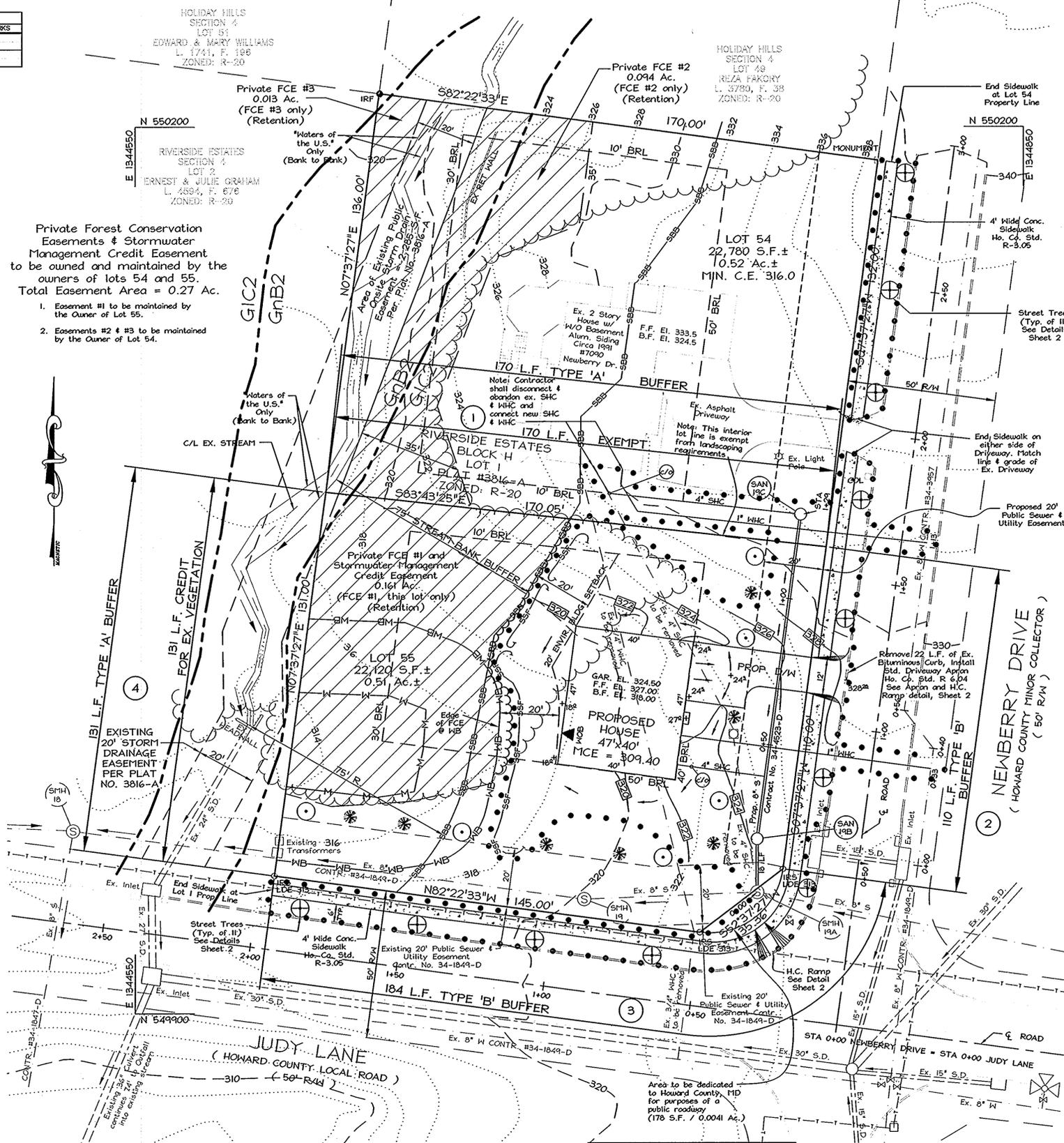


SOILS LEGEND			
HYDROLOGIC SOIL GROUP	SOIL SYMBOL	DESCRIPTION	REMARKS
B	GIC2	Clayey loam, 5% - 15% slopes, moderately erodent	
C	GnB2	Glean/silt loam, 3% - 8% slopes, moderately erodent	

- LEGEND:**
- 538 --- 540 --- EXISTING CONTOURS
 - 538 --- 540 --- PROPOSED CONTOURS
 - GnB2 GIC2 SOILS BOUNDARY
 - PROPERTY LINE
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - NONTIDAL WETLAND LIMIT
 - 25' NONTIDAL WETLAND BUFFER
 - STREAM BANK BUFFER
 - DRAINAGE FLOW
 - SUPER SILT FENCE
 - LIMIT OF DISTURBANCE
 - UNDERGROUND TELEPHONE
 - PUBLIC FOREST CONSERVATION & STORMWATER MANAGEMENT CREDIT EASEMENT
 - PROPOSED EASEMENT
 - EXISTING PUBLIC EASEMENT
 - PROPOSED SIDEWALK
 - LEVEL SPREADER
 - EXISTING TREES
 - PROPOSED DECIDUOUS TREE
 - PROPOSED EVERGREEN TREE
 - SANITARY CLEAN OUT
 - MAIL BOX
 - PHONE PEDESTAL
 - LIGHT POLE
 - GROUND LIGHT
 - EXISTING WELL
 - WATER VALVE
 - LANDSCAPE PERIMETER NUMBER

Private Forest Conservation Easements & Stormwater Management Credit Easement to be owned and maintained by the owners of lots 54 and 55. Total Easement Area = 0.27 Ac.

- Easement #1 to be maintained by the Owner of Lot 55.
- Easements #2 & #3 to be maintained by the Owner of Lot 54.



SHEET INDEX	
NO.	TITLE
1	Supplemental, Grading and Landscaping Plan
2	Supplemental Notes and Details
3	Simplified Forest Stand Delineation & Forest Conservation Plan

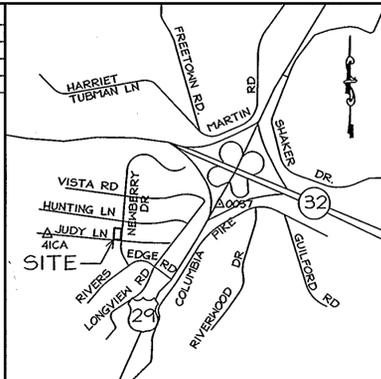
BENCH MARKS

- #41CA Disk set on top of concrete column
N 55024.854
E 1342960.933
EL = 295.985
- #0057 Disk set on top of concrete column
N 55035.217
E 1347017.693
EL = 399.610

NOTE: If any of the proposed street trees conflict with existing electric, telephone or cable TV lines, the tree shall be relocated by the Contractor to avoid the utility and allow sufficient room for the utilities to be maintained.

GENERAL NOTES:

- Total area of proposed lots: 1.007 Acres
- This plot is based on a field run monumented boundary survey performed in June, 2005 by LDE, Inc.
- The topography shown hereon was field run by LDE, Inc. in February, 2007.
- Howard County Geodetic survey control points used for the site in NAD83 (Horizontal) and NGVD29 (Vertical) datums. Unless otherwise noted controls consist of a standard stamped (brass or aluminum) disc set on top of a concrete column (3 feet deep).
- # 41CA, Northing: 55024.854 Ft./Easting: 1342960.933 Ft./Elevation: 295.985 Ft.
- # 0057, Northing: 55035.217 Ft./Easting: 1347017.693 Ft./Elevation: 399.610 Ft.
- There is an existing dwelling located on lot 54 to remain (built 1991). No new buildings, extensions or additions to the existing dwelling are to be constructed at a distance less than the Zoning Regulations require.
- In accordance with Section 128 of the Howard County Zoning Regulations, bay windows, chimneys or exterior stairways not more than 16 feet in width may project no more than 4 feet into any setback. Porches or decks, open or enclosed, may not project more than 10 feet into the front or rear yard setback.
- No construction, grading or removal of existing vegetation shall occur within the forest conservation easements or stream bank buffers; however, Forest Management Practices, as defined in the deed of Forest Conservation are allowed.
- On December 14, 2006 the Planning Director approved waiver request (WP-06-134), to allow the following: a) Section 16.117(b) to permit a forest conservation easement within a residential subdivision buildable lots, b) Section 16.120(b)(4)(iii) to permit a forest conservation easement (FCE) to be located on buildable lots less than 10 acres in size and to permit the required 35' building setback referenced from a stream bank buffer and FCE to be reduced from 35' to 20', c.) 16.120(b)(4)(iii) to permit the required 35' building setback from a perennial stream bank and an FCE in a "R-20 infill subdivision" to be reduced from 35' to 20', d.) Section 16.132(a)(2)(i) to not be required to construct one-half of the full designed public road paving width along the property frontage, and e.) Section 16.133(a)(1) to not be required to install a storm drain system within the public road frontage improvements. Approval is subject to the following conditions: 1.) Existing public road paving shall be provided at the intersection of Newberry Drive and Judy Lane on the final subdivision plat in accordance with Section 16.119(e)(5), 2.) The reduction of the 35' environmental building setback to 20' applies to lot 55 only, and the 35' building setback referenced from the 75' stream bank buffer and FCE will not be required on lot 54, 3.) The 75' stream bank buffer shall be shown on lot 54, with the existing house and improvements on lot 54 being considered "non-conforming" and being allowed to remain. However, any future improvements, additions and / or replacement of the existing house shall not exceed the existing limits of the existing house and improvements currently located within the 75' stream bank buffer. 4.) Compliance with the Department and Parks and Recreation to the greatest extent possible. Additionally, on this matter, the Planning Director denied the following waivers: a.) 16.116(a)(2)(ii) to permit the required 75' stream bank buffer referenced from a perennial stream bank in a residential zoning district to be reduced to a 50' buffer; b.) Section 16.134(a)(1)(i), to not be required to install a sidewalk along the public roads; c.) 16.135(a) to not be required to install street lighting in accordance with the Design Manual and the Director of the DPZ; d.) Section 16.136 to not be required to provide street trees in accordance with Subdivision Section 16.124 and Landscape Manual. 16. No structures may be located within the 20 foot environmental building restriction line or the 75 foot stream bank buffer. 19. Driveway to be provided prior to the issuance of a residential occupancy permit to insure safe access for fire and emergency vehicles, per the following minimum requirements: a.) Width - 12 feet (16 feet serving more than one residence) b.) Surface - 6" of compacted crusher run base w/tar and chip coating (1.5" min.) c.) Geometry - Max. 15% grade, max. 10% grade change and min. 45' turning radius d.) Structures (culverts/bridges) Capable of supporting 25 gross tons (H25 loading) e.) Drainage elements - capable of supporting 100 year flood with no more than 1" depth over driveway surface. f.) Structure clearances - Minimum 12 feet g.) Maintenance - sufficient to insure all weather use.
- Landscaping for this project is provided in accordance with the latest edition of the Howard County Landscape Manual. Financial surety for the required landscaping (17 shade trees and 7 evergreen) shall be posted as part of the site development plan approval for lot 55 (and lot 54 for the required street tree installation) in the amount of \$6,150.00.
- This site is located within the Metropolitan Water and Sewer District. Water and sewer service to lots 54 and 55 will be granted under the provisions of Section 18.122.B of the Howard County Code. The existing private sewer house connection and water house connection to the existing house on lot 54 will be removed. Private water and sewer house connections will be constructed from Contract Nos. 34-4623-D and 34-3957-D located within Newberry Drive. Both the existing water and sewer mains are 8".
- This plan complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation. The Forest Conservation Easements have been established to protect the existing onsite forest. No clearing, grading or construction is permitted within the Forest Conservation Easement; however, Forest Management Practices as defined in the Deed of Forest Conservation Easement are allowed.
- This plan proposes to retain 0.27 acres of existing forest on lots 54 & 55 within three (3) forest conservation easements. Financial surety for the retained forest has been posted as part of the developer agreements for this subdivision. Required fee is \$2,334.80. (0.20/a.f. x 11674 s.f. = \$2,334.80).
- At the time of installation, all shrubs and shade trees herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocation of required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from this approved landscape plan may result in denial or delay in the release of Landscape Surety until such time as all required materials are planted and/or revisions are made to applicable plans and certificates.
- Vehicle access to Newberry Drive for lot 55 will be via a 12' wide private driveway.
- Stormwater management is provided for lot 55 only. Lot 54 has an existing house and other improvements and is therefore exempt from the stormwater management requirements. The stormwater management requirements for lot 55 will be met via the sheetflow to buffer stormwater credit.
- Although forest conservation easements are proposed on both lots 54 & 55, this subdivision is exempt from the forest conservation requirements under Section 16.1202(b) of the Howard County Code and the latest version of the Howard County Forest Conservation Manual. Specifically, this subdivision is exempt because less than 40,000 s.f. of existing forest will be cleared on lot 55, and the property has no further subdivision potential.
- Soils shown hereon based on the Howard County, MD Soil Survey, Sheet 29, dated 1968. See this sheet for soils description.
- The "Forest Conservation and Stormwater Management Credit Easement" on lots 54 and 55 shall be owned and maintained by the owners of lots 54 & 55.
- On October 3, 2006 the Designee for the Director of Planning and Zoning conducted a public hearing for Case No. AA-06-026. The purpose of the administrative adjustment request from Section 108.D.4.b.(1)(a)(ii) of the Zoning Regulations was to request a reduction in the required setback from a public street Right-of-Way from 50 feet to 40 feet. The request was to reduce the 50 foot setback to 40 feet from both Judy Lane and Newberry Drive. The setback reduction request from Judy Lane was denied. The setback reduction request from Newberry Drive was approved. A 40 foot setback from the Newberry Road Right-of-Way is shown on lot 55 only. The setback reduction approval does not apply to lot 54.
- On February 12, 2008 the Planning Director approved waiver petition WP-08-062 from Section 16.120(b)(4)(iii) of the latest Howard County Land Development and Subdivision Regulations to allow the required 35' building setback from a 25' wetland buffer in a "R-20 infill subdivision" to be reduced from 35' to 20' on lot 55.
- At the time of installation, all shrubs and shade trees listed herewith and approved for this site shall be of the proper height and size requirements in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the approved Landscape Plan accompanying this plan may result in denial or delay in the release of the landscape surety until such time as all required materials are planted and / or revisions are made to the applicable plans and certificates.



VICINITY MAP
1" = 2000'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Candy Hays
CHIEF, DIVISION OF LAND DEVELOPMENT

8/13/08
DATE

W. J. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DEVELOPER'S / BUILDER'S CERTIFICATION

I certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I further certify that upon completion a Letter of Landscape Installation, accompanied by an executed One Year Guarantee of Plant Materials will be submitted to the Department of Planning and Zoning.

[Signature]
SIGNATURE OF DEVELOPER / BUILDER

8-13-08
DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. 18184 EXPIRATION DATE: 8/13/08

[Signature]
SIGNED

8/13/08
DATE

REVISIONS		
No.	Date	Description

LDE Inc.		
Engineers, Surveyors, Planners 9230 Ramsey Road, Suite 106 Columbia, Maryland - 21045 (410)715-1070 - (301)396-3424 - FAX (410)715-9340		
DESIGNED	SUPPLEMENTAL, GRADING AND LANDSCAPE PLAN	SCALE 1" = 20'
S.D.H.	KEEHN ESTATES LOTS 54 & 55 A RESUBDIVISION OF RIVERSIDE ESTATES, SECTION 4, BLOCK H, LOT 1	DRAWING 1 OF 3
CHECKED	TAX MAP 41, P/O PARCEL 420 PLAT NO. 3816-A 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 05-020
DATE	Previous Submittals: WP-06-134, F-78-16, AA-06-026, WP-08-062 OWNER/DEVELOPER: TOM & KELLIE KEEHN 7090 NEWBERRY DRIVE COLUMBIA, MD 21044 301-370-3460	FILE NO.
8/2008		

SEQUENCE OF CONSTRUCTION

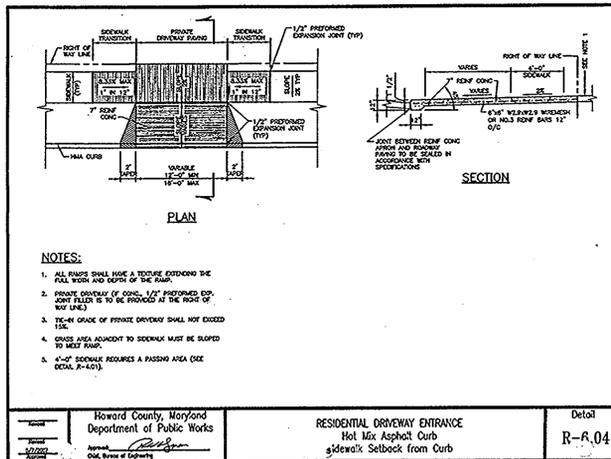
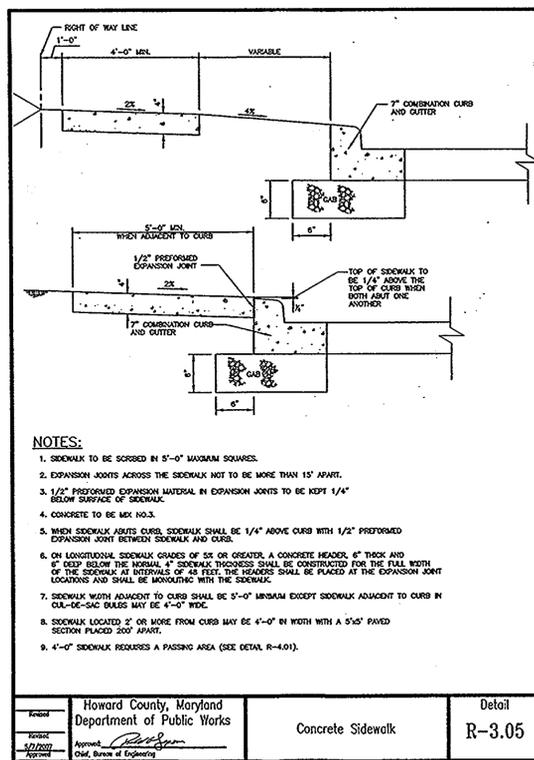
Note: An approved site development plan is required prior to obtaining grading or building permits for the proposed house.

1. Obtain grading permit. 1 Day
 2. Notify the Howard County Department of Public Works/ Bureau of Engineering/ Construction Inspection Division at 410-313-1880 at least Five (5) working days prior to the start of work. 1 Day
 3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done. 1 Day
 4. Install stabilized construction entrance and silt fence in accordance with the approved grading and sediment control plan. 1 Day
 5. Install tree protection fencing around all trees to remain. Install tree protection fencing around the forest conservation easements and install forest retention signs in accordance with the approved simplified forest stand delineation and conservation plan. 2 Days
 6. Obtain permission from the sediment control inspector to proceed. 1 Day
 7. Clear and grub the existing wooded area and individual trees shown to be removed on the approved grading plan. Rough grade for proposed driveway and house. Remove trees labeled to be removed and rough grade site in accordance with the approved grading and sediment control plan. 3 Days
 8. Relocate / install private water and sewer lines for both the existing house and proposed house. 3 Days
- Note: The disturbed areas of the site shall be stabilized at the end of each work day in accordance with the temporary seeding notes on sheet 3.
9. Fine grade house pad and driveway. Install driveway base. 4 Days
 10. Construct house. 3-1/2 months
 11. Grade for sidewalk. Install sidewalk in accordance with the approved plan. 3 Days
 12. Install street trees and all other landscaping. 2 Days
 13. Immediately stabilize all remaining disturbed areas in accordance with the permanent seeding notes on sheet 3. 1 Day
 14. With the permission of the sediment control inspector, remove the remaining silt fence and stabilized construction entrance. 1 Day
 15. Install surface paving for new private driveway. 1 Day
 16. Construct level spreader. 1 Day
 17. With the permission of the sediment control inspector, remove any remaining sediment control devices, and stabilize any remaining disturbed areas in accordance with the permanent seeding notes on sheet 3. 1 Day

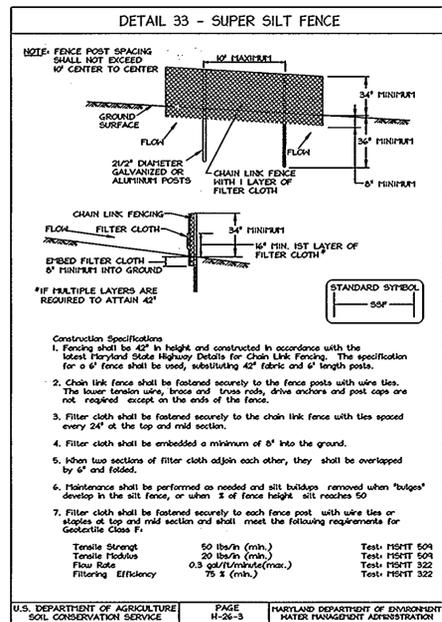
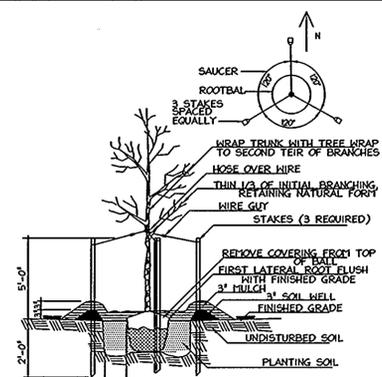
Site Analysis:

Total Area of Site	1.035 Ac.
Area Disturbed	0.373 Ac.
Area to be roofed or paved	0.10 Ac.
Area to be vegetatively stabilized	0.273 Ac.
Total Cut	450 C.Y.
Total Fill	450 C.Y.
Offsite waste area location	N/A

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO 4.5 (1 TO 4)	2.7	3 TO 4.5 (3 TO 4)	2.7
P-1	PRIVATE DRIVEWAY AND NON-RESIDENTIAL PAVING WITH 4" ASPHALT SURFACE WITH NO MORE THAN 3 HEAVY TRUCKS FOR DAY	10% SUPERPAVE FIAL SURFACE	1.5	1.5	1.5	1.5
		9.5 MM NO. 64-22, LEVEL 1 (CSA)	NA	NA	NA	NA
		10% SUPERPAVE INTERMEDIATE SURFACE (I2)	2.0	2.0	2.0	2.0
		15% SUPERPAVE FIAL SURFACE	0.5	0.5	0.5	0.5
		15% SUPERPAVE INTERMEDIATE SURFACE (I2)	0.5	0.5	0.5	0.5
		15% SUPERPAVE SURFACE	0.5	0.5	0.5	0.5
		15% SUPERPAVE SURFACE	0.5	0.5	0.5	0.5



- LANDSCAPE PLAN GENERAL NOTES**
1. Contractor shall contact "Miss Utility" (800-257-7777) and shall verify the location of all underground utilities within the project area prior to installation of plant material.
 2. Proposed locations of plant material shall be staked in the field by the contractor for approval by owner's representative prior to planting.
 3. Plant material and beds shall receive a minimum 3-inch depth of mulch.
 4. All areas disturbed by planting operations shall be repaired by the contractor to the satisfaction of the owner's representative.
 5. Quantities of trees, evergreens, and shrubs noted on the plant list are based upon the graphic symbols shown on the drawings. Contractor shall provide and install these items based upon graphic symbol quantities. Contact owner's representative if a difference is found between the quantities noted in the plant list and the symbol count of plant materials shown on the drawings.
 6. Quantities of groundcovers, perennials, annuals, bulbs, and ornamental grasses shall be as noted in the plant list regardless of the number of graphic symbols shown on the drawings.
 7. All plant materials shall be nursery grown and shall comply with the American standard for nursery stock (ansi z60.1), latest edition, published by the American Association of Nurserymen.
 8. All trees to conform to the American Association of Nurserymen's standards: section 1.1.2 - height of branching, all trees to be matched. All plant materials to be full heavy specimens.
 9. All areas within the limit of disturbance other than pavements, walks, walks and planting beds shall be seeded lawn.
 10. Surety for the seventeen (17) required shade trees is \$5,100.00. (Includes street trees)
 11. Surety for the seven (7) required evergreen trees is \$1,050.00. (Includes street trees)



SCHEDULE A PERIMETER LANDSCAPE EDGE

Category	Adjacent to Roadways	Adjacent to Perimeter Properties
Landscape Type	B	A
Linear Feet of Roadway Frontage/Perimeter	294 L.F.	131 L.F. (170 L.F. Interior line exempt)
Credit for Existing Vegetation (Yes, No, Linear Feet) (Describe below if needed)	NO	YES - 131 L.F.
Credit for Moll, Fence or Berm (Yes, No, Linear Feet) (Describe below if needed)	NO	NO
Number of Plants Required (Shade Trees, Evergreen Trees, Shrubs)	1:50 = 6 1:40 = 7	1:60 - Obligation met with existing vegetation
Number of Plants Provided (Shade Trees, Evergreen Trees, Other Trees (2:1 substitution) Shrubs (10:1 substitution) (Describe plant substitution credits below if needed)	6 7	N/A

LANDSCAPE SCHEDULE

SYMB.	COMMON NAME	BOTANICAL NAME	QTY	SIZE	REMARKS
☼	White Pine	<i>Pinus strobus</i>	7	6 ft. - 8' HT	
⊙	Red Sunset Red Maple	<i>Acer rubrum</i>	6	2'-2 1/2' Cal B&B	

STREET TREE SCHEDULE

SYMB.	COMMON NAME	BOTANICAL NAME	QTY	SIZE	REMARKS
⊗	Pin Oak	<i>Quercus palustris</i>	11	2'-2 1/2' Caliper	B & B

Note: The total road frontage for the resubdivision is 426 L.F. Street trees required at a ratio of 1:40. Therefore, 426 / 40 = 11 Trees

LANDSCAPE PERIMETER TABLE

PERIMETER NO.	LINEAR FOOTAGE	EDGE TYPE	ADJACENT LAND USE
1	170 L.F.	N/A	SFD
2	110 L.F.	B	ROAD
3	184 L.F.	B	ROAD
4	131 L.F.	A	SFD

TOTAL LENGTH: **595 L.F.

* Note: This lot line is interior to the resubdivision and is exempt from the perimeter landscape requirements.
** Note: The total length shown above includes perimeter No. 1. See above note.

- Credit for Existing Vegetation and Exemptions:**
- 1.) Perimeter # 1 - 170 L.F. - exempt
 - 2.) Perimeter # 2 - 110 L.F. No credit
 - 3.) Perimeter # 3 - 184 L.F. No credit
 - 4.) Perimeter # 4 - 131 L.F. credit

Professional Certification

Steven D. Heiss
 Qualified Professional, MDFCA

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO: 19184 EXPIRATION DATE: 8/31/08

 SIGNED: Bruce D. Burton DATE: 8/13/08

REVISIONS

No.	Date	Description

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/21/08

DEVELOPER'S / BUILDER'S CERTIFICATION
 I certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I further certify that upon completion a Letter of Landscape Installation, accompanied by an executed One Year Guarantee of Plant Materials will be submitted to the Department of Planning and Zoning.

 SIGNATURE OF DEVELOPER / BUILDER DATE: 8-13-08

PROFESSIONAL CERTIFICATION

 Bruce D. Burton
 8/13/08

LDE Inc.
 Engineers, Surveyors, Planners
 9250 Ramsey Road, Suite 106 Columbia, Maryland - 21045
 (410)715-1070 - (301)396-3424 - FAX (410)715-9340

DESIGNED S.D.H.	SUPPLEMENTAL NOTES AND DETAILS KEEHN ESTATES LOTS 54 & 55 A RESUBDIVISION OF RIVERSIDE ESTATES, SECTION 4, BLOCK H, LOT 1 TAX MAP 41, P/O PARCEL 420 PLAT NO. 3816-A 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN G.D.W.		DRAWING 2 OF 3
CHECKED B.D.B.	JOB NO. 05-020	FILE NO.
DATE 8/2008	OWNER/DEVELOPER: TOM & KELLIE KEEHN 7090 NEWBERRY DRIVE COLUMBIA, MD 21044 301-370-3460	

GROSS TRACT AREA 1.0 AC.
 AREA OF ONSITE 100 YR FLOODPLAIN 0.0 AC.
 NET TRACT AREA 1.0 AC.

FOREST CONSERVATION LEGEND:
 FOREST CONSERVATION EASEMENT [Hatched Box]
 FOREST PROTECTION FENCING [X-X Line]
 FOREST RETENTION SIGN [Square]

FOREST CONSERVATION WORKSHEET
 VERSION 1.0
 (Enter in Yellow Cells)

NET TRACT AREA:
 A. Total tract area = 1.04
 B. Area within 100 year floodplain = 0.00
 C. Area to remain in agricultural production = 1.04
 D. Net tract area = 1.04

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)
 Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CA
0	0	0	0	1	0

E. Afforestation Threshold: 15% x D = 0.16
 F. Conservation Threshold: 20% x D = 0.21

EXISTING FOREST COVER:
 G. Existing forest cover (excluding floodplain) = 0.32
 H. Area of forest above afforestation threshold = 0.16
 I. Area of forest above conservation threshold = 0.11

BREAK EVEN POINT:
 J. Forest retention above threshold with no mitigation = 0.23
 K. Clearing permitted without mitigation = 0.02

PROPOSED FOREST CLEARING:
 L. Total area of forest to be cleared = 0.05
 M. Total area of forest to be retained = 0.27

PLANTING REQUIREMENTS:
 N. Reforestation for clearing above conservation threshold = 0.01
 O. Credits for retention above conservation threshold = 0.05
 P. Credits for retention above conservation threshold = 0.05
 R. Total reforestation required = 0.00
 S. Total afforestation required = 0.00
 T. Total reforestation and afforestation required = 0.00

FOREST CONSERVATION CHART

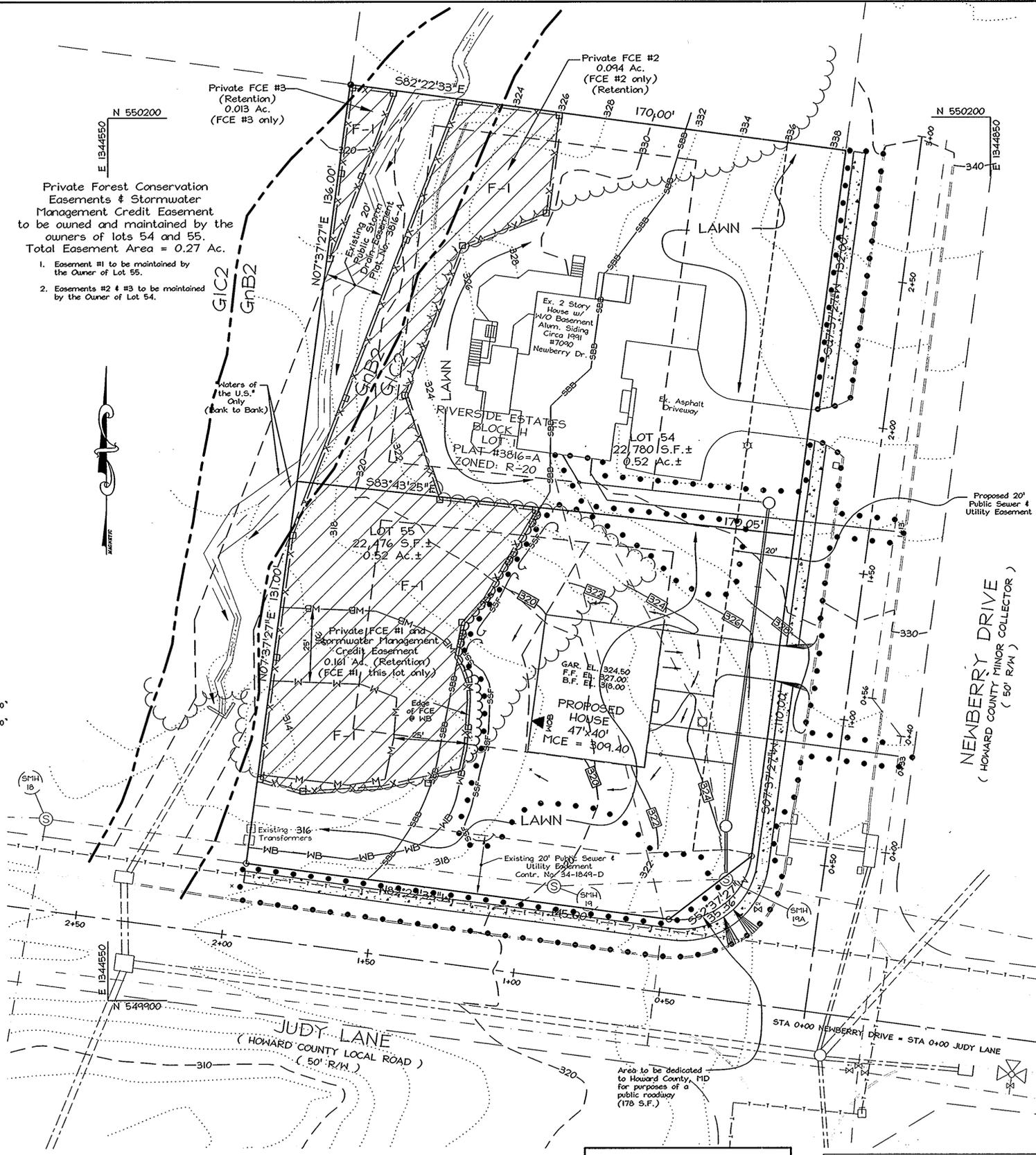
FCE DESIGNATION	ACREAGE
1	0.161 Ac.
2	0.094 Ac.
3	0.013 Ac.
TOTAL ACREAGE:	0.27 Acres

Professional Certification
 Steven D. Heiss
 Qualified Professional, MDPCA

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 8/21/08
 Chief, Development Engineering Division
 8/21/08

Private Forest Conservation Easements & Stormwater Management Credit Easement to be owned and maintained by the owners of lots 54 and 55. Total Easement Area = 0.27 Ac.

- Easement #1 to be maintained by the Owner of Lot 55.
- Easements #2 & #3 to be maintained by the Owner of Lot 54.



DEVELOPER'S / BUILDER'S CERTIFICATION
 I certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I further certify that upon completion a Letter of Landscape Installation, accompanied by an executed One Year Guarantee of Plant Materials will be submitted to the Department of Planning and Zoning.
 Signature of Developer / Builder: [Signature]
 Date: 8-13-08

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 License No: 19184 EXPIRATION DATE: 6/30/08
 Signed: [Signature]
 Date: 8/13/08

REVISIONS

No.	Date	Description

APPENDIX G
SOIL AND FOREST PROTECTION TECHNIQUES FOR FOREST RETENTION AREAS

Construction Adjacent to Soil Protection Zone
 Prior to the start of any construction (including clearing) adjacent to the soil protection zone, a fence must be erected along the boundary of all soil protection zones. This fence shall have 8-1/2" x 11" orange signs which shall read "Tree Preservation Area" in 1" high lettering posted every 50'. The fence shall be one of the following:
 - 3 strands of barbed wire spaced 18" apart - 4" high.
 - 4" high wood and wire "snow fencing".
 - 4" high chain link fence.
 - 4" high welded wire fence.
 All fencing shall be attached to 1" Channel metal posts set 10' o.c. max. No fencing or wire shall be attached to any tree.

Soil Protection Zone
 The soil protection zone is that area which must be protected from construction activity and other stresses (e.g. grading) to protect a forest retention stand from construction damage. Protecting trees from construction damage means protecting sufficient roots to provide the trees with adequate water and nutrient uptake for the existing soil area and to maintain the physical stability of the tree. Trees in forest stands become independent on each other for physical support during high winds. Removal of adjacent trees and destruction of roots can cause windthrow long after the completion of construction.
 The extent of a tree's root system can be quite large. The ratio of root expansion to crown spread can be 2:1 for large open grown specimen trees and can be significantly larger (up to 5:1) for trees growing in the interior of forest stands. The increase of root expansion in forest stands stems from adjacent trees restricting the crown spread of a tree while its roots can constantly grow through the soil medium.
 The minimum requirement for root protection varies from species to species and from soil type to soil type. The soil protection zone changes with the proximity of other trees, the amount of post human influence (agriculture or construction) in the vicinity of the tree and changes in soil type or ground water. For open grown trees, protecting the soil within the dip line of the tree is adequate to save the tree in most cases. For trees that have been part of forest communities, however, the soil protection zone must reflect a more complex relationship between crown spread and root growth.
 Calculating the Soil Protection Zone
 A workable set of criteria for determining the limit of the soil protection zone is needed. In general, the soil protection zone is easier to define as a relationship to tree height. The following guidelines will protect most of the trees, most of the time, from construction damage:
 1) Specimen trees: The limit of the soil protection zone shall be the area within the dip line of the tree.
 2) Clusters of trees: i.e., groups of trees which are open grown, but growing close enough so that the individual crowns have grown together. For trees on the exterior of the group, the limit of the soil protection zone shall be the limit of the dip line. For interior trees, the soil protection zone shall be a distance from the trunk of 40 percent of the height of tree or the limit of the dip line, whichever is greater.
 3) Forest stands: trees with a continuous canopy and an undisturbed ground plane. The limit of the soil protection zone for an individual tree shall be a distance from the trunk of 40 percent of the height of the tree or the limit of the dip line, whichever is greater.
 Modifications to the Soil Protection Zone
 When disturbance of the soil protection zone is unavoidable, tree survival remains probable provided:
 1) Disturbance does not exceed 20 percent of the original soil protection zone area, and
 2) A protected area of equal size and contiguous to the remaining soil protection zone is added back so that the final soil protection zone area is not decreased, and
 3) The new limit of the soil protection zone is no closer to the center of any tree to be protected than 20 percent of the tree's height.
 All reductions to the original soil protection zone shall be deducted from the calculations of the size of the forest retention area.
 Reduction to the Soil Protection Zone for Individual Trees
 The soil protection zone for a specific tree may be reduced if it can be demonstrated that a smaller area will have no less impact on the tree's health than the size of the soil protection zone which would have resulted using the standard calculation. Requests for such reductions should include the following information:
 1) The extent of the rooting system with root diameters 1" or greater, as determined by a field root survey.
 2) The exact species of the tree and the qualified professional's estimation of this species' ability to withstand construction damage.
 3) The soil texture and the existing bulk density of the soil as measured in grams per cubic centimeter.
 4) An estimate of soil moisture conditions before and after construction.
 5) A list of construction impact mitigation practices to be performed before, during, and after construction.
 Upon determination that the request does not pose any significant threat to the tree, reductions of the allowable soil protection zone may be made up to the following maximum amounts:
 - 10" db or less: 50 percent
 - 10" - 15" db: 40 percent
 - 15" - 25" db: 30 percent
 - 25" db or larger: 20 percent
 Requirements for the Soil Protection Zone
 Unless specifically approved by the forest conservation plan, no construction activity shall be permitted within the soil protection zone. This includes:
 - Grading out or fill.
 - Removal of existing ground plane vegetation or organic leaf layers.
 - Roads or parking.
 - Walks, paths or decks.
 - Foundations, walls, or building footprints.
 - Underground utilities.
 - Temporary stormwater or sediment control structures.
 - Storage or stock piling of construction supplies and equipment, including machinery, construction trailers, fuel, topsoil, trash, etc.
 - Disposal of construction waste, including concrete truck wash off, paints, solvents, contaminated runoff, oils, acids, or any other substances which are harmful to plants or animals.
 The following activities are permitted within the soil protection zone:
 - Removal of tree limbs which are outside of the soil protection zone and interfere with construction.
 - Removal of dead or dying trees within the soil protection zone.
 - Forest thinning or tree removal which is consistent with recognized forestry practices.
 - Removal of trees on the edges of tree groups or forest stands whose trunks are within the soil protection zone of other trees, but which do not have sufficient soil protection zones of their own to allow them to survive. Note that trees which have a remaining soil protection zone of less than 50 percent of the limit required by these specifications must be removed.
 - Removal of trees or other herbaceous plants which threaten the ecological balance of the remaining plants in the soil protection zone.
 - Below ground utilities that can be placed by the use of a tunneling machine. Fences which do not require continuous footings or which have posts no closer than 6'-0" o.c. and which can be manually installed.
 - Walks and paths that meet the following requirements:
 - They are constructed of materials that can be installed using equipment with a maximum weight of 1/2 ton.
 - They are no wider than 6'-0".
 - They are placed no closer than 6' from the base of the trunk of any tree over 12" D.B.H.
 - Also constructed with a length greater than 6'.
 - Removal of any existing walks, roads, or other structures as required. These items should be removed without the use of heavy equipment.

BLAZE ORANGE PLASTIC MESH
 ANCHOR POSTS SHOULD BE MINIMUM 2" IN DIAMETER OR 2"x2" TUBULAR 2" IN LENGTH.
 HAZARDOUSLY VISIBLE FLAGGING.
 MINIMUM 2' HORIZONTAL SPACING.
 MINIMUM 2' VERTICAL SPACING.
 USE 3/4" X 4" LUMBER FOR CROSS BOARDING.
 ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL HEIGHT OF POST.
 USE 8" HOLE TO FIT TO SQUARE FORCE BOTTOM.

NOTES:
 1. Forest protection device only.
 2. Retention Area will be set as part of the review process.
 3. Boundaries of Retention Area should be staked and flagged prior to installing device.
 4. Root damage should be avoided.
 5. Protective signage may also be used.
 6. Device should be maintained throughout construction.

HOODLAND CONSERVATION MANUAL EXHIBIT K - 8 PRINCE GEORGES COUNTY, MD

EXHIBIT G - 17

Signage

SPECIMEN TREE DO NOT REMOVE MACHINERY, DRIPPING OR STORAGE OF ANY MATERIALS IS PROHIBITED VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991	FOREST RETENTION AREA MACHINERY, DRIPPING OR STORAGE OF ANY MATERIALS IS PROHIBITED VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991
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LDE Inc.
 Engineers, Surveyors, Planners
 9250 Ramsey Road, Suite 106 Columbia, Maryland - 21045
 (410)715-1070 - (301)536-3424 - FAX (410)715-9340

DESIGNED: S.D.H.
DRAWN: G.D.W.
CHECKED: B.D.B.
DATE: 8/2008

SCALE: 1" = 20'
DRAWING: 3 OF 3
JOB NO.: 05-020
FILE NO.:

SIMPLIFIED FOREST STAND DELINEATION AND FOREST CONSERVATION PLAN
 KEEHN ESTATES LOTS 54 & 55
 A RESUBDIVISION OF
 RIVERSIDE ESTATES, SECTION 4, BLOCK H, LOT 1
 TAX MAP 41, P/O PARCEL 420
 PLAT NO. 3816-A
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 Previous Submittals: NP-06-134, F-78-16, AA-06-026, MP-06-062
 OWNER/DEVELOPER:
 TOM & KELLIE KEEHN
 7090 NEWBERRY DRIVE
 COLUMBIA, MD 21044
 301-370-3460