approved. (See notes 31,32,39 and 41 this sheet) The contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work being done.

The contractor shall notify the 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. The boundary shown hereon is based on a field run boundary survey performed by LDE, Inc. dated July,

These Coordinates are based on NAD '83, Maryland State Plane Coordinate System, as projected from

Howard County control stations: Station 28HA Station 34AA Plat/Deed References: Lot F-2 P/O Parcel 379: Plat 5720, Parcel 176: Liber 10588 Folio 675. Project Background Information:

Clarksville, Maryland (Zip Code 21029) Location: MUTH PROPERTIES - LOTS I, 2 & NON-BUILDABLE BULK PARCEL "A" Subdivision Name: # 13041 \$ #13131 Triadelphia Mill Road Site Address:

Tax Map: Parcels: RR-DEO (Residential Rural-Density Exchange Option) Existing Zoning:

Election District: Total Tract Area: Number of Proposed Lots: 2 Residential (1 Cluster Lot / 1 Non-Cluster Lot) | Non-Buildable Bulk Parcel

DPZ Reference Numbers: F 75-36, VP 75-24, F 78-15, F 84-077, WP 08-021, WP 09-094, WP 10-086, WP 11-058 Subject property is zoned RR-DEO per 2/02/2004 Comprehensive Zoning Plan and per the Comp Lite Zoning Regulations effective on 7/28/06

All areas shown on this plan are +/-, more or less.

BRL denotes Building Restriction Line.

For flag or pipestem lots, refuse collection, snow removal and road maintenance are provided to the junction of the flag or pipestern and road right-of-way line and not onto the pipestern lot driveway. Driveway(s) shall be provided prior to residential occupancy to ensure safe access for fire and emergency vehicles per the following minimum requirements:

a) Width - 121 (16 feet serving more than one residence). b) Surface - 6 inches of compacted crusher run base with tar and chip coating. (1/2" Min.)

c) Geometry - Maximum 15% grade, with the durable and sustained grade of 8%. Maximum 10% grade change and minimum of 45 foot turning radius.

d) Structures (culverts/bridges) Capable of supporting 25 gross tons (H25 loading). e) Drainage Elements - Capable of safely passing 100 year flood with no more than I foot depth over driveway surface.

f) Structure Clearances - minimum 12 feet. g) Maintenance sufficient to ensure all weather use. Where one (1) driveway serves more than one (1)

lot, a house number sign must be placed at each lot entrance and a range of street address house numbers sign where the common driveway intersects with the main road. Two separate maintenance agreements will be required for the shared driveway. One agreement for Lots 1, 2 and Non-Buildable Bulk Parcel "A" (future Lots 3,4 and 5) and one agreement for Lot 2 \$ Non-Buildable Bulk Parcel "A" (future Lots 3,4 and 5). All of the maintenance agreements will be recorded

concurrently with these plats. The shared driveways will be maintained by the Muth Family Home Owners Association, Inc. (created with the subdivision of Non-Buildable Bulk Parcel "A") The Wetland Investigation was completed by LDE, Inc. dated May, 2007 and revised on October, 2009 Landscaping is not required for this project. Existing dwellings are located on Lots I \$ 2. Non-Buildable

Bulk Parcel "A" does not require landscaping until future subdivision (future Lots 3,4 and 5). The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code and Forest Conservation Act. No clearing, grading or construction is permitted within the Forest Conservation Easement; however, Forest Management Practices defined in the Deed of

Forest Conservation Easement are allowed. In accordance with Section 16.1202 of the Howard County Code and Forest Conservation Manual, Forest Conservation obligations shall be fulfilled by the Retention of 6.76 acres of forest on Non-Buildable Bulk Parcel "A" and Lot 1 for future cluster Lots 3,4 and 5. The Net Buildable Area for forest conservation is based on the acreage of those future lots only. Current Lot I will become "buildable preservation parcel "A" at the same time as the creation of the future cluster lots 3, 4 and 5, but will not be subject to forest conservation because there will be no change in use for that parcel. This buildable preservation parcel will be considered off-site since it is not part of the Net Tract Area, thus the required mitigation is being assessed at 2:1. Since the project is a MInor Subdivision and the Forest Conservation Obligation is met by retention, no surety fee is required.

This subdivision plan is subject to the amended Fifth Edition of the Subdivision and Land Development Regulations per Council Bill No. 45-2003 effective October 2nd, 2003. Development or construction on these lots must comply with setback and buffer regulations in effect at the time of submission of the site development plan, waiver petition application or building permit applications.

Stormwater management is exempt for this subdivision since all improvements are existing. ///These areas designate a private sewage easement of at least 10,000 square feet as required by the Maryland 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 variances for encroachments into the private sewage easement. Recordation of a modified sewage easement shall not

No grading, removal of vegetative cover or trees, paving and new structures shall be permitted within the limits of wetlands, stream(s), or their required buffers, floodplain and forest conservation easement

22. The lots shown hereon comply with the minimum lot area and ownership width as required by the

Maryland Department of the Environment. 23. All wells shall be drilled and completion reports submitted to the Health Department prior to final plat signature approval. The existing well serving the existing dwelling on Lot 2 (#13041) shall be properly sealed and abandoned and documentation sent to the Health Department prior to the Health Officers

There are existing dwellings and structures located on Lot I and 2 to remain. No new buildings, extensions or additions to the existing dwelling and structures are to be constructed at a distance less than the Zoning

25. The existing topography, onsite, is taken from field run survey with 2' contour intervals prepared by LDE, Inc. dated June, 2007 merged with topography taken from Howard County GIS and/or

plans of public record. 26. Existing utilities are based on field surveys and/or plans of public record.

27. The Floodplain Study for this project was approved as part of this Plan Submission (F09-109). 28. Sight Distance study for this project was prepared by LDE, Inc. and approved as part of this Plan Submission (F09-109). 29. All construction shall be in accordance with the latest Standards and Specifications of Howard County

Design Manual Vol. IV and current MSHA Standards & Specifications if applicable. 30. There are no cemetery sites, burial grounds or historic features listed on the Howard County Cemetery

Inventory List, the Howard County Historic Sites Inventory or known to the Owners, located on this property. This plan is subject to WP08-021. On March 20, 2008 the Planning Director approved the request to waive Section 16.120(b)(6)(ii)(a) which limits the lengths of pipesterns to 1,500 linear feet for non-cluster subdivision lots in the RC and RR Zoning Districts. For cluster subdivisions, the Department of Planning and Zoning may approve a greater pipestern length if this permits lots to be better located with respect to preservation parcels; and a waiver to Section 16.120(c)(2) which requires that pipesterns and access for associated lots/parcels be coincident. Approval is subject to the following conditions.

1. The portion of the driveway being used by parcel 176 within the existing 141 wide private access easement across adjacent Parcels 175, 353 and 174 shall be abandoned after the Use-In-Common serving Lots 2-4 has been created. 2. The pipesterns for proposed Lot I and "Buildable Preservation Parcel A" shall not exceed 1,500 feet in lenath. 3. A final subdivision plat implementing the proposed cluster subdivision shall be submitted for County review within one year of this waiver approval letter (on or before March 20, 2009).

4. On the above mentioned Final Plat, the applicant shall create two Use-In-Common access easements, each containing a shared driveway meeting Design Manual standards. (The creation of two easements will avoid the requirement of the owner(s) of proposed Preservation Parcel A from required maintenance of the driveway being used solely by Lots 1-4). The first Use-In-Common (to be used and maintained by Lots 1-4 only) shall extend from the northern boundary of Lots 4 westward to the point of intersection with the existing driveway serving Parcel F-2 (proposed Preservation Parcel A). The second Use-In-Common shall extend to Triadelpia Mill Road from the point where the new driveway from Lots I-4 joins the existing driveway for existing Parcel F-2. As part of the Final Plat, the applicant will be responsible for the preparation of the two required maintenance agreements. 5. Unless some extraordinary justification can be made in conjunction with the forthcoming Final Plat submission, the Use-In-Common access easement should not exceed 30' in width at its intersection with Triadelphia Mill Road.

6. The 30' Use-In-Common Access Easement shall be designed so as not to impact any wetland or wetland buffer. 32. This plan is subject to WP09-094. On January 28, 2009, the Planning Director approved the request to waive Section 16.145 which required a Sketch Plan or Preliminary Equivalent Sketch Plan for all major subdivisions in the RC, RR and R-ED zoning districts and a waiver to Section 16.132(a)(1)(iv) which requires the developer to provide road improvements where a major subdivision occurs within the original tract or parcel of land upon which a major subdivision

Approval is subject to the following conditions: 1. A final subdivision plat implementing the proposed cluster subdivision shall be submitted for County review within four months of the waiver approval letter (on or before May 28, 2009). 2. The final subdivision plat must address all attached comments issued by the Development Engineering Division, the

Department of Fire and Rescue, Health Department and the Howard Soil Conservation District. 33. All slopes 25% or greater which exist on this property are located on Non-Buildable Bulk Parcel "A". There are no on-site and off-site contiquous areas of steep slopes which comprise an area of 20,000 square feet or greater.

34. The purpose of the Muth Properties Non-Buildable Bulk Parcel "A" (Phasel) is the following: A. Under Phase 2 \$ 3 create Cluster Lots 3-5 as shown on the approved Health Depatrtment Percolation Certification Plan and previous Muth Properties submission which occurred prior to "Phasing" B. Under Phase 3, provide one consolidated Buildable Preservation Parcel for the existing dwelling (#13131 Triadelphia

Mill Road) presently located on Lot F-2(plat #5720) B. The Phase 3 Buildable Preservation Parcel will enhance the protection of existing environmental features by placement of protective easements of forest resource, 100 year floodplain, non-tidal wetlands, streams and their

35. Refuse collection and recycling collection for all lots and parcels shall be at Triadelphia Mill Road within 5' of the

36. The existing dwelling located on Lot I (Future Phase 3 Buildable Preservation Parcel) was constructed prior to the establishment of the sixty (60) feet Rear Building Restriction Line and no action is required for this Non-Conformity.

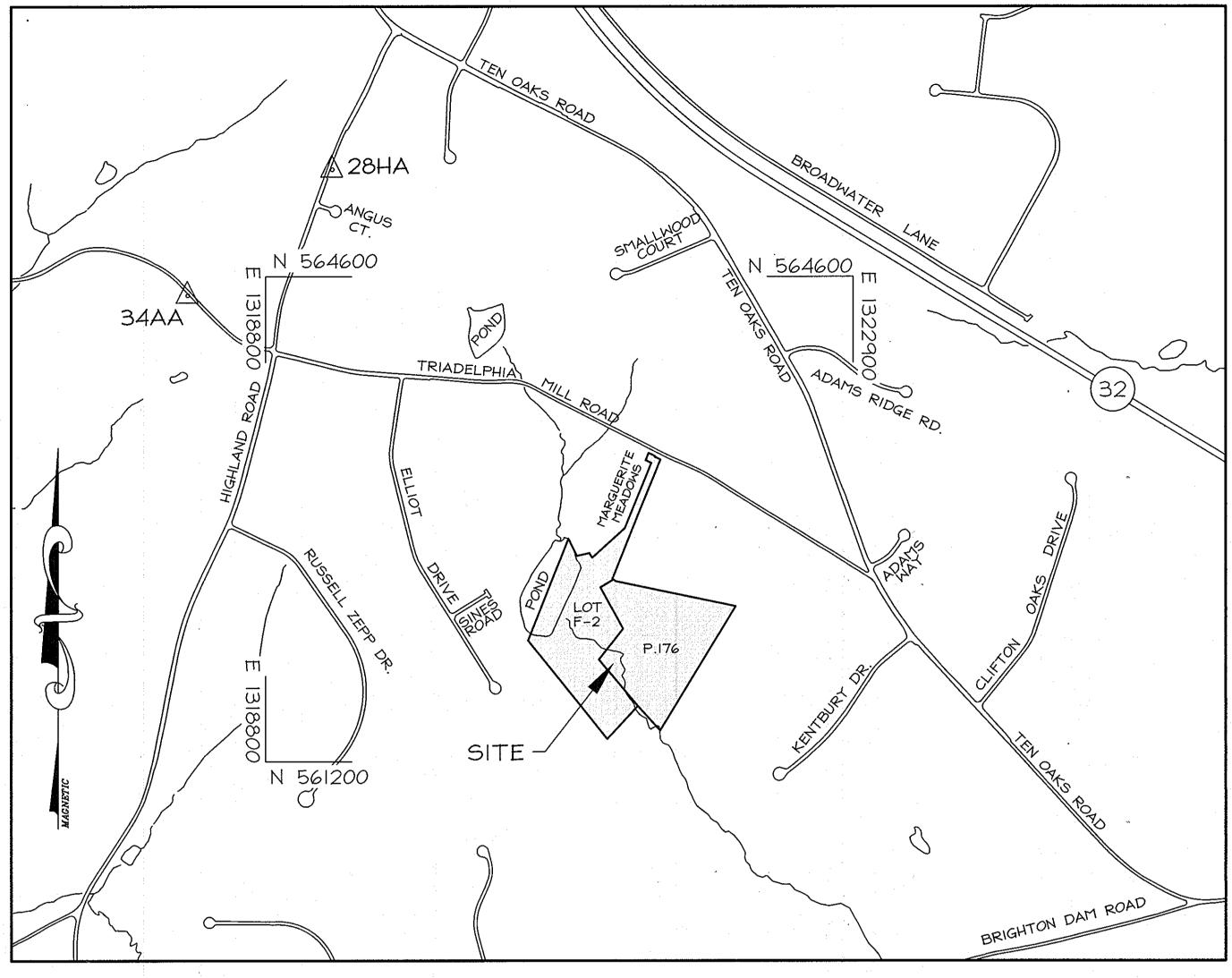
37. The Muth Family Hame Owners Association, Inc. will be established with the subdivision of Non-Buildable Bulk Parcel "A". 38. The private easement for dry hydrant fire protection system; the private use-in-common access, drainage \$ utility, and stormwater management credit easements; the private landscape easements; the private drainage \$ utility easement will be owned and maintained by the Muth Family LLC. The private access, driveway maintenance \$ utility easement for Lot I will be

owned and maintained by Muth Family, LLC. 9. This plan is subject to WP10-086. On January 14, 2010 the Planning Director approved the request to waive Section 16.144(o), Section 16.144(p) and Section 166.144(q) which establish deadline dates to submit final construction drawings, to submit payment of fees, to post financial obligations and to submit final subdivision plats.

Approval is subject to the following conditions: 1. The developer must submit the Supplemental Plan which includes storm drainage construction, landscape plan and forest conservation plan in association with F-09-109 within 120 days of June 30, 2010 (on or before October 28, 2010).

2. The developer must complete any applicable Developer's Agreements and pay any remaining DPW fees in association with F-09-109 within 180 days of June 30, 2010 (on or before December 27, 2010).

3. The developer must submit final plat originals in association with F-09-109 for signature and recordation within 180 days of June 30, 2010 (on or before December 27, 2010). 4. All conditions/comments issued from the Development Engineering Division must be addressed.



LOCATION MAP

SUPPLEMENTAL PLANS

MUTH PROPERTIES LOT 1, 2 AND

NON-BUILDABLE BULK PARCEL "A"

A RESUBDIVISION OF LOT F-2, THOMPSON PROPERTY PLAT # 5720 AND PARCEL 176, LIBER 10588 FOLIO 675

> Tax Map 34, Block 3, P/O Parcel 379 \$ Tax Map 34, Block 4, Parcel 176 5th Election District - Howard County, Maryland Zoned: RR-DEO

GENERAL NOTES - CONTINUED

40. The public 100 year floodplain, drainage \$ utility easement will be owned by Muth Family LLC and maintained by Howard County. In accordance with Section 16.115.b.2.ii of the subdivision regulations, the owner grants Howard County a perpetual easement

for right of entry 41. This plan is subject to WPII-058. On November 9, 2010 the Planning Director approved the request to waive Section 16.144(a), Section 16.144(p) and Section 166.144(q) which establish deadline dates to submit final construction drawings, to submit payment of fees, to post financial obligations and to submit final subdivision plats. Approval is subject to the following conditions:

1. The developer must submit the Supplemental Plan which includes storm drainage construction, landscape plan and forest conservation plan in association with F-09-109 within I year of October 28, 2010 (on or before October 28,

2. The developer must complete any applicable Developer's Agreements and pay any remaining DPW fees in association with F-09-109 within I year of December 27, 2010 (on or before December 27, 2011). 3. The developer must submit final plat originals in association with F-09-109 for signature and recordation within I year

of December 27,2010 (on or before December 27, 2011). The developer is responsible for any processing fee changes that have occurred since the "Technically Complete" letter was issued for F09-109. 4. All conditions/comments issued from the Development Engineering Division must be addressed 42. The 4.25 acre density obligation for cluster Lot 2 (remaining 2.74 acres)(4.25 ac. - 1.5360 ac.), will be provided upon further resubdivision of Non-Buildable Bulk Parcel "A" which will establish a preservation parcel per Section 105.F.I.h of

the Howard County Zoning Regulations. 43. The purpose of the 10' reservation located on Lot 2 provides a Private Drainage \$ Utility Easement for the future subdivision of Non-Buildable Bulk Parcel "A". The area within the 10' reservation is owned and maintined by Lot 2. Upon future subdivision, maintenance will be provided by Muth Family Home Owners Association.

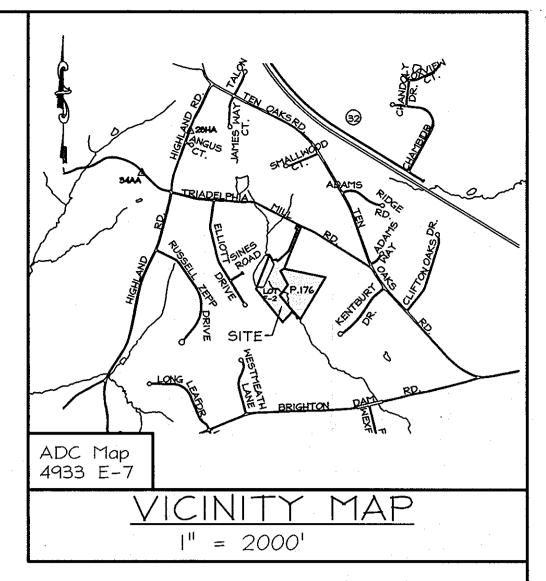
BENCHMARKS:

1. Howard County Control Station 28HA NAVD 29 Elevation = 588.708' NAD 83 Coordinates: N565347.937, E1319266.269

Standard stamped disc set on a 3' deep column of concrete located on the Northeast side of Highland Road just north of Angus Ct, 14.2' off edge of paving, 29.01 from G&E Pole #334368.

2. Howard County Control Station 34AA NAVD 29 Elevation = 561,105' NAD 83 Coordinates: N564468.943, El318257.375

Standard stamped disc set on a 3' deep column of concrete located on the South side of Triadelphia Mill Rd, 7.4' from the edge of pavement, 57.2' east from C&P pole and 22' west from a post from a gas pipeline right of way.



	INDEX OF SHEETS
No.	Description
1	Cover Sheet
2	Supplemental Plan, Grading Plan & Soils Map
3	Forest Conservation Plan
4	Forest Conservation Plan, Notes & Details

LEGEND

75' STREAM BANK BUFFER

LIMITS OF NON-TIDAL WETLANDS

100 YEAR FLOODPLAIN LIMITS

PRIVATE USE-IN-COMMON ACCESS, DRAINAGE # UTILITY AND STORMWATER MANAGEMENT CREDIT EASEMENT FOR LOTS 1, 2 \$ NON-BUILDABLE BULK PARCEL "A" (MAINTENANCE BY MUTH FAMILY, LLC)

PRIVATE USE-IN-COMMON ACCESS, DRAINAGE \$ UTILITY AND STORMWATER MANAGEMENT CREDIT EASEMENT FOR LOTS 1, 2 \$ NON-BUILDABLE BULK PARCEL "A" (MAINTENANCE BY MUTH FAMILY, LLC)

PUBLIC FOREST CONSERVATION

----520--- EXISTING 10' CONTOURS

...... EXISTING 2' CONTOURS -- PROPOSED 10' CONTOURS

PROPOSED 2' CONTOURS PROPOSED PRIMARY WELL SITE

PROPOSED ALTERNATE WELL SITE EXISTING WELL TO BE ABANDONED

PROPOSED SEWAGE DISPOSAL EASEMENT

EXISTING SEWAGE DISPOSAL EASEMENT --- BRL -- BUILDING RESTRICTION LINE

PERCOLATION TEST FAILED

____ EX. STREAM EX. TREELINE

- . Ba . - SOIL BOUNDARY PERCOLATION TEST PASSED

SLOPES 25% OR GREATER

1 Non-Cluster (Existing Home to remain #13031 Triadelphia Mill Road)

Gross Area: 25.9638 Ac ± Area of 100 Year Floodplain: 5.9701 Ac ± Area of Steep Slopes: 0.0321 Ac ± Net Area of Property: 19,9616 Ac ± By Right Density: 25.9638 Ac / 4.25 = 6 Units The Owner Proposes: 1 Cluster Lot (Existing Home to remain #13041 Triadelphia Mill Road)

DENSITY SUMMARY

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME. AND

1 Non-Buildable Bulk Parcel (Future Resubdivision)

THAT I AM A DULY LICENSED PROFESSIONAL PROPERTY UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO: 19184, EXPLAND ATE 6/30/13."

PRIVATE ACCESS DRIVEWAY MAINTENANCE \$ UTILITY EASEMENT FOR LOT I (OWNED \$ MAINTAINED BY MUTH FAMILY LLC)

LEGEND CONTINUED

FUTURE USE IN COMMON DRIVEWAY -111 --- 111

EXISTING PAVING

RESERVATION FOR

RESERVATION FOR PRIVATE DRAINAGE

UTILITY EASEMENT

PRIVATE LANDSCAPE EASEMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

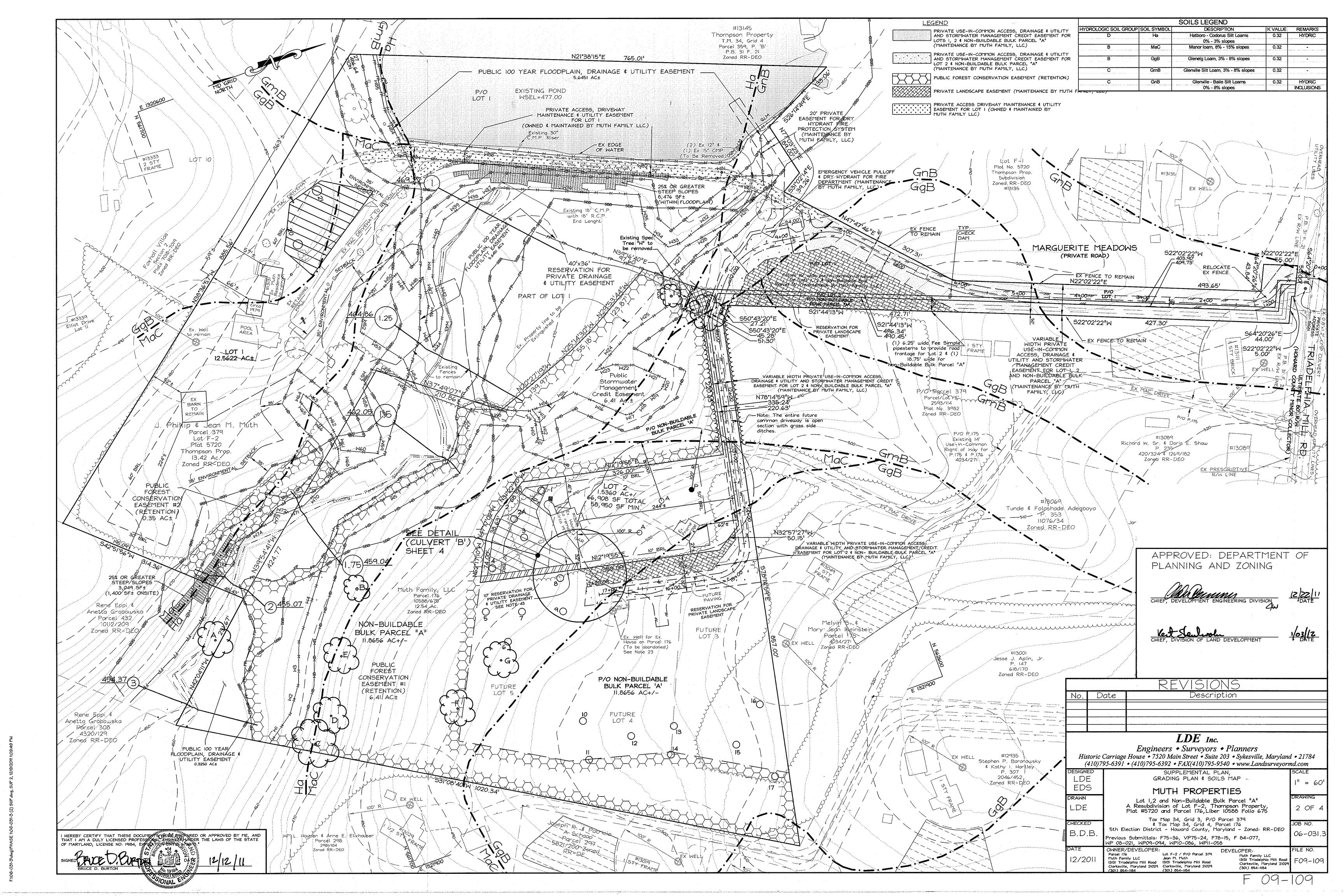
LDE Inc.

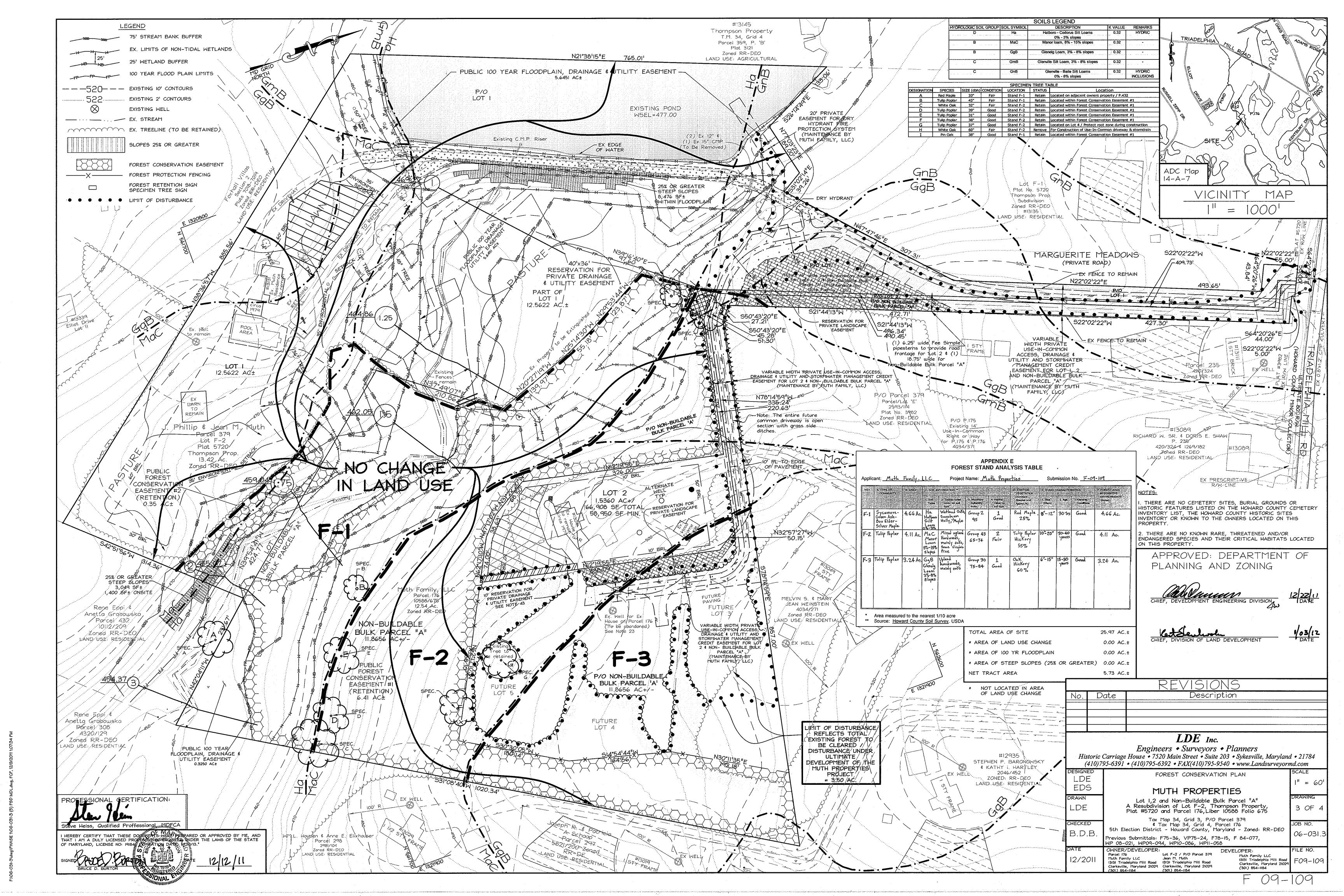
Engineers • Surveyors • Planners Historic Carriage House • 7520 Main Street • Suite 203 • Sykesville, Maryland • 21784 (410)795-6391 + (410)795-6392 + FAX(410)795-9540 + www.Landsurveyormd.com

SUPPLEMENTAL PLAN COVER SHEET As Shown MUTH PROPERTIES Lot 1, 2 and Non-Buildable Bulk Parcel "A" DRAWN A Resubdivision of Lot F-2, Thompson Property, Plat #5720 and Parcel 176, Liber 10588 Folio 675 of 4 Tax Map 34, Block 3, P/O Parcel 379 \$ Tax Map 34, Block 4, Parcel 176 5th Election District - Howard County, Maryland Zoned: RR-DEO 06-031.3 Previous Submittals: F75-36,VP75-24,F78-15,F-84-077,WP08-021,WP09-094, API0-086, MPII-058 OWNER/DEVELOPER: Lot F-2 / P/O Parcel 379 DEVELOPER: Muth Family LLC 13131 Triodelphia Mill Road 13131 Triadelphia Mill Road 13131 Triodelphia Mill Rood Clarksville, Maryland 21029 Clarksville, Maryland 21029 Clanksville, Manyland 21029 (301) 854-1184

(301) 854-1184

(301) 854-1184





Construction Adjacent to Soil Protection Zone

4' high chain link fence.

Management of the Soil Protection Zone

construction.

mow grass and core aerate.

CONSTRUCTION PERIOD PRACTICES

Protecting and Managing Forest Retention Areas

Trees generally do not have tap roots.

and after construction.

wire shall be attached to any tree.

4' high welded wire fence.

Prior to the start of any construction (including clearing) adjacent to the soil protection

zone, a fence must be erected along the boundary round all soil protection zones. This

fence shall have 8-1/2" x 11" orange signs which shall read "Tree Preservation Area" in

All fencing shall be attached to "U" Channel metal posts set 10' o.c. max. No fencing or

Prior to the start of any grading, all sediment control devices shall be in place to prevent

any silt or sediment from entering the soil protection zone. A synthetic filter fabric silt

fence of a type acceptable to the U.S.D.A. Soil Conservation Service shall be installed on

the uphill side of all soil protection zones. This fence shall be cleaned and maintained on

a regular basis through the construction period. All drainage devices, inlets, or swales

required to maintain existing surface and subsurface groundwater conditions within the soil

Forest retention stands, smaller tree stands, and individual trees that the Forest

Conservation Plan specifies must be protected and require careful management during

Specimen trees and groups of trees are nearly always growing on soils previously influenced by human activity. If the soils under these trees are already compacted, they

should be core aerated prior to construction and again after construction. Light spring and

fall low nitrogen fertilizations will also help these trees adjust to the new environment.

Very old trees (30" or larger D.B.H.) should be manually imigated several times during the

first two summers following grading in their vicinity. Each group of trees must also be

monitored for disease and insect problems during and after construction. Trees in

construction zones are more susceptible to attack by pests than trees in undisturbed

Landscape practices under trees are as critical to tree survival as how much construction

occurs around them. The following management practices must occur in the soil protection

Bare soil: prior to construction, core aerate. Hand scarify with a steel rake

Mown lawn; prior to construction, core aerate. Keep grass mowed during

Unmown grass: leave undisturbed during construction. After construction,

Landscape shrubs and/or groundcovers: leave undisturbed during

construction. Hand scarify and mulch any area with bare soil. Leave any

paved areas, walks, drives, etc. in place within the dripline until other

construction is nearly completed. Fill voids from removed objects with light

Natural occurring ground plane growth: leave undisturbed except for

invasive vines or small trees which could affect growth habits of specimen

The construction period extends from final approval of the development proposal until the release of all required guarantees specified for forest conservation requirements in the

As part of the construction period management and planting program, the developer shall designate an individual or firm to be fully responsible for implementing the requirements of the approved lorest conservation plan or requesting modifications of previously approved

requirements concerning planting techniques, species or maintenance needs. Those responsible for implementation of the approved forest conservation plan during the

construction period shall conform to the professional qualifications cited in *Chapter VI* of this manual.

Forest retention stands are extremely vulnerable to damage, long term decline, and death stemming from improper design and construction practices. Saving forests and specimen

trees during the construction process requires site planning, engineering practices and construction methods that respect the biological needs of trees. A few fundamental

A tree's root system can be large, extending well beyond the dripline of the crown. Typically, root systems are very shallow, in most cases being only 12*
- 18* deep.

* There are about as many roots as there are twigs and branches. If roots die,

Tree roots need a halance of water and air in the soil. Air only penetrates 12

or everly dry soils due to topography changes during construction.

- 18" into the soil. Stress and decline in tree health results when soil is piled on top of existing roots or roots are suddenly forced to sit in waterlogged so

Soil compacted to bulk densities of 1.7 gram/cubic centimeters or greater

Trees growing in disturbed or tilled soils usually die back in proportion to the

Trees, especially large trees, may take a long time to show the effects of

The soil protection zone must be protected from construction activity and other stresses

(e.g. flooding) to protect the forest stand from damage. The forest retention practices for a development must address the specific needs and stresses the proposal may cause.

Nevertheless, the need to define the soil protection zone (critical root area) for forest areas

The extent of the root system is quite large. The ratio of root expansion to crown spread

can be 2:1 or larger on open grown specimen trees and can be significantly larger (up to 5:1) for trees growing in the interior of forest stands. Furthermore, the minimum

equirement for root protection varies from species to species and from soil type to so

type. For open grown trees, it is generally accepted that protecting the soil within the

dripline of the tree is adequate to save the tree in most cases. For trees that have been

part of forest communities, however, the soll protection zone may have to be modified to

Techniques for management of the soil protection zone are described in detail in Appendix

Many of the construction period measures cited in the manual are for areas that should not

be disturbed. The desire to protect areas within the limit of disturbance can be easily nullified by poor construction site management. The required construction period

reflect a more complex relationship between crown spread and root growth.

zone for lawn installation will cause harm.

have affected a healthy tree.

is the one factor common to all retention efforts.

Best Management Practices During Construction

cannot support root growth. Existing roots in heavily compacted soils usually

root area disturbed. Even minor disturbances such as tilling within the root

construction damage. Trees may die 5 or even 10 years after being weakened by construction activity. Secondary stresses such as insects,

fisease, or drought may kill weakened trees while the same stress would not

to a depth of 1" max. Top dress with 1" - 2" shredded bark mulch.

1" high lettering posted every 50'. The fence shall be one of the following:

3 strands of barbed wire spaced 18" apart - 4' high.

protection zone must also be installed and operational prior to grading.

4' high wood and wire "snow fencing".

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

zoning, and limit to only one entry.

Input the number "1" under the appropriate land use

ARA MDR IDA HDR MPD CIA 0 0 0 0

E. Afforestation Threshold..... 20% xD = | 1.15 25% xD = F. Conservation Threshold.....

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain).... H. Area of forest above afforestaion threshold= I. Area of forest above conservation threshold ... BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation.....=

PROPOSED FOREST CLEARING:

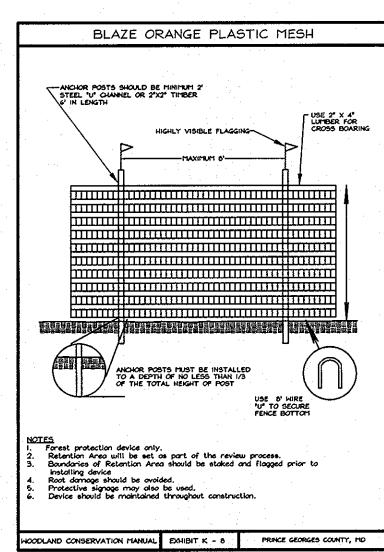
K. Clearing permitted without mitigation......

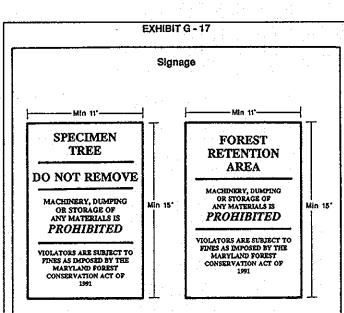
L. Total area of forest to be cleared.... 0.00 M. Total area of forest to be retained...

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold...= P. Reforestation for clearing below conservation threshold...= Q. Credit for retention above conservation threshold......= R. Total reforestation required.....= S. Total afforestation required...... T. Total reforestation and afforestation required.....=

> AREA OF RETENTION EASEMENT REQUIRED = 6.76 2:1 MITIGATION RATIO





All Forest Conservation Easement and Specimen Tree Signage shall remain in place for perpetuity





APPENDIX G SOIL AND FOREST PROTECTION TECHNIQUES FOR FOREST RETENTION AREAS

SOIL PROTECTION ZONE

The soil protection zone is that area which must be protected from construction activity and other stresses (e.g. flooding) 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 leaf area and to maintain the physical stability of the tree. Trees in forest stands become interdependent 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 past 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 dripline 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 guldelines will protect most of the trees, most of the time, from construction

Socimen trees: the limit of the soil protection zone shall be the area within the drip line of the tree.

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 drip 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 drip line, whichever is greater. 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 drip line, whichever is greater

Modifications to the Soil Protection Zone

1.0 0.0

1.0 1.0

When disturbance of the soil protection zone is unavoidable, tree survival remains probable provided

- Disturbance does not exceed 20 percent of the original soil protection zone
- A protected area of equal size and contiguous to the remaining soil protection zone is added back so that the finals soil protection zone area is 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:

- The extent of the rooting system with root diameters 1" or greater; as determined by a field root survey
- 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
- An estimate of soil moisture conditions before and after construction.

5) A list of construction impact mitigation practices to be performed before,

Upon determination that the request does not pose any significant threat to the tree, reductions of the allowable soll protection zone may be made up to the following maximum

10" db or less 50 percent 10" - 15" db 40 percent 15" - 25" db 30 percent 25" db or larger

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 cut or fill. Removal of existing ground plane vegetation or organic leaf layers. Roads or parking.
- Walks, patios 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, fill, topsoil, trash, etc. Disposal of construction waste, including concrete truck wash off, paints, solvents, contaminated runoff, oils, fuels, or any other substances which are

The following activities are permitted within the soil protection zone:

harmful to plants or animals.

- 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 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 vines or other herbaceous plants which threaten the ecological
- 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.

balance of the remaining plants in the soil protection zone.

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.

Are constructed without filling greater than 6". Removal of any existing walks, walls, roads, or other structures as required. These items should be removed without the use of heavy equipment.

> management program must therefore specify how construction activities will be managed to protect forest retention areas. The following should be depicted on site construction documents and/or forest conservation plans; they shall also be itemized in the developers

storage of equipment and materials disposal of construction debris washing of equipment, disposal of wastewater from concrete operations, etc. temporary structures such as trailers, sanitary facilities, etc.

Unless specifically exempted by the approved forest conservation plan, any use of forest retention areas for these activities or other intrusions shall be a violation of the approx

Because reforestation and afforestation typically may involve disturbances greater than 5,000 square feet, proper sediment and erosion controls may be required. Developers should refer to the Howard County Soil Conservation District for current standards. specifications and requirements. It may be necessary to protect forest retention areas from erosion and sedimentation caused by implementation of reforestation or afforestation

Construction Period Planting Procedures

The measures to protect forest retention areas emphasize isolating them from development impacts. Reforestation or afforestation, in contrast, will often occur on land already disturbed by development activities or may be located on land which will require substa preparation to enable forest plantings to survive and thrive. Reforestation and afforestation plantings may also require a great deal of management once they are installed. Appendix H provides guideline specifications for proper planting, Including techniques for site

preparation and management. The following issues are of particular concern. General site preparation for planting: For undisturbed sites, disturbance of soils should be limited to the planting field for each plant. For disturbed areas, soils should be treated by incorporating natural mulch within the top 12 inches, or with needed amendments as determined by a soils analysis.

Stream buffer planting: Borders of streams and other waterways may have been damaged before reforestation and afforestation and therefore may need more extensive restoration work before reforestation or afforestation can be

Natural amendments such as organic mulch or leaf mold compost are

successful. The following are guidelines for any work within a riparian zone. Correct any erosion problems

Minimize or eliminate any chemical use Maintain an undisturbed leaf layer and understory

Steep slope planting: In areas of steep slopes or erodible soils, the preferred method of reforestation or afforestation is the use of seedlings to minimizedisturbance. Planting on open or disturbed steep slopes eventually will stabilize them. Until the roots become established, however, there may still be erosion problems. Monitoring the stability of the soil will be important to the survival of the trees.

<u>Post-planting Considerations:</u> For areas of large-scale disturbance, soils must be stabilized using a non-turf-building ground cover or engineering fabric. To protect against intrusion and to prevent damage of planted are

entification of Completion

At the end of the construction period, the designated qualified professional shall convey to the Department of Planning And Zoning certification that all forest retention areas have been preserved, all reforestation and afforestation plantings have been installed a required by the forest conservation plan, and that all protection measures required for the post-construction period have been put in place. Appendix J contains a sample format for such certification. Planting must occur before June 30th to be credited toward the current period of the content of the content

Upon review of the certification document for completeness and accuracy, the Department will notify the developer of the beginning of the post-construction management period

OST-CONSTRUCTION MANAGEMENT PRACTICES

Many of the protection and management practices for the construction period must be continued for at least 2 growing seasons following official notification of completion of the development (or a specific phase of the overall development if phasing has been approved). The responsibility to meet the survival standards regulres adequate watering replanting, thinning or other appropriate measures. Also, inappropriate uses or intrusions must not occur, a responsibility that requires the knowledge and cooperation of the new

Minimum Two Growing Season Post-Construction Management Program

A post-construction management program must be approved as part of the original fores conservation plan and remain in effect for a minimum of two growing seasons. A longer period may be required for specific strategies (e.g. natural regeneration near high us

Implementation of the post-construction management program must be supervised by qualified professional who should inspect the status of all forest retention, reforestation an afforestation areas at specified times during the life of the post construction agreement an

There are five primary components of the post-construction program: inspectio management of retained or new plantings, replacement of dead or damaged material when necessary, education of new occupants of the development and final inspection and

inspections should be carried out at the beginning and end of the growing season to pinpoint any problems, monitor survival rates, and specify remedial actions needed to correct existing problems. Appendix J has an example of an inspection report checklist.

Management of Forest Conservation Areas Post construction management includes: maintenance of all fences, signs or other devices

delineating forest conservation areas and other measures. Such other measures include needed watering; removal of dead or damaged material and control of undestrable competing species; thinning or pruning to encourage proper growth; fertilizing, if necessary; and control of pests. Specific practices will depend on the weather prevailing during the pecific site conditions such as proximity to high use areas. It is the responsibility of the post-construction plan supervisor to take appropriate actions as needed. This manual, therefore, does not cite required measures. Survival success, not fulfillment of a given series of tasks, will be the measure of conformance to the needs of the post-construc

Newly planted trees, whether they are seedlings or 4" caliper transplants, have basic needs. Some of these needs can be met by nature alone; others may require human intervention. (The three most likely causes of death for newly planted trees are drought competing vegetation and deer.) The basic maintenance regime should be determined by on-site environmental conditions, structure and nutrient content of soil, and rainfall. Understanding these factors and the specific needs of the species and size of plants used will result in a healthy forested area at the end of the maintenance period. Appendix H contains guideline specifications for maintenance of forest conservation areas and focuses on the following critical needs:

watering fertilizing control of competing vegetation

Replacement of Plant Material An inspection shall take place at the end of year one or before the second growing season to evaluate survival rates with reference to the survival required at the end of the two year period. This is an opportunity to avoid the penalty for violating survival rate standards. This inspection should estimate survival potential based on the following:

vigor and threat of competing vegetation (i.e. if seedlings are free to grow) structure
 growth rate
 crown development

f. after one year, the possibility exists that the original planting will not meet survival standards, the applicant may choose to establish reinforcement plantings. If plant mortality of reforestation or afforestation exceeds 10% of planted material at the end of the first growing season, such material should be replaced to bring the total number of trees to 90% of the original total. Such material shall be installed by the beginning of the second growing season. If at the end of the second growing season, survival rate drops below 75%, such material as needed to guarantee an 75% survival rate by the end of the third growing

Education of New Occupants

The occupants of a new development, whether owners or tenants, must avoid activities that destroy or degrade protected forest resources. The post-construction management program must therefore include steps to educate the new occupants about the proper use of forest conservation areas, about the need for the developer to carry out the postconstruction management program, and the eventual transfer of long-term responsibilities to the owners or occupants. Such educational material should include a plan locating all protected areas on the site and a description of permitted and prohibited activities within or affecting such areas. The format and method of conveying such information is left to the

Final Inspection and Release of Obligations

At the end of the post-construction management and protection period, the designated responsible professional shall convey to the Department of Planning and Zoning certification that all forest conservation areas have remained intact or have been restored to the appropriate condition, that the stipulated survival rates have been achieved, and that any permanent protection measures required by the plan are in place. Appendix J contains a sample format for such certification.

Upon review of the final certification document for completeness and accuracy, the County will notify the developer of release of surety and all future obligations. The developer's last official responsibility will be to transmit a copy of this notification to the owner(s) of the property(les). Such transmittal will serve as official notice to owners of their assumption of full responsibility for all future forest conservation obligations.

LONG-TERM MANAGEMENT RESPONSIBILITIES

To maintain the integrity of forest conservation areas, the owners must refrain from any activities that would diminish the viability and environmental integrity of forest retention areas or hinder the growth and maturing of new forest plantings. When the site is occupied by tenants, the owner must insure that the tenants do not, willfully or out of ignorance, use the site in ways that violate forest conservation restrictions or damage protected forest resources. Depending on the location, as well as the size and type of plant material, some maintenance is very beneficial, particularly in the early years. In all instances, State la requires that noxious weeds be controlled.

In many developments a homeowners association, tenants association or other management organization will maintain the site. Such a group is well suited to assume explicit responsibility for protecting the integrity of forest conservation areas and performing any desired maintenance after the initial developer guarantees and obligations have expired. Responsibility for ensuring that all provisions of the conservation easement are adhered to, however, ultimately belong to the property owner(s).

Note: In accordance with Section 16.1202 of the Howard County Code and Forest Conservation Manual, Forest Conservation obligations shall be fulfilled by the Retention of 6.76 acres of forest on Non-Buildable Bulk Parcel "A" and Lot I for future cluster Lots 3,4 and 5. The Net Buildable Area for forest conservation is based on the acreage of those future lots only. Current Lot I will become "buildable preservation parcel "A" at the same time as the creation of the future cluster lots 3, 4 and 5, but will not be subject to forest conservation because there will be no change in use for that parcel. This buildable preservation parcel will be considered off-site since it is not part of the Net Tract Area, thus the required mitigation is being assessed at 2:1. Since the project is a MInor Subdivision and the Forest Conservation Obligation is met by retention, no surety fee is required.

> APPROVED: DEPARTMENT OF PLANNING AND ZONING

REVISIONS Description

LDE Inc. Engineers * Surveyors * Planners Historic Carriage House • 7520 Main Street • Suite 203 • Sykesville, Maryland • 21784

(410)795-6391 * (410)795-6392 * FAX(410)795-9540 * www.Landsurveyormd.com FOREST CONSERVATION PLAN, NOTES & DETAILS AS SHOWN MUTH PROPERTIES DRAWN Lot 1,2 and Non-Buildable Bulk Parcel "A" A Resubdivision of Lot F-2, Thompson Property, 4 OF 4 Plat #5720 and Parcel 176, Liber 10588 Folio 675 Tax Map 34, Grid 3, P/O Parcel 379 \$ Tax Map 34, Grid 4, Parcel 176 CHECKED JOB NO. 5th Election District - Howard County, Moryland - Zoned: RR-DEO 06-031.: revious Submittals: F75-36, VP75-24, F78-15, F 84-077, WP 08-021, WP09-094, WP10-086, WP11-058 OWNER/DEVELOPER FILE NO. Lot F-2 / P/O Parcel 379 Parcel 176 Muth Family LLC Muth Family LLC

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