

LEGEND

- Existing Contour: ---382---
- Proposed Contour: ---+82.53---
- Spot Elevation: +82.53
- Direction of Flow: --->---
- Existing Trees to Remain: [Symbol]
- Stabilized Construction Entrance: [Symbol]
- Silt Fence: SF --- SF ---
- Limit of Disturbance: ---LOD---
- 15% to 24.9% slopes: [Symbol]
- slopes of 25% or greater: [Symbol]
- Proposed Drive: [Symbol]
- Impervious Area Buffer: [Symbol]

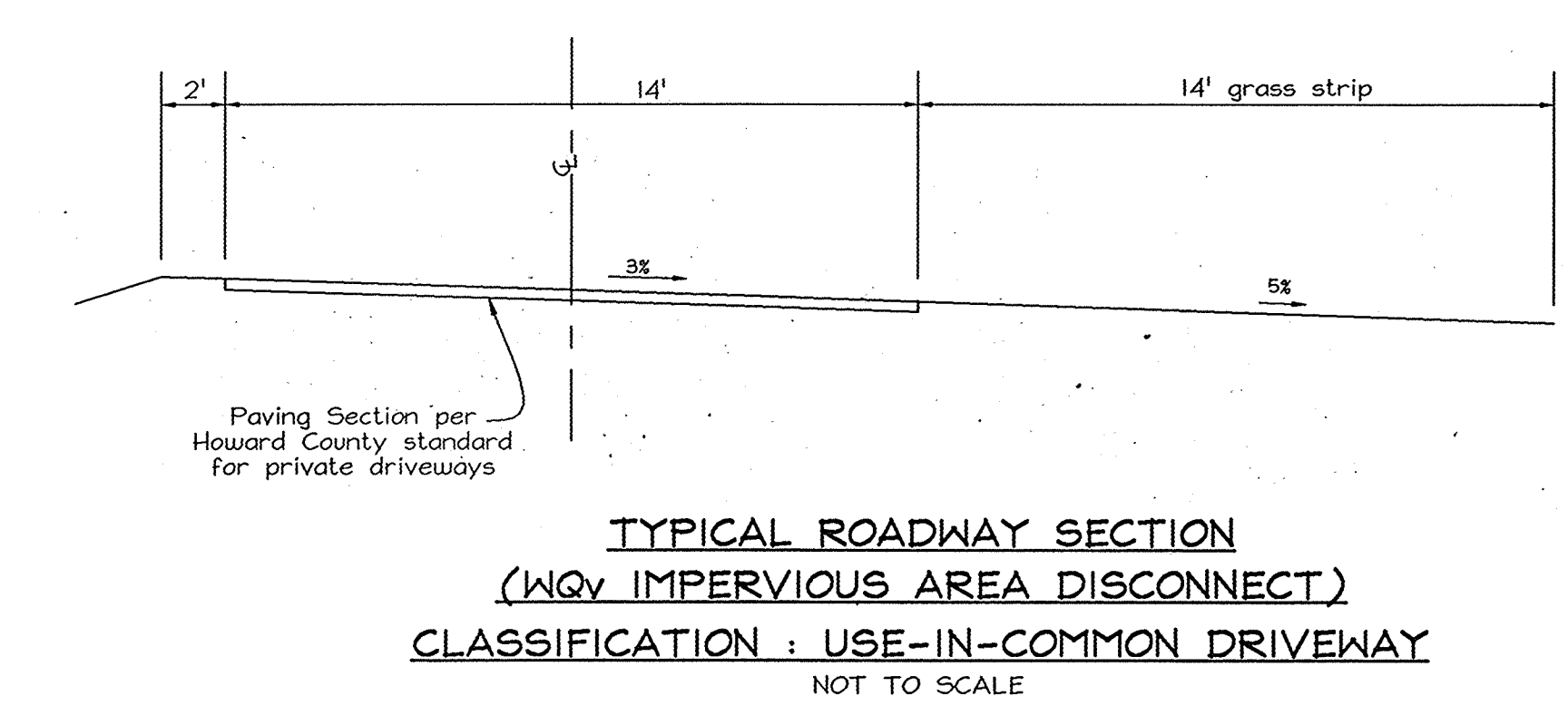
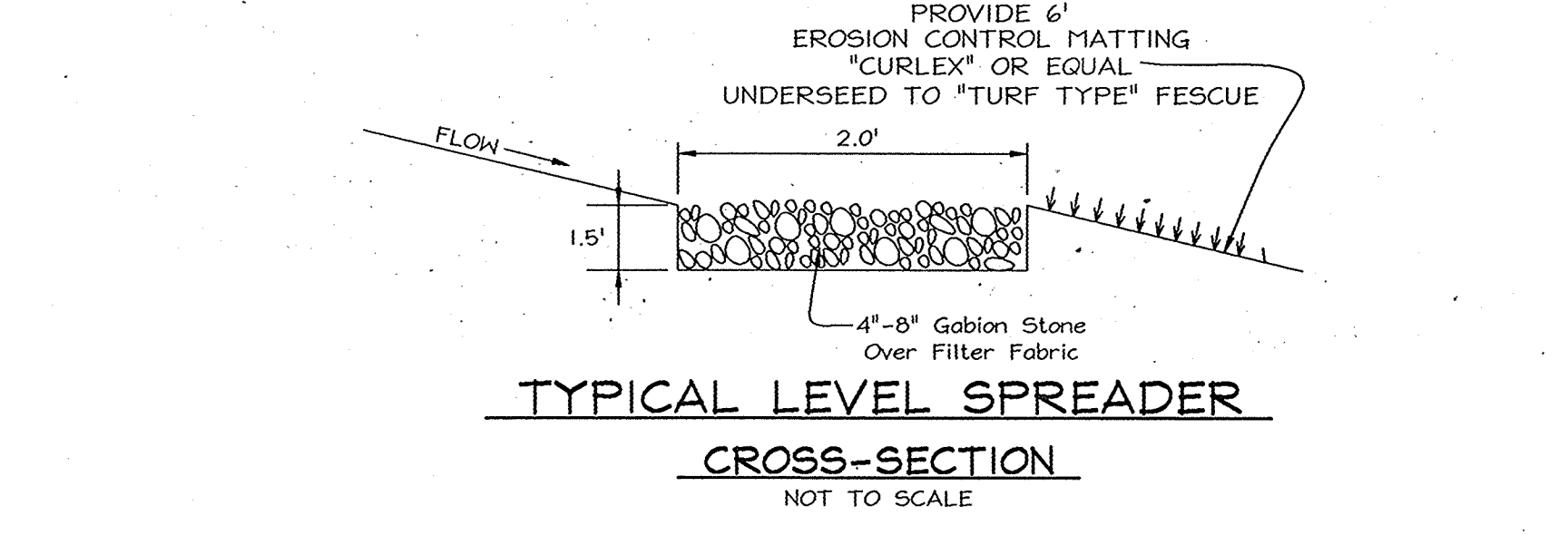
BENCHMARKS

Sta. 41BA	N 168,185.7680 m. E 408,590.7607 m. Elev. 104.6388 m.
Sta. 41CA	N 551,789.473 ft E 1,340,518.187 ft Elev. 343.302 ft
Sta. 41CA	N 167,678.391 m. E 409,335.3113 m. Elev. 90.2164 m.
Sta. 41CA	N 550,124.854 ft E 1,342,760.933 ft Elev. 295.985 ft

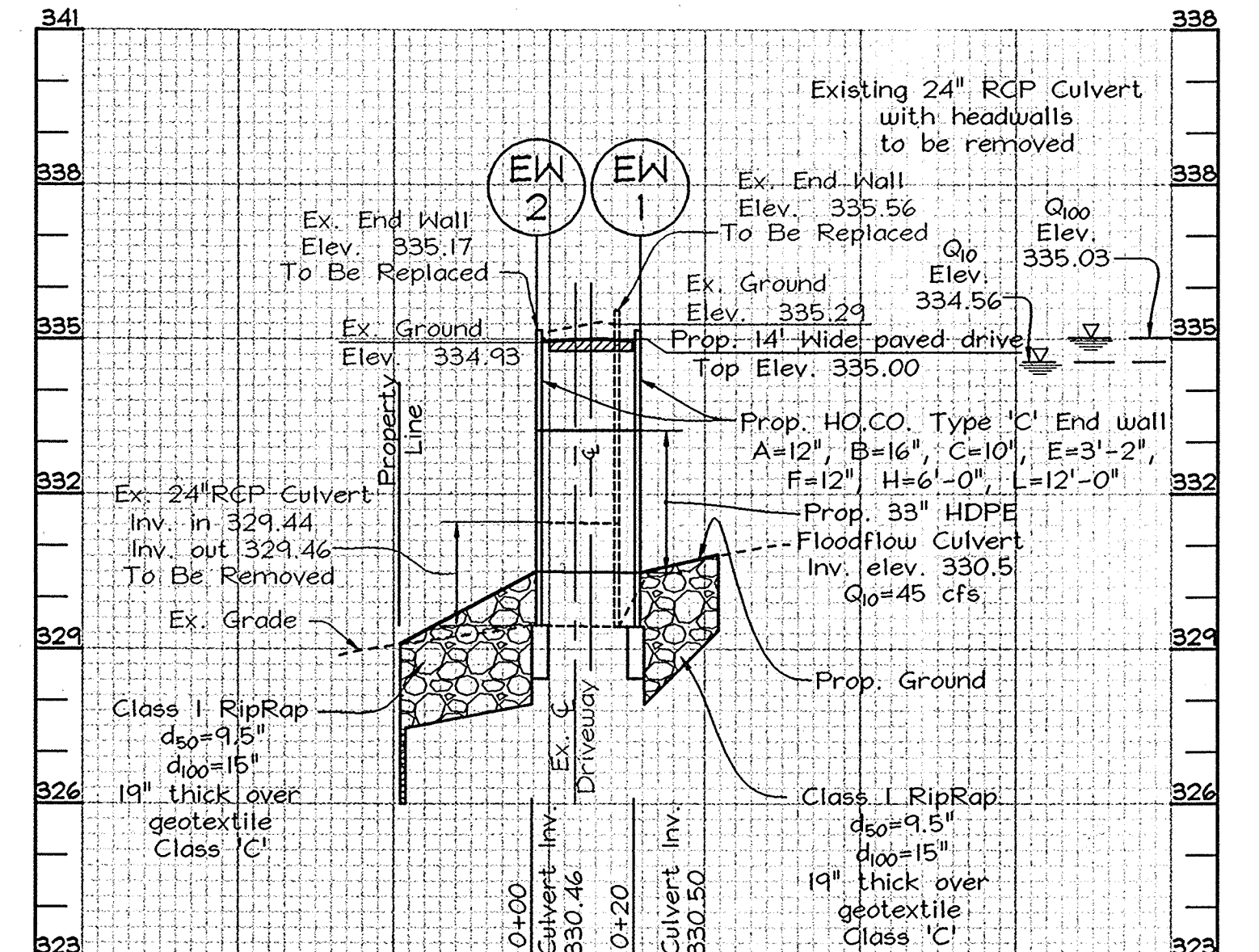
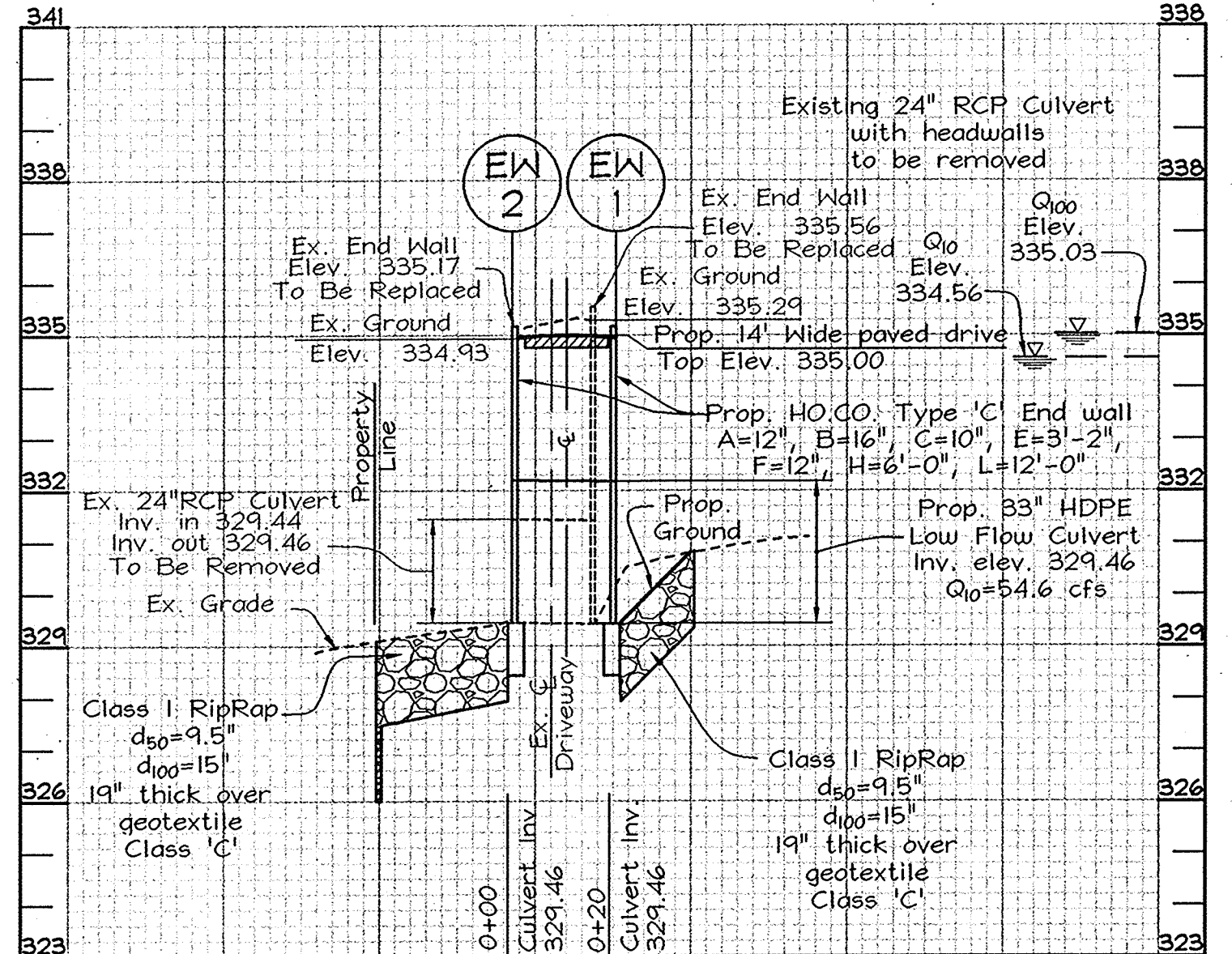
- ### GENERAL NOTES
- Property zoned RR-DEO per 02/02/04 Comprehensive Zoning Plan.
 - Private water and sewer will be used within this site.
 - The lots shown herein comply with the minimum ownership, width and lot area as required by the Maryland State Department of the Environment.
 - Topography based on a Field Run Topographic Survey prepared by C.B. Hillier Associates in December 2003 with two foot contours and Howard County Aerial Topography.
 - Howard County Soil Map #29
 - 100 yr. Floodplain analysis prepared by FSH Associates.
 - 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 41BA and 41CA were used for this project.
 - Driveway(s) shall be provided prior to issuance of a use and occupancy permit for any new dwelling to insure safe access for fire and emergency vehicles per the following (minimum) requirements:
 - Width-12 feet (14' serving more than one residence).
 - Surface-6 inches of compacted crusher run base with 1/2" Min. tar and chip coating.
 - Geometry-max. 15% grade, max. 10% grade change, and 45 foot turning radius.
 - Structures (bridges/culverts)-capable of supporting 25 gross tons (H25-loading).
 - Drainage elements-capable of safely passing 100 year flood with no more than one foot depth over driveway surface.
 - Structure clearance-minimum 12 feet.
 - Maintenance-sufficient to insure all weather use.
 - No clearing, grading or construction is permitted within wetland or stream system buffers unless approved by the Department of Planning and Zoning.
 - This area designates a private sewage easement of at least 10,000 square feet as required by the Maryland State Department of the Environment for individual sewage disposal (COMAR 26.04.03). Improvements of any nature in this area are restricted until public sewage 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 adjustments to the private sewage easement. Recordation of a modified sewage easement shall not be necessary.
 - Landscaping is in accordance with Section 16.124 of the Howard County Subdivision Regulations and the Landscape Manual.
 - This Plan is subject to the amended Fifth Edition of the Howard County Subdivision and Land Development Regulations.
 - Existing Dwelling on Lot 2 to remain.
 - Stormwater Management (M&V, CPV and recharge for the proposed dwelling and on Lot Driveway is provided by sheet flow to buffer credit. Stormwater Management (M&V, CPV and recharge for the shared Driveway is provided by non rooftop disconnect. See details this sheet.
 - Forest conservation obligations are met by retention of 5.9% Ac of forest on Lot 1.
 - Landscape obligations are met by retaining vegetation along perimeters 1 thru 4

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
Ba	Balle silt loam	D
CgC2	Chester gravelly silt loam, 8 to 15 percent slopes, moderately eroded	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
Cs	Comus silt loam	B
GcC2	Glenela loam, 8 to 15 percent slopes, moderately eroded	B
GnC2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
GnC2	Glenville silt loam, 8 to 15 percent slopes, moderately eroded	C
Ha	Hatboro silt loam	D
MgB2	Manor gravelly loam, 3 to 8 percent slopes, moderately eroded	B
MgC2	Manor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MgC3	Manor gravelly loam, 8 to 15 percent slopes, severely eroded	B
MIA	Manor loam, 0 to 3 percent slopes	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, severely eroded	B
MhD	Manor very stony loam, 3 to 25 percent slopes	B
MhF	Manor very stony loam, 25 to 60 percent slopes	B



PROPOSED DRIVEWAY CULVERTS



SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES			
		1	2	3	4
Perimeter/Frontage Designation	Linear Feet of Roadway	1124	639	773	1219
Linear Feet of Roadway	Frontage/Perimeter	Yes	Yes	Yes	Yes
Credit for Existing Vegetation (Yes, No, Linear Feet)	Remaining Perimeter Length	1124	639	773	1219**
Credit for Wall, Fence or Berm (Yes, No, Linear Feet)	Remaining Perimeter Length	No	No	No	No
Number of Plants Required	Shade Trees	1:60	0	1:60	0
Number of Plants Provided	Shade Trees	0	0	0	0
Evergreen Trees	Other Trees (2:1 Substitution)	0	0	0	0
Shrubs (10:1 Substitution)	(Describe Plant Substitution Credits Below if needed)				

OWNER/DEVELOPER
 LEO E. MCKENZIE SR.
 6450 Pindell School Road
 Fulton, Maryland 20759-9718

FOREST CONSERVATION, LANDSCAPE, GRADING AND SOILS PLAN
MCKENZIE PROPERTY
 TAX MAP 35, GRID 21
 5TH ELECTION DISTRICT
 PARCEL 83, L. 5980, F. 149
 HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 7/29/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 7/29/04
 CHIEF, DIVISION OF LAND DEVELOPMENT

LANDSCAPE MAINTENANCE AGREEMENT
 The owner shall be responsible for maintenance of the required landscaping, all existing vegetation approved as part of the perimeter landscaping requirement, shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.
 Leo E. McKenzie Sr. July 23, 2004
 SIGNATURE OF DEVELOPER

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 LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 Leo E. McKenzie Sr. July 23, 2004
 SIGNATURE OF DEVELOPER

DESIGN BY: PS
 DRAWN BY: GS/AY
 CHECKED BY: ZYF
 SCALE: As shown
 DATE: July 23, 2004
 M.O. No.: 3111
 SHEET No. 1 OF 3

Forest Conservation Narrative

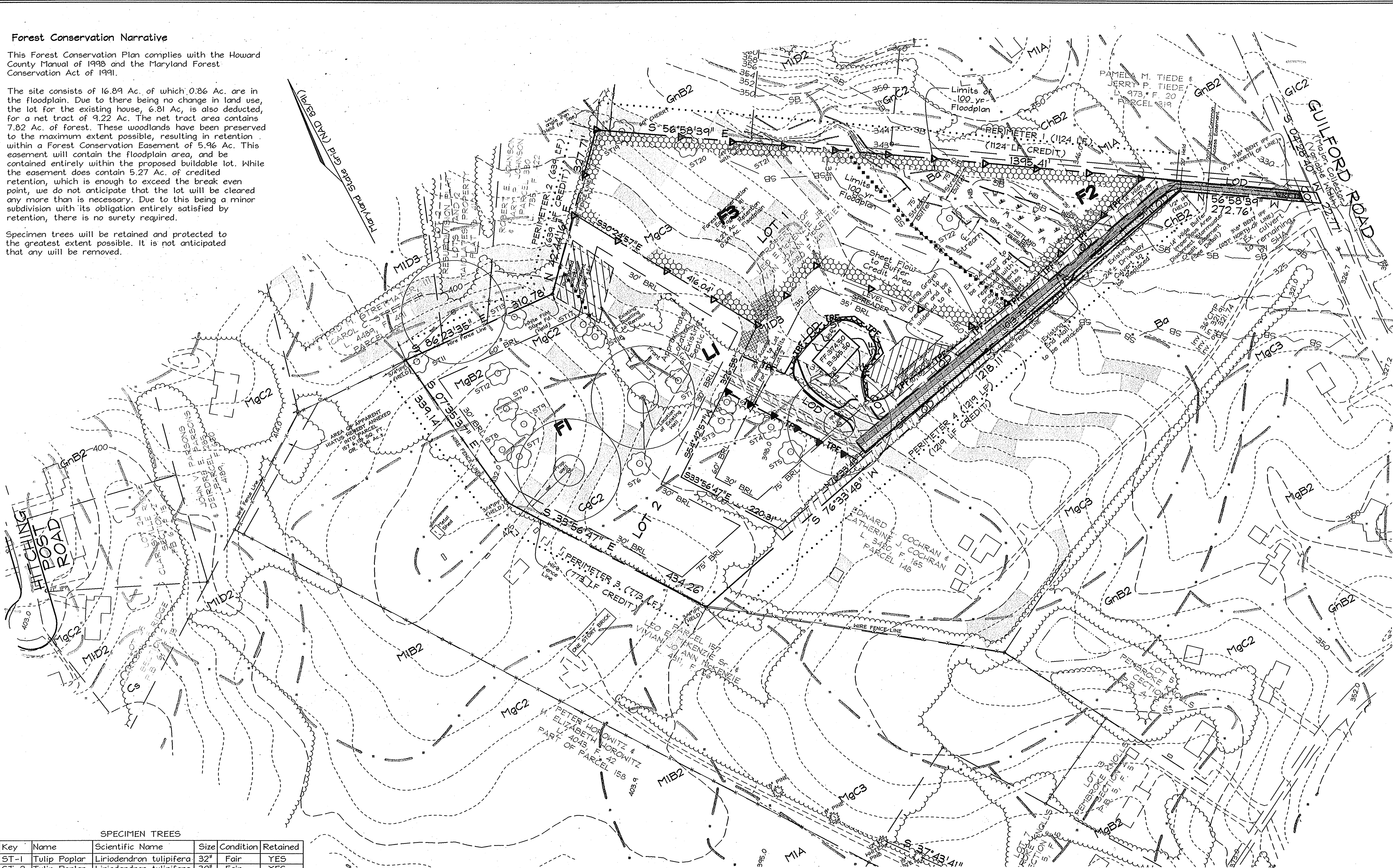
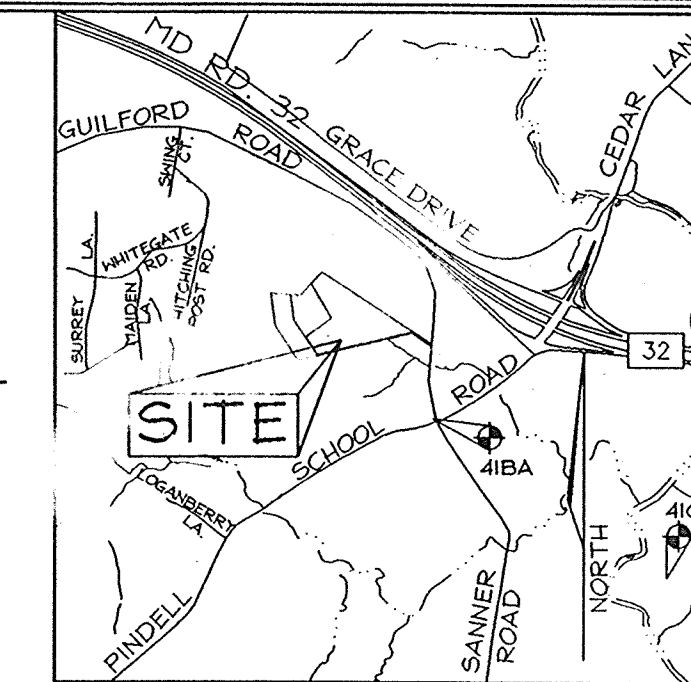
This Forest Conservation Plan complies with the Howard County Manual of 1998 and the Maryland Forest Conservation Act of 1991.

The site consists of 16.89 Ac. of which 0.86 Ac. are in the floodplain. Due to there being no change in land use, the lot for the existing house, 6.81 Ac, is also deducted, for a net tract of 9.22 Ac. The net tract area contains 7.82 Ac. of forest. These woodlands have been preserved to the maximum extent possible, resulting in retention within a Forest Conservation Easement of 5.96 Ac. This easement will contain the floodplain area, and be contained entirely within the proposed buildable lot. While the easement does contain 5.27 Ac. of credited retention, which is enough to exceed the break even point, we do not anticipate that the lot will be cleared any more than is necessary. Due to this being a minor subdivision with its obligation entirely satisfied by retention, there is no surety required.

Specimen trees will be retained and protected to the greatest extent possible. It is not anticipated that any will be removed.

LEGEND

- Existing Contour -382
- Proposed Contour +82.53
- Spot Elevation
- Direction of Flow
- Existing Trees to Remain
- Limit of Disturbance LOD
- 15% to 24.9% slopes
- Slopes of 25% or greater
- Forest Conservation Easement
- Tree Protection Fence TPF
- FCE Sign
- Specimen Tree Temporary Sign



FOREST CONSERVATION WORKSHEET

Net Tract Area	Acres
A. Total Tract Area	16.89
B. Area Within 100 Year Floodplain	0.86
C. Other deductions	6.81
D. Net Tract Area	9.22
Zoning Use Category: RESIDENTIAL-SUBURBAN	
Land Use Category	
E. Afforestation Minimum (20 % x D)	1.84
F. Conservation Threshold (50 % x D)	4.61
Existing Forest Cover	
G. Existing Forest on Net Tract Area	7.82
H. Forest Area Above Conservation Threshold	3.21
Breakeven Point	
I. Forest Retention Above Threshold with no Mitigation	5.25
J. Clearing Permitted without Mitigation	2.57
Proposed Forest Clearing	
K. Forest Areas to be Cleared	2.55
L. Forest Areas to be Retained	5.27
Planting Requirements	
M. Reforestation for Clearing Above Threshold	0.64
N. Reforestation for Clearing Below the Threshold	0
P. Credit for Retention Above Conservation Threshold	0.66
Q. Total Reforestation Required	0
R. Total Afforestation Required	0
S. Total Reforestation and Afforestation Requirement	0

SPECIMEN TREES

Key	Name	Scientific Name	Size	Condition	Retained
ST-1	Tulip Poplar	Liriodendron tulipifera	32"	Fair	YES
ST-2	Tulip Poplar	Liriodendron tulipifera	30"	Fair	YES
ST-3	Tulip Poplar	Liriodendron tulipifera	31"	Fair	YES
ST-4	Tulip Poplar	Liriodendron tulipifera	32"	Fair	YES
ST-5	Tulip Poplar	Liriodendron tulipifera	30"	Fair	YES
ST-6	Tulip Poplar	Liriodendron tulipifera	40"	Poor	YES
ST-7	Red Oak	Quercus rubra	32"	Fair	YES
ST-8	Red Oak	Quercus rubra	31"	Poor	YES
ST-9	Tulip Poplar	Liriodendron tulipifera	32"	Fair	YES
ST-10	Red Maple	Acer rubrum	32"	Poor	YES
ST-11	Tulip Poplar	Liriodendron tulipifera	44"	Fair	YES
ST-12	Tulip Poplar	Liriodendron tulipifera	37"	Poor	YES
ST-13	Tulip Poplar	Liriodendron tulipifera	39"	Fair	YES
ST-14	Tulip Poplar	Liriodendron tulipifera	38"	Poor	YES
ST-15	Tulip Poplar	Liriodendron tulipifera	36"	Fair	YES
ST-16	Tulip Poplar	Liriodendron tulipifera	34"	Fair	YES
ST-17	Tulip Poplar	Liriodendron tulipifera	40"	Fair	YES
ST-18	Tulip Poplar	Liriodendron tulipifera	36"	Fair	YES
ST-19	Tulip Poplar	Liriodendron tulipifera	38"	Poor	YES
ST-20	Black Walnut	Juglans nigra	30"	Fair	YES
ST-21	Red Maple	Acer rubrum	36"	Poor	YES
ST-22	Tulip Poplar	Liriodendron tulipifera	36"	Fair	YES

Forest Conservation Narrative

F1 - This forest stand occurs within the upland area of the site adjacent to the existing single-family dwelling. The 5.78 acre stand is dominated by the following tree species: tulip tree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*) and persimmon (*Diospyros virginiana*). The herbaceous/woody vine strata are dominated by: bitternut (*Celastrus orbiculatus*), Japanese honeysuckle (*Lonicera japonica*), and poison ivy (*Toxicodendron radicans*). Several specimen trees are found within this stand. The stand is in good health without significant invasive infestation. This stand would be considered a high priority for retention.

F2 - This forest stand occurs within and adjacent to the stream/wetland area of the site. The 1.85 acre stand is dominated by the following overstory tree species: tulip tree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), and Virginia Pine (*Pinus virginiana*). The understory is dominated by: Multiflora rose (*Rosa multiflora*). The herbaceous layer is dominated by: bitternut (*Celastrus orbiculatus*), Japanese honeysuckle (*Lonicera japonica*), and field garlic (*Allium vineale*). This stand appears to be in good health. No specimen trees are found within this stand. The areas floodplain, stream, and wetland would be high priority for retention. Other areas would be of lesser priority.

F3 - This forest stand occurs within the central upland portion of the site. The 6.50 acre stand is dominated by the following overstory tree species: tulip tree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), and Virginia Pine (*Pinus virginiana*). The understory is dominated by: spicebush (*Lindera benzoin*) and persimmon (*Diospyros virginiana*). The herbaceous/woody vine strata are dominated by: bitternut (*Celastrus orbiculatus*), Japanese honeysuckle (*Lonicera japonica*), and greenbrier (*Smilax rotundifolia*). This stand appears to be in good health. A few specimen trees are found within this stand. Steep slope areas would be high priority for retention.

L1 - The remainder of the site is the lawn area surrounding the existing buildings including scattered trees and a gravel driveway.

FOREST STAND ANALYSIS TABLE

KEY	TYPE OF COMMUNITY	AREA (Acres)	SOIL INFORMATION			HABITAT VALUE	EXISTING VEGETATION (Type and approx. %)	STAND CHARACTERISTICS		FOREST AREA IN SENSITIVE ENVIRONMENTS
			SOIL TYPE	TYPICAL FOREST COVER	WOODLAND SUITABILITY INDEX			SIZE AVG. DIAM.	AGE	
F1	KEY	5.78	CgC2 MgB2 MgC2 MIB2	Oak & Upland Hardwood Mixed Upland Hardwood	75-84 65-74	Good Fair	Tulip Poplar 50% Red Maple 20% Black Cherry 20% Persimmon 10%	12-26" 6-16" 6-12" 6-10"	70-80+ KEY	None
F2	KEY	1.85	Ba CHB2 GnB2	Wetland Hardwood Oak & Upland Hardwood Water Tolerant Hardwood	85+ Lobloily Pine 65-74 Oaks 65-74	Good	Red Maple 50% Tulip Poplar 30% Red Oak 10% Virginia Pine 10%	8-14" 60-70+ KEY	KEY	Entirely within Stream Buffer, Wetland and Buffer, and Floodplain
F3	KEY	6.50	GnB2 MgC3 MID3	Water Tolerant Hardwood Mixed Upland Hardwood	65-74 65-74	Good Fair	Tulip Poplar 60% Red Maple 20% Red Oak 10% Virginia Pine 10%	8-16" 6-14" 8-14" 6-12"	60-70+ KEY	Scattered Steep Slopes
L1	Lawn with Scattered Trees	6.50								

FOREST CONSERVATION EASEMENT TABLE

EASEMENT	TYPE	AREA (ACRES)
I	Retention	5.27
	Floodplain (no credit)	0.69
TOTAL		5.96

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
Ba	Baite silt loam	D
CgC2	Chester gravelly silt loam, 8 to 15 percent slopes, moderately eroded	B
CHB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
Ca	Cornus silt loam	B
GIC2	Gleniel loam, 8 to 15 percent slopes, moderately eroded	B
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
GnC2	Glenville silt loam, 8 to 15 percent slopes, moderately eroded	C
Ha	Hatboro silt loam	D
MgB2	Manor gravelly loam, 3 to 8 percent slopes, moderately eroded	B
MgC2	Manor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MgC3	Manor gravelly loam, 8 to 15 percent slopes, severely eroded	B
MIA	Manor loam, 0 to 3 percent slopes	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, severely eroded	B
MnD	Manor very stony loam, 3 to 25 percent slopes	B
MnF	Manor very stony loam, 25 to 60 percent slopes	B

COMBINED FOREST STAND DELINEATION & FOREST CONSERVATION PLAN

McKENZIE PROPERTY
TAX MAP 35, GRID 21, PARCEL 83, L. 5980, F. 149
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DIVISION OF LAND DEVELOPMENT 7/21/04 DATE

 CHIEF, DEVELOPMENT ENGINEERING DIVISION 7/21/04 DATE

EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 808 FOREST STREET
 BELTSVILLE CITY, MARYLAND 21043
 TEL: (410) 760-1100 FAX: (410) 760-7800
 EMAIL: EXPLORATIONRESEARCH.COM

OWNER AND DEVELOPER
 LEO E. MCKENZIE SR.
 6950 Pindel School Road
 Fulton, Maryland 20759-4718

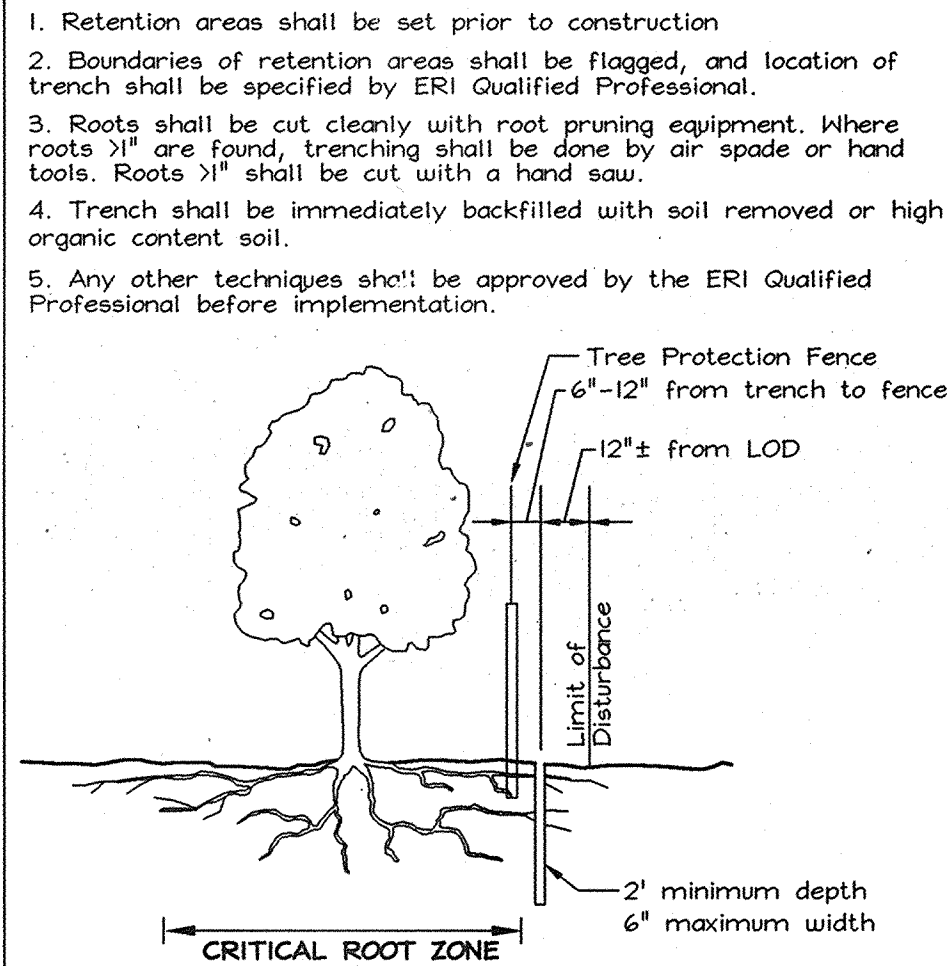
FSH Associates
 Engineers Planners Surveyors
 8318 Forest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@comcast.net

DESIGN BY: AB
 DRAWN BY: AB
 CHECKED BY: SLH
 SCALE: 1"=100'
 DATE: July 23, 2004
 W.O. No.: 3111
 SHEET No. 2 OF 3

Soil Protection Zone Notes

1. The Soil Protection Zone shall include all areas contained inside the Limit of Disturbance.
2. Where possible, the Soil Protection Zone shall extend to the drip line of specimen trees. For other groups of trees, the zone shall be the drip line or 40% of the height of the tree, whichever is greater.
3. No construction activity is permitted within the Soil Protection Zone.
4. If soil has been compacted or grading has taken place in the vicinity of the Soil Protection Zone, root pruning shall be implemented per Root Pruning detail, shown on this plan.
5. Root pruning shall occur prior to the beginning of construction.
6. Where the Soil Protection Zone must encroach inside the Critical Root Zone of a tree, soil disturbance shall be mitigated with vertical mulching, radial trenching, or another method approved by the ERI Forest Conservation Professional.
7. Prior to construction, the Limits of Disturbance shall be marked and the ERI Professional shall determine which trees will need preventative treatment or removal.
8. Tree maintenance and removal shall be undertaken by a qualified MD Tree Expert to ensure damage to surrounding trees is minimized.
9. Brush and limbs removed for construction shall be chipped and spread at the edge of the Soil Protection Zone to a depth of 6 inches. This shall occur outside the Soil Protection Zone where compaction could impact otherwise unprotected Critical Root Zone.

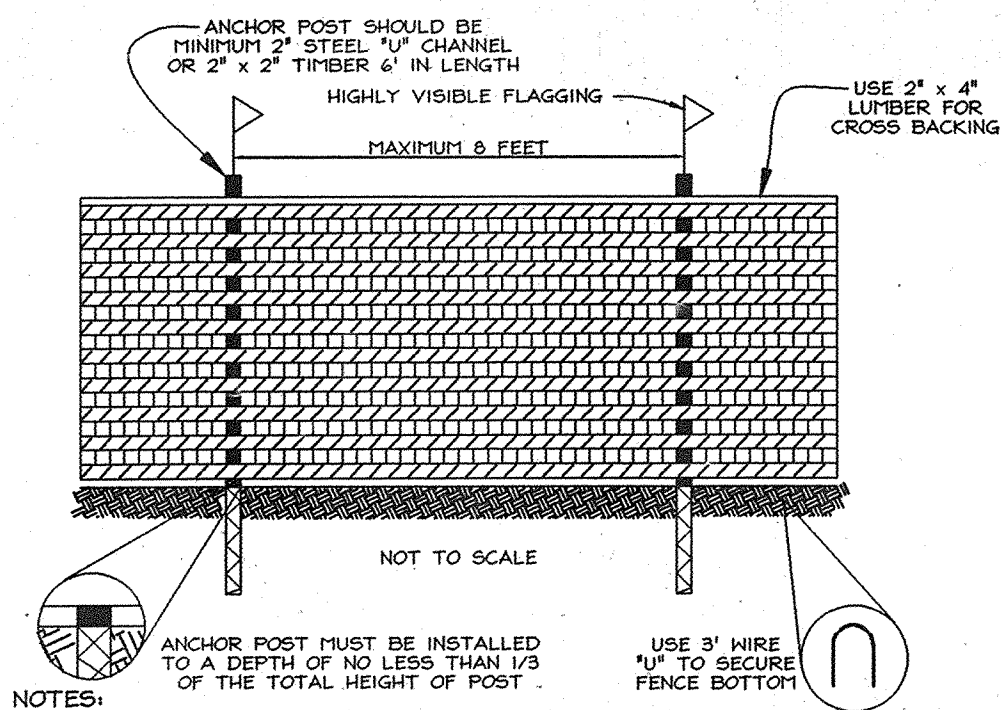
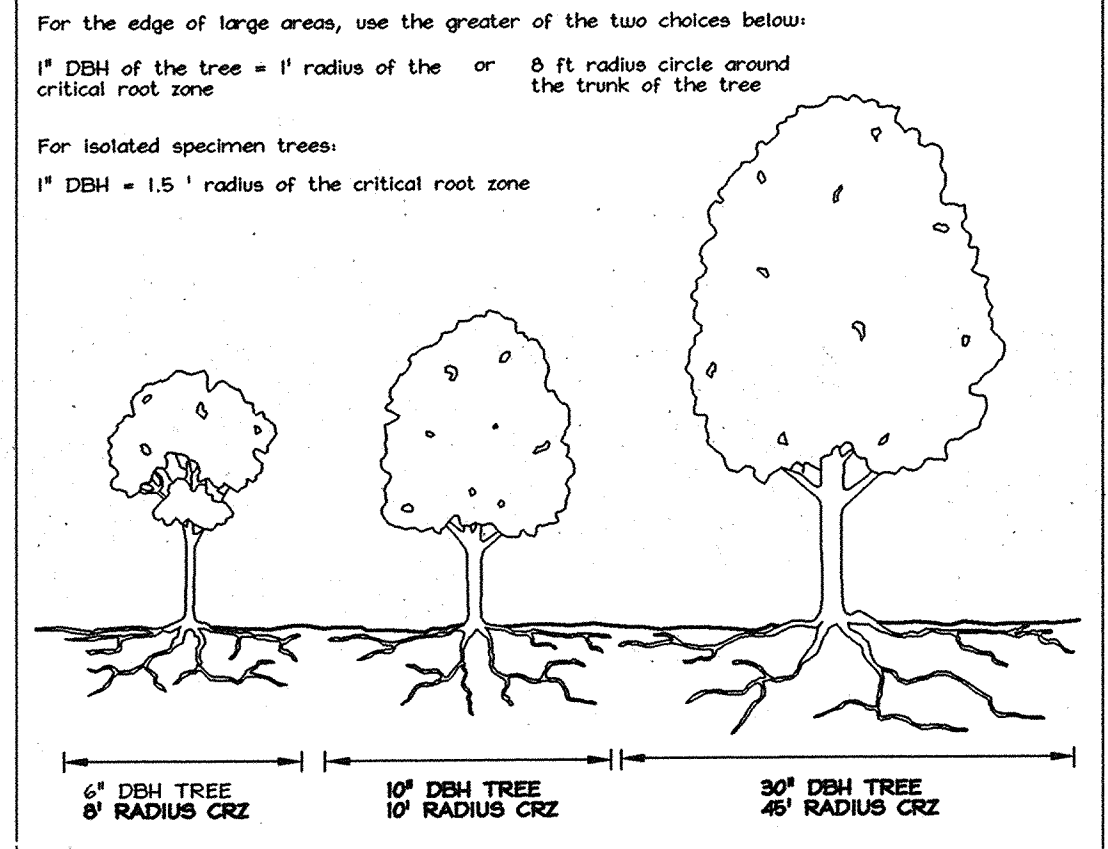
ROOT PRUNING



Forest Tree Protection and Management Notes

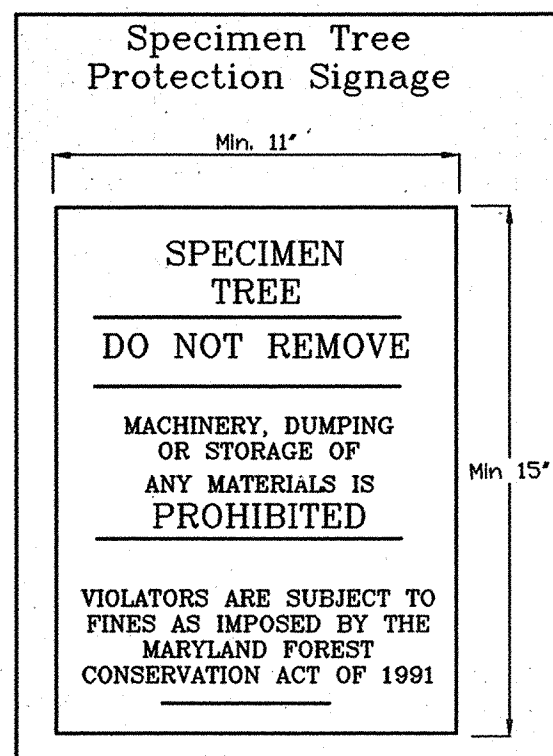
1. Tree protection devices shall be installed prior to any grading or land clearing.
2. After the boundaries of the retention areas have been staked and flagged and before any disturbance has taken place a pre-construction meeting with the Howard County Inspector is required.
3. Provide maintenance to tree protection devices and signage to maintain their integrity throughout the duration of the project.
4. Attachment of signs to tree protection devices to maintain their integrity throughout the duration of the project.
5. Any significant changes made to the Forest Conservation Plan shall be made with the prior approval of the Howard County Dept. Of Planning and Zoning.
6. No burial of discarded material is permitted within the Forest Conservation and Planting areas.
7. No open burning within 100 feet of wooded areas is permitted.
8. Post construction phase.
 - a. Inspect existing trees around the perimeter of the site for signs of root or trunk damage and excessive soil compaction.
 - b. Remove dead or dying trees and evaluate for hazard tree removal.
 - c. All temporary forest protection devices will be removed after construction.
 - d. Following completion of construction, prior to use, the county inspector shall inspect the entire site for compliance with this Forest Conservation Plan.
9. A licensed Arborist or Forester should be retained for this service as needed.

CRITICAL ROOT ZONE



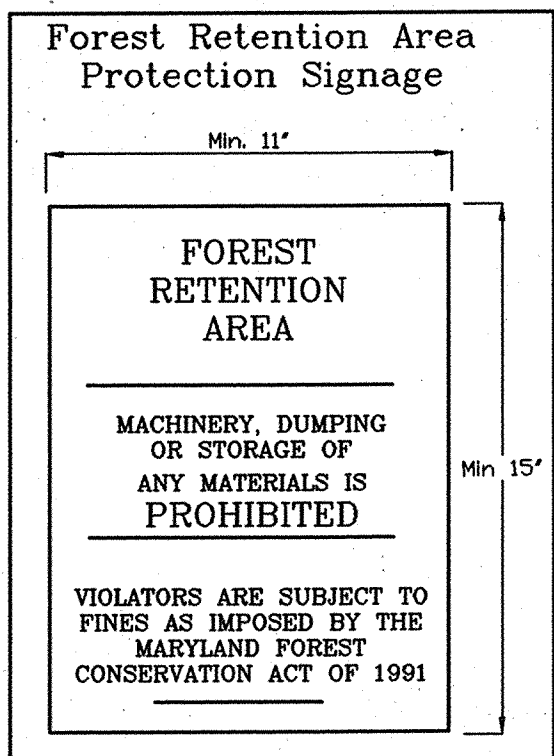
- NOTES:
1. FOREST PROTECTION DEVICE ONLY.
 2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 3. ROOT DAMAGE SHOULD BE AVOIDED.
 4. PROTECTIVE SIGNAGE THAT ALSO BE USED.
 5. DEVICE SHOULD BE MAINTAINED THROUGHOUT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

TREE PROTECTION DETAIL
BLAZE ORANGE PLASTIC MESH



1. TEMPORARY SIGNAGE SHALL BE PLACED ATOP THE TREE PROTECTION FENCE IN LOCATIONS NOTED ON PLAN.
2. SPECIMEN TREE SIGNAGE SHALL BE PLACED ON THE TREE PROTECTION FENCE SURROUNDING THE SPECIMEN TREES ON THE NEW LOT.
3. ALL PERMANENT TREE PROTECTION SIGNS SHALL BE PLACED ON METAL 1" POSTS OR PRESSURE TREATED WOOD POLES, NO ATTACHMENT OF SIGNS TO TREES IS PERMITTED.

TREE PROTECTION SIGNAGE
NOT TO SCALE



EXPLORATION RESEARCH, INC.
ENVIRONMENTAL CONSULTANTS
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8330 ROBERT STREET
BETHESDA CITY, MARYLAND 20843
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OWNER AND DEVELOPER
LEO E. MCKENZIE SR.
6950 Pindell School Road
Fulton, Maryland 20754-9718

COMBINED FOREST STAND DELINEATION & FOREST CONSERVATION PLAN
MCKENZIE PROPERTY
TAX MAP 35, GRID 21, L. 83, L. 5980, F. 149
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: AB
DRAWN BY: AB
CHECKED BY: SLH
SCALE: N/A
DATE: July 23, 2004
N.O. No.: 3111
SHEET No. 3 OF 3

FSH Associates
Engineers Planners
8318 Forest Street Ellicott
Tel: 410-750-2251 Fax: 4
E-mail: FSHAssociates@comcast.net

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/23/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 7/23/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE