

THORNTON WOODS OVERLOOK

LOTS 1-10 AND OPEN SPACE LOT 11 & 12

FINAL ROAD CONSTRUCTION PLAN

HOWARD COUNTY, MARYLAND

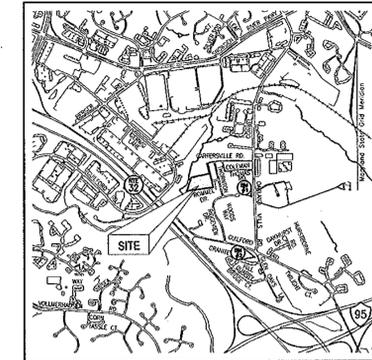
SHEET INDEX	
1	ROAD CONSTRUCTION PLAN
2	GRADING & SEDIMENT AND EROSION CONTROL PLAN
3	SEDIMENT AND EROSION CONTROL DETAILS BIORETENTION SOIL SPECIFICATION
4	LANDSCAPING, FOREST CONSERVATION, AND SUPPLEMENTAL INFORMATION SHEET
5	FINAL DRAINAGE AREA MAP

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	60.57'	150.00'	23°8'3"	30.70'	S89°24'22"W	60.15'

BENCHMARKS

BENCHMARK NO. 1: COUNTY CONTROL #42R5
N. 546,777.0609, E. 1,360,3609768
ELEV. = 391.54

BENCHMARK NO. 2: COUNTY CONTROL #42R6
N. 546,822.0895, E. 1,360,340.6529
ELEV. = 389.12

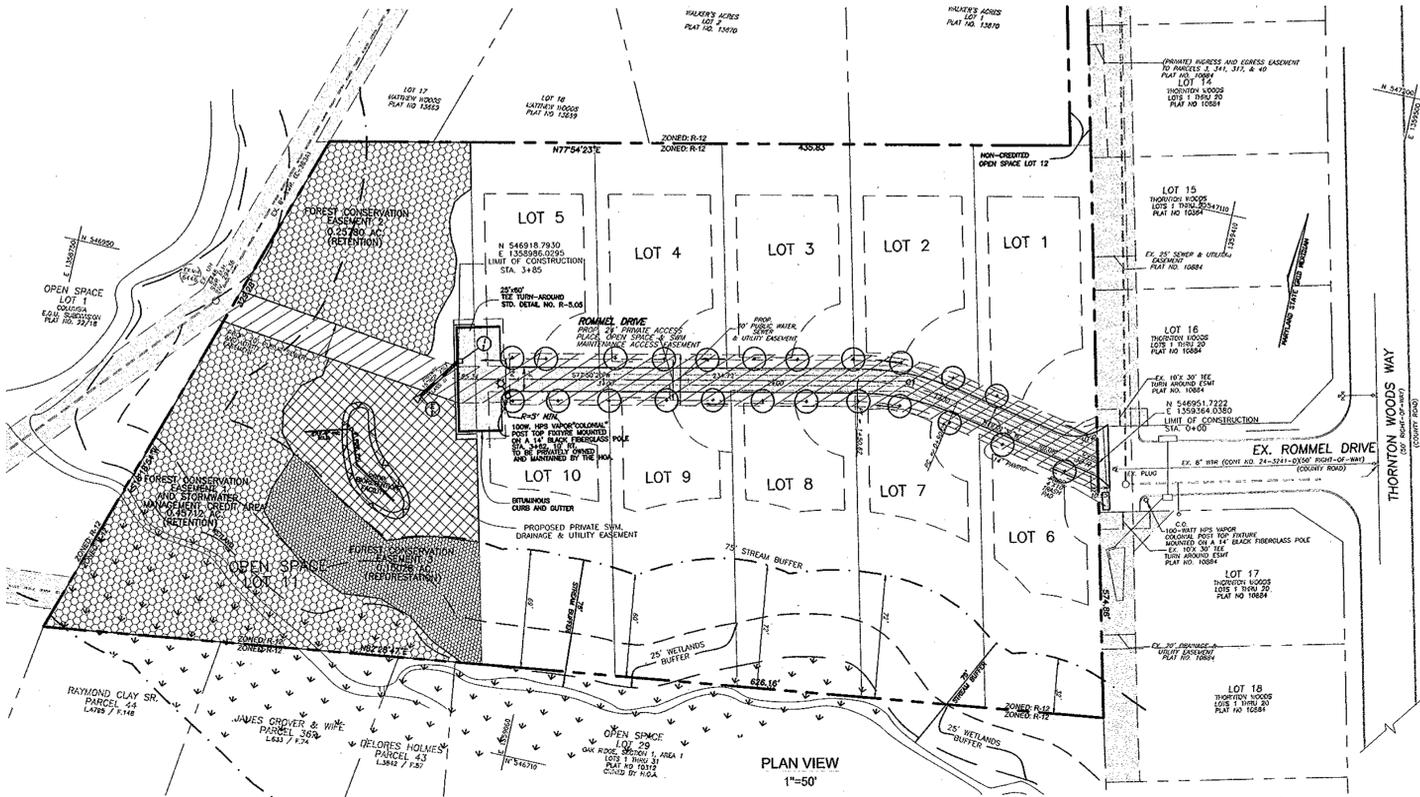


VICINITY MAP

SCALE: 1"=2000'

GENERAL NOTES

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- PROJECT BACKGROUND:
 - LOCATION: TAX MAP 42 & 3 BLOCK 16 PARCEL '41'
 - 6TH ELECTION DISTRICT
 - ZONING: R-12
 - TOTAL TRACT AREA: 3.90 AC
 - DEED REFERENCE: PARCEL 41: 6212/418, PARCEL 3: 6212/415
 - NUMBER OF PROPOSED LOTS: 10 RESIDENTIAL LOTS, 2 OPEN SPACE LOTS
 - APPLICABLE DPZ FILE NUMBERS: WP-01-85, S-01-07, P-01-26
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY VOGEL & ASSOCIATES DATED FEB. 10, 1999.
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD RUD TOPOGRAPHY PREPARED BY VOGEL & ASSOCIATES DATED FEB. 10, 1999.
- WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE ACCESSED THROUGH CONTRACT NO. 24-3241-D. SEWER WILL BE ACCESSED THROUGH CONTRACT NO. C-383A
- STORMWATER MANAGEMENT TO BE PROVIDED FOR THE DEVELOPMENT BY BIORETENTION. THE FACILITY WILL BE LOCATED ON OPEN SPACE LOT 11 AND WILL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE WATERSHED IS THE PATUXENT RIVER AREA, 02-13-11 AND THE STREAM USE IS CLASS I-P.
- WETLANDS DELINEATED BY ECO-SCIENCES 09-27-00.
- THERE ARE NO FLOODPLAINS ON SITE.
- FOREST STAND DELINEATION PLAN PREPARED BY VOGEL & ASSOCIATES, INC. DATED OCTOBER 18, 2000.
- APFD TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED OCTOBER 2000.
- THERE ARE NO STEEP SLOPES ONSITE WITH A CONTIGUOUS AREA OF 20,000 SF OR GREATER.
- STREET LIGHTS ARE PROVIDED IN THIS DEVELOPMENT IN AND ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOA.
- EXISTING UTILITIES WERE LOCATED PER COUNTY DRAWINGS AND FIELD RUD SURVEY.
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
- OPEN SPACE LOTS 11 & 12 WILL BE OWNED BY THE HOMEOWNERS ASSOCIATION.
- TRASH COLLECTION AND RECYCLING WILL BE CURBSIDE PICKUP AT COUNTY ROADWAY. THE TRASH PAD AND PLANTINGS IS TO BE MAINTAINED BY THE HOA.
- SECTION 18.12(G)(2)(I) OF THE ZONING REGULATIONS WAIVED AS PER WP-01-85 TO PERMIT THE MINIMUM PUBLIC ROAD FRONTAGE OF 20 FT FOR A NON-PIPESTEM RESIDENTIAL LOT THAT CANNOT BE FURTHER SUBDIVIDED TO BE REDUCED TO 10.4 FT FOR LOT 1 AND 14 FT FOR LOT 6 SECTION 18.12(G)(1) WAIVED AS PER WP-01-85 TO PERMIT THE REQUIRED 40 FT OF PUBLIC ROAD FRONTAGE FOR OPEN SPACE 11 WHERE PEDESTRIAN AND MAINTENANCE VEHICLE ACCESS WILL OCCUR TO BE REDUCED TO ZERO FEET. WAIVER IS SUBJECT TO COMPLIANCE WITH THE FOLLOWING CONDITIONS:
 - A. THE 24'-35' PRIVATE ACCESS PLACE SHALL PROVIDE VEHICULAR AND PEDESTRIAN ACCESS TO LOTS 1-10 AND HOA OWNED OPEN SPACE LOT 11.
 - B. THE 24'-35' PRIVATE ACCESS PLACE EASEMENT AT THE T-TURNAROUND ON LOTS 5 & 10 SHALL BE WIDENED 2'-5' FT EASTWARD IN ORDER TO PROVIDE AN ADEQUATE EASEMENT AREA FOR THE PURPOSE OF MAINTAINING THE T-TURN AROUND AREA ON THESE LOTS.
- WP-01-85 APPROVAL DATED MARCH 9, 2001.
- S-01-07 APPROVAL DATED APRIL 20, 2001.
- BASED ON THIS PLAN BEING SUBMITTED PRIOR TO 11/15/01, ON 06/28/01, IT (AND THE SUBDIVISION) IS "GRANDFATHERED" AND SUBJECT TO COMPLIANCE WITH THE FOURTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. IN ADDITION, BECAUSE THIS PLAN WAS NOT APPROVED PRIOR TO 11/01/01, IT (AND THE SUBDIVISION) IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001, WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS.
- FOREST CONSERVATION PLAN WAS PREPARED BY FREDERICK WARD ASSOCIATES, INC. DATED JUNE, 2002. FOREST CONSERVATION OBLIGATIONS FOR THIS SITE HAVE BEEN MET BY THE RETENTION OF 0.71AC. FEE-IN-LIEU-OF REFORESTATION FOR 0.30 AC AND 0.15 AC. OF REFORESTATION. SEE SHEET 4 FOR SURETY AND FEE AMOUNTS.
- ALL LANDSCAPING REQUIREMENTS, AS SET FORTH IN THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH PERIMETER LANDSCAPING REQUIREMENTS AND WILL BE POSTED AS PART OF THE D.P.W. DEVELOPER'S AGREEMENT. THE LANDSCAPE PLAN IS PROVIDED UNDER THIS PLAN.
- FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING IN THE AMOUNT OF \$3,900 FOR 13 SHADE TREES SHOWN ON LOTS 1-4, 6 & 10 MUST BE POSTED AS PART OF THE BUILDER'S GRADING PERMIT (WITH SD). FINANCIAL SURETY IN THE AMOUNT OF \$7,000.00 (\$6,600 FOR THE 22 PRIVATE ACCESS PLACE STREET TREES AND \$600.00 FOR THE TRASH PAD SHRUBS) SHALL BE POSTED AS A LANDSCAPE SURETY WITH THE DEVELOPER'S AGREEMENT. (see note 4 on sheet 4)
- DRIVEWAY ENTRANCES ARE TO BE PER HOWARD COUNTY DETAIL R6.06. CURB AND GUTTER AT END OF TURN AROUND TO BE PER HOWARD COUNTY DETAIL R3.03.
- COORDINATES: HORIZONTAL DATUMS BASED ON NAD 83 HO. CO. GEODETIC CONTROL STATIONS 42R5 AND 42R6.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, OR PLACEMENT OF NEW STRUCTURES IS PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR BUFFERS AND FOREST CONSERVATION EASEMENT AREAS, EXCEPT AS SHOWN ON THE APPROVED ROAD PLANS.



STORMWATER MANAGEMENT REQUIREMENTS

PRIOR TO CREDITS

DRAINAGE AREA 1 (NO DEVELOPMENT)	W ₀	C ₀	R ₀
N/A	N/A	N/A	N/A

DRAINAGE AREA 2:

W ₀	C ₀	R ₀
3.235 CF	N/A*	842 CF

*C₀ NOT REQUIRED SINCE THE 1YR. DEVELOPED DISCHARGE IS LESS THEN 20FS.

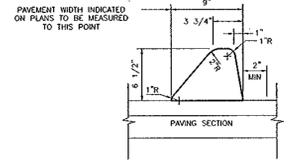
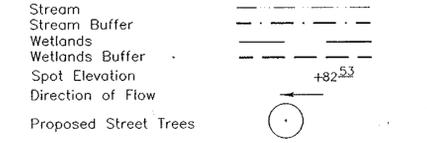
DRAINAGE AREA 3 (NO DEVELOPMENT)

W ₀	C ₀	R ₀
N/A	N/A	N/A

SITE DATA

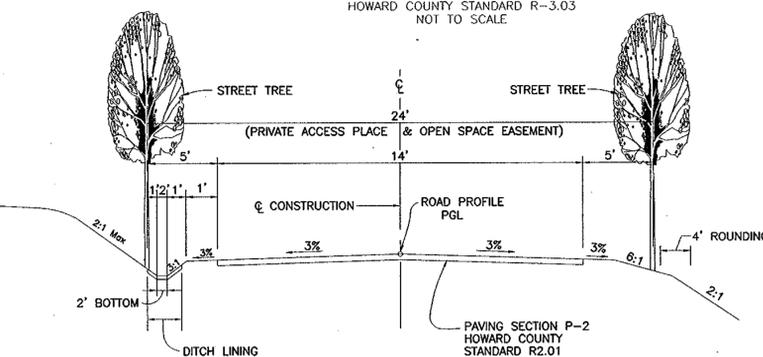
LOCATION: TAX MAP 42 & 3 BLOCK 16 PARCELS 41 & 3
6TH ELECTION DISTRICT
EXISTING ZONING: R-12
GROSS AREA OF PARCEL: 169938 SQ. FT. (3.9057 ACRES)
AREA OF RIGHT OF WAY: 0.00
AREA OF FLOODPLAIN: 0.00
AREA OF STEEP SLOPES: 7939 SQ. FT. (0.1822 ACRES)
NET AREA OF PROJECT: 161999 SQ. FT. (3.7235 ACRES)
NUMBER OF PROPOSED RESIDENTIAL LOTS: 10
NUMBER OF PROPOSED OPEN SPACE LOTS: 2
CREDITED OPEN SPACE: 1,1508 ACRES(29%)
NON-CREDITED OPEN SPACE: 0.0785 ACRES
AREA OF OPEN SPACE REQUIRED: 20% OF GROSS AREA OF PARCEL (0.780 AC.)
TOTAL AREA OF OPEN SPACE PROPOSED: 1.2293 ACRES

LEGEND



STANDARD BITUMINOUS CURB

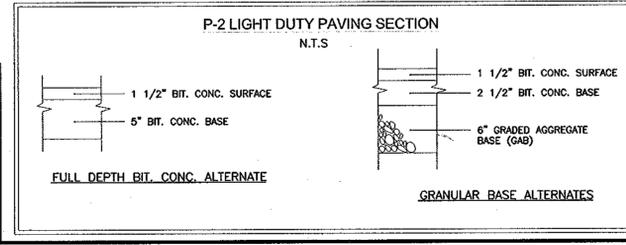
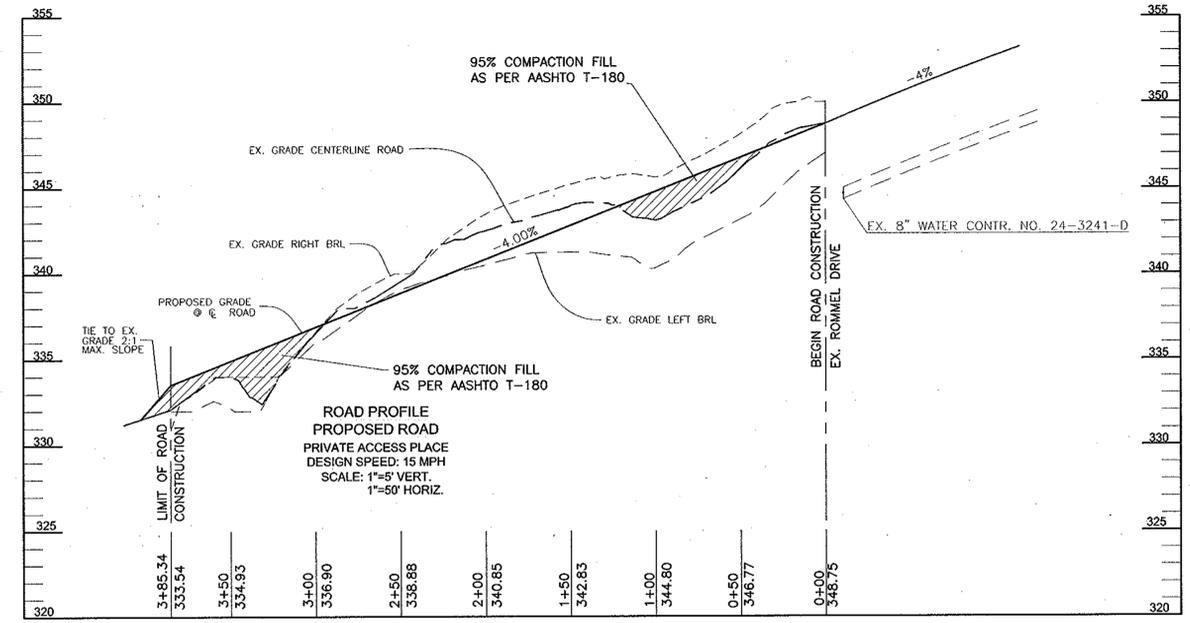
HOWARD COUNTY STANDARD R-3.03
NOT TO SCALE



ROMMEL DRIVE

TYPICAL ROADWAY SECTION
CLASSIFICATION: PRIVATE ACCESS PLACE
DESIGN SPEED 15 MPH

STATION 0+00 TO STATION 3+85.34
HOWARD COUNTY STANDARD FIGURE 2.09b
NOT TO SCALE

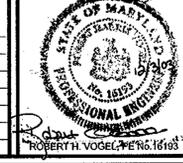


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Michael Pfaller
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/19/02

Cindy Harrold
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/20/02

OWNER/DEVELOPER
MICHAEL PFALLER
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023



FREDERICK WARD ASSOCIATES, INC.
ENGINEERS 7125 Riverwood Drive Columbia, Maryland 21046-2354
ARCHITECTS Phone: 410-290-9550 Fax: 410-720-6226
SURVEYORS Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: MHM
DRAWN BY: MHM
CHECKED BY: JCO
DATE: DECEMBER 3, 2002
SCALE: AS SHOWN
W.O. NO.: 2019034

1 SHEET OF 5

LEGEND

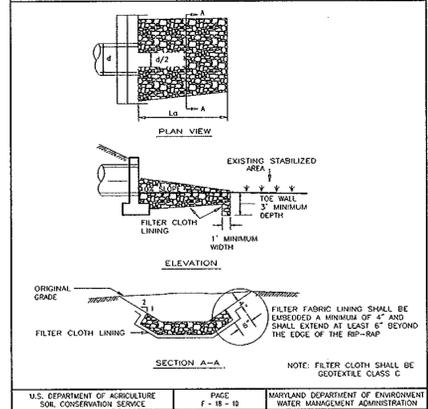
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREELINE
- EXISTING BRUSHLINE
- PROPOSED TREELINE
- SOIL BOUNDARY
- STREAM BUFFER
- WETLAND BUFFER
- WETLAND
- SLOPES 25% >
- SLOPES 15% TO 24.9%
- FOREST CONSERVATION EASEMENT
- TREE PROTECTION FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- SUPER SILT FENCE
- SILT FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	TYPE
SID2	SASSAFRAS GRAVELLY SANDY LOAM, 10%-15% SLOPES, MODERATELY ERODED.	B
SIB2	SASSAFRAS GRAVELLY SANDY LOAM, 1%-5% SLOPES, MODERATELY ERODED.	B
B/F	BRANDYWINE LOAM, 75%-80% SLOPES	C
WbA	WATCHUNG SILT LOAM, 0%-3% SLOPES	D

NOTE: HOWARD SOIL SURVEY, MAP NUMBER 26



DETAIL 27 - ROCK OUTLET PROTECTION III



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 7-18-10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

- ROCK OUTLET PROTECTION**
Construction Specifications
- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
 - The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
 - Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
 - Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
 - The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 7-18-10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

Signature: Robert H. Vogel
Date: 12/19/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DATE: 12/19/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Signature: Cindy Hamata
Date: 12/21/02

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

Signature: Jim Myers
Date: 12/19/02

Signature: John R. Robertson
Date: 12/19/02

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Michael Pfaff
Date: 12/19/02

OWNER/DEVELOPER
MICHAEL PFALL
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

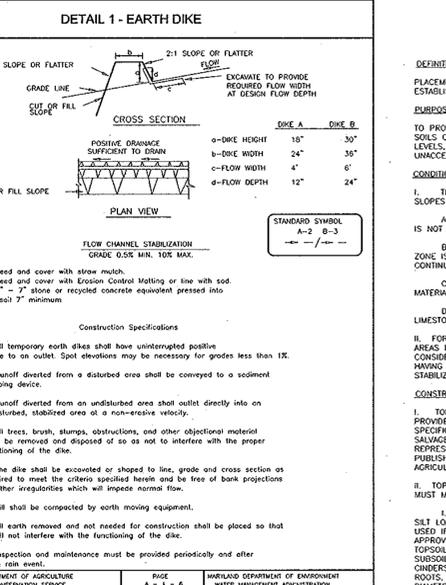
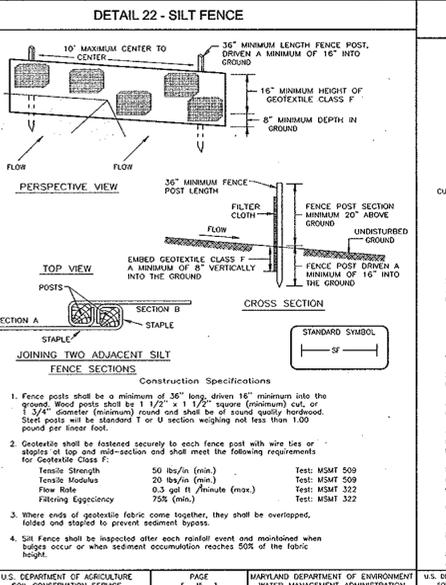
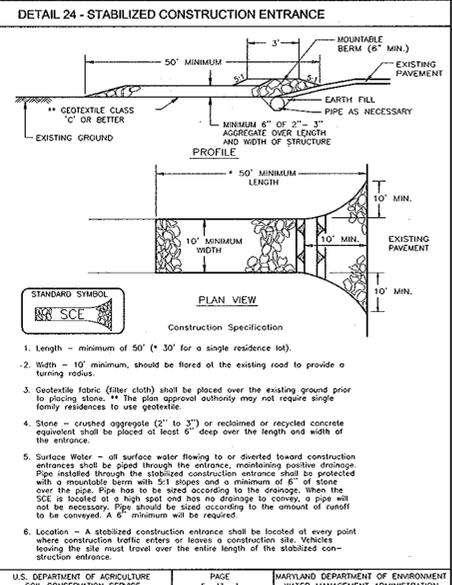
GRADING & SEDIMENT AND EROSION CONTROL PLAN
THORNTON WOODS OVERLOOK
LOTS 1- 10 AND OPEN SPACE LOT 11 & 12

TAX MAP #42 GRID 16 PARCEL '41'
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC.
ENGINEERS 7125 Riverwood Drive Columbia, Maryland 21046-2354
ARCHITECTS Phone: 410-290-9550 Fax: 410-720-6226
SURVEYORS Bel Air, Maryland Columbia, Maryland Warranton, Virginia

DESIGN BY: RHV
DRAWN BY: MMH
CHECKED BY: JCO
DATE: DECEMBER 3, 2002
SCALE: 1"=30'
W.O. NO.: 2019034

2 SHEET OF 5



21.0 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 VEGETABLE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, UNDESIRABLE TOXIC PLANTS, AND/OR UNACCEPTABLE SOIL CRUMINATION.

CONDITIONS WHERE PRACTICE APPLIES:

1. 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 VEGETABLE 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.
2. 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:

1. 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 SITE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
2. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILET LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF SOILS FROM DIFFERENT SUBSOLS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CHALK, STONES, SLAG, CONCRETE FRAGMENTS, GRAVEL, ROCKS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2" IN DIAMETER.
 - II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BRAMBLES, GUMWEEDS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
3. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BRAMBLES, GUMWEEDS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORATION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, PERMETER SLOPES, AND ALL SLOPES GREATER THAN 1:1, (B) 14 DAYS AS FOR 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 7, HOWARD COUNTY DESIGN MANUAL, STANDARD SPECIFICATIONS FOR PERIMETER SEDIMENT CONTROL.
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 SEDIMENT CONTROL, TEMPORARY SEEDING (0.5 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS DURING THE PERIOD OF SPRING (OPTION 2) OR SOON AFTER (OPTION 1) SHALL BE APPLIED AS SOON AS POSSIBLE PER ACRE WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOO OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

AREA DESTABILIZED	3.81 ACRES
AREA TO BE ROOFED OR PAVED	0.63 ACRES
TOTAL CUT	2200 CY
TOTAL FILL	2000 CY
OFFSITE WASTE/BORROW AREA LOCATION	
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL 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 CONSTRUCTION. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE OBTAINED 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 WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS WISHED.

FURTHER PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DIGGING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

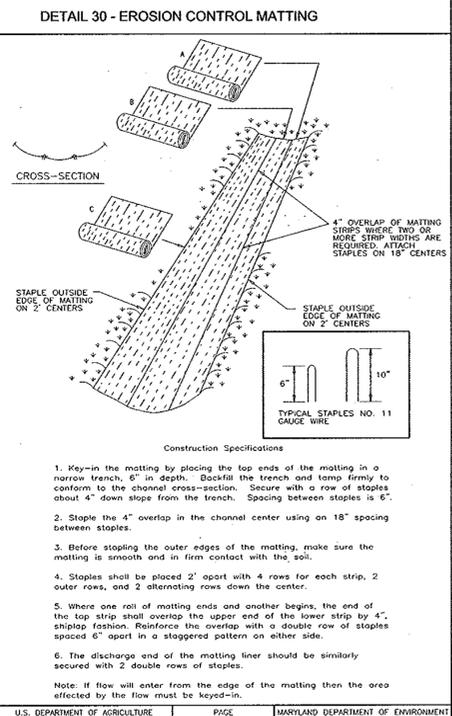
SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- 1) PREFERRED-APPLY 2 TONS PER ACRE DOMOLIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 600 LBS PER ACRE (14 LBS./1000 SQ.FT.) OF FERTILIZER (14 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL AT THE TIME OF SEEDING. APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1000 SQ.FT.)
- 2) ACCEPTABLE-APPLY 2 TONS PER ACRE DOMOLIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 600 LBS PER ACRE (14 LBS./1000 SQ.FT.) OF FERTILIZER (14 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 31, SEED WITH 60 LBS PER ACRE (1.4 LBS./1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS PER ACRE (1.4 LBS./1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE (0.5 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS DURING THE PERIOD OF SPRING (OPTION 2) OR SOON AFTER (OPTION 1) SHALL BE APPLIED AS SOON AS POSSIBLE PER ACRE WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOO OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROOTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TACKS OR 2 1/2 GALLONS PER ACRE (5 GALS./1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GALS./1000 SQ.FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.



MARYLAND 378 STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

All pipes shall be circular in cross section.

Compacted Mill Pipe - All of the following criteria shall apply for compacted mill pipe:

1. Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymer coating shall have a minimum coating thickness of 0.01 (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 water tight coating bands and flanges.
2. Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with water tight coating bands or flanges. Aluminum pipes shall be fully bituminous coated with flexible 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 repaired 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.
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 or riser is metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Empire bands are not considered to be watertight.
4. 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 or riser is metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Empire bands are not considered to be watertight.
5. 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 or riser is metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Empire bands are not considered to be watertight.

When required by the retaining 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 ASTM Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along and parallel to the centerline of the embankment or 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, roller or hand tamp to ensure maximum density and minimum permeability.

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 be completely fill spaces under and adjacent to the pipe. At no time during the backfilling shall stone equipment be allowed to be used to compact the fill. Under no circumstances shall stone be driven over any part of a concrete structure, or any part of a structure. Under no circumstances shall stone be compacted in a depth of 24" or greater over the structure or pipe. Backfill (broadfill) shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

21.0 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 VEGETABLE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, UNDESIRABLE TOXIC PLANTS, AND/OR UNACCEPTABLE SOIL CRUMINATION.

CONDITIONS WHERE PRACTICE APPLIES:

1. 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 VEGETABLE 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.
2. 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:

1. 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 SITE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
2. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILET LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF SOILS FROM DIFFERENT SUBSOLS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CHALK, STONES, SLAG, CONCRETE FRAGMENTS, GRAVEL, ROCKS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2" IN DIAMETER.
 - II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BRAMBLES, GUMWEEDS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
3. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BRAMBLES, GUMWEEDS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORATION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, PERMETER SLOPES, AND ALL SLOPES GREATER THAN 1:1, (B) 14 DAYS AS FOR 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 7, HOWARD COUNTY DESIGN MANUAL, STANDARD SPECIFICATIONS FOR PERIMETER SEDIMENT CONTROL.
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 SEDIMENT CONTROL, TEMPORARY SEEDING (0.5 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS DURING THE PERIOD OF SPRING (OPTION 2) OR SOON AFTER (OPTION 1) SHALL BE APPLIED AS SOON AS POSSIBLE PER ACRE WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOO OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

AREA DESTABILIZED	3.81 ACRES
AREA TO BE ROOFED OR PAVED	0.63 ACRES
TOTAL CUT	2200 CY
TOTAL FILL	2000 CY
OFFSITE WASTE/BORROW AREA LOCATION	
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL 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 CONSTRUCTION. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE OBTAINED 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 WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT

BIORETENTION AREA SOIL SPECIFICATIONS

A. PLANTING SOIL

THE BIORETENTION AREAS SHALL CONSIST OF A PLANTING SOIL HAVING A COMPOSITION OF AT LEAST 10 TO 25 PERCENT CLAY AND SHALL BE OF A SANDY LOAM OR LOAMY SAND TEXTURE. LOAMY SANDS MAY BE USED FOR THE PLANTING SOIL, BUT MUST BE UNIFORM IN COMPOSITION. THE FURNISHED PLANTING SOIL SHALL BE OF UNIFORM COMPOSITION. FREE OF STONES, BRIBES, OR OTHER SOLID OBJECTS LARGER THAN ONE INCH. BRUSH, OR ANY OTHER MATERIAL OR SUBSTANCE WHICH MAY BE HARMFUL TO PLANT GROWTH, OR A HINDERANCE TO PLANTING OR MAINTENANCE OPERATIONS.

THE PLANTING SOIL SHALL BE FREE OF PLANTS OR PLANT PARTS OF BRAMBLES, GUMWEEDS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

IF SMALL NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO PLANT GROWTH.

THE PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:

PH RANGE	5.5 - 6.5
ORGANIC MATTER	1.5 - 3.0%
MAGNESIUM - Mg	35 lbs / ACRE
POTASSIUM - K2O	85 lbs / ACRE
SOLUBLE SALTS	NOT TO EXCEED 500 ppm

B. MULCH LAYER SPECIFICATIONS (3" THICK)

A MULCH LAYER SHALL BE PROVIDED ON TOP OF THE PLANTING SOIL. AN ACCEPTABLE MULCH LAYER SHALL INCLUDE SHREDDED HARDWOOD OR SHREDDED WOOD CHIPS OR OTHER SIMILAR PRODUCTS.

ALL MULCH PRODUCTS MUST BE WELL AGED, UNIFORM IN COLOR, AND FREE OF FOREIGN MATERIAL INCLUDING PLANT MATERIAL. WELL AGED MULCH IS DEFINED AS MULCH THAT HAS BEEN STOCKPILED OR STORED FOR AT LEAST ONE (1) MONTH.

C. SAND SPECIFICATIONS (1" MIN.)

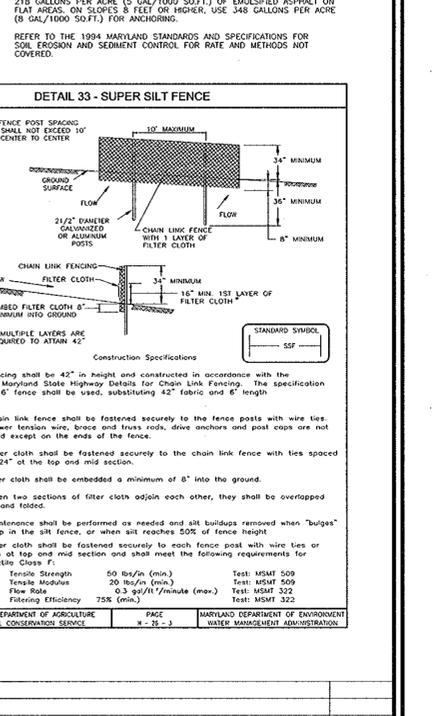
THE SAND SHALL BE FREE OF DELETERIOUS MATERIAL AND ROCKS GREATER THAN 1/8 INCH IN DIAMETER.

D. COMPACTION

LIGHTLY PLACED IN LIFTS LESS THAN 18 INCHES AND SOIL SHALL BE COMPACTED (MINIMAL COMPACTIVE EFFORT) BY TAMPING WITH A BUCKET FROM A DOZER OR A BACKHOE.

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS

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. MULCH MAINTENANCE SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL.
2. SCHEDULE OF PLANT SPECIES 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 DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW MULCH EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONE PER MONTH AND AFTER HEAVY STORM EVENTS.



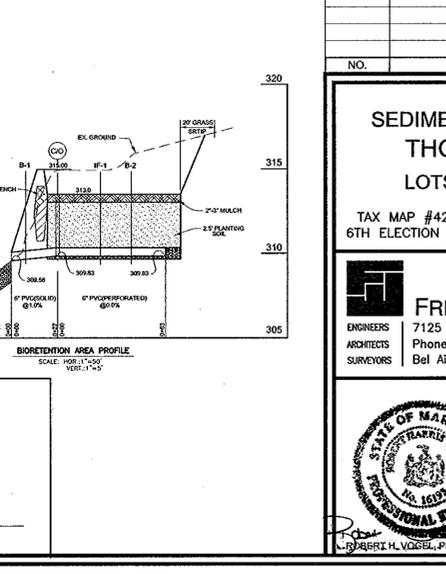
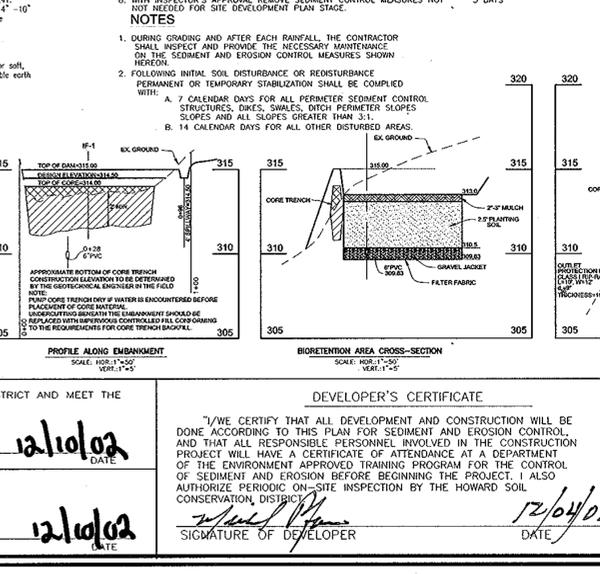
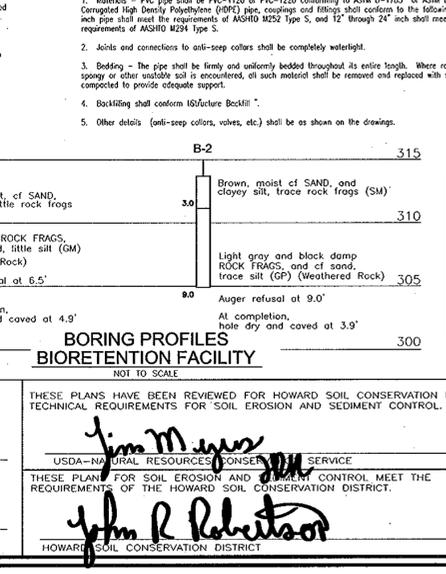
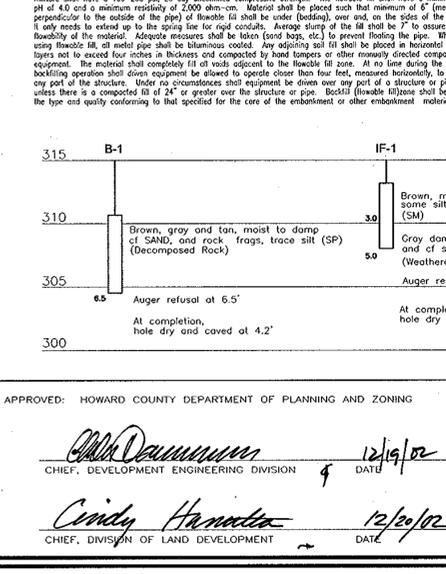
OWNER/DEVELOPER
MICHAEL PFALJ
3675 PARK AVENUE, SUITE 301
ELLIOTT CITY, MD 21043
(410) 480-0023

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

SIGNATURE OF ENGINEER: ROBERT H. VOGEL
DATE: 12/10/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, BUREAU OF HIGHWAYS
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT



SEDIMENT AND EROSION CONTROL DETAILS

THORNTON WOODS OVERLOOK

LOTS 1-10 AND OPEN SPACE LOT 11 & 12

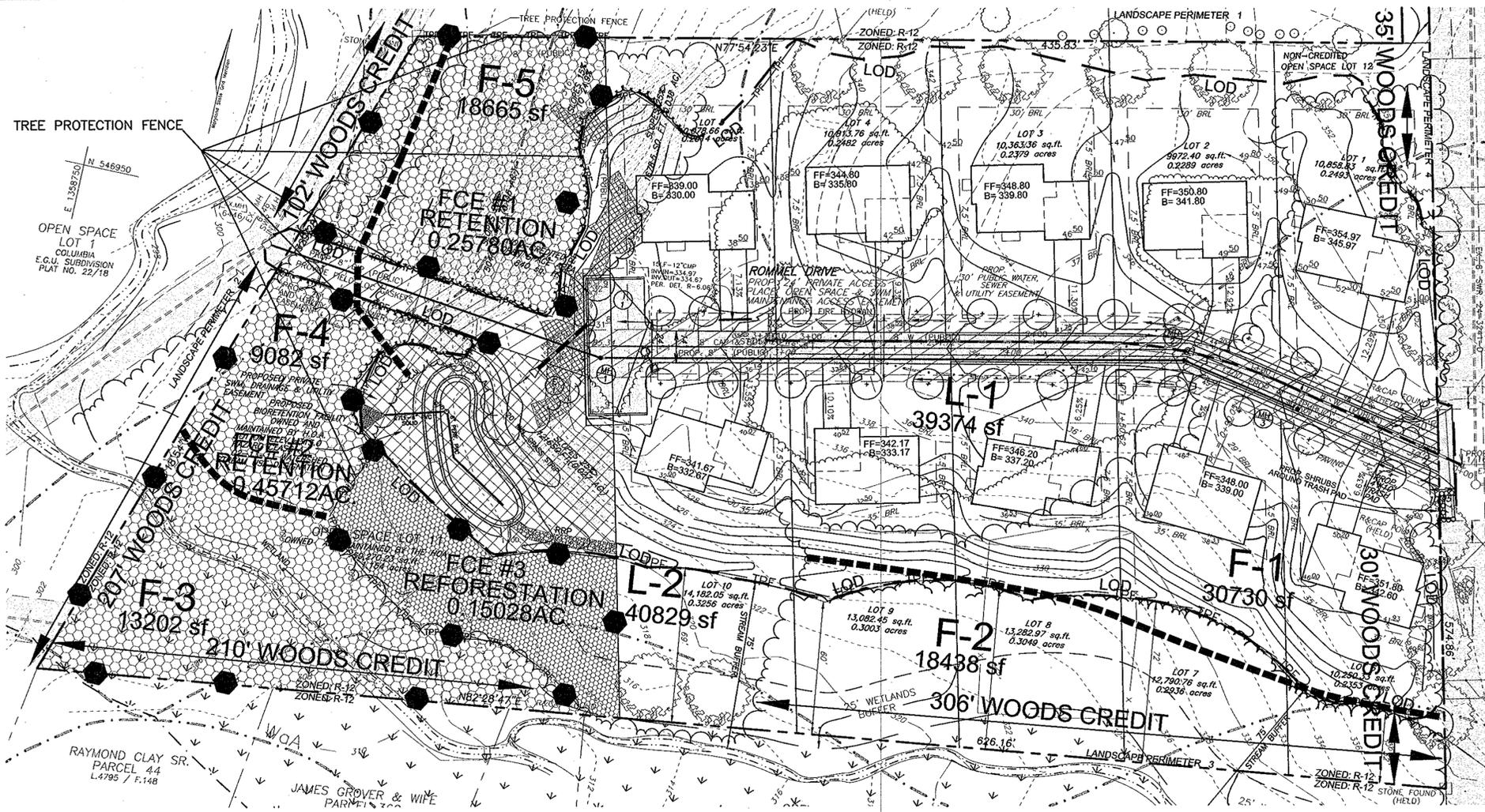
TAX MAP #42 GRID 16
6TH ELECTION DISTRICT

PARCEL '41'
HOWARD COUNTY, MARYLAND

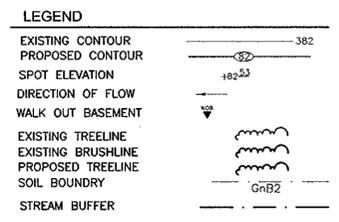
FREDERICK WARD ASSOCIATES, INC.
7125 Riverwood Drive Columbia, Maryland 21046-2354
Phone: 410-290-9550 Fax: 410-720-6226
Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: MHM
DRAWN BY: MHM
CHECKED BY: JCO
DATE: DECEMBER 3, 2002
SCALE: AS SHOWN
W.O. NO.: 2019034

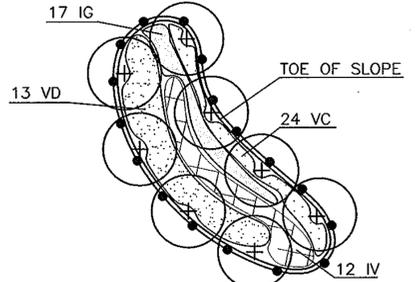
3 SHEET OF 5



PERIMETER LANDSCAPE SCHEDULE				
KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
○	13	Acer Rubrum 'October Glory'	2 1/2"-3" Col.	B & B
○	20	Toxus Cuspidata 'Nana'/Dwarf Japanese Yew	18" - 24" sp.	-



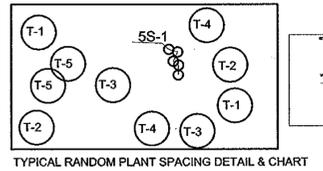
BIORETENTION PLANTING SCHEDULE				
KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	ROOT
+	8	ACER RUBRUM/RED MAPLE	1 1/2"-2" CAL	B & B
VC	24	VACCINIUM CORYMBOSUM Highbush Blueberry	12"-15" HEIGHT	CONT
IV	12	ILEX VERTICILLATA Winterberry	2'-3" HEIGHT	B & B OR CONT
VD	13	VIBURNUM DENTATUM Arrow Wood	3'-4" HEIGHT	B & B OR CONT
IG	17	ILEX GLABRA Inkberry	18"-24" HEIGHT	B & B OR CONT
●	300	LIRIOPE SPICATA Creeping Lily Turf	2" POT	18" O/C



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

- GENERAL SITE NOTES**
- WETLANDS AND THEIR BUFFERS ARE TO BE RETAINED.
 - THERE ARE NO ENDANGERED SPECIES ON THIS SITE.
 - STEEP SLOPES ARE SUBSTANTIALLY RETAINED IN EASEMENT.
 - THERE ARE NO SPECIMEN TREES 30" IN DIAMETER OR LARGER ON THIS SITE.
 - THERE ARE NO HISTORIC STRUCTURES ON THIS SITE.
 - THIS PROPERTY IS SURROUNDED ON THREE SIDES BY RESIDENTIAL DEVELOPMENT AND ONE SIDE BY AN OPEN SPACE LOT.
 - ALL AREAS IDENTIFIED ON THIS PLAN AS "RETENTION EASEMENTS" SHALL REMAIN UNDISTURBED UNLESS OTHERWISE STATED ON THIS PLAN OR ANY SUBSEQUENT APPROVED AMENDMENTS.
 - NO ADDITIONAL CLEARING OF ANY FORESTED AREA ON THE SUBJECT PROPERTY SHALL BE PERMITTED WITHOUT PRIOR APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.
 - ALL TREE CONSERVATION/PROTECTION MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS AND CONSTRUCTION SCHEDULE AS SHOWN ON THIS SHEET OF THE APPROVED FOREST CONSERVATION PLAN.
 - SITE CONSTRUCTION IN THE AREAS NEAR LIMIT OF DISTURBANCE SHALL NOT BEGIN UNTIL THE ABOVE TREE PROTECTION MEASURES HAVE BEEN INITIATED AND APPROVED BY THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.
 - ALL FENCED AREAS WILL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR FOR THE DURATION OF THE CONTRACT.
 - ANY SELECTIVE PRUNING AND UNDERGROWTH REMOVAL WITHIN FENCED AREAS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE PROJECT ECOLOGIST.
 - ALL CONSTRUCTION DUMPING WITHIN STAND F-1 (NOW FOREST RETENTION EASEMENTS AND A UTILITY EASEMENT) IS TO BE REMOVED. NATURAL DOWNED WOOD DEBRIS SHALL REMAIN.
 - PROTECT RETAINED WOODS FROM FURTHER DISTURBANCE BY INSTALLING 82 FEET OF PERMANENT FENCING AND FOREST RETENTION SIGNS AT PROPERTY LINE CONTIGUOUS WITH MATTHEW WOODS LOTS 17 & 18 AS SHOWN.

- SEQUENCE OF CONSTRUCTION**
- FOREST CONSERVATION**
- PRECONSTRUCTION MEETING (SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED).
 - STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
 - INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
 - PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
 - TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

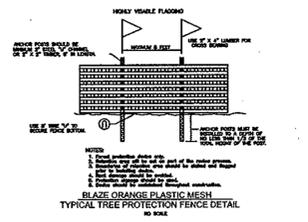


- FOREST PROTECTION NOTES**
- PRE-CONSTRUCTION ACTIVITIES**
- Install blaze orange fence and retention signs before construction begins.
 - Fencing shall be maintained in good condition and promptly repaired or restored as the situation warrants.
- CONSTRUCTION PHASE**
- No disturbance or dumping is allowed inside the tree retention area.
 - No equipment shall be operated inside the tree retention area including tree copes.
 - In the event of drought, the protected trees shall be monitored for signs of stress and watered as needed.
- POST-CONSTRUCTION ACTIVITIES**
- At the direction of a qualified tree care expert, damages to retained trees shall be repaired by the contractor.
 - Fence removal and stabilization shall be as per the sediment and erosion control plan, except for the selection of grasses for stabilization.
 - Do not remove signs.

FCE-3 PLANT SCHEDULE		
QUAN.	BOTANICAL NAME	SIZE
25	Acer Rubrum Red Maple	Seedlings
20	Platanus occidentalis Sycamore	Seedlings
20	Prunus serotina Black Cherry	Seedlings
20	Quercus palustris Pin Oak	Seedlings
20	Sassafras albidum Sassafras	Seedlings

FOREST CONSERVATION WORKSHEET	
NET TRACT AREA:	
A. TOTAL TRACT AREA	3.91 AC
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.00 AC
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0.00 AC
D. NET TRACT AREA	3.91 AC

DENSITY CHART		
SIZE	QTY. PER ACRE	AVERAGE SPACING
SEEDLINGS	700	8'x8'



PLAN VIEW
SCALE: 1"=30'

STREET TREE CHART 2.5" CAL. B&B AUTUMN PURPLE ASH			
STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
ROMMEL DRIVE	880/40	22	23

- NOTES:**
- THE PROPERTY IS BASED ON A BOUNDARY SURVEY PERFORMED BY VOGEL & ASSOCIATES, INC. IN FEBRUARY, 1999.
 - THE EXISTING FEATURES AND CONTOURS SHOWN HEREON ARE BASED ON FIELD RUN TOPOGRAPHY PERFORMED BY VOGEL & ASSOCIATES, INC. IN FEBRUARY, 1999.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
 - THE TYPE 'A' PERIMETER LANDSCAPE INFORMATION INDICATED ON THIS PLAN FOR LOTS 1-5 AND 7-10 IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. IT SHALL BE SHOWN ON THE REQUIRED FUTURE SITE DEVELOPMENT PLAN. FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING MUST BE POSTED AS PART OF THE BUILDER'S GRADING PERMIT IN THE AMOUNT OF \$3,900.00 FOR THE 13 SHADE TREES SHOWN ON LOTS 1-4, 6 & 10.

- FOREST PROTECTION NOTES**
- PRE-CONSTRUCTION ACTIVITIES**
- Install blaze orange fence and retention signs before construction begins.
 - Fencing shall be maintained in good condition and promptly repaired or restored as the situation warrants.
- CONSTRUCTION PHASE**
- No disturbance or dumping is allowed inside the tree retention area.
 - No equipment shall be operated inside the tree retention area including tree copes.
 - In the event of drought, the protected trees shall be monitored for signs of stress and watered as needed.
- POST-CONSTRUCTION ACTIVITIES**
- At the direction of a qualified tree care expert, damages to retained trees shall be repaired by the contractor.
 - Fence removal and stabilization shall be as per the sediment and erosion control plan, except for the selection of grasses for stabilization.
 - Do not remove signs.

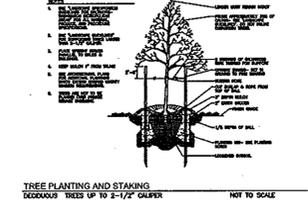
- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE; FOREST CONSERVATION ACT, FOR THIS SUBDIVISION HAVE BEEN FULFILLED THROUGH:
 - THE FOREST RETENTION OF 0.71 ACRE LOCATED ON FCE-1 AND FCE-2.
 - REFORESTATION FOR 0.15 ACRE ON FCE-3.
 - FEE-IN-LIEU OF REFORESTATION FOR 0.30 ACRE.
- LANDSCAPE SURETY IN THE AMOUNT OF \$7,200.00 (\$6,600.00 FOR THE 22 PRIVATE ACCESS PLACE STREET TREES AND \$600.00 FOR THE TRASH PAD SHRUBS) SHALL BE POSTED AS A LANDSCAPE SURETY WITH THE DEVELOPER'S AGREEMENT.
- THE MAINTENANCE OF THE TRASH PAD AND TRASH PAD LANDSCAPE PLANTING IS THE RESPONSIBILITY OF THE HOA.

DEVELOPER'S/BUILDER'S 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 HOWARD COUNTY LANDSCAPE MANUAL.

Michael Pflaj
DEVELOPER/BUILDER

12/01/02
DATE



SCHEDULE D	
STORMWATER MANAGEMENT AREA LANDSCAPING	
LINEAR FEET OF PERIMETER	240
CREDIT FOR EXISTING VEGETATION (NO. YES AND LINEAR FEET)	YES 240
CREDIT FOR OTHER LANDSCAPING (NO. YES AND LINEAR FEET)	YES 100%
NUMBER OF TREES REQUIRED	6
SHADE TREES 1:50	6
EVERGREEN TREES 1:40	0
NUMBER OF TREES PROVIDED	6
SHADE TREES	N/A
EVERGREEN TREES	N/A
SHRUBS	N/A

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	TYPE
S1D2	SASSAPRAS GRAVELLY SANDY LOAM, 10%-15% SLOPES, MODERATELY ERODED.	B
S1B2	SASSAPRAS GRAVELLY SANDY LOAM, 1%-5% SLOPES, MODERATELY ERODED.	B
B1F	BRANDYWINE LOAM, 25%-60% SLOPES	C
W1A	WATCHUNG SILT LOAM, 0%-3% SLOPES	D

SCHEDULE A					
PERIMETER LANDSCAPE EDGE					
CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES			
		1	2	3	4
PERIMETER/FRONTAGE DESIGNATION	NONE	A	A	A	A
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER		436	329	626	344
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)		YES 83	YES 309	YES 516	YES 65
CREDIT FOR WALL, FENCE OF BERM (YES, NO, LINEAR FEET)		NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED (IF REMAINING)		353	20	110	279
SHADE TREES		1:60 6	1:60 0	1:60 2	1:60 5
EVERGREEN TREES		-	-	-	-
NUMBER OF PLANTS PROVIDED		6	0	2	5
SHADE TREES		-	-	-	-
EVERGREEN TREES		-	-	-	-
SHRUBS (1:1 SUBSTITUTION)		-	-	-	-
DESCRIBE PLANT SUBSTITUTION CREDITS (BELOW IF NEEDED)		-	-	-	-

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
Cindy Hammett
12/20/02

OWNER / DEVELOPER
MICHAEL PFLAJ
3675 PARK AVENUE, SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

- EXISTING FOREST COVER:**
- G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 2.07 AC
 - H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 1.29 AC
 - I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 1.29 AC
- BREAK EVEN POINT:**
- J. FOREST RETENTION WITH NO MITIGATION = 1.04 AC
 - K. CLEARING PERMITTED WITHOUT MITIGATION = 1.03 AC
- PROPOSED FOREST CLEARING:**
- L. TOTAL AREA OF FOREST TO BE CLEARED = 1.35608 AC
 - M. TOTAL AREA OF FOREST TO BE RETAINED = 0.71492 AC
- PLANTING REQUIREMENTS:**
- N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD 10.25 = 0.32 AC
 - O. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD (1-10) = 0.13 AC
 - Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.00 AC
 - R. TOTAL REFORESTATION REQUIRED = 0.45 AC
 - S. TOTAL AFFORESTATION REQUIRED = 0.00 AC
 - T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 0.45 AC
- COST ESTIMATE: (For bonding purposes, only)**
- SURETY NOTE**
- FINANCIAL SURETY IN THE AMOUNT OF \$9,501.40 WILL BE POSTED WITH THE FC INSTALLATION AND MAINTENANCE AGREEMENT.
- RETENTION 31,142 SF X 0.20 = \$6,228.40
 - REFORESTATION 6,546 SF X 0.50 = \$3,273.00
 - FEE-IN-LIEU 13,056 SF X 0.50 = \$6,528.00

FOREST CONSERVATION, LANDSCAPING AND SUPPLEMENTAL INFORMATION PLAN

THORNTON WOODS OVERLOOK

LOTS 1- 10 AND OPEN SPACE LOT 11

TAX MAP #42 GRID 16 PARCEL '41'

6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC.

7125 Riverwood Drive Columbia, Maryland 21046-2354
Phone: 410-290-9550 Fax: 410-720-6226

ARCHITECTS: Bel Air, Maryland
SURVEYORS: Columbia, Maryland Warrenton, Virginia

DESIGN BY: MHM
DRAWN BY: MHM
CHECKED BY: MHM
DATE: DECEMBER 3, 2002
SCALE: AS SHOWN
P.L.O. NO.: 2019034

4 SHEET OF 5

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: 12/19/02
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/20/02

- LEGEND**
- EXISTING CONTOUR
 - EXISTING TREELINE
 - EXISTING BRUSHLINE
 - PROPOSED TREELINE
 - SOIL BOUNDARY
 - STREAM BUFFER
 - WETLAND BUFFER
 - WETLAND
 - SLOPES 25% >
 - SLOPES 15% TO 24.9%
 - FOREST CONSERVATION EASEMENT
 - LANDSCAPE PERIMETER
 - TREE PROTECTION FENCE

DRAINAGE AREA TABULATIONS

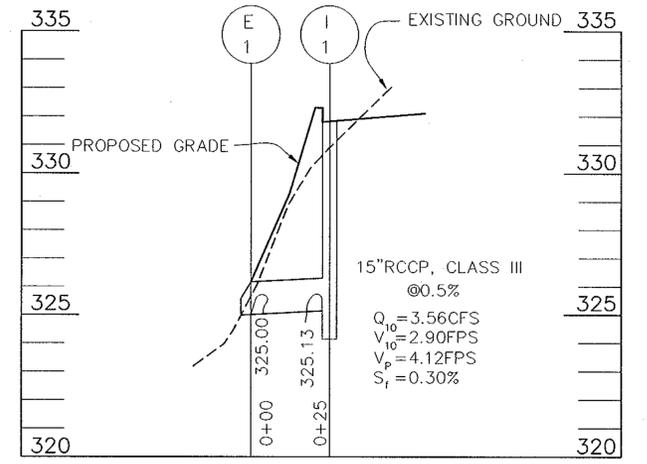
No.	Area	C'	% Imp.	Soil Types	Zone
1	1.60 Ac.	0.29	38	B	R-12

PIPE SCHEDULE

SIZE	TYPE	LENGTH
15"	RCCP	25 LF

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	REMARKS
I-1	Type 'S' Inlet	N 546929.4 E 1358984.9	331.80	-	325.13	SD 4.22
E-1	Concrete End Section	N 546904.4 E 1358966.2	326.38	-	325.00	SD 5.52



STORM DRAIN PROFILE
 SCALE: 1" = 50' HORZ.
 1" = 5' VERT.

TC PATH INFORMATION

DRAINAGE AREA "1"
 Area : 1.0 Acres
 CN : 0.29
 TC : 0.11
 A-B Sheet Flow 50' @ 6.0%
 B-C Shallow Concentrated 36' @ 5.0%
 C-D Open Channel 276' @ 3.4 FPS



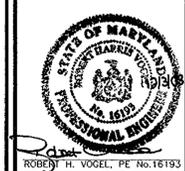
OWNER/DEVELOPER
 MICHAEL PFAU
 3675 PARK AVENUE, SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE

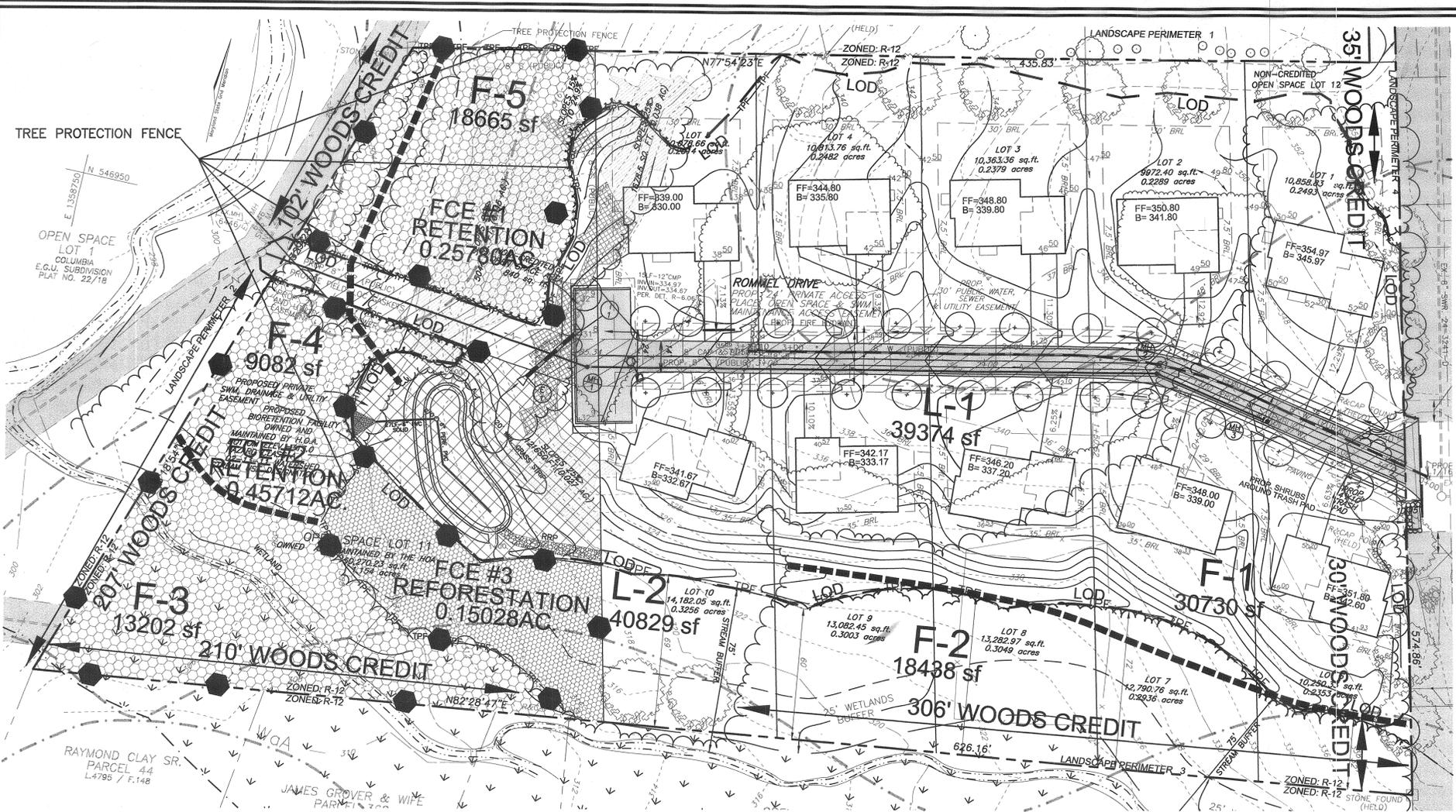
DRAINAGE AREA MAP
THORNTON WOODS OVERLOOK
 LOTS 1- 10 AND OPEN SPACE LOT 11 & 12

TAX MAP #42 GRID 16
 6TH ELECTION DISTRICT
 PARCEL '41'
 HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC.
 ENGINEERS 7125 Riverwood Drive Columbia, Maryland 21046-2354
 ARCHITECTS Phone: 410-290-9550 Fax: 410-720-6226
 SURVEYORS Bel Air, Maryland Columbia, Maryland Warrenton, Virginia



DESIGN BY: JCO
 DRAWN BY: JCO
 CHECKED BY: RHV
 DATE: DECEMBER 3, 2002
 SCALE: 1" = 30'
 W.O. NO.: 2019034
 5 SHEET OF 5



PLAN VIEW
SCALE: 1"=30'

STREET TREE CHART 2.5" CAL. B&B AUTUMN PURPLE ASH

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
ROMMEL DRIVE	880/40	22	23

- NOTES:
- THE PROPERTY IS BASED ON A BOUNDARY SURVEY PERFORMED BY VOGEL & ASSOCIATES, INC. IN FEBRUARY, 1999.
 - THE EXISTING FEATURES AND CONTOURS SHOWN HEREON ARE BASED ON FIELD ROP TOPOGRAPHY PERFORMED BY VOGEL & ASSOCIATES, INC. IN FEBRUARY, 1999.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
 - THE TYPE 'A' PERIMETER LANDSCAPE INFORMATION INDICATED ON THIS PLAN FOR LOTS 1-5 AND 7-10 IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. IT SHALL BE SHOWN ON THE REQUIRED FUTURE SITE DEVELOPMENT PLAN, FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPE MUST BE POSTED AS PART PART OF THE BUILDER'S GRADING PERMIT IN THE AMOUNT OF \$3,900.00 FOR THE 13 SHADE TREES SHOWN ON LOTS 1-4, 6 & 10.
- LOT 1: 3 SHADE TREES = \$900.00
 LOT 2: 2 SHADE TREES = \$600.00
 LOT 3: 1 SHADE TREE = \$300.00
 LOT 4: 2 SHADE TREES = \$600.00
 LOT 6: 3 SHADE TREES = \$900.00
 LOT 10: 2 SHADE TREES = \$600.00

- FOREST PROTECTION NOTES
PRE-CONSTRUCTION ACTIVITIES
- Install blaze orange fence and retention signs before construction begins.
 - Fencing shall be maintained in good condition and promptly repaired or restored as the situation warrants.
- CONSTRUCTION PHASE
- No disturbance or dumping is allowed inside the tree retention area.
 - No equipment shall be operated inside the tree retention area including tree canopies.
 - In the event of drought, the protected trees shall be monitored for signs of stress and watered as needed.
- POST-CONSTRUCTION ACTIVITIES
- At the direction of a qualified tree care expert, damages to retained trees shall be repaired by the contractor.
 - Fence removal and stabilization shall be as per the sediment and erosion control plan, except for the selection of grasses for stabilization.
 - Do not remove signs.

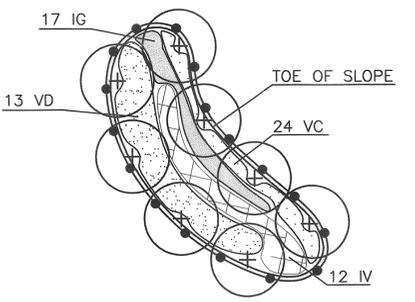
PERIMETER LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
13		Acer Rubrum 'October Glory' / October Glory Red Maple	2 1/2"-3" Cal.	B & B
20		Toxus Cuspidata 'Nand/Dwarf' Japanese Yew	18" - 24" sp.	-

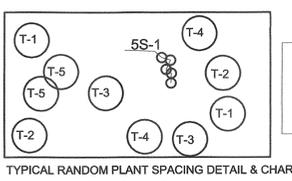
BIORETENTION PLANTING SCHEDULE

KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	ROOT
+	8	ACER RUBRUM/RED MAPLE	1 1/2"-2" CAL	B & B
VC	24	VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY	12"-15" HEIGHT	CONT
IV	12	ILEX VERTICILLATA WINTERBERRY	2'-3" HEIGHT	B & B OR CONT
VD	13	VIBURNUM DENTATUM ARROW WOOD	3'-4" HEIGHT	B & B OR CONT
IG	17	ILEX GLABRA INKBERY	18"-24" HEIGHT	B & B OR CONT
●	300	LIRIOPE SPICATA CREEPING LILY TURF	2" POT	18" O/C

- LEGEND
- EXISTING CONTOUR
 - PROPOSED CONTOUR
 - SPOT ELEVATION
 - DIRECTION OF FLOW
 - WALK OUT BASEMENT
 - EXISTING TREELINE
 - EXISTING BRUSHLINE
 - PROPOSED TREELINE
 - SOIL BOUNDARY
 - STREAM BUFFER
 - WETLAND BUFFER
 - WETLAND
 - SLOPES 25% >
 - SLOPES 15% TO 24.9%
 - FOREST CONSERVATION EASEMENT
 - LANDSCAPE PERIMETER
 - TREE PROTECTION FENCE
 - SHADE TREES
 - FOREST CONSERVATION AREA SIGN
 - STAND DELINEATION LINE



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



- NOTE:
- Plant mix to be 1/3 pioneer & 2/3 mid to late successional species
 - Plant larger stock and evergreens around perimeter to protect interior smaller stock.
 - When shrubs are specified, plant them in clusters
 - Do not plant trees in a grid pattern.

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:

A. TOTAL TRACT AREA	3.91 AC
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.00 AC
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0.00 AC
D. NET TRACT AREA	3.91 AC

LAND USE CATEGORY (FROM TABLE 3.2.1, PAGE 40, MANUAL)

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

- GENERAL SITE NOTES
- WETLANDS AND THEIR BUFFERS ARE TO BE RETAINED.
 - THERE ARE NO ENDANGERED SPECIES ON THIS SITE.
 - STEEP SLOPES ARE SUBSTANTIALLY RETAINED IN EASEMENT.
 - THERE ARE NO SPECIMEN TREES 30" IN DIAMETER OR LARGER ON THIS SITE.
 - THERE ARE NO HISTORIC STRUCTURES ON THIS SITE.
 - THIS PROPERTY IS SURROUNDED ON THREE SIDES BY RESIDENTIAL DEVELOPMENT AND ONE SIDE BY AN OPEN SPACE LOT.
 - ALL AREAS IDENTIFIED ON THIS PLAN AS 'RETENTION EASEMENTS' SHALL REMAIN UNDISTURBED UNLESS OTHERWISE STATED ON THIS PLAN OR ANY SUBSEQUENT APPROVED AMENDMENTS.
 - NO ADDITIONAL CLEARING OF ANY FORESTED AREA ON THE SUBJECT PROPERTY SHALL BE PERMITTED WITHOUT PRIOR APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.
 - ALL TREE CONSERVATION/PROTECTION MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS AND CONSTRUCTION SCHEDULE AS SHOWN ON THIS SHEET OF THE APPROVED FOREST CONSERVATION PLAN.
 - SITE CONSTRUCTION IN THE AREAS NEAR LIMIT OF DISTURBANCE SHALL NOT BEGIN UNTIL THE ABOVE TREE PROTECTION MEASURES HAVE BEEN INITIATED AND APPROVED BY THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.
 - ALL FENCED AREAS WILL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR FOR THE DURATION OF THE CONTRACT.
 - ANY SELECTIVE PRUNING AND UNDERGROWTH REMOVAL WITHIN FENCED AREAS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE PROJECT ECOLOGIST.
 - ALL CONSTRUCTION DUMPING WITHIN STAND P-5 (NOW FOREST RETENTION EASEMENTS AND A UTILITY EASEMENT) IS TO BE REMOVED. NATURAL DOWNED WOODY DEBRIS SHALL REMAIN.
 - PROTECT RETAINED WOODS FROM FURTHER DISTURBANCE BY INSTALLING 82 FEET OF PERMANENT FENCING AND FOREST RETENTION SIGNS AT PROPERTY LINE CONTIGUOUS WITH MATHEW WOODS LOTS 17 & 18 AS SHOWN.

SEQUENCE OF CONTRACTION FOREST CONSERVATION

- PRE-CONSTRUCTION MEETING SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
- STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
- INSTALL TREE PROTECTION FENCING. FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
- PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
- TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

200 TPA x 0.15028 AC = 30 TREES TOTAL
 30 TREES = 9 (CREDIT FOR EX.) + 21 TREES REQUIRED

FCE-3 PLANT SCHEDULE

QUAN.	BOTANICAL NAME	SIZE
5	Acer Rubrum Red Maple	1" CAL
8	Platanus occidentalis Sycamore	1" CAL
4	Liquidambar styraciflua Sweetgum	1" CAL
4	Quercus palustris Pin Oak	1" CAL

DENSITY CHART

SIZE	QTY. PER ACRE	AVERAGE SPACING
1" CALIPER	200	15' x 15'

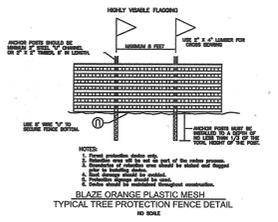
REVISE FCE PLANT SCHEDULE 11/23/04

FOREST CONSERVATION, LANDSCAPING AND SUPPLEMENTAL INFORMATION PLAN
 THORNTON WOODS OVERLOOK
 LOTS 1- 10 AND OPEN SPACE LOT 11

TAX MAP #42 GRID 16 PARCEL '41'
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC.
 7125 Riverwood Drive Columbia, Maryland 21046-2354
 Phone: 410-290-9550 Fax: 410-720-6226
 Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: MHM
 DRAWN BY: MHM
 CHECKED BY: MHM
 DATE: DECEMBER 3, 2002
 SCALE: AS SHOWN
 DWG. NO.: 2019034
 4 SHEET OF 5



- NOTE:
- Bottom of signs to be higher than top of tree protection fence.
 - Signs to be placed at a maximum spacing of 50' - 100' feet apart.
 - Attachment of signs to trees is prohibited.
 - Signs to be posted to 2'x2' wood posts.

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	TYPE
S102	SASSAFRAS GRAVELLY SANDLEY LOAM, 10%-15% SLOPES, MODERATELY ERODED.	B
S102	SASSAFRAS GRAVELLY SANDLEY LOAM, 1%-5% SLOPES, MODERATELY ERODED.	B
Bf	BRANDYWINE LOAM, 25%-60% SLOPES	C
Woa	WATCHUNG SILT LOAM, 0%-3% SLOPES	D

NOTE: HOWARD SOIL SURVEY, MAP NUMBER 26

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES			
		1	2	3	4
PERIMETER FRONTAGE DESIGNATION	NONE				
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER		436	329	626	344
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)		*YES 83	*YES 309	*YES 516	*YES 65
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED (LF REMAINING)		353	20	110	279
SHADE TREES		1:60	6	1:60	2
EVERGREEN TREES		-	-	-	-
SHRUBS		-	-	-	-
NUMBER OF PLANTS PROVIDED		6	0	2	5
SHADE TREES		-	-	-	-
EVERGREEN TREES		-	-	-	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED		-	-	-	-

- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE; FOREST CONSERVATION ACT, FOR THIS SUBDIVISION HAVE BEEN FULFILLED THROUGH:
 - THE FOREST RETENTION OF 0.71 ACRE LOCATED ON FCE-1 AND FCE-2.
 - REFORESTATION FOR 0.15 ACRE ON FCE-3.
 - FEE-IN-LIEU OF REFORESTATION FOR 0.30 ACRE.
- LANDSCAPE SURETY IN THE AMOUNT OF \$7,200.00 (\$6,600.00 FOR THE 22 PRIVATE ACCESS PLACE STREET TREES AND \$600.00 FOR THE TRASH PAD SHRUBS) SHALL BE POSTED AS A LANDSCAPE SURETY WITH THE DEVELOPER'S AGREEMENT.
- THE MAINTENANCE OF THE TRASH PAD AND TRASH PAD LANDSCAPE PLANTING IS THE RESPONSIBILITY OF THE HOA.

DEVELOPER'S/BUILDER'S 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 HOWARD COUNTY LANDSCAPE MANUAL.

Michael Pflum 12/04/02
 DEVELOPER/BUILDER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Michelle Damann 12/19/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamata 12/20/02
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

AFFORESTATION NOTES (CONT.):

- ALL GREENRIEKER, JAPANESE HONEYLOC, TORONQ, AND ALL OTHER INVASIVE SPECIES SHALL BE CLEARED PRIOR TO THE PLANTING OF ANY NEW MATERIAL.
- CREDIT HAS BEEN TAKEN FOR THE 9 EXISTING TREES 2" OR GREATER WITHIN FCE #3.
- EXISTING TREES SHALL BE PROTECTED DURING CLEARING.

IN ORDER TO INSURE SURVIVABILITY, THE PERSON RESPONSIBLE FOR INSTALLATION SHALL INSPECT AND AMEND THE SOILS PRIOR TO PLANTING, PROVIDE WATER DURING DROUGHT PERIODS, AND REMOVE ANY PESTS OR WEEDS DURING THE 2 YEAR MAINTENANCE PERIOD.

Larry A. Thompson 11/23/04
 LARRY A. THOMPSON
 PNR QUALIFIED PROFESSIONAL

EXISTING FOREST COVER:

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	=	2.07 AC
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	=	1.48 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	=	1.29 AC

BREAK EVEN POINT:

J. FOREST RETENTION WITH NO MITIGATION	=	1.04 AC
K. CLEARING PERMITTED WITHOUT MITIGATION	=	1.03 AC

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED	=	1.356508 AC
M. TOTAL AREA OF FOREST TO BE RETAINED	=	0.71492 AC

PLANTING REQUIREMENTS:

N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (0.25 = 0.32 AC)	=	0.32 AC
O. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD ((L-I)/2 = 0.13 AC)	=	0.13 AC
P. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (L-I)/2 = 0.00 AC	=	0.00 AC
R. TOTAL REFORESTATION REQUIRED	=	0.45 AC
S. TOTAL AFFORESTATION REQUIRED	=	0.00 AC
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	=	0.45 AC

COST ESTIMATE: (For bonding purposes, only)

SURETY NOTE

FINANCIAL SURETY IN THE AMOUNT OF \$9,501.40 WILL BE POSTED WITH THE FC INSTALLATION AND MAINTENANCE AGREEMENT.

RETENTION	31,142 SF x 0.20 = \$6,228.40
REFORESTATION	6,546 SF x 0.50 = \$3,273.00
FEE-IN-LIEU	13,092 SF x 0.50 = \$6,528.00

Handwritten signatures and dates: 12/19/02, 12/20/02

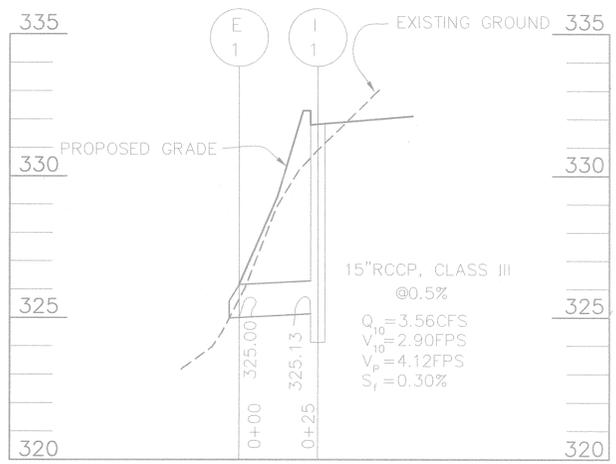
LEGEND

- EXISTING CONTOUR, EXISTING TREELINE, EXISTING BRUSHLINE, PROPOSED TREELINE, SOIL BOUNDARY, STREAM BUFFER, WETLAND BUFFER, WETLAND, SLOPES 25% >, SLOPES 15% TO 24.9%, FOREST CONSERVATION EASEMENT, LANDSCAPE PERIMETER, TREE PROTECTION FENCE

Table with 5 columns: No., Area, 'C', % Imp., Soil Types, Zone

Table with 3 columns: SIZE, TYPE, LENGTH

Table with 7 columns: NO., TYPE, LOCATION, TOP ELEV., INV. IN., INV. OUT., REMARKS



STORM DRAIN PROFILE SCALE: 1" = 50' HORZ. 1" = 5' VERT.

TC PATH INFORMATION table with columns for Drainage Area, Area, CN, TC, Sheet Flow, and flow characteristics for different path segments.

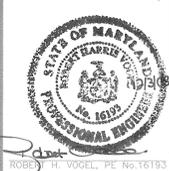
OWNER/DEVELOPER MICHAEL PFALU, 3615 PARK AVENUE, SUITE 301, ELLICOTT CITY, MD 21043, (410) 480-0023

Revision table with columns: NO., REVISION, DATE

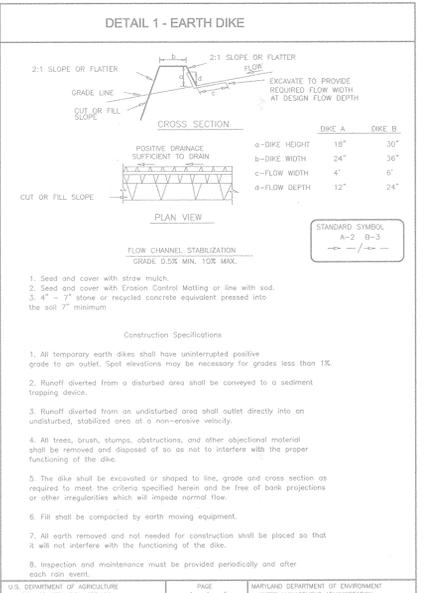
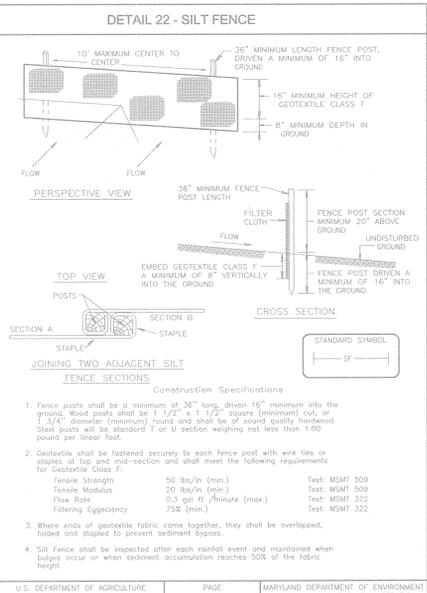
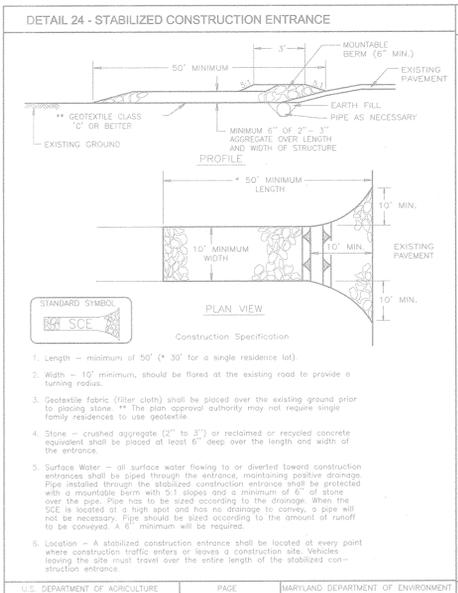
DRAINAGE AREA MAP THORNTON WOODS OVERLOOK LOTS 1-10 AND OPEN SPACE LOT 11 & 12

TAX MAP #42 GRID 16 6TH ELECTION DISTRICT PARCEL '41' HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC. 7125 Riverwood Drive Columbia, Maryland 21046-2354



DESIGN BY: JCO, DRAWN BY: JCO, CHECKED BY: RHV, DATE: DECEMBER 3, 2002, SCALE: 1" = 30', W.O. NO.: 2019034



21.0 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 VEGETABLE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TEND TO PLANT, AND/OR UNDESIRABLE SOIL ORGANOLOGY.

CONDITIONS WHERE PRACTICE APPLIES
 THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETABLE GROWTH.
 B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTAINING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 D. THE SOIL IS SO AOIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRING STABILIZATION 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 SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
 II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND, OR SILT LOAM. SANDY CLAY LOAM, LOAMY SAND, OR SILT LOAM IS 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 CONGLOMERATES, SLAKES, CLUMPS, FRAGMENTS, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1\"/>

PERMANENT SEEDING NOTES

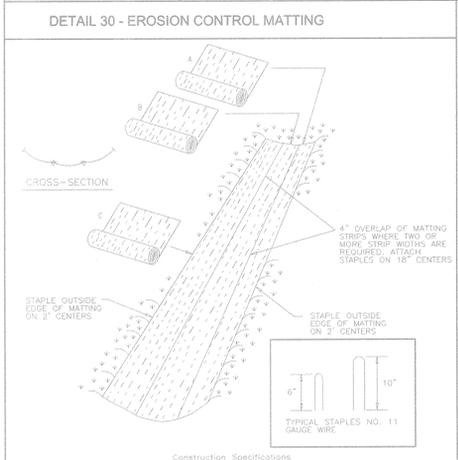
APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE OF THE FOLLOWING SCHEDULES:
 1) PREFERRED-APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./100 SOFT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS./100 SOFT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL AT THE TIME OF SEEDING. APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./100 SOFT).
 2) ACCEPTABLE-APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./100 SOFT) AND APPLY 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./100 SOFT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS./100 SOFT) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (0.5 LBS./100 SOFT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE 500. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./100 SOFT) OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER SEEDING USING MULCH ANCHORS (2\"/>



MARYLAND 378 STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

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 bays shall be stepped to no steeper than 1:1. All trees shall be cleared and disposed within 15 feet of the line 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 specified 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 high 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 in 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, mulch, rubbish, stones greater than 6\"/>

Construction Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:
 1. Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymer coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-245 & M-246 with water tight coupling bands or flanges.
 2. Coupling Bands, anti-seep collars, and sections, etc., must be composed of the same material and coatings as the pipe. Metals shall be installed from dissimilar materials using use of rubber or plastic insulating materials of least 24 mils in thickness.
 3. Connections - All connections with pipe must be completely watertight. The drain pipe or barrel connection to the riser shall be welded off around when the pipe and riser are metal. Anti-seep collar shall be connected to the pipe in such a manner so as to completely watertight. Simple 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 reinforced with a 12\"/>

TOPSOIL SHALL BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERBERIS, GROUND SQUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

Drainage Diagrams - When a drainage diagram 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 Materials, Section 311.

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

Work 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 work from water. The contractor shall also furnish, install, operate, and maintain all necessary pumps and other equipment required for removal of water from various parts of the work and for maintaining the foundations, footings, and other parts of the work free from water or saturation. 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 soils and bottom required excavations and will satisfactorily perform the work of all construction operations. During the placing and required consolidation, the water level of the locations being refilled shall be maintained below the bottom of the excavation of such locations which may require dewatering the water surface from which the water shall be pumped.

Subsoil
 All borrow areas shall be graded to provide proper drainage and left 1\"/>

BIORETENTION AREA SOIL SPECIFICATIONS

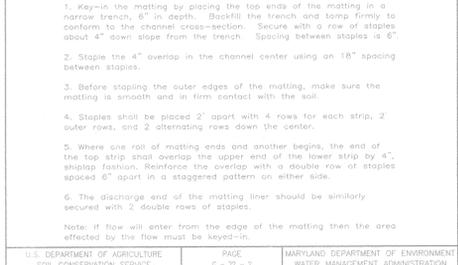
A. PLANTING SOIL
 THE BIORETENTION AREAS SHALL CONSIST OF A PLANTING SOIL HAVING A COMPOSITION OF AT LEAST 10 TO 25 PERCENT FINE SAND AND SHALL BE OF A SANDY LOAM OR LOAMY SAND TYPE. THE SOIL SHALL BE UTILIZED FOR THE PLANTING FOR AT LEAST 30% SAND. IN ADDITION, THE FURNISHED PLANTING SOIL SHALL BE OF UNIFORM COMPOSITION, FREE OF STONES, STUMPS, ROOTS, SIMILAR OBJECTS LARGER THAN ONE INCH, BRUSH, OR ANY OTHER MATERIAL OR SUBSTANCE WHICH MAY INTERFERE WITH PLANT GROWTH, OR A HINDERANCE TO PLANTING OR MAINTENANCE OPERATIONS.

IT SHALL NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO PLANT GROWTH.

THE PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:

PH RANGE	5.5 - 6.5
ORGANIC MATTER	35 lbs / ACRE
MAGNESIUM - Mg	35 lbs / ACRE
PHOSPHORUS - P ₂ O ₅	85 lbs / ACRE
POTASSIUM - K ₂ O	85 lbs / ACRE
SOLUBLE SALTS	NOT TO EXCEED 500 ppm

B. MULCH LAYER SPECIFICATIONS (3\"/>



1. Fencing shall be 42\"/>

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/grade for their entire length. The bedding/grade shall consist of high slump concrete placed under the pipe and on the sides of the pipe to the extent of 24\"/>

SEQUENCE OF CONSTRUCTION

SEQUENCE OF CONSTRUCTION	DURATION
1. OBTAIN GRADING PERMIT.	
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.	
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AND INSTALL PERIMETER SILT FENCE, TREE PROTECTION FENCE, TREE PROTECTION SIGNS & CLEAN WATER DIKES.	3 DAYS
4. WITH INSPECTOR'S APPROVALS CLEAR AND GRUB SITE TO LOD.	1 DAY
5. GRADE ROAD TO SUB-BASE AND PAVE ROAD AND INSTALL STREET TREES.	3 WEEKS
6. WITH INSPECTOR'S APPROVAL AND WITH ROAD PAVING COMPLETE, STABILIZE CONSTRUCTION DRAINAGE AREAS AND CONSTRUCTION BIORETENTION FACILITY.	1 WEEK
7. WITH INSPECTOR'S APPROVAL AND WITH BIORETENTION FACILITY COMPLETE, STABILIZE AREA AND GRASS REVEGETATING.	3 DAYS
8. WITH INSPECTOR'S APPROVAL REMOVE SEDIMENT CONTROL MEASURES NOT NEEDED FOR SITE DEVELOPMENT PLAN STAGE.	3 DAYS

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS

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 DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL.

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 DEFICIENT TREES AND WEEDS.

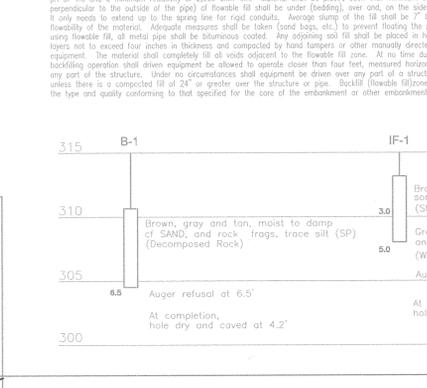
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER. ONCE EVERY 2 TO 3 YEARS.

4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

OWNER / DEVELOPER
 MICHAEL FFALL
 3675 PARK AVENUE, SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

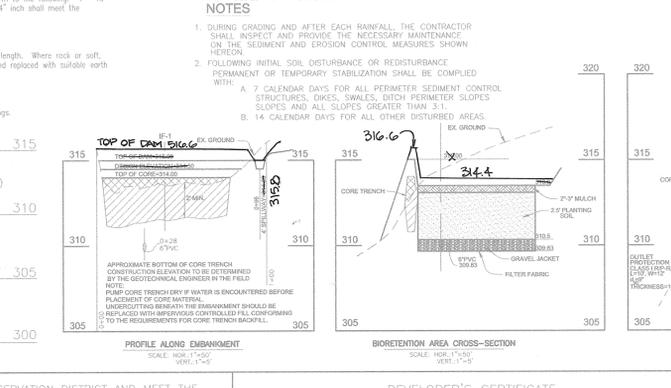
ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ROBERT H. VOGEL
 12/3/03
 DATE



BORING PROFILES BIORETENTION FACILITY
 NOT TO SCALE

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4\"/>



DEVELOPER'S CERTIFICATE
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

ROBERT H. VOGEL, P.E. #161003
 12/04/03
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DATE

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

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DATE

SEDIMENT AND EROSION CONTROL DETAILS THORNTON WOODS OVERLOOK
 LOTS 1- 10 AND OPEN SPACE LOT 11 & 12

TAX MAP #42 GRID 16
 6TH ELECTION DISTRICT

PARCEL '41'
 HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC.
 7125 Riverdrive Drive, Columbia, Maryland 21046-2354
 Phone: 410-290-9550 Fax: 410-720-6226
 Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: MMH
 DRAWN BY: MMH
 CHECKED BY: JCO
 DATE: DECEMBER 3, 2002
 SCALE: AS SHOWN
 W.O. NO.: 2019034

3 SHEET OF 5

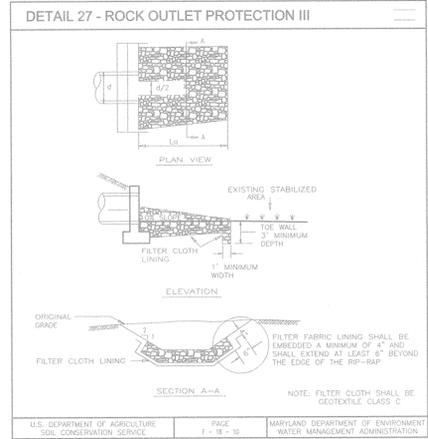
LEGEND

EXISTING CONTOUR	382	TREE PROTECTION FENCE	TPF
PROPOSED CONTOUR		STABILIZED CONSTRUCTION ENTRANCE	SCE
EXISTING TREELINE		SUPER SILT FENCE	SSF
EXISTING BRUSHLINE		SILT FENCE	SF
PROPOSED TREELINE		EARTH DIKE	ED A-1
SOIL BOUNDARY	GrB2	LIMIT OF DISTURBANCE	LOD
STREAM BUFFER		EROSION CONTROL MATING	ECM
WETLAND BUFFER			
WETLAND			
SLOPES 25% >			
SLOPES 15% TO 24.9%			
FOREST CONSERVATION EASEMENT			

SOILS LEGEND

SYMBOL	NAME/DESCRIPTION	TYPE
SID2	SASSAFRAS GRAVELLY SANDY LOAM, 10%-15% SLOPES, MODERATELY ERODED.	B
SIB2	SASSAFRAS GRAVELLY SANDY LOAM, 1%-5% SLOPES, MODERATELY ERODED.	B
BH	BRANDYWINE LOAM, 75%-60% SLOPES.	C
WQA	WATCHUNG SILT LOAM, 0%-3% SLOPES.	D

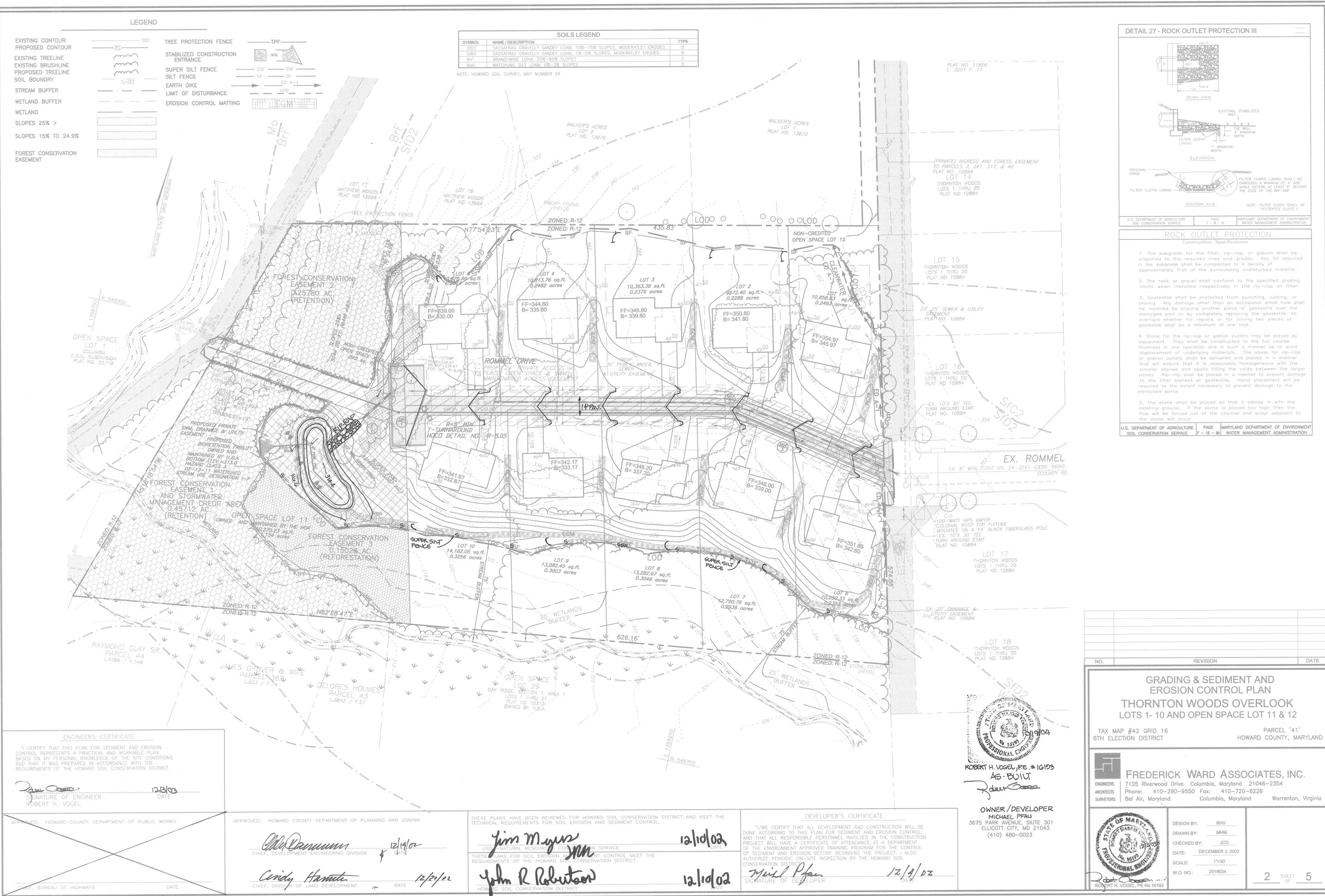
NOTE: HOWARD SOIL SURVEY, MAP NUMBER 26



ROCK OUTLET PROTECTION
Construction Specifications

- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
- Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
- The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 18-24 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



SHEET INDEX	
1	ROAD CONSTRUCTION PLAN
2	GRADING & SEDIMENT AND EROSION CONTROL PLAN
3	SEDIMENT AND EROSION CONTROL DETAILS BIORETENTION SOIL SPECIFICATION
4	LANDSCAPING, FOREST CONSERVATION, AND SUPPLEMENTAL INFORMATION SHEET
5	FINAL DRAINAGE AREA MAP

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	60.57'	150.00'	23°8'3"	30.70'	S89°24'22"W	60.15'

THORNTON WOODS OVERLOOK

LOTS 1-10 AND OPEN SPACE LOT 11 & 12

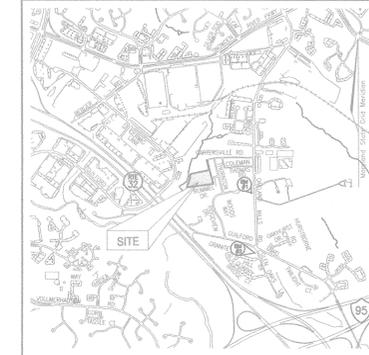
FINAL ROAD CONSTRUCTION PLAN

HOWARD COUNTY, MARYLAND

BENCHMARKS

BENCHMARK NO. 1: COUNTY CONTROL #42R5
N. 548,777.0609, E. 1,360,3609768
ELEV. = 391.54

BENCHMARK NO. 2: COUNTY CONTROL #42R6
N. 546,822.0895, E. 1,360,340.6529
ELEV. = 389.12

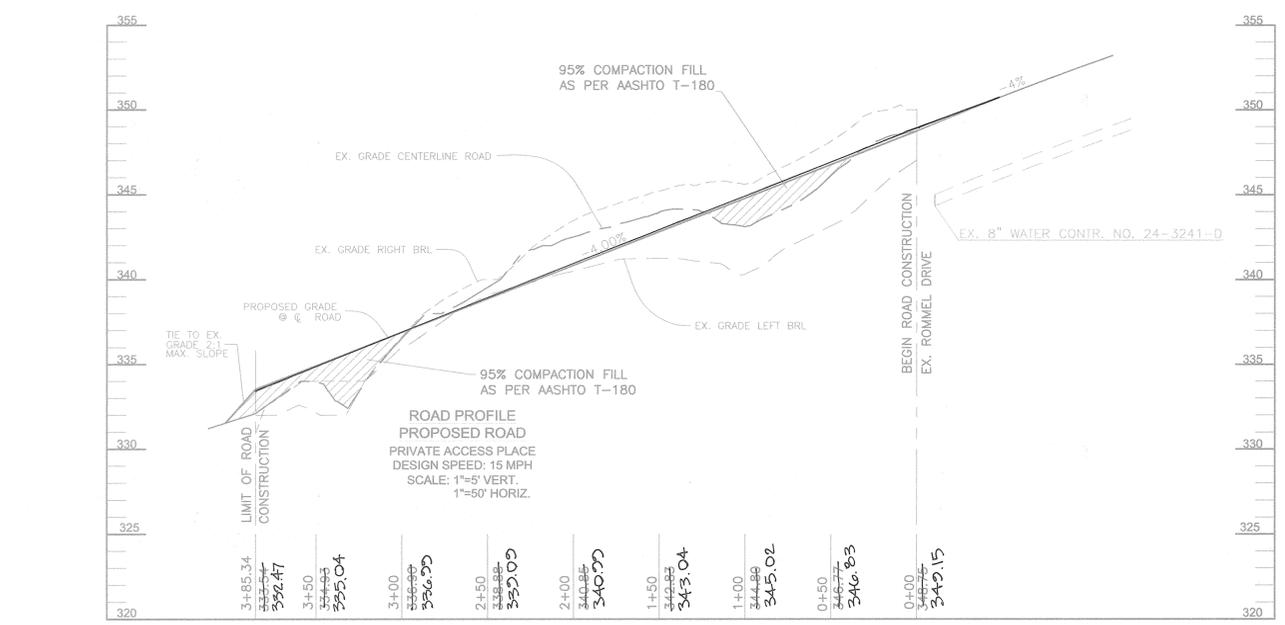


VICINITY MAP

SCALE: 1"=2000'

GENERAL NOTES

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- PROJECT BACKGROUND:
LOCATION: TAX MAP 42 & 3 BLOCK 16 PARCEL '41'
6TH ELECTION DISTRICT
ZONING: R-12
TOTAL TRACT AREA: 3.90 AC
DEED REFERENCE: PARCEL 41: 6212/418, PARCEL 3: 6212/415
NUMBER OF PROPOSED LOTS: 10 RESIDENTIAL LOTS, 2 OPEN SPACE LOTS
APPLICABLE DPZ FILE NUMBERS: WP-01-85, S-01-07, P-01-26
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY VOGEL & ASSOCIATES DATED FEB. 10, 1999.
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD RUN TOPOGRAPHY AND ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOA.
- WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE ACCESSED THROUGH CONTRACT NO. 24-3241-D. SEWER WILL BE ACCESSED THROUGH CONTRACT NO. C-383A
- STORMWATER MANAGEMENT TO BE PROVIDED FOR THE DEVELOPMENT BY BIORETENTION.
THE FACILITY WILL BE LOCATED ON OPEN SPACE LOT 11 AND WILL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE WATERSHED IS THE PATENTED RIVER AREA, 02-13-11 AND THE STREAM USE IS CLASS I-P.
- WETLANDS DELINEATED BY ECO-SCIENCES 09-27-00.
- THERE ARE NO FLOODPLAINS ON SITE.
- FOREST STAND DELINEATION PLAN PREPARED BY VOGEL & ASSOCIATES, INC. DATED OCTOBER 18, 2000.
- APFO TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED OCTOBER 2000.
- THERE ARE NO STEEP SLOPES ONSITE WITH A CONTIGUOUS AREA OF 20,000 SF OR GREATER.
- STREET LIGHTS ARE PROVIDED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE ZONING REGULATIONS WAVED AS PER WP-01-85 TO PERMIT THE MINIMUM PUBLIC ROAD FRONTAGE OF 20 FT FOR A NON-PIPESTEM RESIDENTIAL LOT THAT CANNOT BE FURTHER SUBDIVIDED TO BE REDUCED TO 10.4 FT FOR LOT 1 AND 14 FT FOR LOT 6. SECTION 16.121(e)(1) WAVED AS PER WP-01-85 TO PERMIT THE REQUIRED 40 FT OF PUBLIC ROAD FRONTAGE FOR OPEN SPACE 11 WHERE PEDESTRIAN AND MAINTENANCE VEHICLE ACCESS WILL OCCUR TO BE REDUCED TO ZERO FEET. WAIVER IS SUBJECT TO COMPLIANCE WITH THE FOLLOWING CONDITIONS:
A. THE 24'-35' PRIVATE ACCESS PLACE SHALL PROVIDE VEHICULAR AND PEDESTRIAN ACCESS TO LOTS 1-10 AND HOA OWNED OPEN SPACE LOT 11.
B. THE 24'-35' PRIVATE ACCESS PLACE EASEMENT AT THE T-TURNAROUND ON LOTS 5 & 10 SHALL BE WIDENED 2-5 FT EASTWARD IN ORDER TO PROVIDE AN ADEQUATE EASEMENT AREA FOR THE PURPOSE OF MAINTAINING THE T-TURN AROUND AREA ON THESE LOTS.
WP-01-85 APPROVAL DATED MARCH 9, 2001.
S-01-07 APPROVAL DATED APRIL 20, 2001.
- BASED ON THIS PLAN BEING SUBMITTED PRIOR TO 11/15/01, ON 06/28/01, IT (AND THE SUBDIVISION) IS "GRANDFATHERED" AND SUBJECT TO COMPLIANCE WITH THE FOURTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. IN ADDITION, BECAUSE THIS PLAN WAS NOT APPROVED PRIOR TO 11/01/01, IT (AND THE SUBDIVISION) IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001, WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS.
- FOREST CONSERVATION PLAN WAS PREPARED BY FREDERICK WARD ASSOCIATES, INC DATED JUNE, 2002. FOREST CONSERVATION OBLIGATIONS FOR THIS SITE, HAVE BEEN MET BY THE RETENTION OF 0.71AC., FEE-IN-LIEU-OF REFORESTATION FOR 0.30 AC AND 0.15 AC. OF REFORESTATION. SEE SHEET 4 FOR SURETY AND FEE AMOUNTS.
- ALL LANDSCAPING REQUIREMENTS, AS SET FORTH IN THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH PERIMETER LANDSCAPING REQUIREMENTS AND WILL BE POSTED AS PART OF THE D.P.W. DEVELOPER'S AGREEMENT. THE LANDSCAPE PLAN IS PROVIDED UNDER THIS PLAN.
- FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING IN THE AMOUNT OF \$3,900 FOR 13 SHADE TREES SHOWN ON LOTS 1-4, 6 & 10 MUST BE POSTED AS PART OF THE BUILDER'S GRADING PERMIT (WITH S.D.). FINANCIAL SURETY IN THE AMOUNT OF \$7,000.00 (\$8,600 FOR THE 22 PRIVATE ACCESS PLACE STREET TREES AND \$600.00 FOR THE TRASH PAD SHURHS) SHALL BE POSTED AS A LANDSCAPE SURETY WITH THE DEVELOPER'S AGREEMENT. (SEE NOTE 4 ON SHEET 4).
- DRIVEWAY ENTRANCES ARE TO BE PER HOWARD COUNTY DETAIL R6.06. CURB AND GUTTER AT END OF TURN AROUND TO BE PER HOWARD COUNTY DETAIL R3.03.
- COORDINATES: HORIZONTAL DATUMS BASED ON NAD 83
HO. CO. GEODETIC CONTROL STATIONS 42R5 AND 42R6.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, OR PLACEMENT OF NEW STRUCTURES IS PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR TREE BUFFERS AND FOREST CONSERVATION EASEMENT AREAS, EXCEPT AS SHOWN ON THE APPROVED ROAD PLANS.



STORMWATER MANAGEMENT REQUIREMENTS

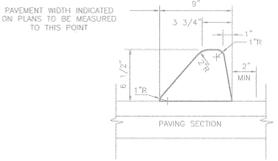
PRIOR TO CREDITS
DRAINAGE AREA 1:(NO DEVELOPMENT)
WQv Cpv Rev
N/A N/A N/A
DRAINAGE AREA 2:
WQv Cpv Rev
3.236 CF N/A* 842 CF
*Cpv NOT REQUIRED SINCE THE 1YR. DEVELOPED DISCHARGE IS LESS THEN 2CFS.
DRAINAGE AREA 3:(NO DEVELOPMENT)
WQv Cpv Rev
N/A N/A N/A

SITE DATA

LOCATION: TAX MAP 42 & 3 BLOCK 16, PARCELS 41 & 3
6TH ELECTION DISTRICT
EXISTING ZONING: R-12
GROSS AREA OF PARCEL: 169938 SQ.FT. (3.9057 ACRES)
AREA OF RIGHT OF WAY: 0.00
AREA OF FLOODPLAIN: 0.00
AREA OF STEEP SLOPES: 7939 SQ. FT. (0.1822 ACRES)
NET AREA OF PROJECT: 161999 SQ. FT. (3.7235 ACRES)
NUMBER OF PROPOSED RESIDENTIAL LOTS: 10
AREA OF PROPOSED RESIDENTIAL LOTS: 113412 SQ. FT. (2.67 ACRES)
AREA OF SMALLEST BUILDABLE LOT PROPOSED: 9972 SQ. FT. (LOT 2)
NUMBER OF PROPOSED OPEN SPACE LOTS: 2
CREDITED OPEN SPACE: 1.1506 ACRES(25%)
NON-CREDITED OPEN SPACE: 0.0785 ACRES
AREA OF OPEN SPACE REQUIRED: 20% OF GROSS AREA OF PARCEL (0.780 AC.)
TOTAL AREA OF OPEN SPACE PROPOSED: 1.2293 ACRES

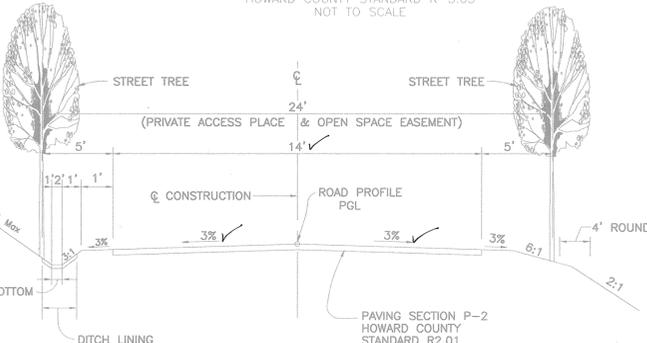
LEGEND

- Stream
- Stream Buffer
- Wetlands
- Wetlands Buffer
- Spot Elevation
- Direction of Flow
- Proposed Street Trees



STANDARD BITUMINOUS CURB

HOWARD COUNTY STANDARD R-3.03
NOT TO SCALE



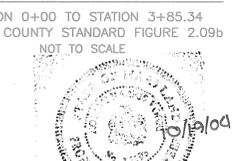
ROMMEL DRIVE

TYPICAL ROADWAY SECTION

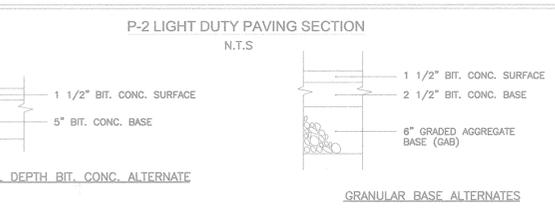
CLASSIFICATION : PRIVATE ACCESS PLACE

DESIGN SPEED 15 MPH

STATION 0+00 TO STATION 3+85.34
HOWARD COUNTY STANDARD FIGURE 2.09b
NOT TO SCALE



OWNER/DEVELOPER
MICHAEL PFALZ
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DATE: 12/19/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 12/20/02

ROAD CONSTRUCTION PLAN

THORNTON WOODS OVERLOOK

LOTS 1- 10 AND OPEN SPACE LOT 11 & 12

TAX MAP #42 GRID 16 PARCELS 41 & 3
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC.
7125 Riverwood Drive Columbia, Maryland 21046-2354
Phone: 410-290-9550 Fax: 410-720-6226
Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: MHM
DRAWN BY: MHM
CHECKED BY: JCO
DATE: DECEMBER 3, 2002
SCALE: AS SHOWN
W.O. NO.: 2019034