GENERAL NOTES

- 1. The project is in conformance with the latest Howard County Standards unless waivers have been approved.
- 2. This plat is based on a field run monumented boundary survey performed on or about May 25, 2002 by KCE Engineering, inc.
- 3. 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. 38R2 and 38R3 were used for this project.

#	ELEVATION	NORTHING	EASTING
38R2	168.788	557500.683	1391227.052
38R3	124.653	557417.823	1391983.177

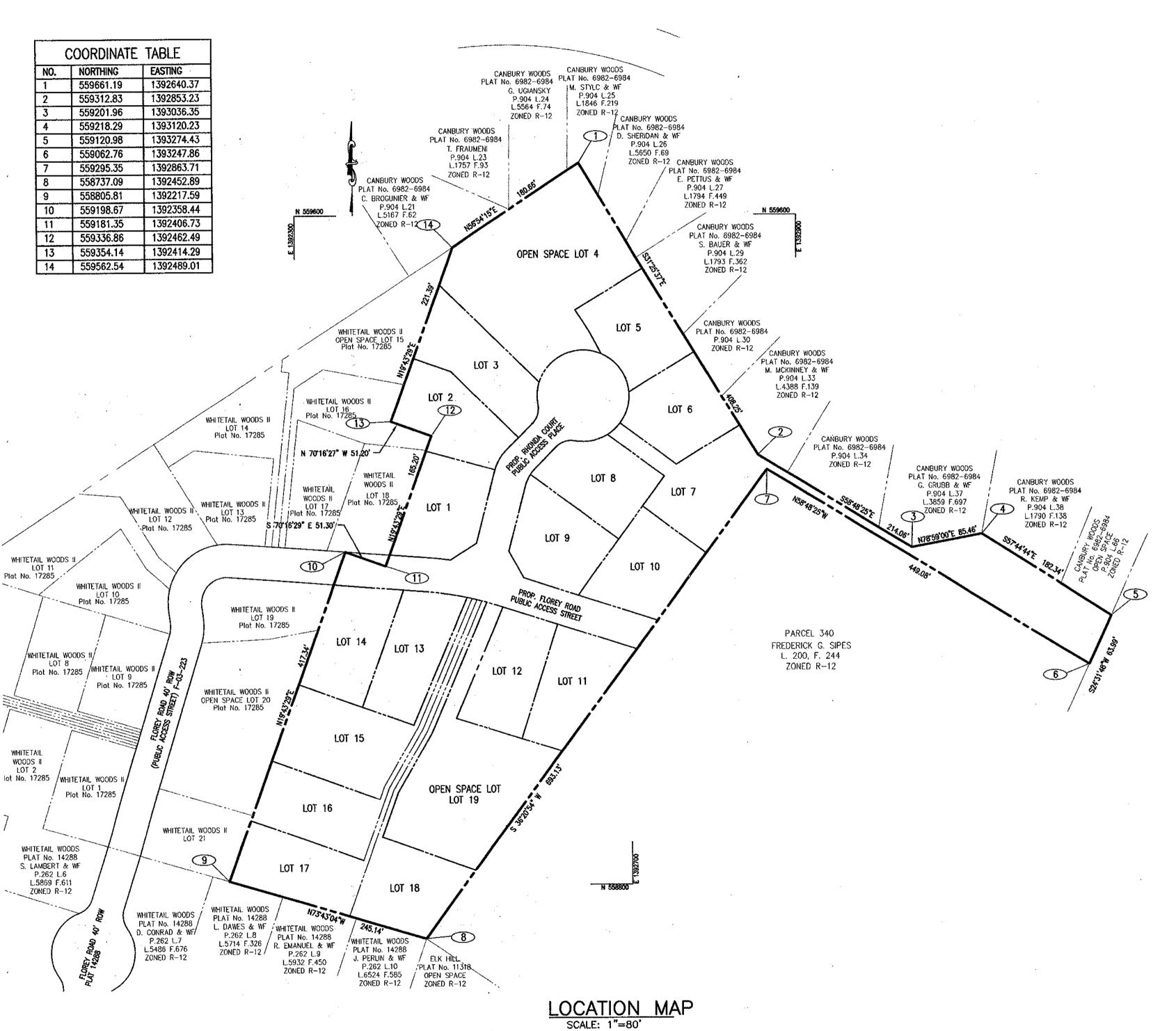
- 4. Planning and Zoning File Number: S-03-02; WP-03-35; P-04-11
- 5. Water will be public. Water to be provided through Contr. No. 14-4220-D
- 6. Sewer will be public. Sewer to be provided through Contr. No. 14-4220-D
- 7. Stormwater Management for this development is provided by an extended detention micropool facility to provide Cpv and WQv and a bioretention facility to provide WQv and Rev. Both facilities are Hazard Class "A". The facilities will be located on open space lots 4 & 19 and will be privately owned and maintained by the HOA.
- 8. Existing utilities are based on Whitetail Woods Contr. no. 14-3754-D, Canbury Woods Contr. no. 14-1450-D, and proposed Whitetail
- 9. There are no floodplains located on-site as certified by LaBare LLC.
- 10. There are no wetlands or streams located on-site as certified by LaBare LLC.
- 11. There are no steep slopes on-site with a contiguous area of 20,000 s.f. or greater
- 12. APFO Traffic study was prepared by Traffic Concepts, Inc., dated April 2002 and approved under S-03-02.
- 13. The railway noise study for this project was prepared by KCE Engineering, Inc. dated November 2003.
- 14. The geotechnical report for this project was prepared by KCE Engineering, Inc. dated November 2003.
- 15. This subdivision complies with the forest conservation requirements of section 16.1200 of the Howard County Code with a 4.03 AC. reforestation obligation provided off-site (Tally Property Parcel 2, Tax Map 8, Parcel 392). Surety in the amount of \$87,773 was posted
- 16. All landscaping requirements as set forth in the Landscape Manual shall be complied with
- 17. Street trees are provided for this subdivision in accordance with Section 16.124(e)(1) of the Subdivision and Land Development Regulations and the Landscape Manual. A minimum of 20' shall be maintained between street lights and trees.
- 18. Streetlights will be required in this development in accordance with the Design Manual. Streetlight placement and the type of fixture and pole selected shall be in accordance with the latest Howard County Design Manual, Volume III (1993) and as modified by "Guidelines for Street Lights in Residential Developments (June 1993). The June 1993 policy includes guidelines for lateral and longitudinal placement. A minimum spacing of 20' shall be maintained between any streetlight and any tree.
- 19. Sediment and Erosion Control will be provided for this Site.
- 20. Deed Reference: L.9180, F. 577.
- 21. This Property is within the Metropolitan District.
- 22. To the best of the owner's knowledge, there are no burial/cemetary locations on site.
- 23. For flag or pipestern lots, refuse collection, snow removal and road maintenance are provided to the junction of the flag or pipestern and road right-of-way line and not onto the pipestern lot driveway. The 4'x10' concrete pad for a Refuse and Recycling Collection Pad located within Open Space Lot 19 will be maintained by the owners of Lots 15 thru 18 pursuant to the Declaration of Right of Access and
- 24. Lots 15, 16, 17, and 18 will utilize a use—in-common driveway, Howard County Standard Detail no. R-6.06 will be used for the entrance at the intersection of the public road.
- 25. This plan is grandfathered to the Fifth Edition of the Howard County Subdivision and Land Development Regulations with a signed Sketch Plan prior to May 22, 2003. Development or construction on these lots must comply with setback and buffer regulations in effect at the time of submission of the site development plan, waiver petition application or building/grading permit.
- 26. Recreation space is provided in accordance with the requirements of Howard County Subdivision Regulations, Section 16.121(a)(4).

Maintenance Obligation recorded among the Land Records of Howard County, Maryland along with the recording of this plat.

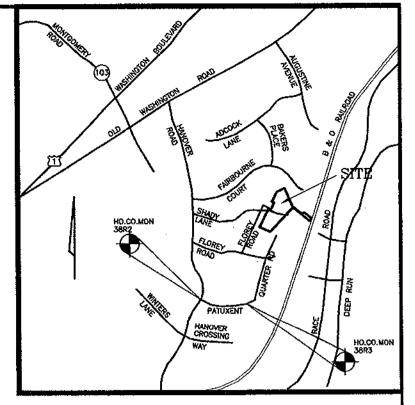
- 27. Open Space Lots #4 and #19 have been created in accordance with the requirements of Howard County Subdivision Regulations Section 16.121(c) and will be dedicated to a Homeowners' Association concurrent with recording of the final plat.
- 28. This site is located within the BWI four mile height restriction zone. Approval is required from the Maryland Aviation Administration for new house construction on this site. Approval date 7/20/05.
- 29. Waiver Petition WP-03-035 was submitted to request a waiver to Section 16.121(e)(1) of the Ho.Co. Subdivision Regulations requiring 40 ft. of public road frontage for Open Space Lots #4 (then #5) and #19 (then #20). However, after revising the lot lines, the public road frontage for both the Open Space Lots was achieved and the petition withdrawn on 11/20/02.
- 30. The subject property is zoned "R-12" per the 2/2/04 Comprehensive Zoning Plan.
- 31. All filled areas within the public right-of-way shall meet 95% compaction in accordance with AASHTO T-180 specifications
- 32. Retaining (weir) walls on open space Lots 4 and 19 will be privately owned and maintained by the HOA. Retaining wall on Lot 11 will be privately owned and maintained by lot owner.
- 33. All sign posts used for traffic control signs installed in the County right—of—way shall be mounted on a 2" galvanized steel, perforated, square tube post (14 gauge) inserted into a 2—1/2" galvanized steel, perforated, square tube sleeve (12 gauge) 3' long. A galvanized steel pole cap shall be mounted on top of each post.
- 34. Driveway(s) shall be provided prior to residential occupancy to insure safe access for fire and emergency vehicles per the following minimum

 - b) Surface 6 inches of compacted crusher run base with tar and chip coating. c) Geometry — Maximun 15% grade, maximum 10% grade change and minimum of 45—foot turning radius
 - d) Structures (culvert/bridges) Capable of supporting 25 gross tons (H25 loading).
 e) Drainage elements Capable of safely passing 100—year flood with no more than 1 foot depth over driveway surface.
- f) Structure clearances minimum 12 feet. a) Maintenance - Sufficient to insure all weather use.

FINAL PLAN DORCHESTER HOMES LOTS 1-19 HOWARD COUNTY, MARYLAND



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VICINITY MAP SCALE: 1"=2000'

SITE DATA

- 1. LOCATION: TAX MAP 38, PARCEL 756
- 2. FIRST ELECTION DISTRICT
- 3. EXISTING ZONING: R-12
- 4. GROSS AREA OF PARCEL: 304.615 SFT.=6.993 ACRES
- 5. AREA OF RIGHT OF WAY: 32,554 SFT.=0.747 ACRES
- 6. AREA OF FLOODPLAIN: N/A
- 7. AREA OF CONTIGUOUS STEEP SLOPES ON-SITE: 3,302 SQ.FT. (0.076 AC.)
- 8. NET AREA OF PROJECT: 6.917 ACRES
- 9. NUMBER OF PROPOSED RESIDENTIAL LOTS: 17
- 10. AREA OF PROPOSED RESIDENTIAL LOTS: 4.905 ACRES
- 11. AREA OF SMALLEST BUILDABLE LOT PROPOSED: 10,800 SQ.FT. (LOTS 1,10,11)
- 12. AREA OF RECREATION SPACE REQUIRED: 200 SF PER RESIDENTIAL LOT = 200x17=3,400 SF
- 13. AREA OF OPEN SPACE REQUIRED: 10% OF GROSS AREA OF PARCEL =30,461 SF (0.699 AC.)
- 14. NUMBER OF PROPOSED OPEN SPACE LOTS: 2
- 15. CREDITED OPEN SPACE: 55,544 SF.=1.28 ACRES
- 16. NON CREDITED OPEN SPACE: 2873 SF.=0.06 ACRES
- 17. TOTAL OPEN SPACE AREA PROVIDED: 58,417 SF.=1.34 ACRES

SHEET INDEX				
SHEET NO.	TITLE			
1 OF 13	COVER SHEET			
2 OF 13	ROAD LAYOUT PLAN			
3 OF 13	ROAD PROFILES			
4 OF 13	GRADING, SEDIMENT AND EROSION CONTROL PLAN			
5 OF 13	GRADING, SEDIMENT AND EROSION CONTROL DETAILS			
6 OF 13	LANDSCAPE AND FOREST CONSERVATION PLAN			
7 OF 13	STORM DRAIN DRAINAGE AREA MAP			
8 OF 13	STORM DRAIN PROFILES AND STORMWATER MANAGEMENT DETAILS			
9 OF 13	STORM WATER MANAGEMENT DETAILS-1			
10 OF 13	STORM WATER MANAGEMENT DETAILS-2			
11 OF 13	OFFSITE PLANTING PLAN-1			
12 OF 13	OFFSITE PLANTING PLAN-2			
13 OF 13	WATERFOWL DETERRANT SYSTEM- DETAILS			

REVISION

COVER SHEET

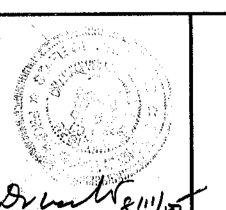
DORCHESTER HOMES LOTS 1-3, 5-18 AND OPEN SPACE LOTS 4, 19

REF: S-03-02, WP-03-35, P-04-11 1ST ELECTION DISTRICT- HOWARD COUNTY, MARYLAND PARCEL 756 LIBER 771, FOLIO 440 ZONE R-12 TAX MAP 38 BLOCK 9



KCE ENGINEERING, INC.

EXECUTIVE CENTER 3300 NORTH RIDGE ROAD, SUITE 315 ELLICOTT CITY, MARYLAND 21043 PHONE (410) 203-9800 FAX (410) 203-9228



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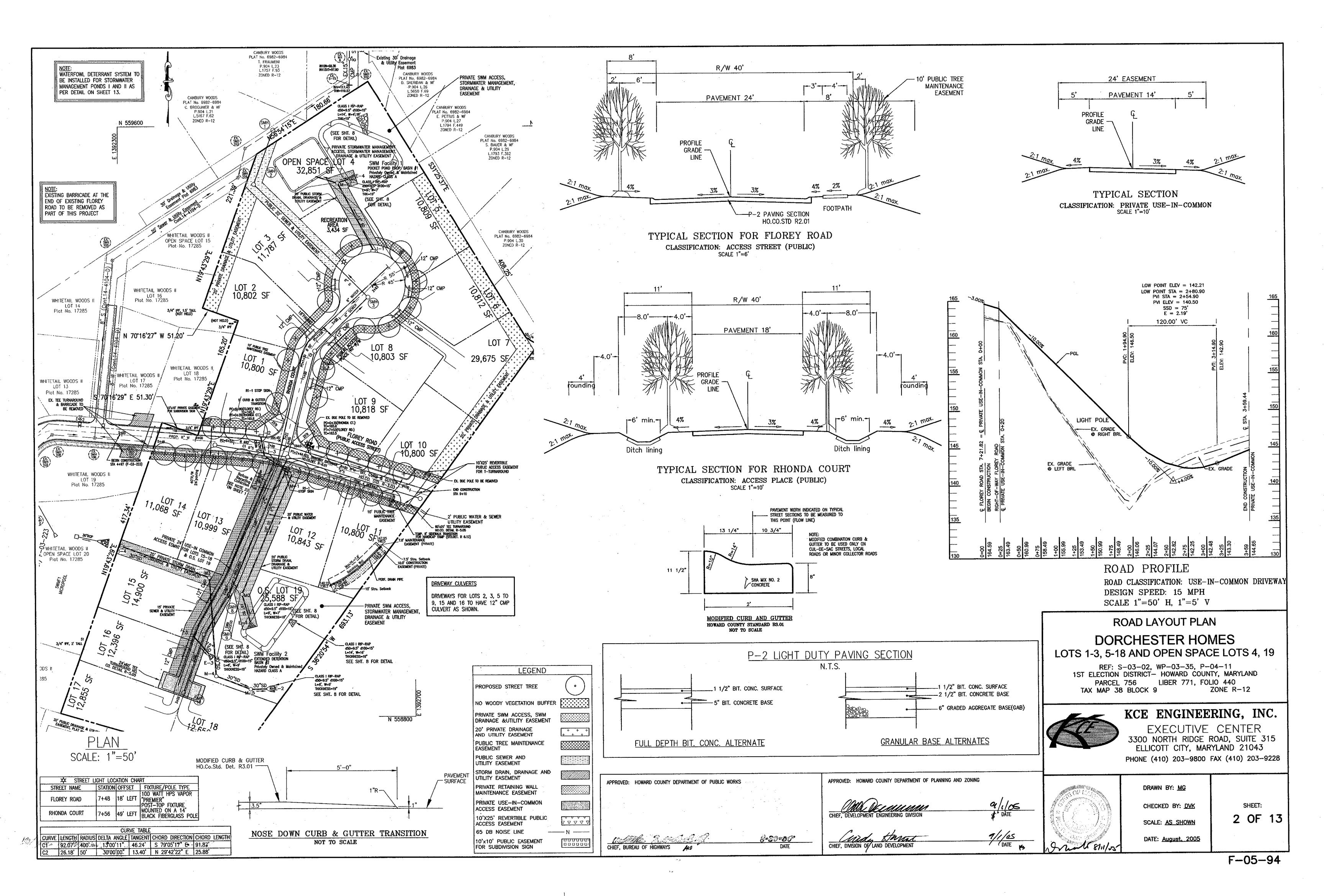
CHECKED BY: DVK SCALE: 1' = 50'DATE: AUGUST. 2005

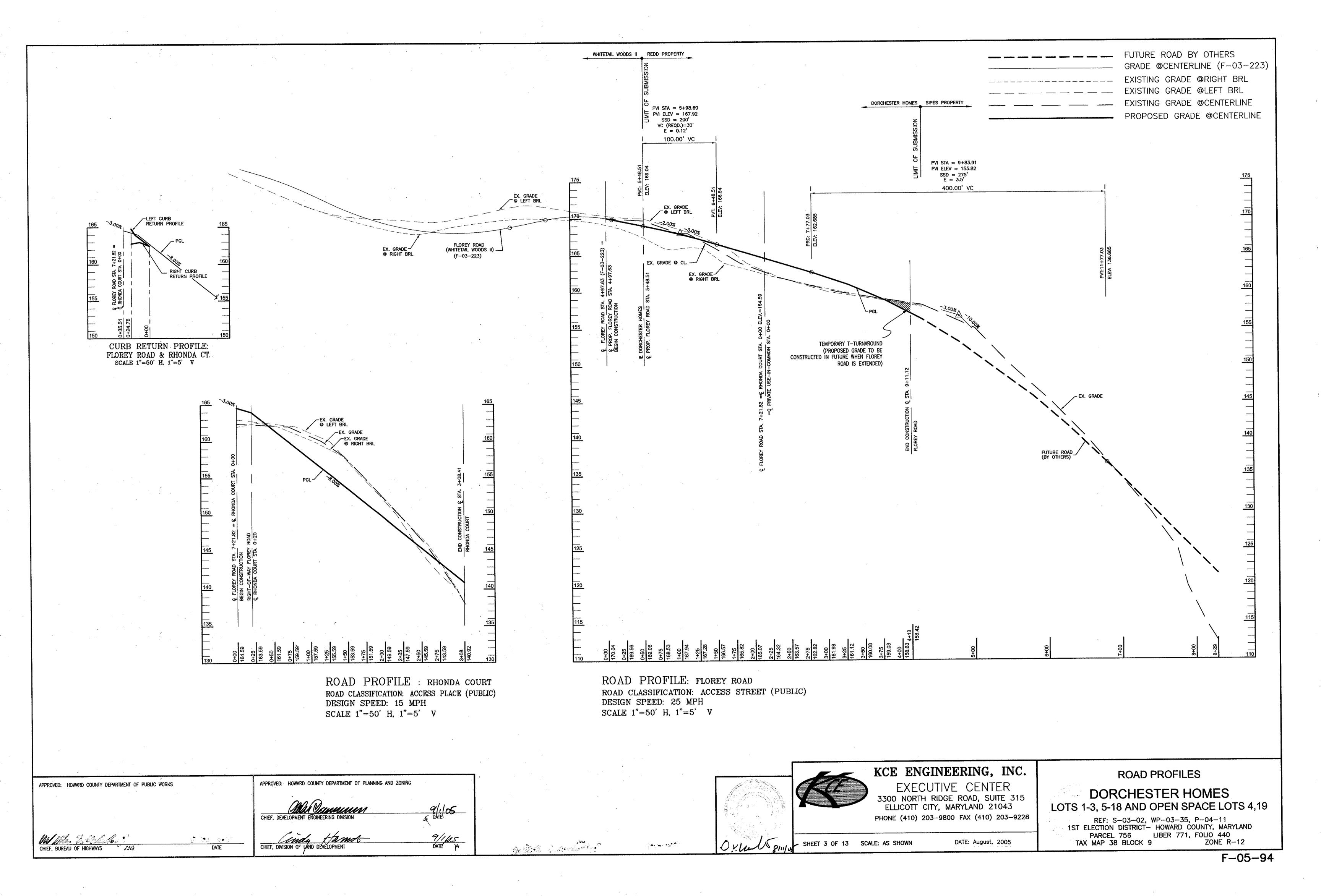
OF 13

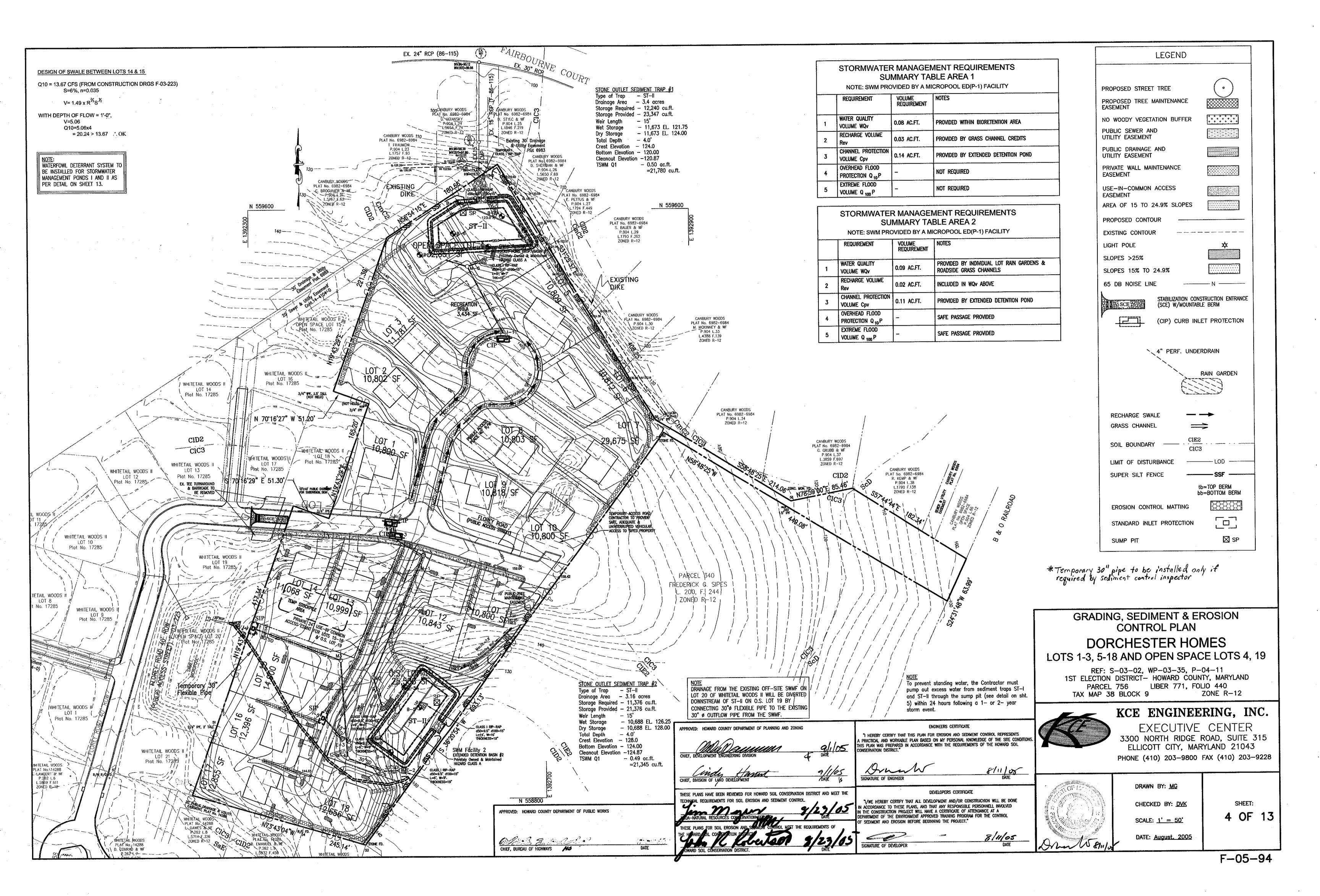
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 8-30-05

CHIEF, DIVISION OF LAND DEVELOPMENT

OWNER/DEVELOPER DORCHESTER HOMES, LLC 8248 VETERANS HWY, SUITE 101 MILLERSVILLE, MD 21108







STANDARDS AND SPECIFICATIONS FOR TOPSOIL

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT

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.

CONDITIONS WHERE PRACTICE APPLIES

- . This practice 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
- B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO
- SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH. D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT 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-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- . Topsoil specifications soil to be used as topsoil must meet the following I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS. TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRACMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1.5-INCH IN DIAMETER.
- II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS, SUCH AS BERMUDA GRASS QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- III. FOR THIS SITE, WHICH HAS A DISTURBED AREA UNDER 5 ACRES: I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENOMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
- A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH PF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.

 B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.

 C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 5.00 PARTS PER MILLION SHALL NOT BE USED. D. NO SOD OR SEED SHALL BE PLACED ON SOIL SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14DAYS MIN.) TO PERMIT DISSIPATION OF
- NOTE: 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.
- II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMMENDMENTS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION-SECTION Soil Amendments: Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. I-VEGETATIVE STABILIZATION METHODS AND METERIALS.

PERSPECTIVE VIEW

for Geotextile Class Fi

Tensile Modulus

SOIL CONSERVATION SERVICE

CHIEF, BUREAU OF HIGHWAYS

filtering Efficiency 75% (min.)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

- I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, SILT FENCE, SEDIMENT TRAPS AND BASINS.
- II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.
- III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH MINIMUM ADDITIONAL SOIL PREPARATION AND TILLAGE. any irregularities in the surface resulting from topsoiling or other operations shall BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUIDDLY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

DETAIL 22 - SILT FENCE

36' MINIMUM FENCE-POST LENGTH

EMBED GEDTEXTILE CLASS F — A MINIMUM OF 8' VERTICALLY

1. Fence posts shall be a minimum of 36' long driven 16' minimum into the

standard T or U section weighting not less than 1.00 pond per linear foot

2. Geotextile shall be fastened securely to each fence post with wire ties

or staples at top and mid-section and shall meet the following requirements

50 lbs/in (min.)

20 lbs/in (min.)

3. Where ends of geotextile fabric came together, they shall be overlapped

4. Slit Fence shall be inspected after each rainfall event and maintained when

0.3 gal ft*/ minute (max.) Testi MSMT 322

ground. Wood posts shall be 11/2' x 11/2' square (minimum) cut, or 13/4' diameter

(minimum) round and shall be of sound quality hardwood. Steel posts will be

FILTER

CLOTH.

GEDTEXTILE CLASS F

FENCE POST SECTION MINIMUM 20' ABOVE

- FENCE POST DRIVEN A

STANDARD SYMBOL

_____SF -----

Test: HSMT 509

Testi MSMT 509

MINIMUM OF 16"

CROSS SECTION

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following

1. Preferred - Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable - Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding — For the periods March 1 — April 20, and August 1 — October 20, inclusive, seed the appropriate seed mixtures:

Seed Mixture No. 1 - (relatively flat areas regularly mowed and exposed to normal conditions) with 192 lbs PLS/acre of 85% certified turf-type Tall Fescue, 28 lbs PLS/acre of 10% certified Kentucky Bluegrass and 14 lbs PLS/acre of 5 % Perennial Ryegrass. Supplemental seed — Annual Ryegrass 25 lbs PLS/acre. Seed Mixture No. 2 - (sloped areas not subject to regular mowing) with 85 lbs PLS/acre of 75% Hard Fescue, 23 lbs PLS/acre of 20% Chewings Fescue and 7 lbs PLS/acre of 5% Kentucky Bluegrass. Supplemental seed — Redtop 3 lbs PLS/acre.

Seed Mixture No. 3 — (wetland areas and their associated buffer zones) with 83 lbs PLS/acre of 60% Fowl Meadow Grass, 34 lbs PLS/acre of 30% Chewings Fescue and 14 lbs PLS/acre of 10% Perennial Ryegrass. Supplemental seed Redtop 3 lbs PLS/acre.

Seeding performed after October 20 should be a temporary cover of annual ryegrass and followed by overseeding of the appropriate seed mixture during the spring seeding season. Mulching - Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of

unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance - Inspect all seeding areas and make needed repairs, replacements

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Seedbed preparation: - Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Seeding: — For periods March 1 — April 30 and from August 1 — November 30, inclusive, seed with 2-1/2 bushel per acre of Annual Rye/ Redtop (3.2) lbs/1000 sq. ft.). For the period May 1 - July 31, inclusive, seed with 13.6 lbs PLS/acre of Little Bluestern. For the period November 16 - February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as

Mulching: - Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

> MININUM 6" OF 2"-3" AGGREGATE DVER LENGTH AND WIDTH D STRUCTURE

---- PIPE AS NECESSARY

VATER MANAGEMENT ADMINISTRATION

CRUSS-SECTION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

PROFILE

Construction Specification

to placing stone. **The plan approval authority may not require single family

. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete

equivalent shall be placed at least 6' deep over the length and width of the

5. Surface Water - all surface water flowing to or diverted toward construction

installed through the stabilized construction entrance shall be protected with a

according to the amount of runoff to be conveyed. A 6' minimum will be required.

5. Location — A stabilized construction entrance shall be located at every point

where construction traffic enters or leaves a construction site. Vehicles leaving

the site must travel over the entire length of the stabilized construction entrance

Length - minimum of 50' (#30' for single residence lot).

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

** GEOTEXTILE CLASS 'C'-

OR BETTER

LEXISTING GROUND

SCE

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).

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 most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT

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 greater 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.

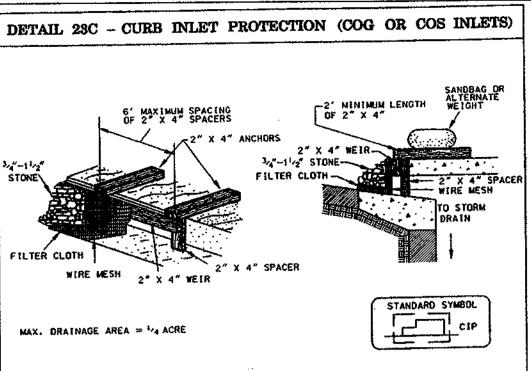
Total Area of Site 6.991 Acres Area Disturbed: 6.7 Acres Area to be roofed or paved: 1.65 Acres Area to be vegetatively stabilized: 5.05 Acres Total Cut: 3,340 Cu. Yds. Total Fill: 13,000 Cu. Yds. Excess borrow material to be hauled from an approved site.

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 control 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 of the 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 agency is made.

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



Construction Specifications

Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" \times 4" weir (measuring throat length plus 2') as shown on the standard

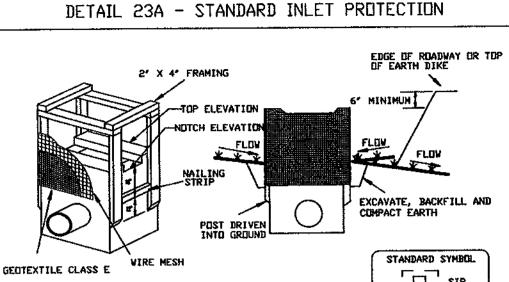
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the $2'' \times 4''$ weir. 3. Securely not! the 2" X 4" weir to a 9" long vertical spacer to be located between

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of $2^{\prime\prime} \times 4^{\prime\prime}$ to the top of the weir at spacer locations). These $2^{\prime\prime} \times 4^{\prime\prime}$ anchors shall extend across the inlet top and be held in place by sandbags or alternate weight. 5. The assembly shall be placed so that the end spacers are a minimum t' beyond

6. Form the V_2 " x V_2 " wire mesh and the geotextile fabric to the concrete gutter and ogainst the face of the curb on both sides of the inlet. Place clean 34" x 11/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when alogged with sediment. 8. Assure that storm flow does not bypass the inlet by installing a temporary

earth or asphalt dike to direct the flow to the injet. E - 15 - 58 WATER MANAGEMENT ADMINISTRATION



Construction Specifications

MAX. DRAINAGE AREA = 1/4 ACRE

1. Excavate completely around the inlet to a depth of 18' below the notch elevation.

2. Drive the 2' x 4' construction grade lumber posts i' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2' x 4' frame using the overlap joint shown on Detail 23A. The top of the frame (welr) must be 6' below adjacent roadways where flooding and safety issues may arise.

3. Stretch the $1/2' \times 1/2'$ wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18' below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and

5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike

rain and the geotextile replaced when it becomes clogged

7. The structure must be inspected periodically and after each

SUCTION LINE TO PUMP ----THE TOP OF THE STANDPIPE SHOULD EXTEND CLOTH AND GEOTEXTILE PERFORATED CORREGATED METAL DR PVC PIPE AASHTO M-43 # 57 OF M-43 # 57 STONE BEFORE INSTALLING CROSS SECTION STANDARD SYMBUL **⊠** SP Construction Specifications 1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter. 2. The standpipe should be constructed by perforating a 12' to 24' diameter corrugated or PVC pipe. Then wrapping with 1/2" hardware cloth and Geotextile Class E. The perforations shall be 1/2" x 6" stits or 1' diameter holes. 3. A base of filter material consisting of clean gravel or #57 stone

DETAIL 20B - SUMP PIT

should be placed in the pit to a depth of 12'. After installing the standpipe, the pit surrounding the standpipe should then be backfilled with

4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material

should extend 3" minimum above the anticipated standing water elevation.

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLIED WITH:

(a) 7 CALENDER DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, THAN 3:1 (b) 14 CALENDER DAYS FOR ALL OTHER DISTURBED AREAS.

MINIMUM

MINIMUM

STANDARD SYMBOL

DETAIL 33 - SUPER SILT FENCE

Construction Specifications

. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Betails for Chain Link Fencing. The specification

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

5. When two sections of fliter cloth adjoin each other, they shall be overlapped

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

75% (min.)

50 lbs/in (min.)

20 lbs/in (min.)

0.3 gal/ft*/minute (max.)

ENGINEERS CERTIFICATE

5. Maintenance shall be performed as needed and silt buildups removed when "bulges"

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced

for a 6' fence shall be used, substituting 42' fabric and 6' length

. Filter cloth shall be embedded a minimum of 8' into the ground.

develop in the silt fence, or when silt reaches 50% of fence height

NOTE FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER

118118118118118

CHAIN LINK FENCING-

EMBED FILTER CLOTH 8' | |

every 24° at the top and mid section.

Geotextile Class Fi

Tensile Strength

Tensile Modulus

Filtering Efficiency

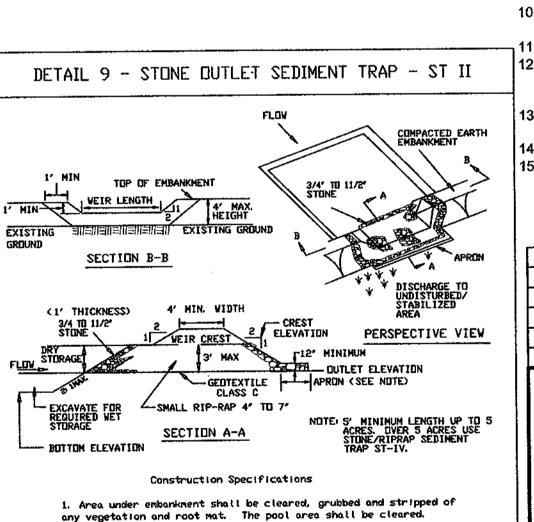
*IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN 42

FILTER CLUTH-

OR ALUMINUM

MEASURES SHOWN HEREON.

SWALES, DITCH PERIMETER SLOPES SLOPES AND ALL SLOPES AND ALL SLOPES GREATER



2. The fill material for the embankment shall be free of roots and

other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being

3. All cut and fill slopes shall be 2:1 or flatter.

4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4' to 11/2' washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face

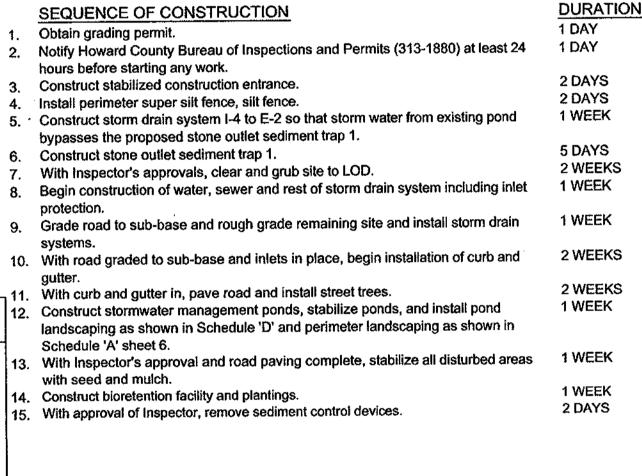
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

DEVELOPERS CERTIFICATE

MARYLAND DEPARTMENT OF ENVIRONMENT

WATER MANAGEMENT ADMINISTRATION

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE 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."



GRADING, SEDIMENT & EROSION CONTROL DETAILS

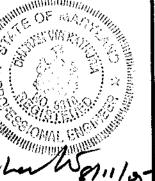
DORCHESTER HOMES LOTS 1-3, 5-18 AND OPEN SPACE LOTS 4, 19

REF: S-03-02, WP-03-35, P-04-11 1ST ELECTION DISTRICT- HOWARD COUNTY, MARYLAND PARCEL 756 LIBER 771, FOLIO 440 ZONE R-12 TAX MAP 38 BLOCK 9



KCE ENGINEERING, INC.

EXECUTIVE CENTER 3300 NORTH RIDGE ROAD, SUITE 315 ELLICOTT CITY, MARYLAND 21043 PHONE (410) 203-9800 FAX (410) 203-9228



5 OF 13

F-05-94

Width - 10' minimum, should be flared at the existing road to provide a turning Geotextile fabric (filter cloth) shall be placed over the existing ground prior entrances shall be piped through the entrance, maintaining positive drainage. Pipe mountable berm with 5:1 slopes and a minimum of 6° of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized

DETAIL 30 - EROSION CONTROL MATTING

MARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE SITIL CONSERVATION SERVICE VATER MANAGEMENT ADMINISTRATION THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE

TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL CONTROL MEET THE REQUIREMENTS OF

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Test: MSMT 509

Testi NSMT 322

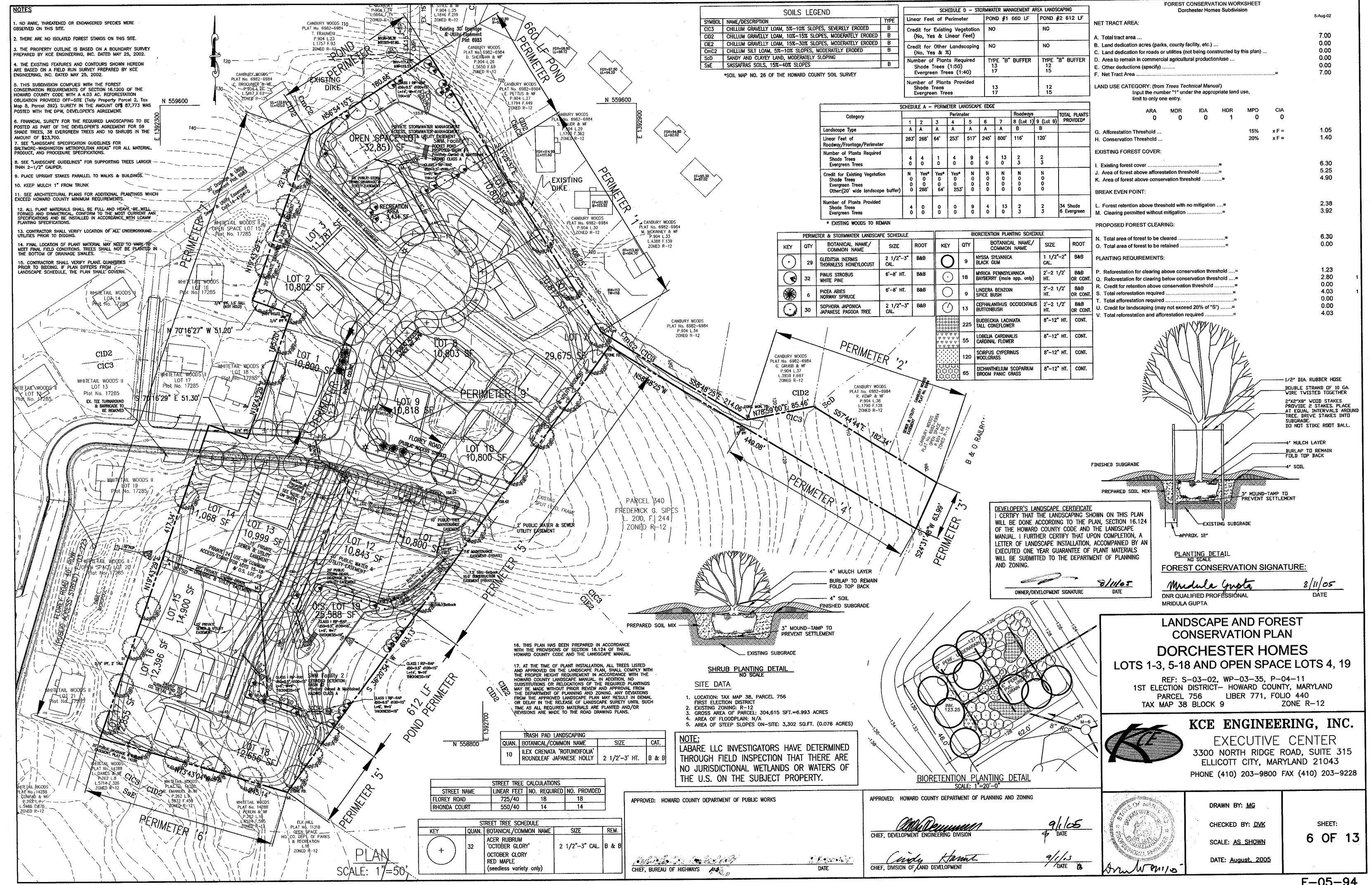
Testi MSMT 322

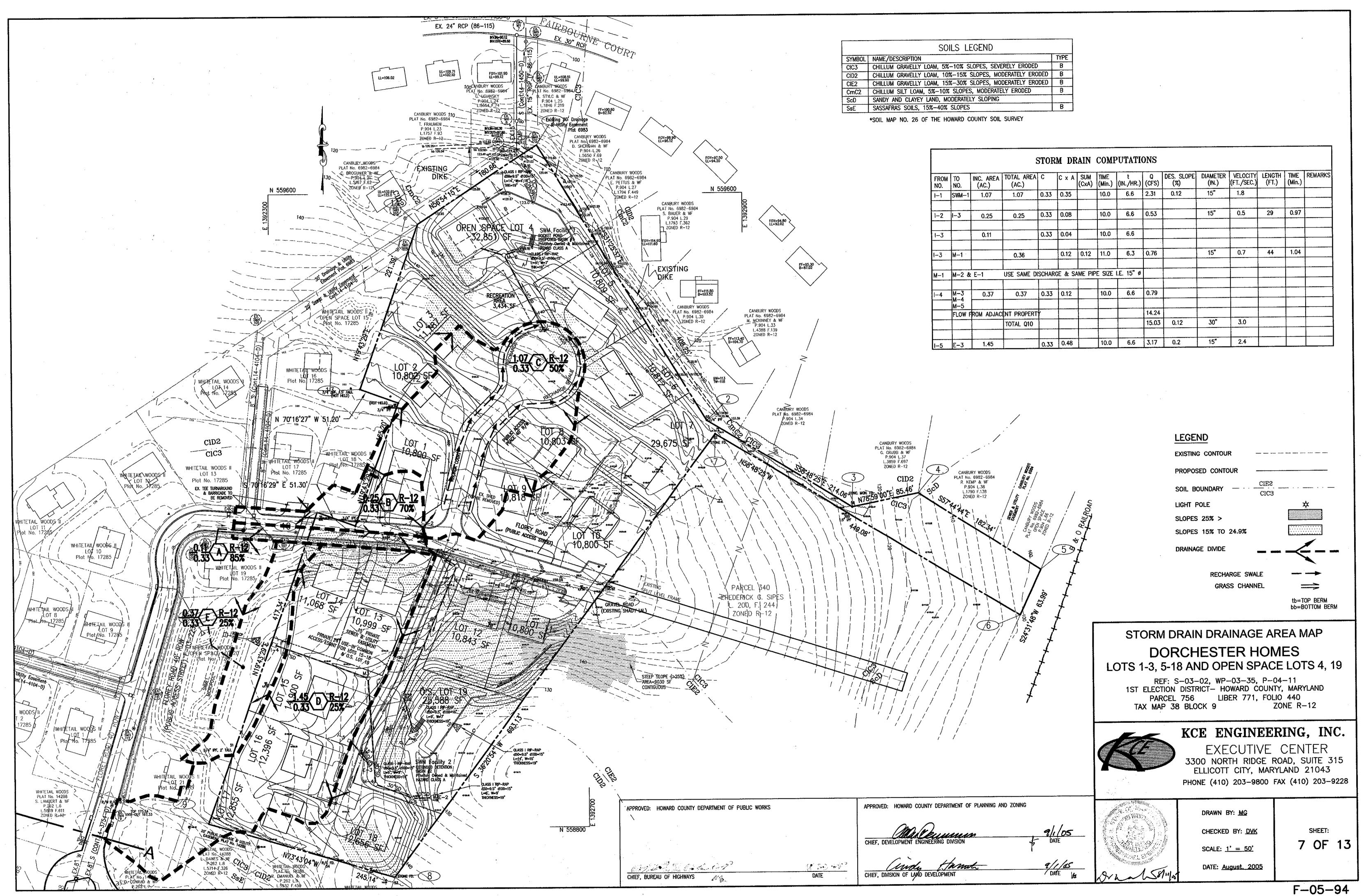
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

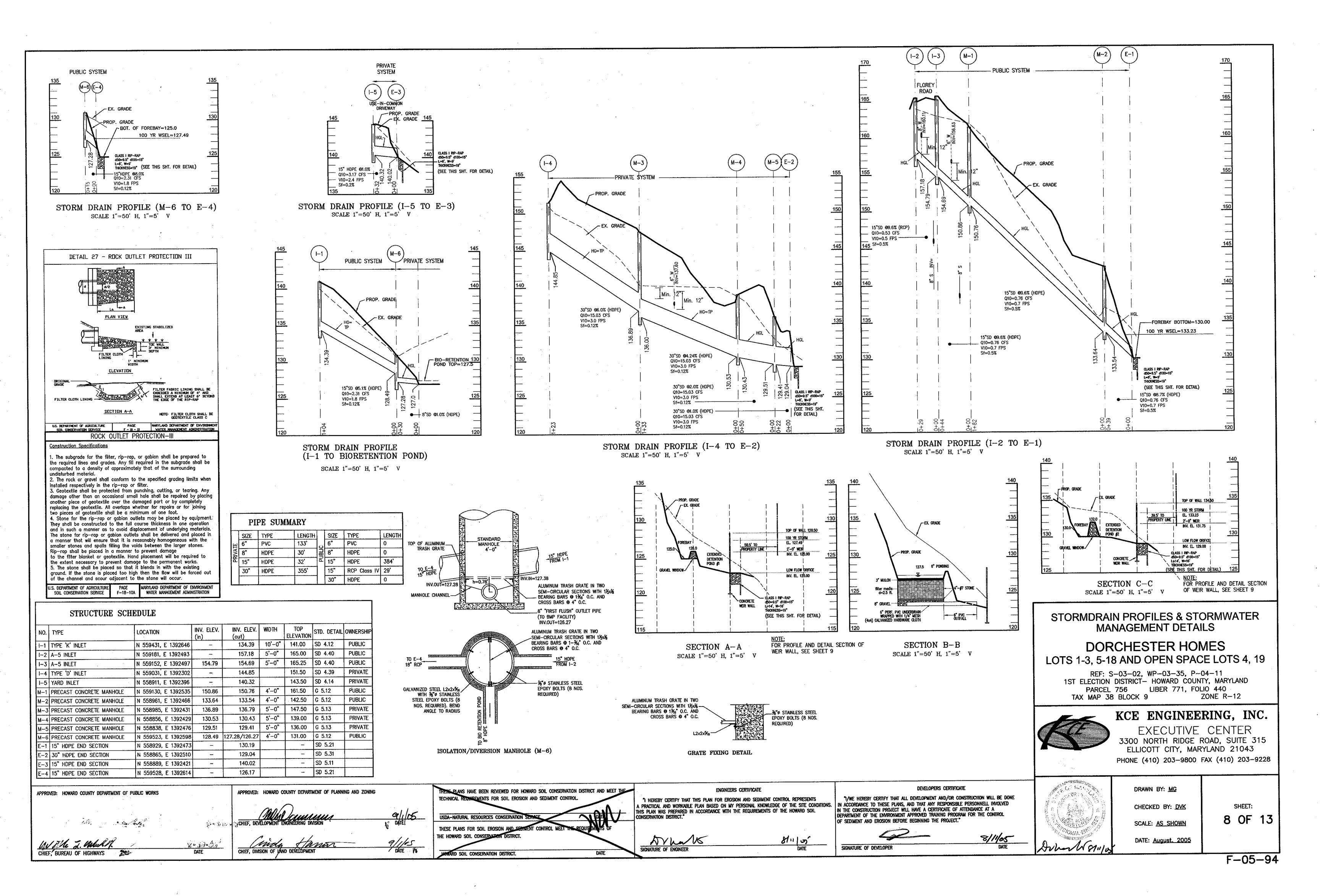
Testi MSMT 509

DRAWN BY: MG CHECKED BY: DVK SCALE: AS SHOWN DATE: August, 2005

SHEET:







CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or Cl. and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to suppor vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be sourced out. When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +-2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The hackfill shall be compacted with construction equipment, rollers, or hand tampers to assure naximum density and minimum permeability.

Embankment Core - The core shall be parallel to he centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to

SWM FACILITY 1- WATER QUALITY

BIORETENTION POND - DETAIL SECTIONS

MATERIAL SPECIFICATIONS

SIZE

NTS

0.375" to 0.75"

4" to 6" rigid schedule

- \$ & D & - O

40 PVC or SDR35

The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. addition, the core shall be placed concurrently with the outer shell of the embankment.

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fil of 24" or greater over the structure or pipe. Structure backfill may be flowable fill meeting the

requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flow ability of the material. Adequate measures shall be taken (sandbags, etc.) to prevent floating the pipe. When using flowable fil all metal pipe shall be bituminous coated. Any

adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe.

Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

All pipes shall be circular in cross section. Corrugated Metal Pipe - All of the following

criteria shall apply for corrugated metal pipe: . Materials - (Polymer Coated steel pipe) Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mit) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges. Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flow able fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise remove shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminun Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per / equirements of AASHTO Specification M -190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24

. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple

bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of Laying pipe - Bell and spigot pipe shall be each pipe shall be re-rolled an adequate number placed with the bell end upstream. Joints shall be made in accordance with recommendations of the of corrugations to accommodate the bandwidth. manufacturer of the material. After the joints are The following type connections are acceptable for sealed for the entire line, the bedding shall be pipes less than 24 inches in diameter: flanges on placed so that all spaces under the pipe are filled both ends of the pipe with a circular 3/8 inch Care shall be exercised to prevent any deviation closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent from the original line and grade of the pipe. The first joint must be located within 4 feet from the flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a 4. Backfilling shall conform to "Structure Backfill". minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter 5. Other details (anti-seep collars, valves, etc.)

their entire length. This bedding I cradle shall

consist of high slump concrete placed under the

pipe and up the sides of the nine at least 50% of

its outside diameter with a minimum thickness of

6 inches. Where a concrete cradle is not needed

as described in the "Structure Backfill" section of

for structural reasons, flowable fill may be used

this standard. Gravel bedding is not permitted.

shall be as shown on the drawings.

AASHTO M294 Type S.

shall be completely watertight.

provide adequate support.

construction inspection.

<u>Plastic Pipe</u> - The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or

D-2241, Corrugated High Density Polyethylene

(HDPE) pipe, couplings and fittings shall conform

requirements of AASHTO M252 Type S, and 12"

to the following: 4" - 10" inch pipe shall meet the

through 24" inch shall meet the requirements of

Joints and connections to anti-seep collars

3. Bedding -The pipe shall be firmly and uniformly

bedded throughout its entire length. Where rock

encountered, all such material shall be removed

Backfilling shall conform to "Structure Backfill".

Other details (anti-seep collars, valves, etc.)

Drainage Diaphragms - When a drainage

engineer will supervise the design and

diaphragm is used, a registered professional

and replaced with suitable earth compacted to

or soft, spongy or other unstable soil is

shall be as shown on the drawings.

PVC-1220 conforming to ASTM Dor ASTM

and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable. Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill". 6. Other details (anti-seep collars, valves, etc.)

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

shall be as shown on the drawings.

L. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361. Bedding - Reinforced concrete pipe conduits

shall be laid in a concrete bedding / cradle for

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation. State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class

Care of Water during Construction

construct and maintain all temporary dikes. levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required

water shall be pumped.

Erosion and Sediment Control

sediment control measures

REPLACEBLE

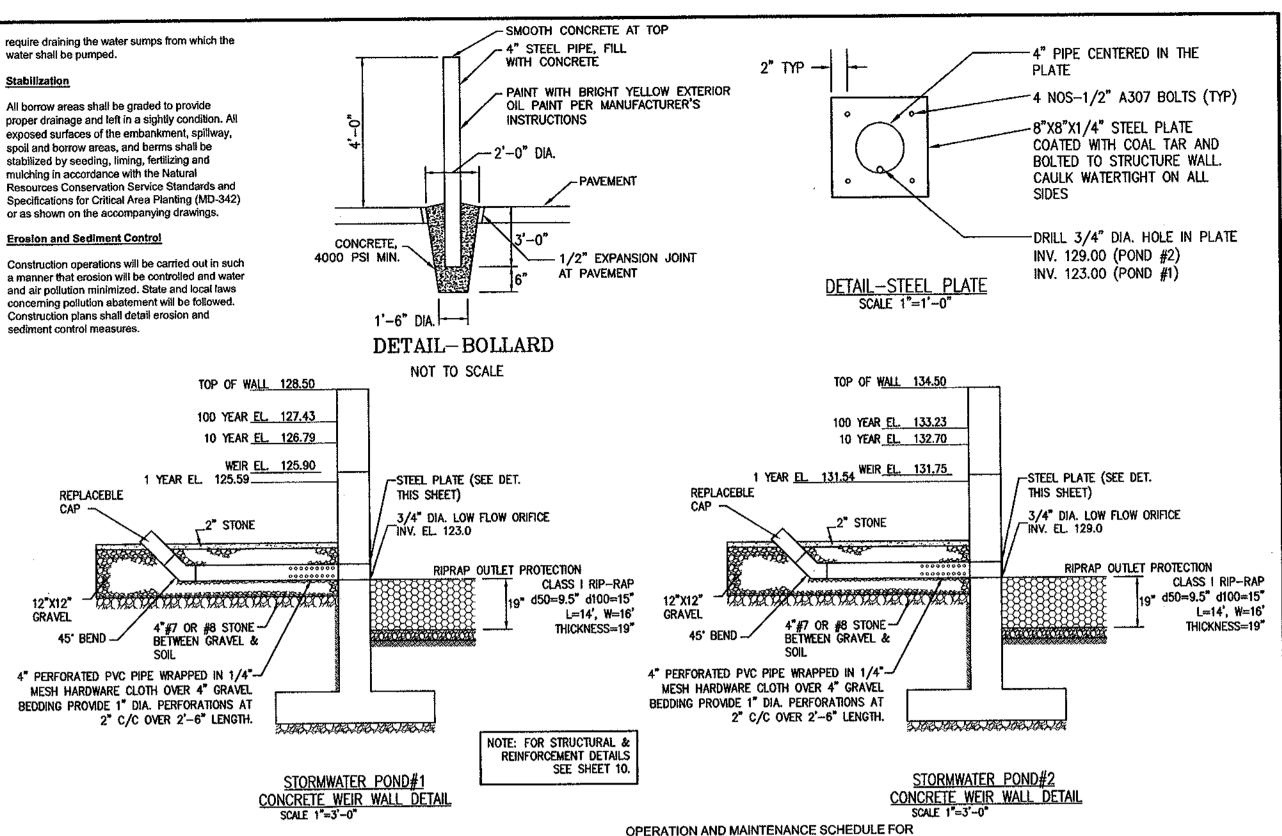
for Construction and Materials, Section 311.

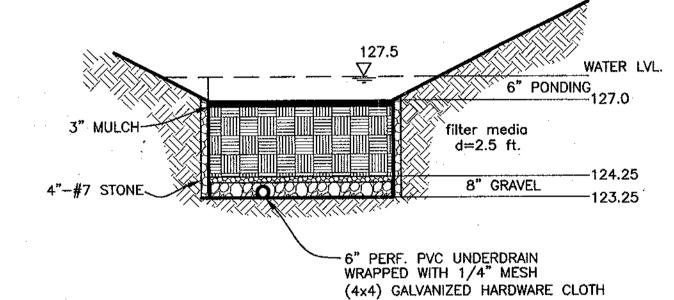
All work on permanent structures shall be carried

out in areas free from water. The Contractor shall

excavations, the water level at the locations being refilled shall be maintained below the bottom of

the excavation at such locations which may





128.0 6" PONDING 127.0 filter media d=2.5 ft. 3" MULCH 124.25 8" GRAVEI 123.25

NOTES

USDA soil types loamy sand,

sandy loam or loam

underdrains only

underdrains only

underneath pipes

aged 6 months, minimum

for use as necessary beneath

for use as necessary beneath

3/8" perf. @ 6" on center, 4 holes

per row; minimum of 3" of gravel

over pipes; not necessary

6" PERF. PVC UNDERDRAIN WRAPPED WITH 1/4" MESH (4x4) GALVANIZED HARDWARE CLOTH

Bioretention Soil Mixture (BSM) is a blended mixture of sand, mulch, and planting soil. The BSM shall be a

homogeneous mix, free of stones, stumps, roots or other similar objects larger than 2 in. and shall be free

from any parts of Bermuda grass, Quackgrass, Johnsongrass, Mugwort, Nutsedge, Poison Ivy, Canadian

Thistle, Tearthumb, Phragmites, or other noxious weeds as specified in COMAR 15.08.01.05.

Sand: The sand shall compose 50% by volume of the BSM. The sand shall be Fine Aggregate.

Mulch: The mulch shall compose 20% by volume of the BSM. The mulch shall be double shredded

hardwood bark consisting of the bark from hardwood trees which has been milled and screened to a

Planting Soil: The planting soil shall compose 30% by volume of the BSM. The planting soil shall be a

natural or furnished, friable soil, uniform in color and texture. The grading analysis shall be as follows:

TEST METHOD

T194

After a planting soil stockpile has been formed, the planting soil shall be sampled and tested. Sampling will

e completed in conformance with MSMT 356. After a stockpile of planting soil has been sampled, no

Mixing: The sand, mulch and planting soil shall be homogenously mixed and blended to create the BSM.

The BSM shall not be blended until the required planting soil has been sampled and tested.

maximum 2 in. particle size and provide a uniform texture free from sawdust, toxic substances, and foreign

BIORETENTION SOIL MIXTURE (BSM)

The BSM shall consist of the following:

Sand (2.0- 0.050 mm)

Silt (0.05- 0.002 mm)

Clay (< 0.002 mm)

Organic Matter

SIEVE SIZE

2 in.

No. 4

materials and shall be aged at least 6 months.

material shall be added to the stockpile.

50-85%

0 - 50%

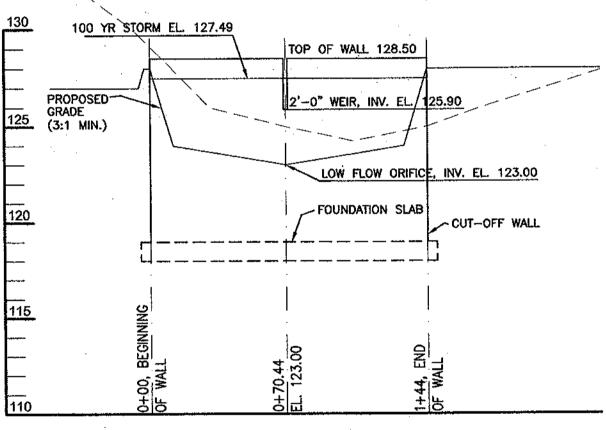
5- 10%

The textural analysis of the planting soil shall be as follows:

1.5- 10%

90%

MIN. % PASSING BY WEIGHT



PROFILE - CONCRETE WEIR WALL (POND #1) SCALE 1"=50' H. 1"=5' V

5.5-7.5

Phosphorus (P2O5) Min. 75 ppm

Magnesium

Soluble Salts

Potassium (K2O)

Sand (2.0- 0.050 mm) Silt (0.05- 0.002 mm)

Clay (<0.002 mm)

Organic Matter

Min. 35 ppm

Not to exceed 500 ppm

pH: The pH shall be adjusted with dolomitic limestone or sulfur (90 %).

65-80%

0 - 15%

1-5%

15-25%

Potassium: Potassium deficiency shall be amended with 0-0-60 fertilizer.

Magnesium: Magnesium deficiency shall be amended with dolomitic limestone.

Amended BSM shall be sampled and tested to ensure the criteria have been met.

amendments shall be mixed uniformly into the BSM as follows:

Min. 85 ppm

tested and shall meet the following grading analysis:

replaced at no additional cost to the Owner.

After a BSM stockpile has been formed for use, the BSM shall be sampled and tested. Sampling will be

* University of Delaware, College of Agriculture and Natural Resources, Soil Testing Program Test Method

Amendments: Any BSM not meeting the above requirements shall be amended by the supplier. All

Additional Requirements: After a BSM stockpile has been formed for use, the BSM will be sampled and

A BSM stockpile that fails to meet the grading analysis shall not be used or amended for use and shall be

Stockpile Protection: After a stockpile of BSM has been formed, it shall be protected from weather. A BSM

re-testing of the material to meet the minimum criteria. A stockpile of BSM that is older than 6 months and

stockpile that meets the minimum requirements sha11 be stockpiled for no more than 6 months without

fails re-testing shall not be used or amended for use and shall be replaced at no additional cost to the

TEST METHOD

T194

TEST METHOD

completed in conformance with MSMT 356 and shall meet the following criteria:

TOP OF WALL 134.50 LOW FLOW ORIFICE INV. EL. 129.00 ______ FOUNDATION SLAB CUT-OFF WALL

PROFILE - CONCRETE WEIR WALL (POND #2) SCALE 1"=50' H. 1"=5' V

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISCASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.

REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES. 3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE

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

EVERY 2 TO 3 YEARS. 4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MOUTH AND AFTER

HEAVY STORM EVENTS.

OPERATION AND MAINTENANCE SCHEDULE FOR

BIO-RETENTION AREAS

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.

3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.

4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE

2. SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT. OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS. UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

3. PLANT INSTALLATION

a. Mulch should be placed to a uniform thickness of 2" to 3". Shredded hardwood mulch is the only accepted mulch. Shredded mulch must be well aged (6 to 12 months) for acceptance.

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

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

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

4. UNDERDRAINS

a. Underdrain pipe is to be placed in 8-inches of gravel jacket. The ends of underdrain pipes not terminating in an observation well shall be capped.

b. The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5 %. Observation wells and/or clean-out pipes must be provided.

5. MISCELLANEOUS

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

OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

STORMWATER MANAGEMENT **DETAILS - 1**

DORCHESTER HOMES LOTS 1-3, 5-18 AND OPEN SPACE LOTS 4, 19

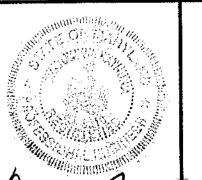
REF: S-03-02, WP-03-35, P-04-11 1ST ELECTION DISTRICT- HOWARD COUNTY, MARYLAND LIBER 771, FOLIO 440 PARCEL 756 ZONE R-12 TAX MAP 38 BLOCK 9



KCE ENGINEERING, INC.

EXECUTIVE CENTER 3300 NORTH RIDGE ROAD, SUITE 315 ELLICOTT CITY, MARYLAND 21043

PHONE (410) 203-9800 FAX (410) 203-9228



DRAWN BY: MG CHECKED BY: DVK

SHEET: 9 OF 13

DATE: August, 2005

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

SPECIFICATION

see planting plan

50 - 85%

0 - 50%

5 - 10%

organic matter 1.5 - 10%

Class "C"-apparent opening

size (ASTM-D-4751), grab

(ASTM-D-4632), puncture

resistance (ASTM-D-4833)

shredded hardwood

tensile strenath

AASHTO M-43

AASHTO M-278

F 758, Type PS 28, or

sand

clay

MATERIAL

Plantings

Planting soil

(2.5' deep)

mulch (3" deep)

underdrain gravel

underdrain piping

geotextile (filter fabric)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION DATE EDIMENT CONTROL ME TO E REDUIREMENTS OF THESE PLANS FOR SOIL EROSION A TOWARD SOIL CONSERVATION DISTRICT

ENGINEERS CERTIFICATE "I HERERY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

8/11/05

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE

ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNELL INVOLVED

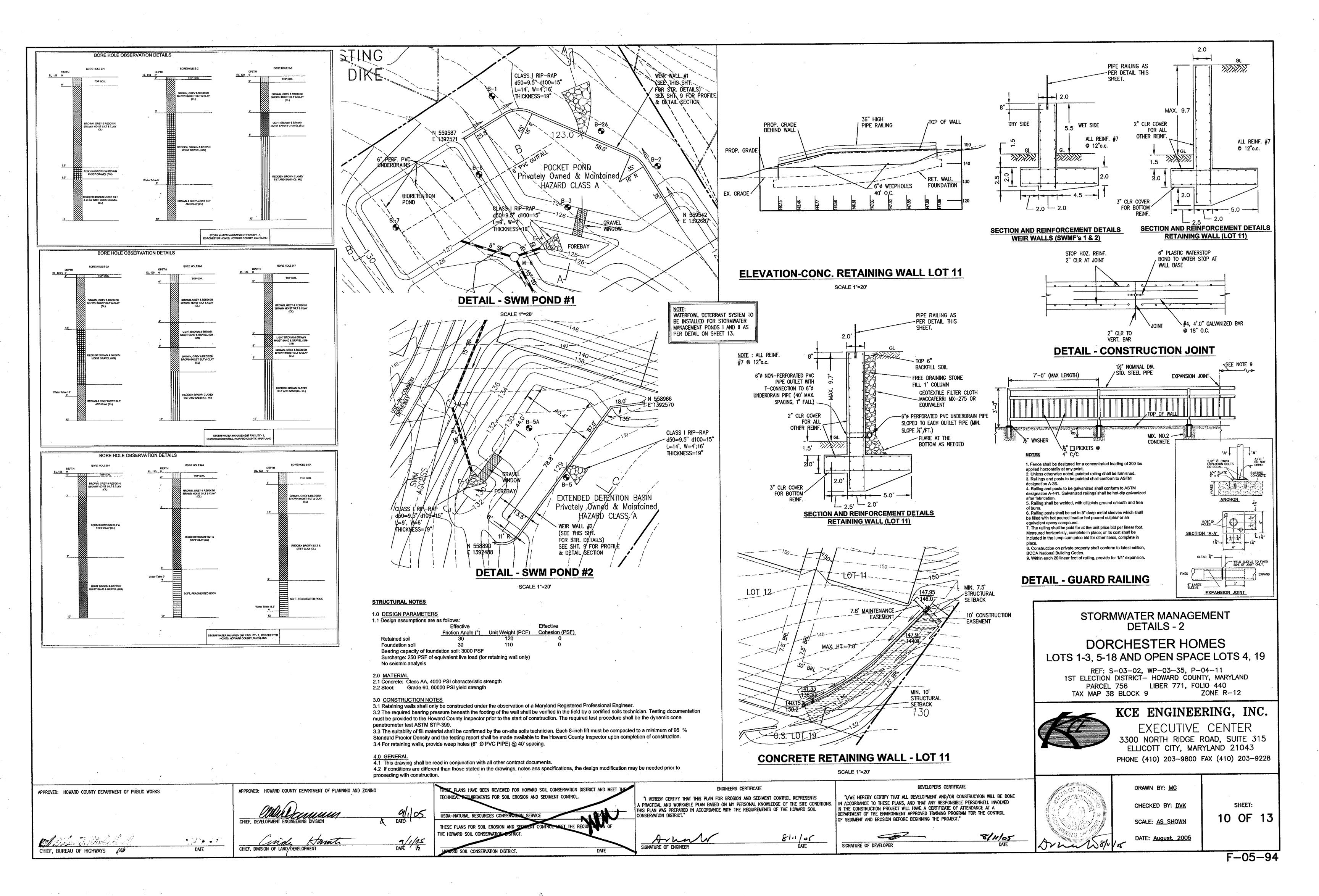
THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A

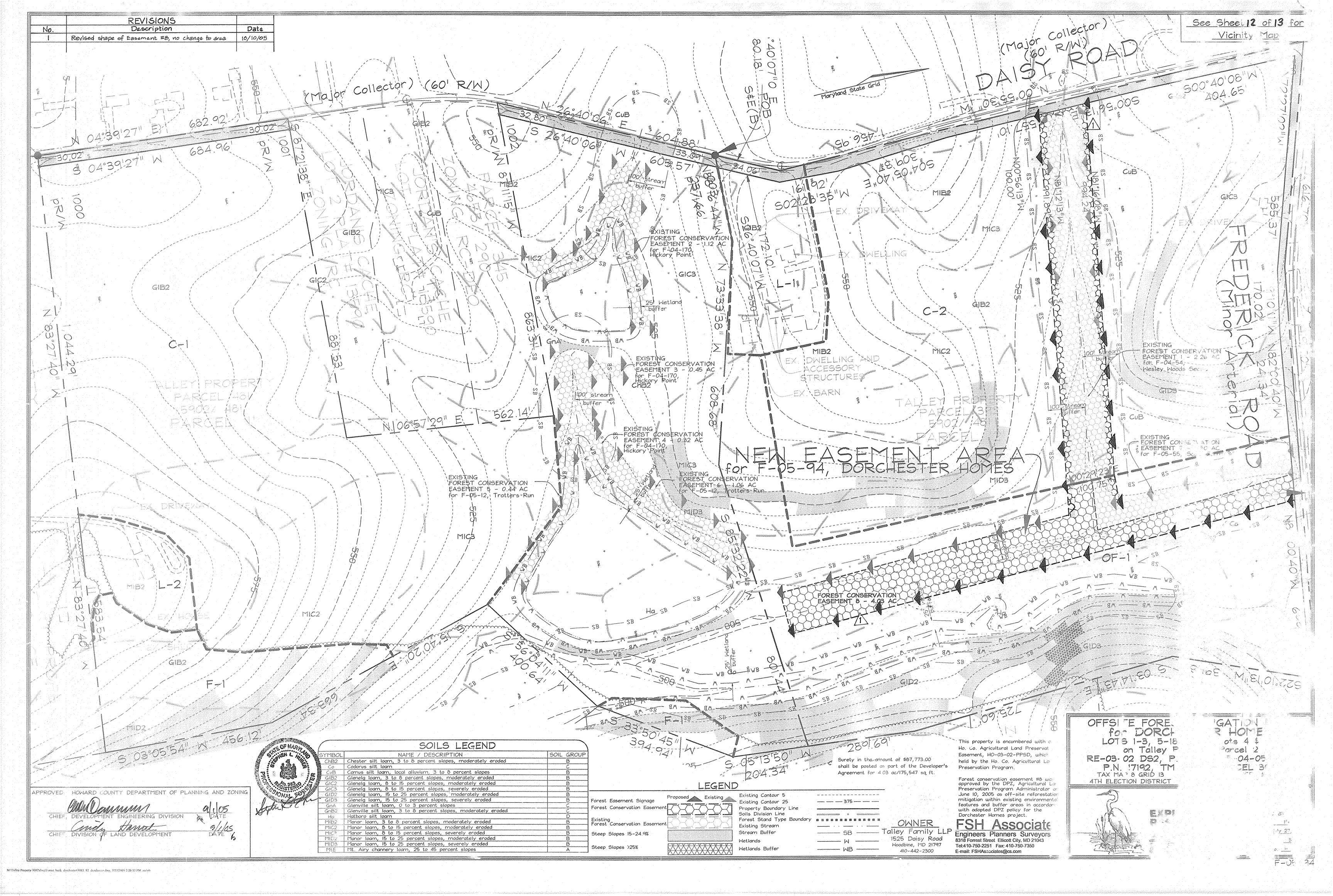
PEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL

DEVELOPERS CERTIFICATE

SCALE: AS SHOWN

F = 05 = 94





FOREST STAND ANALYSIS TABLE STAND CHARACTERISTICS SOIL INFORMATION EXISTING TYPE OF AREA WOODLAND HABITAT VEGETATION TYPICAL AGE GENERAL IN SENSITIVE COMMUNITY Acres SIZE 50IL SUITABILITY VALUE (Type and FOREST **ENVIRONMENTS** CONDITIONS TYPE approx. %) DIAM INDEX COVER Black oak 60% 1.2 Ac. Steep 4.59 MID2 65-74 fair Upland White oak 20% Mixed upland 10-16 50-80 Heavy slopes 15-25% MIB2 fair Hardwoods 65-74 Hardwood understory GIB2 75-84 good 6-12 36-72 arazina good Mixed water Tolerant Open Ha good Field GnB2 Hardwoods 65-74 good N/A N/A N/A N/A GID3 75-84 good GID2 75-84 Mixed upland MIC3 65-74 fair Hardwood MID3 65-74 fair ChB2 fair 65-74 I GnA Mixed water Tolerant 27.16 good Crop GIB2 Hardwoods N/A N/A N/A N/A GIC2 MIC3 75-84 65-74 Mixed upland MIC2 MIB2 Hardwood good N/A N/A Mixed water Tolerant N/A N/A C-2 32.21 Crop CuB 75-84 good GnA 65-74 Hardwoods good GIB2 75-84 GIC3 75-84 good Mixed upland GID3 75-84 good fair Hardwood MIB2 65-74 MIC2 65-74 fair 2.86 GIB2 Mixed upland N/A fair N/A 65-74 Lawn Farm Stead Hardwood N/A 1,62 MIB2 | Mixed upland | 65-74 fair N/A N/A Lawn <u>Hardwood</u> Easement 8: PLANTING AREA: 4.03 Ac.

Botanical Name

Amatanchier canadensis Serviceberry

Amalanchier canadensis Serviceberry

Liquidambar styraciflua Sweetgum

Liquidambar styraciflua Sweetgum

Platanus occidentalis Sycamore

Acer rubrum

Acer rubrum

Betula nigra

Betula nigra

Carpinus caroliniana

Carpinus caroliníana

Cercis canadensis

Cercis canadensis

Nyssa sylvatica

Nyssa sylvatica

25%

Platanus occidentalis

Total Plantings

Surety in the amount of \$87,773.00

Forest conservation easement #8 was

approved by the DPZ, Agricultural Land Preservation Program Administrator on

June 10, 2005 as off-site reforestation

mitigation within existing environmental features and buffer areas in accordance with adopted DPZ policy for the Darchester Homes project.

shall be posted as part of the Developer's Agreement for 4.03 ac/175,547 sq ft.

Percentage Botanical Name

Common Name

Red Maple

Red Maple

River Birch

River Birch

Hornbeam

Black Gum

Sycamore

Native Seed Mix

Carex vulpinoides

Alopecurus pratensis

Andropogon scoparius

Aarostis alba

Hornbeam

Redbud

Forest Stand Narrative F-1 This forest stand is 4.59 Ac, in size and contains steep slopes. The canopy is dominated by black oak, Quercus velutina, white oak, Quercus alba and mockernut hickory, Carya tomentosa. The area is currently grazed and the

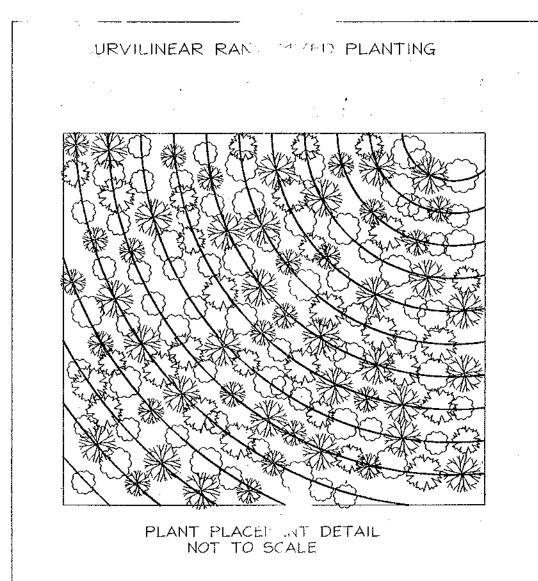
understory is sparse. L-1: This 2.86 Ac. area surrounds an existing house and various farm out buildings. The area contains lawn, and ornamental tree plantings. No

environmentally sensitive areas are covered by L-1. L-2: This 1.62 Ac. area surrounds an existing house located on the south west corner of the property. The are contains lawn and various ornamental plantings. The area contains no environmentally sensitive areas.

C-1: This 27.16 Ac. crop area is currently in active crop land production. There are no environmentally sensitive areas. C-2: This 32.21 Ac, crop area is currently in active crop production. The area contains environmentally sensitive areas including streams and associated buffers. OF-1: This 41.01 Ac. open field area contains grazing pastures and open field. The area contains wetlands, streams and associated buffers.

4.03

I OKEST C	ONSERVA	<u>×</u>	SEMENT TABL
EASEMENT	TYPE		AREA (ACRES)
8	Reforestation		4.03



APPROVED: HOWARD COUNT DEPARTMENT OF PLANNING AND ZONING

MIX TREE AND SHRUB SPECIES IN THE STAGING AREA.

2. SET THE GUIDE CURVILINEAR LINE AS CLOSE TO CONTOUR

Reforestation Area Monitoring Notes

1. Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control, invasive plant management, mowing or other actions are necessary. Early spring visits

will document winter kill and autumn visits will document summer kill.

2. The minimum survival rate shall be 75% of the total number of trees planted per acre at the end of the two year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted up to 50% toward the total survival number if they are healthy native species at least 12 inches tall.

3. Survival will be determined by a stratified random sample of the plantings. The species composition of the sample population should be proportionate to the amount of each species in the entire planting to be sampled.

4. Effective monitoring will assess plant survivability during the first growing season and make recommendations for reinforcement planting if required at

Forest Tree Protection and Management Notes

1. Any significant changes made to the Forest Conservation Plan shall be made with the prior approval if the Howard County Dept. Of Planning and

2. Forest protection and management to be in accordance with a forest management plan. The plan shall be prepared by a MD. licensed forester to facilitate the landowners management objectives, such as wildlife enhancement, water quality, aesthetics, forest products, etc.

3. Future forest harvests may be conducted under a Howard County approved forest harvest plan, prepared by a MD. licensed forester.

Planting Areas Description

The proposed planting area, totalling 4.03 Ac. is proposed entirely within stream and wetland buffer areas. The current land use is pasture land, making it an ideal area to plant and provide a forested stream buffer.

Planting will utilize a variety of sizes and species as shown in the proposed planting schedule. The larger stock will be placed farther upland. All container grown stock will utilize tree shelters. The entire area will be stabilized with the described seed mix cover crop. The planting as specified will more than satisfy the required acreage.

Plant Selection and Density Spacing Requirements.

Planting Material Size and Density Planting: Planting size and density shall be varied with a combination of planting stock. Planting quantity and spacing are based on square footage credit, which varies by material size. A total of 43,560 sq, ft. of planting credit must be fulfilled for each acre planted. This credit can be fulfilled with any combination of material size in accordance with the following chart.

Plant Material Size Table.

Credit/Plant Total Credit

l" cal. | 217.8

2-3' ht. 125.0

2-3' ht. | 125.0

" cal. 217.8

2-3' ht. | 125.0

2-3' ht. | 125.0

1" cal. 217.8

2-3' ht. | 125.0

1" cal. | 217.8

2-3' ht. | 125.0

cal. 217.8

2-3' ht. | 125.0

" cal. | 217,8

2-3' ht. 125.0

Chrysanthemum leucan themum | Ox Eye Daisy

217.8

217.8

" cat.

10890

12500

10890

12500

10890

9375

10890

12500

10890

9375

10890

12500

10890

9375

10890

<u>Common Name</u>

Meadow Fox Tail

Little Bluestem

10375

175,620 s.f. = 4.03 Ac.

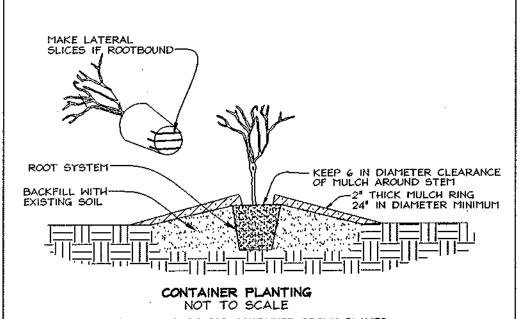
Redtop Fox Sedge

Material Size	Spacing	TPA	Sq. Ft. Credit per Plant	Comments
2" caliper trees	201 x 201	100	435.6	B & B
l" caliper trees	15' × 15'	200	217.8	B ¢ B
seedlings or whips	11' × 11'	350	125 .	Container 1-3 gal w/tree shelters
seedlings or shrubs	81 x 81	700	62	Bare root

SEEDLING AND WHIP PLANTING NOTE: MULCHING NEWLY PLANTED SEEDLINGS HELPS THE SOIL RETAIN MOISTURE AND THE SEEDLING FROM COMPACTION AND STEM INJURIES. CORRECT PLANTING DEPTH CORRECT INCORRECT TOO SHALLOW AND AT SAME DEPTH AS TOO DEEP AND

SEEDLING WAS GROWN

ROOTS ARE EXPOSED



PLANTING PROCEDURE FOR CONTAINER GROWN PLANTS REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER

2. USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL.

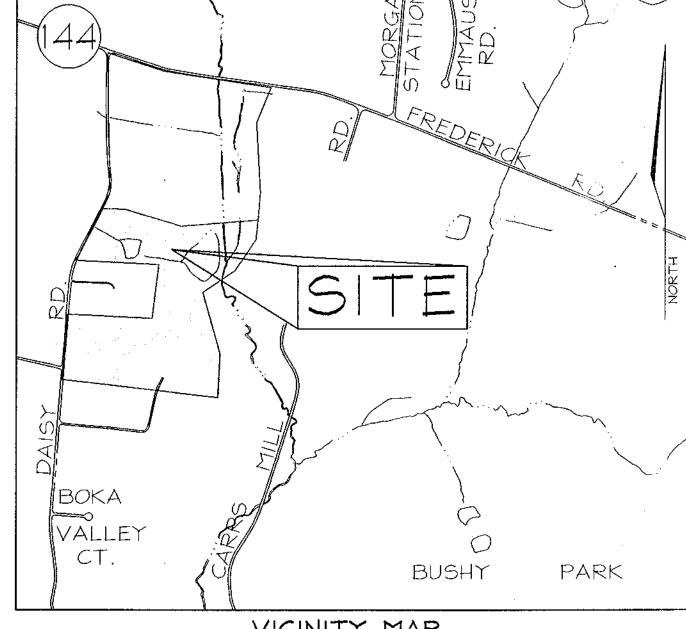
3. PLANT SHRUBS ON FORMED UP MOUNDS 4" ABOVE THE EXISTING GRADE WHEN HIGH WATER TABLE CONDITIONS EXIST, OTHERWISE PLANT FLUSH 4. PLANTING HOLE TO BE 2-3 TIMES THE DIAMETER OF THE CONTIANER.

5. INSERT FERTILIZER TABLET, BACKFILL 2/3 OF THE ROOT BALL AND WATER. 6. AFTER WATER PERCOLATES, BACKFILL HOLE TO TOP OF ROOT BALL AND GENTLY TAMP SOIL TO FIRM CONTACT WITH PLANT.
7. APPLY MULCH RING AROUND PLANT KEEPING A 6 IN CLEARANCE FROM STEM.

Reforestation and Afforestation Area Protection Signage Forest Conservation Area REFORESTATION PROJECT Trees for Your Future

SIGN DETAIL: PERMANENT SIGN

SIGNAGE NOTE: ALL TREE PROTECTION SIGNS SHALL BE PLACED ON METAL 'T' POSTS OR PRESSURE TREATED WOOD POLES. NO ATTACHMENT OF SIGNS TO TREES IS PERMITTED.



VICINITY MAP SCALE: I=10001

Reforestation Area Planting Notes

. Initial planting inspection and certification required. Planting contractor to notify Howard County after planting is complete.

2. Reforestation areas may be planted as soon as reasonable to do so. Late winter- early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as conditions warrants. 3. Soil amendments and fertilization recommendations will be made based

upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-8-16 analysis designed to last 5-8 years contained in polyethylene perforated bags such as manufactured by ADCO Works, P.O. Box 310 Hollins, N.Y. 11423 or approved equal. 4. Plant materials shall be planted in accordance with the planting diagram, planting details and planting schedule.

5. Plant stock must be protected from desiccation at all times prior to planting. Materials held for planting shall be moistened and placed in cool shaded areas until ready for placement . Planting materials shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standards for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, breakage, desiccation, insect or disease must be replaced.

. Newly planted trees may require watering at least once per week during

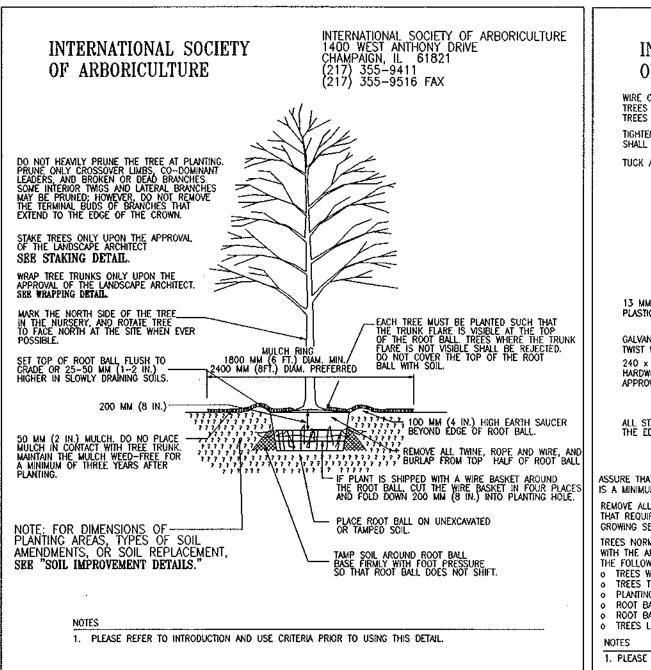
the first growing season depending on rainfall in order to get established.

The initial planting operation should allow for watering during installation to completely soak backfill materials. b. Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of

9. Planting holes should be excayated to a minimum diameter of 2.5 to 3 times the diameter of the root ball or container. Mechanical auguring is

preferred with scarification of the sides of each hole. 10. All nursery stock may be sprayed with deer repellent containing Bitrex such as Repellex(TM). All nursery stock to be grown with deer repellent

tablets in growing medium, such as Repellex Tablets.



TREE PLANTING DETAIL - B&B TREES IN ALL SOIL TYPES

NOTE: THIS DETAIL ASSUMES THAT THE PLANTING SPACE IS LARGER THAN 2400 MM (B FT.) SQUARE, OPEN TO THE SKY, AND NOT COVERED BY ANY PAVING OR GRATING.

INTERNATIONAL SOCIETY OF ARBORICULTURE 1400 WEST ANTHONY DRIVE INTERNATIONAL SOCIETY OF ARBORICULTURE WIRE OR CABLE SIZES SHALL BE AS FOLLOWS: TREES UP TO 65 MM (2.5 IN.) CAUPER - 14 GAUGE TREES 65 MM (2.5 IN.) TO 75 MM (3 IN.) CALIPER - 12 GAUGE TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 35MM (1.5 IN.) OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE. GALVANIZED WIRE OR CABLE TWIST WIRE TO TIGHTEN. 240 x 40 MM (1.5 x 1.5 IN.) —— HARDWOOD STAKES OR OTHER APPROVED STAKE MATERIAL

REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING. TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT.

O TREES WITH POOR - QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE O PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
O ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
O ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.

TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

1. PLEASE REFER TO INTRODUCTION AND USE CRITERIA PRIOR TO USING THIS DETAIL

TREE STAKING DETAIL - TREES 75MM (3 IN.) CALIPER OR LESS

www.coddetails.com PROTECTED BY COPYRIGHT - 145-003 03/02/00

Tel:410-750-2251 Fax: 410-750-7350 E-mail: FSHAssociates@cs.com

FSH Associates Engineers Planners Surveyors 8318 Forrest Street Ellicott City, MD 21043

> OWNER Talley Family LLF 1525 Daisy Road Woodbine, MD 21797 410-442-2300

OFFSITE FOREST MITIGATION PLAN LOTS 1-3, 5-18 \$ 0.5. Lots 4 \$ 19 on Talley Property Parcel 2 RE-03-02 DS2, P.N. 15816, F-04-054 FC, P.N. 17192,



TAX MAP 8 GRID 13

4TH ELECTION DISTRICT

EXPLORATION RESEARCH, INC. ENVIRONMENTAL CONSULTANTS DATE: July 27 2005 LANDSCAPE ARCHITECTS

SHEET No .: 12 OF 13

DESIGN BY: RAB

DRAWN BY: RAB

WECKED BY SLH

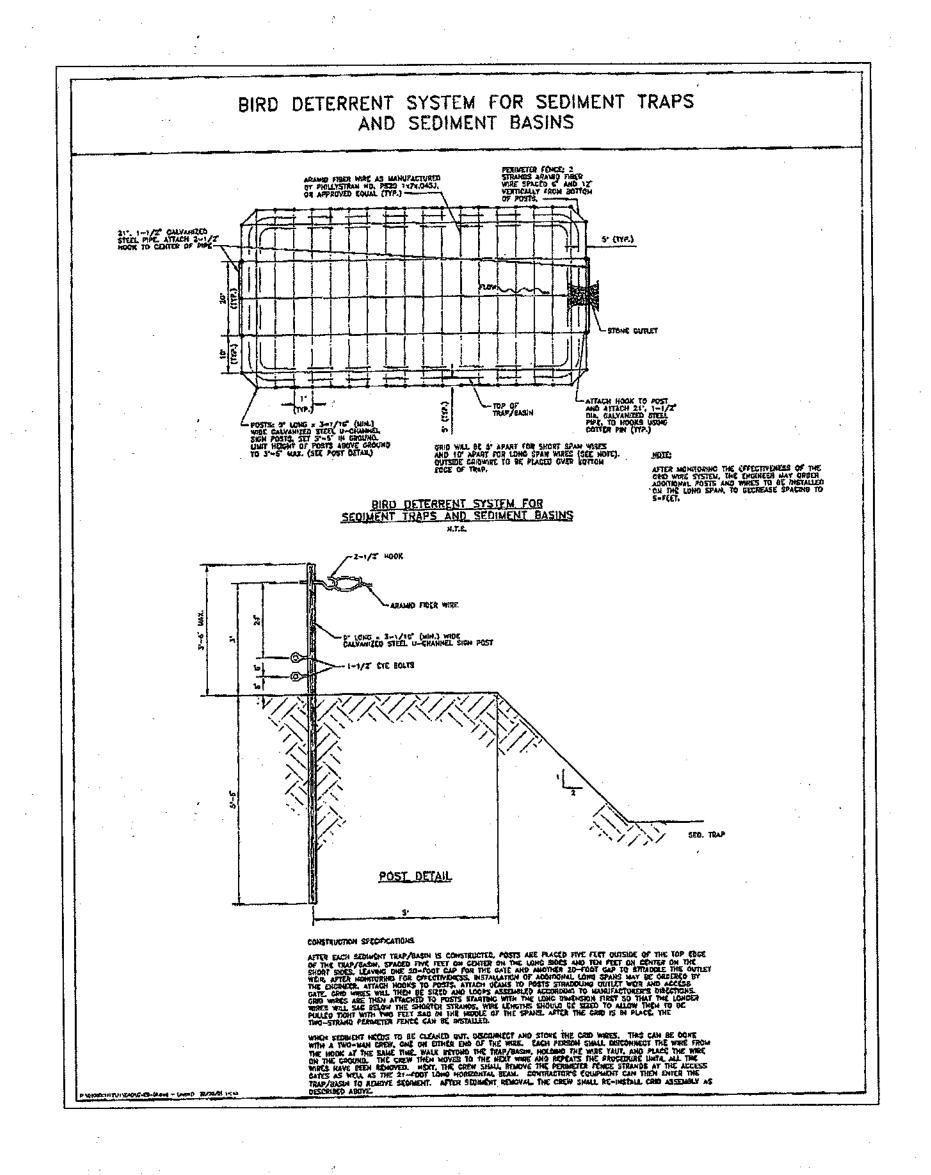
SCALE: As Shown

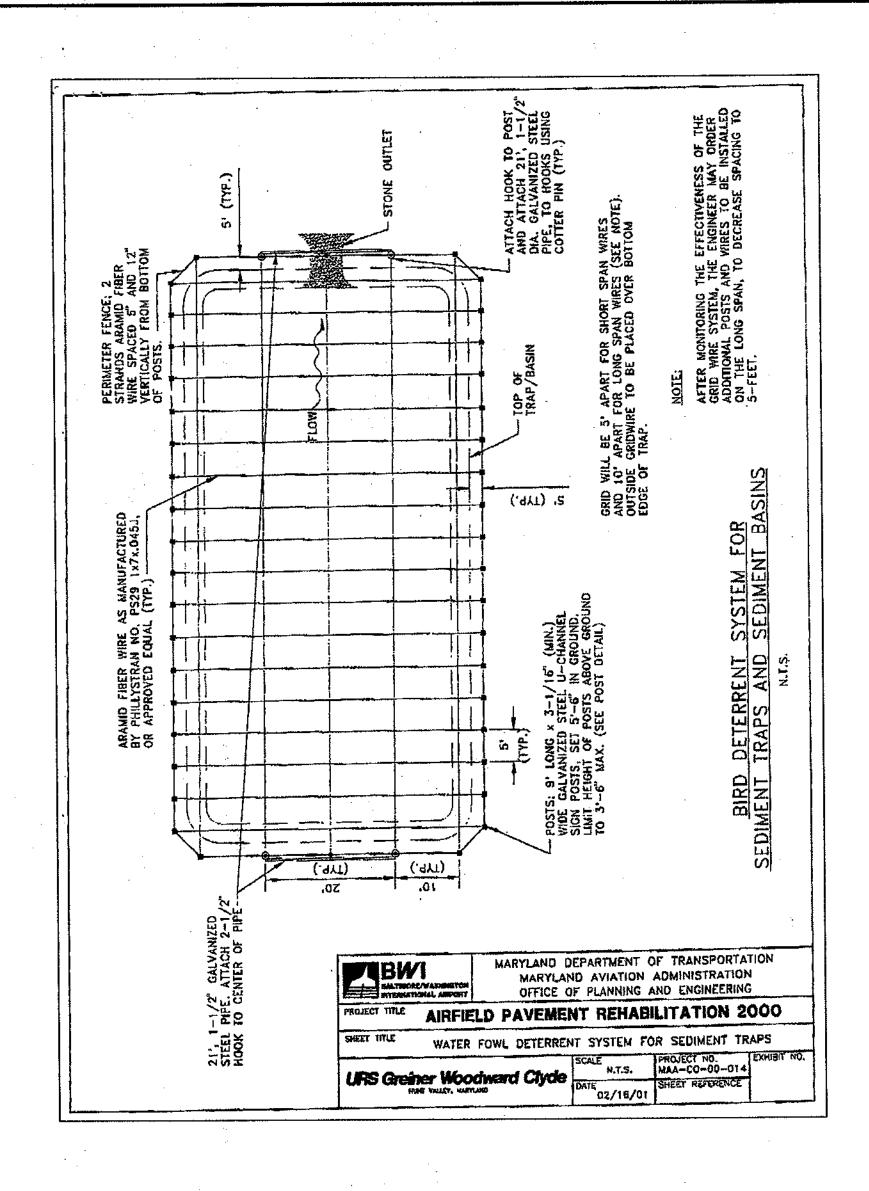
W.O. No.: ____3082

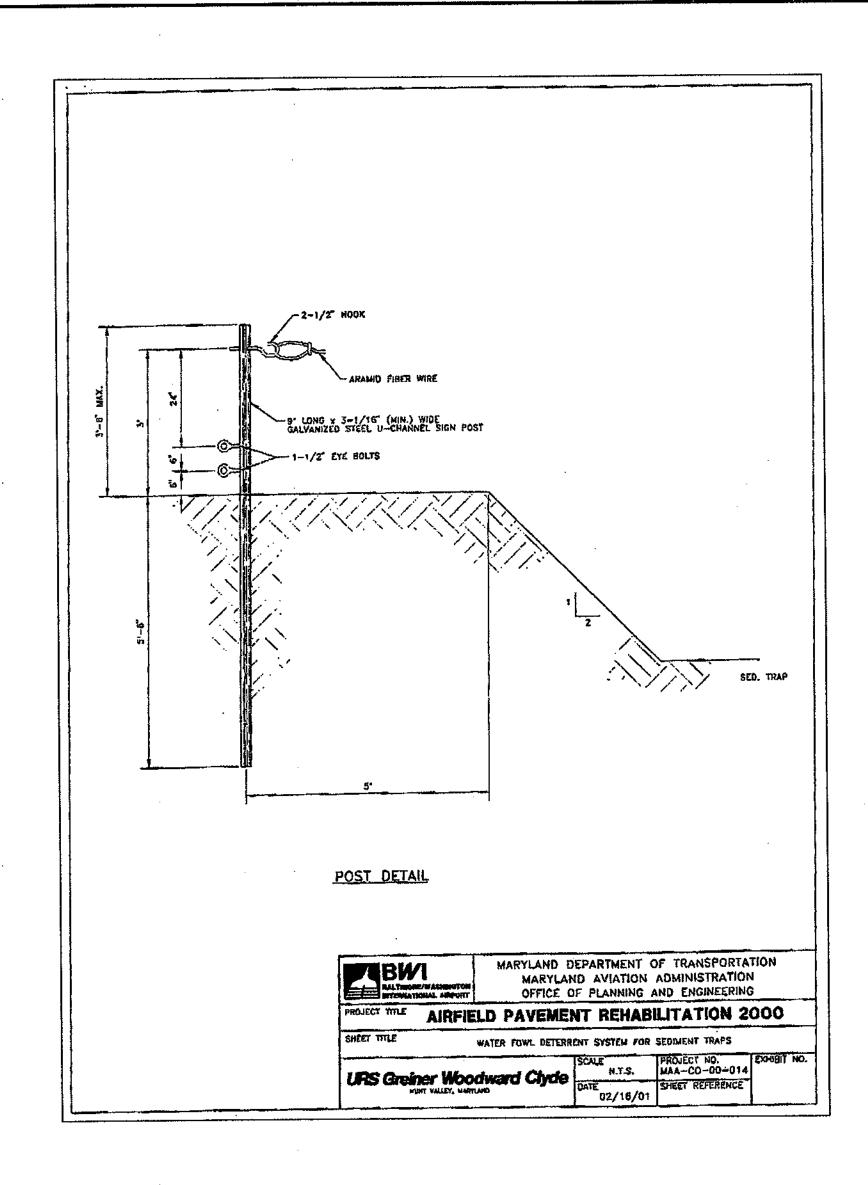
PARCEL 392

HOWARD COUNTY, MARYLAND

AS POSSIBLE.







WATERFOWL DETERRENT SYSTEM FOR SEDIMENT TRAPS AT BWI AIRPORT

There is a need to discourage ducks and other waterfowl from being attracted to stormwater in sediment traps. The system proposed for BWI will interfere with the ducks' landing pattern by installing a grid using lightweight wire above the surface of the trap. As they approach a water-filled trap, ducks, geese and other waterfowl will see the grid wires and not attempt to land. A perimeter fence consisting of two wire strands strung around the posts will keep birds from walking onto the traps.

Initial grid spacing will be five feet for short spans and ten feet for long spans. See the attached detail for a typical layout.

After monitoring the effectiveness of this system, MAA may require installation of additional long spans to decrease spacing to five feet. The ends of the grid wires will be strung from hooks placed on posts three feet above the ground. It is expected that the wires will sag two feet and will exert a maximum line tension of thirty-five pounds.

Grid wire will be high-strength, lightweight synthetic material made from aramid fiber as manufactured by Phillystran, Inc., Part No. PS29 1x7x.045J, or approved equal.

Posts will be nine-foot long galvanized steel U-channel signposts, driven five and one half feet into the ground. The height above ground shall be no more than three and one half feet. Three holes will be attached to each post to fasten one 2-1/2 inch hook and two 1-1/2 inch eye bolts.

An access gate will be installed on the short end opposite the outlet to facilitate trap cleanout. Each gate consists of a twenty feet long, 1-1/2" diameter horizontal pipe placed three feet above ground and spanning two posts spaced twenty feet apart. When sediment is to be cleaned out from the trap, the long pipe is removed. An identical horizontal pipe will also span the opposite end of the trap. Each pipe will have a hook placed in the middle to attach grid wire.

PROCEDURE FOR INSTALLING AND REMOVING GRID WIRE SYSTEM

After each sediment trap is constructed, posts are placed five feet outside of the top edge of the traps, spaced five feet on center on the long side of the trap and ten feet on center on the short sides, leaving one twenty foot gap for the gate. After monitoring for effectiveness, installation of additional long spans may be orderd by MAA. Attach hooks to posts. Attach beams to posts straddling outlet weir and access gate. Grid wires will then be sized and loops assembled according to manufacturers directions. Grid wires are then attached to posts starting with the long dimension first so that the longer wires will sag below the shorter strands. Wire lengths should be sized to allow them to be pulled tight with two feet sag in the middle of the spans. After the grid is in place, the two-strand perimeter fence can be installed.

When sediment needs to be cleaned out, disconnect and store the grid wires. This can be done with a two-man crew, one on either end of the wire. Each person shall disconnect the wire from the hook at the same time, walk beyond the trap, holding the wire taut, and place the wire on the ground. The crew then moves to the next wire and repeats the procedure until all the wires have been removed. Next, the crew shall remove the perimeter fence strands at the access gates as well as the twenty-one foot long horizontal beam. Contractor's equipment can then enter the trap to remove sediment. After sediment removal, the crew shall re-install grid assembly as described above.

WATERFOWL DETERRENT SYSTEM FOR SEDIMENT TRAPS AT BWI AIRPORT

SWM Pond Bottom Dimensions, ft.	Approximate length per Gridwire, ft.	Number of Gridwires	Total length Of Gridwires ft.	Total length of Perimeter Fence ft.	Number of Posts
40' X 85'	113'	5	565'	362'	44
	68'	18	1,224'		
	Trap T	OTAL:	1,789']	
40' X 70'	98'	5	490'	332'	38
	68'	15	1,020'		
	Trap T	OTAL:	1,510'	l	
30' X 105' (2 traps)	125'	4	500'	350'	50
	50'	22	1,100'		
	Trap TOTAL:		1,600']	
30' X 150'	175'	4	700'	450'	70
	50'	32	1,600'		
	Trap TOTAL:		2,300']	
30' x 155'	170'	4	680'	440'	68
	50'	31	1,550'		
	Trap T	OTAL:	2,230'	1	
:	GRAND TOTAL:		11,029'	2,284'	320

TOTAL LENGTH OF GRID WIRE: 11,029 + 2 x 2,284 = 15,597 feet

WATERFOWL DETERRANT SYSTEM DETAILS

DORCHESTER HOMES LOTS 1-3, 5-18 AND OPEN SPACE LOTS 4, 19

REF: S-03-02, WP-03-35, P-04-11

1ST ELECTION DISTRICT- HOWARD COUNTY, MARYLAND
PARCEL 756 LIBER 771, FOLIO 440

TAX MAP 38 BLOCK 9 ZONE R-12



KCE ENGINEERING, INC.

EXECUTIVE CENTER
3300 NORTH RIDGE ROAD, SUITE 315
ELLICOTT CITY, MARYLAND 21043
PHONE (410) 203-9800 FAX (410) 203-9228

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, BUREAU OF HIGHWAYS

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DIVISION OF LAND DEVELOPMENT

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIPEMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SHANCE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET HIS REQUIREMENS AT THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT.

DATE

DEVELOPERS CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCYION WILL BE DONE
IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNELL 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."



DRAWN BY: MG

CHECKED BY: DVK

SHEET: 13 OF 13

DATE: August. 2005

SCALE: AS SHOWN