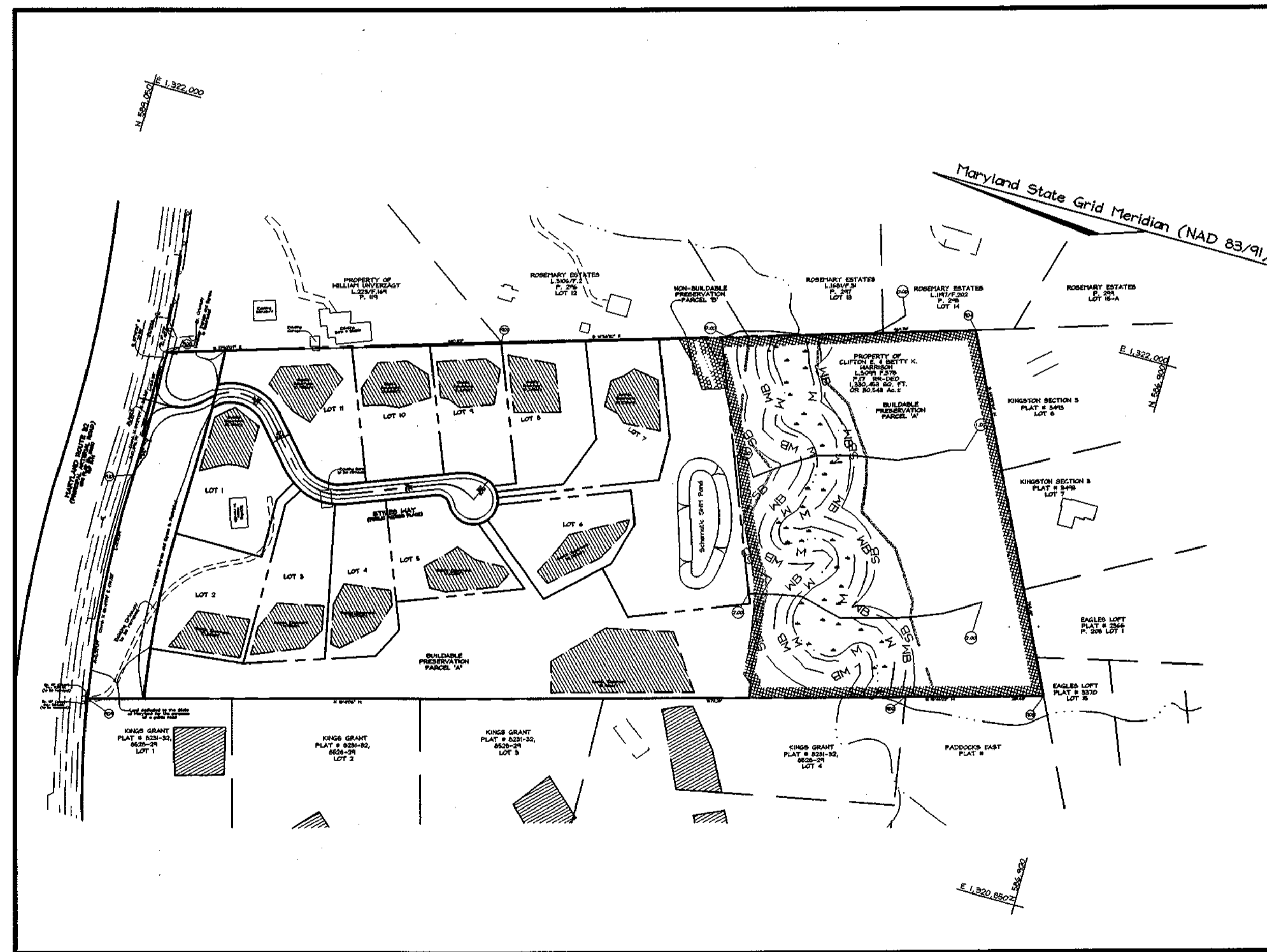


GENERAL NOTES

- This plan is subject to compliance with the 4th Edition of the Howard County Subdivision Regulations and the recently amended Howard County Zoning Regulations pursuant to Council Bill 50-2001.
- Subject property zoned RR-DEO per 10/18/93 Comprehensive Zoning Plan.
- Private water and sewer will be used within this site.
- Total area of property = 30.543 ac.±
- Area of proposed public R/W: 2.607 ac.±
- Number of proposed buildable lots: 11
- Area of proposed buildable lots: 11.486 ac.±
- Number of proposed non-buildable preservation parcels: 1
Area of proposed non-buildable preservation parcels: 2.49 ac.±
- Number of proposed buildable preservation parcels: 1
Area of proposed buildable preservation parcels: 13.98 ac.±
- Density calculations:
a.) Number of lots based on own density: 30.543ac / 4.25 = 7.18, therefore 7 units
b.) Net Tract Area: 30.543ac - 4.34ac(100 yr. floodplain) - 0.67ac(slopes 25% or greater) = 25.533 ac
c.) Maximum number of lots allowed based on DEO option: 25.533ac / 2 = 12.766 = 12 units
d.) Total number of DEO units required: 12 - 7 = 5 units
- Open space requirements:
a.) Minimum open space required = 30.543ac x 5% = 1.527 ac
b.) Non-buildable preservation parcel 'B' will be owned and maintained by the H.O.A. and will contain the Stormwater Management Facility. This Non-buildable preservation parcel will satisfy the open space requirements. Total area = 2.49 Ac.±
- The lots shown herein comply with the minimum ownership, width and lot area as required by the Maryland State Department of the Environment.
- This area designates a private sewage easement of at least 10,000 square feet (or 10,000 square feet per lot for shared drain fields associated with a shared sewage disposal facility) as required by the Maryland State Department of the Environment for individual sewage disposal (COMAR 26.04.05). Improvements of any nature in this area are restricted until public sewer is available. These easements shall become null and void upon connection to a public sewage system. The County Health Officer shall have the authority to grant variances for encroachments into the private sewage easement. Recordation of a modified sewage easement shall not be necessary.
- All wells and septic fields within 100' of property's boundary have been shown where pertinent.
- The septic fields are located on soil types CHC2, Cs, MqC2, MIB2, MID2 and MID3 as per the soil survey of Howard County, Soils Map #14.
- All percussion test holes and their elevations have been field located by C.B. Miller and Associates, registered land surveyor.
- On-site topography based on a Field Run Topographic Survey prepared by C.B. Miller & Associates in August, 2001 with two foot contours (one foot contours are provided in the septic area for Preservation Parcel 'A'). Off-site and non-critical topography based on Howard County 1998 Aerial Topographic Survey with five foot contours.
- The septic field proposed for the Sand Mound system on Preservation Parcel 'A' is located on areas with slopes less than 12%. The septic area for Preservation Parcel 'A' is suitable for Sand Mound type systems only.
- All wells to be drilled prior to submittal of record plat for signature.
- Groundwater appropriations permit to be obtained prior to submittal of record plat for signature.
- Existing house on Lot 1 to remain. No new buildings, extensions or additions to the existing dwelling(s) are to be constructed at a distance less than the Zoning Regulations require.
- Existing well and septic system on Lot 1 to be properly abandoned and replaced prior to submittal of record plat for signature.
- A.P.F.O. traffic study prepared by Street Traffic Studies, approved under S-01-29 on 6/19/01.
- Wetlands delineation and report and Forest Stand delineation prepared by Exploration Research Inc. approved under S-01-29 on 6/19/01.
- The project is not within the metropolitan district.
- Previous Howard County file numbers: S-01-29, P-02-07
- The project is in conformance with the latest Howard County Standards unless waivers have been approved.
- The coordinates shown herein are based upon the Howard County Geodetic Control which is based on the Maryland State Plane Coordinate system. Howard County monument numbers 15CA and 15FA were used for this project.
- S.I.M. for CPV and HGV is provided in a Micro Pool Extended Detention facility and REV will be provided for in grass swales. The facility will be privately owned with joint maintenance by the H.O.A. and Howard County.
- No clearing, grading or construction is permitted within wetlands, streams or their buffers and forest conservation easement areas.
- The Floodplain study for this project prepared by FSH Associates in October, 2001.
- The noise study for this project was prepared by Staines Engineering Inc. in October, 2001.
- The geotechnical report for this project was prepared by Herbst, Benson and Associates dated January, 2002.
- 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 to the pipestem lot driveway.
- This plan complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation by retention of 5.12 ac. of existing forest on Preservation Parcel 'A' and afforestation of 0.12 ac. on Preservation Parcel 'B'.
- Financial Surety for the required landscaping will be provided as part of the Developer's Agreement in the amount of \$37,500.00 (for 106 shade trees @ \$300.00 each and 30 evergreen trees @ \$150.00 each).
- The Contractor shall notify the following utility companies or agencies at least five(5) working days before starting work shown on these plans:
State Highway Administration 410.531.5533
BGE(Contractor Services) 410.850.4620
BGE(Underground Damage Control) 410.787.9068
Mias Utility 1.800.257.7777
Colonial Pipeline Company 410.756.1330
Howard County, Dept. of Public Works, Bureau of Utilities 410.313.4900
Howard County Health Department 410.313.2640
ATT 1.800.252.1133
Verizon 1.800.743.0033/410.224.9210
Howard County Construction Inspection Division 410.313.1880
- FINANCIAL SURETY FOR FOREST CONSERVATION IN THE AMOUNT OF \$85,029.10 WILL BE PROVIDED AS PART OF THE DEVELOPER'S AGREEMENT.

ROAD CONSTRUCTION PLAN TWIN PINES

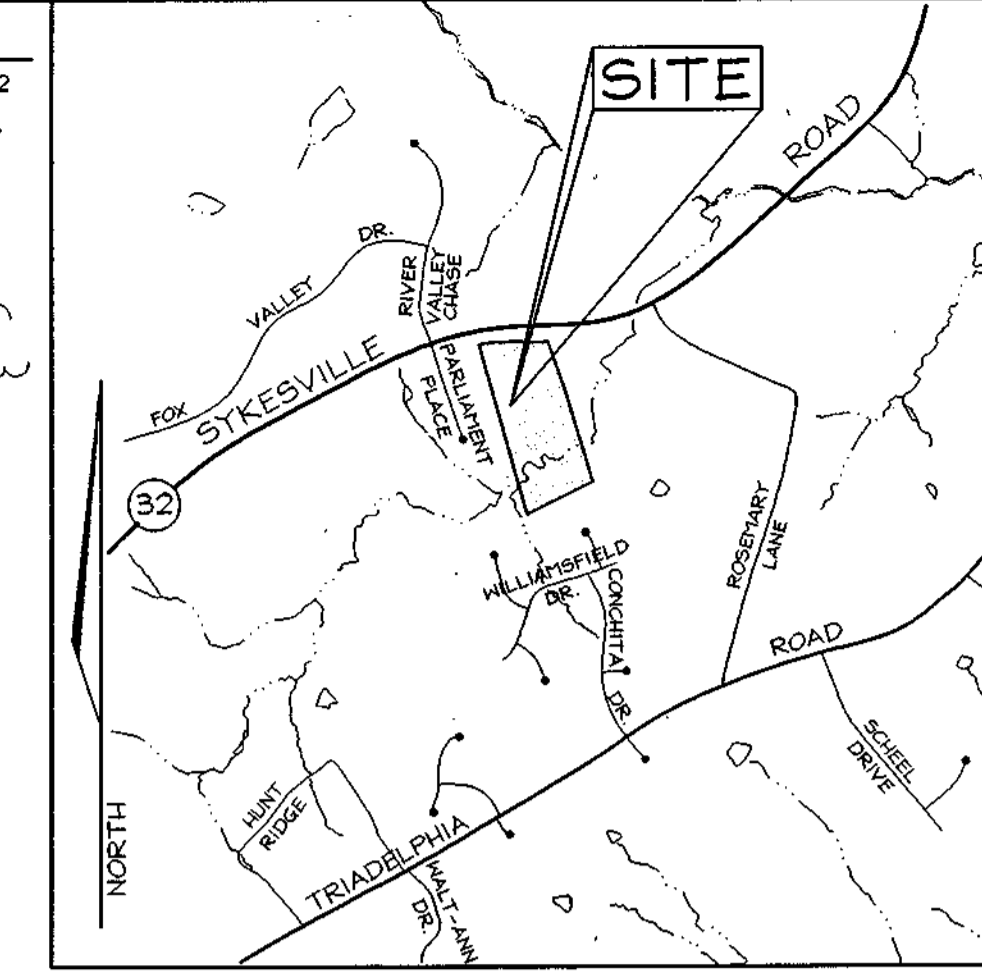
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCEL 'B' HOWARD COUNTY, MARYLAND



LOCATION MAP
SCALE: 1"=200'

LEGEND

- Existing Contour
- Proposed Contour
- Direction of Flow
- Existing Spot Elevation
- Proposed Spot Elevation
- Existing Trees
- Proposed Septic Easement
- Existing Septic Easement
- 15-24.99% Slopes
- 25-50% Slopes
- Wetlands
- Use-In-Common Access Easement
- Existing Dry Well



VICINITY MAP
SCALE: 1"=2000'

BENCHMARKS

Sta. 15CA	N 182,533.6473	E 404,194.9307	EL: 157.3223 (meters)
	N 598,862.638	E 1,325,913.787	EL: 516.148 (feet)
Sta. 15FA	N 181,632.8032	E 404,052.1342	EL: 148.4227 (meters)
	N 595,906.955	E 1,325,627.710	EL: 486.950 (feet)

SHEET INDEX

DESCRIPTION	SHEET No.
Cover Sheet	1 of 14
Road Plan and Profile	2 of 14
Sediment and Erosion Control and Grading Plan	3 of 14
Sediment and Erosion Control and Grading Plan	4 of 14
Traffic Control Plan, S.E.C. and Miscellaneous Details	5 of 14
Storm Drain Drainage Area Map	6 of 14
Storm Drain Profiles	7 of 14
Stormwater Management Notes and Details	8 of 14
Entrance Plan and Details	9 of 14
Landscape Plan	10 of 14
Landscape Plan	11 of 14
Forest Conservation Plan	12 of 14
Forest Conservation Plan	13 of 14
Forest Mitigation Plan	14 of 14

CENTERLINE ROAD CURVE DATA

CURVE No.	RADIUS	LENGTH	DELTA	CHORD BEARING	CHORD LENGTH
C1	100.00	82.71	47°23'31"	N24°53'37"W	80.38
C2	90.00	152.07	96°48'28"	N00°11'08"W	134.61
C3	100.00	122.17	70°00'00"	N31°3'06"E	114.72
C4	75.00	70.00	53°28'34"	N04°5'23"E	67.49

ROAD CLASSIFICATION

ROAD NAME	CLASSIFICATION	R/W
Stiles Way	Public Access Place	40'

MINIMUM LOT SIZE CHART

LOT NUMBER	GROSS AREA (sf)	PIPESTEM AREA (sf)	MINIMUM LOT SIZE
2	49,371.61±	3,299.20±	46,072.41±
7	48,836.56±	1,635.58±	47,200.97±
8	48,304.03±	527.97±	47,776.06±

U.S. EQUIVALENT COORDINATE TABLE

POINT	NORTHING	EASTING
900	588,872.0122	1,321,476.8887
901	588,222.8312	1,321,682.0134
904	587,295.3194	1,321,965.1479
905	586,958.4962	1,321,277.8243
906	587,229.6250	1,321,201.4400
909	588,836.5648	1,320,746.0805
910	588,870.8096	1,321,214.8501

STREET LIGHT TABLE

STREET NAME	STATION	OFFSET	FIXTURE
Stiles Way	0+46	80' RT.	250-Watt 30' pole with 12' arm

OWNER

Clifton E. & Betty K. Harrison
P.O. Box 287
West Friendship, Maryland 21794

DEVELOPER

Heritage Land Development
3060 Washington Road, Suite 220
Glenwood, Maryland 21733
Tel: (410)489-7300 Fax: (410)489-4754

COVER SHEET

TWIN PINES

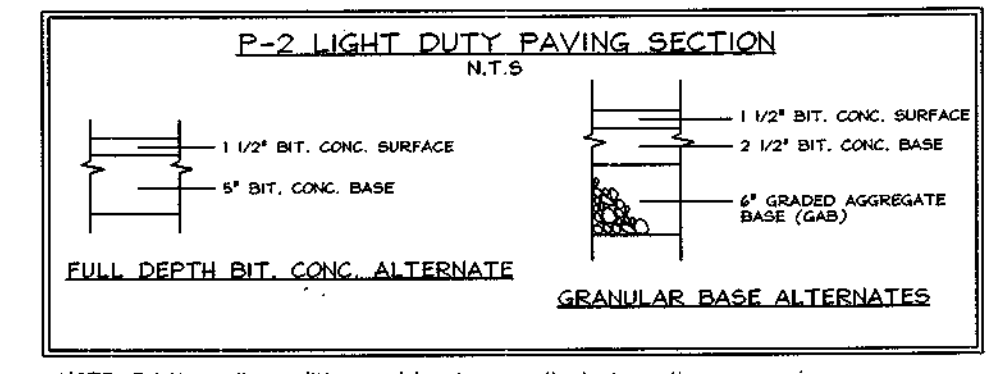
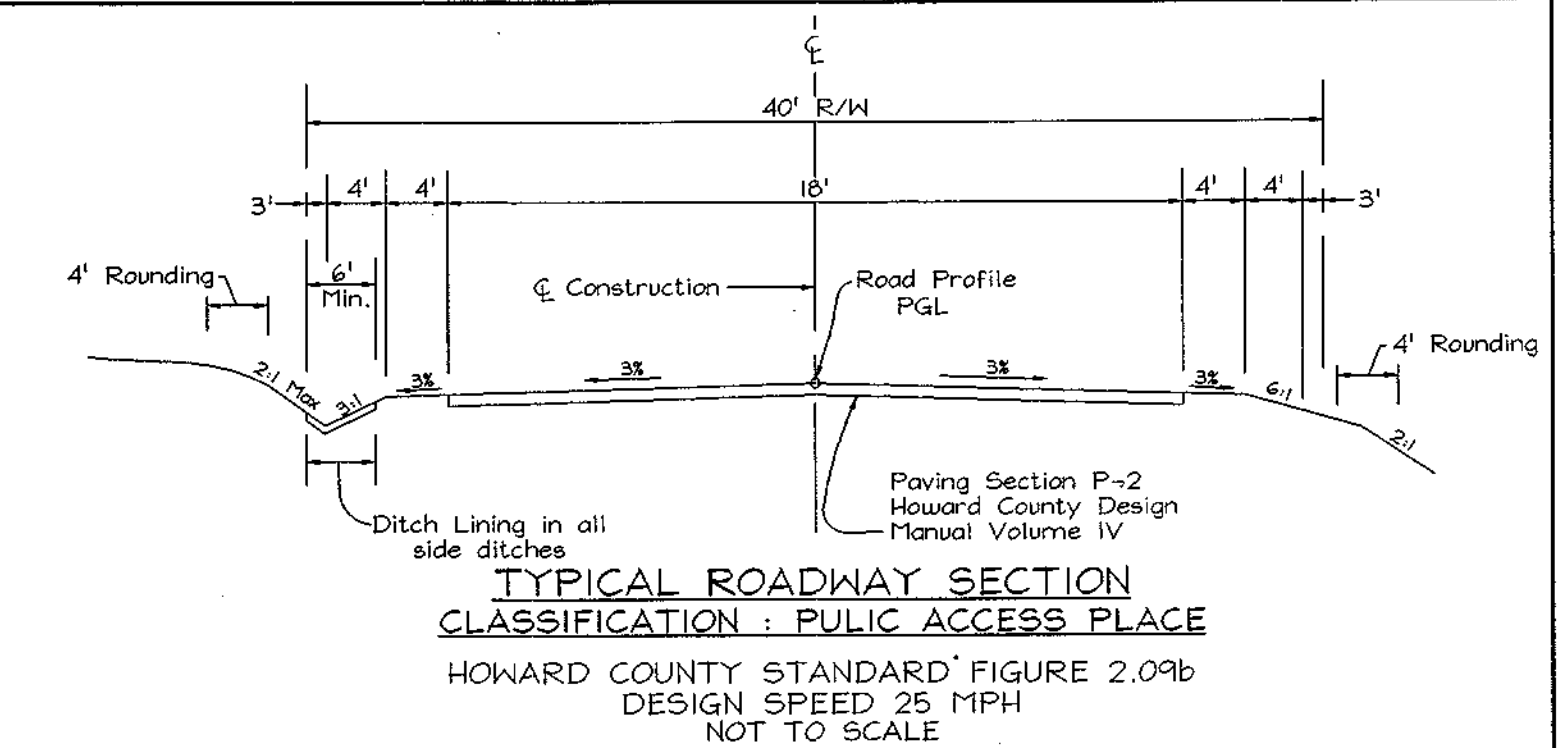
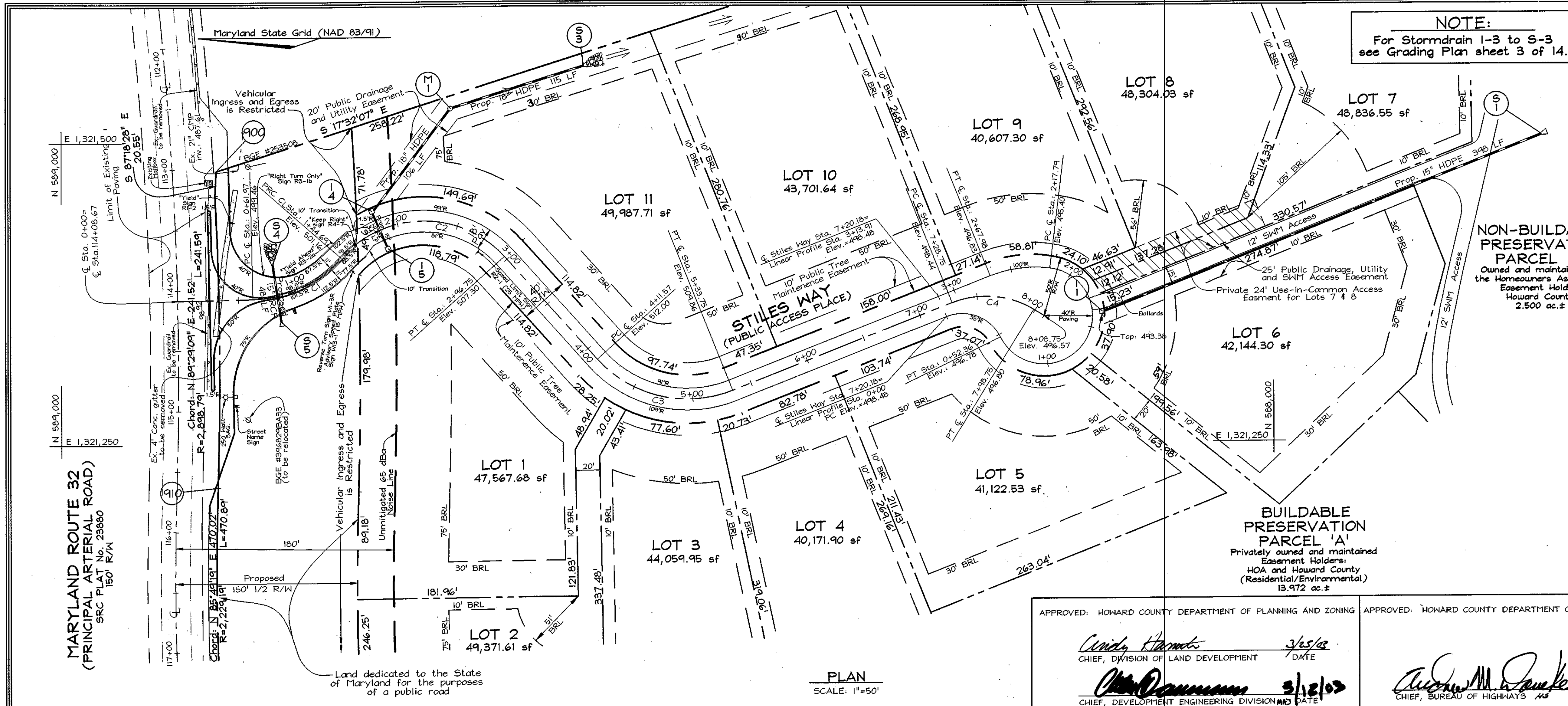
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8 PARCEL 17
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cindy Hamet 3/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Paulek 3-27-03
CHIEF, BUREAU OF HIGHWAYS DATE

DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Feb. 10, 2003
H.O. No.: 3048
SHEET No. 1 OF 14

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
Clifton E. & Betty K. Harrison
P.O. Box 287
West Friendship, Maryland 21794

DEVELOPER
Heritage Land Development
3060 Washington Road, Suite 220
Glenwood, Maryland 21738
Tel.: (410)489-7900 Fax: (410)489-4754

ROAD PLAN AND PROFILE
STILES WAY
TWIN PINES

LOTS 1 THRU 12, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCEL 'B'

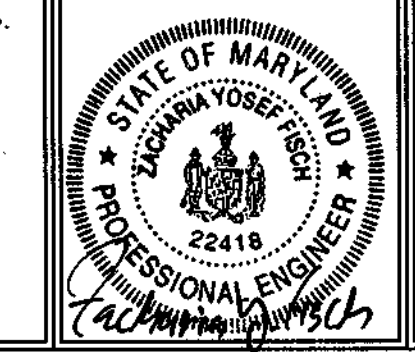
TAX MAP 22, GRIDS 3 & 8
3RD ELECTION DISTRICT

PARCEL 17
HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Wanda Harris 3/25/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

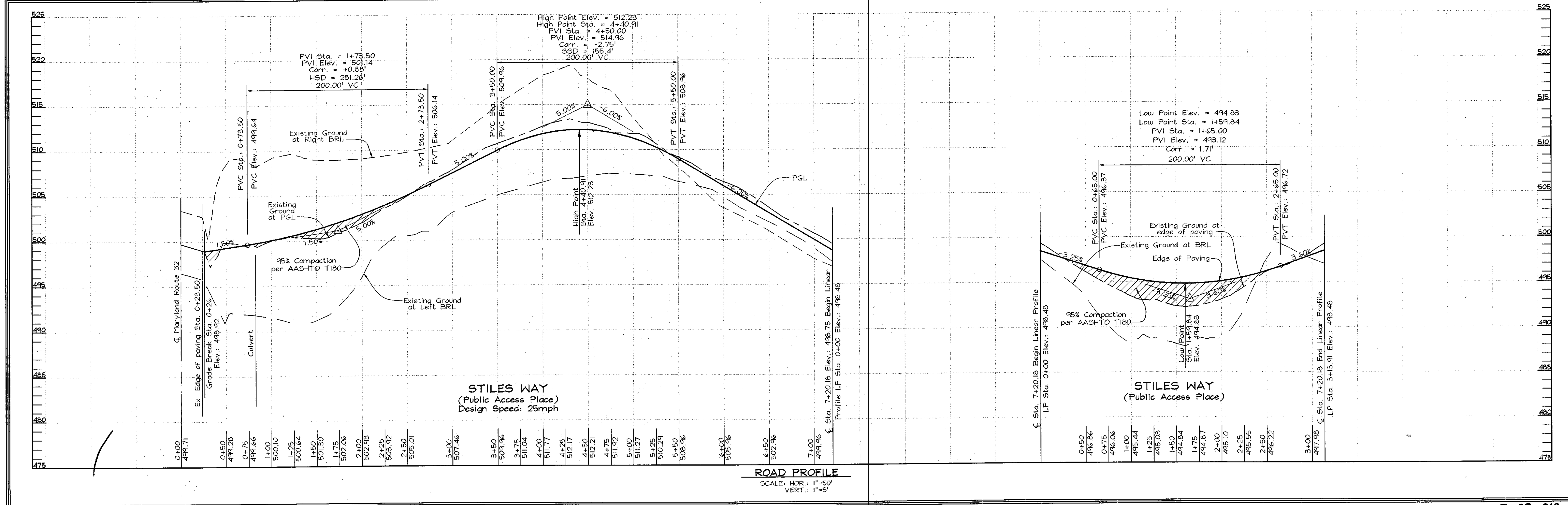
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
Chad Dammann 3/12/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Andrew M. Parker 3-1-07
CHIEF, BUREAU OF HIGHWAYS DATE



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

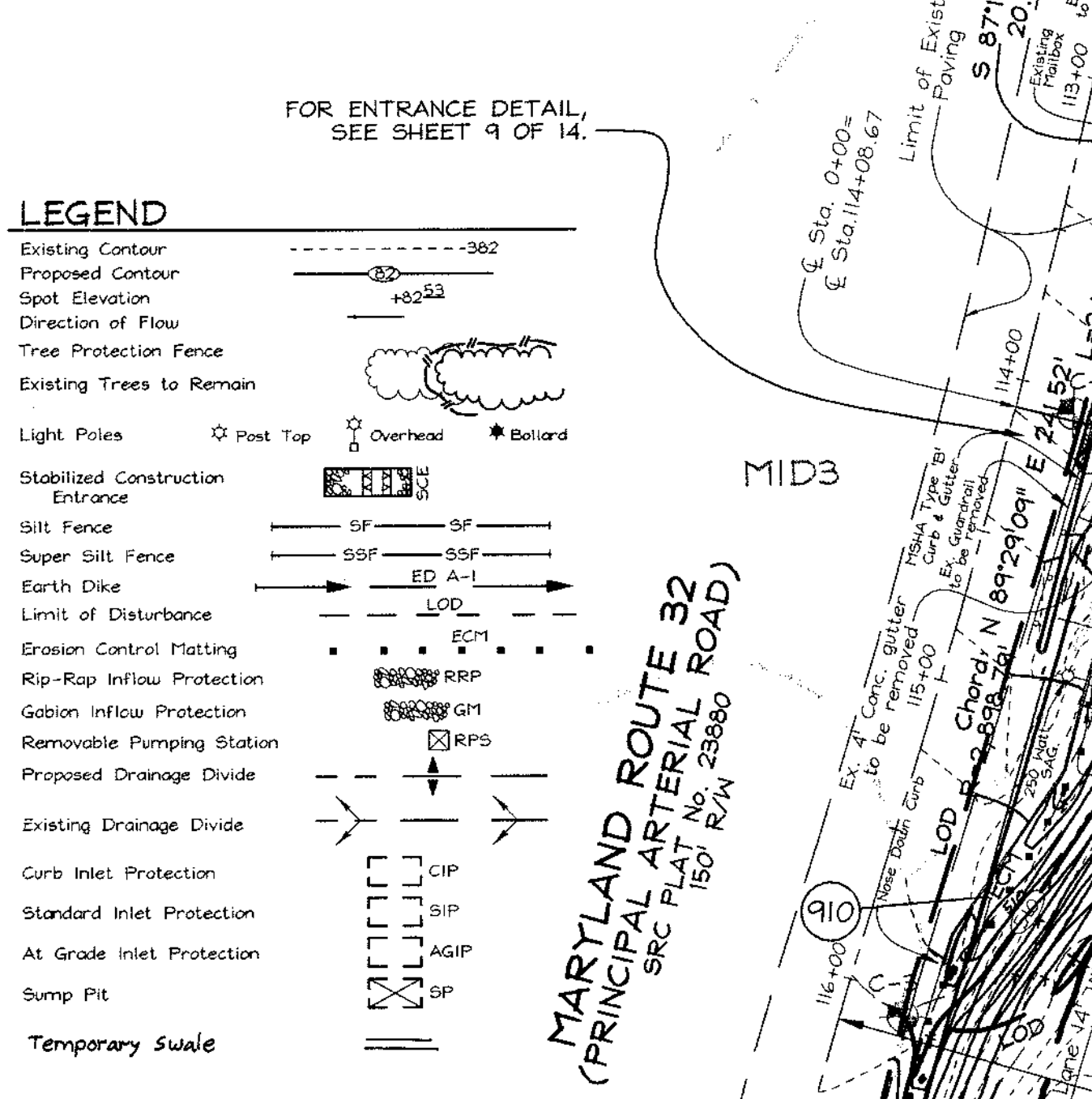
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DRAWN BY: PS/KO
CHECKED BY: ZTF
SCALE: As Shown
DATE: Feb. 10, 2008
I.C. No.: 3048
SHEET No. 2 OF 14



SYMBOL	NAME / DESCRIPTION	SOIL GROUP
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
ChD2	Chester silt loam, 15 to 25 percent slopes, moderately eroded	B
Cs	Comus silt loam	B
MgC2	Manor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MID2	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MIE	Manor loam, 25 to 45 percent slopes	B
MnF	Manor very stony loam, 25 to 60 percent slopes	B

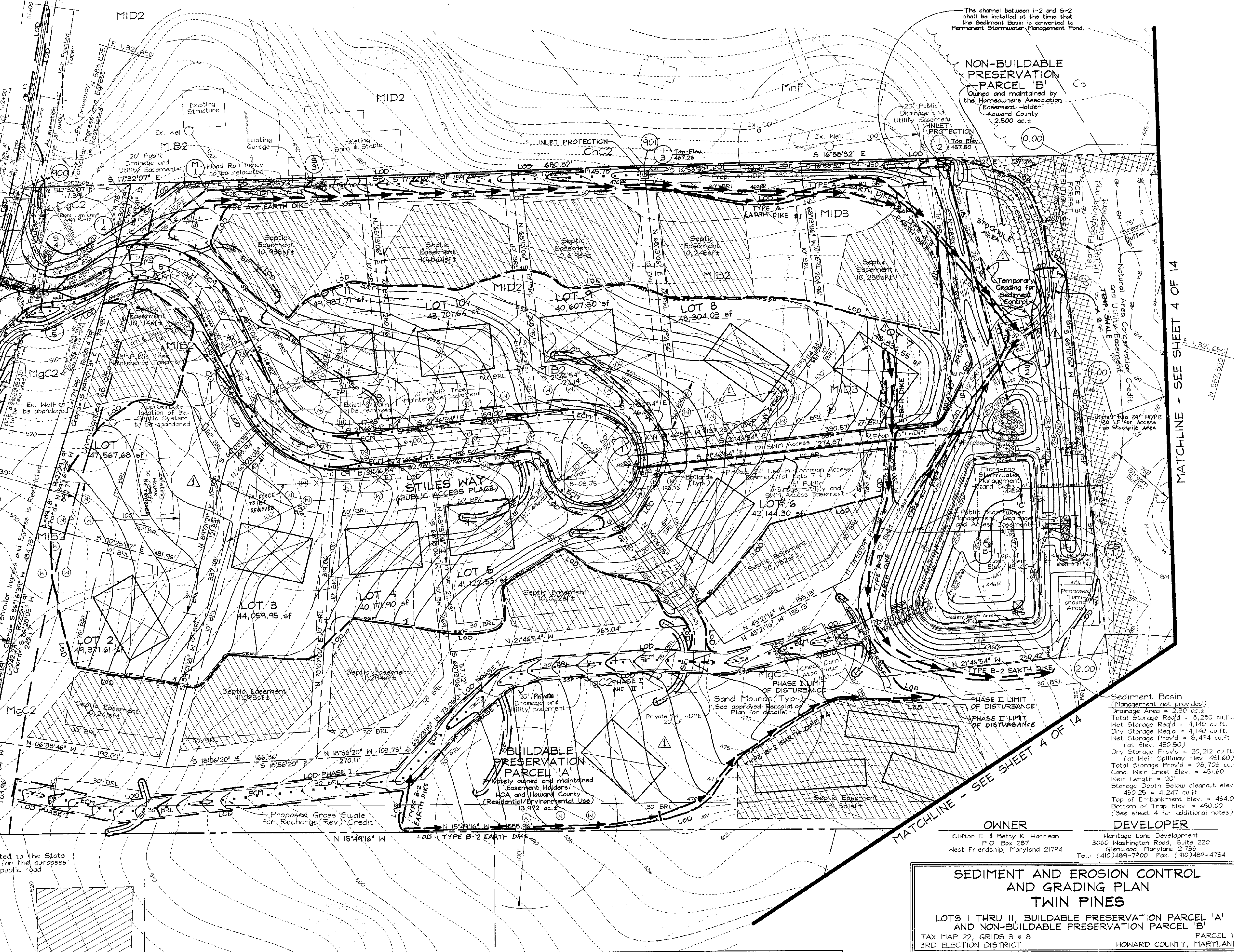
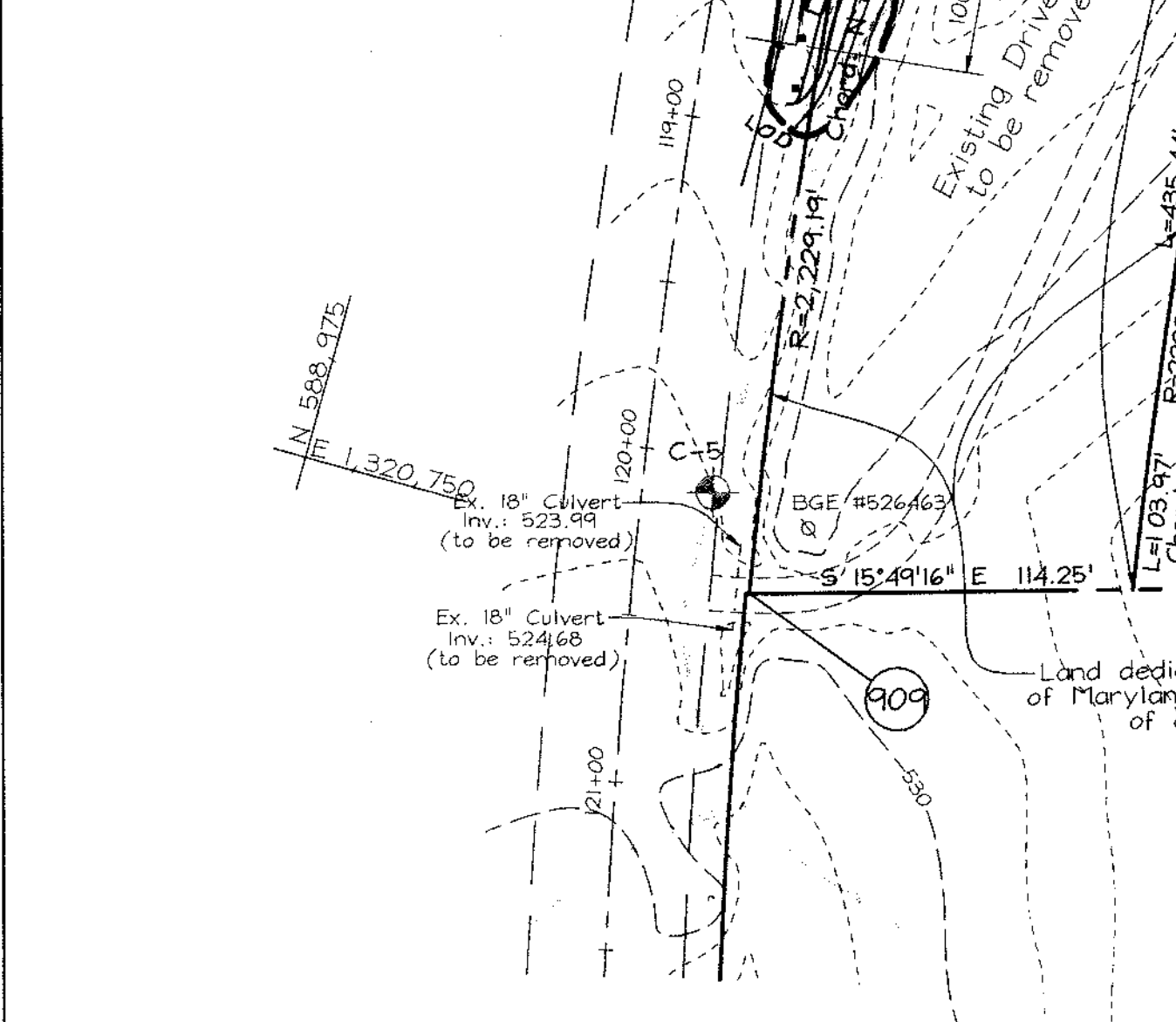
Maryland State Grid (NAD 83/91)

FOR ENTRANCE DETAIL, SEE SHEET 9 OF 14.



NOTE: THE LIMIT OF DISTURBANCE FOR THE GRASS SWALE BEHIND LOTS 2 THRU 6 IS PHASE I L.O.D. ALL OTHER LIMITS OF DISTURBANCE ARE PHASE II L.O.D.

NO.	REVISIONS	DATE
1	REVISE LIMITS OF DISTURBANCE, SEDIMENT CONTROLS, ALMS GRADE SITE.	11/18/03



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Cindy Hamant 3/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT

Chris P... 3/10/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. P... 3-7-03
CHIEF, BUREAU OF HIGHWAYS

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.

Timothy W. Feago 2-11-03
SIGNATURE OF DEVELOPER DATE

ENGINEER'S 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 HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Zacharia Y. Fisch 2-11-03
SIGNATURE OF ENGINEER DATE

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

Jim Meyer 2/26/03
DATE

John R. Robertson 2/26/03
DATE

SEDIMENT AND EROSION CONTROL AND GRADING PLAN
TWIN PINES
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8
3RD ELECTION DISTRICT

PARCEL 17
HOWARD COUNTY, MARYLAND

OWNER: Clifton E. & Betty K. Harrison
3060 Washington Road, Suite 220
West Friendship, Maryland 21794
Tel: (410)489-7400 Fax: (410)489-4754

DEVELOPER: Heritage Land Development
831 Forest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

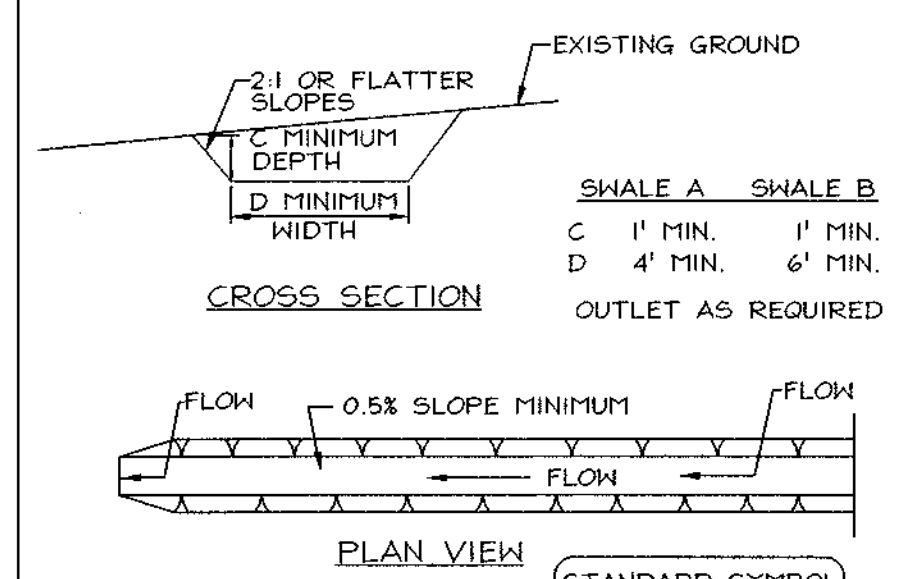
DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZYF
SCALE: 1"=50'
DATE: Feb 10, 2003
I.O. No.: 3048
SHEET No. 3 OF 14

MATCHLINE - SEE SHEET 4 OF 14

MATCHLINE - SEE SHEET 4 OF 14

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
ChD2	Chester silt loam, 15 to 25 percent slopes, moderately eroded	B
Cs	Census silt loam	B
MgC2	Manor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MID2	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MIE	Manor loam, 25 to 45 percent slopes	B
MnF	Manor very stony loam, 25 to 60 percent slopes	B

DETAIL 2 - TEMPORARY SWALE



DRAINAGE AREA = 10 AC. (MAX)
SLOPE = 10% (MAX)

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

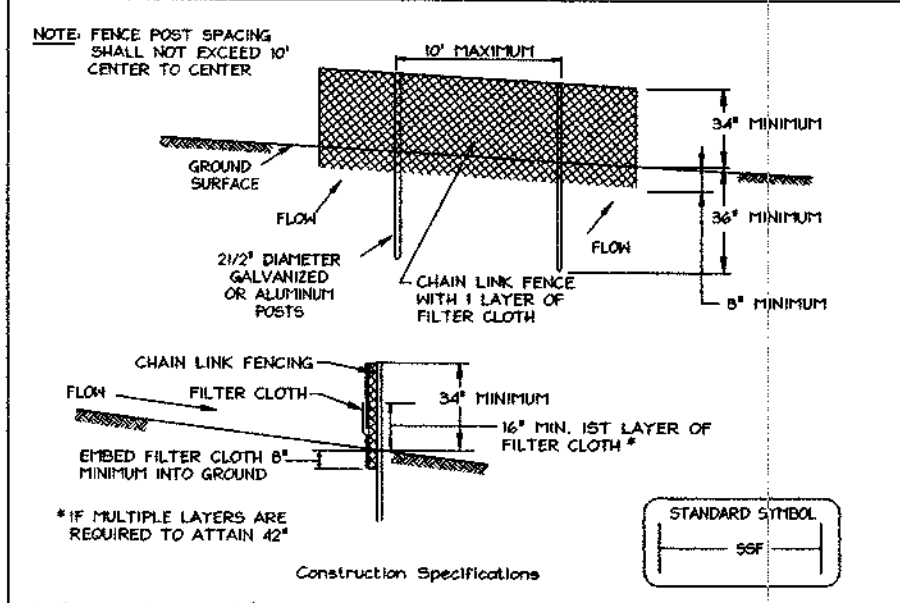
- Seed and cover with straw mulch.
- Seed and cover with Erosion Control Matting or line with sod.
- 4"-7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

Construction Specifications

- All temporary swales shall have unimproved positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
- Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
- Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a 10%+ positive velocity.
- All trees, brush, stumps, obstructions and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
- The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
- Fill, if necessary, shall be compacted by earth moving equipment.
- All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
- Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE A-2-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE



- 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.
- Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and cross rods, drive anchors and post caps are not required except on the ends of the fence.
- Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
- Filter cloth shall be embedded a minimum of 6" into the ground.
- When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
- Maintenance shall be performed as needed and silt buildups removed when "benches" develop in the silt fence, or when silt reaches 50% of fence height.
- 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.)
Tensile Modulus: 20 lbs/in (min.)
Flow Rate: 0.3 gal/ft minute (max.)
Filtering Efficiency: 75% (min.)

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MATCHLINE - SEE SHEET 3 OF 14



No.	Description	Date
1	Added SUPER SILT FENCE DETAIL	11.18.03
2	Added Temporary Swale Detail	11.18.03
REVISIONS		

- Sediment Basin Notes:**
- While the SWM facility functions as a sediment basin, the following items need to be done:
- The rip-rap at S-1, S-2 and forebay spillway will not be installed.
 - The SWM facility access drive will not be completely graded out due to the interference with sediment control measures.
 - The swale from 1-2 to the forebay will not be constructed. The temporary grading around the forebay as shown on the plans will be constructed instead.
 - The WQV 2.3" diameter low flow orifice will be temporarily clogged. See weir structure detail on the plans.
 - The rip-rap in low channel and a portion of the western pond edge shall not be constructed until sediment control measures are removed.
 - The SWM facility wetpool area will not be graded.

OWNER: Clifton E. & Betty K. Harrison, P.O. Box 287, West Friendship, Maryland 21794

DEVELOPER: Heritage Land Development, 3060 Washington Road, Suite 220, Glenwood, Maryland 21738, Tel.: (410)489-7900 Fax: (410)489-4754

SEDIMENT AND EROSION CONTROL AND GRADING PLAN
TWIN PINES

LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8 PARCEL 17
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

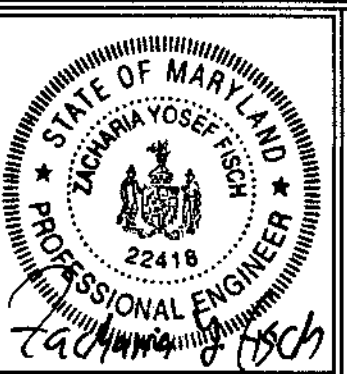
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cinda Hamt 3/25/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Dworkin 3-7-03
CHIEF, BUREAU OF HIGHWAYS DATE

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.
Timothy W. Feago 2-11-03
SIGNATURE OF DEVELOPER DATE
Timothy W. Feago

ENGINEERS CERTIFICATE
I/WE 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.
Zacharia Y. Fisch 2-11-03
SIGNATURE OF ENGINEER DATE
Zacharia Y. Fisch

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
John R. Plator 2/26/03
HOWARD SOIL CONSERVATION DISTRICT DATE



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

DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZYF
SCALE: 1"=50'
DATE: Feb. 10, 2003
I.C. No.: 3048
SHEET No. 4 OF 14

2.0 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 vegetation growth. Topsoil of concern here is the material that is the nutrient layer, but not the material that is the substrate. It is the material that is the nutrient layer, but not the material that is the substrate. It is the material that is the nutrient layer, but not the material that is the substrate.

Conditions Where Practice Applies
1. This practice is limited to areas having 24" 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 supply of moisture and plant nutrients.
c. The original soil to be vegetated contains minimal levels of 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 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 conducted in cooperation with Maryland Agricultural Experiment 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, sandy sand. Other soils may be used if recommended by a qualified soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a result of grading operations. Topsoil shall contain less than 5% by volume of cinders, shales, slag, or other materials larger than 1/2" in diameter.
b. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, johnsongrass, nutcracker, poison ivy, thistle, or others as specified.
c. If the soil is subject to 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.
d. For sites having disturbed areas under 5 acres:
i. Place topsoil (if required) and apply soil amendments as specified in 2.0.2 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
ii. For sites having disturbed areas over 5 acres:
i. On soil meeting topsoil specifications, obtain test results indicating 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 lowest soil depth is between 6.0 and 7.5, if the lowest soil depth is 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 on which has been treated with soil stabilizers or chemicals used for pest control until sufficient time has elapsed (30 days min.) to permit dissipation of phytotoxic materials.
NOTE: Topsoil substitutes or amendments, as recommended by a qualified approval 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 amendments as specified in 2.0.2 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
v. Topsoil Application
When topsoiling, maintain desired erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Side Fence and Sediment Traps and Basins.
ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" or higher in elevation.
iii. Topsoil shall be uniformly distributed in a 4" - 6" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that seeding or sodding can proceed with a minimum of 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 DESIRED.

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

SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following:
1) Preferred - Apply 2 tons per acre dolomitic limestone (70 lbs/1000 sq ft.) and 400 lbs per acre 10-10-10 fertilizer (24 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 20-20-20 ureaform fertilizer (18 lbs/1000 sq ft.).
2) Acceptable - Apply 2 tons per acre dolomitic limestone (70 lbs/1000 sq ft.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft.) before seeding. Harrow or disc into upper three inches of soil.

SEEDING: For the period October 1 thru April 30, and August 1 thru October 15, seed with 40 lbs per acre (1.4 lbs/1000 sq ft.) of Turf Type Tall Fescue. For the period May 1 thru July 31, seed with 20 lbs/1000 sq ft. of Turf Type Tall Fescue per acre and 2 lbs per acre of 20-20-20 ureaform fertilizer (18 lbs/1000 sq ft.) on October 1 thru February 28, and 1 lb per acre of 20-20-20 ureaform fertilizer (18 lbs/1000 sq ft.) on March 1 thru April 30. Seed with 50 lbs/acre Kentucky 31 Tall Fescue and match with 2 tons/acre well anchored straw.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 100 lbs/1000 sq ft.) of unrotted small grain straw immediately after seeding. Anchor straw immediately after application using mulch anchoring tool or 200 gallons per acre (5 gal/1000 sq ft.) of unrotted straw applied on full spread. On slopes 2:1 or steeper, use 340 gallons per acre (6 gal/1000 sq ft.) for anchoring.

MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseedings.

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permit Sediment Control Division prior to the start of any construction (313-10955).

2. All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in accordance with the 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.

3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within (7) calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater than 3:1, (6) 14 days as to all other disturbed or graded areas on the project site.

4. All sediment transport basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.

5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. For permanent seeding, sod, temporary seeding, and mulching (See G). Temporary stabilization with mulch alone shall 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 their removal has been authorized by the Howard County Sediment Control Inspector.

7. Site Analysis:
Total Area: 15.15 ACRES
Area to be seeded: 0.27 ACRES
Area to be vegetatively stabilized: 12.66 ACRES
Total Fill: 5,000 CY
Total Fill: 5,000 CY

8. Any sediment control practice which is prohibited 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 required upon completion of installation of permanent 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 within one working day, whichever is shorter.
12. To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved active grading permit.
13. Total cut and fill quantities are for permit purposes only. Contractor to verify earthwork quantities.

TEMPORARY SEEDING NOTES

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

SOIL AMENDMENTS: Apply 400 lbs per acre 10-10-10 fertilizer (24 lbs/1000 sq ft.).

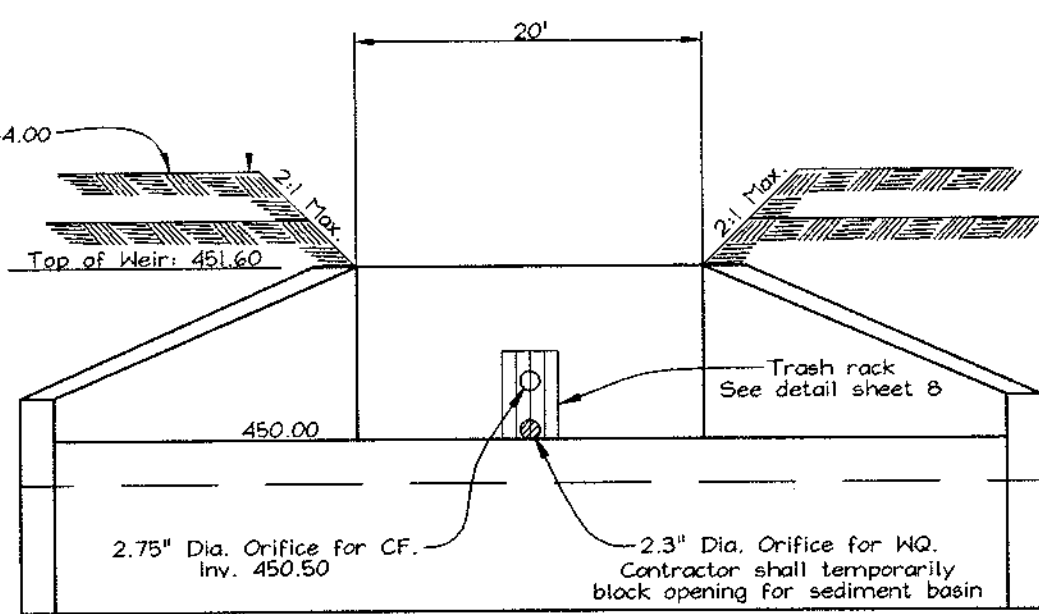
SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual ryegrass (3.2 lbs/1000 sq ft.) For the period from May 1 thru July 31, seed with 3 lbs per acre of seeding mix (0.7 lbs/1000 sq ft.). For the period from November 1 thru February 28, seed with 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 100 lbs/1000 sq ft.) of unrotted small grain straw immediately after seeding. Anchor straw immediately after application using mulch anchoring tool or 200 gallons per acre (5 gal/1000 sq ft.) of unrotted straw applied on full spread. On slopes 2:1 or steeper, use 340 gallons per acre (6 gal/1000 sq ft.) for anchoring.

REFER TO THE 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHOD NOT COVERED.

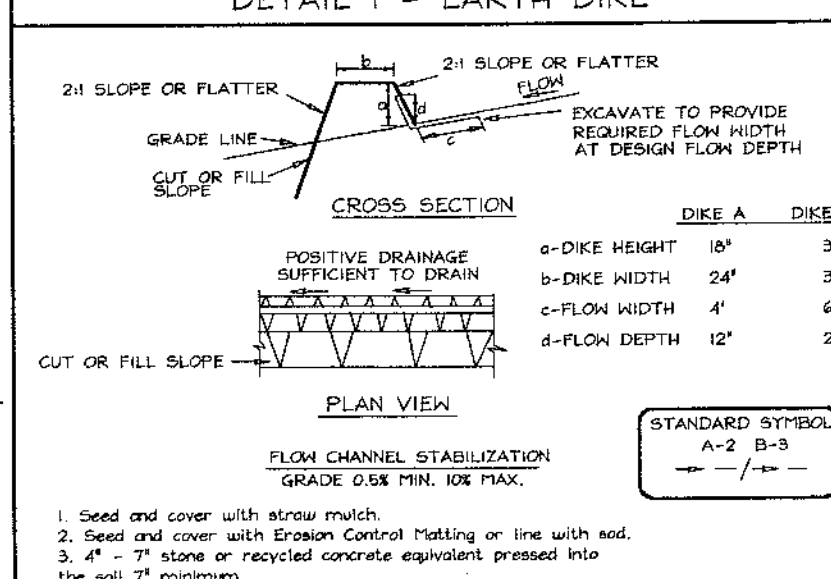
SEQUENCE OF CONSTRUCTION

1. Obtain Grading permit.
 2. Clear for and install all sediment controls within Phase I L.O.D. - three (3) Silt Fence strips, Super Silt Fence at bottom of Slope including S.C.E. (1 day)
 3. With the permission of the sediment control inspector grade roads, install private driveway culvert, install proposed check dams, install soil stabilization matting within sunde and stabilize all disturbed areas with seed and mulch. (2 weeks)
 4. Clear for and install the four (4) earth dikes, temp 24 inch Culverts, temp sunde, the sediment basin per SMT facility details (See required notes on the SMT facility for the sediment basin on the sediment control plans).
 5. Clear for and install all remaining sediment control measures within Phase II L.O.D. - including Super Silt Fence and Silt Fence. (1 day)
 6. With the permission of the sediment control inspector grade road and lots to subgrade and install soil stabilization matting on all road channels, install storm drains, install 5-2 to 1-2, immediately repair dikes and apply seed and mulch to stabilize grade the sunde along the eastern property line, install inlet protection to 1-2 & 3, install soil stabilization matting within sunde and seed and mulch all disturbed areas. (2 weeks)
 7. Pave roads and provide final stabilization to all disturbed areas and lots to subgrade and install storm drain system. (1 week)
 8. Convert the sediment basin to the SMT facility by removing the RPS, unclogging the 18" 2.3' dia. low flow orifice, installing all riprap protection around inlet flow sunde with soil stabilization matting within the sunde, and grading out the SMT wet-pool area. Final grade and stabilize all remaining disturbed areas with seed and mulch. (2 weeks)
 9. With permission of the sediment control inspector, remove all remaining sediment control measures and stabilize all remaining disturbed areas.
 10. See sheet 3 of 14 for installation of channel between 1-2 and 5-2.
- Note: Any grading associated with the entrance to the project will be immediately stabilized with sod at the direction of the Sediment Control Inspector.



Detail of Weir Structure Modifications for Sediment Basin
Not to Scale

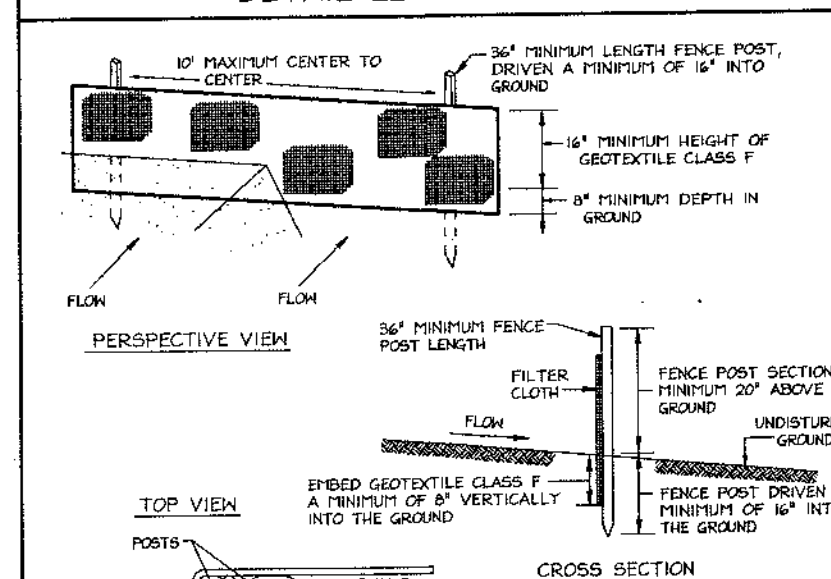
DETAIL 1 - EARTH DIKE



Construction Specifications
1. All temporary earth dikes shall have unimpaired positive grades to an inlet. Spot elevations may be necessary for grades less than 1:1.
2. Runoff directed from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff directed from an undisturbed area shall collect directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE A-1-6
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

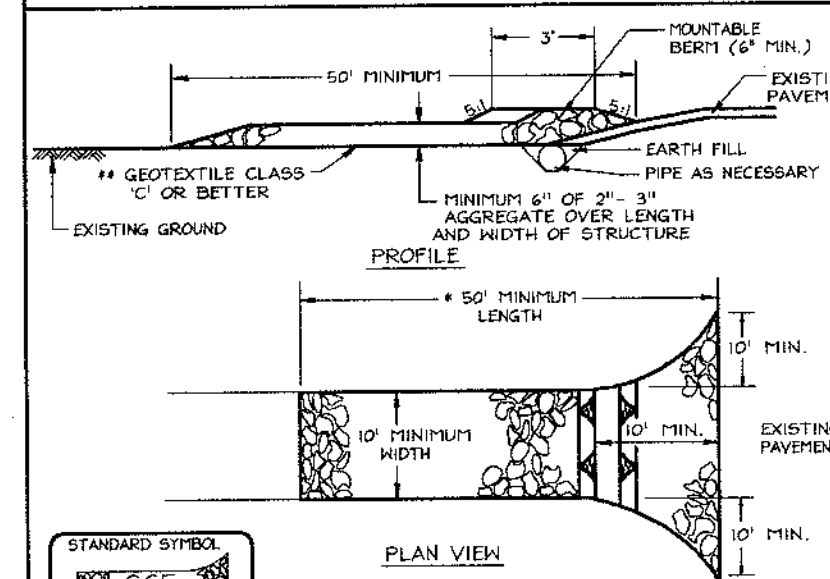
DETAIL 22 - SILT FENCE



Construction Specifications
1. Fence posts shall be a minimum of 24" long, driven 18" minimum into the ground at top end and section and meet the following requirements:
a. 2" diameter (minimum) round and steel of brand quality. Maximum size diameter standard T or U section weighing not less than 100 pound per linear foot.
b. 2" diameter (minimum) round and steel of brand quality. Maximum size diameter standard T or U section weighing not less than 100 pound per linear foot.
c. 2" diameter (minimum) round and steel of brand quality. Maximum size diameter standard T or U section weighing not less than 100 pound per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top end and section and meet the following requirements for Geotextile Class F:
a. Tensile Strength: 50 lbs/in (min.)
b. Tensile Elongation: 20 (min.)
c. Tear Resistance: 25 lb/ft (min.)
d. Filter Efficiency: 75% (min.)
3. Where ends of geotextile fabric come together, they shall be overlapped.
4. Silt fence shall be inspected after each rainfall event and maintained when higher occur or when sediment accumulation reaches six (6) inches height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-1-B-5
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

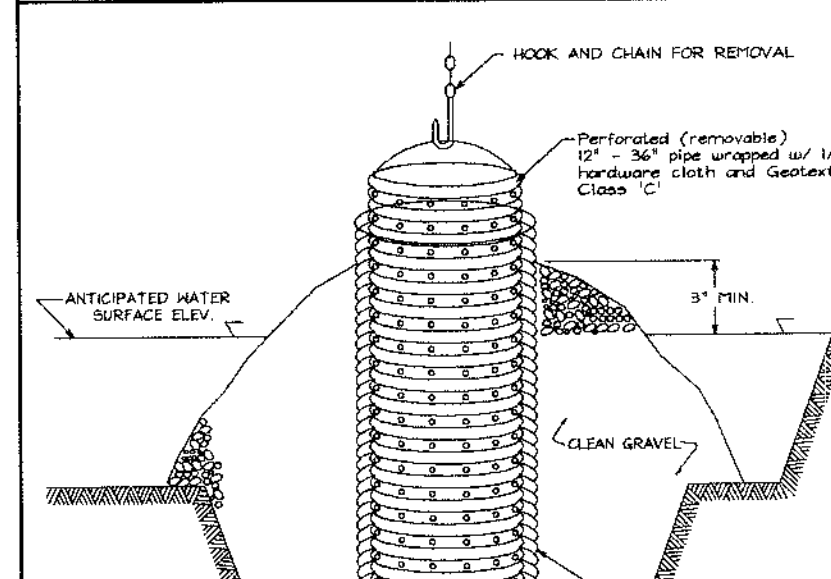
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications
1. Length - minimum of 50' (+30' for a single rutlet).
2. Height - 10' minimum, should be forced 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 stone approval authority may not require single fabric materials to be used.
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete aggregate shall be placed at least 4" deep over the length and width of the entrance.
5. Surface Water - all surface water flowing to or diverted toward construction site shall be spread through the entrance, maintaining proper drainage. Pipe installed through the stabilized construction entrance shall be protected with a manhole box with 30" high and 18" diameter. The manhole box shall be set on the 12' high stone. The pipe shall be set according to the drainage when the stone is placed. The pipe shall be set according to the drainage when the stone is placed. The pipe shall be set according to the drainage when the stone is placed.
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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-1-3
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

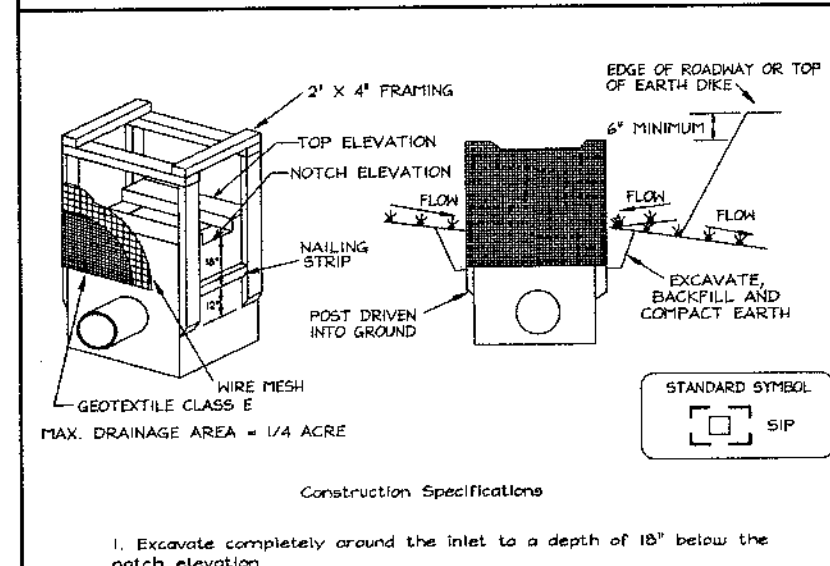
DETAIL 20A - REMOVABLE PUMPING STATION



Construction Specifications
1. The outer pipe should be 40' dia. or shall, in any case, be at least 4" greater in diameter than the outer pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside outer pipe (center pipe) should be constructed by perforating a 40' dia. pipe with 1/2" hardware cloth. The perforations shall be spaced at 12" intervals. The pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe shall extend 12" to 18" above the anticipated water surface elevation at first great elevation when abandonment is begun.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE G-1-4
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

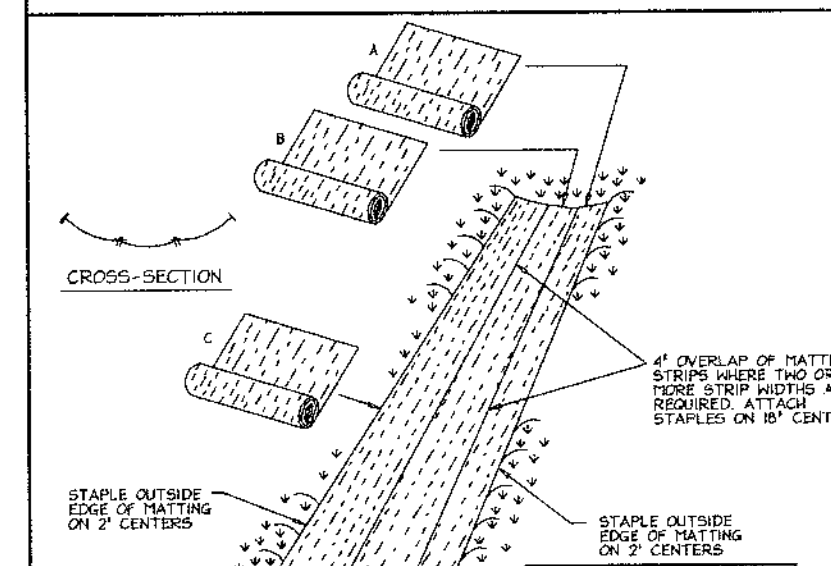
DETAIL 23A - STANDARD INLET PROTECTION



Construction Specifications
1. Completely enclose around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 18" into the ground at each corner of the inlet. Place notches 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 (center) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Backfill the 12" x 12" frame mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class C tightly over the wire mesh with the geotextile 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 4" layers until the top of the inlet is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sandy, compacted or compacted earth dike should be at least 18" 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-1-B-5
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

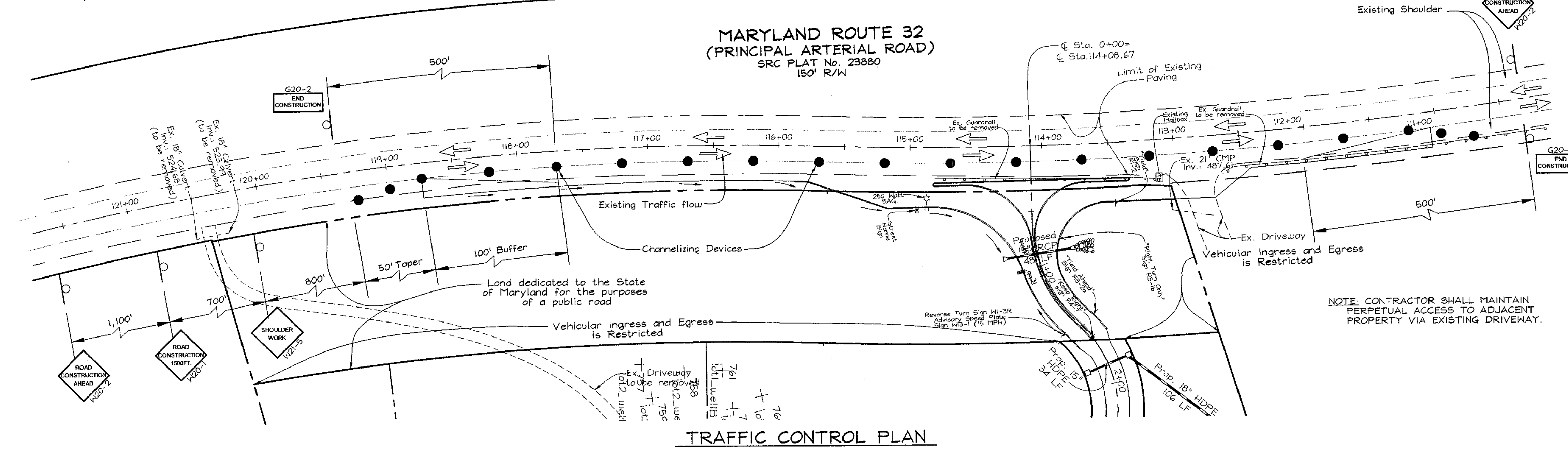
DETAIL 30 - EROSION CONTROL MATTING



Construction Specifications
1. Key-in the matting by placing the top ends of the matting in a narrow trench, 4" in depth. Backfill the trench and slope firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 4".
2. Staple the 4" overlap in the channel center using 18" spacing between staples.
3. Before starting the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", where the overlap shall be secured with a double row of staples spaced 4" apart in a staggered pattern on either side.
6. The discharge end of the matting layer should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area affected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE G-1-4
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



TRAFFIC CONTROL PLAN
SCALE: 1"=50'

No.	Description	Date
1	Revised Site Analysis Note #7	11.18.03
2	Revised Sequence of Const.	11.18.03
3	REVISIONS	

OWNER
Clifton E & Betty K. Harrison
P.O. Box 287
West Friendship, Maryland 21794

DEVELOPER
Heritage Land Development
3060 Washington Road, Suite 220
Glenwood, Maryland 21753
Tel: (410)489-7900 Fax: (410)489-4754

TRAFFIC CONTROL PLAN, SEDIMENT AND EROSION CONTROL AND MISCELLANEOUS DETAILS TWIN PINES

LOTS I THRU II, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8
3RD ELECTION DISTRICT
PARCEL 17
HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Wanda Harris 3/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
Andrew M. Cook 3-7-03
CHIEF, BUREAU OF HIGHWAYS

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 COUNTY SOIL CONSERVATION DISTRICT.
Timothy W. Feaga 2-11-03
SIGNATURE OF DEVELOPER
TIMOTHY W. FEAGA

ENGINEER'S 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 COUNTY SOIL CONSERVATION DISTRICT.
Zacharia Y. Fisch 2-11-03
SIGNATURE OF ENGINEER
ZACHARIA Y. FISCH

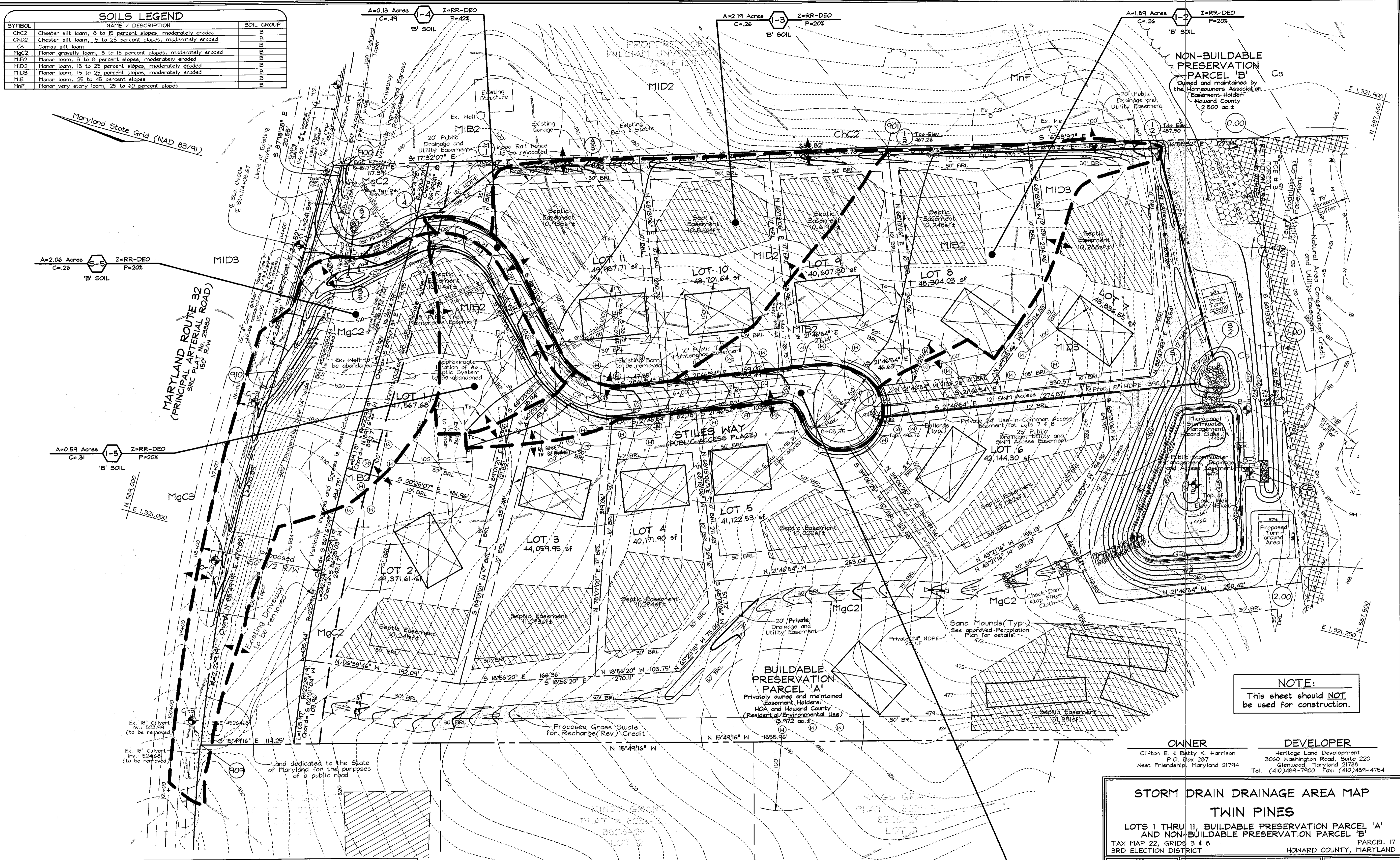
THESE PLANS HAVE BEEN REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
Jim Myers 2/26/03
John R. Rhoten 2/26/03
HOWARD COUNTY SOIL CONSERVATION DISTRICT

DESIGN BY: *PS/KO*
DRAWN BY: *PS/KO*
CHECKED BY: *ZYF*
SCALE: As Shown
DATE: Feb. 10, 2003
H.O. No.: 3048
SHEET No. 5 OF 14



FSH Associates
Engineers Planners Surveyors
8318 Forest Street, Ellicott City, Maryland 21117
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
ChD2	Chester silt loam, 15 to 25 percent slopes, moderately eroded	B
Cs	Camas silt loam	B
MgC2	Minor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MIB2	Minor loam, 3 to 8 percent slopes, moderately eroded	B
MID2	Minor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Minor loam, 15 to 25 percent slopes, moderately eroded	B
MIE	Minor loam, 25 to 45 percent slopes	B
MnF	Minor very stony loam, 25 to 60 percent slopes	B



NOTE:
This sheet should NOT be used for construction.

OWNER
Clifton E. & Betty K. Harrison
P.O. Box 287
West Friendship, Maryland 21794

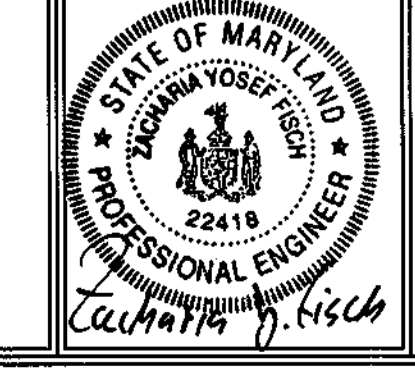
DEVELOPER
Heritage Land Development
3060 Washington Road, Suite 220
Glenwood, Maryland 21738
Tel.: (410)489-7900 Fax: (410)489-4754

STORM DRAIN DRAINAGE AREA MAP
TWIN PINES
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8
PARCEL 17
3RD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Clara Hanisch 3/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT 3/25/03 DATE

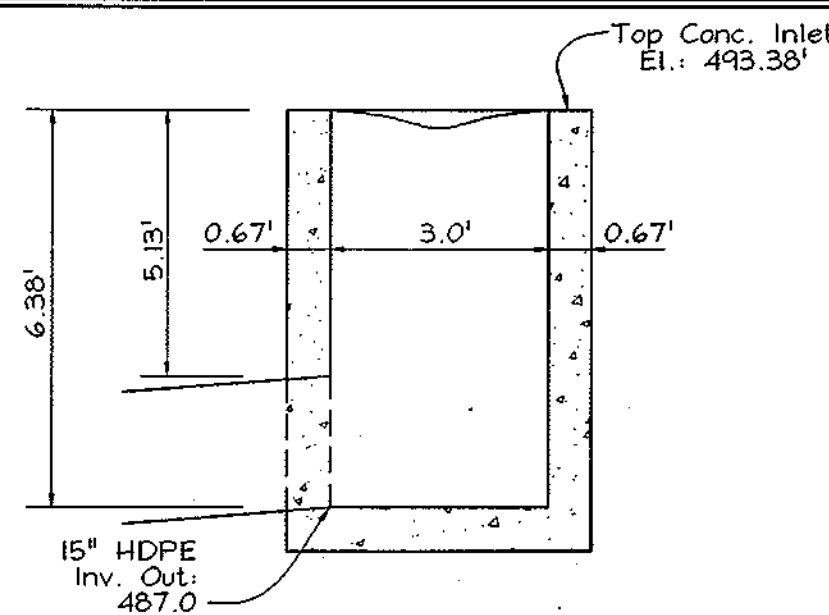
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Powell 3-7-03
CHIEF, BUREAU OF HIGHWAYS 3-7-03 DATE

A=0.61 Acres
C=.54
Z=RR-DEO
P=40%
B' SOIL

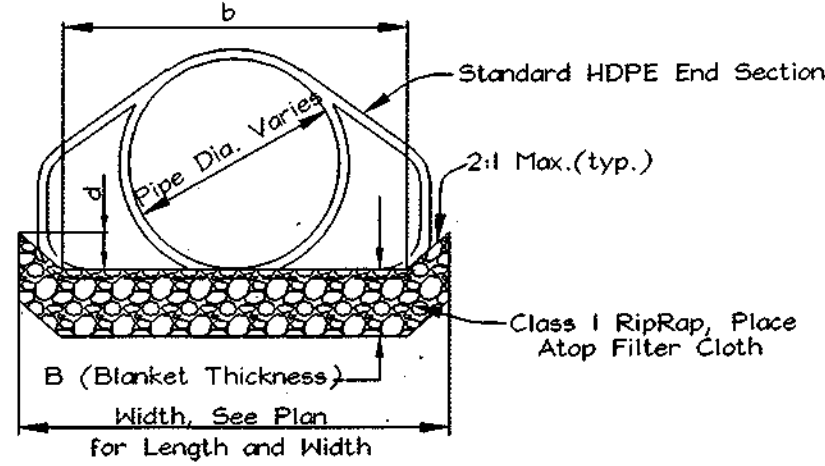


FSH Associates
Engineers Planners Surveyors
8318 Forest Street Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZTF
SCALE: 1"=50'
DATE: Feb. 10, 2003
I.O. No.: 3048
SHEET No. 6 OF 14

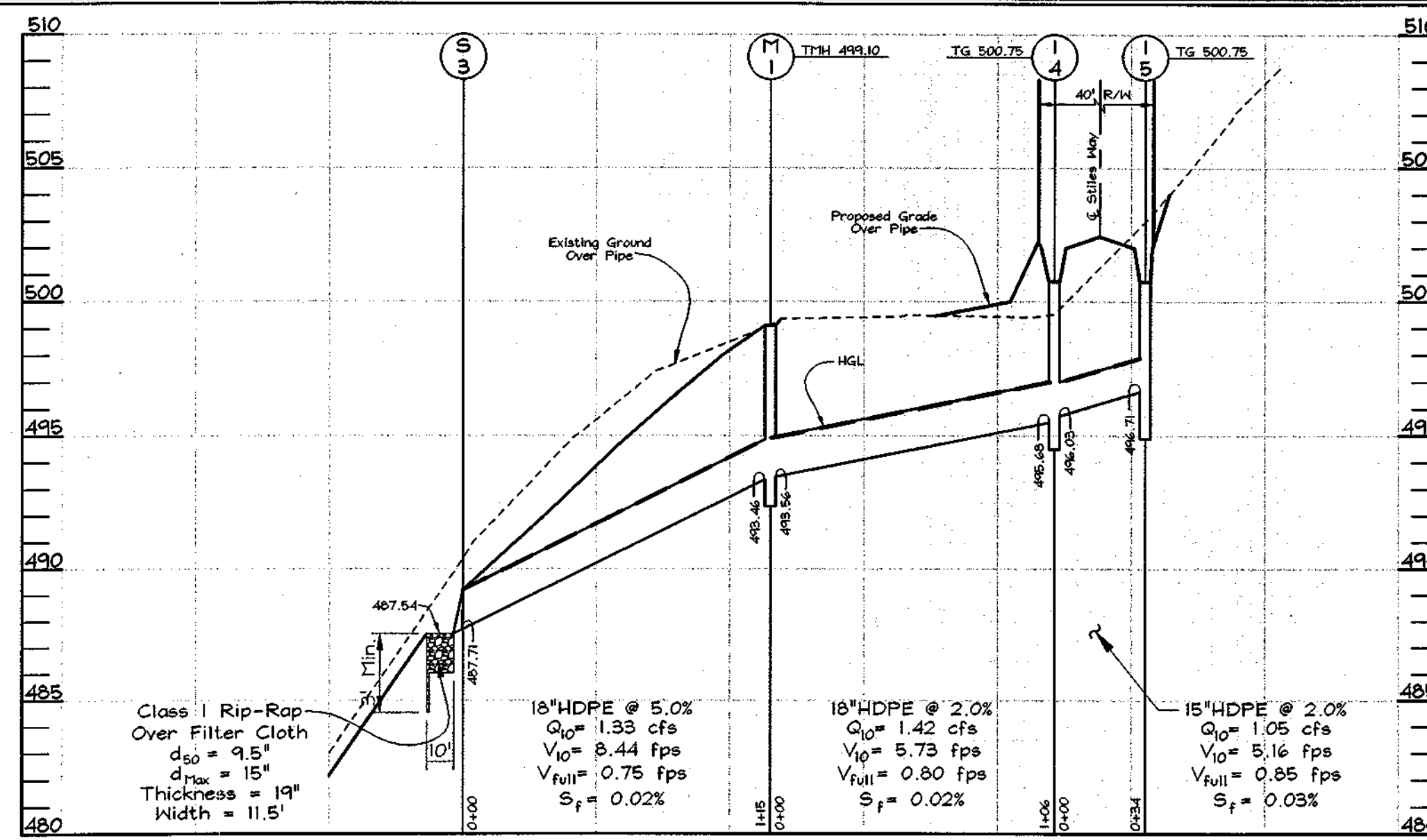


Detail Inlet 1-1
No Scale



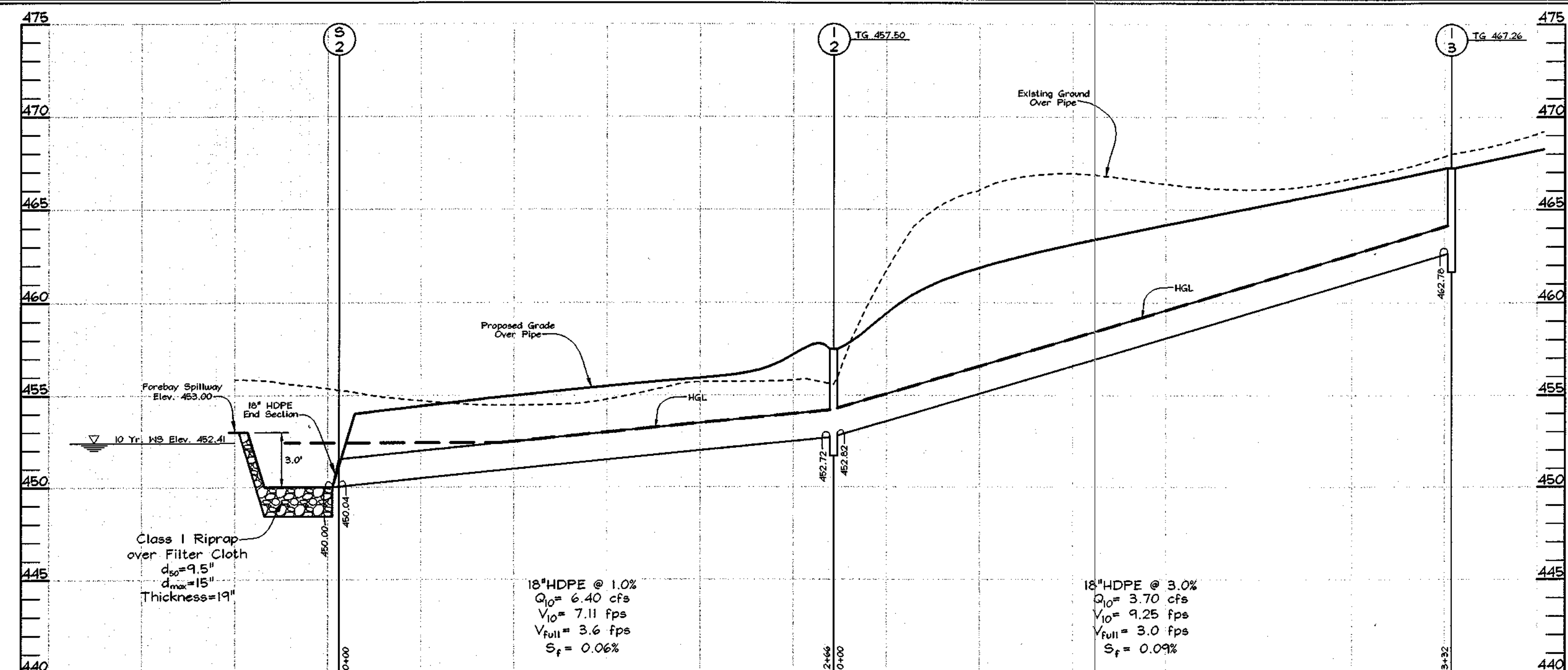
TYP. OUTFALL DETAIL
Not to Scale

Structure	Q(c.f.s.)	S	n	b	d	d ₅₀	d ₁₅	B (Blanket Thickness)
S-3	1.33 c.f.s.	0.5%	0.04	4.0'	0.20'	15"	9.5"	19"
S-4	3.96 c.f.s.	0.5%	0.04	3.5'	0.63'	15"	9.5"	19"



STORM DRAIN PROFILE

Scale: Horizontal-1"=50'
Vertical-1"=5'



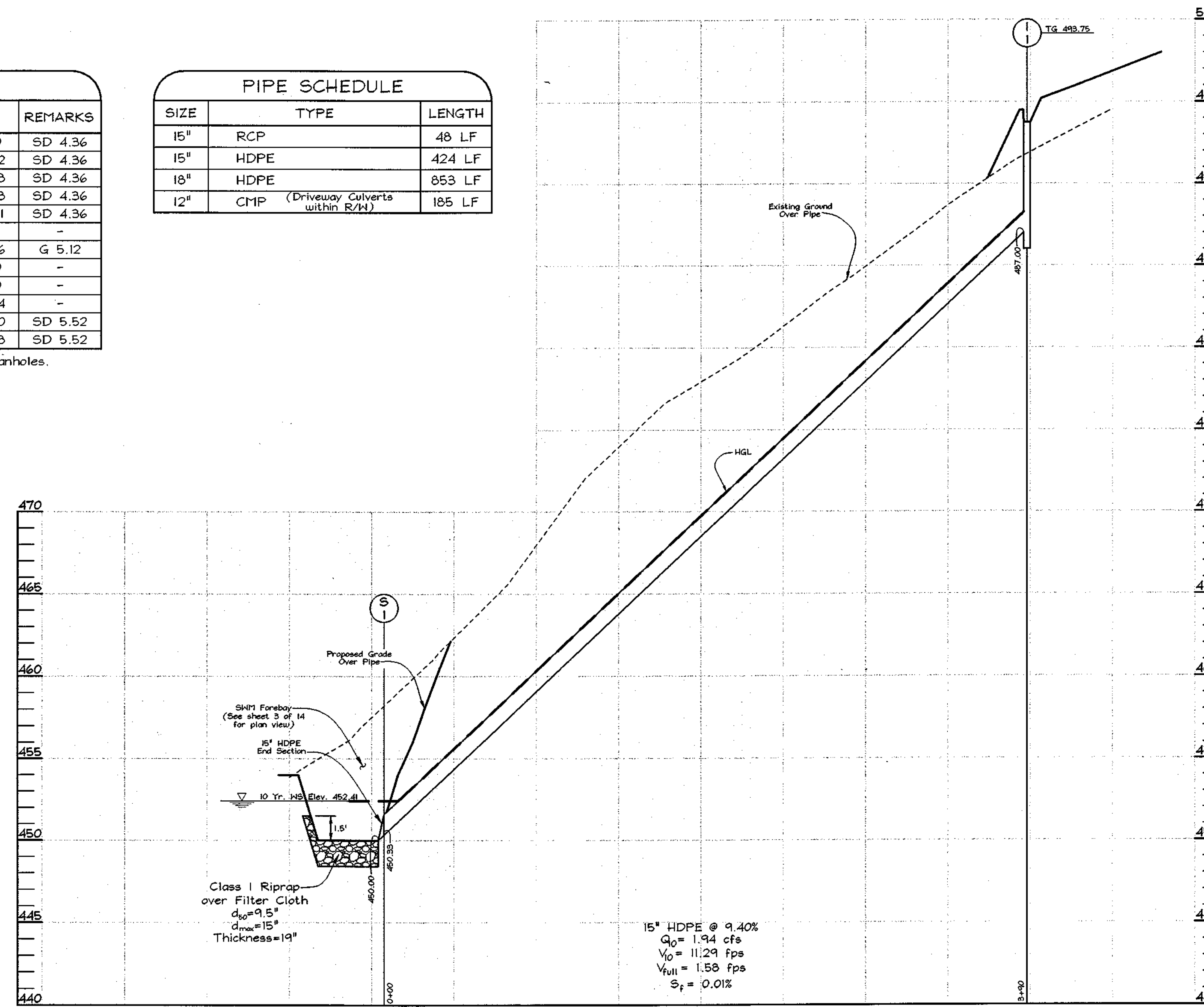
STORM DRAIN PROFILE

Scale: Horizontal-1"=50'
Vertical-1"=5'

NO.	TYPE	LOCATION				TOP ELEV.	INV. IN.	INV. OUT.	REMARKS
		STATION	OFFSET	NORTHING	EASTING				
I-1	Precast Open End Grate	(LP) 1+62.85	8.0' RT.	588,141.54	1,321,358.10	493.38	-	487.0	SD 4.36
I-2	Precast Open End Grate	-	-	587,901.65	1,321,769.58	457.50	452.82	452.72	SD 4.36
I-3	Precast Open End Grate	-	-	588,219.23	1,321,672.54	467.26	-	462.78	SD 4.36
I-4	Precast Open End Grate	(CL) 1+84.51	17.0' LF.	588,743.73	1,321,443.41	500.67	496.03	495.68	SD 4.36
I-5	Precast Open End Grate	(CL) 1+84.75	17.0' RT.	588,730.14	1,321,412.24	500.67	-	496.71	SD 4.36
I-6	MSHA COG/COS Opening Inlet	(CL) 0+92.00	12.5' RT.	588,808.50	1,321,364.02	500.14	499.31	-	-
M-1	Precast Manhole (4')	-	-	588,678.74	1,321,527.47	499.10	493.56	493.46	G 5.12
S-1	15" HDPE End Section	-	-	587,779.16	1,321,502.26	-	450.33	450.0	-
S-2	18" HDPE End Section	-	-	587,768.11	1,321,539.53	-	450.04	450.0	-
S-3	18" HDPE End Section	-	-	588,569.04	1,321,562.13	-	487.71	487.54	-
S-4	15" RCP End Section	(CL) 0+85.18	26.72' LF.	588,825.67	1,321,399.82	-	494.40	494.30	SD 5.52
S-5	15" RCP End Section	(CL) 0+81.25	21.5' RT.	588,818.25	1,321,352.03	-	495.99	495.88	SD 5.52

SIZE	TYPE	LENGTH
15"	RCP	48 LF
15"	HDPE	424 LF
18"	HDPE	853 LF
12"	CMP (Driveway Culverts within R/W)	185 LF

NOTES: 1. Top elevations are to the top of concrete inlet for all inlets, and center top of manhole cover for precast manholes.
2. For I-6, inv. out. to be determined in field.



STORM DRAIN PROFILE

Scale: Horizontal-1"=50'
Vertical-1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Cindy Hamrick 3/15/03
CHIEF, DIVISION OF LAND DEVELOPMENT 3/15/03 DATE

John Dammann 3/15/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION 3/15/03 DATE

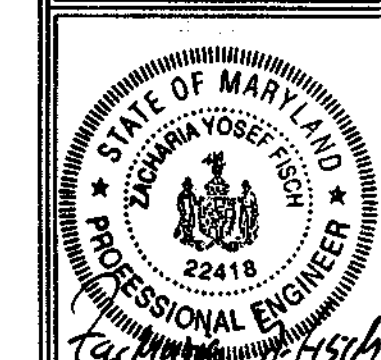
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Richard M. Coker 3-7-03
CHIEF, BUREAU OF HIGHWAYS 3-7-03 DATE

OWNER
Clifton E. & Betty K. Harrison
P.O. Box 287
West Friendship, Maryland 21794

DEVELOPER
Heritage Land Development
3060 Washington Road, Suite 220
Glenwood, Maryland 21738
Tel.: (410) 489-7400 Fax: (410) 489-4754

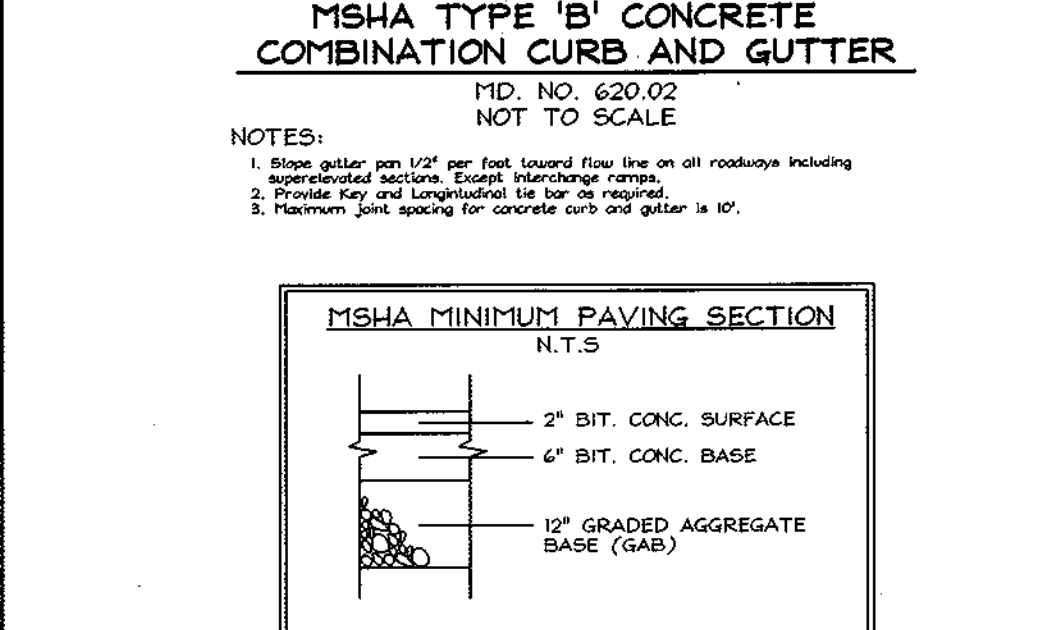
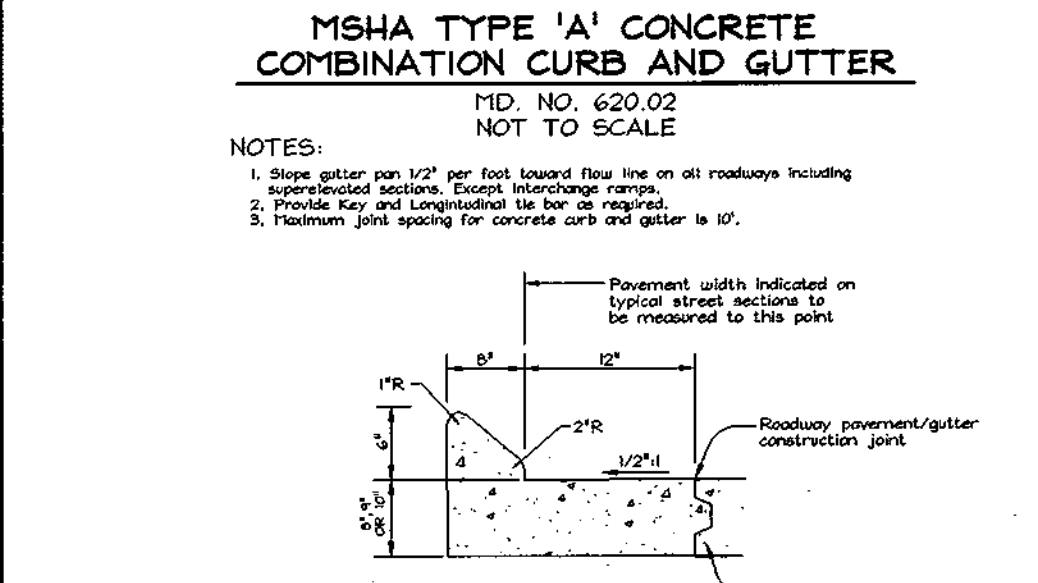
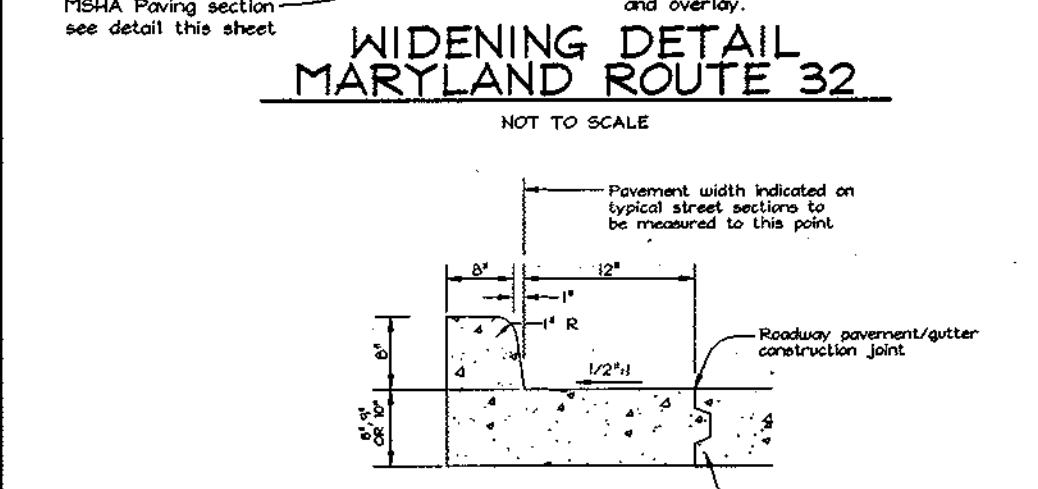
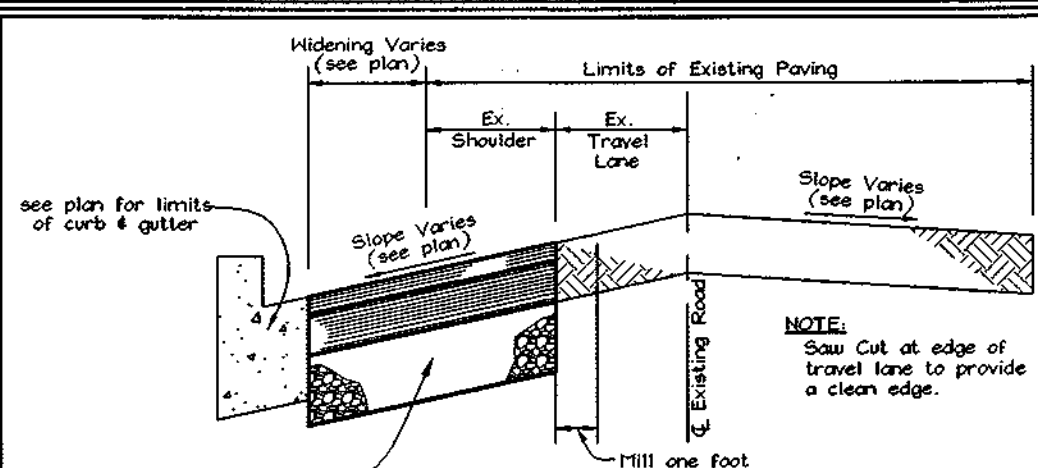
STORM DRAIN PROFILES
TWIN PINES
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8 PARCEL 17
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND



FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
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E-mail: FSHAssociates@cs.com

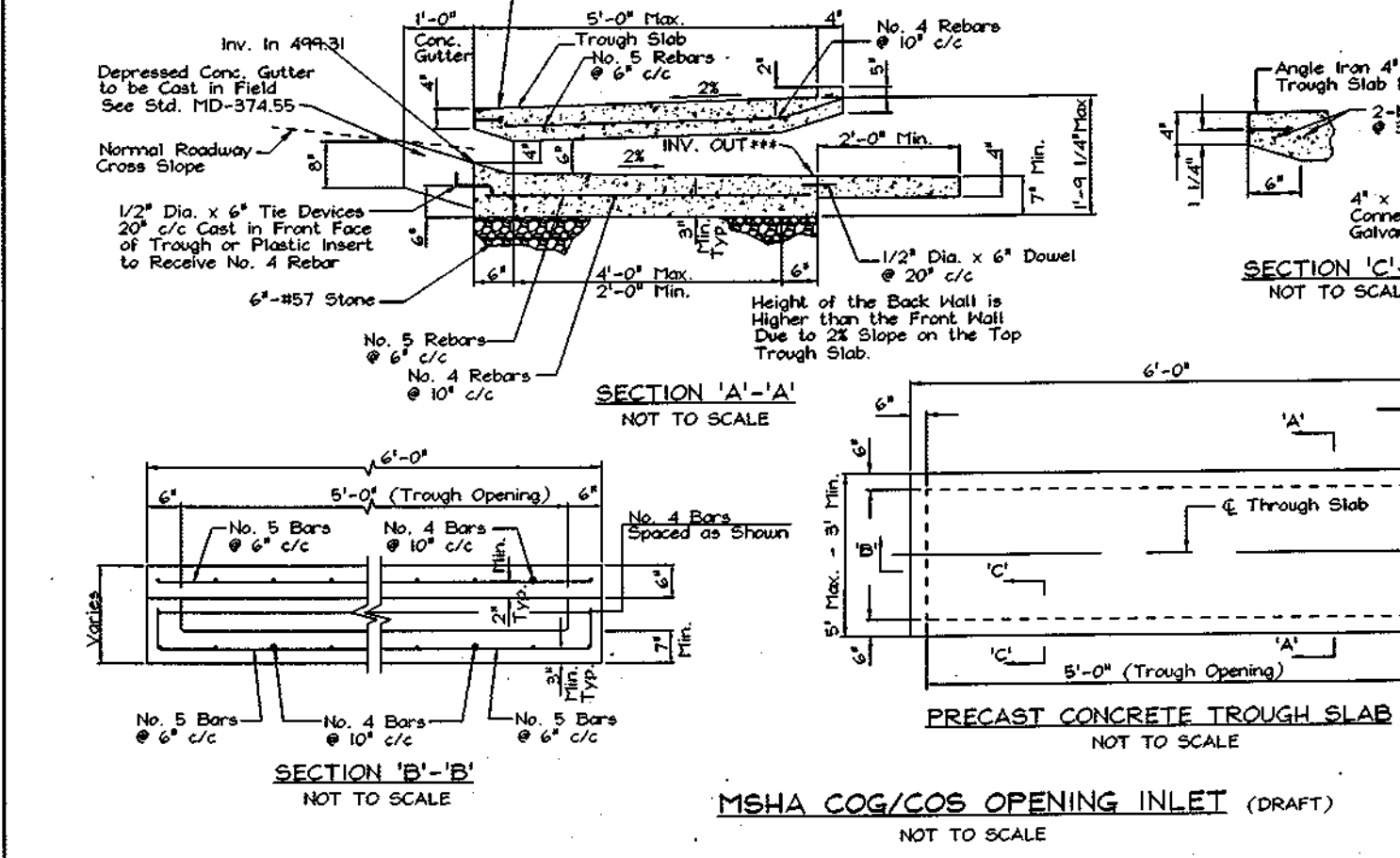
DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Feb. 10, 2003
W.O. No.: 3048
SHEET No. 7 OF 14

MARYLAND ROUTE 32 (PRINCIPAL ARTERIAL ROAD) SRC PLAT No. 23880 150' R/W



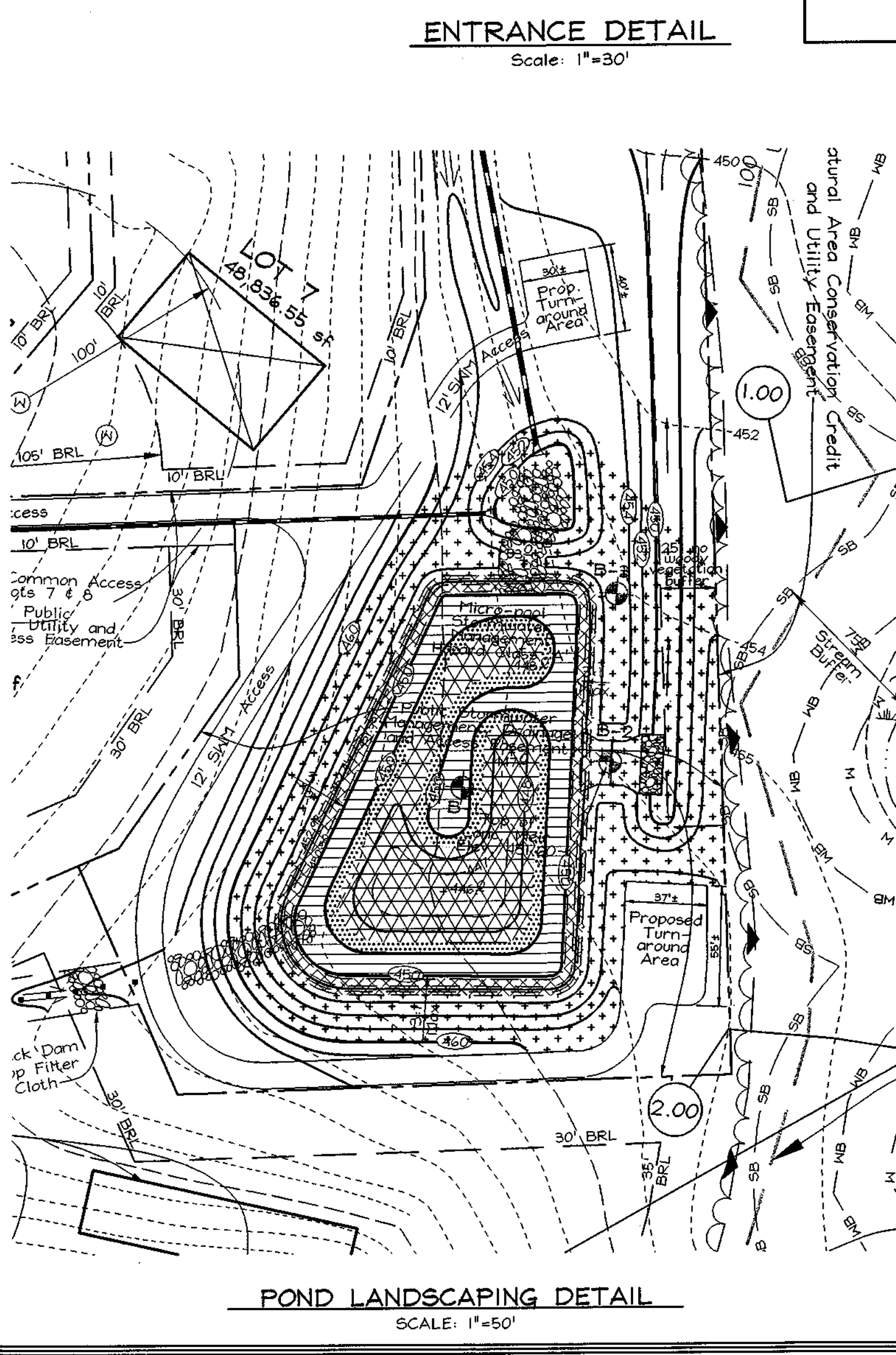
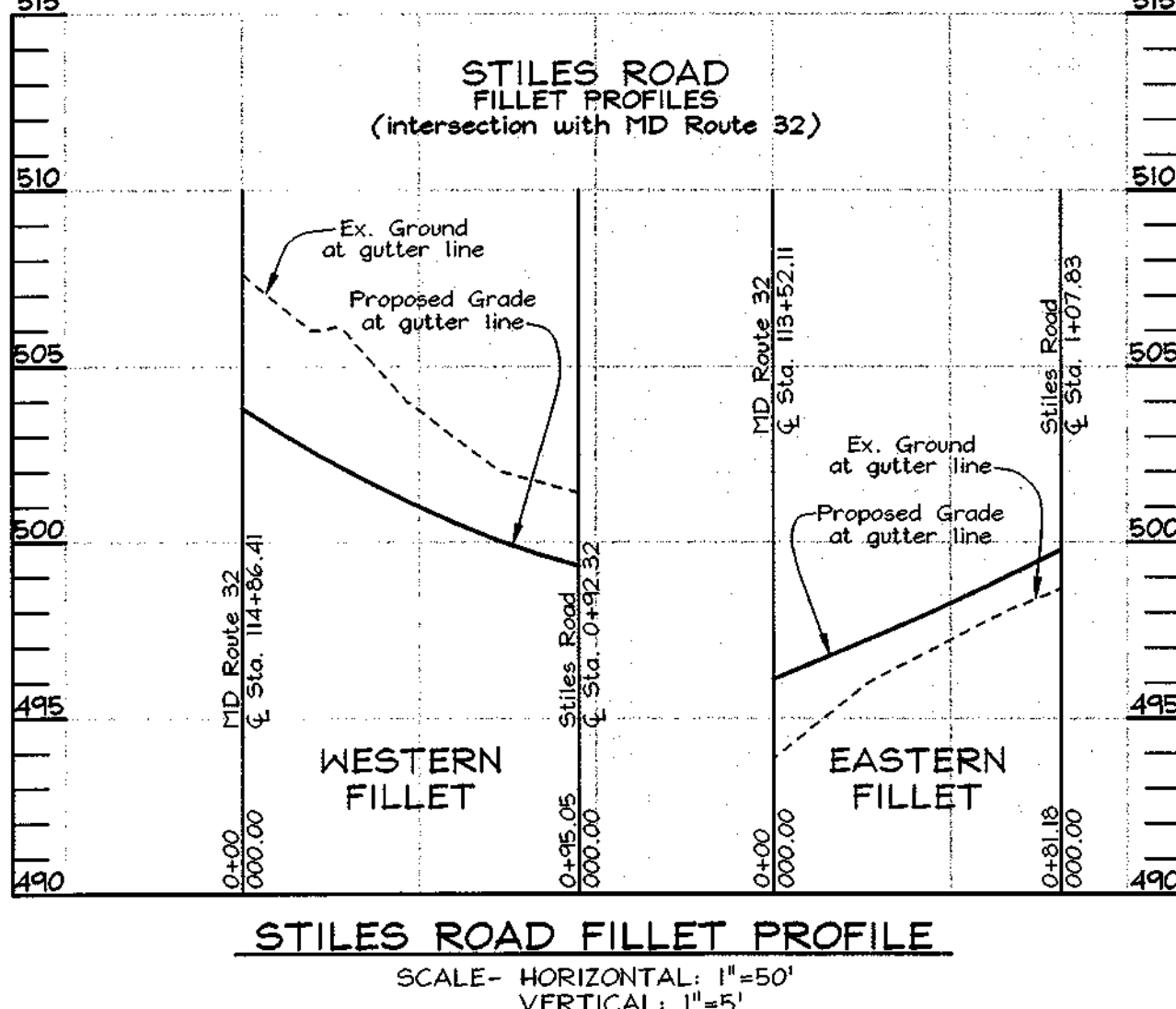
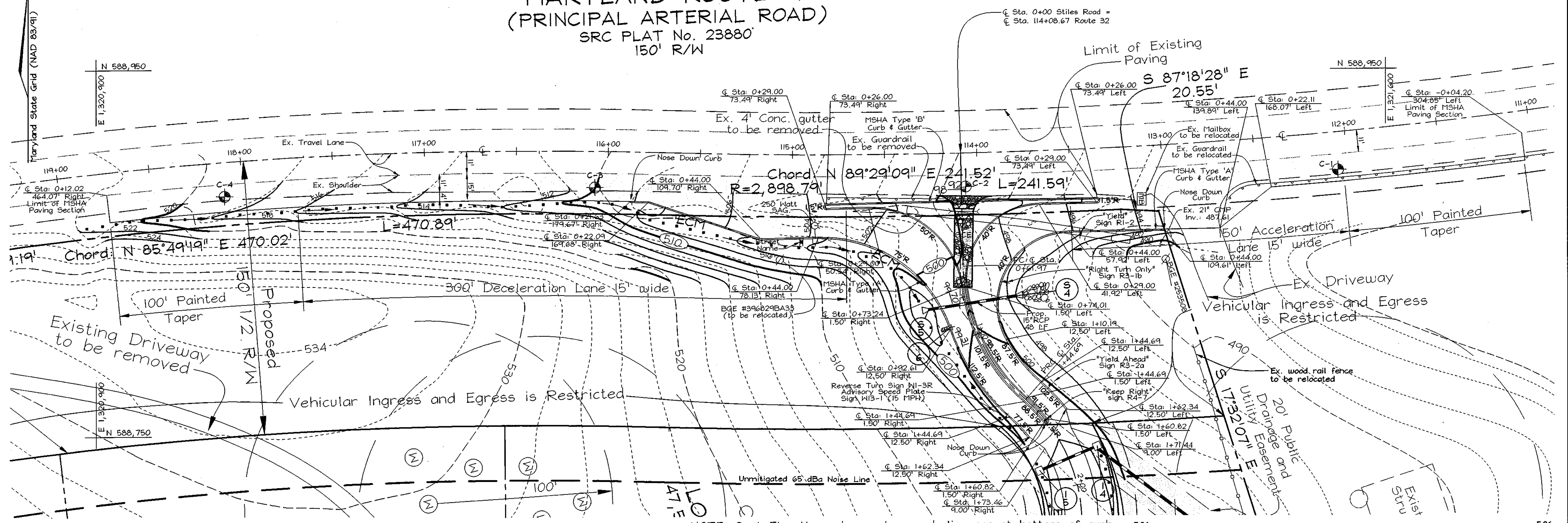
ROUTE 32 WIDENING CORE BORING DATA

Boring Number	Hot Mix Asphalt Thickness	Crushed Stone Base Thickness	Soil Subgrade SPT Value	Soil Subgrade Description
C-1	8"	6"	12	Brown and gray moist of SAND, and clayey silt, trace to little rock frags, trace mica (Fill)
C-2	5"	4"	21	Brown and gray moist of SAND, some rock frags, some clayey silt, trace mica (Fill)
C-3	7"	5"	24	Brown, reddish brown and gray moist micaceous of SAND, some silt, trace rock frags (Decomposed Rock)
C-4	6"	6"	10	Brown, reddish brown and gray moist micaceous of SAND and silt (Decomposed Rock)
C-5	6.5"	5.5"	21	Brown, reddish brown and gray moist micaceous of SAND, some silt, trace rock frags (Decomposed Rock)

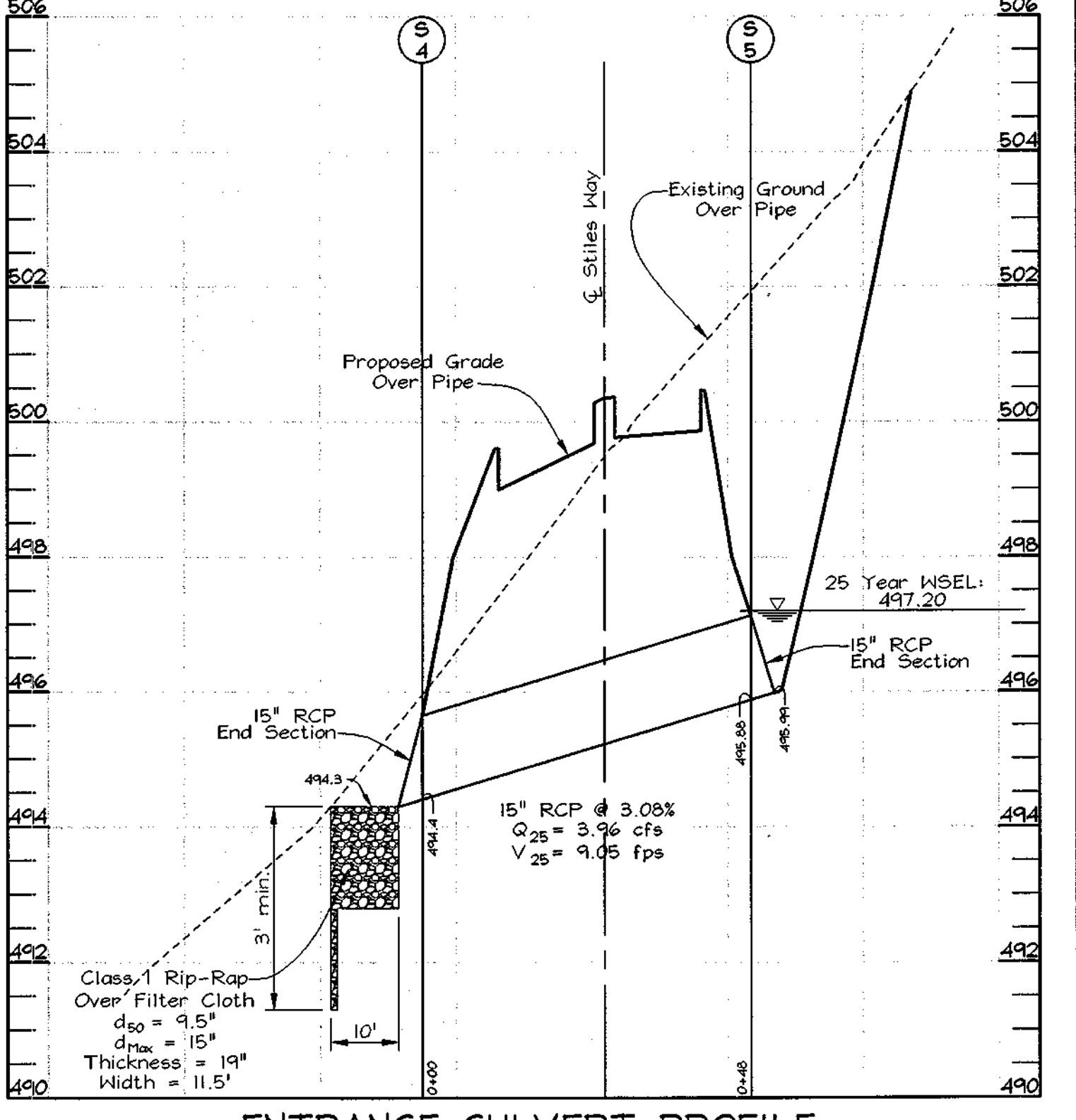


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Clara Harris 3/25/08
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Parker 3-7-07
CHIEF, BUREAU OF HIGHWAYS



- Denotes MSHA Paving Section
- Zone 1 (446.00 to 449.00)
- Zone 2 (449.00 to 450.00)
- Zone 3 (450.00 to 450.50)
- Zone 4 (450.50 to 452.92)
- Zone 5 (452.92 to "as shown")



ENTRANCE PLAN AND DETAILS AND POND LANDSCAPING DETAIL TWIN PINES

LOTS I THRU II, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCEL 'B'

TAX MAP 22, GRIDS 3 & 8
3RD ELECTION DISTRICT

PARCEL 17
HOWARD COUNTY, MARYLAND

OWNER
Clifton E. & Betty K. Harrison
P.O. Box 287
West Friendship, Maryland 21794

DEVELOPER
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3060 Washington Road, Suite 220
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E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Feb. 10, 2003
H.O. No.: 3048
SHEET No. 9 OF 14

Maryland State Grid (NAD 83/91)

NON-BUILDABLE PRESERVATION PARCEL 'B'
Owned and maintained by the Homeowners Association
Essement Holder:
Howard County
2.500 ac.±

MARYLAND ROUTE 32
(PRINCIPAL ARTERIAL ROAD)
SRC PLAT NO. 23880
150' R/W

PERIMETER 1
885 LF Type 'A'

PERIMETER 2
246 LF Type 'A'

PERIMETER 3
619 LF Type 'B'

PERIMETER 4
856 LF Type 'A'

BUILDABLE PRESERVATION PARCEL 'A'
Privately owned and maintained
Essement Holders:
HOA and Howard County
(Residential/Environmental Use)
13.972 ac.±

NOTE:
Use this plan for
Landscape ONLY.

OWNER
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LANDSCAPE PLAN
TWIN PINES
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8
3RD ELECTION DISTRICT

PARCEL 17
HOWARD COUNTY, MARYLAND

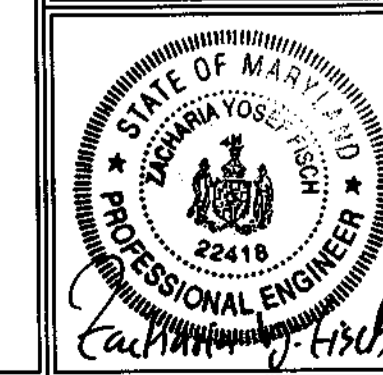
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cinda Harman 3/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Quaker 3-7-03
CHIEF, BUREAU OF HIGHWAYS
DATE

DEVELOPER'S BUILDER'S CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN
WILL BE DONE ACCORDING TO THE PLAN, SECTION 6124 OF THE
HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF
LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1)
YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE
DEPARTMENT OF PLANNING AND ZONING.

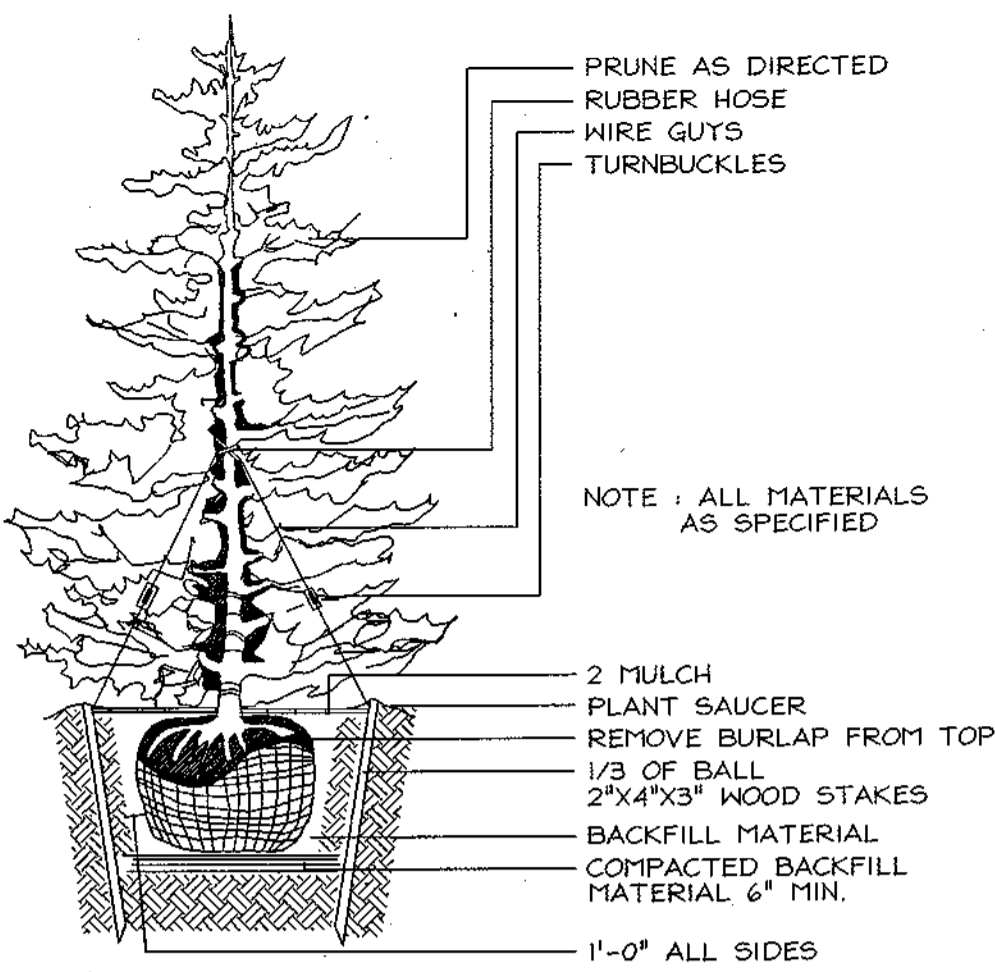
Timothy W. Feaga 2-11-03
SIGNATURE OF DEVELOPER
Timothy W. Feaga
DATE

NOTE: SEE SHEET 11 OF 14 FOR LANDSCAPING NOTES AND DETAILS.



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Engineers Planners Surveyors
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E-mail: FSHAssociates@fs.com

DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZYF
SCALE: 1"=50'
DATE: Feb. 10, 2003
I.O. No.: 3048
SHEET No. 10 OF 14

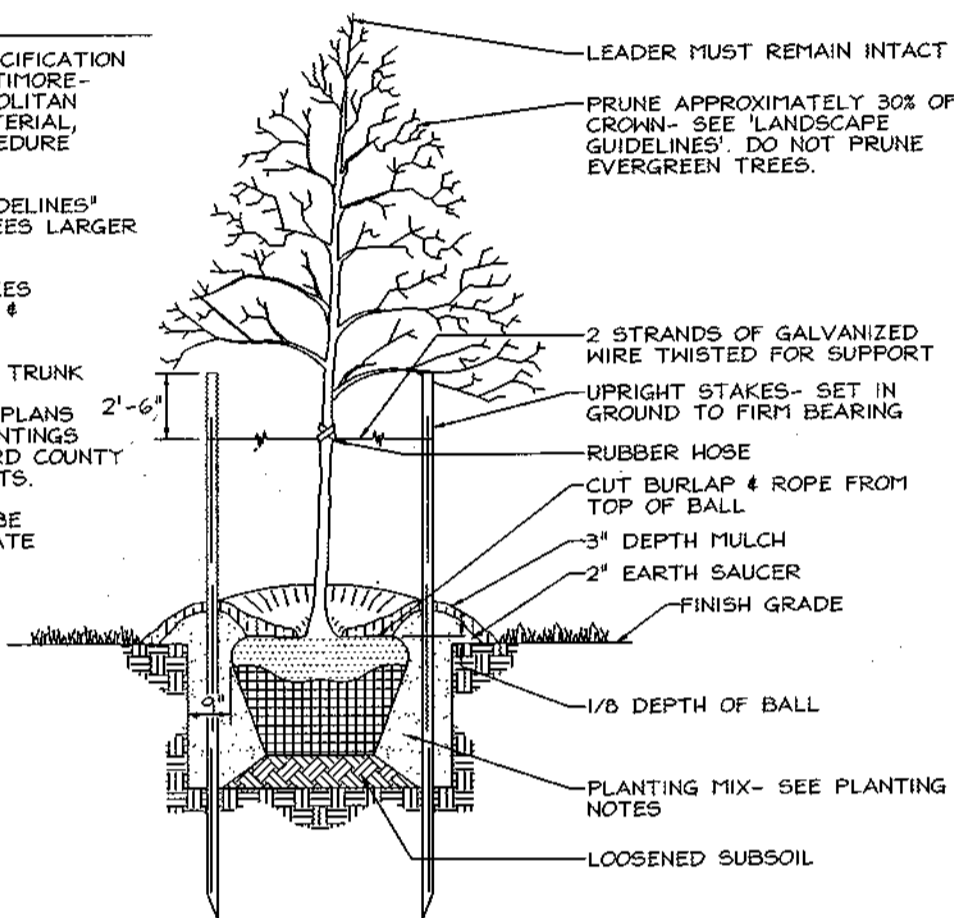


TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

NOTES

- SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
- SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
- PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
- KEEP MULCH 1" FROM TRUNK
- SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
- TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.



TYPICAL TREE PLANTING AND STAKING

DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES			
	5	6	1	2	3	4
Perimeter/Frontage Designation	A	B	A	A	A	A
Linear Feet of Roadway	619	75	885	295	347	856
Frontage/Perimeter						
Credit for Existing Vegetation (Yes, No, Linear Feet Describe below if needed)	No	No	No	No	No	No
Credit for Wall, Fence or Berm (Yes, No, Linear Feet Describe below if needed)	No	No	No	No	No	No
Number of Plants Required						
Shade Trees	1:50	1:50	1:60	1:60	1:60	1:60
Evergreen Trees	1:40	1:40	-	-	-	-
Shrubs	-	-	-	-	-	-
Number of Plants Provided						
Shade Trees	12	2	15	5	6	14
Evergreen Trees	16	2	-	-	-	-
Other Trees (2:1 Substitution)	-	-	-	-	-	-
Shrubs (10:1 Substitution)	-	-	-	-	-	-
Other Trees (2:1 Substitution) (Describe Plant Substitution Credits Below if needed)	-	-	-	-	-	-

SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING

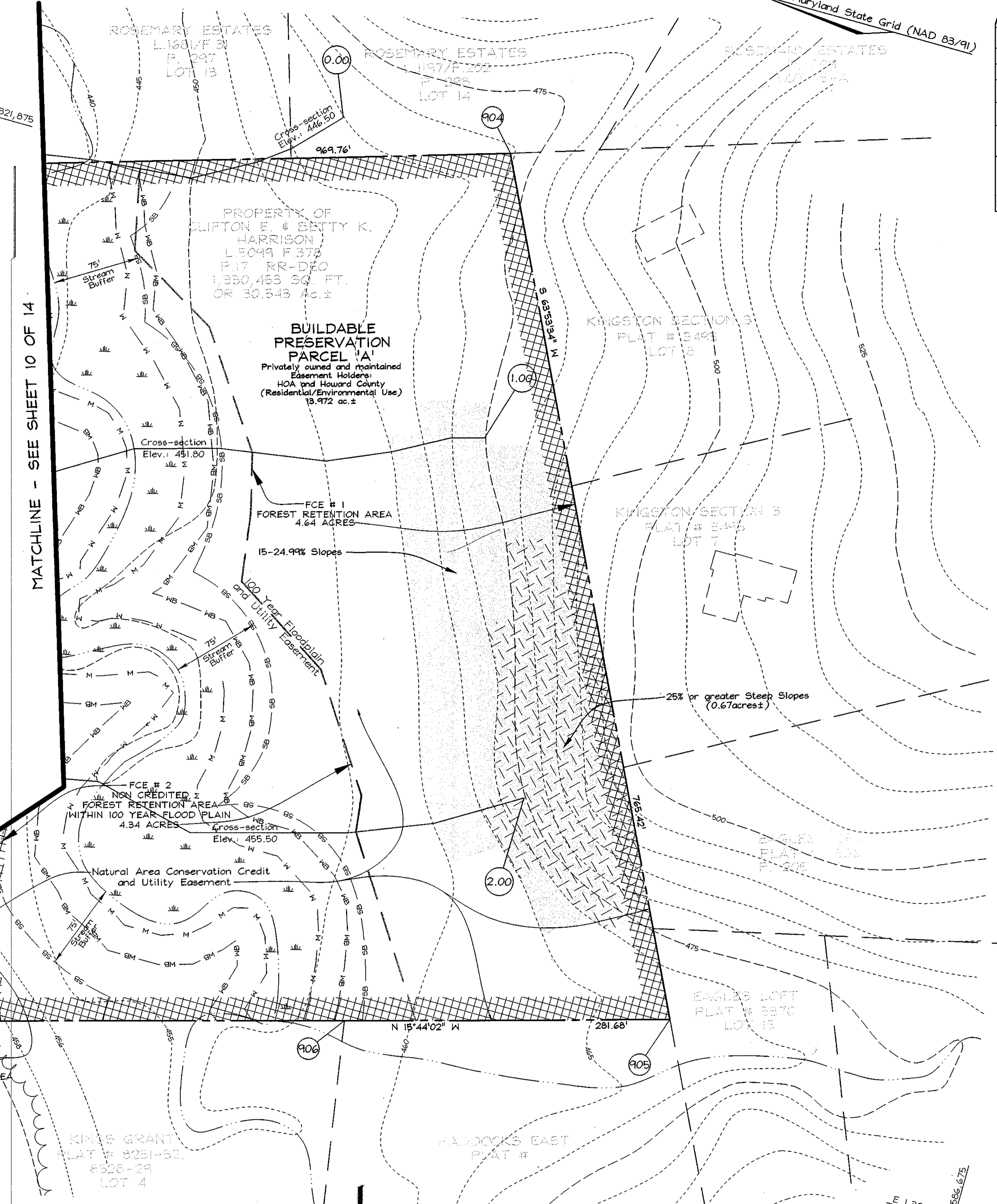
Linear Feet of Perimeter	11451F
Credit for Existing Vegetation (No, Yes and Linear Feet)	Yes, #3501F
Credit for Existing Landscaping (No, Yes and %)	N/A
Number of Trees Required	
Shade Trees	16 Shade Trees
Evergreen Trees	20 Evergreen Trees
Number of Trees Provided	
Shade Trees	16 Shade Trees
Evergreen Trees	20 Evergreen Trees
Other Trees (2:1 Substitution)	0 Trees (0 Substitution Trees)

* 350' facing the Environmental Conservation Area to the south, whose existing trees are proposed to remain.

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	36	Acer rubrum, Shade Trees (Street Trees)	2 1/2"-3" Cal.	B # B
AR	35	'October Glory' Red Maple	2 1/2"-3" Cal.	B # B
QR	35	Quercus rubra (Shade Trees) 'Red Oak'	2 1/2"-3" Cal.	B # B
PS	19	Pinus strobus 'Eastern White Pine'	6'-8' HT.	B # B
TO	19	Thuja occidentalis 'Nigra' 'Dark American Arborvitae'	5'-6' HT.	B # B

- NOTES:**
- At the time of plant installation, all shrubs and trees listed and approved on the Landscape Plan shall comply with the proper height requirements 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 deviation 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 revision are made to the applicable plans.
 - See General Note 35 on sheet 1 for Financial Surety amounts.



OWNER
Clifton E. & Betty K. Harrison
P.O. Box 287
West Friendship, Maryland 21794

DEVELOPER
Heritage Land Development
3060 Washington Road, Suite 220
Glenwood, Maryland 21738
Tel.: (410)489-7300 Fax: (410)489-4754

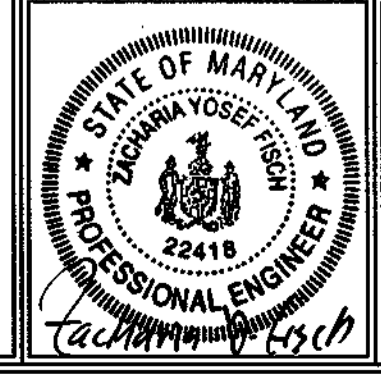
LANDSCAPE PLAN
TWIN PINES
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCEL 'B'
TAX MAP 22, GRIDS 3 & 8 PARCEL 17
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development 3/25/03
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways 3-7-03
DATE

DEVELOPER'S/BUILDER'S CERTIFICATE
I/WE 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 HOWARD COUNTY LANDSCAPE MANUAL I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Timothy W. Feaga 2-11-03
SIGNATURE OF DEVELOPER DATE
Timothy W. Feaga

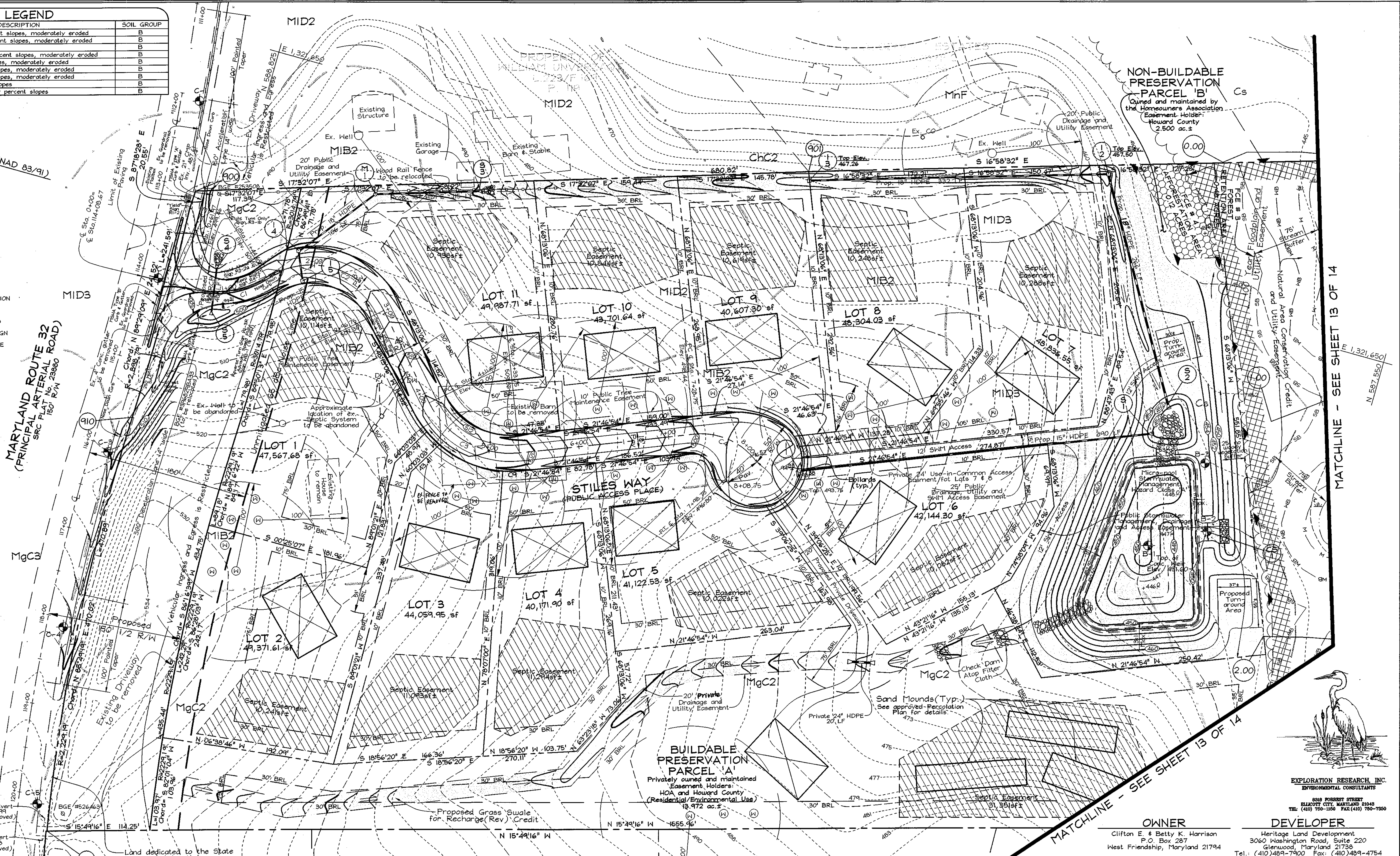


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Engineers Planners Surveyors
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E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
DRAWN BY: PS/KO
CHECKED BY: ZYF
SCALE: 1"=50'
DATE: Feb. 10, 2003
H.O. No.: 3048
SHEET No. 11 OF 14

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
ChD2	Chester silt loam, 15 to 25 percent slopes, moderately eroded	B
Ca	Comus silt loam	B
MgC2	Minor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MIB2	Minor loam, 3 to 8 percent slopes, moderately eroded	D
MID2	Minor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Minor loam, 15 to 25 percent slopes, moderately eroded	B
MIE	Minor loam, 25 to 45 percent slopes	B
MIF	Minor very stony loam, 25 to 60 percent slopes	B

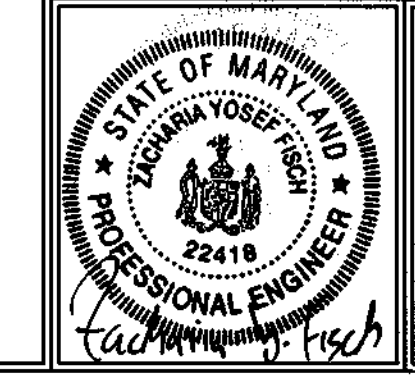
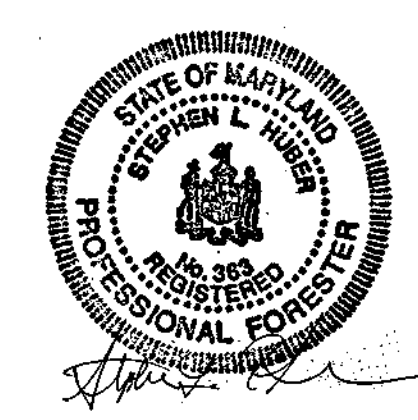
- LEGEND**
- 100 YEAR FLOODPLAIN
 - TREELINE
 - WETLANDS
 - PROPOSED FOREST RETENTION AREA
 - PROPOSED AFFORESTATION AREA
 - FOREST RETENTION AND PRESERVATION AREA SIGN
 - TPF TREE PROTECTION FENCE



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

Chief, Division of Land Development 3/25/03 DATE
Chief, Development Engineering Division 3/10/03 DATE

Chief, Bureau of Highways 3-7-03 DATE



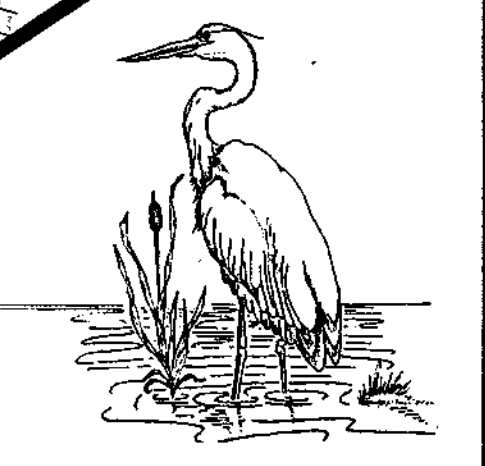
FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: DH
 DRAWN BY: SH
 CHECKED BY: SH
 SCALE: 1"=50'
 DATE: Feb. 10, 2003
 W.O. No.: 3048
 SHEET No. 12 OF 14

OWNER
 Clifton E. & Betty K. Harrison
 P.O. Box 287
 West Friendship, Maryland 21794

DEVELOPER
 Heritage Land Development
 3060 Washington Road, Suite 220
 Glenwood, Maryland 21736
 Tel.: (410)489-7900 Fax: (410)489-4754

FOREST CONSERVATION PLAN
TWIN PINES
 LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
 AND NON-BUILDABLE PRESERVATION PARCEL 'B'
 TAX MAP 22, GRIDS 3 & 8 PARCEL 17
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND



EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 8318 FORREST STREET
 ELICOTT CITY, MARYLAND 21043
 TEL: (410) 750-1150 FAX: (410) 750-7350

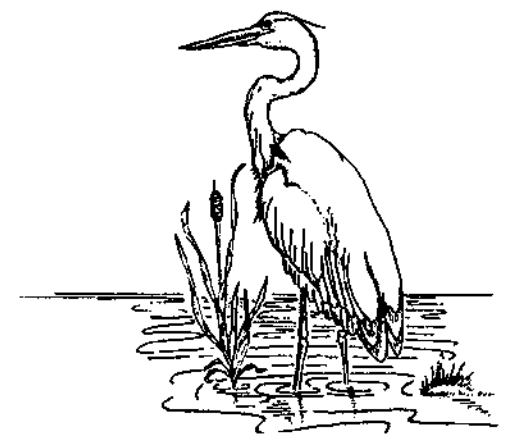
LEGEND

- 100 YEAR FLOODPLAIN
- TREELINE
- WETLANDS
- PROPOSED FOREST RETENTION AREA
- PROPOSED AFFORESTATION AREA
- FOREST RETENTION AND PRESERVATION AREA SIGN
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SYMBOL	NAME / DESCRIPTION	SOIL GROUP
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ChD2	Chester silt loam, 15 to 25 percent slopes, moderately eroded	B
Cs	Comus silt loam	B
MgC2	Manor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MID2	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MIE	Manor loam, 25 to 45 percent slopes	B
MnF	Manor very stony loam, 25 to 60 percent slopes	B

MATCHLINE - SEE SHEET 12 OF 14

MATCHLINE - SEE SHEET 12 OF 14

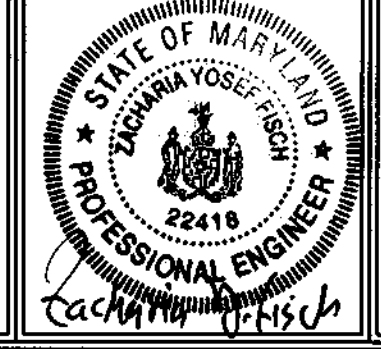
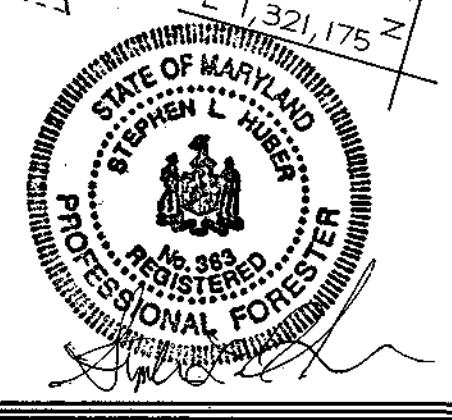


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 8318 FORREST STREET
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OWNER	DEVELOPER
Clifton E. & Betty K. Harrison P.O. Box 287 West Friendship, Maryland 21794	Heritage Land Development 3060 Washington Road, Suite 220 Glenwood, Maryland 21738 Tel.: (410) 489-7900 Fax: (410) 489-4754

FOREST CONSERVATION PLAN
TWIN PINES
 LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
 AND NON-BUILDABLE PRESERVATION PARCEL 'B'
 TAX MAP 22, GRIDS 3 & 8 PARCEL 17
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT 3/25/10 DATE	APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS 3/27/09 DATE
---	--



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

DESIGN BY: DH
 DRAWN BY: DH
 CHECKED BY: SH
 SCALE: 1"=50'
 DATE: Feb. 10, 2009
 W.O. No.: 3048
 SHEET No. 13 OF 14

FOREST CONSERVATION NARRATIVE

This Forest Conservation Plan was prepared in accordance with the Howard County Forest Conservation Manual.

Option "B" for Cluster Subdivisions will be utilized wherein the entire preservation parcel will be included in the calculations. The existing site consists of 30.543 acres with approximately 4.34 acres of floodplain. There are a total of 5.12 acres of existing forest on the net tract area. A large portion of the forest on site is located within the floodplain. The afforestation requirement is .12 acres. Onsite afforestation will be utilized adjacent to the existing forest and within the proposed Forest Conservation Easement. The Forest Conservation Easement includes 9.46 acres of forest retention and .12 acres of afforestation. This reforestation area total includes 4.34 acres of non credited forest contained within the floodplain.

The 0.12 acre afforestation area FCE-4 is primarily abandoned crop land. This area will be planted with 350 stems/acre, containerized seedlings.

AFFORESTATION AREA 0.12 Ac

Qty	Botanical Name	Common Name	Min. Size	Spacing	NOTES
11	Acer rubrum	Red Maple	WHIP 2-3'	11' o.c.	CONTAINER
11	Liquidambar styraciflua	Sweet Gum	WHIP 2-3'	11' o.c.	CONTAINER
11	Fraxinus pennsylvanica	Green Ash	WHIP 2-3'	11' o.c.	CONTAINER
11	Platanus Occidentalis	Sycamore	WHIP 2-3'	11' o.c.	CONTAINER

FOREST CONSERVATION EASEMENT TABLE

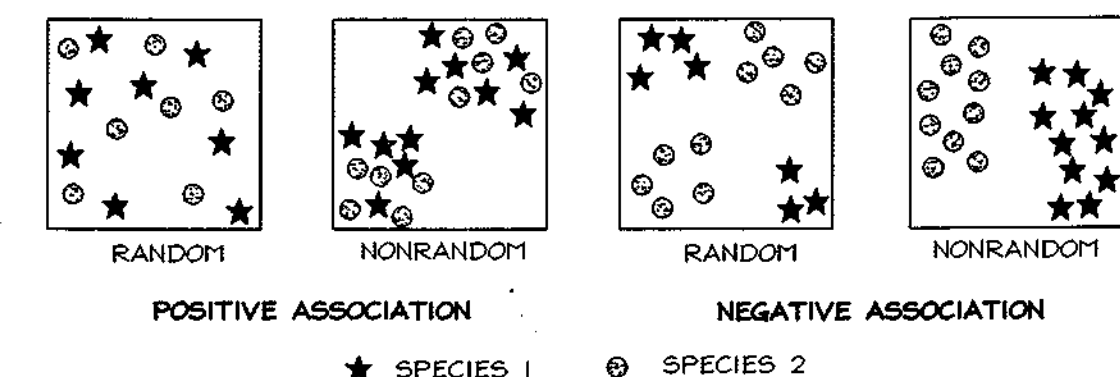
EASEMENT #	ACREAGE	EASEMENT TYPE
1	4.64 AC	FOREST RETENTION
2	4.34 AC	FOREST RETENTION
3	0.48 AC	FOREST RETENTION
4	0.12 AC	AFFORESTATION
9.46 AC RETENTION		
.12 AC AFFORESTATION		
TOTAL	9.58 AC	

SURETY: 9.46 AC RETENTION @ \$0.20 / sf = \$82,415.50
 .12 AC AFFORESTATION @ \$0.50 / sf = \$2,613.60
TOTAL = \$85,029.10

FOREST CONSERVATION WORKSHEET

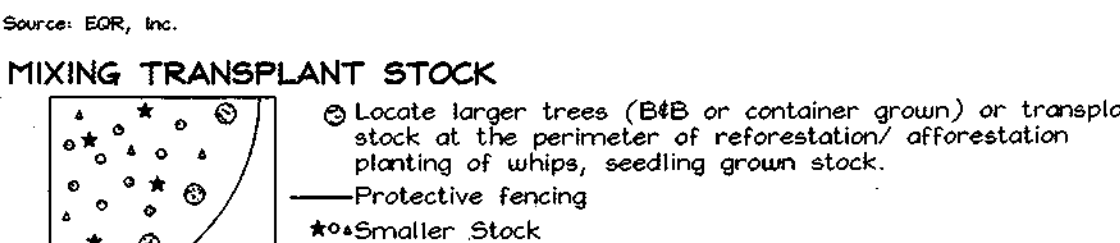
Net Tract Area	Acres
A. Total Tract Area	30.543
B. Area Within 100 Year Floodplain	4.34
C. Other deductions	0
D. Net Tract Area	26.203
Zoning Use Category: RESIDENTIAL-RURAL MEDIUM DENSITY	
Land Use Category	
E. Afforestation Minimum (20% x D)	5.24
F. Conservation Threshold (25% x D)	6.55
Existing Forest Cover	
G. Existing Forest on Net Tract Area	5.12
H. Forest Area Above Afforestation Threshold	0
I. Forest Area Above Conservation Threshold	0
Breakeven Point	
J. Forest Retention Above Threshold with no Mitigation	6.55
K. Clearing Permitted without Mitigation	0
Proposed Forest Clearing	
L. Forest Areas to be Cleared	0
M. Forest Areas to be Retained	5.12
Planting Requirements	
N. Reforestation for Clearing Above Threshold	0
P. Reforestation for Clearing Below the Threshold	0
Q. Credit for Retention Above Conservation Threshold	0
R. Total Reforestation Required	0
S. Total Afforestation Required	.12
T. Total Reforestation and Afforestation Requirement	.12

TYPICAL FOREST TREE DISTRIBUTION PATTERNS



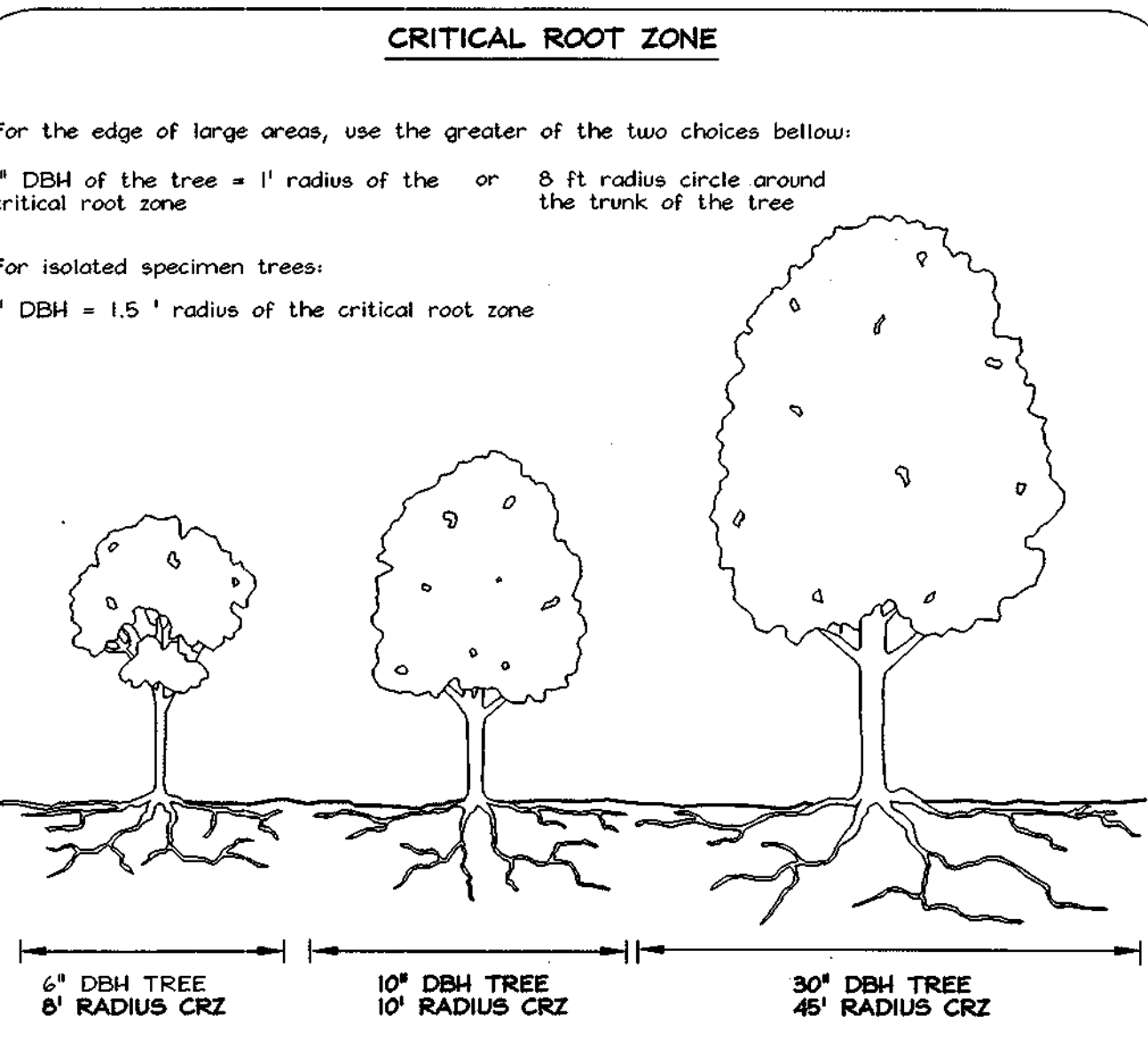
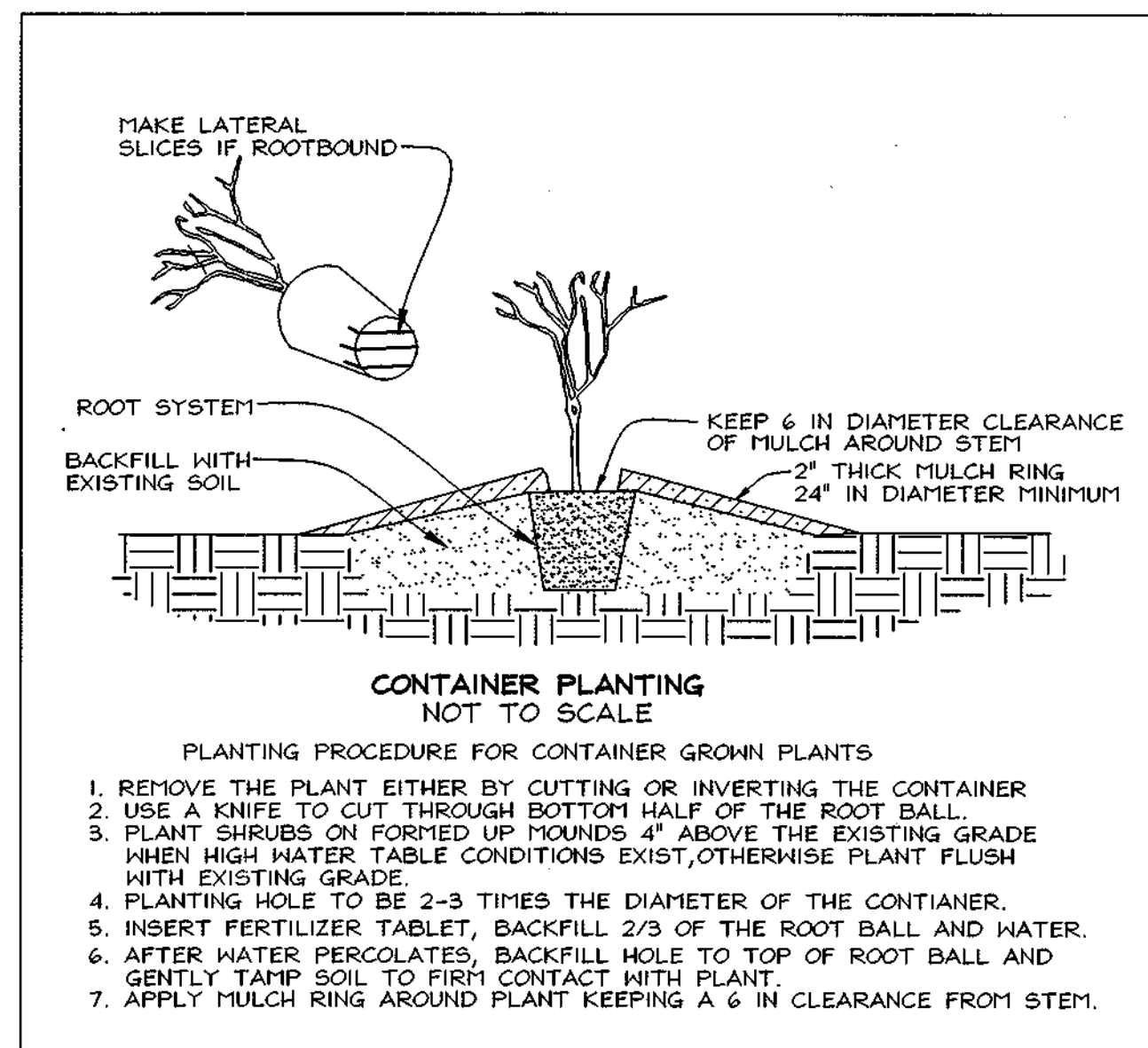
NOTE: Naturally occurring populations of trees tend to be found in informal groupings. A cluster of trees is really a mosaic of different species groups. The objective of an afforestation/reforestation plan is to select the appropriate species and distribution pattern for a chase site that mimic natural patterns.

AGGREGATE DISTRIBUTION DRIFT



PLANTING DISTRIBUTION PATTERNS

FIGURE 3.8.2

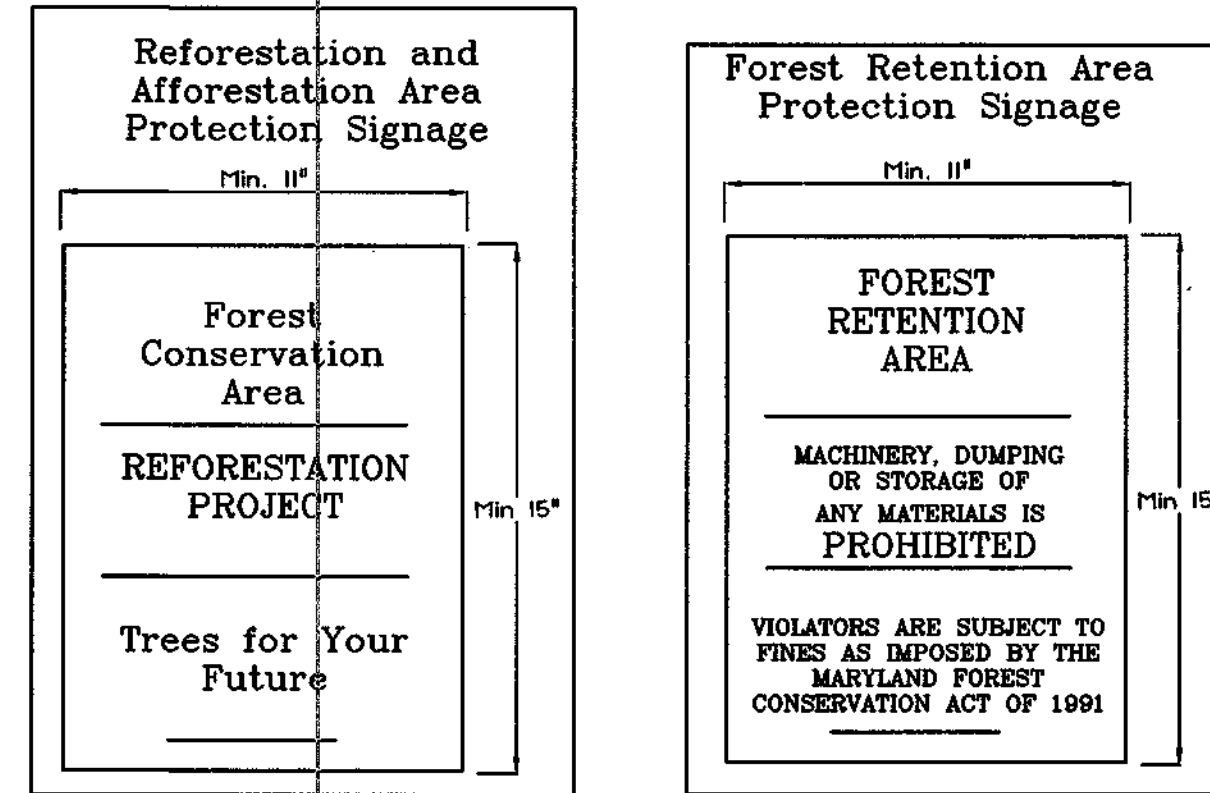


AFFORESTATION AREA MONITORING NOTES

- Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
- 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.
- Survival will be determined by a stratified random sampling 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.
- Effective monitoring will assess plant survivability during the first growing season and make recommendations for reinforcement plantings if required at that time.

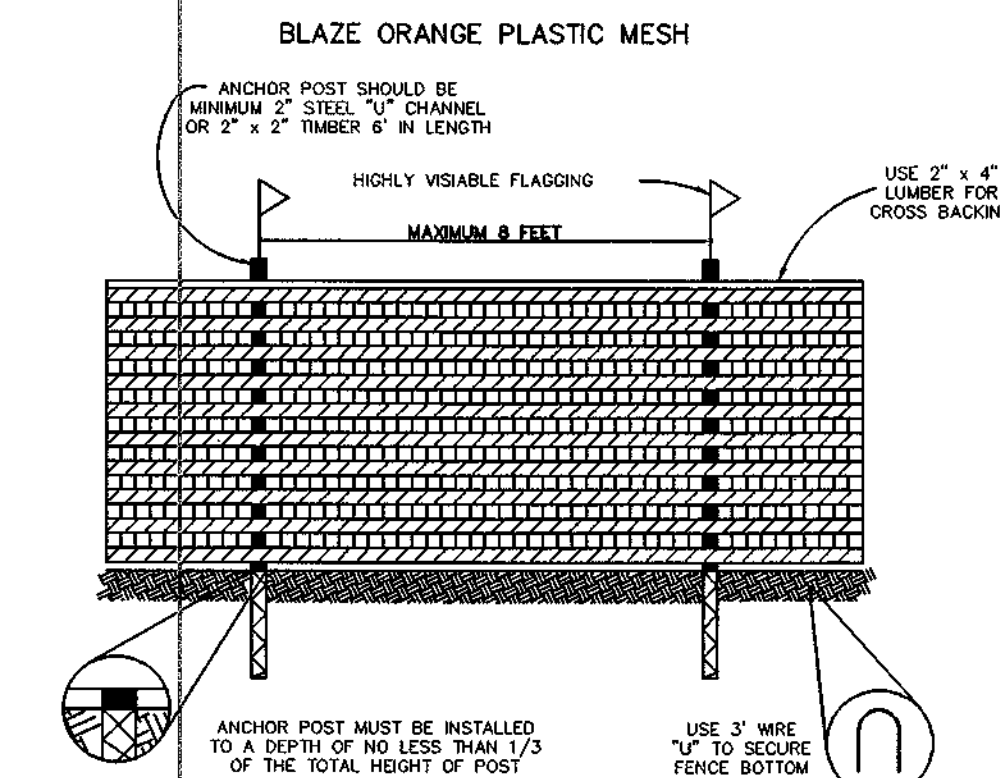
AFFORESTATION PLANTING NOTES

- Afforestation 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 condition warrants.
- 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.
- Plant materials will be planted in accordance with the Planting Distribution Diagram, Planting Details and plant schedule.
- Plant material shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standard for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, breakage, desiccation, insect or disease must be replaced.
- Planting 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.
- 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 material.
- Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of wood alcohol.
- All stock to be container grown with deer repellent tablets in growing medium, such as "repellex".
- Spray all trees with deer repellent immediately after planting and apply as necessary during warrant period.



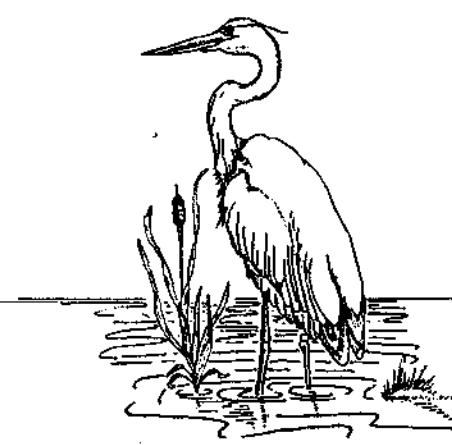
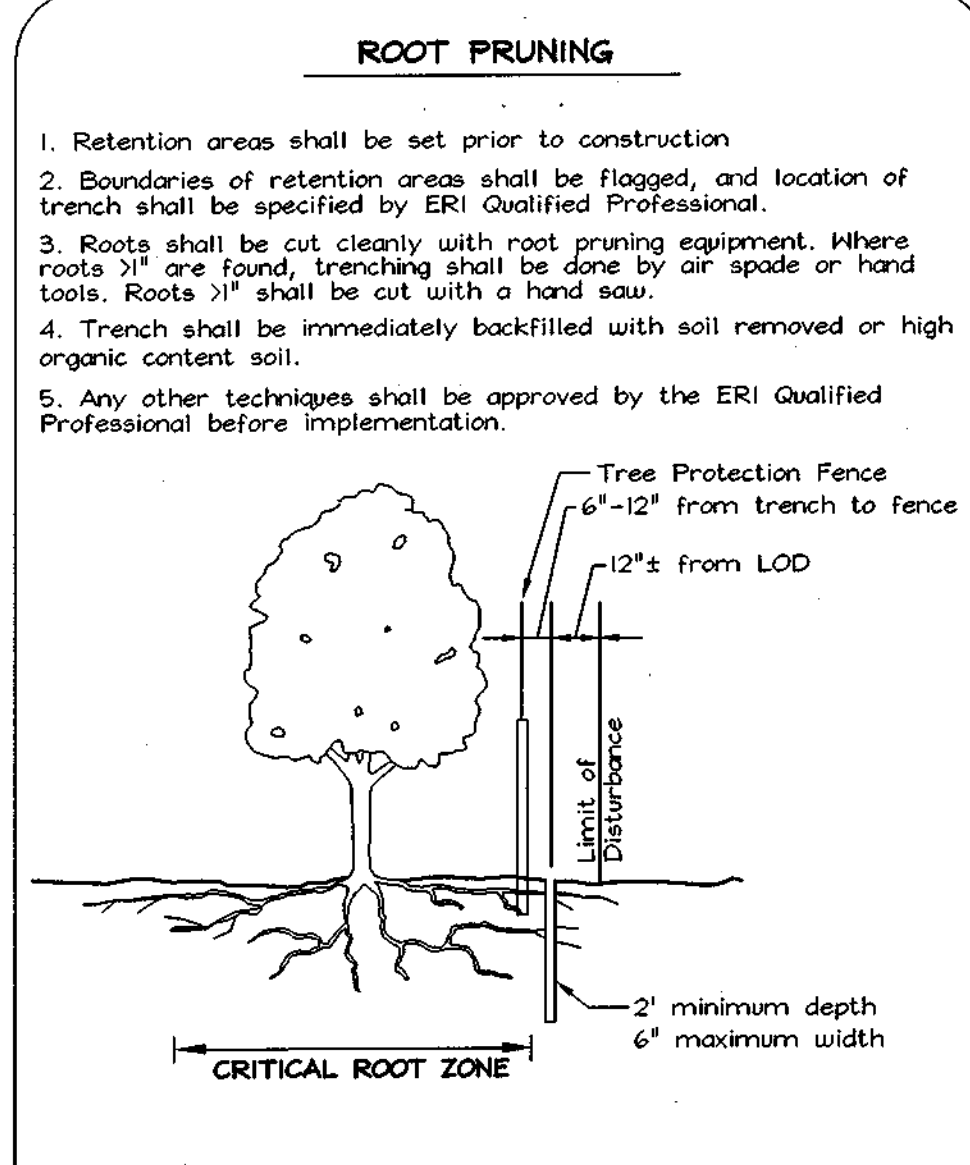
SIGN DETAIL: PERMANENT SIGN

SIGNAGE NOTE: ALL TREE PROTECTION SIGNS SHALL BE PLACED ON ALUMINUM POSTS OR PRESSURE TREATED WOOD POLES. NO ATTACHMENT OF SIGNS TO TREES IS PERMITTED.



- NOTES:
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOT DAMAGE SHOULD BE AVOIDED.
 - PROTECTIVE SIGNAGE MAY ALSO BE USED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL
NOT TO SCALE



EXPLORATION RESEARCH INC.
 ENVIRONMENTAL CONSULTANTS
 8316 FORREST STREET
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 TEL: (410) 760-1150 FAX: (410) 760-7350

OWNER
 Clifton E. & Betty K. Harrison
 P.O. Box 287
 West Friendship, Maryland 21794

DEVELOPER
 Heritage Land Development
 3060 Washington Road, Suite 220
 Glenwood, Maryland 21738
 Tel: (410) 489-7900 Fax: (410) 489-4754

FOREST CONSERVATION NOTES AND DETAILS

TWIN PINES

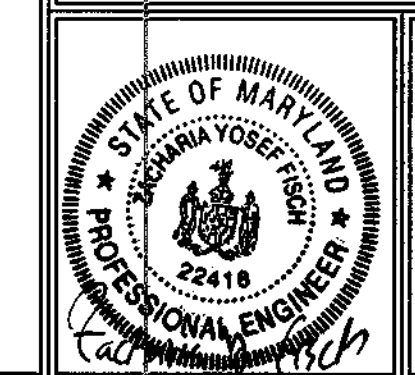
LOTS 1 THRU 11, BUILDABLE PRESERVATION PARCEL 'A'
 AND NON-BUILDABLE PRESERVATION PARCEL 'B'

TAX MAP 22, GRIDS 3 & 8 PARCEL 17
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

Cindy Harris 3/25/12
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Robert M. ... 3-7-12
 CHIEF, BUREAU OF HIGHWAYS DATE



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

DESIGN BY: DH
 DRAWN BY: DH
 CHECKED BY: SH
 SCALE: As Shown
 DATE: Feb 10, 2008
 W.O. No.: 3048
 SHEET No. 14 of 14