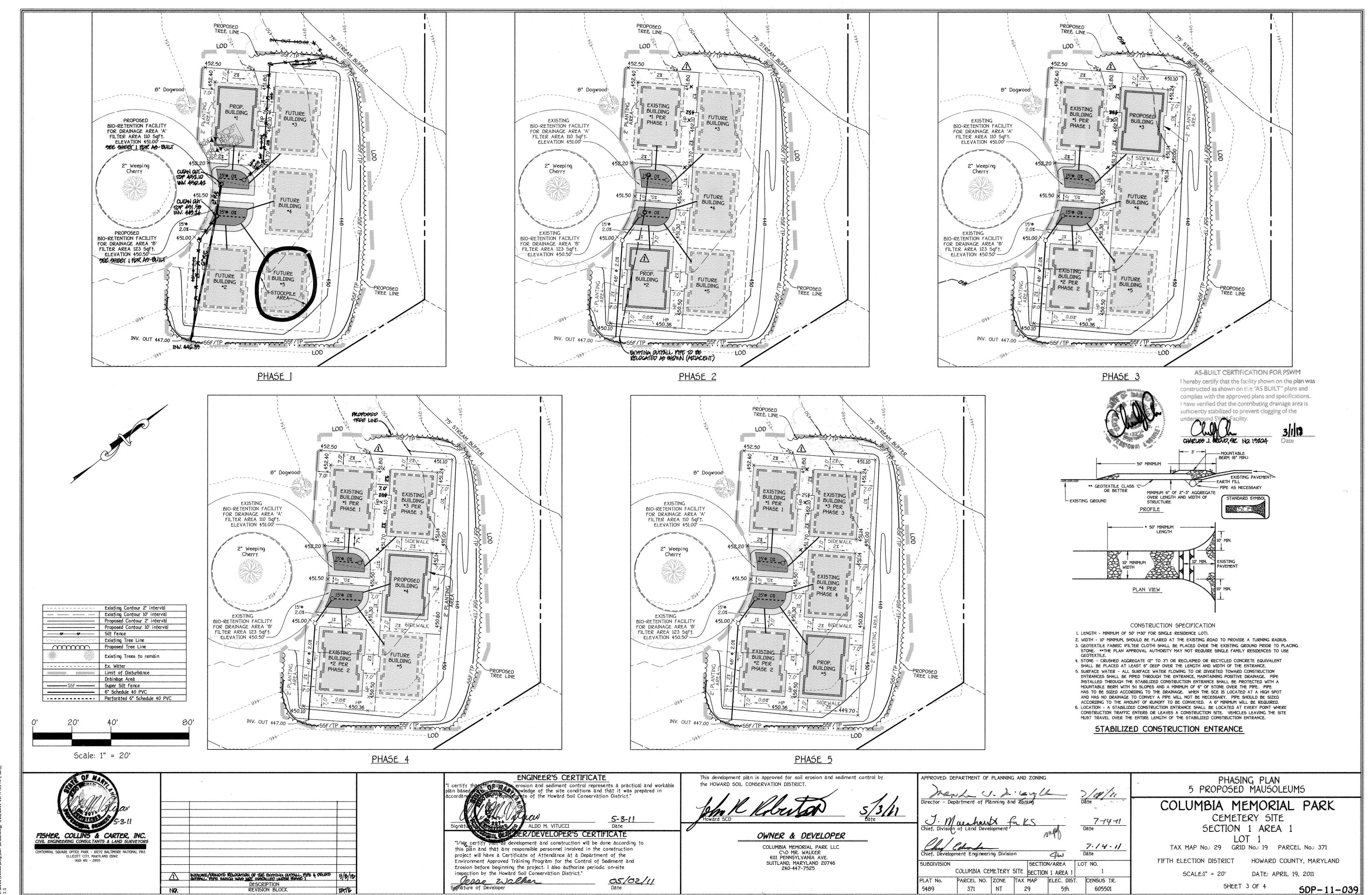
LOT TAX MAP No.: 29 GRID No.: 19 PARCEL No.: 371

FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN DATE: APRIL 19, 2011



AG-BUILT



20.0 STANDARDS AND SPECIFICATIONS

Ising vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding āreās. This specificātion is divided into Temporāry Seeding, to quickly estāblish vegetātīve cover for short durātion O(up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff. nfiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter ontent and improve the water holding capacity of the soil and subsequent plant growth. vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

EFFECTS ON WATER QUALITY AND QUANTITY

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation i, Install erosion and sediment control structures (either temporary of 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 femporary seeding.

iii. Schedule required soil tests to defermine soil amendment composition and application rates for sites having disturbed area over 5 acres. . 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 may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses. ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by

approved equipment. Manure may be 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 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 suc fineness that at least 50% will pass through a *100 mesh sieve and 98-100% will pass through a *20 iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.

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 left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges

running parallel to the contour of the slope. b. Apply ferfilizer and lime as prescribed on the plans. c. In corporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means. ii. Permanent Seeding

a. Minimum soil conditions 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 (ppm). 3. The soil shall contain less than 40% clay, but enough fine grained material 1730% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass o serecia lespedezas is to be planted, then a sandy soil K30% silt

plus clay) would be acceptable. 4. Soil shall contain 1.5% minimum organic matter by weight. 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 is required in accordance with Section 21 Standard and Specification 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 3-5" to permit bonding of

the topsoil to the surface area and to create horizontal crosion check slots to prevent topsoil the surface area and to create horizontal erosion check slots to prevent topsoil from . Apply soil amendments as per soil test or as included on the plans. 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 and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving

newly disturbed areas.). Seed Specifications i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months

the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seedbed loosening may not be necessary on

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. ii. 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.

i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder. a. If fertilizer is being applied at the time of seeding, the application rates amounts will no exceed the following: nitrogen; maximum of 100 lbs, per acre total of soluble nitrogen; P205 (phosphorous); 200 lbs/ac; K20 (potassium): 200 lbs/ac.

b. 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 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 or Tables 265 or 26. The seeded area shall' then be rolled with a weighted roller to provide good seed to soil contact b. Where practical, seed should be applied in two directions perpendicular to each other.
 Apply half the seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. a. 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. b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction

Mulch Specifications (In order of preference) Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable 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.

ii. 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 package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurr
 c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

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 shall cover and hold grass seed

in contact with the soil without inhibiting the growth of the grass seedlings.

e. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-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.

Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding. i. If grading is completed outside of the seeding season, mulch along 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. ii. 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 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. It 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. 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: i. 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 safety. It used on sloping

land, this practice should be used on the contour if possible. ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water

the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders – such as Acrylic DLR (Agro-Tack), DCA-70 Petroset. Terra Tax

II. 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 recom-

FOR VEGETATIVE STABILIZATION

i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15' ii. Construction sequence (Refer to Figure 3 below):

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation

b. Perform Phase I excavation, dress, and stabilize c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as

necessary. d. Perform final phase excavation, dress and stabilize. Overseed previously seeded 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 int he operation of completing the operation

J. Incremental Stabilization of Embankments - Fill Slopes i. Embankments shall be constructed in lifts as prescribed on the plans.

out of the seeding season will necessitate the application of temporary stabilization.

ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15", or when the grading operation ceases as prescribed in the plans. iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to

à sediment trapping device.

iv. Construction sequence: Refer to Figure 4 (below). a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in figure 5. unless other methods shown on the plans address this area.

b. Place Phase 1 embankment, dress and stabilize.

Place Phase 2 embankment, dress and stabilize

d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of and placement of topsoil (if required) grading 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. SECTION 2 - TEMPORARY SEEDING

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed mixtures - Temporary Seeding

i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) 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 plans and completed, then Table 26 must be put on the plans.

ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

Seed Mixture (Hardiness Zone <u>6b</u>) From Table 26				Fertilizer Rate	Lime Rate	
No.	5pecies	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-10-10)	
1	BARLEY OATS RYE	122 96 140	3/1 ~ 5/15, 8/15 ~ 10/15	1" - 2" 1" - 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)

SECTION 3 - PERMANENT SEEDING

Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas generally receiving low maintenance.

A. Seed mixtures - Permanent Seeding

Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-5C5 Techinical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in

iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardiness Zone <u>6b</u>) From Table 25					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	2	P205	K20	12010
3	TALL FESCUE (05%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	{ 1 · · · · · · · · · · · · · · · · · ·	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/dc (100 lb/ 1000sf)
.10	TALL FESCUE (00%) HARD FESCUE (20%)	120 30	3/1 ~ 5/15, 8/15 ~ 10/15	1" - 2"				

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 40 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL

DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855). ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE

WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO. 3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER

SLOPES AND ALL SLOPES STEEPER THAN 3:1. b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. 4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF

THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE. 5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER

GERMINATION AND ESTABLISHMENT OF GRASSES. 6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL

HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. 7) SITE ANALYSIS: TOTAL AREA OF SITE
AREA DISTURBED AREA TO BE ROOFED OR PAVED AREA TO BE ROOFED OR PAVED 0.10
AREA TO BE VEGETATIVELY STABILIZED 0.11 **ACRES** ACRES CU.YDS.

OFFSITE WASTE/BORROW AREA LOCATION 60 8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF

DISTURBANCE 9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. 10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL

THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION O 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 AGENCY IS MADE. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER

Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for WQv), and Re v. In some instances where permeability is great, these facilities may be used for Qp as well.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorous and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

Design Constraints:

> Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.

> Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see figure A.5 and Table A.4 for planting material guidance).

> Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.

> Test soil conditions to determine if soil amendments are necessary. > Plants shall be located so that access is possible for structure maintenance.

> Stabilize heavy flow areas with erosion control mats or sod. > Temporarily divert flows from seeded areas until vegetation is established. > See Table A.5 for additional design considerations.

Bio-retention

Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume [Environmental Quality Resources (EQR), 1996; Engineering Technology Inc. and Biohabitats, Inc. (ETAB), 1993]. Soils should fall within the SM, ML, SC classifications or the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutsedge, and Canada Thistle or other noxious weeds as specified under COMAR 15.08.01.05.) should not be present in the soils. Placement of the planting soil should be in 12 to 10 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P205)	75 lbs. per acre, minimum
Potassium (potash -1(K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a

Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge

is the highest elevation and generally supports plants adapted to dryer conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ETAB, 1993 or Claytor and Schueler, 1997.

AS-BUILT CERTIFICATION FOR PSWM

lote: There is no "AS BUILT" information

DRAINAGE AREA 'A'

MICRO-BIORETENTION PLANTING DETAIL

* SEE PLANT MATERIAL CHARTS PLANT MATERIAL MUST COVER FOR QUANTITIES AND SPACING AT LEAST 50% OF THE MICRO-BIORETENTION MICRO-BIORETENTION PLANT MATERI MIXED PERENNIALS 55 14 SHRUBS 2 FT. DRAINAGE AREA 'I MICRO-BIORETENTION PLANT MATERIAL QUANTITY MAXIMUM SPACING (FT. 1 FT. 62 31 SHRUBS

WIDTH VARIES

NO SCALE

MICRO-BIORETENTION (M-6)

OPERATION & MAINTENANCE SCHEDULE

REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING

I. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS

AREAS OF EROSION OR WASH OUT, ANY MULCH REPLACEMENT SHALL BE DONE

IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT

INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.

THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION

4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS. WITH A MINIMUM OF

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL

CONSIDER BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND

3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER

SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.

ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

3" MULCH LAYER -

12" NO. 2

WASHED STONE

24" PLANTING -

PROVIDE GEOTEXTILE

ON SIDES ONLY

ON SURFACE

 \wedge

DRAINAGE AREA 'A' EL. = 451.00'

DRAINAGE AREA 'B' EL. = 450.70'

PROVIDE GEOTEXTILE

ON SIDES ONLY

6" PERFORATED PIPE/GRAVEL

3/8" PREMOLDED EXPANSION JOINT INDICATED BY DOUBLE LINE ON PLANS 3/8"X3/8" SCORING JOINT INDICATED BY SINGLE LINE ON PLANS - 4" THICK 4000 PSI AIR ENTRAINED CONCRETE SLAB ON GRADE 6"X6"W2.1XW2.1 WIRE MESH-DISCONTINUE MESH AT EXPANSION JOINT APPROVED COMPACTED SUBGRADE

NOTE: REFER TO A-1 FOR LOCATIONS OF EXPANSION JOINTS AND SCORING JOINTS. WHERE NOT INDICATED, INSTALL EXPANSION JOINTS AT MAX. 15'-0" O.C. AND INSTALL SCORING JOINTS AT MAX.

SLOPE ACROSS SIDEWALK SHALL BE MIN. 1/8"/FT. CONCRETE WALK DETAIL

NOT TO SCALE

* IF MULTIPLE LAYERS ARE

TENSILE STRENGTH

TENSILE MODULUS

FLOW RATE

ORAINAGE AREA 'A' EL. = 449.00 DRAINAGE AREA 'B' EL. = 448.70' PROVIDE 1/4" MESH (4X4) OR SMALLER GALVANIZED HARDWARE CLOTH DRAINAGE AREA 'A' EL. = 448.00' RAINAGE AREA 'B' EL. = 447.70 EXISTING TREES TO REMAIN UNDERDRAIN SYSTEM DRAINAGE AREA 'A' INV. EL. = 448.50' DRAINAGE AREA 'B' INV. EL. = 448.20' TYPICAL SECTION - BIO-RETENTION FACILITY (M-6) -2'* ORANGE STREAMERS NOTE: FENCE POST SPACING 3'± Q.C. SHALL NOT EXCEED 10' CENTER TO CENTER 34" MINIMUM TISTISTISTISTISTO GROUND 118/18/18 SURFACE STANDARD SYMBOL 36" MINIMUM FLOW 10' MAXIMUM 21/2" DIAMETER

SEQUENCE OF CONSTRUCTION

2. INSTALL SEDIMENT EROSION CONTROL DEVICES AS SHOWN ON PLAN,

5. FINE GRADE SITE AND INSTALL PERMANENT SEEDING AND LANDSCAPE

AND PERMISSION IS GRANTED BY E/S CONTROL INSPECTOR.

6. REMOVE SEDIMENT CONTROL DEVICES AS UPLAND AREAS ARE STABILIZED

WHICH INCLUDE SUPER SILT FENCE AND TREE PROTECTION, AS WELL

1 DAY

7 DAYS

5 DAYS

8" MINIMUM

5 DAYS

5 DAYS

1. OBTAIN GRADING PERMIT

I. CONSTRUCT BUILDINGS

A STONE CONSTRUCTION ENTRANCE

3. CLEAR AND GRUB TO LIMITS OF DISTURBANCE

GALVANIZED - CHAIN LINK FENCE OR ALUMINUM WITH 1 LAYER OF POST5 FILTER CLOTH CHAIN LINK FENCING FILTER CLOTH FLOW . 34" MINIMUM TRITATION --- 16" MIN. 15T LAYER OF FILTER CLOTH TRIBINATA EMBED FILTER CLOTH 8" MINIMUM INTO GROUND

REQUIRED TO ATTAIN 42" CONSTRUCTION SPECIFICATIONS 1. FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE

LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS. 2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE

TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.

3. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.

4. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND. 5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.

6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE

7. FILTER CLOTH SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

20 LBS/IN (MIN.) TEST: MSMT 509 0.3 GAL/FT /MINUTE (MAX) TEST; MSMT 322 FILTERING EFFICIENCY 75x (MIN.) TEST: MSMT 322 DESIGN CRITERIA

TEST: MSMT 509

SILT FENCE LENGTH

SLOPE SLOPE LENGTH

50 LB5/IN (MIN.)

STEEPNESS **SLOPE** (MAXIMUM) (MAXIMUM) 0 - 10% 0 - 10:1 UNLIMITED UNLIMITED 10 - 20% 1,500 FEET 10:1 - 5:1 200 FEET 20 - 33% 5:1 - 3:1 100 FEET 1,000 FEET 33 - 50% 100 FEET 500 FEET 3:1 - 2:1 50 FEET 250 FEET 50% 2:1 +

SUPER SILT FENCE, TREE PROTECTION FENCE

NOT TO SCALE

FISHER, COLLINS & CARTER. INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

(410) 461 - 2855

ENGINEER'S CERTIFICATE

ALDO M. VITUCCI DEVELOPER'S CERTIFICATE this blan and that any responsible personnel involved 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 inspection by the Howard Soil Conservation District." Yesse Walker 05/02/11

Scale: 1" = 50'

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

OWNER & DEVELOPER COLUMBIA MEMORIAL PARK LLC C\O MR. WALKER 4111 PENNSYLVANIA AVE. SUITLAND, MARYLAND 20746 240-447-7525

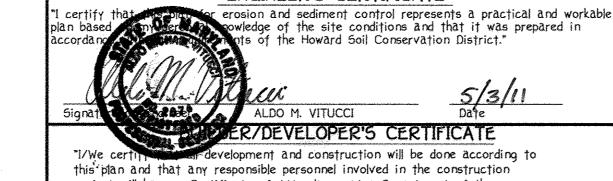
APPROVED: DEPARTMENT OF PLANNING AND ZONING Date Date 7-14-11 Date **SUBDIVISION** SECTION/AREA COLUMBIA CEMETERY SITE SECTION 1 AREA PARCEL NO. ZONE TAX MAP CENSUS TR. 5489 371 NT 29

SEDIMENT EROSION CONTROL NOTES AND DETAILS 5 PROPOSED MAUSOLEUMS COLUMBIA MEMORIAL PARK CEMETERY SITE SECTION 1 AREA

LOT TAX MAP No.: 29 GRID No.: 19 PARCEL No.: 371

FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: APRIL 19, 2011

FLUCOTT CITY, MARYLAND 21042



development and construction will be done according to

wledge of the site conditions and that it was prepared in ots of the Howard Soil Conservation District."