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

GENERAL NOTES

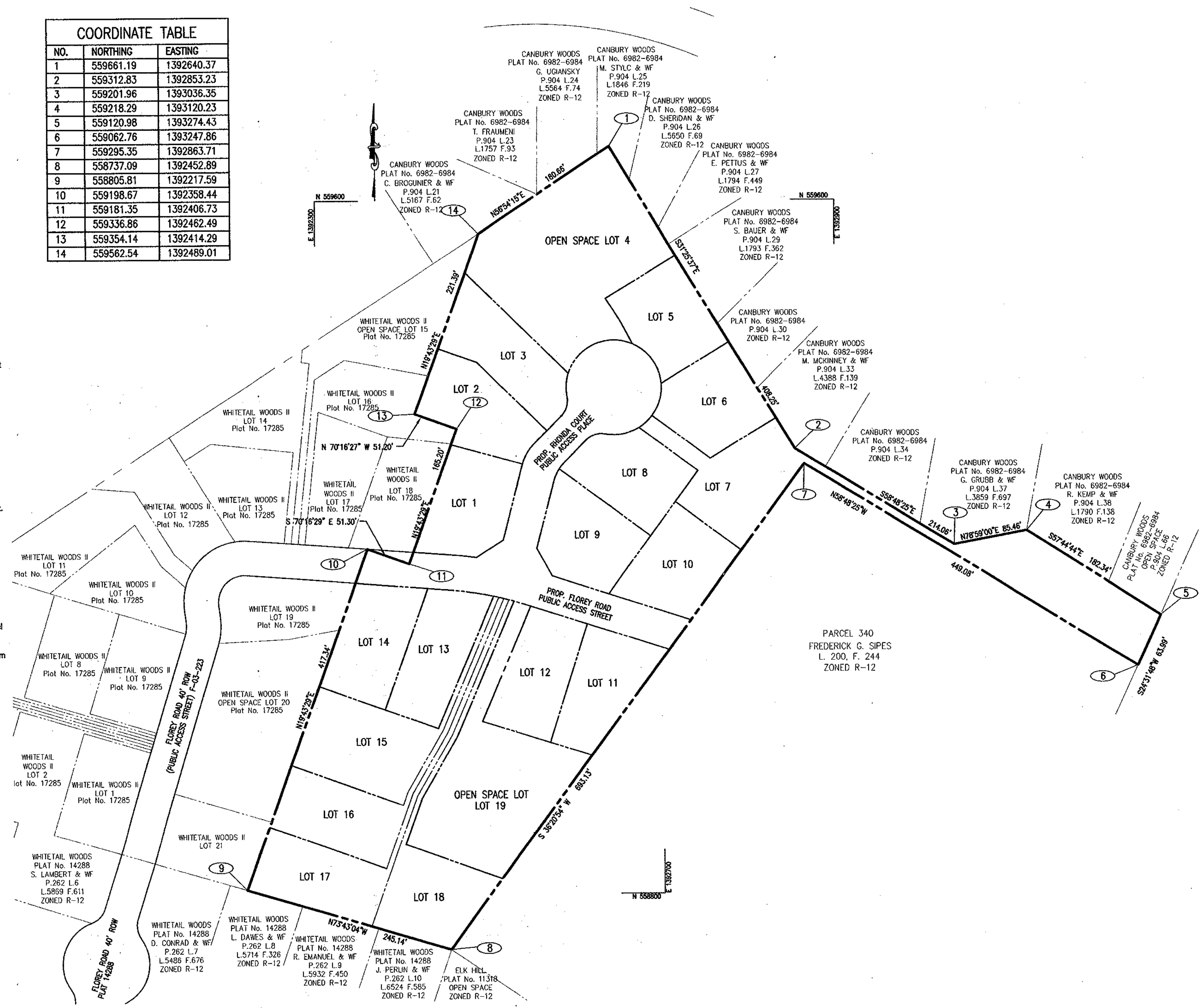
1. The project is in conformance with the latest Howard County Standards unless waivers have been approved.
2. This plat is based on a field run monumented boundary survey performed on or about May 25, 2002 by KCE Engineering,Inc.
3. The coordinates shown hereon are based upon the Howard County Geodetic 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

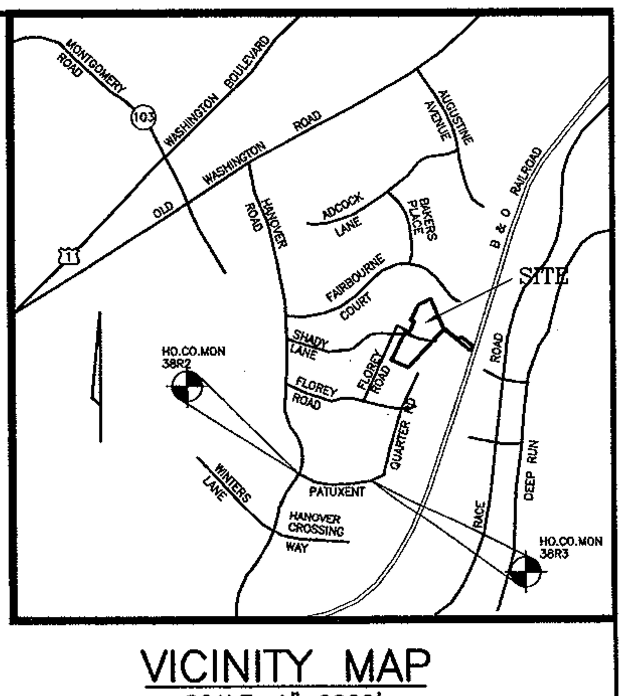
4. Planning and Zoning File Number: S-03-02; WP-03-35; P-04-11
5. Water will be public. Water to be provided through Contr. No. 14-4220-D
6. Sewer will be public. Sewer to be provided through Contr. No. 14-4220-D
7. Stormwater Management for this development is provided by an extended detention micropool 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 Woods-II Contr. no. 14-4104-D.
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 with the DPW, developer's agreement.
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 pipestem lots, refuse collection, snow removal and road maintenance are provided to the junction of the flag or pipestem and road right-of-way line and not onto the pipestem 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 Maintenance Obligation recorded among the Land Records of Howard County, Maryland along with the recording of this plat.
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).
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 requirements:
    a) Width – 12 feet (14feet serving more than one residence).
    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.
    g) Maintenance – Sufficient to insure all weather use.

COORDINATE TABLE

NO.	NORTHING	EASTING
1	559661.19	1392640.37
2	559312.83	1392853.23
3	559201.96	1393036.35
4	559218.29	1393120.23
5	559120.98	1393274.43
6	559062.76	1393247.86
7	559295.35	1392863.71
8	558737.09	1392452.89
9	558805.81	1392217.59
10	559198.67	1392358.44
11	559181.35	1392406.73
12	559336.86	1392462.49
13	559354.14	1392414.29
14	559562.54	1392489.01



LOCATION MAP
SCALE: 1"=80'



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

NO	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Willie L. [signature] 8-30-05
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 9/1/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Cindy Hamilton 9/1/05
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

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

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
TAX MAP 38 BLOCK 9 ZONE R-12

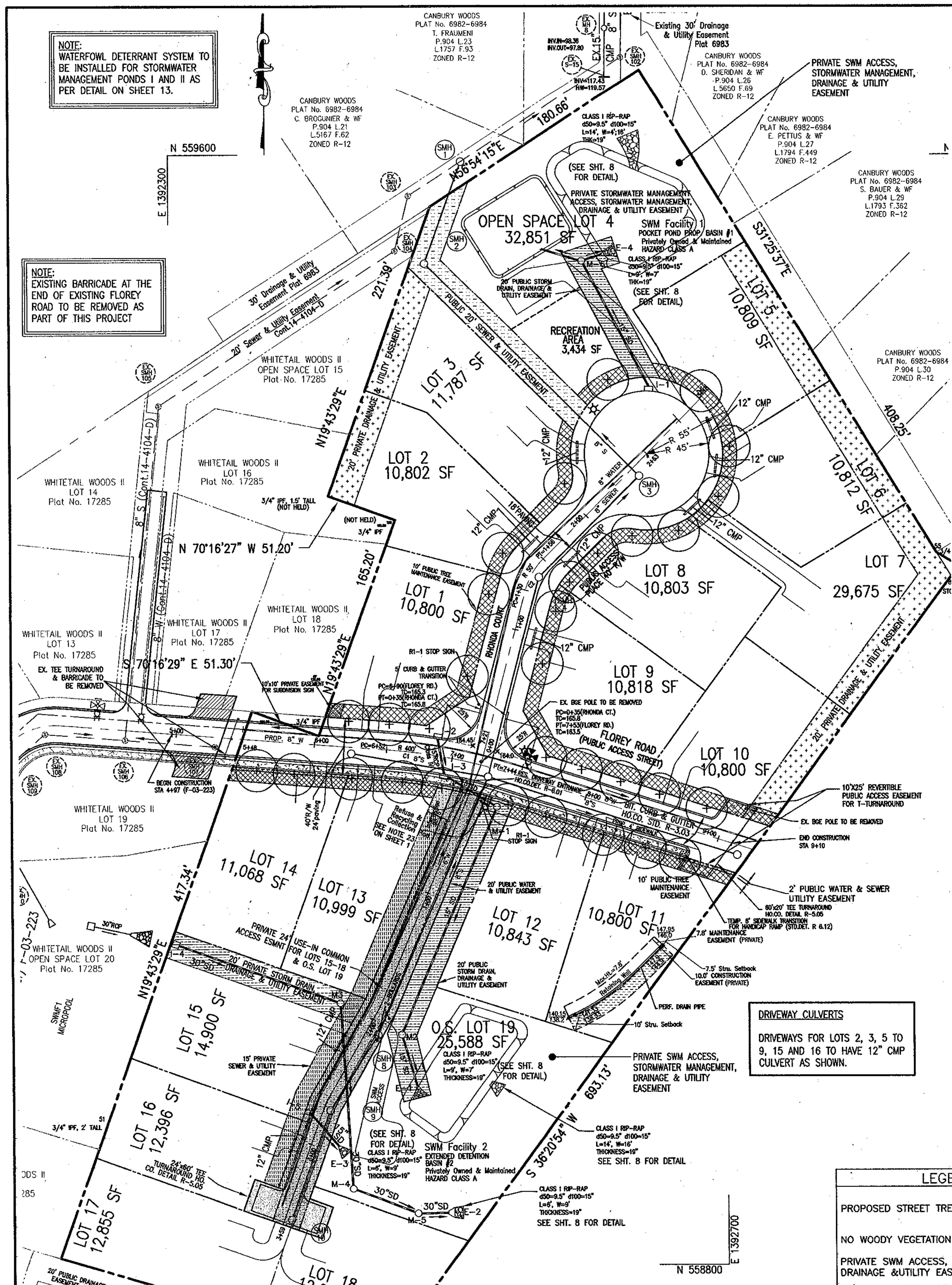
KCE ENGINEERING, INC.
EXECUTIVE CENTER
3300 NORTH RIDGE ROAD, SUITE 315
ELLICOTT CITY, MARYLAND 21043
PHONE (410) 203-9800 FAX (410) 203-9228

[signature] 8/11/05

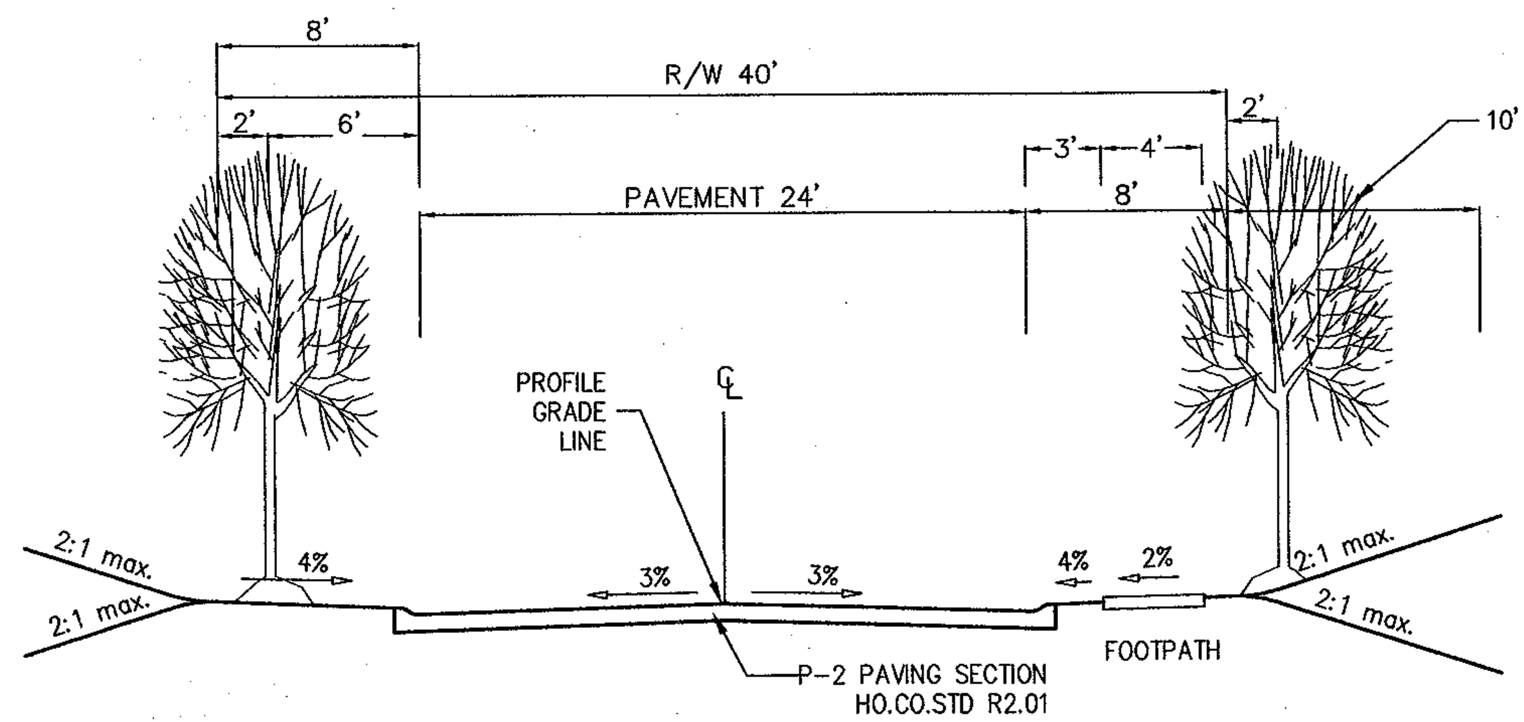
DRAWN BY: MG
CHECKED BY: DVK
SCALE: 1' = 50'
DATE: AUGUST, 2005

SHEET:
1 OF 13

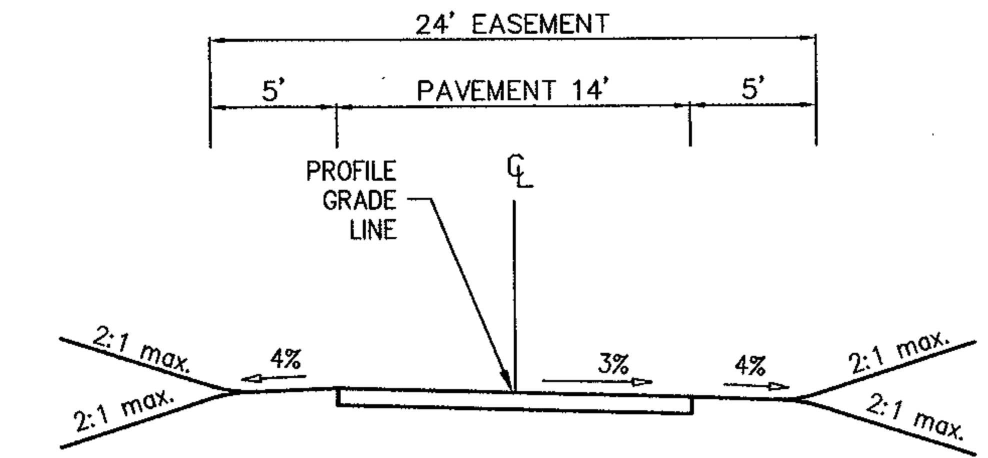
F-05-94



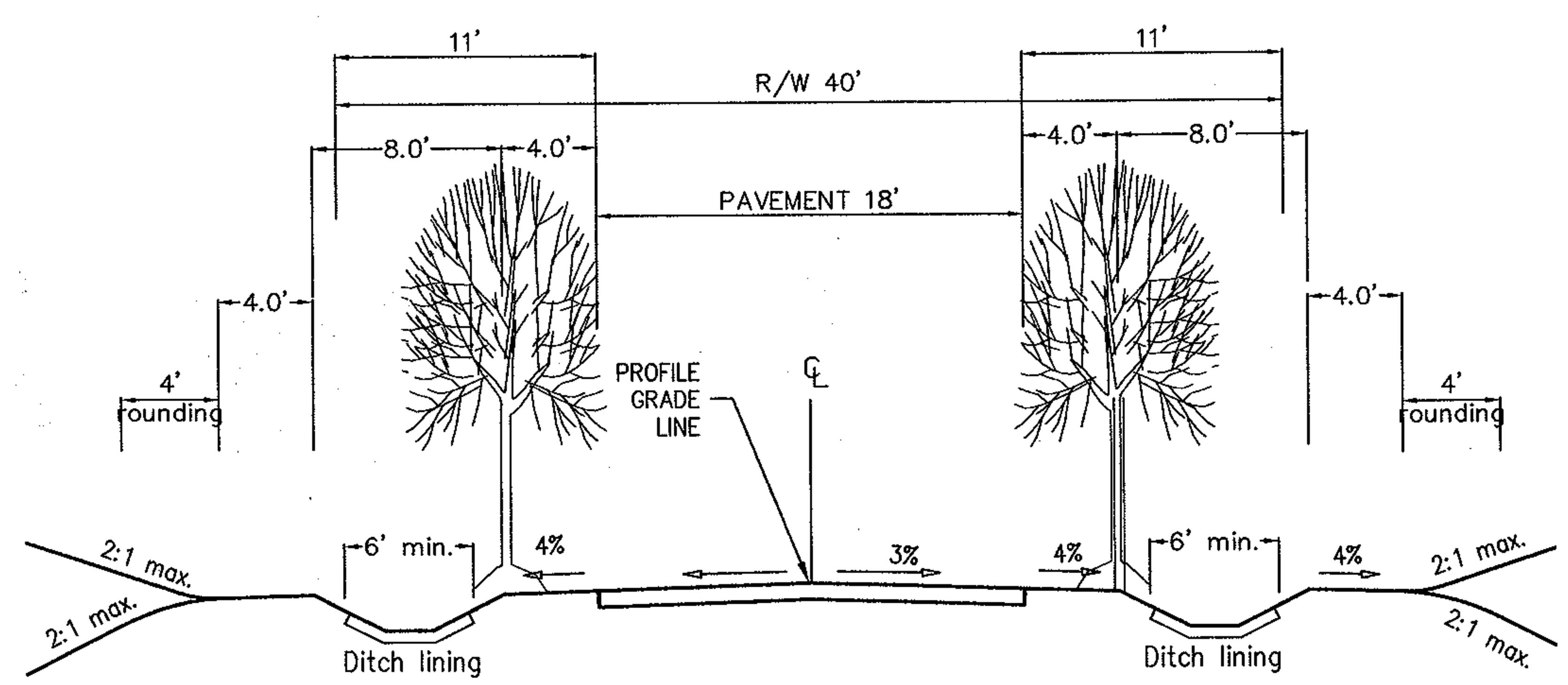
PLAN
SCALE: 1"=50'



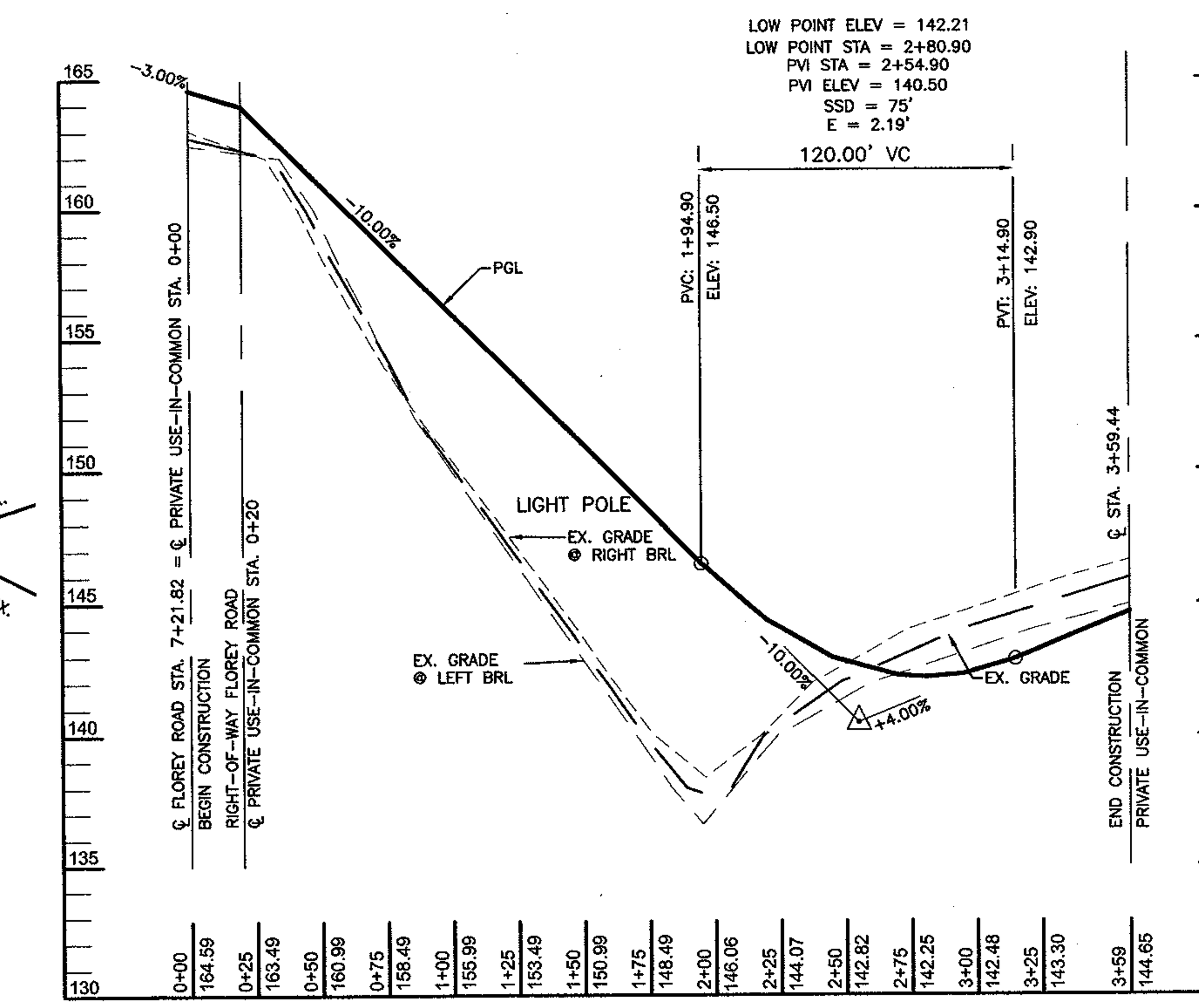
TYPICAL SECTION FOR FLOREY ROAD
CLASSIFICATION: ACCESS STREET (PUBLIC)
SCALE 1"=6'



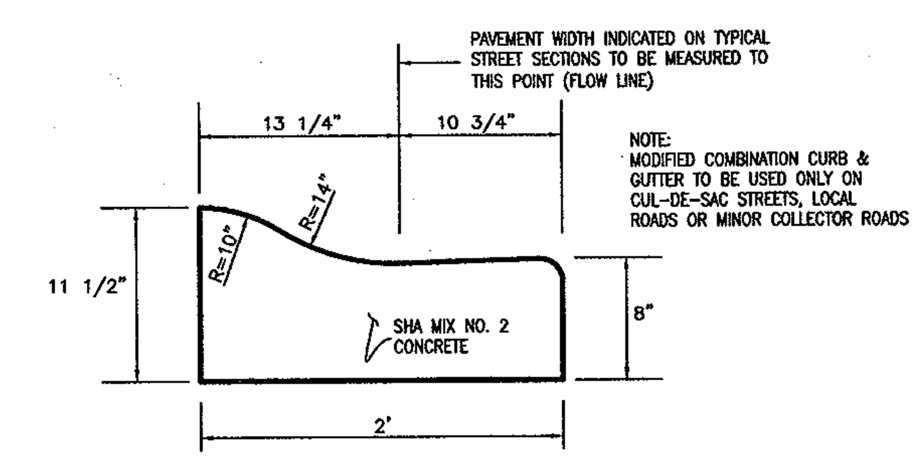
TYPICAL SECTION
CLASSIFICATION: PRIVATE USE-IN-COMMON
SCALE 1"=10'



TYPICAL SECTION FOR RHONDA COURT
CLASSIFICATION: ACCESS PLACE (PUBLIC)
SCALE 1"=10'



ROAD PROFILE
ROAD CLASSIFICATION: USE-IN-COMMON DRIVEWAY
DESIGN SPEED: 15 MPH
SCALE 1"=50' H, 1"=5' V



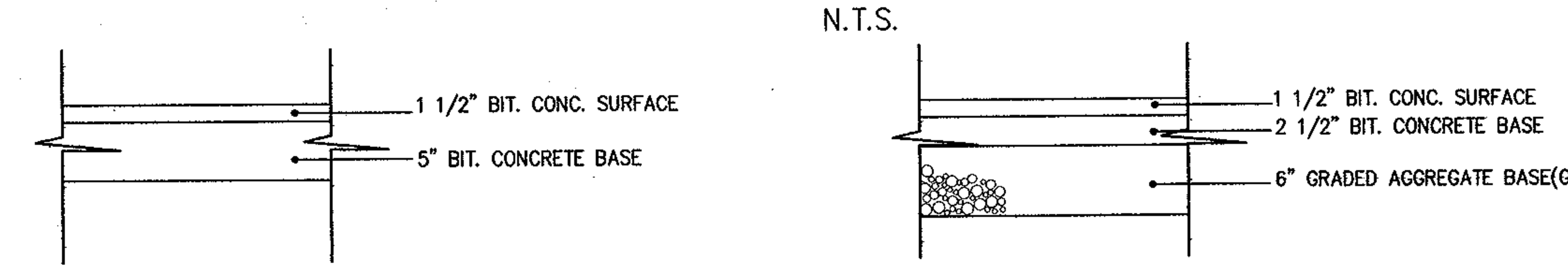
NOTE:
MODIFIED COMBINATION CURB & GUTTER TO BE USED ONLY ON CUL-DE-SAC STREETS, LOCAL ROADS OR MINOR COLLECTOR ROADS

MODIFIED CURB AND GUTTER
HOWARD COUNTY STANDARD R3.01
NOT TO SCALE

DRIVEWAY CULVERTS

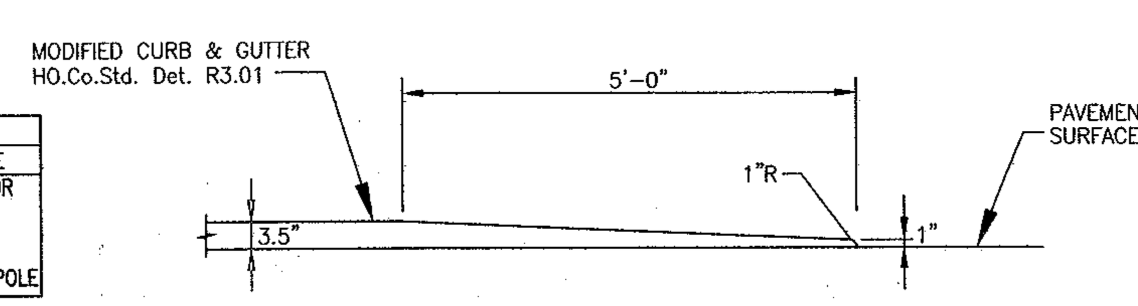
DRIVEWAYS FOR LOTS 2, 3, 5 TO 9, 15 AND 16 TO HAVE 12" CMP CULVERT AS SHOWN.

P-2 LIGHT DUTY PAVING SECTION
N.T.S.



FULL DEPTH BIT. CONC. ALTERNATE

GRANULAR BASE ALTERNATES



NOSE DOWN CURB & GUTTER TRANSITION
NOT TO SCALE

✡ STREET LIGHT LOCATION CHART			
STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
FLOREY ROAD	7+48	18' LEFT	100 WATT HPS VAPOR "PREMIER" POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
RHONDA COURT	7+56	49' LEFT	

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	92.07'	400'	13°00'11"	46.24'	S 79°05'17" E	91.82'
C2	26.18'	50'	30°00'00"	13.40'	N 29°42'22" E	25.88'

LEGEND

- PROPOSED STREET TREE
- NO WOODY VEGETATION BUFFER
- PRIVATE SWM ACCESS, SWM DRAINAGE &UTILITY EASEMENT
- 20' PRIVATE DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE EASEMENT
- PUBLIC SEWER AND UTILITY EASEMENT
- STORM DRAIN, DRAINAGE AND UTILITY EASEMENT
- PRIVATE RETAINING WALL MAINTENANCE EASEMENT
- PRIVATE USE-IN-COMMON ACCESS EASEMENT
- 10'X25' REVERTIBLE PUBLIC ACCESS EASEMENT
- 65 DB NOISE LINE — N —
- 10'x10' PUBLIC EASEMENT FOR SUBDIVISION SIGN

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-30-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

ROAD LAYOUT PLAN

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

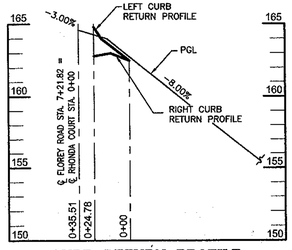
KCE ENGINEERING, INC.
EXECUTIVE CENTER
3300 NORTH RIDGE ROAD, SUITE 315
ELLICOTT CITY, MARYLAND 21043
PHONE (410) 203-9800 FAX (410) 203-9228

8/11/05

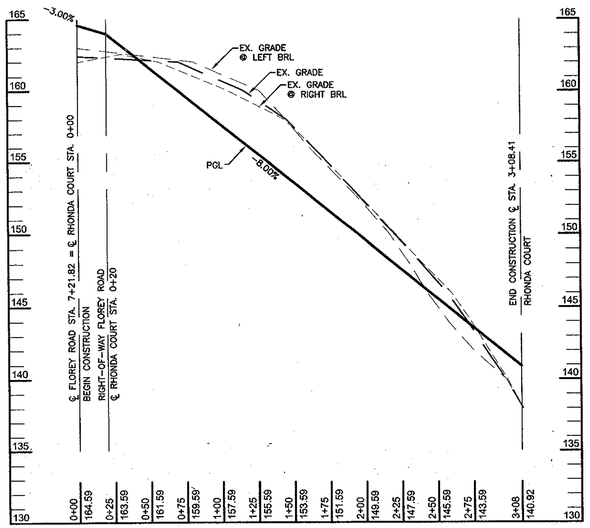
DRAWN BY: MG
CHECKED BY: DVK
SCALE: AS SHOWN
DATE: August, 2005

SHEET:
2 OF 13

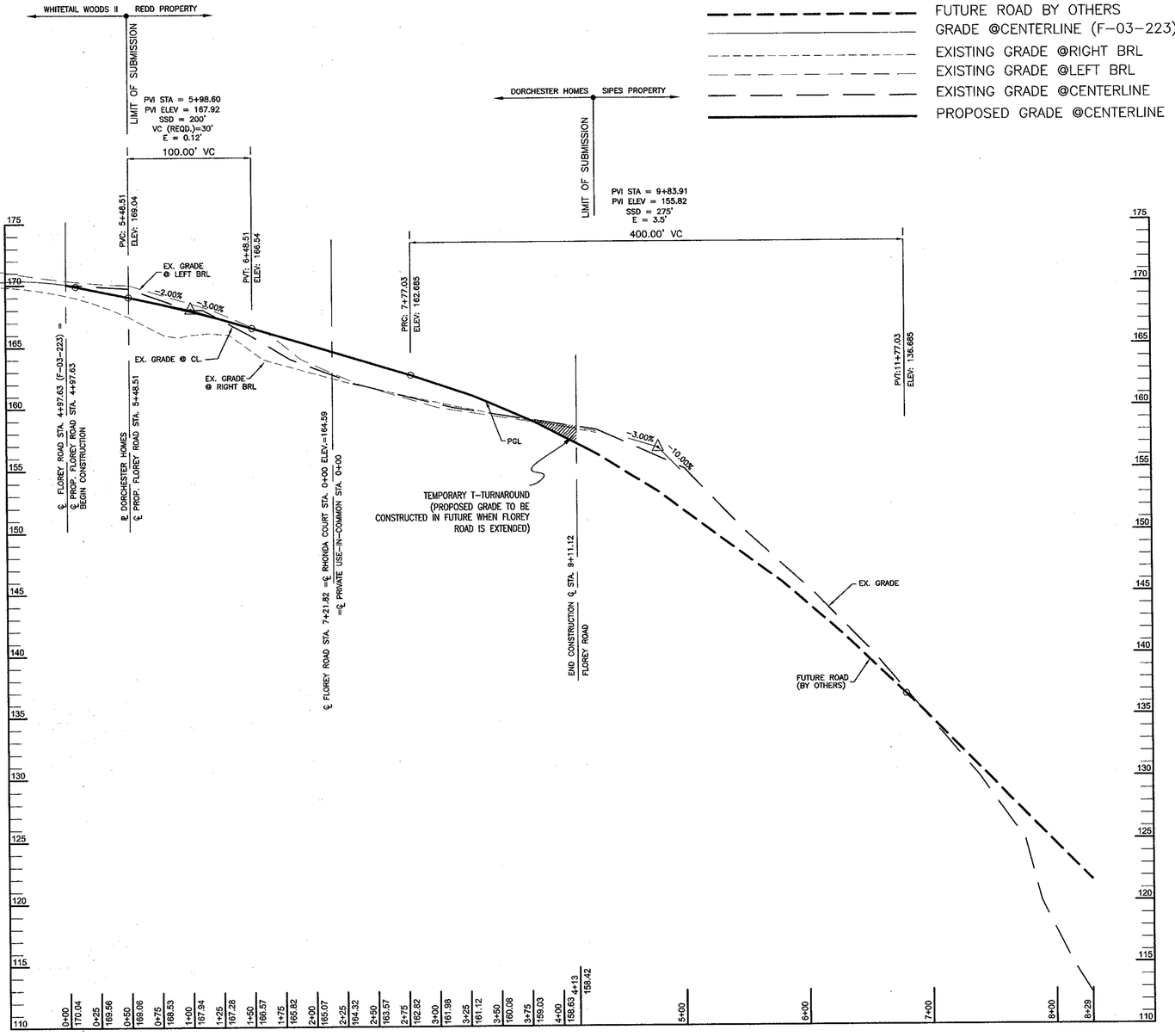
F-05-94



CURB RETURN PROFILE:
FLOREY ROAD & RHONDA CT.
SCALE 1"=50' H, 1"=5' V



ROAD PROFILE : RHONDA COURT
ROAD CLASSIFICATION: ACCESS PLACE (PUBLIC)
DESIGN SPEED: 15 MPH
SCALE 1"=50' H, 1"=5' V



ROAD PROFILE: FLOREY ROAD
ROAD CLASSIFICATION: ACCESS STREET (PUBLIC)
DESIGN SPEED: 25 MPH
SCALE 1"=50' H, 1"=5' V

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

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

SHEET 3 OF 13 SCALE: AS SHOWN DATE: August, 2005

ROAD PROFILES

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

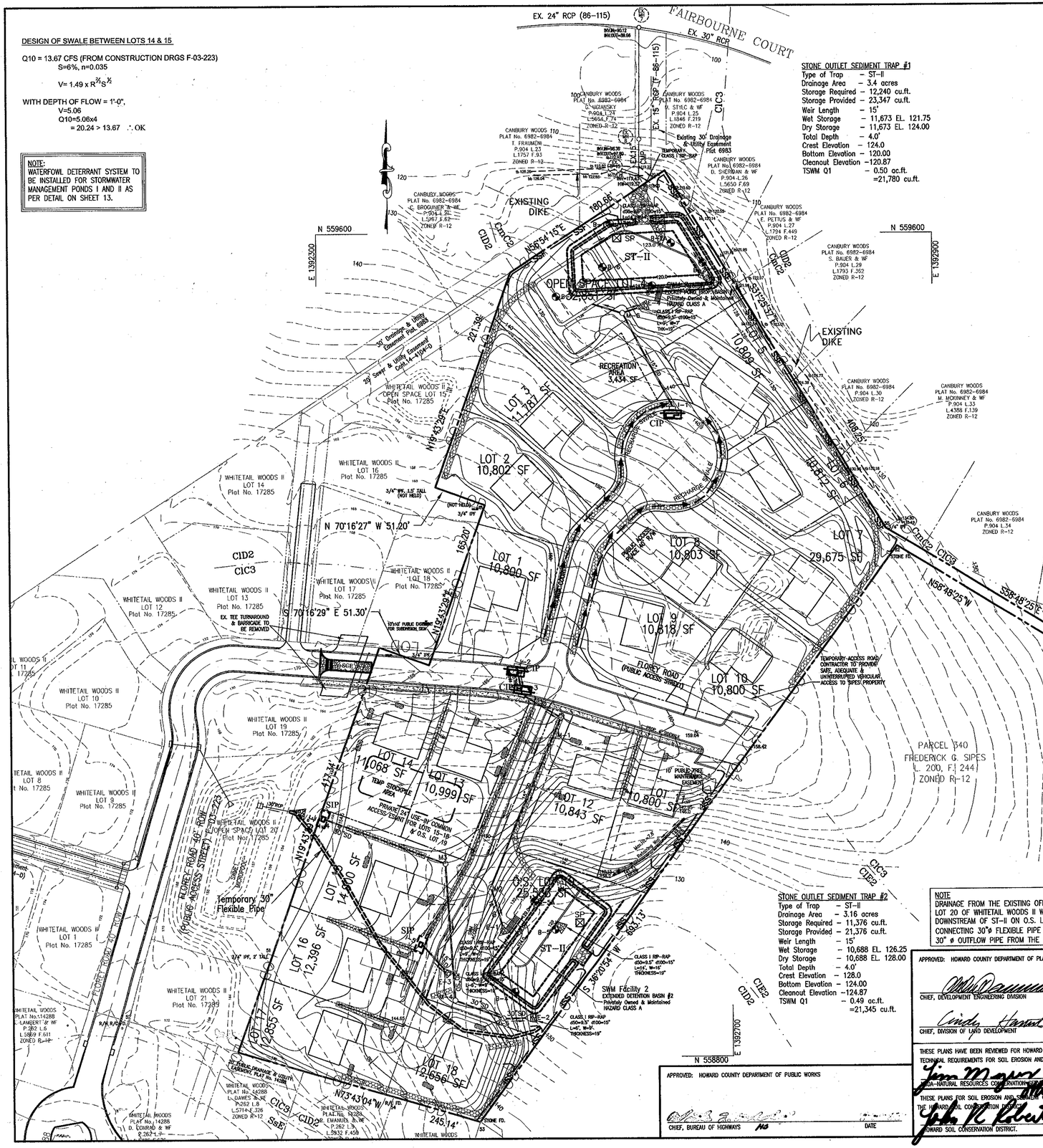
F-05-94

DESIGN OF SWALE BETWEEN LOTS 14 & 15

Q10 = 13.67 CFS (FROM CONSTRUCTION DRGS F-03-223)
S=6%, n=0.035
$V = 1.49 \times R^{2/3} S^{1/2}$

WITH DEPTH OF FLOW = 1'-0",
V=5.06
Q10=5.06x4
= 20.24 > 13.67 ∴ OK

NOTE:
WATERFOWL DETERRANT SYSTEM TO BE INSTALLED FOR STORMWATER MANAGEMENT PONDS I AND II AS PER DETAIL ON SHEET 13.



STONE OUTLET SEDIMENT TRAP #1
Type of Trap – ST-II
Drainage Area – 3.4 acres
Storage Required – 12,240 cu.ft.
Storage Provided – 23,347 cu.ft.
Weir Length – 15'
Wet Storage – 11,673 EL. 121.75
Dry Storage – 11,673 EL. 124.00
Total Depth – 4.0'
Crest Elevation – 124.0
Bottom Elevation – 120.00
Cleanout Elevation – 120.87
TSWM Q1 – 0.50 ac.ft. =21,780 cu.ft.

STONE OUTLET SEDIMENT TRAP #2
Type of Trap – ST-II
Drainage Area – 3.16 acres
Storage Required – 11,376 cu.ft.
Storage Provided – 21,376 cu.ft.
Weir Length – 15'
Wet Storage – 10,688 EL. 126.25
Dry Storage – 10,688 EL. 128.00
Total Depth – 4.0'
Crest Elevation – 128.0
Bottom Elevation – 124.00
Cleanout Elevation – 124.87
TSWM Q1 – 0.49 ac.ft. =21,345 cu.ft.

NOTE
DRAINAGE FROM THE EXISTING OFF-SITE SWMF ON LOT 20 OF WHITETAIL WOODS II WILL BE DIVERTED DOWNSTREAM OF ST-II ON O.S. LOT 19 BY CONNECTING 30"ø FLEXIBLE PIPE TO THE EXISTING 30" ø OUTFLOW PIPE FROM THE SWMF.

NOTE
To prevent standing water, the Contractor must pump out excess water from sediment traps ST-I and ST-II through the sump pit (see detail on sht. 5) within 24 hours following a 1- or 2- year storm event.

STORMWATER MANAGEMENT REQUIREMENTS SUMMARY TABLE AREA 1

NOTE: SWM PROVIDED BY A MICROPOOL ED(P-1) FACILITY

	REQUIREMENT	VOLUME REQUIREMENT	NOTES
1	WATER QUALITY VOLUME WQv	0.08 AC.FT.	PROVIDED WITHIN BIORETENTION AREA
2	RECHARGE VOLUME Rev	0.03 AC.FT.	PROVIDED BY GRASS CHANNEL CREDITS
3	CHANNEL PROTECTION VOLUME Cpv	0.14 AC.FT.	PROVIDED BY EXTENDED DETENTION POND
4	OVERHEAD FLOOD PROTECTION $Q_{10}P$	–	NOT REQUIRED
5	EXTREME FLOOD VOLUME $Q_{100}P$	–	NOT REQUIRED

STORMWATER MANAGEMENT REQUIREMENTS SUMMARY TABLE AREA 2

NOTE: SWM PROVIDED BY A MICROPOOL ED(P-1) FACILITY

	REQUIREMENT	VOLUME REQUIREMENT	NOTES
1	WATER QUALITY VOLUME WQv	0.09 AC.FT.	PROVIDED BY INDIVIDUAL LOT RAIN GARDENS & ROADSIDE GRASS CHANNELS
2	RECHARGE VOLUME Rev	0.02 AC.FT.	INCLUDED IN WQv ABOVE
3	CHANNEL PROTECTION VOLUME Cpv	0.11 AC.FT.	PROVIDED BY EXTENDED DETENTION POND
4	OVERHEAD FLOOD PROTECTION $Q_{10}P$	–	SAFE PASSAGE PROVIDED
5	EXTREME FLOOD VOLUME $Q_{100}P$	–	SAFE PASSAGE PROVIDED

LEGEND

- PROPOSED STREET TREE
- PROPOSED TREE MAINTENANCE EASEMENT
- NO WOODY VEGETATION BUFFER
- PUBLIC SEWER AND UTILITY EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PRIVATE WALL MAINTENANCE EASEMENT
- USE-IN-COMMON ACCESS EASEMENT
- AREA OF 15 TO 24.9% SLOPES
- PROPOSED CONTOUR
- EXISTING CONTOUR
- LIGHT POLE
- SLOPES >25%
- SLOPES 15% TO 24.9%
- 65 DB NOISE LINE — N —
- SCE — STABILIZATION CONSTRUCTION ENTRANCE (SCE) W/MOUNTABLE BERM
- (CIP) CURB INLET PROTECTION
- 4" PERF. UNDERDRAIN
- RAIN GARDEN
- RECHARGE SWALE
- GRASS CHANNEL
- SOIL BOUNDARY — CIE2 / CIC3 —
- LIMIT OF DISTURBANCE — LOD —
- SUPER SILT FENCE — SSF —
- tb=TOP BERM, bb=BOTTOM BERM
- EROSION CONTROL MATTING
- STANDARD INLET PROTECTION
- SUMP PIT ⊠ SP

*Temporary 30" pipe to be installed only if required by sediment control inspector

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

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

MD.-NATURAL RESOURCES CONSERVATION SERVICE — DATE 9/23/05

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT. — DATE 9/23/05

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A 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."

SIGNATURE OF ENGINEER — DATE 8/11/05

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 8/11/05

GRADING, SEDIMENT & EROSION CONTROL PLAN

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

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

DRAWN BY: MG
CHECKED BY: DVK
SCALE: 1" = 50'
DATE: August, 2005
SHEET: 4 OF 13

F-05-94

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

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

PURPOSE

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

I. 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 VEGETATIVE GROWTH.
 B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. 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

I. 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.

II. 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 FRAGMENTS, 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 AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION 1 – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 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 500 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 PHYTO-TOXIC MATERIALS.

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 I–VEGETATIVE STABILIZATION METHODS AND METERIALS.

V. TOPSOIL APPLICATION
 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 MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

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 schedules:

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 and reseedings.

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.

Soil Amendments: – Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

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 Bluestem. For the period November 16 – February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

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.

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 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 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.

7. Site Analysis:
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.

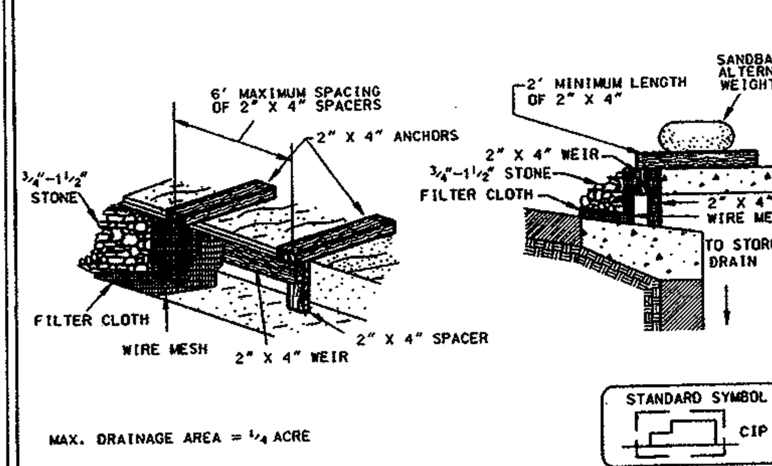
8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

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.

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
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" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" 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 1' beyond both ends of the throat opening.
6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" 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 clogged 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 inlet.

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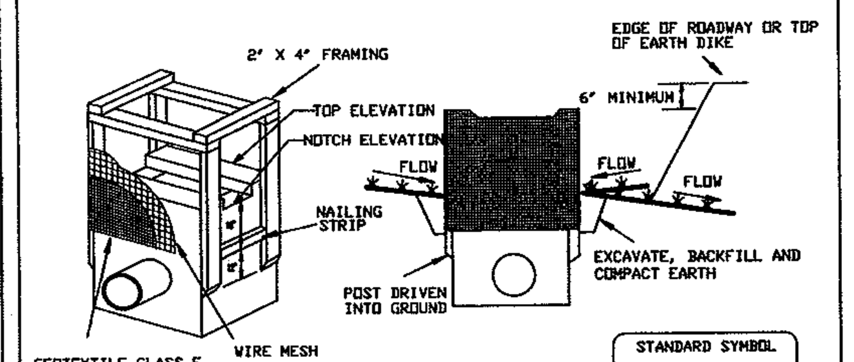
DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

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 1' 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 (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
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 folded, then fastened down.
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 should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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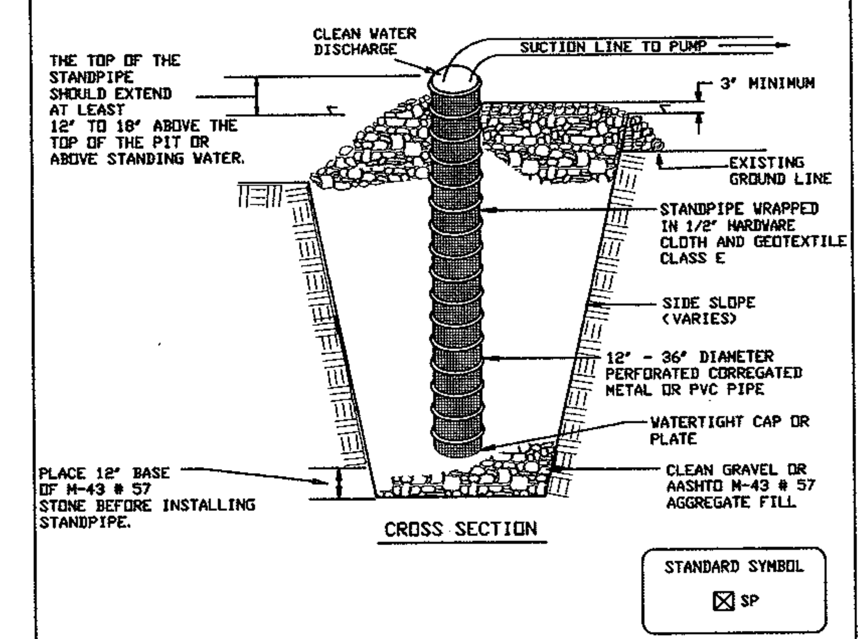
DETAIL 20B – SUMP PIT



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" slits or 1" diameter holes.
3. A base of filter material consisting of clean gravel or #57 stone 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 the same filter material.
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.

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NOTES.

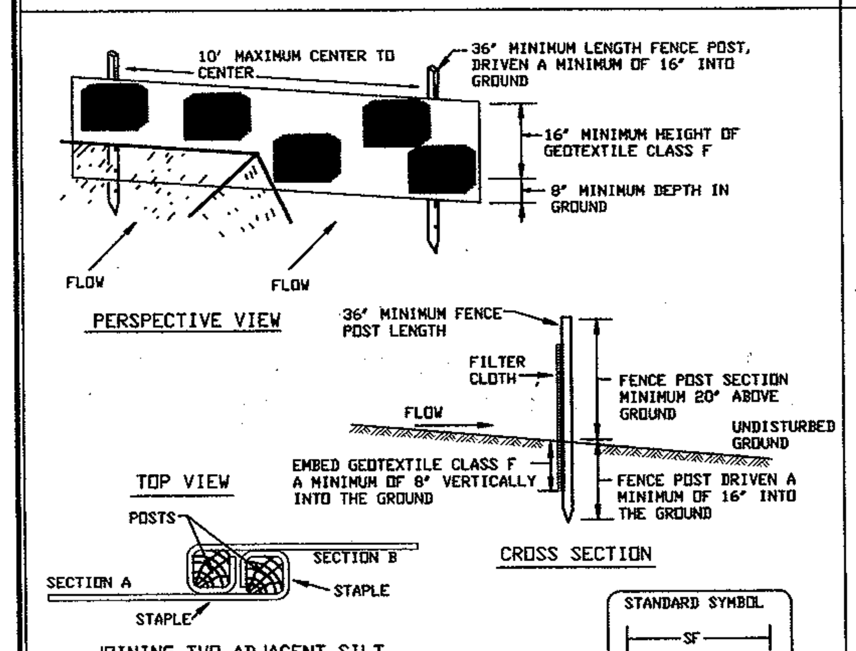
DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN HEREON.

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, SWALES, DITCH PERIMETER SLOPES SLOPES AND ALL SLOPES AND ALL SLOPES GREATER THAN 3:1 (b) 14 CALENDER DAYS FOR ALL OTHER DISTURBED AREAS.

SEQUENCE OF CONSTRUCTION

	SEQUENCE OF CONSTRUCTION	DURATION
1.	Obtain grading permit.	1 DAY
2.	Notify Howard County Bureau of Inspections and Permits (313-1880) at least 24 hours before starting any work.	1 DAY
3.	Construct stabilized construction entrance.	2 DAYS
4.	Install perimeter super silt fence, silt fence.	2 DAYS
5.	Construct storm drain system I-4 to E-2 so that storm water from existing pond bypasses the proposed stone outlet sediment trap 1.	1 WEEK
6.	Construct stone outlet sediment trap 1.	5 DAYS
7.	With Inspector's approvals, clear and grub site to LOD.	2 WEEKS
8.	Begin construction of water, sewer and rest of storm drain system including inlet protection.	1 WEEK
9.	Grade road to sub-base and rough grade remaining site and install storm drain systems.	1 WEEK
10.	With road graded to sub-base and inlets in place, begin installation of curb and gutter.	2 WEEKS
11.	With curb and gutter in, pave road and install street trees.	2 WEEKS
12.	Construct stormwater management ponds, stabilize ponds, and install pond landscaping as shown in Schedule 'D' and perimeter landscaping as shown in Schedule 'A' sheet 6.	1 WEEK
13.	With Inspector's approval and road paving complete, stabilize all disturbed areas with seed and mulch.	1 WEEK
14.	Construct bioretention facility and plantings.	1 WEEK
15.	With approval of Inspector, remove sediment control devices.	2 DAYS

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the 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 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 for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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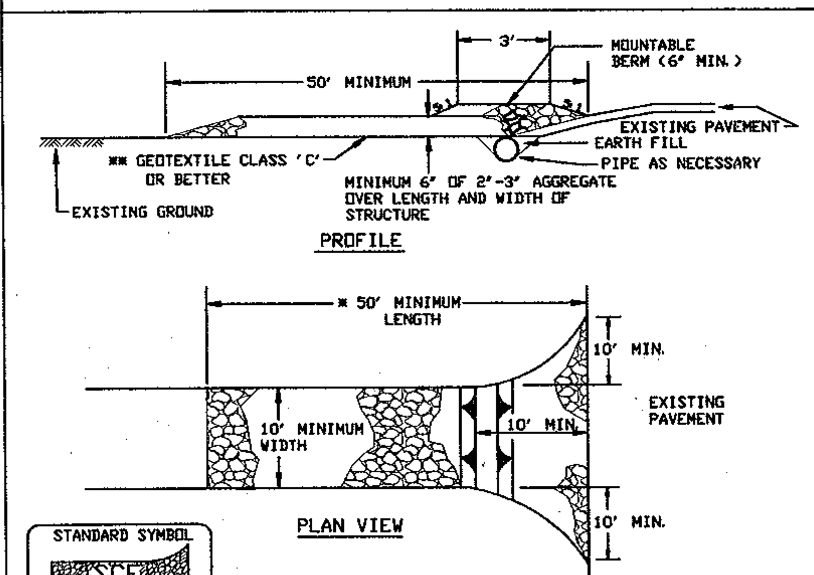
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).
2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
4. 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 entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a 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 according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. 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.

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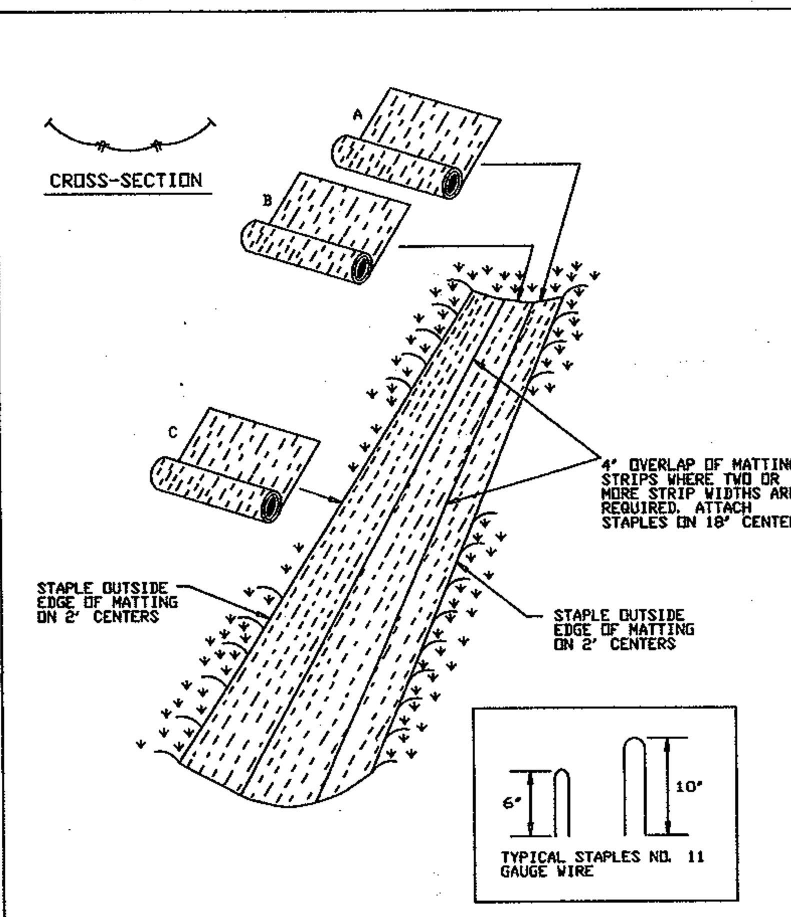
DETAIL 30 – EROSION CONTROL MATTING



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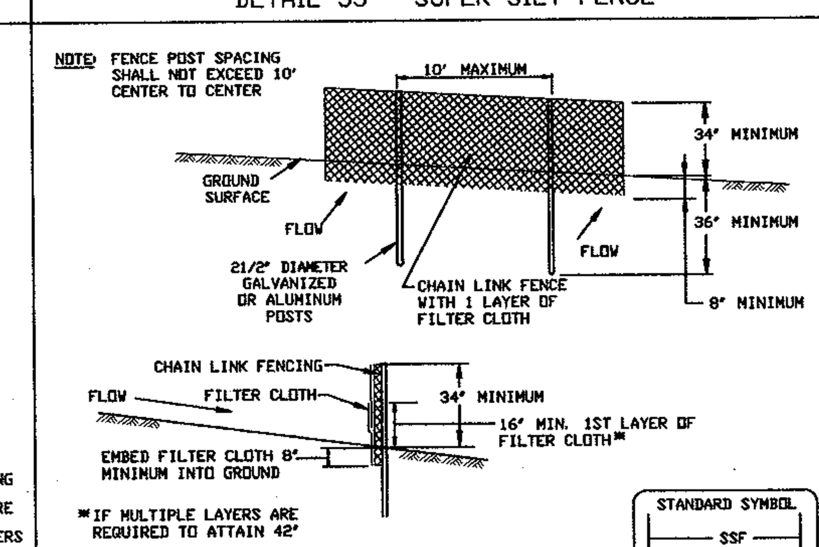
DETAIL 33 – SUPER SILT FENCE



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 height
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:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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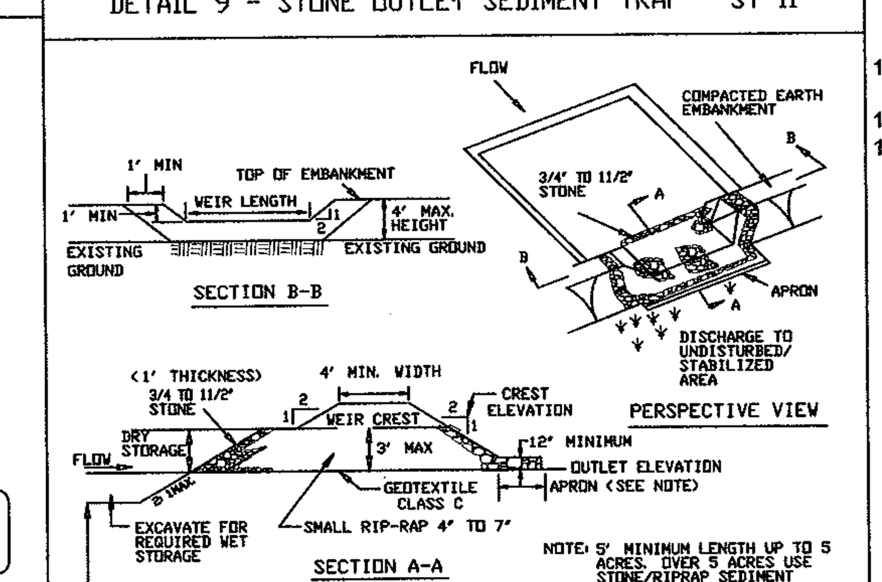
DETAIL 9 – STONE OUTLET SEDIMENT TRAP – ST II



Construction Specifications

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
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 constructed.
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 of the stone outlet.
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.

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NO	REVISION	DATE

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
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

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/1/05

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE 8/23/05 DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT. 8/23/05 DATE

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A 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."

SIGNATURE OF ENGINEER 8/11/05 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."

SIGNATURE OF DEVELOPER 8/11/05 DATE

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

SHEET: 5 OF 13

NOTES

1. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.

2. THERE ARE NO ISOLATED FOREST STANDS ON THIS SITE.

3. THE PROPERTY OUTLINE IS BASED ON A BOUNDARY SURVEY PREPARED BY KCE ENGINEERING, INC. DATED MAY 25, 2002.

4. THE EXISTING FEATURES AND CONTOURS SHOWN HEREON ARE BASED ON A FIELD RUN SURVEY PREPARED BY KCE ENGINEERING, INC. DATED MAY 25, 2002.

5. 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 WITH THE DPW, DEVELOPER'S AGREEMENT.

6. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR 59 SHADE TREES, 38 EVERGREEN TREES AND 10 SHRUBS IN THE AMOUNT OF $23,700.

7. SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.

8. SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.

9. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.

10. KEEP MULCH 1" FROM TRUNK

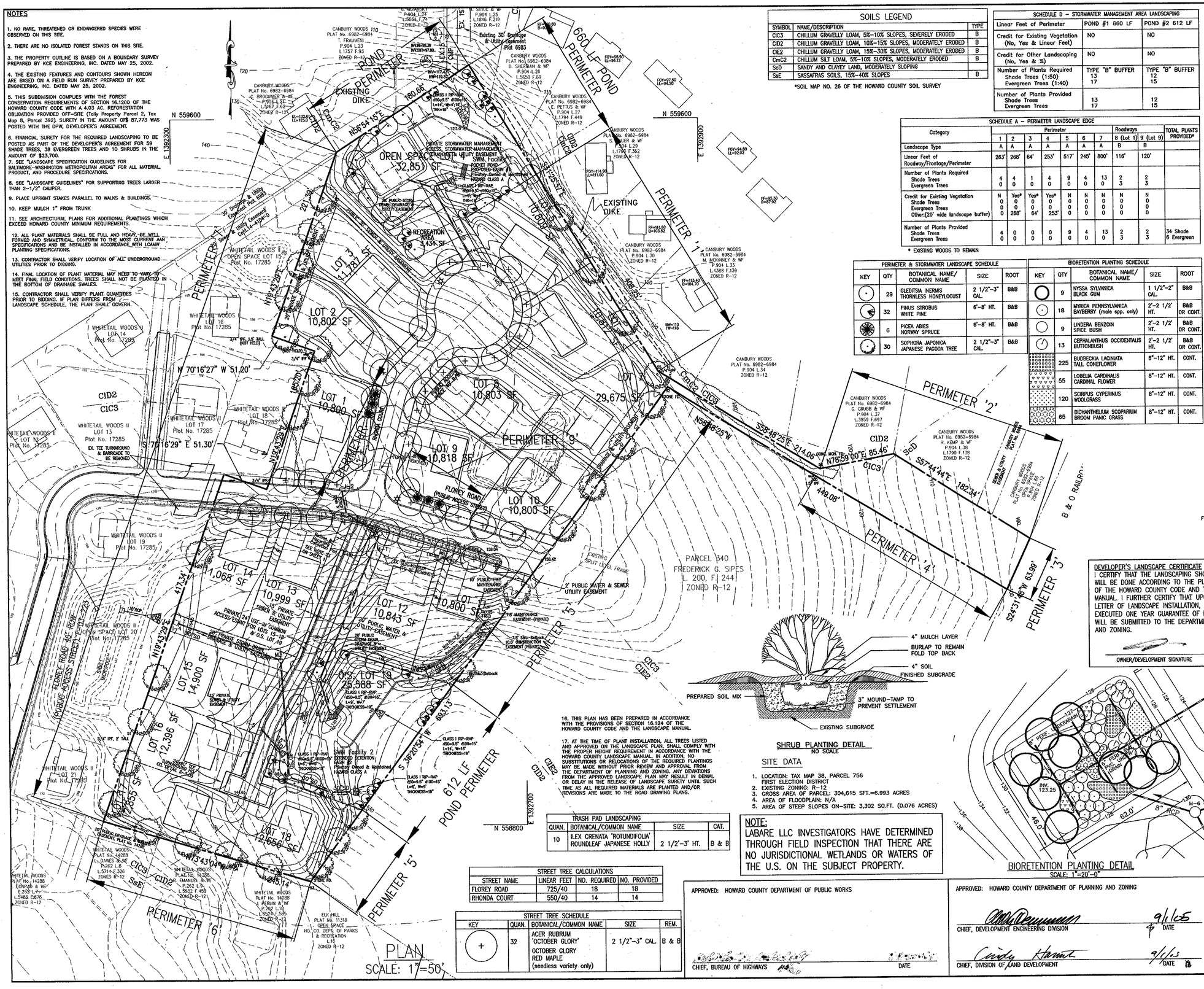
11. SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.

12. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LOANW PLANTING SPECIFICATIONS.

13. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.

14. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.

15. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.



SOILS LEGEND

SYMBOL	NAME/DESCRIPTION	TYPE
CIC3	CHILLUM GRAVELLY LOAM, 5%-10% SLOPES, SEVERELY ERODED	B
CID2	CHILLUM GRAVELLY LOAM, 10%-15% SLOPES, MODERATELY ERODED	B
CIE2	CHILLUM GRAVELLY LOAM, 15%-30% SLOPES, MODERATELY ERODED	B
CmC2	CHILLUM SILT LOAM, 5%-10% SLOPES, MODERATELY ERODED	B
ScD	SANDY AND CLAYEY LAND, MODERATELY SLOPING	
SsE	SASSAFRAS SOILS, 15%-40% SLOPES	B

*SOIL MAP NO. 26 OF THE HOWARD COUNTY SOIL SURVEY

SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING

Linear Feet of Perimeter	POND #1 660 LF	POND #2 612 LF
Credit for Existing Vegetation (No, Yes & Linear Feet)	NO	NO
Credit for Other Landscaping (No, Yes & %)	NO	NO
Number of Plants Required Shade Trees (1:50) Evergreen Trees (1:40)	TYPE "B" BUFFER 13 17	TYPE "B" BUFFER 12 15
Number of Plants Provided Shade Trees Evergreen Trees	13 17	12 15

SCHEDULE A - PERIMETER LANDSCAPE EDGE

Category	Perimeter 1	2	3	4	5	6	7	Roadways 8 (Lot 1)	9 (Lot 9)	TOTAL PLANTS PROVIDED*
Landscape Type	A	A	A	A	A	A	A	B	B	
Linear Feet of Roadway/Frontage/Perimeter	263'	268'	64'	253'	517'	245'	800'	116'	120'	
Number of Plants Required Shade Trees Evergreen Trees	4 0	4 0	1 0	4 0	9 0	4 0	13 0	2 3	2 3	
Credit for Existing Vegetation Shade Trees Evergreen Trees Other:(20' wide landscape buffer)	N 0 0 0	Yes* 0 0 268'	Yes* 0 0 64'	Yes* 0 0 253'	N 0 0 0	N 0 0 0	N 0 0 0	N 0 0 0	N 0 0 0	
Number of Plants Provided Shade Trees Evergreen Trees	4 0	4 0	0 0	0 0	9 0	4 0	13 0	2 3	2 3	34 Shade 6 Evergreen

* EXISTING WOODS TO REMAIN

PERIMETER & STORMWATER LANDSCAPE SCHEDULE

KEY	QTY	BOTANICAL NAME/ COMMON NAME	SIZE	ROOT
	29	GLEDITSIA INERMIS THORNLESS HONEYLOCUST	2 1/2"-3" CAL.	B&B
	32	PINUS STROBUS WHITE PINE	6'-8' HT.	B&B
	6	PICEA ABIES NORWAY SPRUCE	6'-8' HT.	B&B
	30	SOPHORA JAPONICA JAPANESE PAGODA TREE	2 1/2"-3" CAL.	B&B

BIORETENTION PLANTING SCHEDULE

KEY	QTY	BOTANICAL NAME/ COMMON NAME	SIZE	ROOT
	9	NYSSA SYLVANICA BLACK GUM	1 1/2"-2" CAL.	B&B
	18	MYRICA PENNSYLVANICA BAYBERRY (male spp. only)	2'-2 1/2' HT.	B&B OR CONT.
	9	LINDERA BENZOIN SPICE BUSH	2'-2 1/2' HT.	B&B OR CONT.
	13	CEPHALANTHUS OCCIDENTALIS BUTTONBUSH	2'-2 1/2' HT.	B&B OR CONT.
	225	BUDBECKIA LACINIATA TALL CONEFLOWER	8"-12" HT.	CONT.
	55	LOBELIA CARDINALIS CARDINAL FLOWER	8"-12" HT.	CONT.
	120	SCIRPUS CYPERINUS WOOLGRASS	8"-12" HT.	CONT.
	65	DICHANTHELIUM SCOPARIUM BROOM PANIC GRASS	8"-12" HT.	CONT.

FOREST CONSERVATION WORKSHEET
Dorchester Homes Subdivision

5-Aug-02

NET TRACT AREA:

A. Total tract area ...	7.00
B. Land dedication acres (parks, county facility, etc.) ...	0.00
C. Land dedication for roads or utilities (not being constructed by this plan) ...	0.00
D. Area to remain in commercial agricultural production/use ...	0.00
E. Other deductions (specify)	0.00
F. Net Tract Area ..... =	7.00

LAND USE CATEGORY: (from *Trees Technical Manual*)
Input the number "1" under the appropriate land use, limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

G. Afforestation Threshold ...	15%	x F =	1.05
H. Conservation Threshold ...	20%	x F =	1.40

EXISTING FOREST COVER:

I. Existing forest cover ..... =	6.30
J. Area of forest above afforestation threshold ..... =	5.25
K. Area of forest above conservation threshold ..... =	4.90

BREAK EVEN POINT:

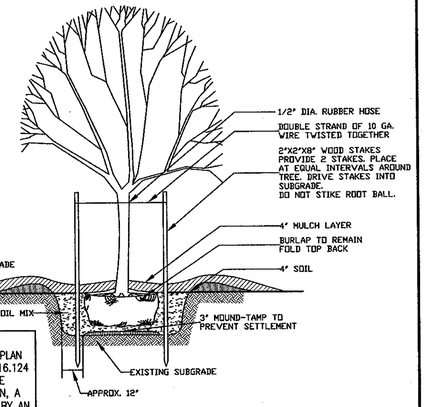
L. Forest retention above threshold with no mitigation .... =	2.38
M. Clearing permitted without mitigation ..... =	3.92

PROPOSED FOREST CLEARING:

N. Total area of forest to be cleared ..... =	6.30
O. Total area of forest to be retained ..... =	0.00

PLANTING REQUIREMENTS:

P. Reforestation for clearing above conservation threshold .... =	1.23	
Q. Reforestation for clearing below conservation threshold .... =	2.80	1
R. Credit for retention above conservation threshold ..... =	0.00	
S. Total reforestation required ..... =	4.03	1
T. Total afforestation required ..... =	0.00	
U. Credit for landscaping (may not exceed 20% of "S") ..... =	0.00	
V. Total reforestation and afforestation required ..... =	4.03	



PLANTING DETAIL
NO SCALE

SHRUB PLANTING DETAIL
NO SCALE

DEVELOPER'S LANDSCAPE CERTIFICATE

I CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

OWNER/DEVELOPMENT SIGNATURE — DATE 8/11/05

FOREST CONSERVATION SIGNATURE:

Mridula Gupta — 8/11/05
DNR QUALIFIED PROFESSIONAL — DATE
MRIDULA GUPTA

SITE DATA

1. LOCATION: TAX MAP 38, PARCEL 756 FIRST ELECTION DISTRICT
2. EXISTING ZONING: R-12
3. GROSS AREA OF PARCEL: 304,615 SFT.=6.993 ACRES
4. AREA OF FLOODPLAIN: N/A
5. AREA OF STEEP SLOPES ON-SITE: 3,302 SQ.FT. (0.076 ACRES)

16. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

17. AT THE TIME OF PLANT INSTALLATION, ALL TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATIONS FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL, OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE ROAD DRAWING PLANS.

TRASH PAD LANDSCAPING

QUAN.	BOTANICAL/COMMON NAME	SIZE	CAT.
10	ILEX CRENATA 'ROTUNDIFOLIA' ROUNDLEAF JAPANESE HOLLY	2 1/2'-3' HT.	B & B

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
FLOREY ROAD	725/40	18	18
RHONDA COURT	550/40	14	14

STREET TREE SCHEDULE

KEY	QUAN.	BOTANICAL/COMMON NAME	SIZE	REM.
+	32	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE (seedless variety only)	2 1/2"-3" CAL.	B & B

NOTE:
LABARE LLC INVESTIGATORS HAVE DETERMINED THROUGH FIELD INSPECTION THAT THERE ARE NO JURISDICTIONAL WETLANDS OR WATERS OF THE U.S. ON THE SUBJECT PROPERTY.

BIORETENTION PLANTING DETAIL
SCALE: 1"=20'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9/1/05 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 9/1/05 DATE

LANDSCAPE AND FOREST CONSERVATION PLAN
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

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

SHEET: 6 OF 13

F-05-94

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	TYPE
CIC3	CHILLUM GRAVELLY LOAM, 5%–10% SLOPES, SEVERELY ERODED	B
CID2	CHILLUM GRAVELLY LOAM, 10%–15% SLOPES, MODERATELY ERODED	B
CIE2	CHILLUM GRAVELLY LOAM, 15%–30% SLOPES, MODERATELY ERODED	B
CmC2	CHILLUM SILT LOAM, 5%–10% SLOPES, MODERATELY ERODED	B
ScD	SANDY AND CLAYEY LAND, MODERATELY SLOPING	
SsE	SASSAFRAS SOILS, 15%–40% SLOPES	B

*SOIL MAP NO. 26 OF THE HOWARD COUNTY SOIL SURVEY

STORM DRAIN COMPUTATIONS

FROM NO.	TO NO.	INC. AREA (AC.)	TOTAL AREA (AC.)	C	C x A	SUM (CxA)	TIME (Min.)	t (IN./HR.)	Q (CFS)	DES. SLOPE (%)	DIAMETER (IN.)	VELOCITY (FT./SEC.)	LENGTH (FT.)	TIME (Min.)	REMARKS
I–1	SWM–1	1.07	1.07	0.33	0.35		10.0	6.6	2.31	0.12	15"	1.8			
I–2	I–3	0.25	0.25	0.33	0.08		10.0	6.6	0.53		15"	0.5	29	0.97	
I–3		0.11		0.33	0.04		10.0	6.6							
I–3	M–1		0.36		0.12	0.12	11.0	6.3	0.76		15"	0.7	44	1.04	
M–1	M–2 & E–1	USE SAME DISCHARGE & SAME PIPE SIZE I.E. 15" ø													
I–4	M–3	0.37	0.37	0.33	0.12		10.0	6.6	0.79						
	M–4														
	M–5														
	FLOW FROM ADJACENT PROPERTY								14.24						
			TOTAL Q10						15.03	0.12	30"	3.0			
I–5	E–3	1.45		0.33	0.48		10.0	6.6	3.17	0.2	15"	2.4			

LEGEND

EXISTING CONTOUR

PROPOSED CONTOUR

SOIL BOUNDARY — CIE2 / CIC3

LIGHT POLE

SLOPES 25% >

SLOPES 15% TO 24.9%

DRAINAGE DIVIDE

RECHARGE SWALE

GRASS CHANNEL

tb=TOP BERM
bb=BOTTOM BERM

STORM DRAIN DRAINAGE AREA MAP

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

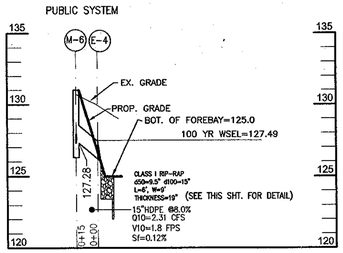
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

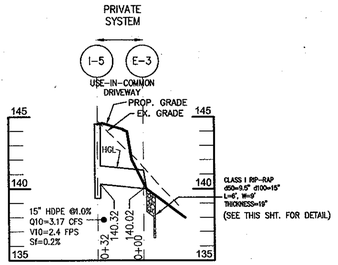
DRAWN BY: MG
CHECKED BY: DVK
SCALE: 1" = 50'
DATE: August, 2005

SHEET: 7 OF 13

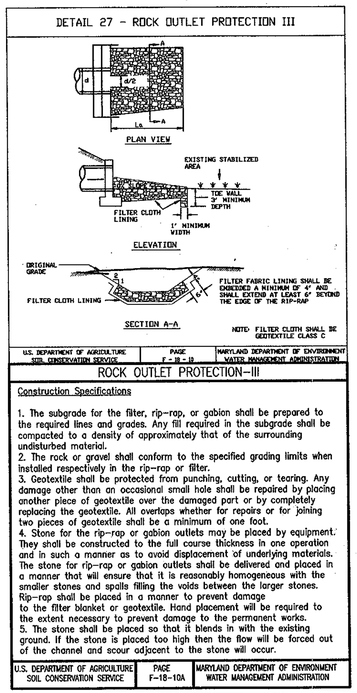
F–05–94

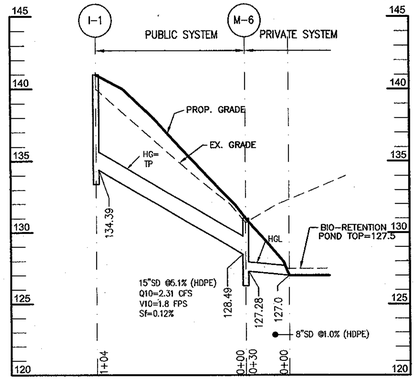


STORM DRAIN PROFILE (M-6 TO E-4)
SCALE 1"=50' H, 1"=5' V

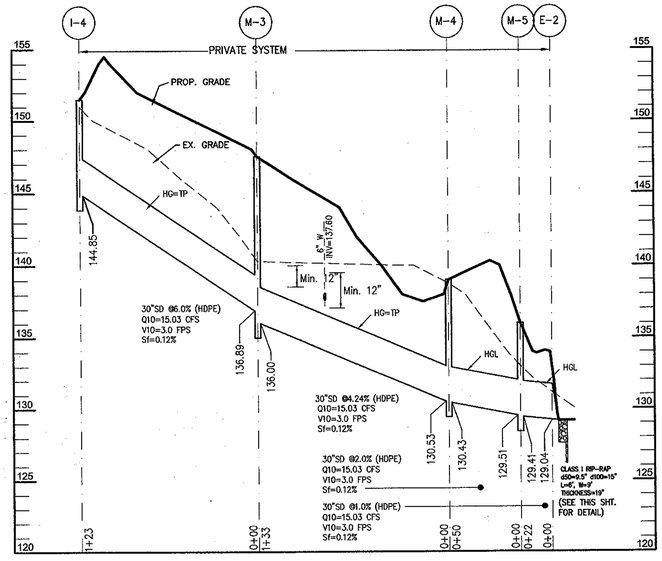


STORM DRAIN PROFILE (I-5 TO E-3)
SCALE 1"=50' H, 1"=5' V

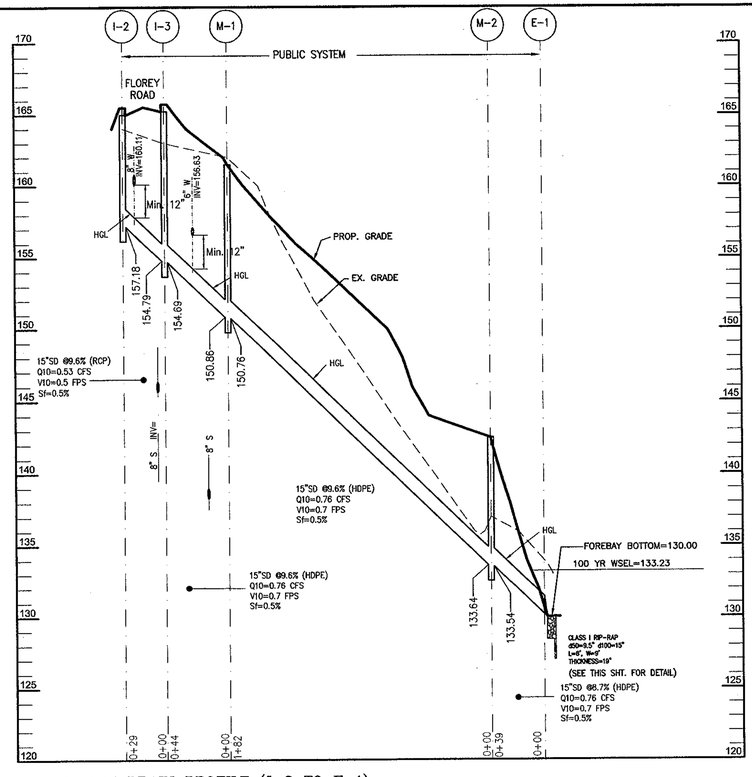




STORM DRAIN PROFILE
(I-1 TO BIORETENTION POND)
SCALE 1"=50' H, 1"=5' V



STORM DRAIN PROFILE (I-4 TO E-2)
SCALE 1"=50' H, 1"=5' V

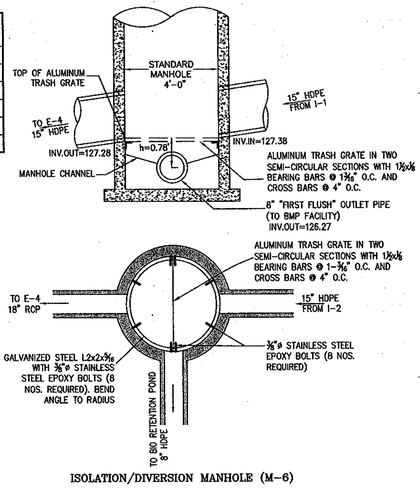


STORM DRAIN PROFILE (I-2 TO E-1)
SCALE 1"=50' H, 1"=5' V

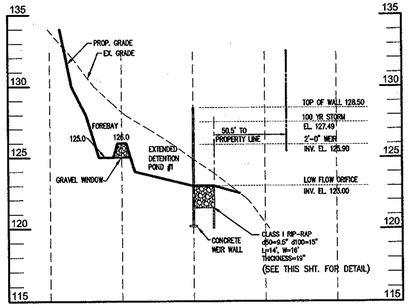
PIPE SUMMARY

	SIZE	TYPE	LENGTH
PRIVATE	6"	PVC	133'
	8"	HDPE	30'
	15"	HDPE	32'
	30"	HDPE	355'

	SIZE	TYPE	LENGTH
PUBLIC	6"	PVC	0
	8"	HDPE	0
	15"	HDPE	384'
	15"	RCP Class IV	29'
	30"	HDPE	0

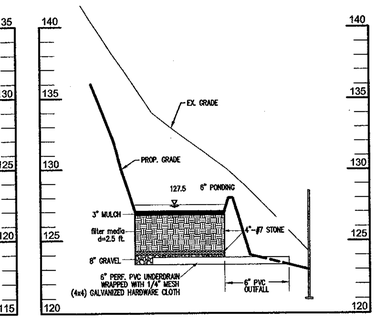


ISOLATION/DIVERSION MANHOLE (M-6)

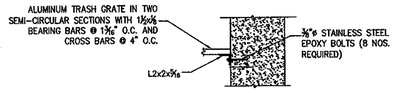


SECTION A-A
SCALE 1"=50' H, 1"=5' V

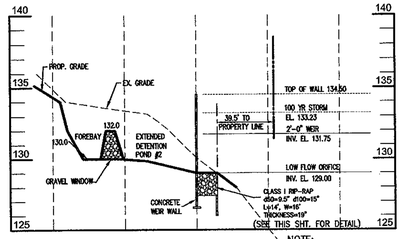
NOTE:
FOR PROFILE AND DETAIL SECTION OF WEIR WALL, SEE SHEET 9



SECTION B-B
SCALE 1"=50' H, 1"=5' V



GRATE FIXING DETAIL



SECTION C-C
SCALE 1"=50' H, 1"=5' V

NOTE:
FOR PROFILE AND DETAIL SECTION OF WEIR WALL, SEE SHEET 9

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. ELEV. (in)	INV. ELEV. (out)	WIDTH	TOP ELEVATION	STD. DETAIL	OWNERSHIP
I-1	TYPE 'K' INLET	N 559431, E 1392646	–	134.39	10'-0"	141.00	SD 4.12	PUBLIC
I-2	A-5 INLET	N 559181, E 1392493	–	157.18	5'-0"	165.00	SD 4.40	PUBLIC
I-3	A-5 INLET	N 559152, E 1392497	154.79	154.69	5'-0"	165.25	SD 4.40	PUBLIC
I-4	TYPE 'D' INLET	N 559031, E 1392302	–	144.85		151.50	SD 4.39	PRIVATE
I-5	YARD INLET	N 558911, E 1392396	–	140.32		143.50	SD 4.14	PRIVATE
M-1	PRECAST CONCRETE MANHOLE	N 559130, E 1392535	150.86	150.76	4'-0"	161.50	G 5.12	PUBLIC
M-2	PRECAST CONCRETE MANHOLE	N 558961, E 1392466	133.64	133.54	4'-0"	142.50	G 5.12	PUBLIC
M-3	PRECAST CONCRETE MANHOLE	N 558985, E 1392431	136.89	136.79	5'-0"	147.50	G 5.13	PRIVATE
M-4	PRECAST CONCRETE MANHOLE	N 558856, E 1392429	130.53	130.43	5'-0"	139.00	G 5.13	PRIVATE
M-5	PRECAST CONCRETE MANHOLE	N 558838, E 1392476	129.51	129.41	5'-0"	136.00	G 5.13	PRIVATE
M-6	PRECAST CONCRETE MANHOLE	N 559523, E 1392598	128.49	127.28/126.27	4'-0"	131.00	G 5.12	PUBLIC
E-1	15" HDPE END SECTION	N 558929, E 1392473	–	130.19		–	SD 5.21	
E-2	30" HDPE END SECTION	N 558865, E 1392510	–	129.04		–	SD 5.31	
E-3	15" HDPE END SECTION	N 558889, E 1392421	–	140.02		–	SD 5.11	
E-4	15" HDPE END SECTION	N 559528, E 1392614	–	126.17		–	SD 5.21	

STORMDRAIN PROFILES & STORMWATER MANAGEMENT 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

CHIEF, BUREAU OF HIGHWAYS — DATE 9-30-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT. — DATE

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A 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."

SIGNATURE OF ENGINEER — DATE 8/11/05

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."

SIGNATURE OF DEVELOPER — DATE 8/11/05

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

SHEET: 8 OF 13

F-05-94

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.

Earth Fill

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 support 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 squeezed 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 backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the 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 1 or flatter.

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

Structure Backfill

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 fill 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 fill, 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.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated steel pipe) Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) 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 removed 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 asphalt.
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. Aluminum Pipe, when used with flowable fil or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per / requirements 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.

2. 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 mils in thickness.

3. 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 each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent 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 minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter 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.) shall be as shown on the drawings.

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

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

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding / cradle for their entire length. This bedding I cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe - The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM Dor ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. 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.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No.3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

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 C.

Care of Water during Construction

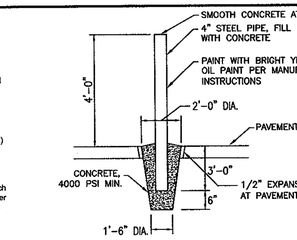
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also 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 excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

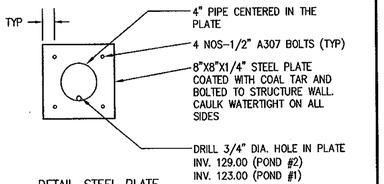
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

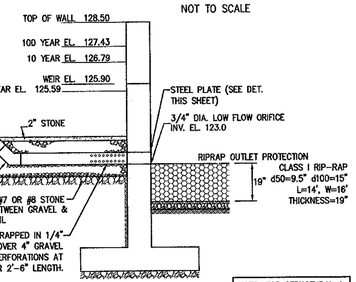
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.



DETAIL–BOLLARD
NOT TO SCALE

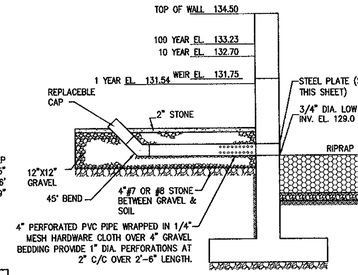


DETAIL–STEEL PLATE
SCALE 1"=1'-0"



STORMWATER POND#1
CONCRETE WEIR WALL DETAIL
SCALE 1"=3'-0"

NOTE: FOR STRUCTURAL & REINFORCEMENT DETAILS SEE SHEET 10.



STORMWATER POND#2
CONCRETE WEIR WALL DETAIL
SCALE 1"=3'-0"

OPERATION AND MAINTENANCE SCHEDULE FOR
BIO-RETENTION AREAS
(F-6)

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.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE 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 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
PRIVATELY OWNED AND MAINTAINED
(P-T THROUGH P-5)

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.

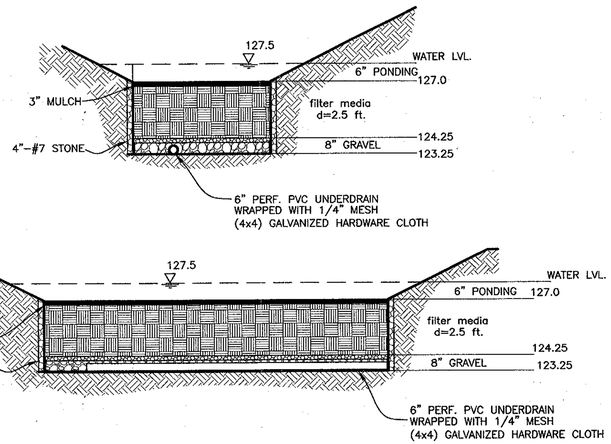
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.

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.

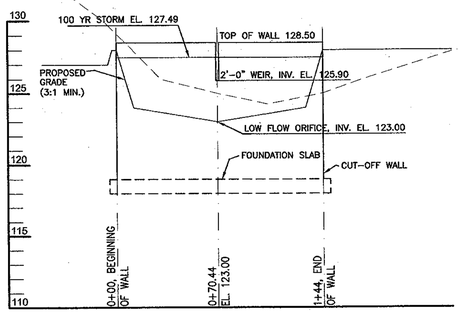
NON-ROUTINE MAINTENANCE:

1. 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 OPERATIONS.

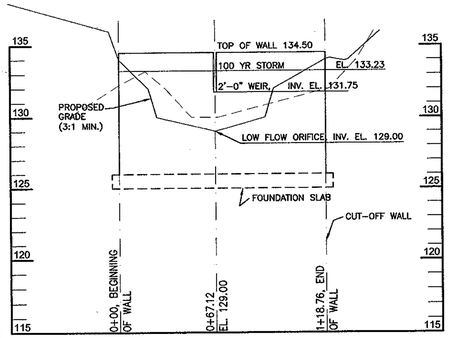
2. SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.



SWM FACILITY 1- WATER QUALITY
BIORETENTION POND - DETAIL SECTIONS
NTS



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



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

MATERIAL SPECIFICATIONS

MATERIAL	SPECIFICATION	SIZE	NOTES
Plantings	see planting plan	n/a	
Planting soil (2.5' deep)	sand 50 - 85% silt 0 - 50% clay 5 - 10% organic matter 1.5 - 10%	n/a	USDA soil types loamy sand, sandy loam or loam
mulch (3" deep)	shredded hardwood	n/a	aged 6 months, minimum
geotextile (filter fabric)	Class "C"-apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	for use as necessary beneath underdrains only
underdrain piping	F 758, Type PS 28, or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	⅜" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes

BIORETENTION SOIL MIXTURE (BSM)

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.

The BSM shall consist of the following:

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 maximum 2 in. particle size and provide a uniform texture free from sawdust, toxic substances, and foreign materials and shall be aged at least 6 months.
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:

ITEM	CRITERIA	TEST METHOD
Sand (2.0- 0.050 mm)	50-85%	T88
Silt (0.05- 0.002 mm)	0 - 50%	T88
Clay (< 0.002 mm)	5- 10%	T88
Organic Matter	1.5- 10%	T194

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

SIEVE SIZE	MIN. % PASSING BY WEIGHT
2 in.	100%
No. 4	90%
No. 10	80%

After a planting soil stockpile has been formed, the planting soil shall be sampled and tested. Sampling will be completed in conformance with MSMT 356. After a stockpile of planting soil has been sampled, no material shall be added to the stockpile.

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.

After a BSM stockpile has been formed for use, the BSM shall be sampled and tested. Sampling will be completed in conformance with MSMT 356 and shall meet the following criteria:

ITEM	CRITERIA	TEST METHOD
pH	5.5-7.5	D4972
Magnesium	Min. 35 ppm	*
Phosphorus (P2O5)	Min. 75 ppm	*
Potassium (K2O)	Min. 85 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

* 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 amendments shall be mixed uniformly into the BSM as follows:

pH: The pH shall be adjusted with dolomitic limestone or sulfur (90%).
Magnesium: Magnesium deficiency shall be amended with dolomitic limestone.
Potassium: Potassium deficiency shall be amended with 0-0-60 fertilizer.

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

Additional Requirements: After a BSM stockpile has been formed for use, the BSM will be sampled and tested and sha1i meet the following grading analysis:

ITEM	CRITERIA	TEST METHOD
Sand (2.0- 0.050 mm)	65-80%	T88
Silt (0.05- 0.002 mm)	0 - 15%	T88
Clay (<0.002 mm)	1- 5%	T88
Organic Matter	15- 25%	T194

A BSM stockpile that fails to meet the grading analysis shall not be used or amended for use and shall be replaced at no additional cost to the Owner.

Stockpile Protection: After a stockpile of BSM has been formed, it shall be protected from weather. A BSM stockpile that meets the minimum requirements sha11 be stockpiled for no more than 6 months without re-testing of the material to meet the minimum criteria. A stockpile of BSM that is older than 6 months and fails re-testing shall not be used or amended for use and shall be replaced at no additional cost to the Owner.

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 ⅛th 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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

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

USDA–NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT. — DATE

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A 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."

SIGNATURE OF ENGINEER — DATE 8/11/05

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SIGNATURE OF DEVELOPER — DATE 8/11/05

STORMWATER MANAGEMENT
DETAILS - 1

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

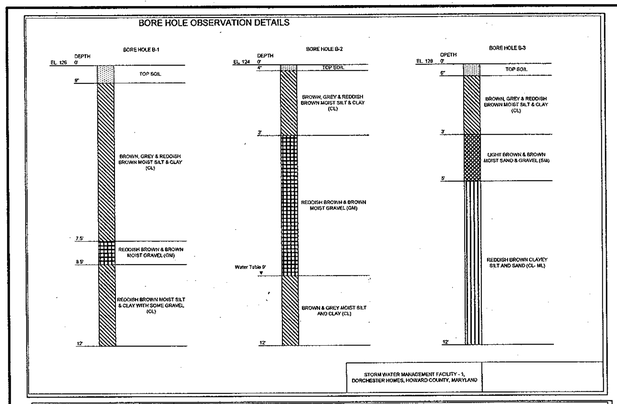
REF: S–03–02, WP–03–35, P–04–11
1ST ELECTION DISTRICT– HOWARD COUNTY, MARYLAND
PARCEL 756 LIBER 771, FOLIO 440
TAX MAP 38 BLOCK 9 ZONE R–12

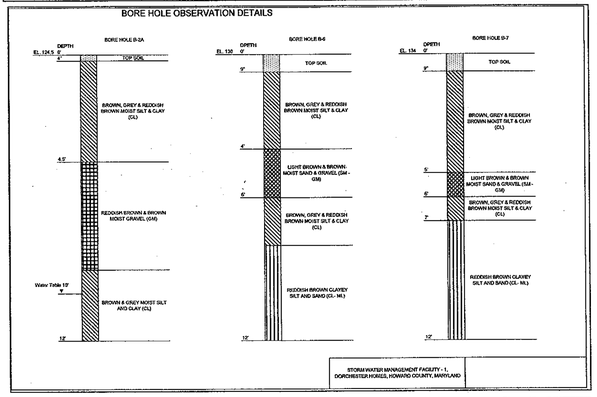
KCE ENGINEERING, INC.
EXECUTIVE CENTER
3300 NORTH RIDGE ROAD, SUITE 315
ELLICOTT CITY, MARYLAND 21043
PHONE (410) 203–9800 FAX (410) 203–9228

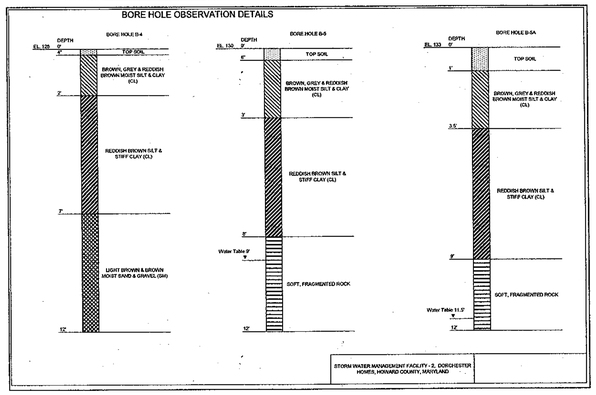
DRAWN BY: MG
CHECKED BY: DVK
SCALE: AS SHOWN
DATE: August, 2005

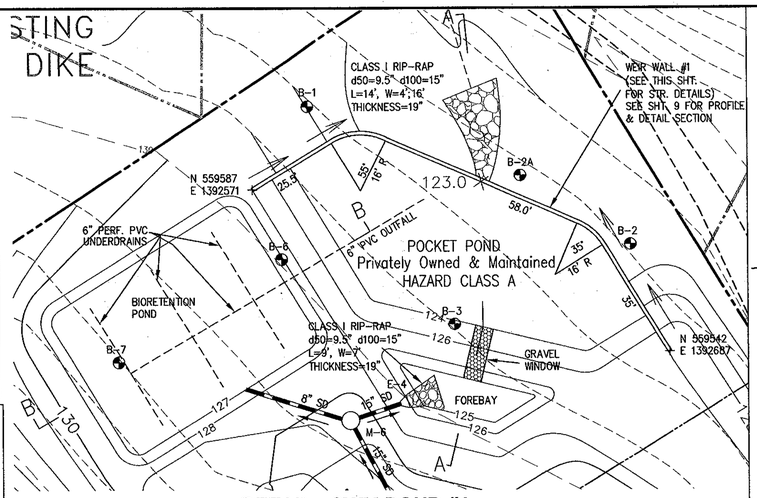
SHEET: 9 OF 13

F–05–94

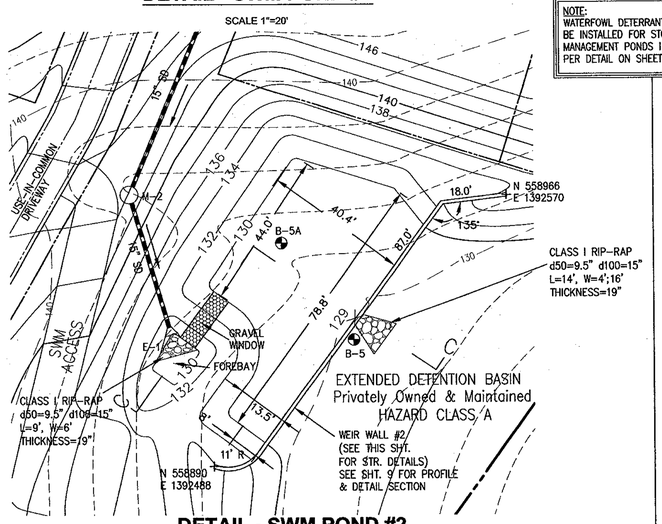








DETAIL - SWM POND #1



DETAIL - SWM POND #2

SCALE 1"=20'

NOTE:
WATERFOWL DETERRANT SYSTEM TO BE INSTALLED FOR STORMWATER MANAGEMENT PONDS I AND II AS PER DETAIL ON SHEET 13.

STRUCTURAL NOTES

1.0 DESIGN PARAMETERS

1.1 Design assumptions are as follows:

	Effective Friction Angle (°)	Unit Weight (PCF)	Effective Cohesion (PSF)
Retained soil	30	120	0
Foundation soil	30	110	0

Bearing capacity of foundation soil: 3000 PSF
Surcharge: 250 PSF of equivalent live load (for retaining wall only)
No seismic analysis

2.0 MATERIAL

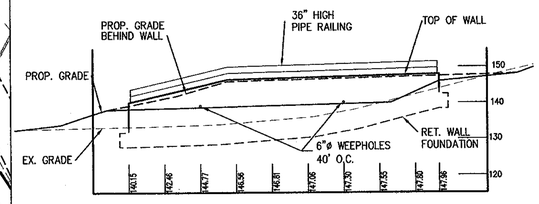
2.1 Concrete: Class AA, 4000 PSI characteristic strength
2.2 Steel: Grade 60, 60000 PSI yield strength

3.0 CONSTRUCTION NOTES

3.1 Retaining walls shall only be constructed under the observation of a Maryland Registered Professional Engineer.
3.2 The required bearing pressure beneath the footing of the wall shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to the start of construction. The required test procedure shall be the dynamic cone penetrometer test ASTM STP-399.
3.3 The suitablity of fill material shall be confirmed by the on-site soils technician. Each 8-inch lift must be compacted to a minimum of 95 % Standard Proctor Density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
3.4 For retaining walls, provide weep holes (6" Ø PVC PIPE) @ 40' spacing.

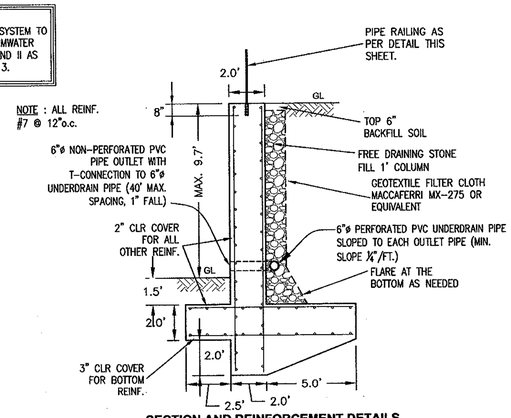
4.0 GENERAL

4.1 This drawing shall be read in conjunction with all other contract documents.
4.2 If conditions are different than those stated in the drawings, notes ans specifications, the design modification may be needed prior to proceeding with construction.

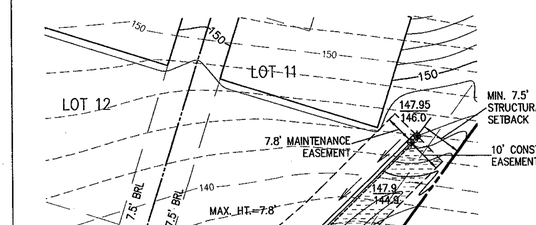


ELEVATION-CONC. RETAINING WALL LOT 11

SCALE 1"=20'

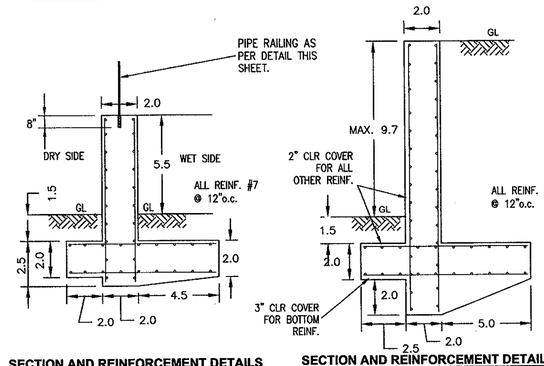


SECTION AND REINFORCEMENT DETAILS RETAINING WALL (LOT 11)



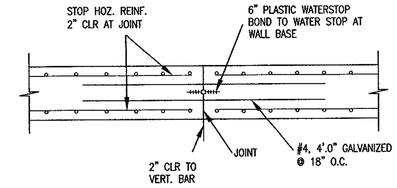
CONCRETE RETAINING WALL - LOT 11

SCALE 1"=20'

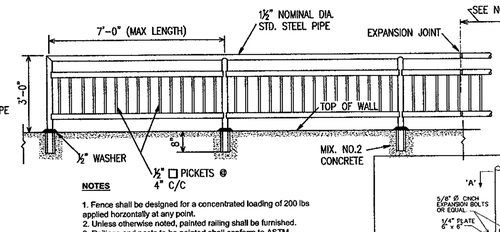


SECTION AND REINFORCEMENT DETAILS WEIR WALLS (SWMF's 1 & 2)

SECTION AND REINFORCEMENT DETAILS RETAINING WALL (LOT 11)



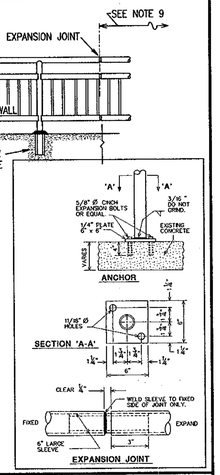
DETAIL - CONSTRUCTION JOINT



NOTES

1. Fence shall be designed for a concentrated loading of 200 lbs applied horizontally at any point.
2. Unless otherwise noted, painted railing shall be furnished.
3. Railings and posts to be painted shall conform to ASTM designation A-36.
4. Railing and posts to be galvanized shall conform to ASTM designation A-441. Galvanized railings shall be hot-dip galvanized after fabrication.
5. Railing shall be welded, with all joints ground smooth and free of burrs.
6. Railing posts shall be set in 8" deep metal sleeves which shall be filled with hot poured lead or hot poured sulphur or an equivalent epoxy compound.
7. The railing shall be paid for at the unit price bid per linear foot. Measured horizontally, complete in place; or its cost shall be included in the lump sum price bid for other items, complete in place.
8. Construction on private property shall conform to latest edition, BOCA National Building Codes.
9. Within each 20 linear feet of railing, provide for 1/4" expansion.

DETAIL - GUARD RAILING



STORMWATER MANAGEMENT DETAILS - 2

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

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/11/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A 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."

SIGNATURE OF ENGINEER — DATE 8/11/05

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 8/10/05

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

SHEET: 10 OF 13

F-05-94

See Sheet 12 of 13 for Vicinity Map

(Major Collector) (60' R/W)

DAISY ROAD

(Minor Arterial)

FREDERICK ROAD

Maryland State Grid

N 72°27'02" W 616.70'

S 00°40'08" W 404.65'

N 72°27'02" W 585.37'

N 79°10'11" W 170.02'

N 82°00'40" W 241.34'

N 82°00'40" W 699.07'

S 22°10'13" W 391.88'

S 03°14'43" E 725.60'

N 00°24'23" E 100.75'

N 81°16'08" W 994.24'

N 81°12'11" W 991.89'

N 00°55'00" W 100.00'

S 04°05'40" E 309.33'

S 02°12'35" W 161.62'

S 26°40'06" W 605.57'

N 26°40'06" E 604.88'

S 87°21'38" E 1001.15'

S 04°39'27" W 684.96'

N 04°39'27" E 682.92'

30.02'

32.80'

33.00'

84.06'

80.18'

S 40°07'10" E POB S&E (BY)

1000 R/W

550

S 87°21'38" E 1001.15'

N 83°27'40" W 1,044.29'

N 06°57'29" E 562.14'

S 33°50'45" W 394.94'

S 05°13'50" W 289.69'

S 03°05'54" W 456.12'

N 83°27'40" E 583.34'

S 15°20'20" E 400.64'

S 26°40'06" E 172.10'

N 73°33'38" W 608.68'

S 16°33'38" E 633.34'

S 88°53' E 881.53'

S 87°21'38" E 1001.15'

EXISTING FOREST CONSERVATION EASEMENT 1 - 2.26 AC for F-04-54, Wesley Woods Sec. 2

EXISTING FOREST CONSERVATION EASEMENT 2 - 11.12 AC for F-04-170, Hickory Point

EXISTING FOREST CONSERVATION EASEMENT 3 - 0.45 AC for F-04-170, Hickory Point

EXISTING FOREST CONSERVATION EASEMENT 4 - 0.82 AC for F-04-170, Hickory Point

EXISTING FOREST CONSERVATION EASEMENT 5 - 0.44 AC for F-05-12, Trotters Run

EXISTING FOREST CONSERVATION EASEMENT 6 - 1.06 AC for F-05-12, Trotters Run

EXISTING FOREST CONSERVATION EASEMENT 7 - 0.80 AC for F-05-55, Scott Farm

FOREST CONSERVATION EASEMENT 8 - 4.03 AC

NEW EASEMENT AREA for F-05-94, DORCHESTER HOMES

EX. DRIVEWAY

EX. DWELLING

EX. DWELLING AND ACCESSORY STRUCTURES

EX. BARN

EX. DRIVEWAY

L-1

L-2

C-1

C-2

F-1

OF-1

TALLEY PROPERTY PARCEL 392 5902/148 PARCEL 2

TALLEY PROPERTY PARCEL 392 PARCEL 3

100' stream buffer

25' Wetland buffer

50' Wetland buffer

MIC3 MIB2 GIB2 MIC2 GIC2 GIC3 CuB CaB2 GnA MIB2 MIC2 MIC3 MID3 MIE GIB2 GIC3 GID3 GnB2 MID2 Ha

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
Co	Codorus silt loam	C
CuB	Cornus silt loam, local alluvium, 3 to 8 percent slopes	B
GIB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GIC2	Glenelg loam, 8 to 15 percent slopes, moderately eroded	B
GIC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
GID2	Glenelg loam, 15 to 25 percent slopes, moderately eroded	B
GID3	Glenelg loam, 15 to 25 percent slopes, severely eroded	B
GnA	Glenville silt loam, 0 to 3 percent slopes	C
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
Ha	Hatboro silt loam	D
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MIC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MIC3	Manor loam, 8 to 15 percent slopes, severely eroded	B
MID2	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Manor loam, 15 to 25 percent slopes, severely eroded	B
MIE	Mt. Airy channery loam, 25 to 45 percent slopes	A

LEGEND

	Proposed	Existing
Forest Easement Signage		
Forest Conservation Easement		
Existing Forest Conservation Easement		
Steep Slopes 15-24.9%		
Steep Slopes >25%		

Existing Contour 5	
Existing Contour 25	375
Property Boundary Line	
Soils Division Line	
Forest Stand Type Boundary	
Existing Stream	
Stream Buffer	SB
Wetlands	W
Wetlands Buffer	WB

STATE OF MARYLAND STEPHEN L. HISER No. 583 REGISTERED PROFESSIONAL SURVEYOR

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

Surety in the amount of $87,773.00 shall be posted as part of the Developer's Agreement for 4.03 ac/175,547 sq. ft.

This property is encumbered with a Ho. Co. Agricultural Land Preservation Easement, HO-03-02-FPSD, which is held by the Ho. Co. Agricultural Land Preservation Program.

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 Dorchester Homes project.

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

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

OFFSITE FOREST MITIGATION PLAN for DORCHESTER HOMES

LOTS 1-3, 5-18 & O.S. Lots 4 & 19
on Talley Property Parcel 2
RE-03-02 DS2, P.N. 15816, F-04-054 FC,
P.N. 17192, TM 8, TM PARCEL 392
TAX MAP 8 GRID 13 PARCEL 392
4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

EXPLORATION RESEARCH, INC.
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
8318 FORREST STREET
ELLICOTT CITY, MARYLAND 21043
TEL: (410) 750-1150 FAX:(410) 750-7350
EMAIL: EXPLORATION@ERI.COM

DESIGN BY: RAB
DRAWN BY: RAB
CHECKED BY: SLH
SCALE: 1"=100'
DATE: July 27, 2005
W.O No.: 3082
SHEET No.: 11 OF 13

F-05-94

M:\Talley Property 3082\dwg\forest bank distribution\3082 S1 distribution.dwg, 7/27/2005 2:26:51 PM, andyh

FOREST STAND ANALYSIS TABLE

KEY	TYPE OF COMMUNITY	AREA Acres	SOIL INFORMATION: SOIL TYPE	TYPICAL FOREST COVER	WOODLAND SUITABILITY INDEX	HABITAT VALUE	EXISTING VEGETATION (Type and approx. %)	STAND CHARACTERISTICS: SIZE AVG. DIAM	AGE	GENERAL CONDITIONS	FOREST AREA IN SENSITIVE ENVIRONMENTS
F-1	Upland Hardwoods	4.59	MID2 MIB2 GIB2	Mixed upland Hardwood	65-74 65-74 75-84	fair fair good	Black oak 60% White oak 20% Mockernut Hickory 20%	12-18 10-16 6-12	48-72 50-80 36-72	Poor Heavy understory grazing	1.2 Ac. Steep slopes 15-25%
OF-1	Open Field	41.01	Co Ha GnB2 GID3 GID2 MIC3 MID3 ChB2	Mixed water Tolerant Hardwoods Mixed upland Hardwood	75-84 95+ 65-74 75-84 75-84 65-74 65-74 65-74	good good good good good fair fair fair	N/A	N/A	N/A	N/A	N/A
C-1	Crop Field	27.16	GnA GIB2 GIC2 MIC3 MIC2 MIB2	Mixed water Tolerant Hardwoods Mixed upland Hardwood	65-74 75-84 75-84 65-74 65-74 65-74	good good good fair fair fair	N/A	N/A	N/A	N/A	N/A
C-2	Crop Field	32.21	Co CuB GnA GIB2 GIC3 GID3 MIB2 MIC2	Mixed water Tolerant Hardwoods Mixed upland Hardwood	75-84 75-84 65-74 75-84 75-84 75-84 65-74 65-74	good good good good good good fair fair	N/A	N/A	N/A	N/A	N/A
L-1	Lawn (Farm Stead)	2.86	GIB2	Mixed upland Hardwood	65-74	fair	N/A	N/A	N/A	N/A	N/A
L-2	Lawn	1.62	MIB2	Mixed upland Hardwood	65-74	fair	N/A	N/A	N/A	N/A	N/A

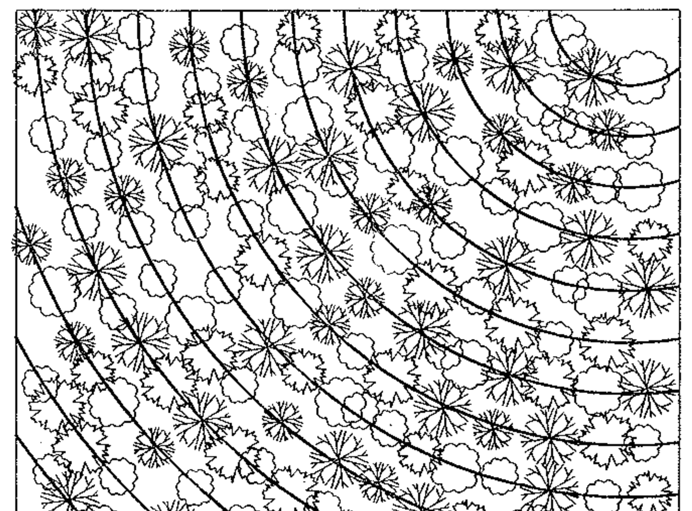
Forest Stand Narrative

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.

FOREST CONSERVA N SEMENT TABLE

EASEMENT	TYPE	AREA (ACRES)
8	Reforestation	4.03
T		4.03

URVILINEAR RAN ED PLANTING



PLANT PLACE NT DETAIL
NOT TO SCALE

1. MIX TREE AND SHRUB SPECIES IN THE STAGING AREA.
2. SET THE GUIDE CURVILINEAR LINE AS CLOSE TO CONTOUR AS POSSIBLE.

APPROVED: HOWARD COUN DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELO ENT ENGINEERING DIVISION — 9/1/05 DATE

CHIEF, IVISION OF LAND DEVELOPMENT — 9/1/05 DATE

Easement 8: PLANTING AREA: 4.03 Ac.

Qty	Botanical Name	Common Name	Size	Credit/Plant	Total Credit
50	Acer rubrum	Red Maple	1" cal.	217.8	10890
100	Acer rubrum	Red Maple	2-3' ht.	125.0	12500
50	Amalanchier canadensis	Serviceberry	1" cal.	217.8	10890
100	Amalanchier canadensis	Serviceberry	2-3' ht.	125.0	12500
50	Betula nigra	River Birch	1" cal.	217.8	10890
75	Betula nigra	River Birch	2-3' ht.	125.0	9375
50	Carpinus caroliniana	Hornbeam	1" cal.	217.8	10890
100	Carpinus caroliniana	Hornbeam	2-3' ht.	125.0	12500
50	Cercis canadensis	Redbud	1" cal.	217.8	10890
75	Cercis canadensis	Redbud	2-3' ht.	125.0	9375
50	Liquidambar styraciflua	Sweetgum	1" cal.	217.8	10890
100	Liquidambar styraciflua	Sweetgum	2-3' ht.	125.0	12500
50	Nyssa sylvatica	Black Gum	1" cal.	217.8	10890
75	Nyssa sylvatica	Black Gum	2-3' ht.	125.0	9375
50	Platanus occidentalis	Sycamore	1" cal.	217.8	10890
83	Platanus occidentalis	Sycamore	2-3' ht.	125.0	10375
1108	Total Plantings				175,620 s.f. = 4.03 Ac.

Native Seed Mix

Percentage	Botanical Name	Common Name
25%	Agrostis alba	Redtop
25%	Carex vulpinoides	Fox Sedge
25%	Alopecurus pratensis	Meadow Fox Tail
20%	Andropogon scoparius	Little Bluestem
5%	Chrysanthemum leucan themum	Ox Eye Daisy

Surety in the amount of $87,773.00 shall be posted as part of the Developer's Agreement for 4.03 ac/175,547 sq. ft.

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 Dorchester Homes project.

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 that time.

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 Zoning.
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.

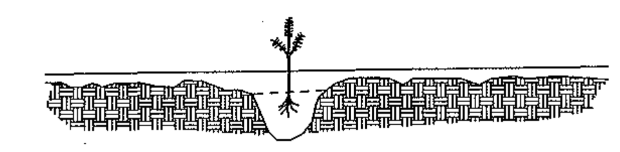
Plant Selection and Density Spacing Requirements.

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.

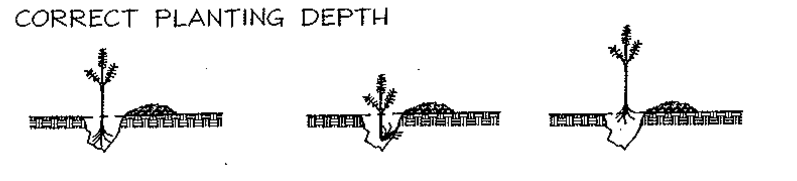
Material Size	Spacing	TPA	Sq. Ft. Credit per Plant	Comments
2" caliper trees	20' x 20'	100	435.6	B & B
1" caliper trees	15' x 15'	200	217.8	B & B
seedlings or whips	11' x 11'	350	125	Container 1-3 gal w/tree shelters
seedlings or shrubs	8' x 8'	700	62	Bare root

SEEDLING AND WHIP PLANTING

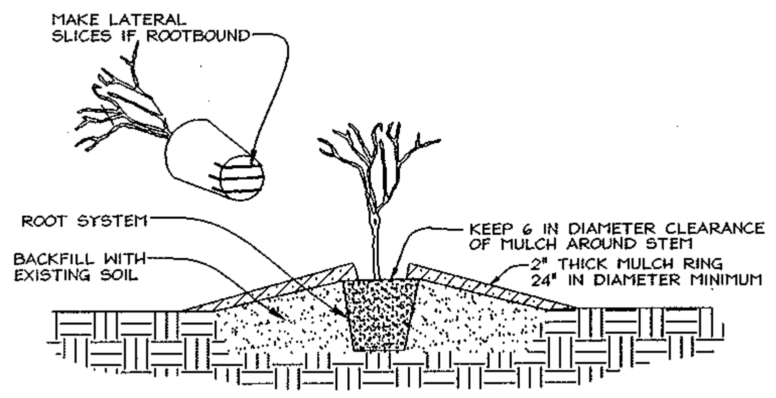


NOTE: MULCHING NEWLY PLANTED SEEDLINGS HELPS THE SOIL RETAIN MOISTURE AND THE SEEDLING FROM COMPACTION AND STEM INJURIES.

CORRECT PLANTING DEPTH



CORRECT	INCORRECT	INCORRECT
AT SAME DEPTH AS SEEDLING WAS GROWN IN NURSERY	TOO DEEP AND ROOT IS BENT	TOO SHALLOW AND ROOTS ARE EXPOSED



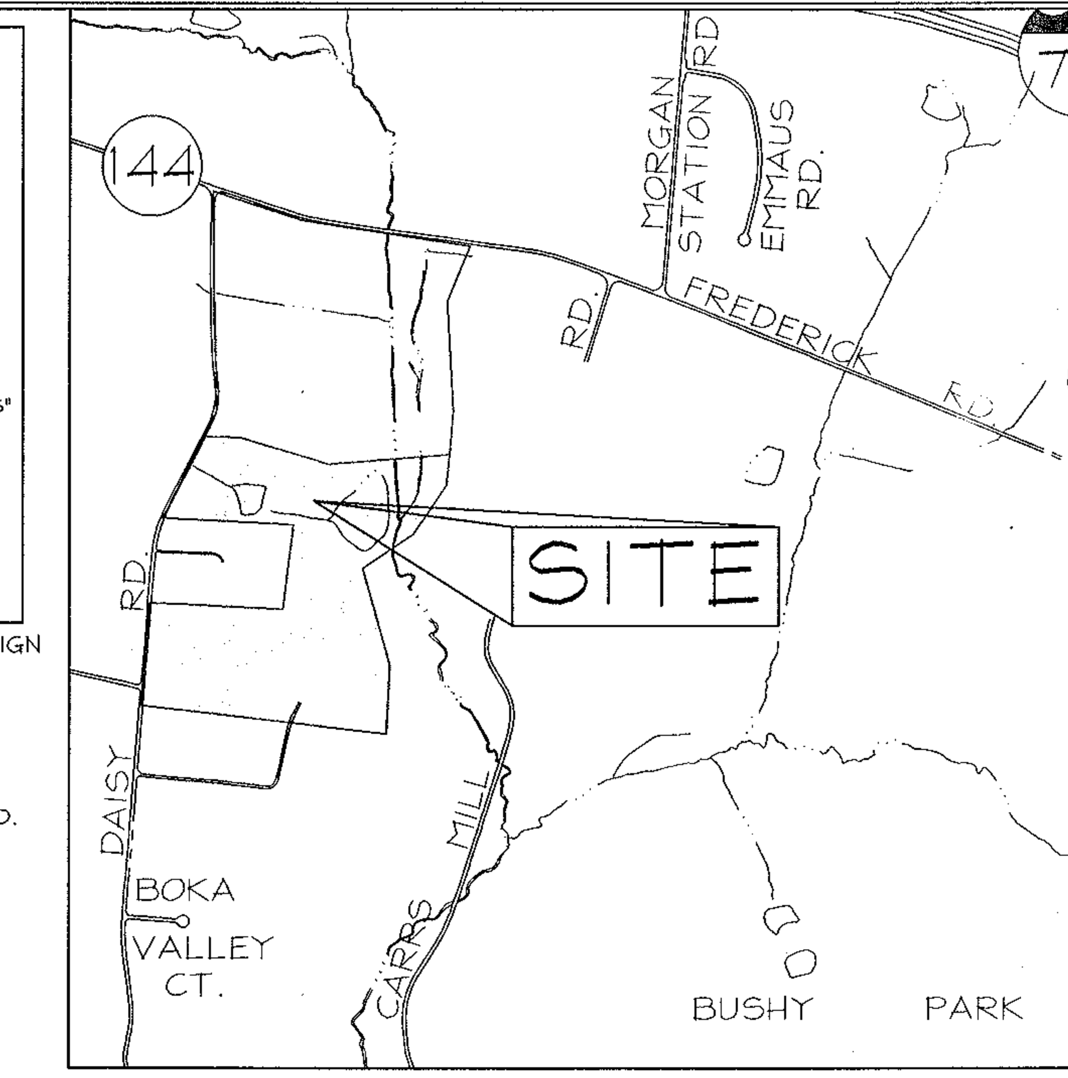
CONTAINER PLANTING
NOT TO SCALE

PLANTING PROCEDURE FOR CONTAINER GROWN PLANTS

1. 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 WITH EXISTING GRADE.
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.

SIGN DETAIL: PERMANENT SIGN

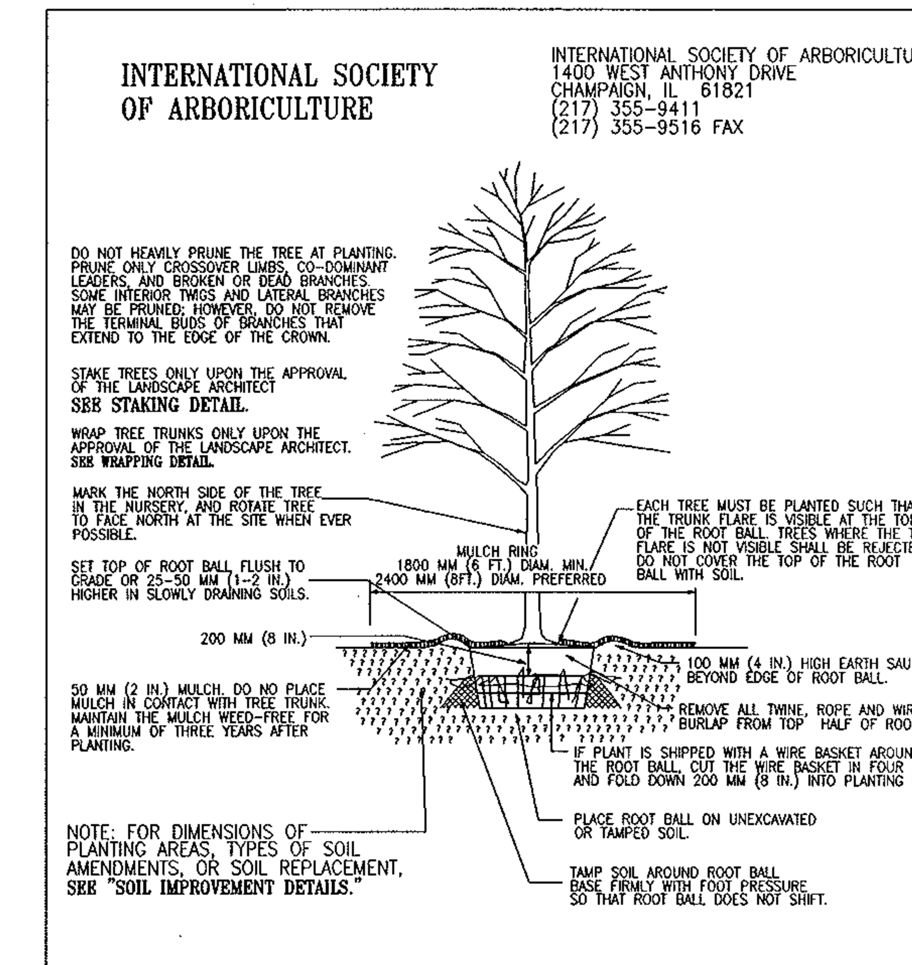
SIGNAGE NOTE: ALL TREE PROTECTION SIGNS SHALL BE PLACED ON METAL 'T' POSTS OR PRESSURE TREATED WOOD POLES. NO ATTACHMENT OF SIGNS TO TREES IS PERMITTED.



VICINITY MAP
SCALE:1=1000'

Reforestation Area Planting Notes

1. 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.
6. 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.
7. 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.
8. Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of wood alcohol.
9. Planting holes should be excavated 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 (8 FT.) SQUARE, OPEN TO THE SKY, AND NOT COVERED BY ANY PAVING OR GRATING.

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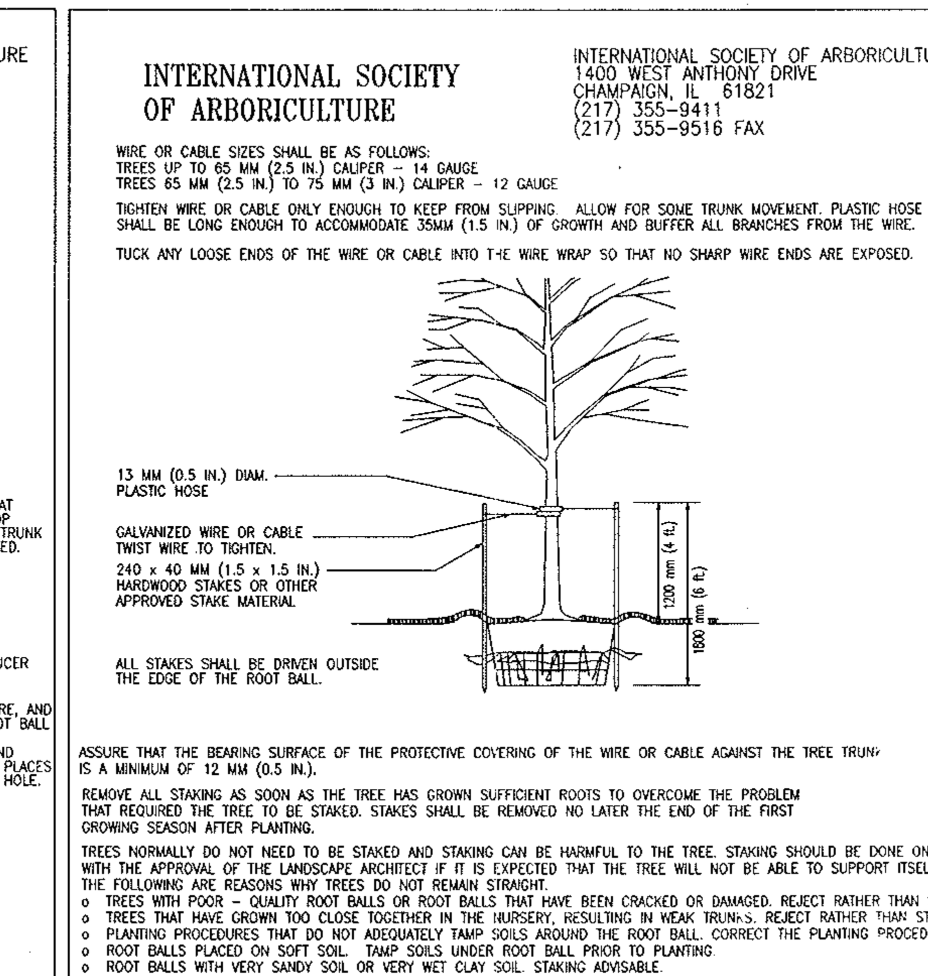

TREE STAKING DETAIL – TREES 75MM (3 IN.) CALIPER OR LESS

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OFFSITE FOREST MITIGATION PLAN for DORCHESTER HOMES

LOTS 1-3, 5-18 & O.S. Lots 4 & 19
on Talley Property Parcel 2
RE-03-02 DS2, P.N. 15816, F-04-054 FC,
P.N. 17192, TM 8, TM PARCEL 392
TAX MAP 8 GRID 13 — PARCEL 392
4TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — STEPHEN L. HUBER — No. 383 REGISTERED PROFESSIONAL FORESTER

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

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

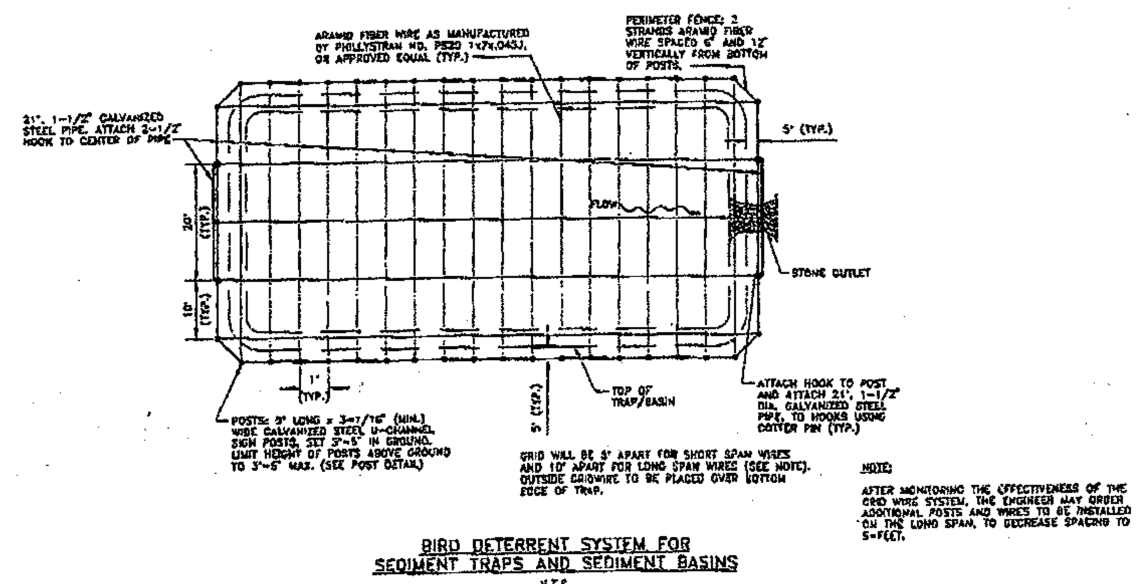
EXPLORATION RESEARCH, INC.
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
8318 FORREST STREET
ELLICOTT CITY, MARYLAND 21043
TEL: (410) 750-1150 FAX:(410) 750-7350
EMAIL: EXPLORATIONRES@CS.COM

DESIGN BY:	RAB
DRAWN BY:	RAB
CHECKED BY:	SLH
SCALE:	As Shown
DATE:	July 27 2005
W.O. No.:	3082
SHEET No.:	12 OF 13

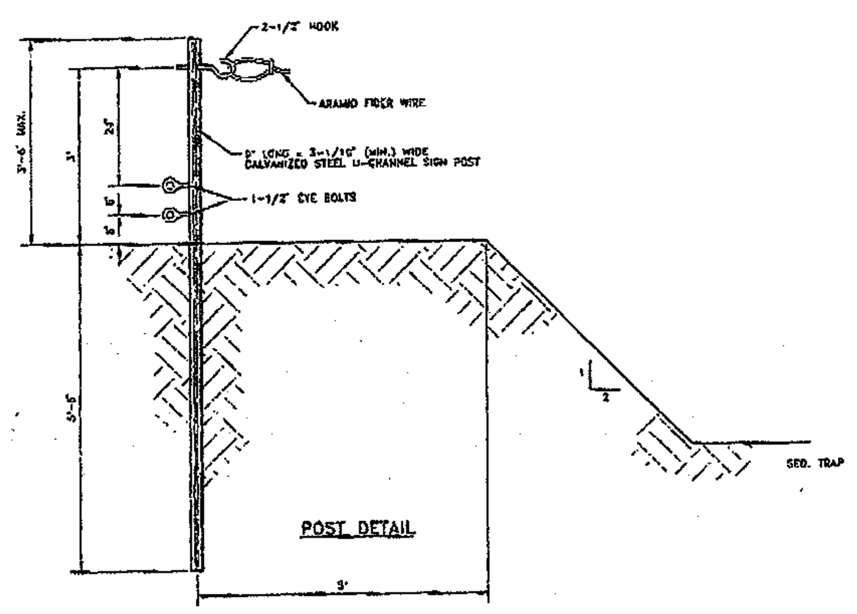
F-05-94

M:\Talley Property 3082\dwg\Forest bank dorchester\3082 S2 dorchester.dwg, 7/27/2005 2:27:04 PM, andyb

BIRD DETERRENT SYSTEM FOR SEDIMENT TRAPS AND SEDIMENT BASINS



BIRD DETERRENT SYSTEM FOR SEDIMENT TRAPS AND SEDIMENT BASINS
N.T.S.

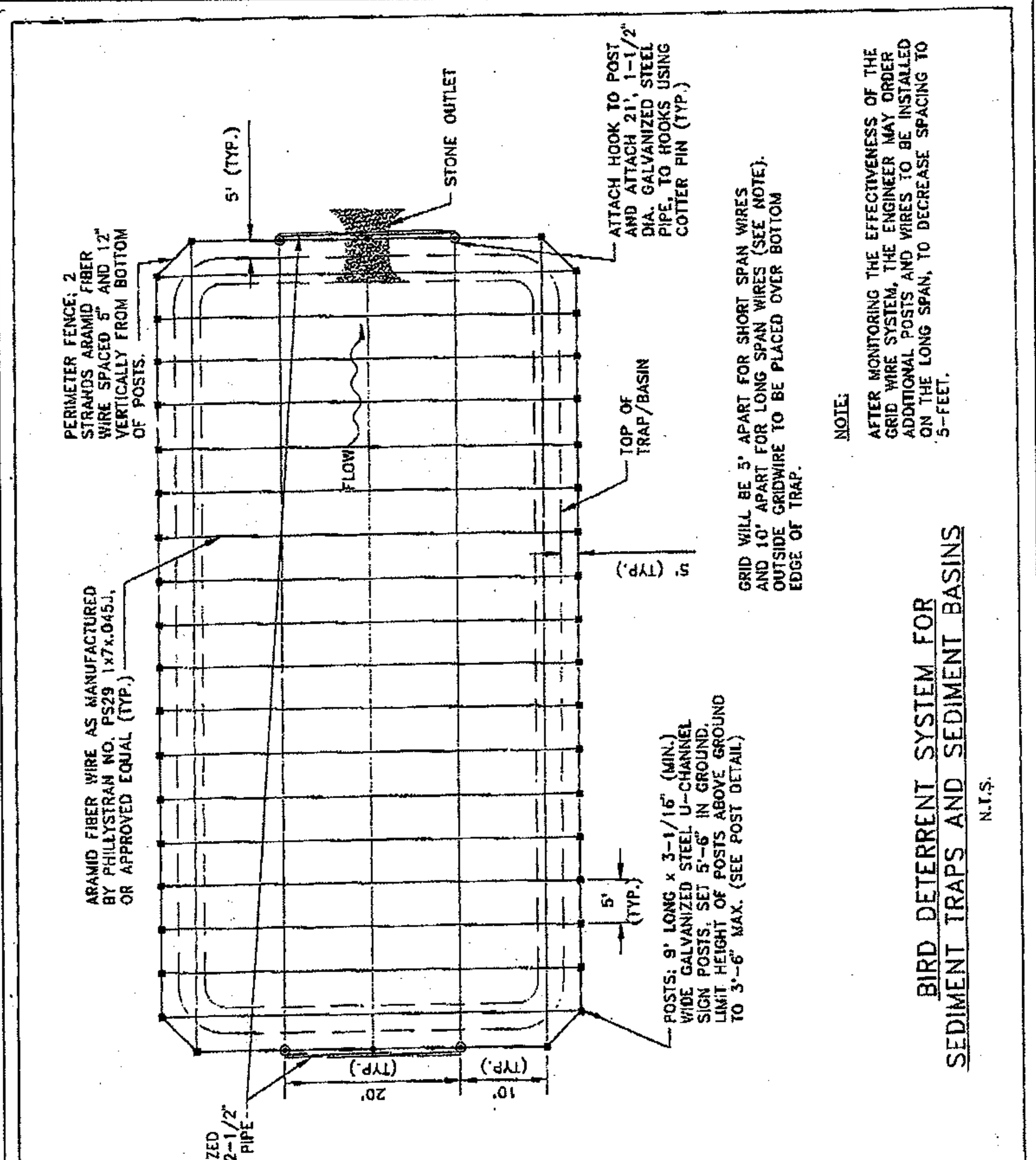


POST DETAIL

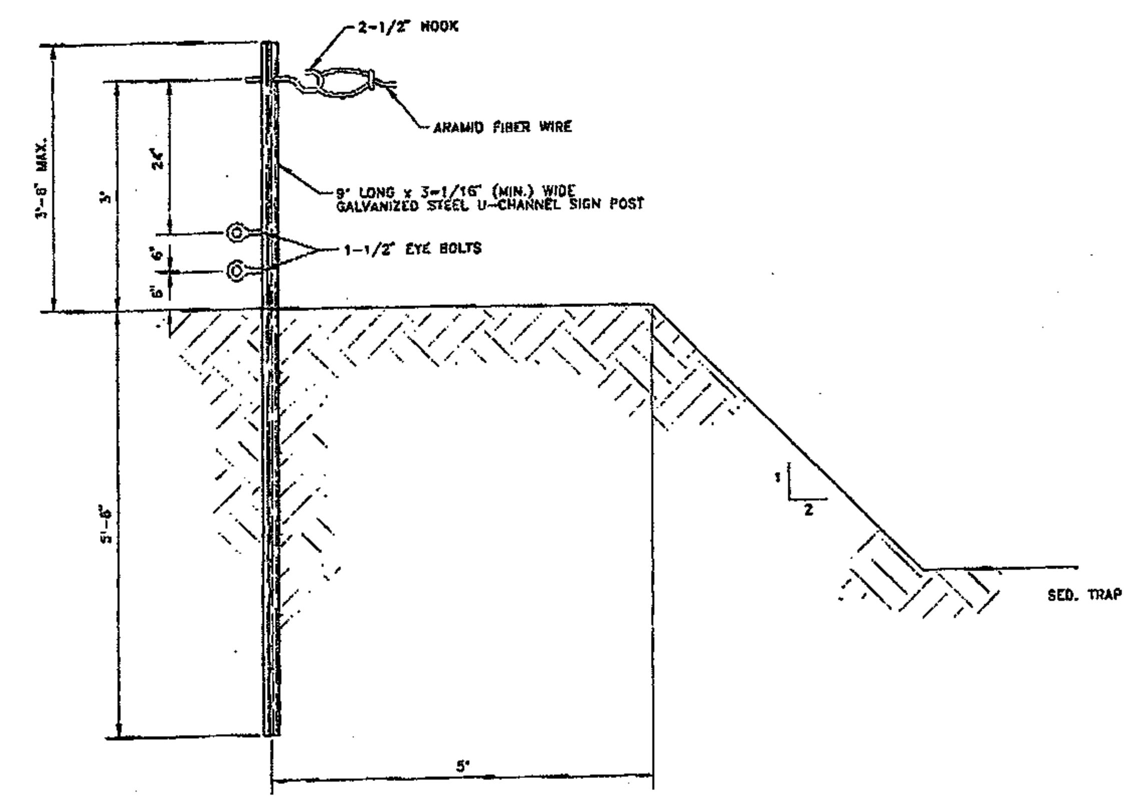
CONSTRUCTION SPECIFICATIONS

AFTER EACH SEDIMENT TRAP/BASIN IS CONSTRUCTED, POSTS ARE PLACED FIVE FEET OUTSIDE OF THE TOP EDGE OF THE TRAP/BASIN, SPACED FIVE FEET ON CENTER ON THE LONG SIDES AND TEN FEET ON CENTER ON THE SHORT SIDES, LEAVING ONE 20-FOOT GAP FOR THE GATE AND ANOTHER 20-FOOT GAP TO STRADDLE THE OUTLET WEIR. AFTER MONITORING FOR EFFECTIVENESS, INSTALLATION OF ADDITIONAL LONG SPANS MAY BE ORDERED BY THE ENGINEER. 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 MANUFACTURER'S 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/BASIN, 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 21-FOOT LONG HORIZONTAL BEAM. CONTRACTOR'S EQUIPMENT CAN THEN ENTER THE TRAP/BASIN TO REMOVE SEDIMENT. AFTER SEDIMENT REMOVAL, THE CREW SHALL RE-INSTALL GRID ASSEMBLY AS DESCRIBED ABOVE.



BWI BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT
MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION
OFFICE OF PLANNING AND ENGINEERING
PROJECT TITLE: AIRFIELD PAVEMENT REHABILITATION 2000
SHEET TITLE: WATER FOWL DETERRENT SYSTEM FOR SEDIMENT TRAPS
URS Greiner Woodward Clyde, HUNT VALLEY, MARYLAND
SCALE: N.T.S. | PROJECT NO. MAA-CO-00-014 | EXHIBIT NO.
DATE: 02/16/01 | SHEET REFERENCE



POST DETAIL

BWI BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT
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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 TOTAL:		**1,789'**		
40' X 70'	98'	5	490'	332'	38
	68'	15	1,020'		
	Trap TOTAL:		**1,510'**		
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 TOTAL:		**2,230'**		
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

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/1/05

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/05

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

~~USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE~~

~~THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.~~

~~HOWARD SOIL CONSERVATION DISTRICT. — DATE~~

ENGINEERS CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A 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."

SIGNATURE OF ENGINEER — DATE 9/11/05

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."

SIGNATURE OF DEVELOPER — DATE 8/11/05

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

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

SHEET: 13 OF 13

F-05-94