

MAPPED SOILS TYPES - SAVAGE SW MAP #24						
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	PERCENT IMPERVIOUS	PERCENT FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
F1	PAULSTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	B/O	YES	YES	0.02	NO
H18	HURON SANDY LOAM, 0 TO 3 PERCENT SLOPES	C	NO	NO	0.37	NO

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

LEGEND:	
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SPOT ELEVATION
	EXISTING SPOT ELEVATION
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	EXISTING TREES (FIELD LOCATED)
	EXISTING TREE LINE (FIELD LOCATED)
	EXISTING OVERHEAD LINE
	EXISTING GUAARDRAIL
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	EXISTING PMF FLOODPLAIN PER GATEWAY VILLAGE DAM DANGER REACH STUDY

DRAINAGE AREA	INLET #	ZONING	% IMPERVIOUS
C			

- NOTES:
1. WORST CASE 5 MIN. TO ASSUMED THROUGHOUT DESIGN.
 2. PERCENT IMPERVIOUS SHOWN, IGNORES ESD STORMWATER MANAGEMENT "CREDITS".
 3. DESIGN ASSUMES COMPLETE FAILURE OF PROPOSED ESD / MICRO-SCALE PRACTICES

OWNER: HAMPTON HILLS, LLC
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(410) 480-0023

DEVELOPER: TRINITY HOMES MARY LAND, LLC
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NO.	REVISION	DATE
1	APPROVED STORM DRAIN PROFILES, GUTTERS, WATER + SEWER, STORM DRAIN ALIGNMENT - FEATURE IMPROVEMENTS	1/30/17

FINAL SUPPLEMENTAL PLAN
STORM DRAIN - DRAINAGE AREA MAP
COTTAGE GROVE
LOTS 1 - 4, OPEN SPACE LOT 5
AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42, BLOCK 24
6TH ELECTION DISTRICT

ZONED: R-12
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

STATE OF MARYLAND
ROBERT H. VOGEL
No. 16193
REGISTERED PROFESSIONAL ENGINEER

DESIGN BY: EDS
DRAWN BY: KG
CHECKED BY: RHY
DATE: OCTOBER 2016
SCALE: AS SHOWN
W.O. NO.: 14-11

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. 16193, EXPIRATION DATE 09-27-2018

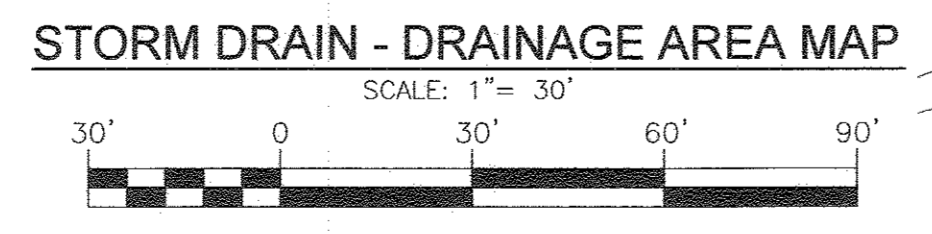
5 SHEET OF 8



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Col. E. J. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-19-17

K. S. ...
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1-30-17





LANDSCAPE NOTES

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.

2. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERRIS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

3. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.

4. PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.

GENERAL NOTE:

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

A FINANCIAL SURETY IN THE AMOUNT OF \$5,140 FOR THE REQUIRED 6 SHADE TREES (\$1,800), 2 ORNAMENTAL TREES (\$300), 7 EVERGREEN TREES (\$1,050), 27 SHRUBS (\$22), PERIMETER, 5 TRASH PAD \$810, AND 116 LINEAR FEET OF FENCING (\$1,800) SHALL BE POSTED WITH THE BUILDERS GRADING PERMIT. FINAL REVIEW AND APPROVAL OF THIS LANDSCAPE PLAN WILL BE WITH THE SITE DEVELOPMENT PLAN.

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS				TOTAL
	P-1	P-2	P-3	P-4	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	315	172	516	380	1283
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	No	Yes FULL	Yes 200 LF	No
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	Yes-FENCE 118 LF (1)	No	No	No	No
NUMBER OF PLANTS REQUIRED	197 LF	N/A	1:60 0	1:60 3	2
SHADE TREES	1:60 3	-	-	-	8
EVERGREEN TREES	**7	-	-	-	7
SHRUBS	1:10 12	-	-	-	12
CREDIT FOR EX. INDIVIDUAL TREES	-	N/A	-	-	-
SHADE TREES TO REMAIN	-	-	-	-	-
EVERGREEN TREES TO REMAIN	-	-	-	-	-
NUMBER OF PLANTS PROVIDED	**2	N/A	-	3	1
SHADE TREES	2	-	-	-	6
EVERGREEN TREES	-	-	-	-	7
ORNAMENTAL TREES	-	-	-	-	2
SHRUBS	12(1)	-	-	-	10
SHRUBS	-	-	-	-	22

CREDIT EXISTING TREES TO REMAIN:
 ** 7 EVERGREENS - SCREENING PER SECTION 16.127- RESIDENTIAL INFILL DEVELOPMENT.
 (1) 118 LF - 5" TALL SOLID PRIVACY FENCE 12 SHRUBS ARE REQUIRED ALONG THIS PERIMETER IN ADDITION TO THE PROPOSED SOUD FENCE.

PERIMETER LANDSCAPE SCHEDULE - REQUIRED PLANTING

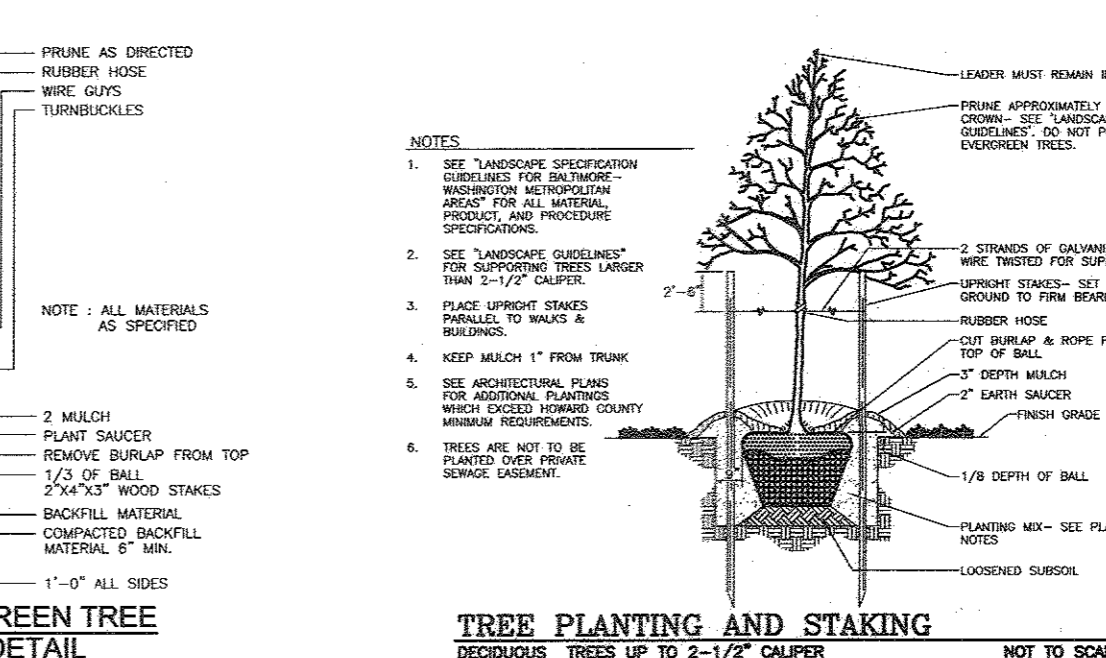
SYM	KEY	QUAN	BOTANICAL NAME	SIZE	CAT
SHADE					
HL	3		GLEDITSIA TRIACANTHOS 'INERMIS' 'IMPERIAL' / IMPERIAL THRONLESS HONEY LOCUST	2 1/2"-3" CAL.	B & B
SO	3		QUERCUS COCCINEA 'SCARLET' OAK	2 1/2"-3" CAL.	B & B
EVERGREENS					
LC	7		CUPRESSOCYPARIS LEYLANDI / LEYLAND CYPRESS	5-6' HT.	B & B
ORNAMENTAL					
CM	2		LAGERSTROMIA INDICA (BOE COMPLIANT) / CRAPPEMYRTLE	6-8' HT.	B & B
SHRUBS					
ME	10		EUONYMUS KIAUTSCHOVICUS 'MANHATTAN' / MANHATTAN EUONYMUS	2 1/2'-3' HT.	B & B
HB	12		MANDARINA DOMESTICA 'HEAVENLY BAMBOO' / HEAVENLY BAMBOO	2 1/2'-3' HT.	B & B

TRASH PAD LANDSCAPING

SYMBOL	QTY.	DESCRIPTION	SIZE	REMARKS
⊙	5	TAXUS CUSPIDATA 'NANA' DWARF JAPANESE YEW	18"-24" SPREAD	B & B

LANDSCAPE SCHEDULE NOTE:

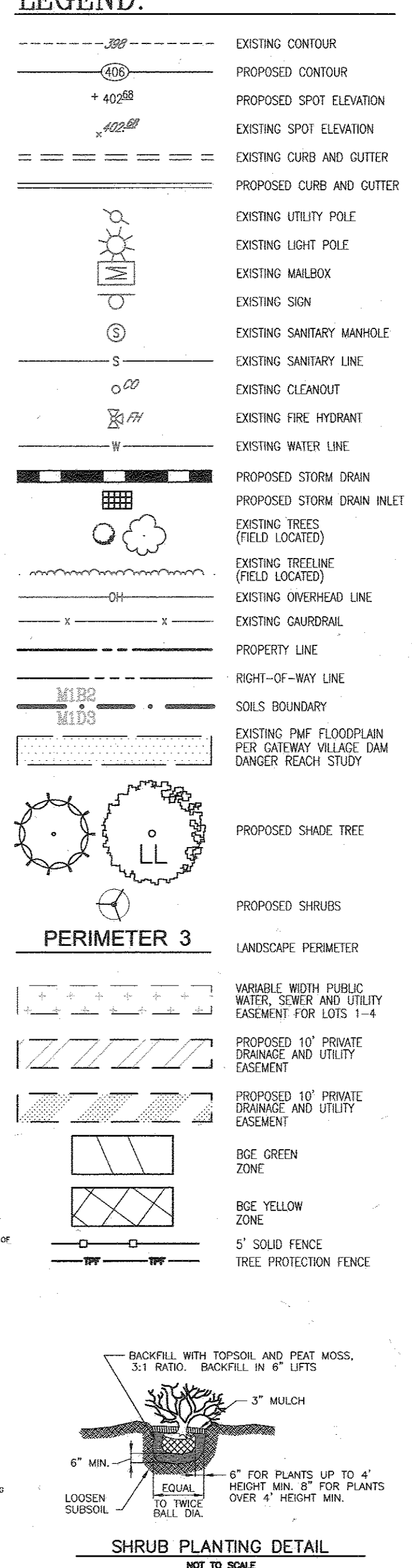
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT IAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.



OWNER
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LEGEND:



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Michael Pflum
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1-30-17

Michael Pflum
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 1-30-17

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Michael Pflum
 SIGNATURE OF DEVELOPER
 DATE: 1/1/17

DPZ'S POLICIES GOVERNING THE PLACEMENT OF LANDSCAPING AND STREET TREES IN PROXIMITY TO BGE'S POWER LINES OR TRANSMISSION RIGHT-OF-WAY ARE BASED ON BGE'S PUBLISHED "PLANTING ZONE CONCEPT" WHICH STIPULATES THE MAXIMUM ALLOWABLE SIZE OF PLANT MATERIALS FOR THREE DEFINED ZONES. AS THE DISTANCE FROM BGE EQUIPMENT INCREASES, SO DOES THE SIZE OF THE ALLOWABLE PLANT MATERIALS. THESE THREE ZONES ARE DEFINED AS FOLLOWS:

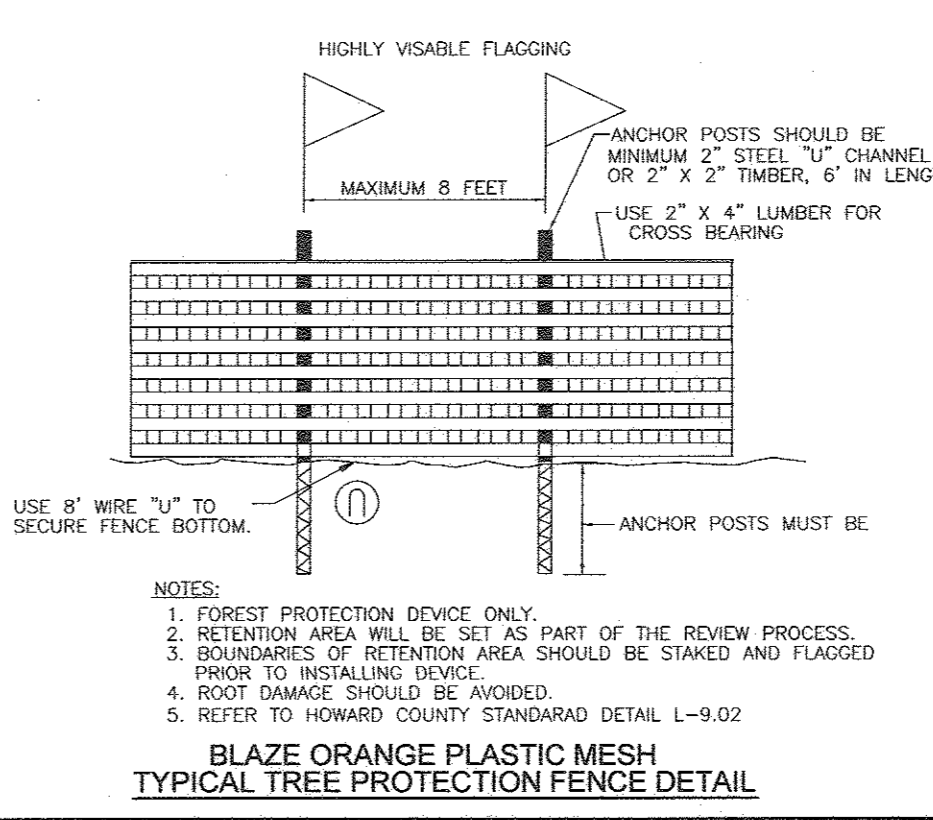
ZONE	DISTANCE FROM THE BGE POWER LINE OR TRANSMISSION RIGHT-OF-WAY	MAXIMUM HEIGHT OF VEGETATION
GREEN	UP TO 20 FEET	25 FEET
YELLOW	BETWEEN 20 FEET AND 45 FEET	40 FEET
RED	BEYOND 45 FEET	ABOVE 40 FEET

B & E NOTES:

- BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
- THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR DASHMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OF A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR DASHMENT. IF BGE INTENDS TO TRIM OR REMOVE TREES WITHIN A FOREST CONSERVATION EASEMENT, A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERTAKING THE WORK. DPZ UNDERSTANDS CONSULTATION ENGINEERS NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNDERSIGNABLE WITHOUT PERMISSION.
- CALL MISS UTILITY TO MARK UP THE LOCATION OF EXISTING GAS LINE BEFORE PLANTING STREET TREES ALONG HANOVER ROAD & PLANT STREET TREES 10' FROM EXISTING GASLINE AS REQUIRED.

SPECIMEN TREE CHART

Key	Species	Size (in dbh)	CRZ (feet radius)	Comments
1	Sweet Gum	37	55.5	Good condition, in floodplain
2	Red oak	36.5	54.75	fair, slight damage in crown
3	Pin oak	30	45	good
4	Pin oak	31	46.5	good
5	Oak sp.	36	54	good condition, in floodplain



NO.	REVISION	DATE
1	AMEND STORM DRAIN PROFILES, SCHEDULE, UTILITY SEWER, STORM DRAIN ALIGNMENT & PROPOSE IMPROVEMENTS	1/30/17

FINAL SUPPLEMENTAL PLAN
LANDSCAPE PLAN
COTTAGE GROVE
 LOTS 1 - 4, OPEN SPACE LOT 5 AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42, BLOCK 24
 6TH ELECTION DISTRICT

ZONED: R-12
 PARCEL 10
 HOWARD COUNTY, MARYLAND

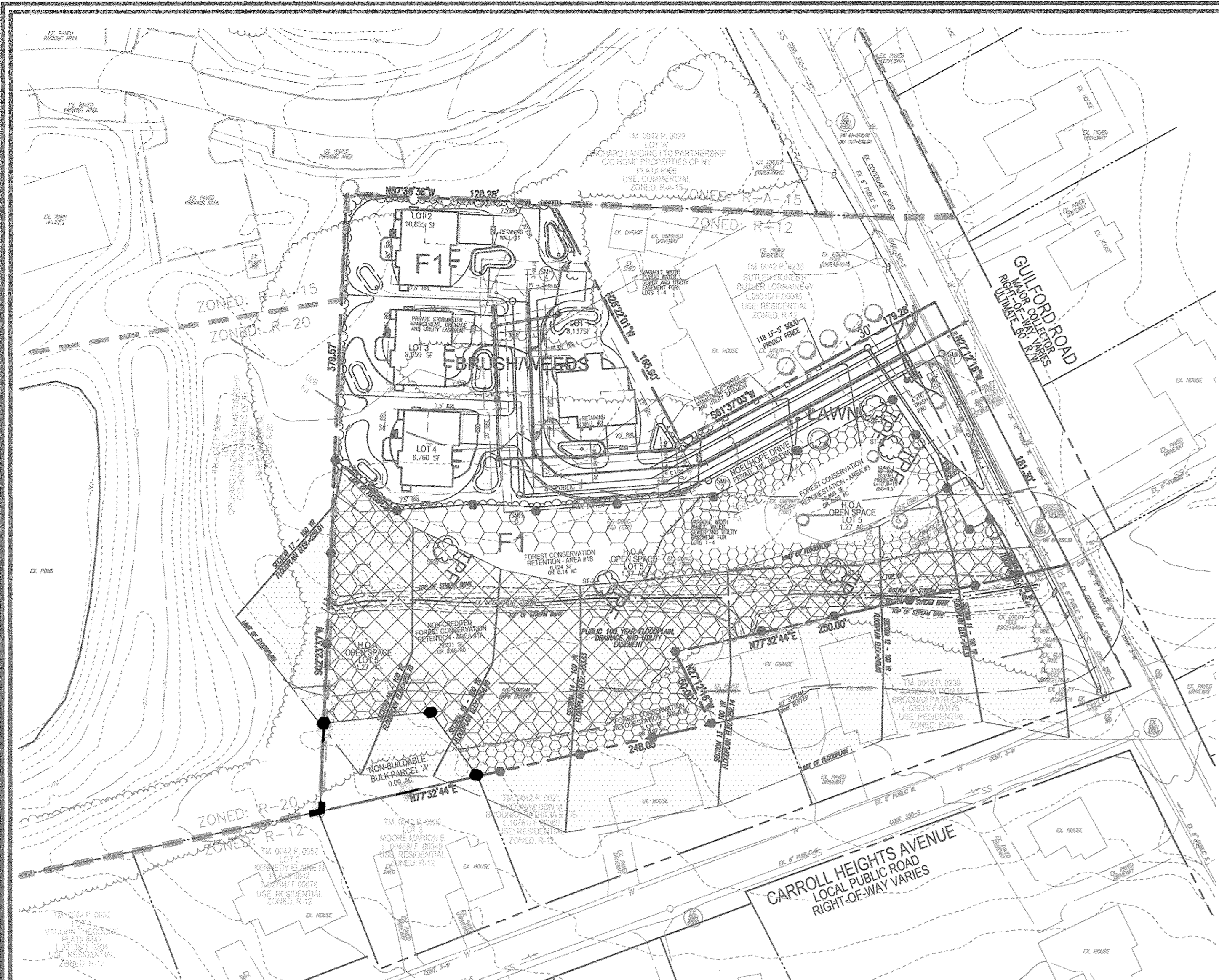
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DESIGN BY: EDS
 DRAWN BY: KG
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 W.O. NO.: 14-11

6 SHEET OF 8



MAPPED SOILS TYPES - SAVAGE SW MAP #24

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRO	HYDRO	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
T-1	TALUS/STONY SANDY LOAM, 0 TO 2 PERCENT SLOPES	B/1	YES	YES	0.02	YES	NO	NO	NO	NO
T-2	USDA (SAND-CLAY) SANDY LOAM, 0 TO 5 PERCENT SLOPES	C	NO	NO	0.37	NO	NO	NO	NO	NO

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING STREAM
- EXISTING STREAM BUFFER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- FCE SIGN LOCATION

FOREST CONSERVATION EASEMENT TABLE

EASEMENT AREA #1	RETENTION CREDITED	RETENTION NON-CREDITED	REFORESTATION CREDITED	TOTAL
AREA#1A	0.68 AC	0.00 AC	0.00 AC	0.68 AC
AREA#1B	0.14 AC	0.00 AC	0.00 AC	0.14 AC
AREA#2	0.00 AC	0.07 AC	0.07 AC	0.14 AC
AREA#3	0.00 AC	0.29 AC	0.29 AC	0.58 AC
TOTALS	0.82 AC	0.36 AC	0.36 AC	1.18 AC

REFORESTATION PLANT SCHEDULE

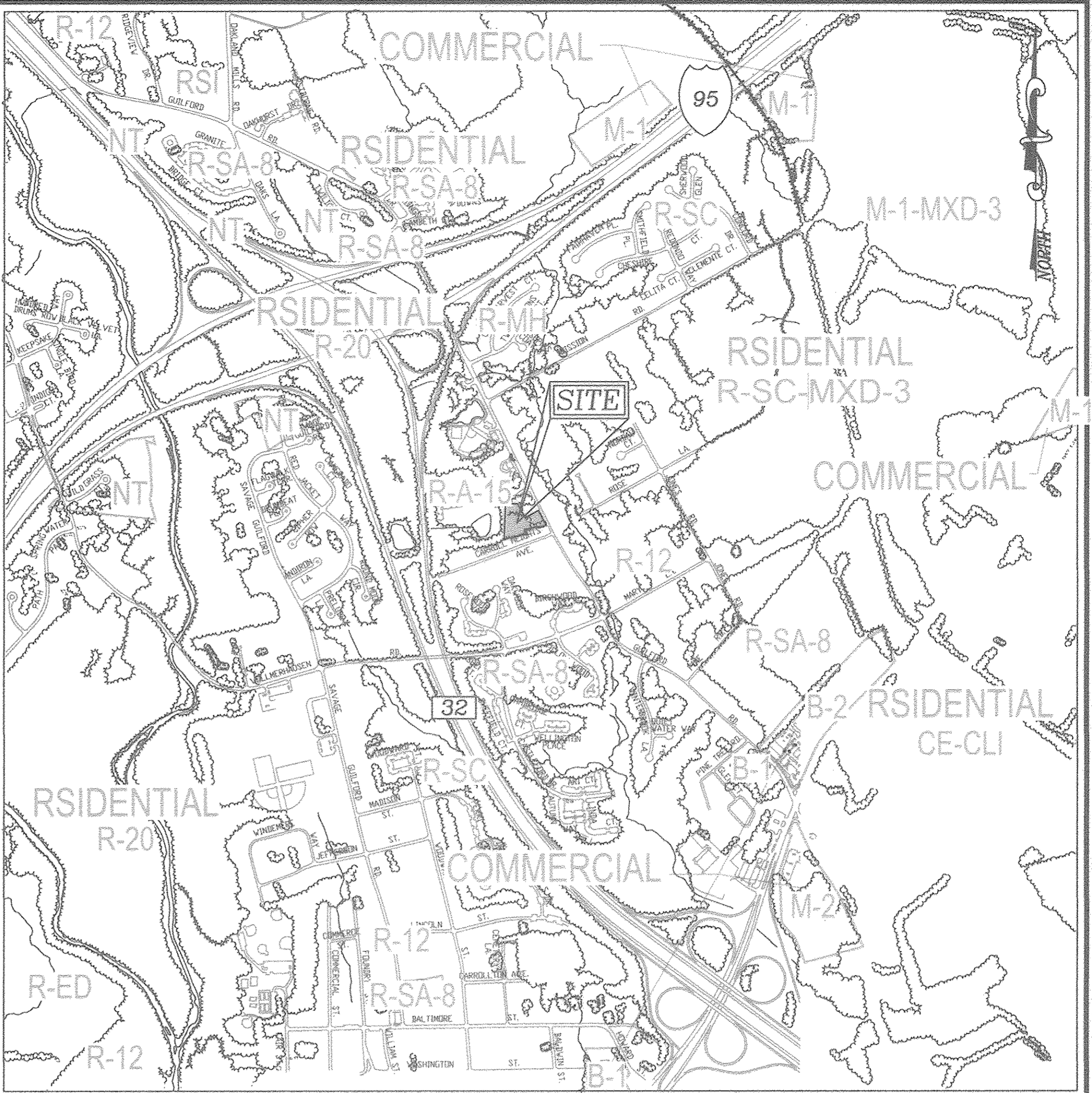
AREA #2 - 0.07 AC. (REFORESTATION) @ 200 TREES/AC. = 14 TREES

QTY.	BOTANICAL NAME	SIZE	SPACING
3	ACER RUBRUM	1" CAL.	15' x 15'
3	PLATANUS OCCIDENTALIS	1" CAL.	15' x 15'
3	NYSSA SYLVATICA	1" CAL.	15' x 15'
3	TAXODIUM DISTICHUM	1" CAL.	15' x 15'
2	BETULA NIGRA	1" CAL.	15' x 15'

REFORESTATION PLANT SCHEDULE

AREA #3 - 0.29 AC. (REFORESTATION) @ 200 TREES/AC. = 58 TREES

QTY.	BOTANICAL NAME	SIZE	SPACING
12	ACER RUBRUM	1" CAL.	15' x 15'
12	PLATANUS OCCIDENTALIS	1" CAL.	15' x 15'
12	NYSSA SYLVATICA	1" CAL.	15' x 15'
12	TAXODIUM DISTICHUM	1" CAL.	15' x 15'
10	BETULA NIGRA	1" CAL.	15' x 15'



VICINITY MAP
SCALE: 1"=1,000'
ADC MAP COORDINATE: 40, F-2

GENERAL NOTES

- WATERSHED NAME: LITTLE PATUXENT RIVER
WATERSHED NUMBER: 2131105
- A. GROSS SITE AREA: 2.33 AC.
 - B. NET SITE AREA: 1.45 AC.
 - C. AREA OF 100-YEAR FLOODPLAIN: 0.88 AC.
 - D. AREA OF WETLANDS AND BUFFERS: 0.00 AC.
 - E. AREA OF > 25% STEEP SLOPES: 0.00 AC.
 - F. EXISTING FOREST WITHIN NET AREA: 0.77 AC.
 - G. ZONED: R-12
 - H. EXISTING USE: RESIDENTIAL
 - I. PROPOSED USE: RESIDENTIAL

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED R-12
NET TRACT AREA:

A. TOTAL TRACT AREA (PROJECT TOTAL)	2.33 AC.
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.88 AC.
C. AREA TO REMAIN IN AG. PRODUCTION	0.00 AC.
D. NET TRACT AREA	1.45 AC.

LAND USE CATEGORY

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

E. AFFOREST THRESHOLD: 15% X 1.45 = 0.22 AC
F. CONSERVATION THRESHOLD: 20% X 1.45 = 0.29 AC

EXISTING FOREST COVER:

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	= 0.77 AC (FSD REPORT)
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	= 0.55 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	= 0.48 AC

BREAK EVEN POINT:

J. (2 X I) + F = BREAK EVEN POINT (0 AC)	= 0.39 AC
K. FOREST RETENTION WITH NO MITIGATION	= 0.38 AC

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED	= 0.83 AC
M. TOTAL AREA OF FOREST TO BE RETAINED	= 0.14 AC (CREDITED FCE) OUTSIDE FLOODPLAIN

PLANTING REQUIREMENTS:

N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X 25)	= 0.12 AC
O. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	= 0.30 AC
P. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F)	= 0.00 AC
R. TOTAL REFORESTATION REQUIRED (N+P-O)	= 0.42 AC
S. TOTAL AFFORESTATION REQUIRED	= 0.50 AC
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	= 0.42 AC

FOREST CONSERVATION PLAN

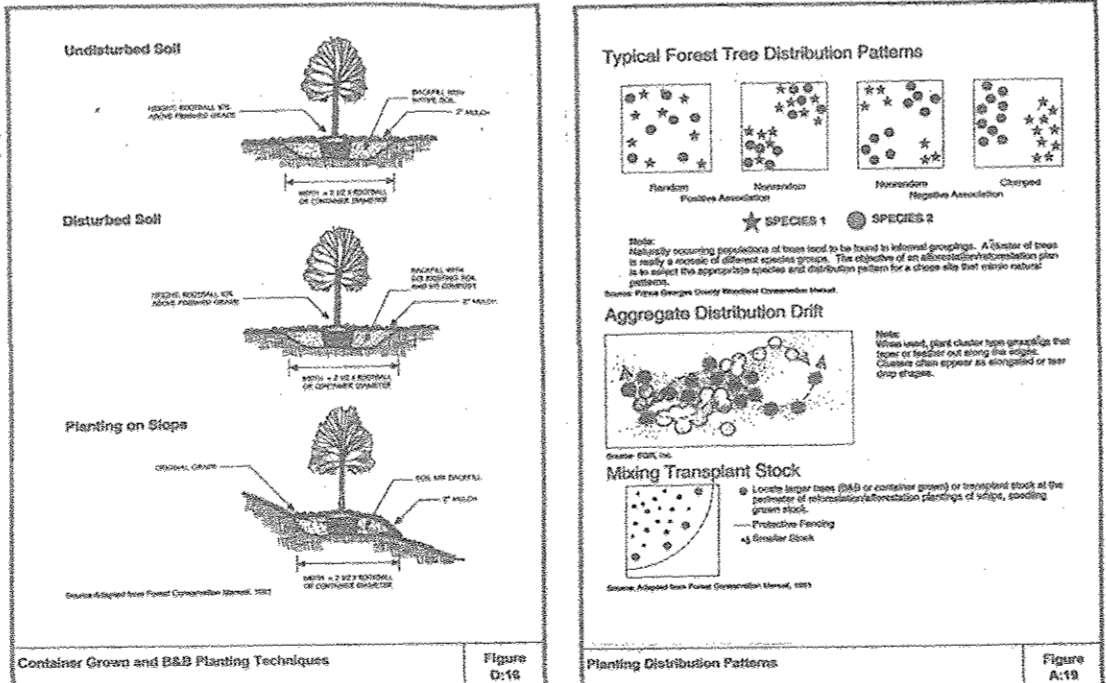
SCALE: 1"=50'

FOREST CONSERVATION:
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 AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

FOREST CONSERVATION OBLIGATIONS FOR THIS FINAL PLAN WILL BE MET BY:
1. ONSITE RETENTION = 0.82 ACRES - NO SURETY REQUIRED.
CREDITED = 0.68 ACRES
NON-CREDITED = 0.14 ACRES
2. ONSITE REFORESTATION = 0.36 ACRES
FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = \$ 7,810.
(0.36 AC OR 15,619 SF @ \$0.50/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.
3. FEE-IN-LIEU PAYMENT OF \$ 1,961 (0.06 AC OR 2,614 @ 0.75/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.

FOREST RETENTION AREAS AND NOTES

- NO WETLANDS ARE PRESENT ONSITE PER ECO-SCIENCE PROFESSIONALS, INC. 07/01/06 JOHN CANOLES, NOV. 13, 2014.
- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
- FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE.
- CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES, RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. 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.



REFORESTATION AREA MONITORING NOTES

- MONTHLY VISITS DURING THE FIRST GROWING SEASON ARE TO ASSESS THE SUCCESS OF THE PLANTINGS AND TO DETERMINE IF SUPPLEMENTAL WATERING, PEST CONTROL OR OTHER ACTIONS ARE NECESSARY. EARLY VISITS WILL DOCUMENT WINTER KILL AND AUTUMN VISITS WILL DOCUMENT SUMMER KILL.
- THE MINIMUM SURVIVAL RATE SHALL BE 75% OF THE TOTAL NUMBER OF TREES PLANTED PER ACRE AT THE END OF THE TWO YEAR MAINTENANCE PERIOD. WILD TREE SEEDLINGS FROM NATURAL REGENERATION ON THE PLANTING SITE MAY BE COUNTED UP TO 50% TOWARD THE TOTAL SURVIVAL NUMBER IF THE ARE HEALTHY NATIVE SPECIES AT LEAST 12 INCHES TALL.
- SURVIVAL WILL BE DETERMINED BY A STRATIFIED RANDOM SAMPLING OF THE PLANTINGS. THE SPECIFIC COMPOSITION OF THE SAMPLE POPULATION SHOULD BE PROPORTIONATE TO THE AMOUNT OF EACH SPECIES IN THE ENTIRE PLANTING. BE SAMPLED.
- EFFECTIVE MONITORING WILL ASSESS PLANT SURVIVABILITY DURING THE FIRST GROWING SEASON AND MAKE RECOMMENDATIONS FOR REINFORCEMENT PLANTINGS IF REQUIRED AT THAT TIME.

REFORESTATION PLANTING NOTES

- AFFORESTATION AREAS MAY BE PLANTED AS SOON AS REASONABLE TO DO SO. LATE WINTER/EARLY SPRING PLANTINGS ARE PREFERRED. EARLIEST PLANTING DATES WILL VARY FROM YEAR TO YEAR BUT PLANTING MAY GENERALLY BEGIN AS SOON AS THE GROUND IS NO LONGER FROZEN. ALTERNATE PLANTING DATES MAY BE CONSIDERED AS CONDITION WARRANTS.
- SOIL AMENDMENTS AND FERTILIZATION RECOMMENDATIONS WILL BE MADE BASED UPON THE RESULTS OF SOIL ANALYSIS FOR NITROGEN, PHOSPHORUS, POTASSIUM, ORGANIC MATTER CONTENT AND PH. IF REQUIRED, FERTILIZER WILL BE PROVIDED USING A SLOW RELEASE, SOLUBLE 16-8-16 ANALYSIS DESIGNED TO LAST 3-8 YEARS CONTAINED IN POLYETHYLENE PERFORATED BAGS SUCH AS MANUFACTURED BY ADCO WORKS, P.O. BOX 310 HOLLIS, N.Y. 14223 OR APPROVED LOCAL.
- PLANT MATERIALS WILL BE PLANTED IN ACCORDANCE WITH THE PLANTING DETAILS AND PLANT SCHEDULE.
- PLANT MATERIAL SHALL BE NURSERY GROWN AND INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO THE AMERICAN STANDARD FOR NURSERY STOCK SPECIFICATIONS FOR SIZE, FORM, VIGOR, OR ROOTS, OR DUE TO TRUNK WOUNDS, BREAKAGE, DESICCATION, INSECT OR DISEASE MUST BE REPLACED.
- PLANTING STOCK MUST BE PROTECTED FROM DESICCATION AT ALL TIMES PRIOR TO PLANTING. WATERING HELD FOR PLANTING SHALL BE MOISTENED AND PLACED IN COOL SHADED AREAS UNTIL READY FOR PLANTING.
- NEWLY PLANTED TREES MAY REQUIRE WATERING AT LEAST ONCE PER WEEK DURING THE FIRST GROWING SEASON DEPENDING ON RAINFALL IN ORDER TO GET ESTABLISHED. THE INITIAL PLANTING OPERATION SHOULD ALLOW FOR WATERING DURING INSTALLATION TO COMPLETELY SOAK BACKFILL MATERIAL.
- MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE DIAGRAM PROVIDED AND SHALL CONSIST OF COMPOSTED, SHREDED HARDWOOD BARK MULCH, FREE OF WOOD ALCOHOL.
- ALL NURSERY STOCK TO BE SPRAYED WITH DEER REPELLENT CONTAINING BITERIX, SUCH AS REPELLEX. ALL NURSERY STOCK TO BE GROWN WITH DEER REPELLENT TABLETS IN GROWING MEDIUM, SUCH AS REPELLEX TABLETS.

SEQUENCE OF CONSTRUCTION FOREST CONSERVATION

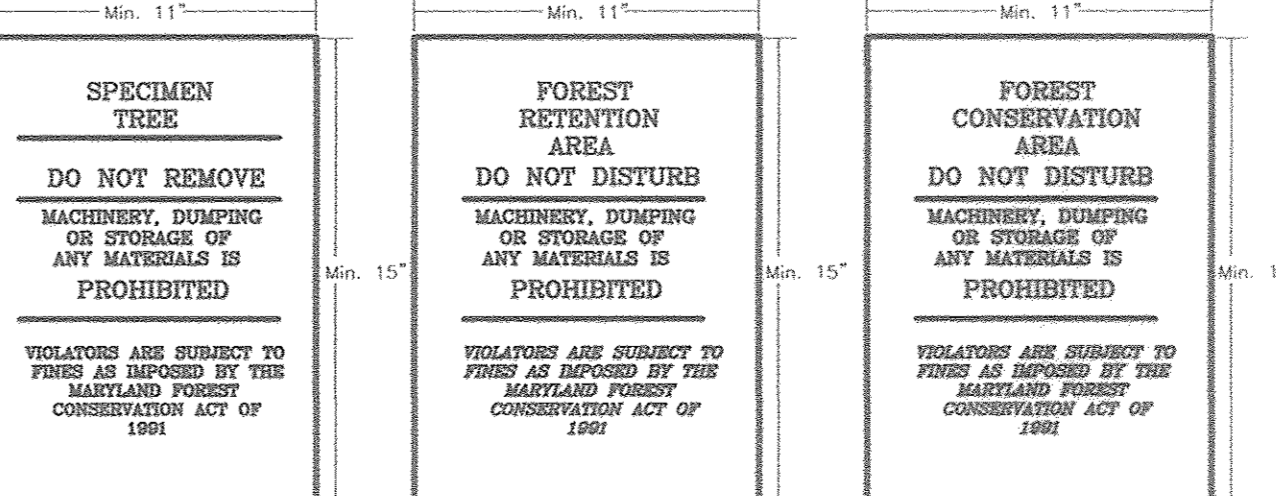
- PRECONSTRUCTION MEETING: SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
- STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
- INSTALL TREE PROTECTION FENCING: TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
- PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN TO BE REVIEWED AND APPROVED BY COUNTY PLANNING AND ZONING.
- TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

- PRE-CONSTRUCTION PHASE**
- FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
 - FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
 - A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNING SHALL BE AS REQUIRED, WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.
- CONSTRUCTION PHASE**
- NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
 - NO EQUIPMENT SHALL BE OPERATED, STAGED OR STORED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
 - IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.
- POST-CONSTRUCTION PHASE**
- AT THE DISCRETION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
 - FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
 - POST CONSTRUCTION MANAGEMENT PROGRAM (FOREST CONSERVATION MANUAL)
 - INSPECTION
 - NOTICE OF TWO YEAR GROWING SEASON MANAGEMENT PROGRAM
 - MANAGEMENT OF RETENTION AREAS
 - MANAGEMENT OF REFORESTATION AREAS (WATERING SCHEDULE, FERTILIZING, CONTROL OF INVASIVES AND PROTECTION FROM PESTS, DISEASES AND MECHANICAL INJURY)
 - REPLACEMENT OF DEAD MATERIAL
 - EDUCATION OF NEW RESIDENTS
 - DO NOT REMOVE SIGNS.

FOREST CONSERVATION AREA SIGNS

- NOTE:
- BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 - SIGNS TO BE PLACED APPROXIMATELY 50-100 FEET APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
 - ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
 - ALL FOREST CONSERVATION SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.
 - SIGN LOCATION SYMBOL = ●



Forest Stand Data

Key	Community Type	Acreage (NTA)	Dominant Vegetation	General Condition	Priority Acreage
F1	Successional	0.77	Liquidambar styraciflua, Prunus serotina, Acer negundo, Nyssa sylvatica	Fair	0.15 buffers

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 1-19-17
DATE: 1-30-17

NOTES:

- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR APPROPRIATE HABITATS WERE OBSERVED ON THE PROPERTY DURING FIELD REVIEW BY ECO-SCIENCE PROFESSIONALS, INC.
- SURROUNDING LAND USE IS HIGH DENSITY RESIDENTIAL DEVELOPMENT.
- LESS THAN 0.1 ACRE OF FOREST IS PRESENT WITHIN 100 FEET OF THE PROPERTY.
- THE STREAM ON THE SUBJECT PROPERTY IS PART OF THE PATUXENT RIVER WATERSHED (02-13011). THE STREAM DRAINS TO LITTLE PATUXENT RIVER, DOWNSTREAM OF ROUTE 1 AND IS CLASSIFIED AS USE I-P. A 50 FOOT INTERMITTENT STREAM BUFFER WILL BE REQUIRED.
- THERE ARE NO KNOWN HISTORIC STRUCTURES OR CEMETERIES ON THE PROPERTY.
- THE SITE CONTAINS 0.88 ACRES OF 100 YEAR FLOODPLAIN.
- THERE ARE SPECIMEN TREES ON THE PROPERTY. THERE ARE NO KNOWN TREES THAT ARE STATE CHAMPION TREES AND OR TREES 75% OF THE SIZE OF THE STATE CHAMPION TREE ON THE PROPERTY.

JOHN CANOLES
DNR QUALIFIED PROFESSIONAL

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 9906 Glen Arden, Maryland 21057 Telephone (410) 833-3489 Fax (410) 833-3488

MD DNR Qualified Professional
USACO# Wetland Delinquent
Certification # WDCP98MD0610044382
John J. Canoles

FINAL SUPPLEMENTAL PLAN FOREST CONSERVATION PLAN

COTTAGE GROVE
LOTS 1-4, OPEN SPACE LOT 5 AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42 BLOCK 24 6TH ELECTION DISTRICT
ZONED: R-12 PARCEL 101 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL, INC.
ENGINEERS • SURVEYORS • PLANNERS
5407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: EDS.
DRAWN BY: KG.
CHECKED BY: RHV.
DATE: OCTOBER 2016.
SCALE: AS SHOWN
W.O. NO.: 14-11

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. 15143 EXPIRATION DATE: 09-27-2018

7 SHEET OF 8

