

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3430 Courthouse Drive ■ Ellicott City, Maryland 21043 ■ 410-313-2350

Valdis Lazdins, Director

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TECHNICAL STAFF REPORT OAK HILL MANOR

Planning Board Quasi-Judicial Public Hearing of July 20, 2017

Brenda Luber, Staff Planner phone: 410-313-4343 email: BLuber@howardcountymd.gov

<u>Case No./Petitioner:</u> PB Case No. 428 / Eva J. Nelson, Michael B. Nelson and Matthew J. Nelson

Project Name: Oak Hill Manor, SP-15-012

Lots 1-8 and Open Space Lots 9-12

Developer: Eva J. Nelson, Michael B. Nelson and Matthew J. Nelson

Engineering Consultant: Fisher, Collins and Carter, Inc.

Request: For the Planning Board to approve a Preliminary Equivalent Sketch Plan, SP-15-

012, to subdivide eight single-family lots and four open space lots. The 8.20-acre property is zoned R-ED (Residential: Environmental Development) and is subject to Section 107.0.F. of the Zoning Regulations and Section 1.105 of the Rules and

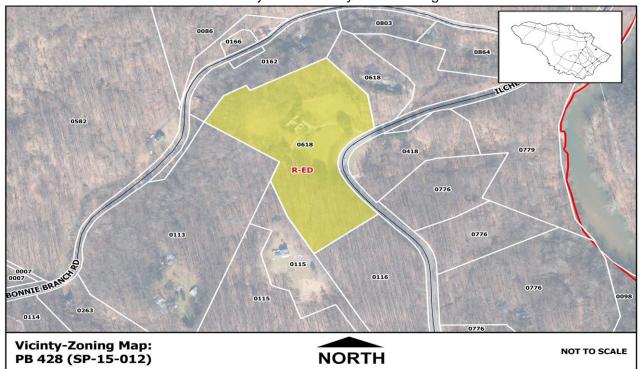
Procedures of the Howard County Planning Board.

<u>Location:</u> 4472 Ilchester Road, Ellicott City, First Election District of Howard County,

Maryland; Tax Map 31, Grid 4, Parcel 618.

DPZ Recommendation: Approval, subject to complying with Subdivision Review Committee (SRC)

comments and any conditions by the Planning Board.



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Plan Summary:

The Preliminary Equivalent Sketch Plan establishes the preliminary lot layout, street network, open space areas, drainage, stormwater management (SWM), landscaping, and forest conservation areas.

- The site is in:
 - Established Communities Allocation Area
 - Patapsco River watershed
 - Planned Service Area (PSA) public water and sewer will be provided
- The maximum density is two dwelling units per net acre and the minimum lot size is 6,000 sq. ft.
- The developer proposes eight single-family detached, fee simple lots. Seven lots will share a use-in-common driveway. One lot will have direct access onto a public road (Ilchester Road).
- The site contains 4.04 acres of 25% or greater slopes.
- An historic house that dates to 1866 is to remain.
- The Hearings Examiner granted a setback variance, BA-14-020V, on September 9, 2014, which reduced the 75-foot setback from Ilchester Road right-of-way for proposed Lots 1 and 2 to 50 feet.
- 4.83 acres (4.72 acres of credited and .11 acres of non-credited) of open space will be provided. This exceeds the required 4.10 acres, which is 50% of the gross site area.
- Tentative housing unit allocations and the APFO schools test will be evaluated once the Decision and Order by the Planning Board has been signed.

Vicinal Properties:

The property is located on the west side of Ilchester Road and is surrounded by the following R-ED zoned properties:

North - Improved residential parcels - Parcels 162 and 803.

East – An improved residential parcel – Parcel 618.

<u>South</u> – Ilchester Road and across the street a parcel owned by DNR and an improved residential parcel – Parcel 116.

<u>West</u> - An existing residential subdivision, Locust Chapel and an improved, deeded, residential parcel - Parcel 113.

I. General Comments

- A. **Legal Notices** DPZ staff verified that the property was posted with a sign on Ilchester Road and the case was advertised in two local newspapers at least 30 days prior to the public hearing. All certifications are on file.
- B. **Regulatory Compliance** This development is subject to the Howard County Subdivision and Land Development Regulations, the Howard County Zoning Regulations, the DPW Design Manual, Storm Water Design Manual, the Adequate Public Facilities Ordinance, the Forest Conservation Manual, the Landscape Manual, and the requirements of the Soil Conservation District, Health Department and the Department of Recreation and Parks.

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- C. General Plan The proposed development is consistent with PlanHoward 2030.
- D. **Pre-submission Community Meeting** The developer held pre-submission community meetings on October 22, 2014, and February 1, 2016.

E. Site History:

- The property's historic residence is known as the Fislage-Cavey House and it further contains an 1866 Romanesque Revival Style building, a spring house, and barn.
- The subdivision proposal was heard by the Historic Preservation Commission on November 6, 2014, (HO-456) and they provided advisory comments.
- An Environmental Concept Plan (ECP-15-043) was approved on September 7, 2016.

F. Bulk Regulations:

- Density R-ED zoning permits two dwellings per net acre and the site is 4.16 net acres, which allows up to eight lots.
- Lot Size Requirements All lots comply with the minimum R-ED single-family lot size 6,000 sq. ft.
- Minimum Lot Width All lots are at least 50' wide, as measured at the front building restriction line (BRL).
- **Building Restriction Setbacks** The development complies with the 75' setback requirement, measured from an external public street right-of-way, per Section 107.0.D.4 of the Zoning Regulations. However, a setback reduction was approved for Lots 1 and 2 to 50 feet and 30 feet measured from the project boundary.
- An Alternative Compliance application (WP-16-115) was submitted on March 21, 2016. The applicant requested alternative compliance to the following sections of the Subdivision and Land Development Regulations, as they apply to this subdivision: Section 16.116(b)(1) requiring that the grading, removal of vegetative cover and trees, new structures and paving shall not be permitted on land with existing 25% or greater steep slopes; Section 16.1205(a)(7) requiring the retention of specimen trees to allow the removal of 4 specimen trees; and Section 16.125(b)(1)(ii) and (2) requiring the protection of vegetation adjacent to a scenic road and requiring a 35-foot buffer of existing forest and wooded area between the scenic road and new development. The applicant has provided written justification as part of the alternative compliance application for the SRC to consider. On April 27, 2016, the Director of Planning and Zoning determined that no action would be taken on this application until after the Planning Board had an opportunity to review and consider this subdivision plan, SP-15-012 at the public hearing.

II. Site Analysis

A. **Existing Site Conditions** – Most the property is lawn and forest and is irregular in shape. The Romanesque Revival style house dates to 1866. The existing house is accessed from Ilchester Road by a circular asphalt driveway.

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B. Site and Density Information Chart:

Gross Site Area	. 8.20 ac.
Minus 100-Year Floodplain	0.00 ac.
Minus 25% or Greater Slopes	4.04 ac.
Net Site Area	4.16 ac.
Permitted Density (2 units per net acre)	8 lots
Proposed Lots	8 lots
Moderate Income Housing Units (MIHU)	
Required (10% of dwellings)	1 Unit
Provided	
Approximate Limit of Disturbance	2.63 ac.
(32% of g	gross site area)
Open Space	
Required (50% of gross area)	4.10 ac.
Proposed4.83	
Proposed Public Road ROW	0.33 ac.

- C. **Access and Frontage** Access and public road frontage will be via a shared driveway fronting on lichester Road. One lot will have direct access onto lichester Road.
- D. Water and Sewer Service The lots will be served by public water and sewer.
- E. Existing Environmental Site Characteristics:
 - General Site Features The property consists of lawn and a variety of trees such as: flowering dogwoods, magnolia, white pine, silver maple, and white oak around the home. A large portion of the site slopes, with forested steep slopes along the northern and southern edges of the property. No wetlands or stream were found on site; however, a small portion of a stream buffer is located along the northern edge of the property from an off-site perennial stream.
 - Environmental Resources On December 18, 2014, Eco-Science Professionals, Inc. certified that there were no onsite wetlands or streams, however, the site does have 4.04 acres of 25% or greater slopes. The forest stand delineation identified the forest stand as 6.9 acres with 28 specimen trees on the site. All were identified as in good condition, except for three trees.
 - **Soils** The site has two, well-drained soil types. In accordance with Section 16.123(c)(1) of the Subdivision and Land Development Regulations, the developer must provide practical and effective sediment control during construction to prevent any off-site storm water drainage due to erosion and sedimentation.
- F. **Historic Resources** On November 6, 2014, the Howard County Historic Preservation Commission provided advisory comments regarding historic resources and recommended that the historic house be preserved and integrated into the design of the subdivision. The petitioner agreed and included it as Lot 6, thereby meeting the *Protection of Historic Resources* guidelines established under Section 16.118(b)

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of the Subdivision Regulations. The remaining historic resources (the barn) will not be saved.

G. **Protection of Scenic Roads** – The site fronts a local scenic road (Ilchester Road). Section 16.125 of the Subdivision and Land Development Regulations provides guidelines for land abutting a scenic road, including Section 16.125(b)(2), which requires a minimum 35-foot buffer of existing forest or woods between the road and new development. The related alternative compliance petition will be addressed after the Planning Board's decision. Under this petition two trees are to be removed, along with 110 linear feet of trees located along the frontage of Lots 1 and 2 and Open Space Lots 10 and 11. Approximately 465 linear feet of trees and forest along the property frontage are being retained within the 35-foot buffer area. Additional plantings will be provided along Ilchester Road to enhance the buffer.

H. Proposed Development Plan:

- Subdivision Plan The development consists of eight single-family lots and four open space lots. Residential lots range from 10,461 sq. ft. to 15,082 sq. ft., except for one. Lot 6 is 38,386 sq. ft. and accommodates the existing historic house. All residential lots will be served by a shared driveway except Lot 1, which will have direct access onto Ilchester Road. Forested open space lots will be provided along the rear of most lots.
- Community Compatibility for Residential Infill Section 16.127(c)(1) of the Subdivision and Land Development Regulations requires residential infill to be compatible with its surrounding neighborhood. This is achieved since the development proposes two-story, single-family detached homes. Further, a landscape buffer is proposed along Ilchester Road and Parcels 113 and 618 (Parcel 4). The buffer along Ilchester Road includes Homeowner's Association (HOA) owned open space, the buffer adjacent to Parcel 618 (Parcel 4) includes County owned open space, and the buffer adjacent to Parcel 113 includes Lots 3 and 4.
- Open Space Section 16.121(a)(2) requires an R-ED zone subdivision to provide open space equal to at least 50% of the site's gross area and 59% is proposed. Two open space lots will be owned and maintained by the HOA, while Open Space Lots 9 and 12 will be owned by the Department of Recreation and Parks.
- Forest Conservation The developer will retain 3.51 acres of existing forest within a *public* forest conservation easement, which will be established on Open Space Lots 9 and 12 and recorded with the forthcoming plat. This easement (along with the deed of forest conservation) will preserve the area from future development and/or disturbance. Since the County will own Open Space Lots 9 and 12, the Department of Recreation and Parks will be responsible for its upkeep and management.
- Landscaping Landscaping complies with the Landscape Manual and will be provided along
 the entire perimeter of the subdivision. The perimeter landscaping requirement will be met by
 retaining existing trees and areas currently without any vegetation will be planted with five
 shade trees and 28 evergreen trees.
- Stormwater Management SWM will comply with the Stormwater Management Act of 2007 by providing environmental site design (ESD) to the maximum extent practicable (MEP), in accordance with Chapter 5 of the M.D.E. Storm Water Design Manual, Volumes I and II. SWM will include a combination of ESD practices: five micro bio-retention practices, six dry wells and three bioretention practices to manage runoff from lots and driveways.

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Adequate Public Facilities Ordinance (APFO):

Roads Test - The intersections analyzed include Ilchester Road/Landing Road, Ilchester Road/Montgomery Road, and Montgomery Road/Waterloo Road. The analyses show that all will operate at an acceptable level-of-service and have been approved by the Development Engineering Division (DED) and the Department of Public Works (DPW).

Schools Test - The subdivision is in the Established Communities Allocation Area, the Northeast School Region, the Ilchester Elementary School District, and the Bonnie Branch Middle School District. Once the Decision and Order has been signed, the subdivision will be tested for housing allocations and open/closed schools.

III. Planning Board Criteria:

Section 107.0.F.6 of the Zoning Regulations establishes the following review criteria that must be considered when evaluating a Preliminary Equivalent Sketch Plan:

1. The proposed lay-out of the lots and open space effectively protects environmental and historic resources.

Approximately 59% of the site will be open space and the proposed subdivision does not encroach onto forested conservation areas or stream buffers. Open space and environmental areas provide contiguous and effective buffers for most of the lots and the environmental area on Open Space Lots 9 and 12 will be dedicated to the Department of Recreation and Parks. The forest conservation easement on Open Space Lot 9 will connect to the adjacent state park. The proposed development density does not exceed that which is allowed and while the layout attempts to minimize grading steep slopes, they are nevertheless disturbed on three lots. However, by converting the existing driveway to a shared driveway avoids disturbing additional steep slopes. The existing historic house will be saved and integrated within the subdivision on Lot 6, per Section 16.118. Twenty-one of the 25 specimen trees will be retained; with most of them on Open Space Lots 9 and 12.

2. Buildings, parking areas, roads, stormwater management facilities and other site features are located to take advantage of existing topography and to limit the extent of clearing and grading.

Site disturbance is about 2.63 acres and is necessary to accommodate reasonably sized lots. Bioretention and landscape infiltration practices are used to address SWM. Approximately 3.51 acres of existing forest will be protected by Forest Conservation Easements located on Open Space Lots 9 and 12 (to be dedicated to the Department of Recreation and Parks). Minimal grading will take place in the 35-foot scenic road buffer and supplemental planting will be provided within the 35-foot scenic road buffer where tree removal is proposed or existing vegetation is sparse.

3. Setbacks, landscaped buffers, or other methods are proposed to buffer the development from existing neighborhoods or roads, especially from designated scenic roads or historic districts.

Except for Lots 1 and 2, the bulk regulations in Section 107.0.D.4. of the Howard County Zoning Regulations have been met. A variance (BA-14-020V) was approved to reduce the 75' setback to 50' for these lots. A 35-foot wide buffer is provided along Ilchester Road (a scenic road) and the homes will face the street and have side-loaded garages. Additional landscaping will be provided along Ilchester Road where vegetation is sparse.

Open space lots will provide an effective buffer for the existing homes to the north, east, and west

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and contain 3.51 acres of existing forest, which will be protected by a recorded Forest Conservation Easement.

The Howard County Landscape Manual requires a Type "A" landscaped edge (one shade tree per 60') along the project boundary. This will be satisfied by retaining existing vegetation and planting five shade trees and 28 evergreen trees.

SRC Action: The developer was notified by letter dated December 8, 2016, that the subdivision plan,

SP-15-012, was technically complete; subject to complying with any Subdivision

Review Committee (SRC) comments and conditions by the Planning Board.

Recommendation: The Department of Planning and Zoning recommends that the Planning Board approve

this subdivision, as shown on the Preliminary Equivalent Sketch Plan, SP-15-012 Oak Hill Manor, subject to complying with any SRC comments and any conditions by the

7/6/17 Date

Planning Board.

This file is available for public review <u>by appointment</u> at the Department of Planning and Zoning's public service counter, Monday through Friday, 8:00 a.m. to 5:00 p.m.

/aldis Lazdins, Director

Department of Planning and Zoning

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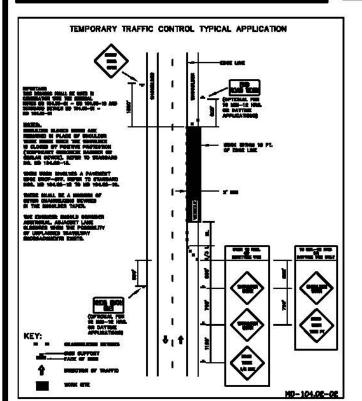
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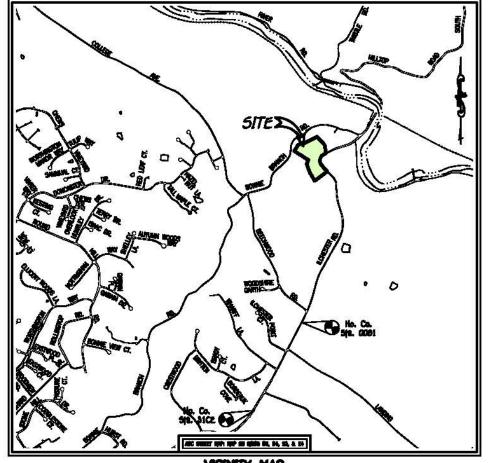




PRELIMINARY EQUIVALENT SKETCH PLAN OAK HILL MANOR,

LOTS 1 THRU 8 & OPEN SPACE LOTS 9 THRU 11

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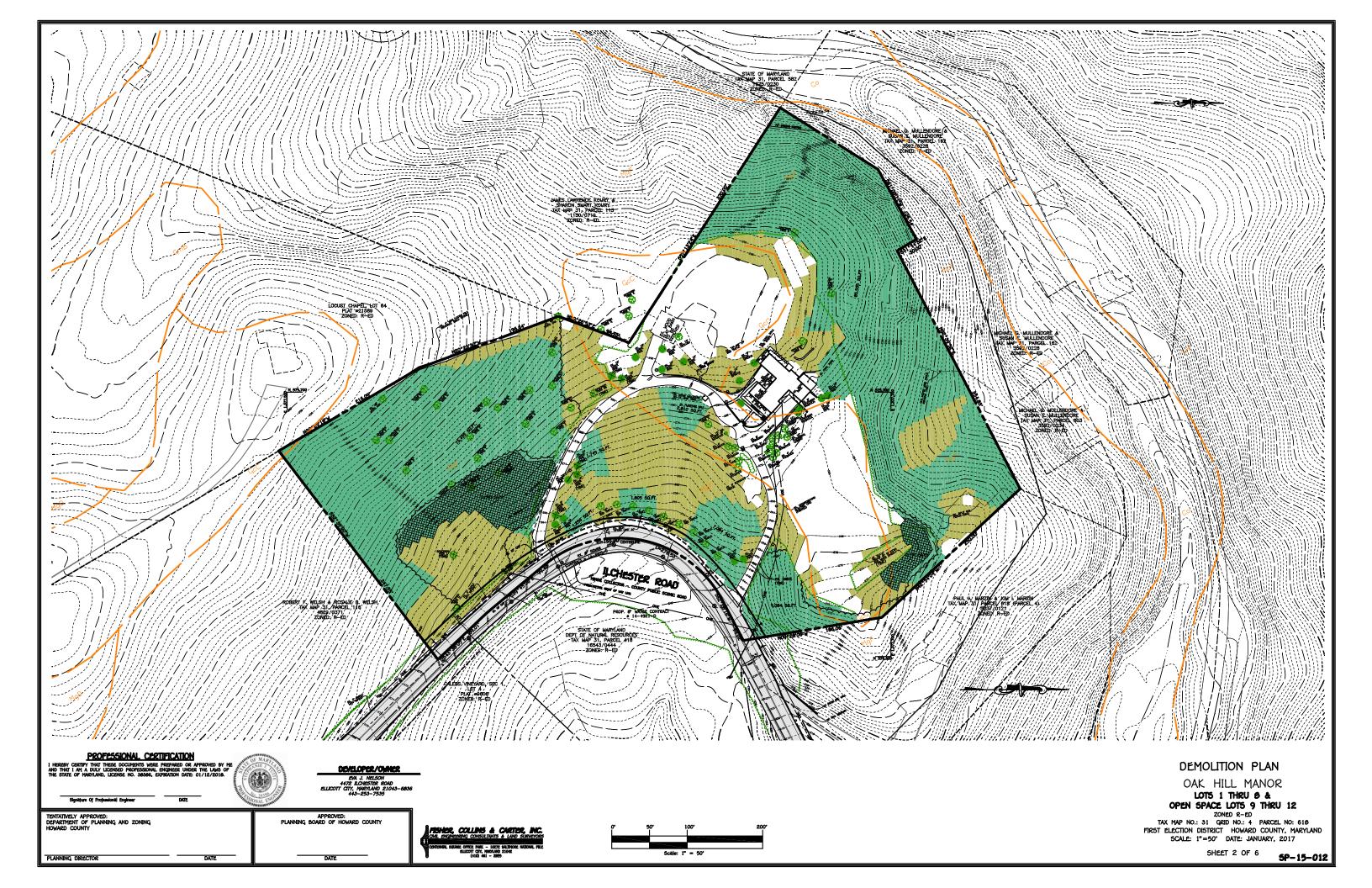
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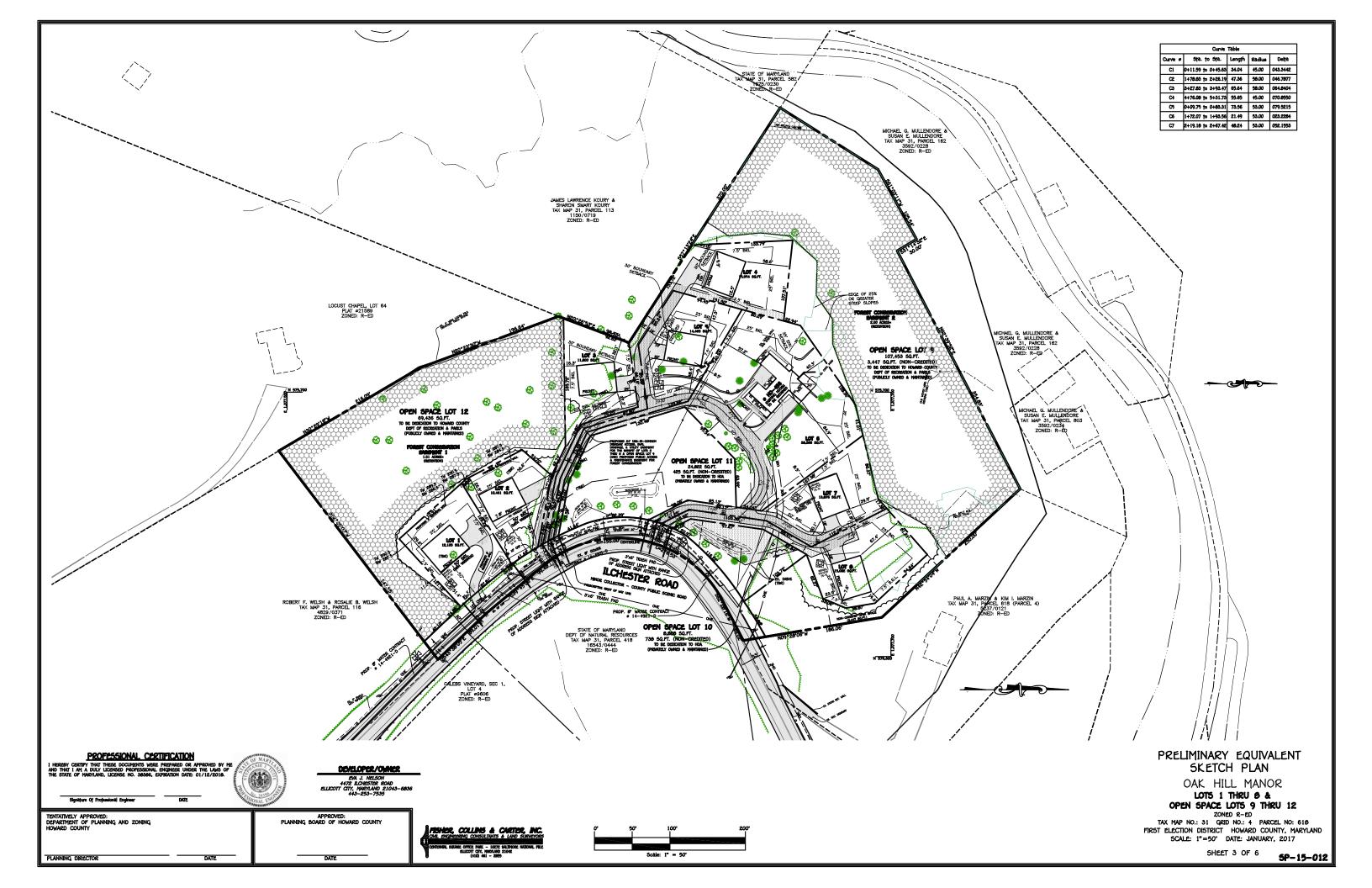
OAK HILL MANOR

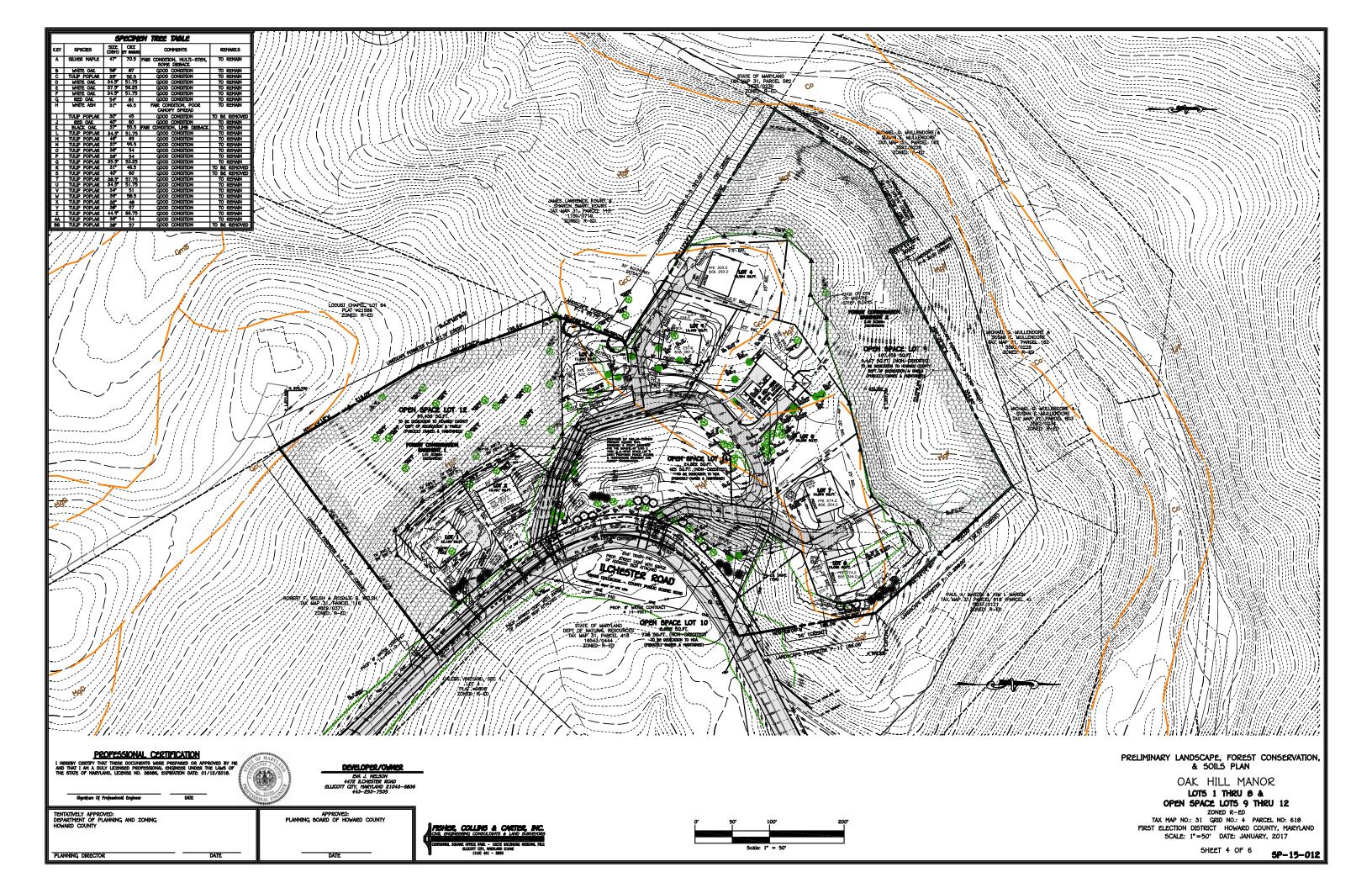
OPEN SPACE LOTS 9 THRU 12

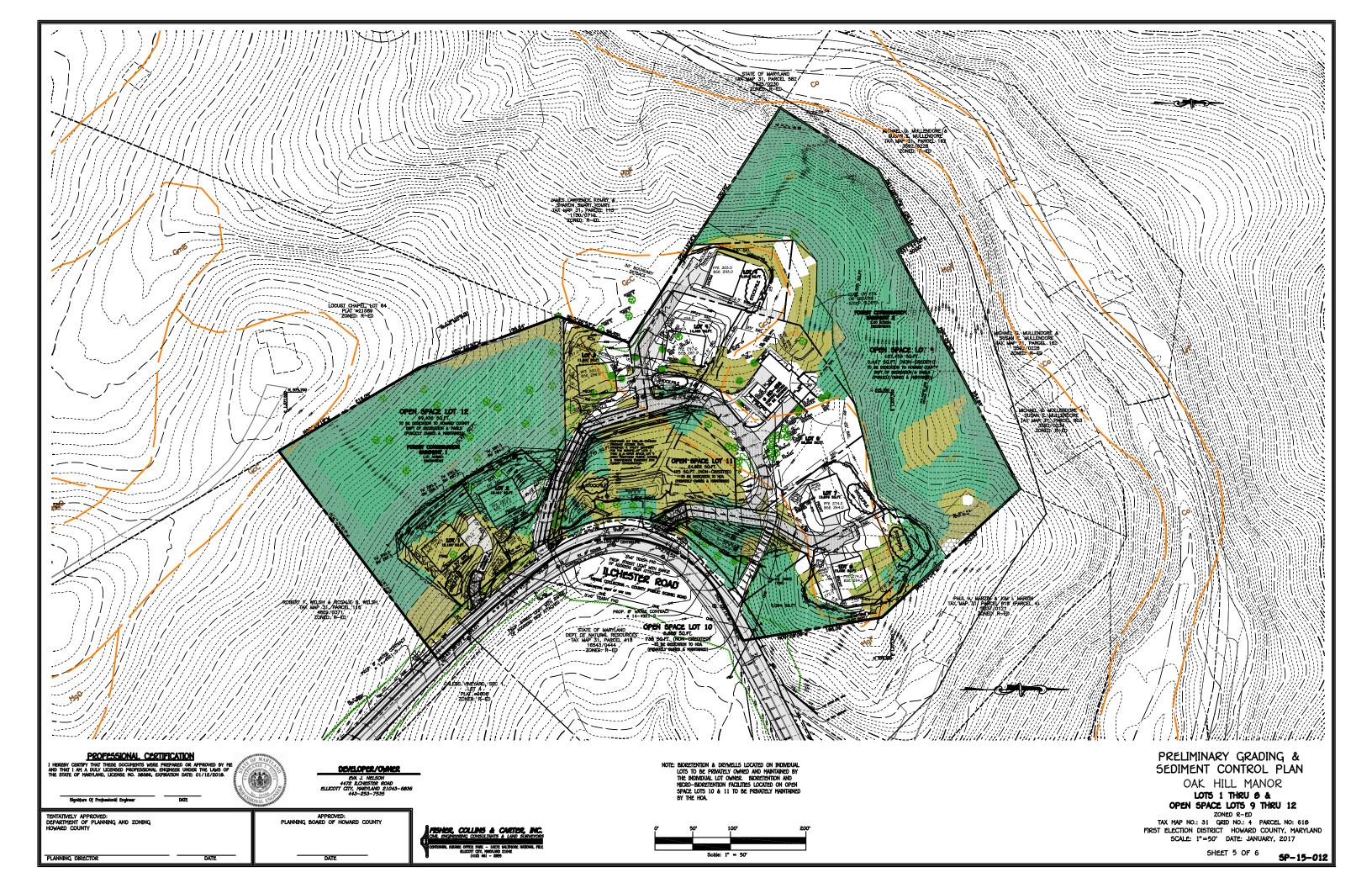
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TAX HAP NO.: S1 GRD NO.: 4 PARCEL NO: 618
PREST ELECTION DESTRICT HOWARD COUNTY, MARYLAND
SCALE: 1"-50" DATE: JANUARY, 8017

SHEET 1 OF 6









NOTES

- THIS PLAN COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE ON-SITE RETENTION OF 3.51 ACRES OF FOREST. NO SURETY WILL BE
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL A LANDSCAPE SURETY FOR REQUIRED SHADE TREES WILL BE REQUIRED AT FINAL PLAN STAGE.

FOREST PROTECTION GENERAL NOTES

- All forest retention areas shall be temporarily protected by well anchored blaze orange plastic mesh fencing, as necessary, and signage as indicated on the plans. The devices shall be installed along the forest retention boundary prior to any land clearing, grubbing, or galding activities.
- 2. THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES, UNLESS ROOT PRUNING IS PROPOSED.
- All protection devices shall be maintained throughout construction, including silt pence being used as protective pencing, all devices shall remain in place until all construction has ceased in the immediate vicinity.
- ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
- 5. INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TERE BOOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SHOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-MATERING OPERATIONS, OFF—SITE RUN OFF, SPILLAGE AND DEARNING OF MATERIALS THAT MAY BE HARRIFUL TO TREES.
- THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN POREST CONSECUATION EXSERBINES.
- REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
- THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS.
- ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS. AS NECESSARY.

- AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MAKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PIACE ON SITE. A PRE-CONSTRUCTION MEETING SHALL TAKE. PIACE ON SITE. THE DEVILOPER, CONTRACTOR OR PROJECT HAVAGER, AND HOMARD COUNTY INSPECTIONS SHALL ATTEND. THE PURPOSE OF THIS
- NAGER, AND HOWARD COUNTY INSPECTIONS SMALL ALLEAU. HIE PURPLOSE OF THIS ETTING MILL BE
 A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN SO FREET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPHENT STAGING AREAS; S. INSPECT ALL LYACKED COUNTAINES AND PROTECTION DEVICES; C. MAKE ALL RECENSIVE ADMINISTRATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

- 1. THE STRE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH HAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK, WOUNDS, LIMB INJURY, OR STREES CAUSED BY FLOODING OR BOOLGHT CONTIONS.

 2. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS HAY REQUIRE CONSULTATION WITH A PROFESSIONAL STREET OF THE LIMITS OF THE CONTRACTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF CONTRACTIOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TRAM OR

MULTIPLORA ROSE CONTROL NOTE:

PRIOR TO PLUMBIA, ALL HASTAGAR AGES MINH PLANTING AGES MINL SE REPONDS.

PRIOR TO PLUMBIA, ALL HASTAGAR AGES MINH PLANTING AGES MINL SE REPONDS.

Removal of The Hultiflord Sose Hay be Performed With Moving And Herbicide

Treatments. Physical Removal of All Top Growth Followed By A Periodic Herbicide

Treatment of Stump Sproughs Is Recommended. Native Tree And Shave Species

Occurring Within The Rose Thickets Should be Retained wherever Possible. Herbicide

Treatments Shall Occur On Two (2) Month Intervals During The First Growing Seaseon

And Once in The Spring And Once in the Fall For Subsequent Years. Herbicide Used

Shall Be Made Specifically To Address Woody Plant Material And Shall be Applied As Per

Ranufacturers Specifications. Care Should Plant Material And Shall be Applied As Per

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POREST CONSERVATION WORKSHEET

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	EST CONSER				O.	20% x D	-	-
	TING FORES							
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FOREST CONSERVATION SIGN DETAIL

DATE

PROFESSIONAL CERTIFICATION

PLANNING DIRECTOR

Signature Of Professional Engineer TENTATIVELY APPROVED:
DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY

DATE



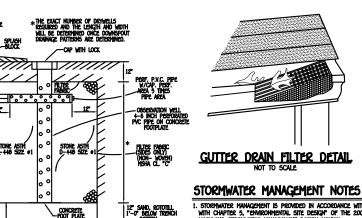
DEVELOPER/OWNER

LANOSCAPING PLANT LIST 250 SIZE ACER RUBRUM 'RED SUNSET' (RED SUNSET RED MAPLE) QUERCUS PALUSTRIS (PIN OAK) 0 ILEX 'NELLIE R. STEVENS' (NELLIE R. STEVENS HOLLY) Magnolia stellata of magnolia x soulangana (magnolia)

FILTER FARRIC-

GROUND WATER 🔻

DRY WELL DETAIL (M-5)



ATEGORY

ANDSCAPE TYPI

inear feet of perimeter

CREDIT FOR EXISTING TREES YES/NO, LENGTH)

Credit for existing vegetation Shade trees Shall-Medium deciduous trees. Evergreens Shrubs

NUMBER OF PLANTS PROVIDED SHADE TREES SMALL/HEDIUM DECIDUOUS TREE EVERGREENS SHRUBS

IUMBER OF PLANTS REQU

- I. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH MITH CHAPTER 5, "EMISCOMENTAL SITE DESIGN" OF THE 2007 MARCHAND STORMMATER HANAGEMENT DESIGN HANALL, EFFECTIVE HAY 4, 2010.

 2. HAURUH CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 1,000 SQ. FT. OR LESS.

 3. DRYMELIS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 79 AT 9%. THE SIZE AND CONSTRUCTION OF THE DRYMELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.

 4. FINAL GRADING WILL BE SHOWN ON A SITE DEVELOPMENT PLAN.

ADJACENT TO ROADWAY N/A (PRONT)

(O L.F. REMAINING)

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

- A. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.

 B. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO ENSURE TRENCH DRAINAGE.

 C. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.

 D. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY—TWO

 (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.

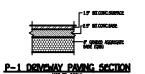
 E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPILIANCE WITH OPERATION AND MAINTENANCE COTTERIA.

 F. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED. THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE PREQUENT SCHEDULE IS REQUIRED.

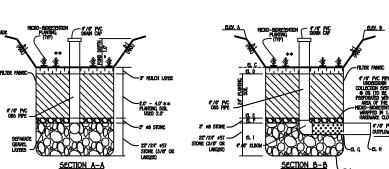
DRY WELL CHART								
DRYWELL No.	AREA OF ROOF PER DOWN SPOUT	Volume Required	VOLUME PROVIDED	area of treatment	L W D			
LOT 1	1,000 5Q. FT.	80 C.F.	286 C.F.	100%*	12' x 12' x 5'			
LOT 2	1,000 5Q. FT.	80 C.F.	200 C.F.	100%*	12' x 12' x 5'			
LOT 3	1,000 5Q. FT.	90 C.F.	200 C.F.	100%*	8' x 18' x 5'			
LOT 5	1,000 5Q. FT.	80 C.F.	286 C.F.	100%*	12' x 12' x 5'			
LOT 7	1,000 5Q. FT.	80 C.F.	200 C.F.	100%*	12' x 12' x 5'			
LOT 6	1.000 5Q, FT.	80 C.F.	200 C.F.	100%*	10' x 10' x 5'			

* AREA OF TREATMENT EXCEEDS THAT REQUIRED

NOTE: BIORETENTION & DRYWELLS LOCATED ON INDIVIDUAL LOTS TO BE PRIVATELY OWNED AND MAINTAINED BY THE INDIVIDUAL LOT OWNER. BIORETENTION AND MICRO-BIORETENTION FACE LOTS 10 & 11 TO BE PRIVATELY MAINTAINED



FISHER, COLLING & CARTER, INC.



370.00 L.F.

YES, 196 L.F. (174 L.F. REMAINING)

7.12 L.F.

92.63 L.F. REMAINING

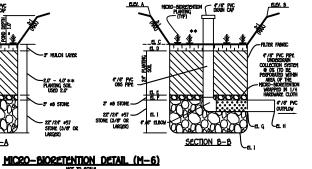
(93'/60' = 1.6 OR 2) (174'/60' = 2.9 OR 3)

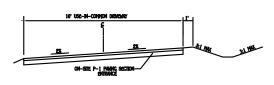
SCHEDULE A - PERMETER LANDSCAPE EDGE

153.13 L.F.

YES, 153.13 LF. YES, 105.54 LF. (0 LF. REMAINING) (0 LF. REMAINING)

105.54 L.F.





ADJACENT TO ADJACENT TO ERIMETER PROPERTIES PERIMETER PROPERTIES

YES, 132.57 L.F. YES, 186.06 L.F. (117.43 L.F. REMAINING) (130.06 L.F. REMAINING)

(130,06'/60" = 2.2 OR 2)

117.43°/60° = 2)

ADJACENT TO PERIMETER PROPERTIES

YES, 354.83 L.F. (O L.F. REMAINING)

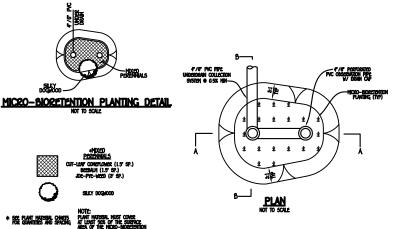
Perimeter Properties

YES, 30 L.F. (O L.F. REMAINING)

NOTE:

1. ALL HATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION. SWALES ARE FOR CONVEYANCE OF RUNOFF AND NOT

16' USE-IN-COMMON DRIVEWAY CROSS SLOPE SECTION



MICRO-BIORETENTION PLANT MATERIAL

Table B.4. Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration

No. 8 or No. 9 (1/8" to 3/8")

stone: 2" to 5"

Min. 10% by dry weight (ASTM D 2974)

pea gravel: ASTM-D-44

F 758, Type P5 28 o

MSHA, Mix No. 3; f = 3500 pei at 28 days, normal weigi air-entrained; reinforcing to meet ASTH-615-60

Curtain drain

Gravel (underdrains and

NME

MAXIMUM SPACING (PT.)

PLANT AWAY FROM

plantings are site-specific

8—	
4"/6" PVC PIPE NOGEORAM COLLECTION SYSTEM © 0.5% MIN	PVC OBSERVATION PSPS W/ DRAW CAP
## <u></u>	HISCO-SURETINION PLANING (TYP)
	<u>-</u> 211
1) '
神人	
B—— PLAN NOT TO SCALE	

1	12" (SINGLE USER)
OH-SITE P-1 PANNG SECTION—	NOTE: ALL HYDROLLS AND CONSTRUCTION SHALL BE IN ACCESSIONCE WITH MORROR COUNTY DESIGN HANDLE VOLUME IN STREEMEN SPECIFICATION AND DEVALS FOR CONSTRUCTION.

TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION

OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

- A THE OWNER SHALL HANDRAY THE PLANT HATERIAL HULCH LAYER AND SOIL LAYER ANNAULY. MANTENNICO OF MUICH AND SOIL IS UPITED TO CORRECTING AREAS OF EDGISION OR MICH OUT, MAY MUICH REPLACEMENT SHALL BE DONE IN THE SYRING, PLANT HATERIAL SELECTION OR SOURCE AND ROCKER PRESSTATION AND AND PLANT HATERIAL IS LIMITED TO THE TRALLINGUES AND MICH STORMATICS DESIGN HAMAL ACCURRED THE REPORTION THE TRALLINGUES AND MICH STORMATICS DESIGN HAMAL ACCURRED THE REPORTION THE OWNER SHALL REPORT DO MICH DESIGN AND AND DESIGNED VERSION OR SERVER THE REPORTION THE OWNER SHALL REPORT DO AND DESIGNED VERSION OR SERVER THE REPORT OF THE OWNER SHALL REPORT DO AND DESIGNED VERSION OR SERVER THE ATTEMPT OF THE OWNER SHALL REPORT OF THE REPORT OF THE OWNER SHALL REPORT DO THE OWNER SHALL DESIGN THE PROBLEM THE ATTEMPT OF THE OWNER SHALL DESIGN THE PROBLEM THE ATTEMPT OF THE OWNER SHALL DESIGN THE PROBLEM THE OWNER SHALL DESIGN THE PROBLEM THE OWNER SHALL DESIGN THE PROBLEM THE PROBLE

MICRO-BIORETENTION / BIORETENTION									
BIORETENTION FILTER	A	В	С	D	£	F	G	Н	I
MICRO-BIO 1	265.00	265.00	264.00	263.75	261.75	261.50	261.17	259.90	259.67
MICRO-BIO 2 BIO 3	258.00 257.00	255.00 257.00	257.00 256.00	255.75	253.75 253.75	253.50 253.50	254.17 253.00	254.02 251.00	251.50
MICRO-BIO 4	257.00 251.00	251.00	250.00	249.75	247.75	247.50	247.00	242.00	245.50

PRELIMINARY FOREST CONSERVATION & STORMWATER MANAGEMENT DETAILS & NOTES

OAK HILL MANOR

LOTS 1 THRU 8 & OPEN SPACE LOTS 9 THRU 12 ZONED R-ED

TAX MAP NO.: 31 GRID NO.: 4 PARCEL NO: 618 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: 1"=50' DATE: JANUARY, 2017

SHEET 6 OF 6

5P-15-012

