

GENERAL NOTES

- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 MISS UTILITY: 1-800-257-7777
 VERIZON TELEPHONE COMPANY: 1-410-954-6281
 HOWARD COUNTY BUREAU OF UTILITIES: 410-313-2366
 AT&T CABLE LOCATION DIVISION: 1-800-393-3853
 B.G.&E. CO. CONTRACTOR SERVICES: 410-850-4620
 B.G.&E. CO. UNDERGROUND DAMAGE CONTROL: 410-787-4620
 STATE HIGHWAY ADMINISTRATION: 410-531-5533
- THIS SUPPLEMENTAL INFORMATION PLAN IS SUBJECT TO THE FOLLOWING DPZ FILES: ECP-13-024 (APPROVED 01/14/2013), CONT. #24-3108, WP-13-138, SP-13-009.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD ROUN TOPOGRAPHIC SURVEY WITH 2-FOOT CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JUNE 2012.
- THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON A FIELD ROUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT JUNE, 2012 BY ROBERT H. VOGEL ENGINEERING, INC.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 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.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO CEMETERIES OR GRAVE SITES LOCATED ON THE SUBJECT PROPERTY.
- STORM WATER MANAGEMENT FOR THIS PROJECT IS PROVIDED BY THE USE OF ALTERNATIVE SURFACES, NON-STRUCTURAL PRACTICES, AND MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. NON-STRUCTURAL PRACTICES INCLUDE ROOFTOP DISCONNECTION (N-1) AND NON-ROOFTOP DISCONNECTION (N-2). MICRO-SCALE PRACTICES INCLUDE RAIN GARDENS (M-7) AND GRASS SWALES (M-8). ALTERNATIVE SURFACES INCLUDE PERVIOUS CONCRETE (A-2). ON-LOT NON-STRUCTURAL AND MICRO-SCALE PRACTICES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER. ALTERNATIVE SURFACE, NON-STRUCTURAL AND MICRO-FACILITIES MANAGING RUNOFF FROM THE USE-IN-COMMON DRIVEWAY WILL BE MAINTAINED BY THE HOMEOWNERS IN ACCORDANCE WITH THE USE-IN-COMMON MAINTENANCE AGREEMENT.
- THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND/OR SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS THEREOF, EFFECTIVE 3-19-14, ON WHICH DATE DEVELOPER AGREEMENT #F-14-049 WAS FILED AND ACCEPTED.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION, OR BUILDING AND GRADING PERMITS.
- THE SUBJECT PROPERTY IS ZONED "R-20" IN ACCORDANCE WITH THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/06.
- THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
- THE PROPOSED SUBDIVISION AND RELATED CONSTRUCTION WILL HAVE MINIMAL IMPACT ON EXISTING ENVIRONMENTAL FEATURES AND BUFFERS.
- EXISTING UTILITIES ARE BASED ON ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 3513 AND 41CC WERE USED FOR THIS PROJECT.
- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THE PROPERTY.
- THERE IS NO 100-YR FLOODPLAIN WITHIN THE LIMITS OF THIS SITE.
- SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
- THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED SEPTEMBER 12, 2012 AND APPROVED ON JUNE 20, 2013. THERE ARE NO PROPOSED DISTURBANCES TO THE WETLANDS OR ASSOCIATED BUFFERS.
- FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED SEPTEMBER 12, 2012.
- A TOTAL OF 7 LOTS ARE PROPOSED UNDER THIS PLAN.
- NO CLEARING, GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF THE WETLANDS OR THEIR REQUIRED BUFFERS.
- WETLANDS AND THEIR BUFFERS WILL NOT BE IMPACTED BY THE CONSTRUCTION OF THE SITE.
- A NOISE WALL IS REQUIRED FOR THIS SITE AND WILL BE CONSTRUCTED IN ACCORDANCE WITH SHA PROJECT HO-317570 WHICH IS FUNDED FOR CONSTRUCTION.
- THERE ARE NO SPECIMEN TREES LOCATED ON THIS SITE.
- FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1202 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL SHALL BE PROVIDED BY THE PLACEMENT OF 2.76 AC. (2:1 RATIO) OF RETENTION INTO AN OFF-SITE FOREST CONSERVATION BANK IDENTIFIED AS DENSITY SOLUTIONS, APPROVED UNDER SDP-13-095FC, WHICH IS SUFFICIENT TO MEET THE 1.28 AC. OF REQUIRED REFORESTATION AND 0.10 AC. OF REQUIRED AFFORESTATION.
- UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6-02 FOR THE USE-IN-COMMON DRIVEWAY ENTRANCE AT SHAKER DRIVE.
- DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 a) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
 b) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING, (1-1/2" MIN).
 c) GEOMETRY - MAXIMUM 12% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45-FOOT TURNING RADIUS.
 d) STRUCTURE (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
 f) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
 g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- THERE IS AN EXISTING HOUSE TO REMAIN WHICH SHALL BE LOCATED ON LOT 3. THE EXISTING DRIVEWAY TO LOT 3 SHALL BE REMOVED PRIOR TO RECORDATION OF THE FINAL PLAT AND ACCESS TO LOT 3 SHALL BE FROM UIC SHARED DRIVEWAY FOR LOTS 1 TO 7. ANY NEW CONSTRUCTION TO THE EXISTING HOUSE SHALL CONFORM TO SETBACKS AS SHOWN ON THE FINAL PLAT FOR THIS SUBDIVISION.
- SHAKER DRIVE IS NOT A SCENIC ROAD.
- LOTS 1-7 WILL UTILIZE A USE-IN-COMMON DRIVEWAY. A USE-IN-COMMON MAINTENANCE AGREEMENT FOR THE SHARED DRIVEWAY SHALL BE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAN.
- LANDSCAPING FOR LOTS 1-7 IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$8,850.00 FOR THE REQUIRED 25 SHADE TREES AND 45 SHRUBS SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS PLAN.
- DEED REFERENCE: L. 8293/F. 433
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC., DATED JULY 12, 2012, AND WAS APPROVED ON JUNE 20, 2013.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- FLAG AND PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE FOR LOTS 1-7 ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT EACH DRIVEWAY ACCESS POINT ONTO SHAKER DRIVE AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- CERTIFIED TEST PITTS HAVE BEEN PROVIDED TO VERIFY THAT GROUNDWATER AND ROCK ARE NOT PRESENT AT RAIN GARDEN AND MICRO-BIORETENTION LOCATIONS.
- A DESIGN MANUAL WAIVER TO ALLOW SEVEN USERS ON A USE-IN-COMMON SHARED DRIVEWAY WAS APPROVED BY THE DEVELOPMENT ENGINEERING DIVISION ON MARCH 19, 2013.
- REFERENCE WP-13-138, DENIED ON MARCH 25, 2013, TO ALLOW FOREST CONSERVATION EASEMENTS ON LOTS LESS THAN 10 ACRES.
- B.G.&E. HAS REVIEWED AND APPROVED PROPOSED TRASH PAD SCREENING AND PERIMETER TREE PLANTINGS.
- A FEE-IN-LIEU OF OPEN SPACE FOR SIX LOTS SHALL BE PROVIDED UNDER THIS FINAL PLAN IN THE AMOUNT OF \$9,000.00.
- ALL EXISTING WELLS AND SEPTIC SYSTEM COMPONENTS MUST BE PROPERLY ABANDONED AND NOTIFICATION OF SUCH SENT TO THE HEALTH DEPARTMENT PRIOR TO HEALTH OFFICER SIGNATURE OF THE FINAL RECORD PLAT.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

SUPPLEMENTAL INFORMATION PLAN

STELLA GLEN

LOTS 1-7

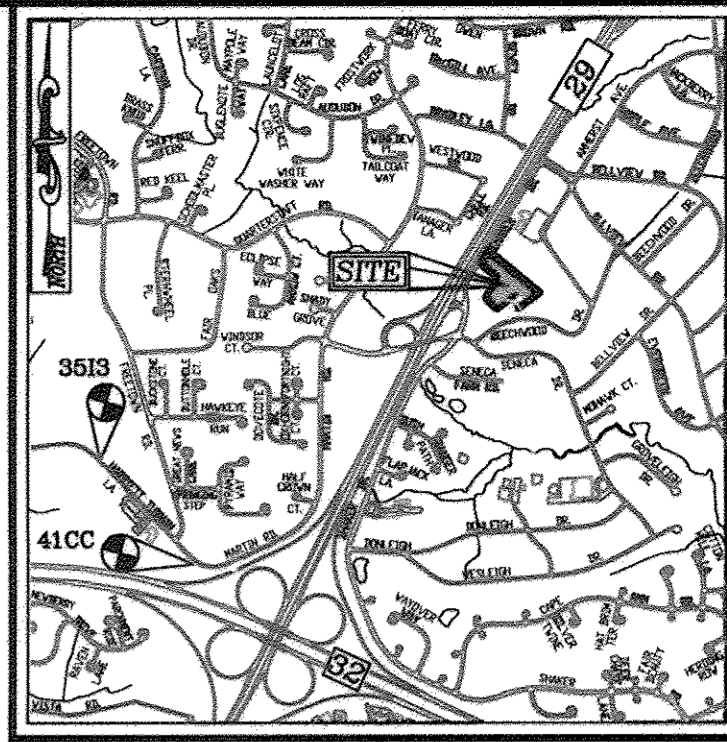
PARCELS 57, 58 & 417 (L. 8293 / F. 433)

10580 SHAKER DRIVE

COLUMBIA, MD 21046

COORDINATE TABLE

NO.	NORTH	EAST
104	555599.43	1350082.82
105	555727.21	1350132.98
106	555376.30	1350561.37
107	555383.56	1350571.44
108	555270.45	1350414.60
109	555131.86	1350230.26
110	555246.85	1350112.46
301	555444.84	1350374.55
302	555438.47	1350227.35
305	555143.65	1350461.46
308	555299.37	1350674.22
314	555342.71	1350163.84



LOT TABULATION

TOTAL NO. OF PROPOSED LOTS:	7
TOTAL NO. OF DWELLING UNITS:	7
NO. OF SINGLE FAMILY DETACHED:	7
NO. OF OPEN SPACE LOTS:	0

VICINITY MAP
SCALE: 1"=2,000'
ADC MAP COORDINATE: 4935, B-10

BENCHMARKS
HOWARD COUNTY BENCHMARK 3513 (CONC. MON.)
N 553573.69 E 1346098.09 ELEV. 415.34
HARRIET TUBMAN LA. BY ATHOLTON HS
HOWARD COUNTY BENCHMARK 41CC (CONC. MON.)
MARTIN RD. NEAR CORNER OF FREETOWN RD.
N 552494.26 E 1347062.39 ELEV. 399.95

LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING CURB AND GUTTER
	EXISTING EDGE OF PAVING
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	PROP. VARIABLE WIDTH PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-7
	PROP. 30' PUBLIC SEWER, WATER, & UTILITY EASEMENT
	PROP. 20' PRIVATE DRAINAGE & UTILITY EASEMENT
	EX. PUBLIC SEWER & UTILITY EASEMENT PLAT MDR 9987

SITE DATA
LOCATION: TAX MAP 36, BLOCK 19
PARCEL: 57, 58 & 417
10580 SHAKER DRIVE, COLUMBIA, MARYLAND
DEED REFERENCE: L. 8293 / F. 433
ETH ELECTION DISTRICT: 308
PRESENT ZONING: R-20
GROSS AREA OF PROJECT: 3.68 AC.
LIMIT OF DISTURBANCE: 2.49 AC.
PROPOSED USE OF SITE: RESIDENTIAL (SFD)
NUMBER OF RESIDENTIAL LOTS PROPOSED: 7 LOTS
AREA OF RESIDENTIAL LOTS PROPOSED: 3.68 AC.
AREA OF PROPOSED ROADS AND OPEN SPACE DEDICATION: 0.00 AC.
OPEN SPACE REQUIRED: 0.00 AC.
OPEN SPACE PROVIDED: 0.00 AC.
IMPERVIOUS AREA: 0.79 AC.
AREA OF STREAM/BUFFER: 0.00 AC.
AREA OF WETLANDS/BUFFER: 0.23 AC.
AREA OF STEEP SLOPES (25% OR GREATER): 0.01 AC.
AREA OF FLOOD PLAIN: 0.00 AC.
NET PROJECT AREA: 3.44 AC.
AREA OF EXISTING FOREST COVER: 0.64 AC.
AREA OF ERODIBLE SOILS: 1.13 AC.

OWNER
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ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
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SHEET INDEX

DESCRIPTION	SHEET NO.
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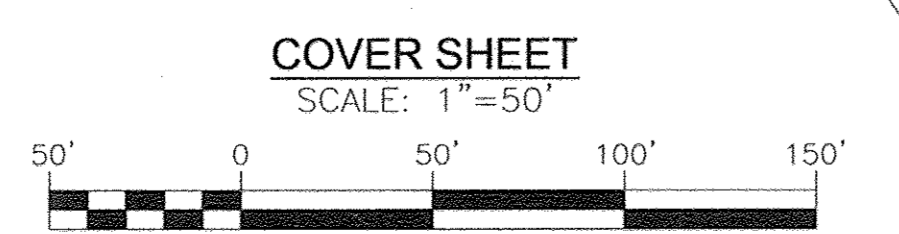
MINIMUM LOT SIZE CHART

LOT	GROSS AREA	PIPESTEM AREA	NET AREA	MIN. LOT SIZE
1	24,944 SF	NA	24,944 SF	20,000 SF
2	23,790 SF	765 SF	23,025 SF	20,000 SF
3	23,086 SF	1,484 SF	21,602 SF	20,000 SF
4	22,461 SF	2,446 SF	20,015 SF	20,000 SF
5	23,256 SF	1,809 SF	21,447 SF	20,000 SF
6	21,957 SF	1,439 SF	20,518 SF	20,000 SF
7	21,017 SF	898 SF	20,119 SF	20,000 SF

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 4.7.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 4-09-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



REVISE THE PLAN TO MODIFY THE PERIMETER LANDSCAPING 12/14/17

SUPPLEMENTAL INFORMATION PLAN
COVER SHEET
STELLA GLEN
LOTS 1-7
PARCELS 57, 58 & 417 (L. 8293 / F. 433)
TAX MAP: 36 GRID: 19
6TH ELECTION DISTRICT
DPZ REF'S: SEE GENERAL NOTE #4 ON COVER SHEET

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

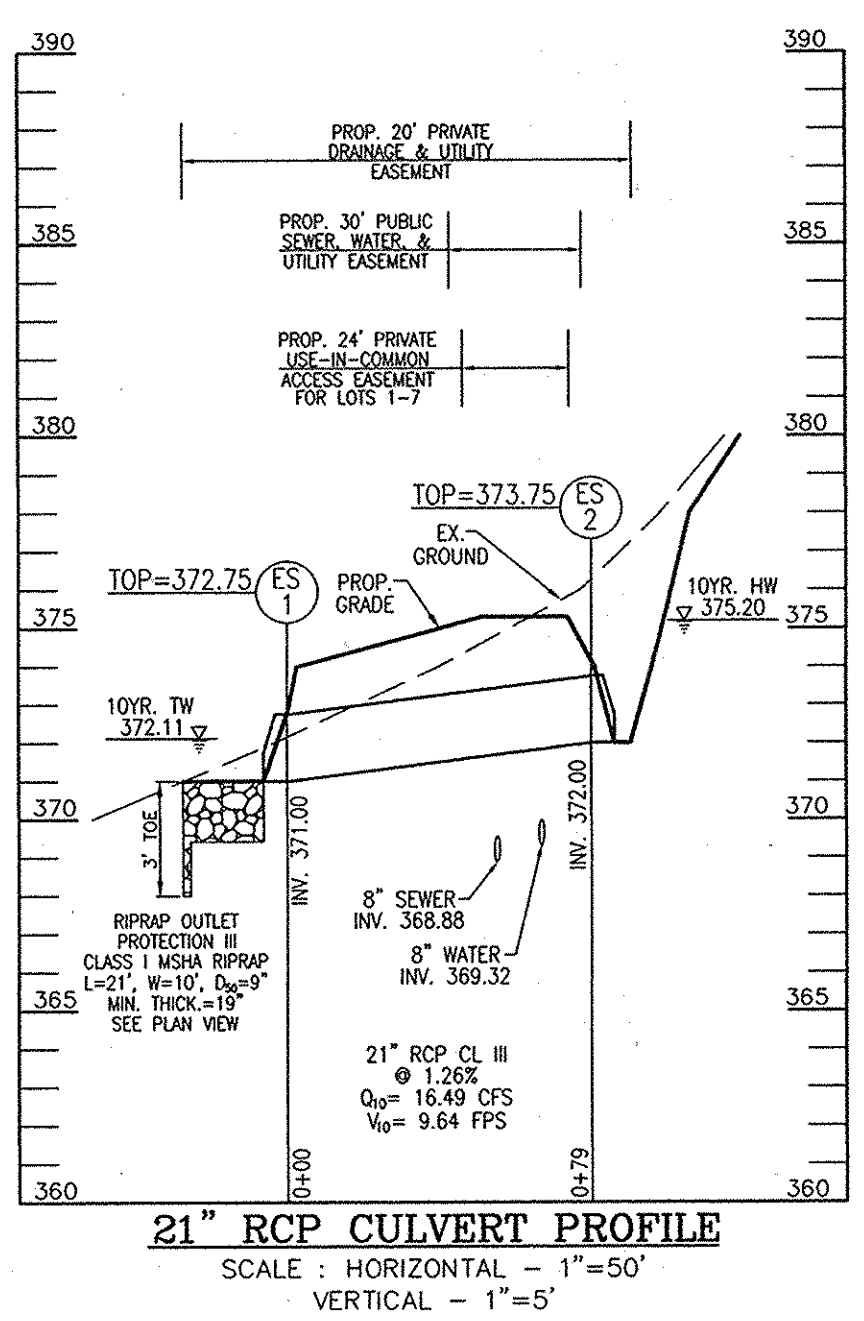
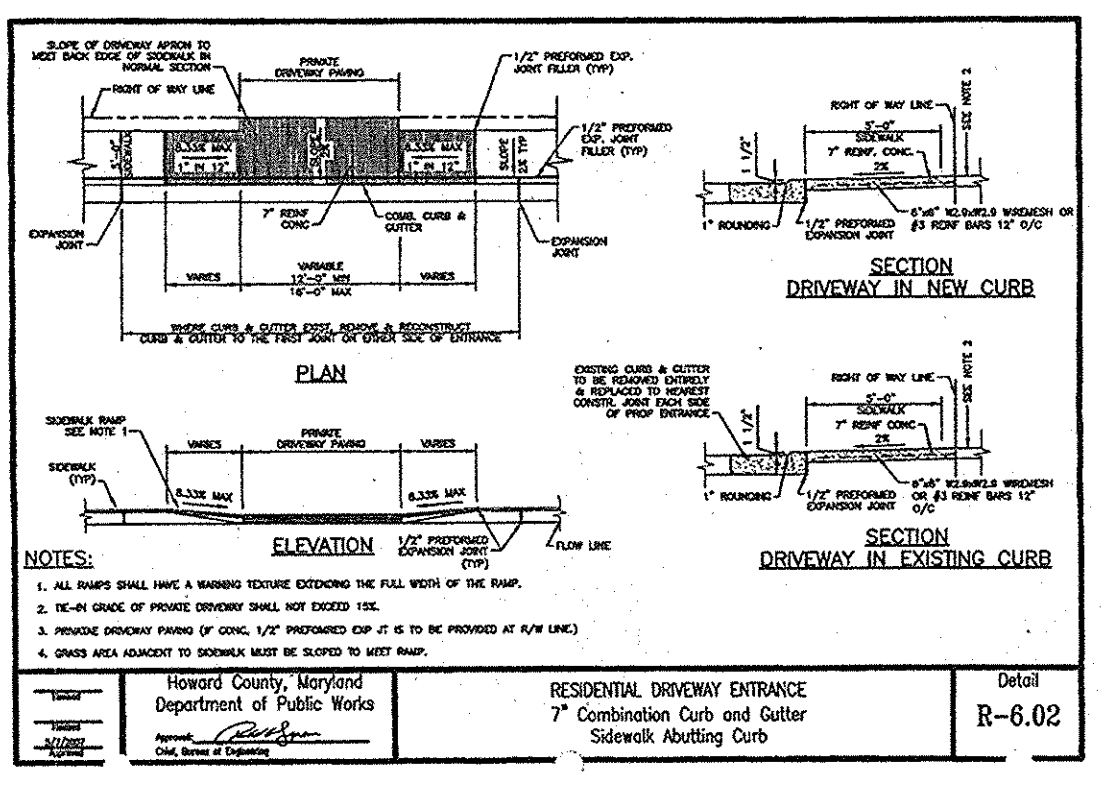
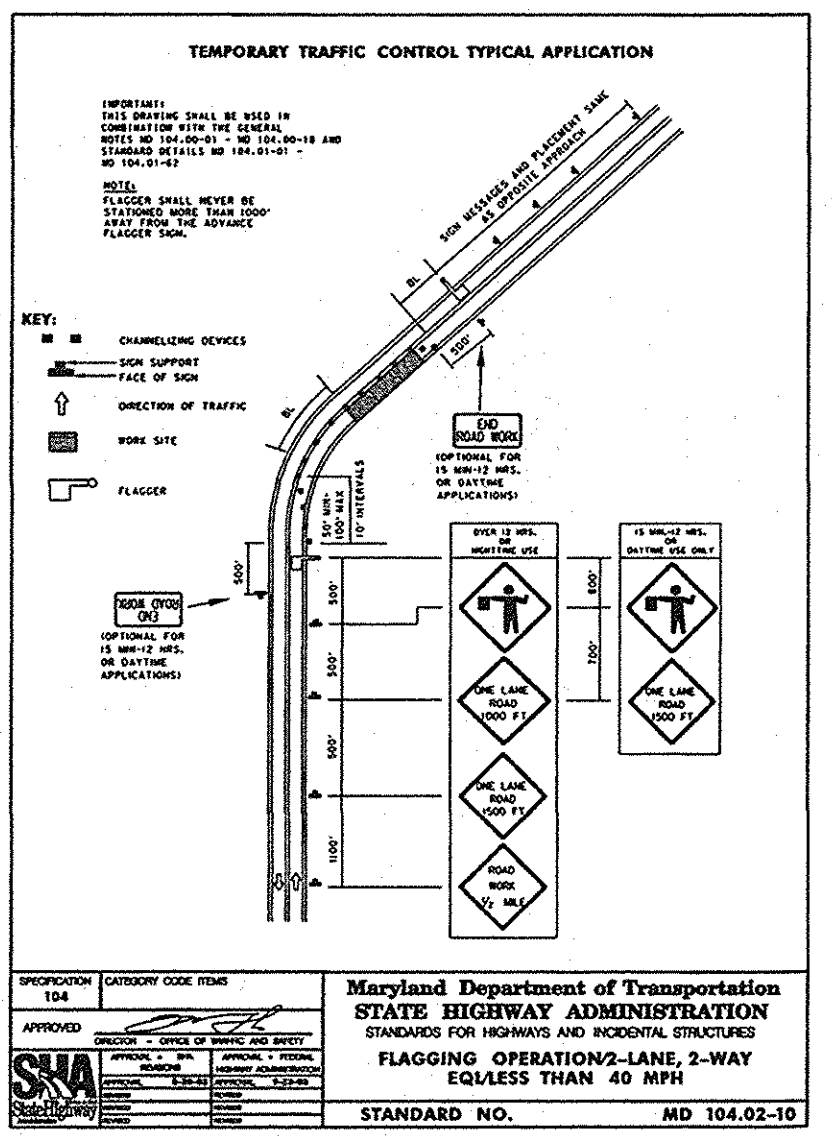
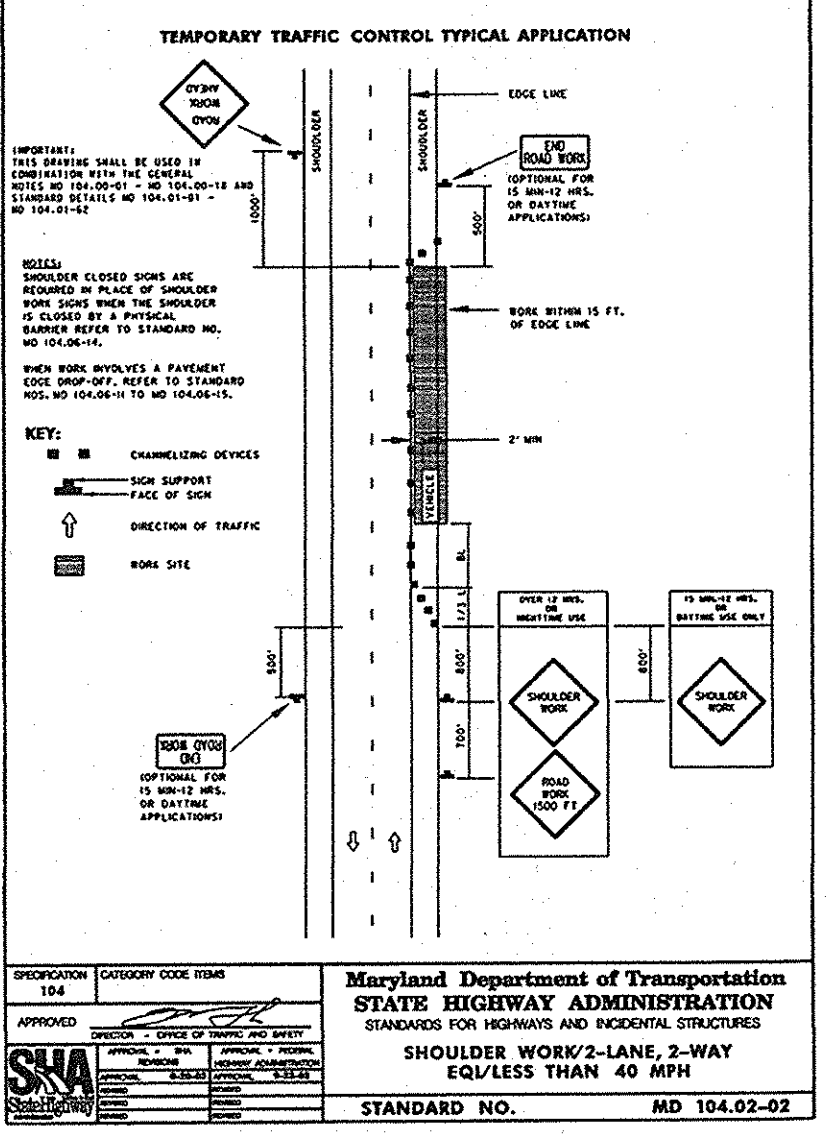
PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.D. NO.: 12-23

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. 18193, EXPIRATION DATE: 08-27-2016

1 SHEET OF 8

MINIMUM LOT SIZE CHART				
LOT	GROSS AREA	PIPESTEM AREA	NET AREA	MIN. LOT SIZE
1	24,944 SF	NA	24,944 SF	20,000 SF
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	PROP. 30' PUBLIC SEWER, WATER, & UTILITY EASEMENT
	PROP. 20' PRIVATE DRAINAGE & UTILITY EASEMENT
	EX. PUBLIC SEWER & UTILITY EASEMENT PLAT MDR 9987
	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 TREE LINE
	EXISTING TREES
	EXISTING FENCE
	PROPOSED STORM DRAIN
	PROPOSED SIDEWALK
	PROPOSED TREE LINE

END TREATMENT SCHEDULE					
NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT
ES-1	21" CONCRETE END SECTION (HO. CO. D-5.51)	N 555317.43 E 1350255.52	372.75	-	371.00
ES-2	21" CONCRETE END SECTION (HO. CO. D-5.51)	N 555373.65 E 1350310.40	373.75	372.00	-

PIPE SCHEDULE		
PIPE SIZE	TYPE	TOTAL LENGTH
21"	RCP CLASS III	79 LF
12"	12" CMP 14" GA. AL	26 LF

OWNER
MARY THERESE PFAU
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DEVELOPER
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SECTION NUMBER	ROAD AND STREET	COLUMBIA BRIDGE AUTO (CBS)	3' TO 4'	4' TO 5'	5' TO 6'	6' TO 7'	7' TO 8'	8' TO 9'	9' TO 10'	10' TO 11'	11' TO 12'
P-1	RESIDENTIAL DRIVEWAY	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P-2	RESIDENTIAL DRIVEWAY	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P-3	RESIDENTIAL DRIVEWAY	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P-4	RESIDENTIAL DRIVEWAY	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Chubb 4.7.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kurt Steinhilber 4-09-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

SUPPLEMENTAL INFORMATION PLAN
SITE LAYOUT PLAN
STELLA GLEN
LOTS 1-7
PARCELS 57, 58 & 417 (L. 8293 / F. 433)

TAX MAP: 36 GRID: 19
6TH ELECTION DISTRICT
DPZ REF'S: SEE GENERAL NOTE #4 ON COVER SHEET

10580 SHAKER DRIVE
COLUMBIA, MD 21046
PARCELS: 57, 58 & 417
HOWARD COUNTY, MARYLAND

ZONED: R-20

ROBERT H. VOGEL ENGINEERING, INC.
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ELlicott CITY, MD 21043
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FAX: 410.461.8966

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
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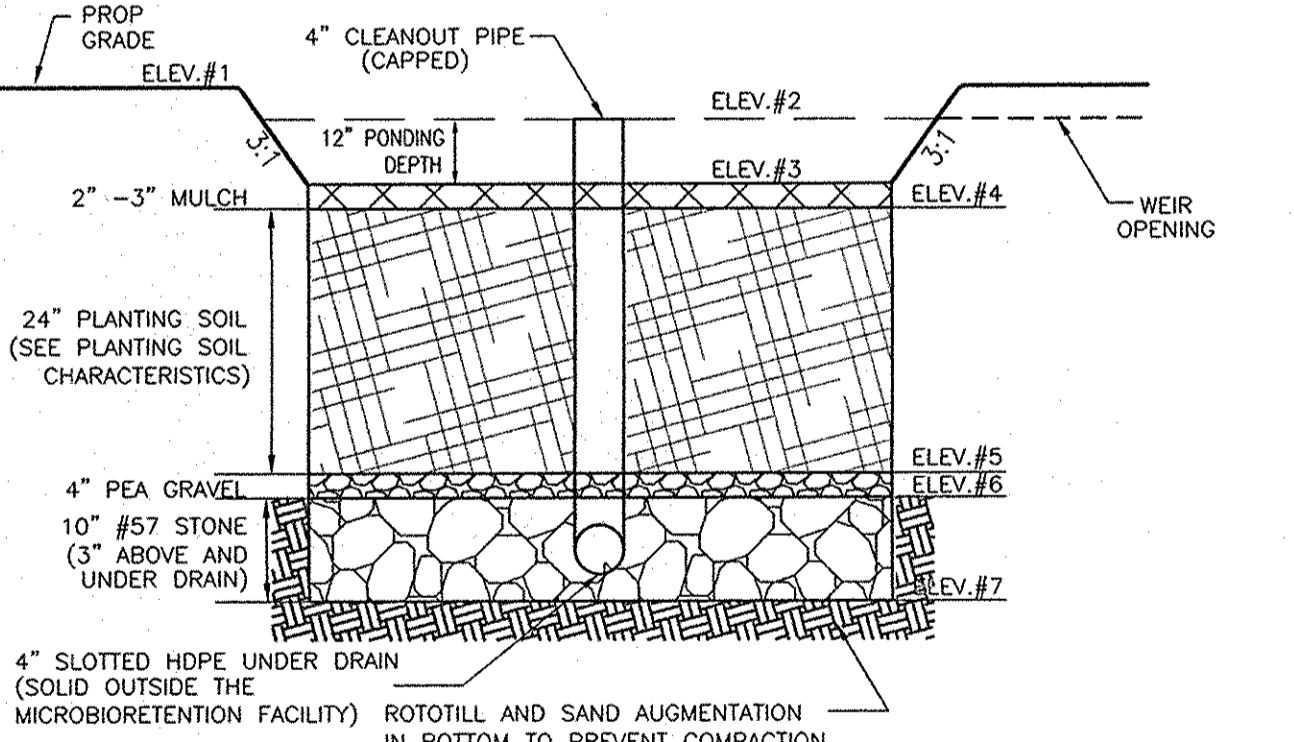
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APPENDIX B.A.C. SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

- 1. MATERIAL SPECIFICATIONS**
THE ALLOWED MATERIALS TO BE USED IN THESE PRACTICES ARE DETAIL IN TABLE B.A.1.
- 2. FILTERING MEDIA OR PLANTING SOIL**
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR BLENDED WITH THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A OBSTACLE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOxious WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.
THE PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:
* SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
* ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2970). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (40% TO 45%) OR SANDY LOAM (20%), COARSE SAND (20%), AND COMPOST (40%).
* CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
* PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G. LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL, IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
- 3. COMPACTION**
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIODETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION MACHS TO REMOVE ORIGINAL SOIL. IF PROCESSES ARE EQUIVOCAL USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR WASH TRUCK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRE TYRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LOGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE AVOIDED AT THE BASE OF THE BIODETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL FLOW RIPPER, OR SUBSIDER. THESE TILLING OPERATIONS ARE TO REFRACURE THE SOIL PROFILE THROUGH THE 12" HIGH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIODETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY POOLED WATER BEFORE PREPARING (ROTOTILLING) BASE.
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 2 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIODETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18" DO NOT USE HEAVY EQUIPMENT WITHIN THE BIODETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOIL AND SAND. CORE BIODETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH WASH TRACKS.
- 4. PLANT MATERIAL**
RECOMMENDED PLANT MATERIAL FOR MICRO-BIODETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
- 5. PLANT INSTALLATION**
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTABLE MULCH. MULCH WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIODETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDED MULCH MUST BE WEED FREE (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTING OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED 3 TO 4 INCHES OF THE BALL IS ABOVE THE PLANT GROWTH SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACKETED 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLOUS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIODETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, REDUCES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL USDA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
* PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIBBED PLASTIC PIPE (ASTM F 758, TYPE PS 28, OR ASHIO-U-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIBBED PIPE (E.G., PVC OF HDPE).
* PROTECTIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHALL BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER FOOT. PIPE SHALL BE WRAPPED WITH 1/4" (NO. 4 OR 4A) GALVANIZED HARDWARE CLOTH.
* GRAVEL - THE GRAVEL LAYER (NO. 57 STONE) SHOULD BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.2% SLOPE.
* FROM MAIN PERFORATION LAYER MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
* A 2" LAYER OF NON-CORROSIVE 1/2" TO 3/4" SLOTTED SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".
THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
- 7. MISCELLANEOUS**
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

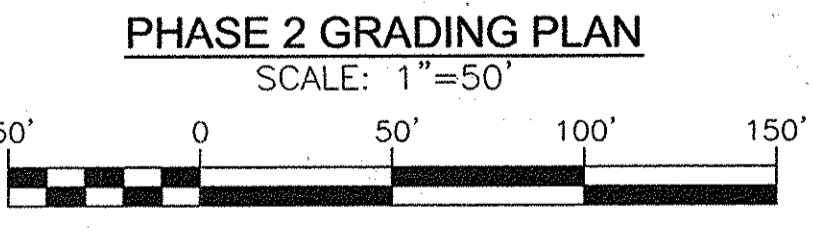
B.A.B. SPECIFICATIONS FOR PERMEABLE PAVEMENTS & REINFORCED TURF

- THESE SPECIFICATIONS INCLUDE INFORMATION ON ACCEPTABLE MATERIALS FOR TYPICAL APPLICATIONS AND ARE NOT EXCLUSIVE OR LIMITING. THE DESIGNER IS RESPONSIBLE FOR DEVELOPING SPECIFICATIONS FOR INDIVIDUAL PROJECTS AND SPECIFIC CONDITIONS.
- 1. PERVIOUS CONCRETE SPECIFICATIONS**
DESIGN THICKNESS - PERVIOUS CONCRETE APPLICATIONS SHALL BE DESIGNED SO THAT THE THICKNESS OF THE CONCRETE SLAB SHALL SUPPORT THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED. APPLICATIONS MAY BE DESIGNED USING EITHER STANDARD PAVEMENT PROCEDURES (E.G., ASHIO, AIA 325.99, AIA 330) OR USING STRUCTURAL VALUES DERIVED FROM FLEXIBLE PAVEMENT DESIGN PROCEDURES.
MIX & INSTALLATION - TRADITIONAL PORTLAND CEMENTS (ASTM C 150, C 150.1) MAY BE USED IN PERVIOUS CONCRETE APPLICATIONS. PHOSPHORIC ANHYDRIDES MAY ALSO BE USED. UNDERDRAINS SHOULD BE PROVIDED TO CONDUIT TO THE CURB OR TO THE CURB PROPERTIES (E.G., SETTING TIME, RATE OF STRENGTH DEVELOPMENT, POROSITY, PERMEABILITY) CAN BE DETERMINED.
AGGREGATE - PERVIOUS CONCRETE CONTAINS A LIMITED THE AGGREGATE CONTENT. COMMONLY USED AGGREGATES INCLUDE ASTM C 33 NO. 67 (3/4 IN. TO NO. 4), NO. 4 (3/4 IN. TO NO. 10) AND NO. 10 (3/4 IN. TO NO. 20) SERIES. SINGLE-SIZED AGGREGATE (UP TO 1 INCH) MAY ALSO BE USED.
WATER CONTENT - WATER-TO-CEMENT RATIOS BETWEEN 0.27 AND 0.30 ARE USED ROUTINELY WITH PROPER INCLUSION OF CHEMICAL ADJUTIVES. WATER QUALITY SHOULD MEET AIA 304.5. CEMENT RATE, PERVIOUS WATER SHOULD BE USED ALTHOUGH RECYCLED CONCRETE PRODUCTION WATER MEETING ASTM C 94 OR ASHIO 157 MAY ALSO BE USED.
ADJUTIVES - CHEMICAL ADJUTIVES (E.G., RETARDERS OR HYDRATION-STABILIZERS) ARE USED TO OBTAIN SPECIAL PROPERTIES IN PERVIOUS CONCRETE. USE OF ADJUTIVES SHOULD MEET AIA 404 (CHEMICAL ADJUTIVES) AND AIA 404.2 (EXTRINSIC ADJUTIVES) AND CLOSELY FOLLOW MANUFACTURER'S RECOMMENDATIONS.
BASE COURSE - THE BASE COURSE SHALL BE ASHIO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (H=0.30).
 - 2. PERVIOUS INTERLOCKING CONCRETE PAVEMENTS (RPP)**
PAGES BLOCKS - BLOCKS SHOULD BE EITHER 3" IN. OR 4" IN. THICK, AND MEET ASTM C 936 OR CSA A231.2 REQUIREMENTS. APPLICATIONS SHOULD HAVE 20% OR MORE (40% PREFERRED) OF THE SURFACE AREA OPEN. INSTALLATION SHOULD FOLLOW MANUFACTURER'S INSTRUCTIONS, EXCEPT THAT INFILL AND BASE COURSE MATERIALS AND DIMENSIONS SPECIFIED IN THIS APPENDIX SHALL BE FOLLOWED.
INFILL MATERIALS AND LEVELING COURSE - OPENINGS SHALL BE FILLED WITH ASTM C-33 GRADED SAND OR SANDY LOAM. PEEP BLOCKS SHALL BE PLACED ON A ONE-INCH THICK LEVELING COURSE OF ASHIO NO. 57.
BASE COURSE - THE BASE COURSE SHALL BE ASHIO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (H=0.30).
 - 3. REINFORCED TURF**
REINFORCED GRASS PAVEMENT (RGP) - WHETHER USED WITH GRASS OR GRAVEL, THE RGP THICKNESS SHALL BE AT LEAST 1-3/4" THICK WITH A LOAD CAPACITY CAPABLE OF SUPPORTING THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED.



NOTE: STOCKPILED WILL BE PERMITTED ON EACH LOT ONLY.

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	GROUP K-FACTOR
Gb	GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	B 0.20
GuB	GLENNVILLE-URBAN LAND-UDORTHERENTS COMPLEX, 0 TO 8 PERCENT SLOPES	C 0.37
LuF	UDORTHERENTS, HIGHWAY, 0 TO 65 PERCENT SLOPES	- -



- NOTES**
- THE SIDES OF THE MBR'S ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC SHALL NOT BE INSTALLED BETWEEN THE MBR LAYERS OR AT THE BOTTOM OF THE MICRO-BIORETENTION AS IT WILL CAUSE THE MBR TO FAIL.
 - THE PERFORATED UNDERDRAIN PIPE OF THE MBR SHOULD BE WRAPPED WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division DATE: 4.7.14

Chief, Division of Land Development DATE: 4.09.14

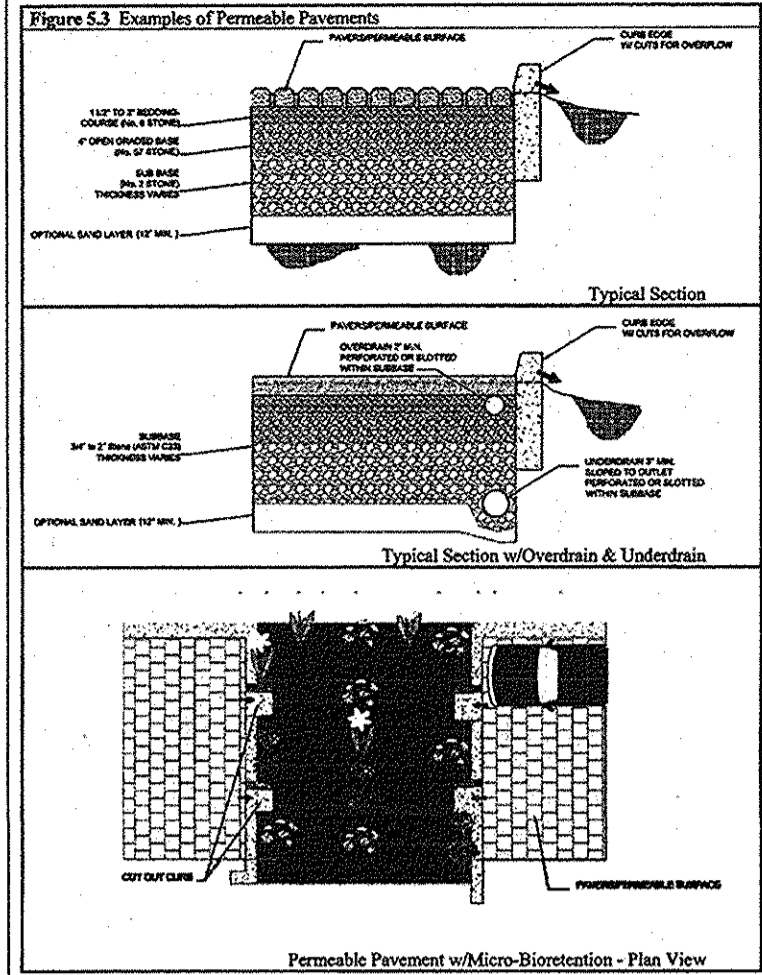
RAIN GARDEN (M-7) ELEVATIONS										
LOT #	RAIN GARDEN	1	2	3	4	5	6	7	4\"/>	
LOT 1	RG 8	384.50	384.10	383.10	382.85	380.85	380.52	379.69	379.94	379.45
	RG 7	380.50	380.10	379.10	378.85	376.85	376.52	375.69	375.94	375.45
LOT 2	RG 6	380.20	379.80	378.80	378.55	376.55	376.22	375.39	375.64	375.15
	RG 5	380.20	379.80	378.80	378.55	376.55	376.22	375.39	375.64	375.15
LOT 4	RG 1	389.50	389.10	388.10	387.85	385.85	385.52	384.69	384.94	384.45
	RG 2	384.90	384.50	383.50	383.25	381.25	380.92	380.09	380.34	380.14
LOT 5	RG 3	374.20	373.80	372.80	372.55	370.55	370.22	369.39	369.64	369.15
	RG 4	375.30	374.90	373.90	373.65	371.65	371.32	370.49	370.74	370.11

- OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIODETENTION SWALES (M-8), AND ENHANCED FILTERS (M-9)**
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL. FURNISH ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A-1 AND 2.
 - THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
 - THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
 - THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)**
- THE OWNER SHALL PERIODICALLY SWEEP (OR VACUUM POROUS CONCRETE PAVEMENT) THE PAVEMENT SURFACES TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
 - THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE.
 - THE OWNER SHALL USE DEICERS IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PREPARED SALT.
 - THE OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BRUSH SET ONE-INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOWMELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

Table B.A.1. Construction Specifications for Environmental Site Design Practices

Material	Specifications	Notes
Planting	See Appendix A, Table A.4	
Filtering and (2\"/>		



PERMEABLE PAVEMENT (A-2) DETAIL NOT TO SCALE

LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING CURB AND GUTTER
	EXISTING EDGE OF PAVING
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	PROP. VARIABLE WIDTH PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-7
	PROP. 30' PUBLIC SEWER, WATER, & UTILITY EASEMENT
	PROP. 20' PRIVATE DRAINAGE & UTILITY EASEMENT
	EX. PUBLIC SEWER & UTILITY EASEMENT FLAT MUD SPOT
	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 TREE LINE
	EXISTING TREES
	EXISTING FENCE
	PROPOSED SIDEWALK
	PROPOSED STORM DRAIN
	PROPOSED TREE LINE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	PROPOSED SPOT ELEVATION
	EXISTING STEEP SLOPES
	EXISTING MODERATE SLOPES
	PROPOSED SUPER SILT FENCE
	PROPOSED SILT FENCE
	PROPOSED CURB INLET PROTECTION
	PROPOSED LIMIT OF DISTURBANCE
	PROPOSED EROSION CONTROL MATTING
	PROPOSED STABILIZED CONSTRUCTION ENTRANCE
	PROPOSED TEST PIT
	PERVIOUS CONCRETE (A-2)
	ROOFTOP DISCONNECT
	PROPOSED RAIN GARDEN (M-7)
	PROPOSED GRASS SWALE (M-8)

OWNER
MARY THERESE PFUJ
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

SUPPLEMENTAL INFORMATION PLAN
SOILS MAP & PHASE 2 GRADING, EROSION, AND SEDIMENT CONTROL PLAN
STELLA GLEN
LOTS 1-7
PARCELS 57, 58 & 417 (L. 8293 / F. 433)
10580 SHAKER DRIVE
COLUMBIA, MD 21046
ZONED: R-20
TAX MAP: 36 GRID: 19
6TH ELECTION DISTRICT
DPZ REF'S: SEE GENERAL NOTE #4 ON COVER SHEET
PARCELS 57, 58 & 417
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET #21043 TEL: 410-461-7666
ELLCOTT CITY, MD 21043 FAX: 410-461-8961

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 12-23

PROFESSIONAL CERTIFICATE
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 09-27-2014

4 SHEET OF 8

A-2. PERMEABLE PAVEMENTS

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH PERMEABLE PAVEMENT:

- EROSION AND SEDIMENT CONTROL: FINAL GRADING FOR INSTALLATION SHOULD NOT TAKE PLACE UNTIL THE SURROUNDING SITE IS STABILIZED. IF THIS CANNOT BE ACCOMPLISHED, RUNOFF FROM DISTURBED AREAS SHALL BE DIVERTED AROUND PROPOSED PAVEMENT LOCATIONS.
- SOIL COMPACTION: SUB SOILS SHALL NOT BE COMPACTED. CONSTRUCTION SHOULD BE PERFORMED WITH LIGHTWEIGHT, WIDE TRACKED EQUIPMENT TO MINIMIZE COMPACTION. EXCAVATED MATERIALS SHOULD BE PLACED IN A CONTAINED AREA.
- DISTRIBUTION SYSTEMS: OVERDRAIN, UNDERDRAIN, AND DISTRIBUTION PIPES SHALL BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORMANCES MEET SPECIFICATIONS (SEE APPENDIX B.4). THE UPSTREAM ENDS OF PIPES SHOULD BE CAPPED PRIOR TO INSTALLATION. ALL UNDERDRAIN OR DISTRIBUTION PIPES USED SHOULD BE INSTALLED FLAT ALONG THE BED BOTTOM.
- SUBBASE INSTALLATION: SUBBASE AGGREGATE SHALL BE CLEAN AND FREE OF FINES. THE SUBBASE SHALL BE PLACED IN LIFTS AND LIGHTLY ROLLED ACCORDING TO THE SPECIFICATIONS (SEE APPENDIX B.4).

INSPECTION:

REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:

- DURING EXCAVATION TO SUB GRADE.
- DURING PLACEMENT AND BACKFILL OF ANY DRAINAGE OR DISTRIBUTION SYSTEM(S).
- DURING PLACEMENT OF THE CRUSHED STONE SUBBASE MATERIAL.
- DURING PLACEMENT OF THE SURFACE MATERIAL.
- UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

MAINTENANCE CRITERIA:

THE FOLLOWING PROCEDURES SHOULD BE CONSIDERED ESSENTIAL FOR MAINTAINING PERMEABLE PAVEMENT SYSTEMS:

- PAVEMENTS SHOULD BE USED ONLY WHERE REGULAR MAINTENANCE CAN BE PERFORMED. MAINTENANCE AGREEMENTS SHOULD CLEARLY SPECIFY HOW TO CONDUCT ROUTINE TASKS TO ENSURE LONG-TERM PERFORMANCE.
- PAVEMENT SURFACES SHOULD BE SWEEPED AND VACUUMED TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING SYSTEMS AND COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- DRAINAGE PIPES, INLETS, STONE EDGE DRAINS, AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE SHOULD BE CLEANED OUT AT REGULAR INTERVALS.
- TRUCKS AND OTHER HEAVY VEHICLES CAN GRIND DIRT AND GRIT INTO THE POROUS SURFACES, LEADING TO CLOSING AND PREMATURE FAILURE. THESE VEHICLES SHOULD BE PREVENTED FROM TRACKING AND SPILLING MATERIAL ONTO THE PAVEMENT.
- DEICERS SHOULD BE USED IN MODERATION. WHEN USED, DEICERS SHOULD BE NON-TOXIC AND ORGANIC AND CAN BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT. SNOW PLOWING SHOULD BE DONE CAREFULLY WITH BLADES SET ONE-INCH HIGHER THAN NORMAL. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

N-1. DISCONNECTION OF ROOFTOP RUNOFF

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING THE CONSTRUCTION OF PROJECTS WITH PLANNED ROOFTOP DISCONNECTIONS:

- EROSION AND SEDIMENT CONTROL: EROSION AND SEDIMENT CONTROL PRACTICES (E.G., SEDIMENT TRAPS) SHALL NOT BE LOCATED IN VEGETATED AREAS RECEIVING DISCONNECTED RUNOFF.
- SITE DISTURBANCE: CONSTRUCTION VEHICLES AND EQUIPMENT SHOULD AVOID AREAS RECEIVING DISCONNECTED RUNOFF TO MINIMIZE DISTURBANCE AND COMPACTION. SHOULD AREAS RECEIVING DISCONNECTED RUNOFF BECOME COMPACTED, SCARIFYING THE SURFACE OR ROTOTILLING THE SOIL TO A DEPTH OF FOUR TO SIX INCHES SHALL BE PERFORMED TO ENSURE PERMEABILITY. ADDITIONALLY, AMENDMENTS MAY BE NEEDED FOR TIGHT, CLAYEY SOILS.

INSPECTION:

A FINAL INSPECTION SHALL BE CONDUCTED BEFORE USE AND OCCUPANCY APPROVAL TO ENSURE THAT SIZING FOR TREATMENT AREAS HAVE BEEN MET AND PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

MAINTENANCE CRITERIA:

MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION (E.G., BY PLANTING TREES OR SHRUBS ALONG THE PERIMETER). IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

N-2. DISCONNECTION OF NON-ROOFTOP RUNOFF

CONSTRUCTION CRITERIA:

THE FOLLOWING SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH NON-ROOFTOP DISCONNECTIONS:

- EROSION AND SEDIMENT CONTROL: EROSION AND SEDIMENT CONTROL PRACTICES (E.G., SEDIMENT TRAPS) SHALL NOT BE LOCATED IN AREAS DESIGNATED FOR NON-ROOFTOP DISCONNECTIONS.
- SITE DISTURBANCE: TO MINIMIZE DISTURBANCE AND COMPACTION, CONSTRUCTION VEHICLES AND EQUIPMENT SHOULD AVOID AREAS RECEIVING DISCONNECTED RUNOFF. SHOULD AREAS RECEIVING DISCONNECTED RUNOFF BECOME COMPACTED, SCARIFYING THE SURFACE OR ROTOTILLING THE SOIL TO A DEPTH OF FOUR TO SIX INCHES SHALL BE PERFORMED TO ENSURE PERMEABILITY. ADDITIONALLY, AMENDMENTS MAY BE NEEDED FOR TIGHT, CLAYEY SOILS.

INSPECTION:

A FINAL INSPECTION SHALL BE CONDUCTED BEFORE USE AND OCCUPANCY APPROVAL TO ENSURE THAT ADEQUATE TREATMENT AREAS AND PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

MAINTENANCE CRITERIA:

MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION (E.G., BY PLANTING TREES OR SHRUBS ALONG THE PERIMETER). IN COMMERCIAL AREAS, HIGH FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

HOWARD COUNTY - OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

- A. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

ESDv PRACTICES BY DRAINAGE AREA

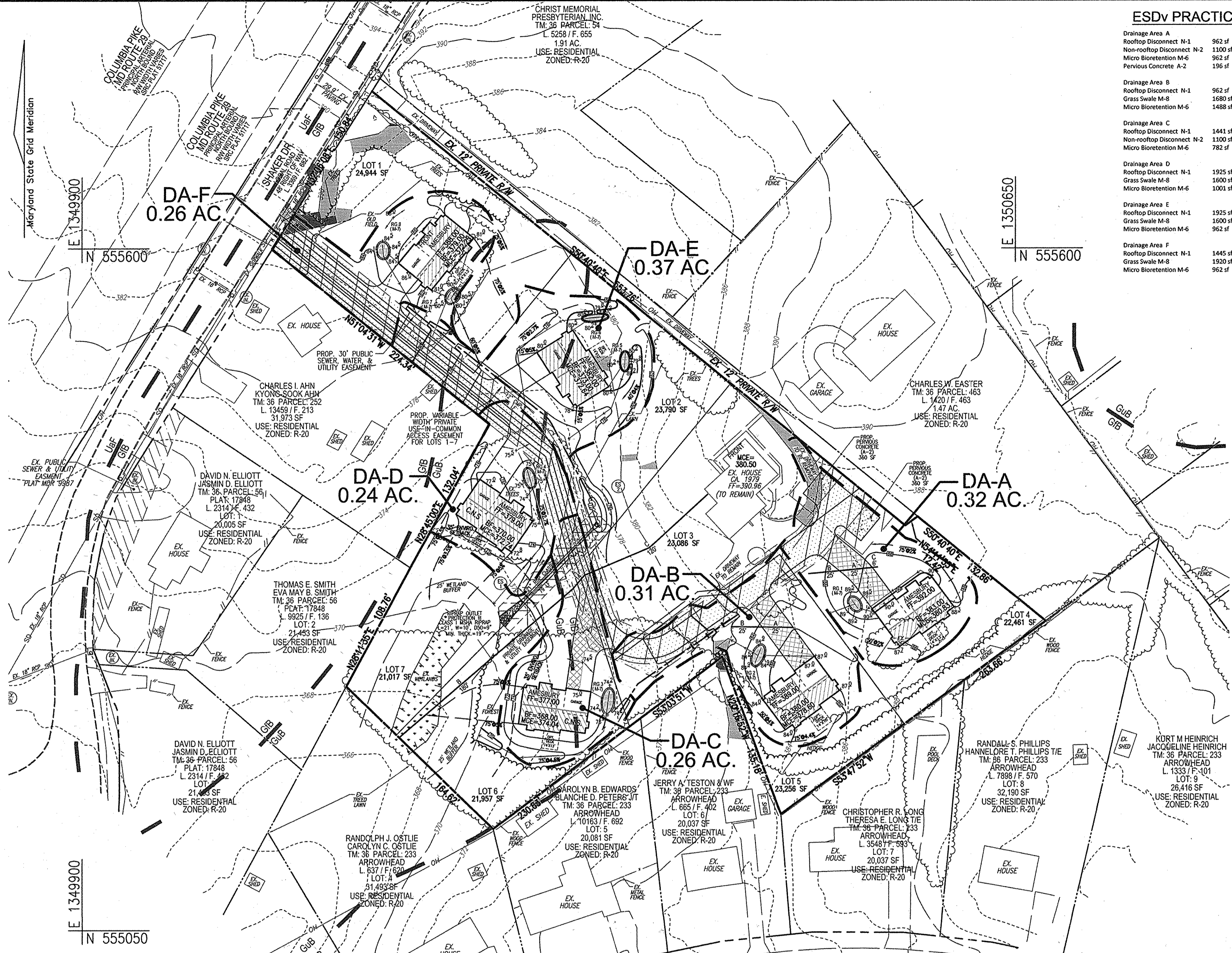
Drainage Area A	962 sf
Rooftop Disconnect N-1	1100 sf
Non-rooftop Disconnect N-2	962 sf
Micro Bioretention M-6	1680 sf
Pervious Concrete A-2	196 sf
Drainage Area B	962 sf
Rooftop Disconnect N-1	1680 sf
Grass Swale M-8	1488 sf
Micro Bioretention M-6	962 sf
Drainage Area C	1444 sf
Rooftop Disconnect N-1	1100 sf
Non-rooftop Disconnect N-2	1100 sf
Micro Bioretention M-6	782 sf
Drainage Area D	1925 sf
Rooftop Disconnect N-1	1600 sf
Grass Swale M-8	1600 sf
Micro Bioretention M-6	1001 sf
Drainage Area E	1925 sf
Rooftop Disconnect N-1	1600 sf
Grass Swale M-8	1600 sf
Micro Bioretention M-6	782 sf
Drainage Area F	1445 sf
Rooftop Disconnect N-1	1320 sf
Grass Swale M-8	1320 sf
Micro Bioretention M-6	962 sf

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- PROP. VARIABLE WIDTH PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-7
- PROP. 30' PUBLIC SEWER, WATER, & UTILITY EASEMENT
- PROP. 20' PRIVATE DRAINAGE & UTILITY EASEMENT
- EX. PUBLIC SEWER & UTILITY EASEMENT PLAT MOR 9987
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANDUIT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING FENCE
- PROPOSED STORMDRAIN
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING STEEP SLOPES
- EXISTING MODERATE SLOPES
- DRAINAGE AREA DIVIDE
- NON-ROOFTOP DISCONNECT (N-2)
- ROOFTOP DISCONNECT (N-1)
- PERVIOUS CONCRETE (A-2)
- ROOFTOP DISCONNECT (N-1)
- PROPOSED RAIN GARDEN (M-7)
- PROPOSED GRASS SWALE (M-8)

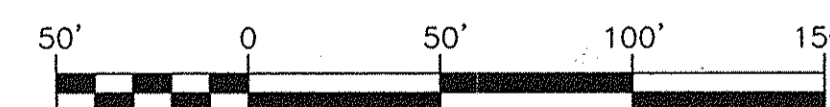
OWNER
 MARY THERESE PFAU
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY QUALITY HOMES, INC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023



DRAINAGE AREA MAP

SCALE: 1"=50'



SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR
GfB	GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES	B	0.20
GfB	GLENNVILLE-URBAN LAND-UDORTHERENTS COMPLEX, 0 TO 8 PERCENT SLOPES	C	0.37
UfF	UDORTHERENTS, HIGHWAY, 0 TO 65 PERCENT SLOPES	-	-

PROJECT STELLA GLEN										
DESIGNER RHV										
DATE 01/04/13										
ROBERT H. VOGEL ENGINEERING, INC.										
ENVIRONMENTAL SITE DESIGN PRACTICE										
DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	ROOFTOP DISCONNECT N-1	NONROOFTOP DISCONNECT N-2	GRASS SWALE-M-8	MICRO BIORETENTION M-6	PERVIOUS CONCRETE A-2	X	X	ESDv VOLUME
A	13454	1	64	73	0	79	282	0	0	498
B	13970	2	64	0	166	245	0	0	0	475
C	11000	3	120	92	0	140	0	0	0	352
D	10817	4	160	0	158	158	0	0	0	476
E	12210	5	79	0	158	190	0	0	0	427
F	11781	6	112	0	106	253	0	0	0	471
TOTAL AREA 73232 SF										
TOTAL ESDv PROVIDED 2699										

PROJECT: STELLA GLEN									
TOTAL AREA: 73.68 AC									
NET DEVELOPABLE AREA: 3.36 AC									
TARGET Pe: 1.20 IN									
DRAINAGE AREA	IMPERVIOUS AREA	GRASS AREA	TOTAL AREA	PERCENT IMPERVIOUS	RV	ESDv MIN	ESDv MAX	ESDv COMPUTED	
A	4789	8665	13454	0.36	0.37	415	1080	498	
B	4405	9565	13970	0.32	0.33	389	1010	466	
C	3326	7674	11000	0.30	0.32	295	768	354	
D	2700	8117	10817	0.25	0.27	248	644	297	
E	4125	8085	12210	0.34	0.35	360	937	432	
F	4545	7236	11781	0.39	0.40	390	1014	468	
TOTAL AREA 73232 SF									
TOTAL ESDv PROVIDED 2516 CF									

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Church 4.7.14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Robert H. Vogel 4.09.14
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

SUPPLEMENTAL INFORMATION PLAN

DRAINAGE AREA MAP AND SWM PLAN

STELLA GLEN
 LOTS 1-7
 PARCELS 57, 58 & 417 (L. 8293 / F. 433)

TAX MAP: 36 GRID: 19 10580 SHAKER DRIVE ZONED: R-20
 6TH ELECTION DISTRICT COLUMBIA, MD 21046 PARCELS: 57, 58 & 417
 DPZ REF'S: SEE GENERAL NOTE #4 ON COVER SHEET HOWARD COUNTY, MARYLAND

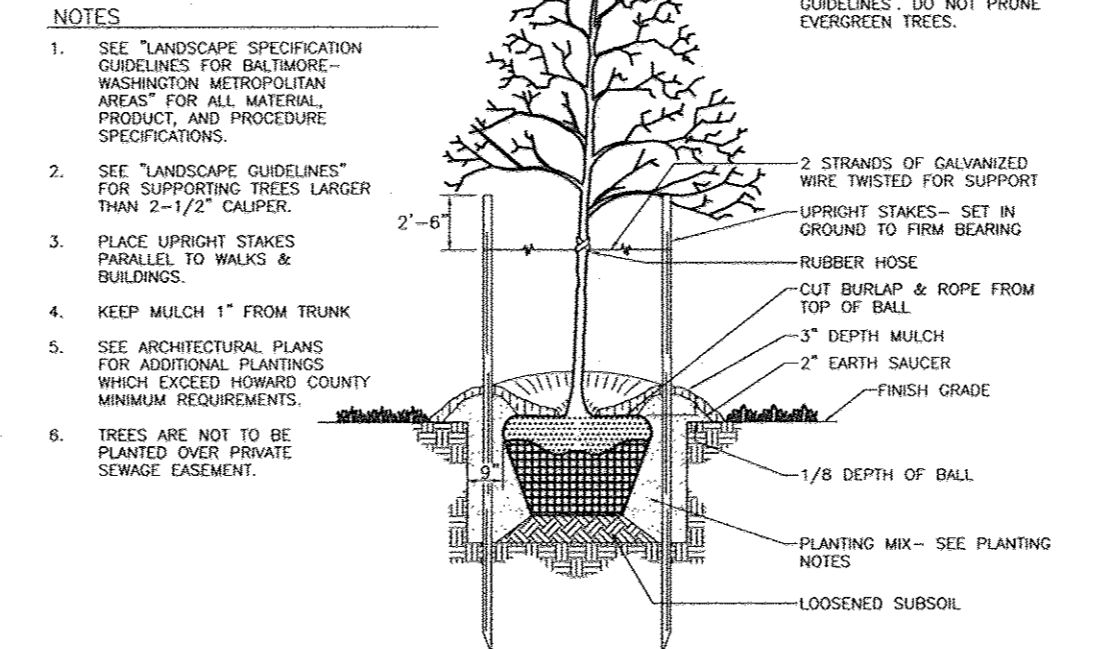
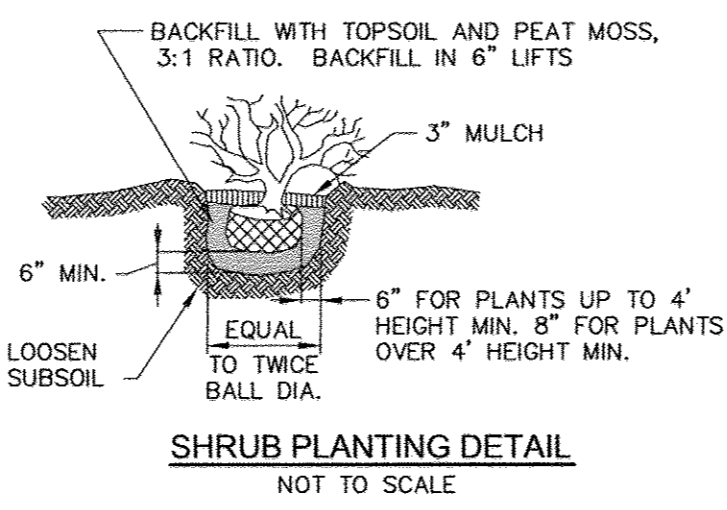
ROBERT H. VOGEL ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: MARCH 2014
 SCALE: AS SHOWN
 W.O. NO.: 12-23

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: 09-29-2014

PROFESSIONAL CERTIFICATE

6 SHEET OF 8



TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE

TRASH PAD LANDSCAPING

SYMBOL	QTY.	DESCRIPTION	SIZE	REMARKS
(Symbol)	5	DWARF JAPANESE YEW	3'-4" HT	B & B

LANDSCAPE NOTES

- 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.
- THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, 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.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, 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.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.

LANDSCAPE SCHEDULE NOTE:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HCD PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY 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.

B, G & E NOTES:

- THE LANDSCAPING ON WIREZONE (40' FROM BGE POLES) IS IN ACCORDANCE WITH BGE LIST OF TREES AND PLANTS.
- 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 ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OF A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. 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 CONSERVATION ENERGY'S NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLY WITHHOLD PERMISSION.

GENERAL NOTES:

- LANDSCAPING FOR LOTS 1-7 IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$8,850.00 FOR THE REQUIRED 25 SHADE TREES AND 45 SHRUBS WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS PLAN.
- THERE IS NO 100-YEAR FLOODPLAIN WITHIN THE LIMITS OF THIS PROJECT.
- WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION CONDUCTED BY ECO-SCIENCE PROFESSIONALS, INC., DATED SEPTEMBER 12, 2012, AND APPROVED JUNE 20, 2013. THERE ARE NO PROPOSED DISTURBANCES TO THE WETLANDS OR ASSOCIATED BUFFERS.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS AND THEIR REQUIRED BUFFERS.
- THE SUBJECT PROPERTY IS ZONED "R-20" IN ACCORDANCE WITH THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/05, AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNCIL BILL 75-2003.
- THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT JUNE, 2012 BY ROBERT H. VOGEL ENGINEERING, INC.
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN TOPOGRAPHIC SURVEY WITH 2-FOOT CONTOURS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JUNE 2012.
- THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO GRAVE SITES, OR CEMETERIES LOCATED ON THE SUBJECT PROPERTY.
- THE REMOVAL OF TREES 30" OR GREAT DHB IS PROHIBITED WITHOUT COUNTY WAIVER APPROVAL.
- B, G & E HAS REVIEWED AND APPROVED PROPOSED TRASH PAD SCREENING AND PERIMETER TREE PLANTING.

SCHEDULE A: PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES			INTERIOR PLANTINGS					TOTAL
	1	2	3	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	
PERIMETER FRONTAGE DESIGNATION	1	2	3	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	
LANDSCAPE TYPE	A	A	A	N/A	N/A	N/A	N/A	N/A	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	699'	794'	465'	N/A	N/A	N/A	N/A	N/A	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	YES	YES	YES	NO	NO	NO	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	YES 230'	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED (IF REMAINING)	542	281	185	2	2	2	2	2	26
SHADE TREES	160	9	160	2	2	2	2	2	
EVERGREEN TREES	-	-	-	-	-	-	-	-	
NUMBER OF PLANTS PROVIDED	16	10	17	2	2	2	2	2	9
SHADE TREES	16	10	17	2	2	2	2	2	43
EVERGREEN TREES	-	-	-	-	-	-	-	-	
OTHER TREES (2:1 SUBSTITUTION)	-	-	-	-	-	-	-	-	
SHRUBS (10:1 SUBSTITUTION)	-	-	-	-	-	-	-	-	
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	-	-	-	-	-	-	-	-	

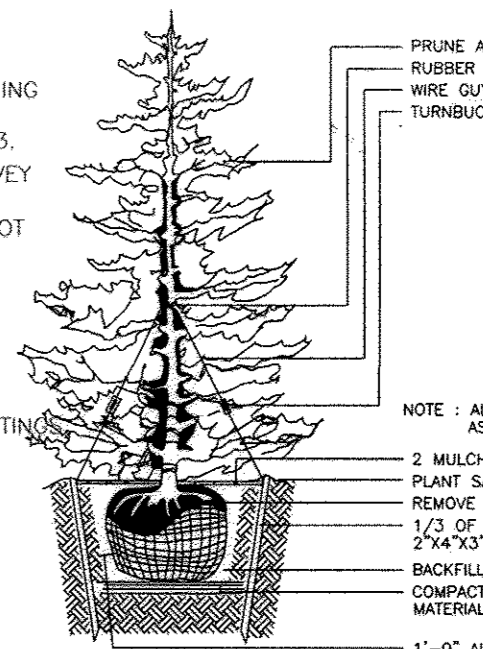
Forest Conservation Worksheet 2.2

Net Tract Area	A. Total Tract Area	A = 3.68
	B. Deductions	B = 0.00
	C. Net Tract Area	C = 3.68
Land Use Category	Input the number "1" under the appropriate land use zoning, and limit to only one entry	
	ARA 0 1 0 0 0 0	CIA 0
D. Afforestation Threshold (Net Tract Area x 20%)		D = 0.74
E. Conservation Threshold (Net Tract Area x 25%)		E = 0.92
Existing Forest Cover		
F. Existing Forest Cover within the Net Tract Area		F = 0.64
G. Area of Forest Above Conservation Threshold		G = 0.00
Break Even Point		
H. Break Even Point		H = N/A
I. Forest Clearing Permitted Without Mitigation		I = 0.00
Proposed Forest Clearing		
J. Total Area of Forest to be Cleared		J = 0.64
K. Total Area of Forest to be Retained		K = 0.00
Planting Requirements		
L. Reforestation for Clearing Above the Conservation Threshold		L = 0.00
M. Reforestation for Clearing Below the Conservation Threshold		M = 1.28
N. Credit for Retention above the Conservation Threshold		N = 0.00
P. Total Reforestation Required		P = 1.28
Q. Total Afforestation Required		Q = 0.10
R. Total Planting Requirement		R = 1.38

2.76 Acres to be addressed via purchase of off site forest retention bank

LEGEND:

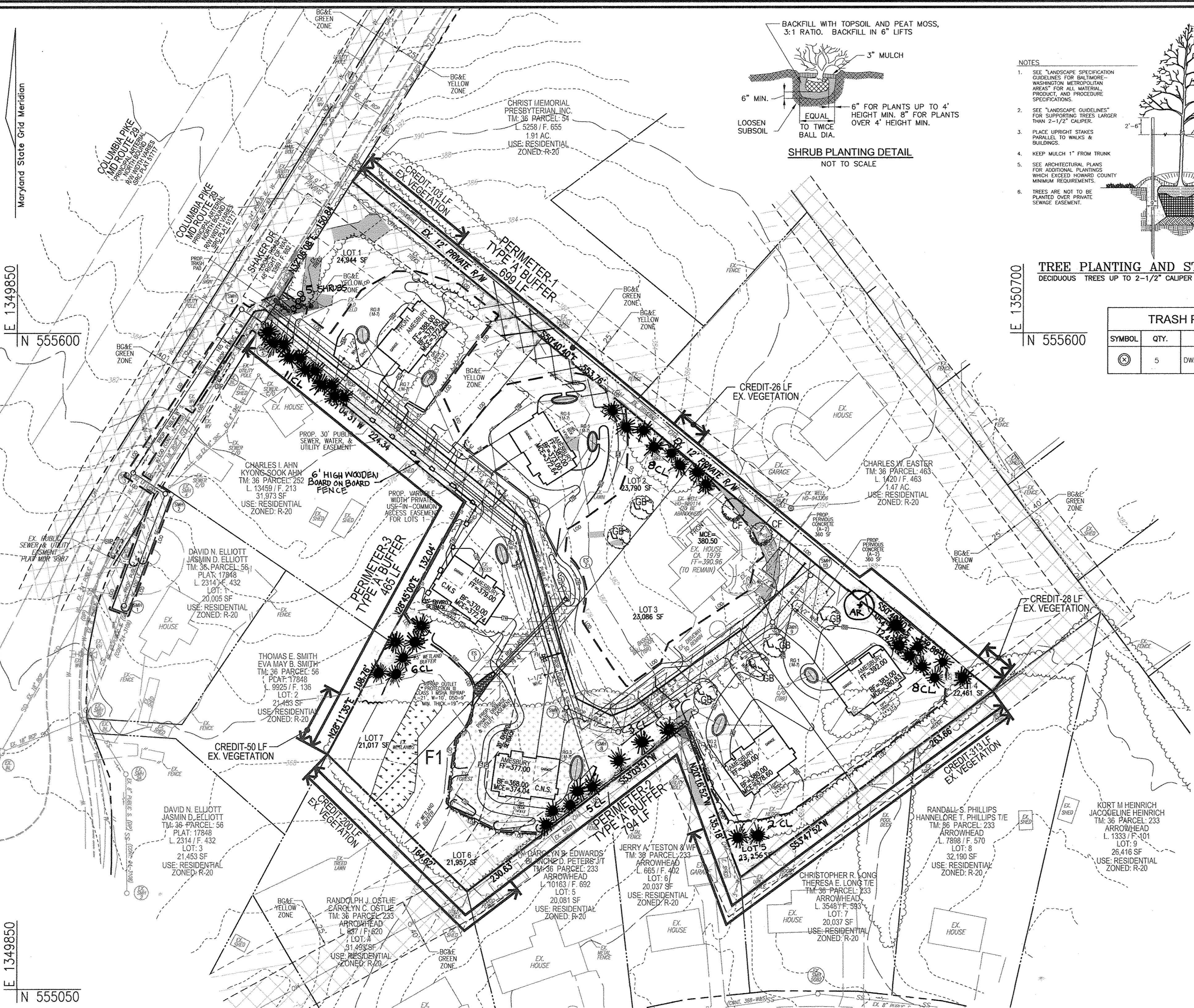
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING WETLAND BUFFER
- PROP. VARIABLE WIDTH PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-7
- PROP. 30' PUBLIC SEWER, WATER, & UTILITY EASEMENT
- PROP. 20' PRIVATE DRAINAGE & UTILITY EASEMENT
- EX. PUBLIC SEWER & UTILITY EASEMENT PLAT MDR 9987
- EXISTING UTILITY POLE
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- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING FENCE
- PROPOSED STORMDRAIN
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING STEEP SLOPES
- EXISTING MODERATE SLOPES
- EXISTING B, G & E GREEN ZONE
- EXISTING B, G & E YELLOW ZONE
- PROPOSED FOREST CLEARING 0.38 ACRES
- PROPOSED FOREST CONSERVATION SIGN



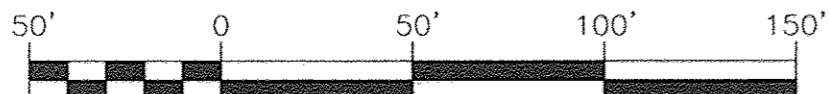
TYPICAL EVERGREEN TREE PLANTING DETAIL OWNER
NOT TO SCALE

MARY THERESA PFAU
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023



LANDSCAPE & FOREST CONSERVATION PLAN
SCALE: 1"=50'



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 Pflaum
SIGNATURE OF DEVELOPER
3/20/14
DATE

WETLAND DATA

WETLAND SYSTEM	COMADWIN CLASSIFICATION	DOMINANT VEGETATION	SIZE
A	PFO/EM1A	ACER RUBRUM, IMPATIENS CAPENSIS, JUNCUS EFFUSUS, CAREX FLORIDA, GLYCYERRA STRIATA, ONOCLEA SENSIBILIS	0.2 ACRES

- FSD NOTES:**
- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR APPROPRIATE HABITAT WERE OBSERVED ON THE PROPERTY.
 - SURROUNDING LAND USE IS MEDIUM-HIGH DENSITY RESIDENTIAL DEVELOPMENT.
 - ALL FOREST ON THE SITE IS WITHIN STAND F-1.
 - NO SPECIMEN TREES ARE PRESENT ON THE SUBJECT PROPERTY.

FOREST STAND DATA

KEY	COMMUNITY TYPE	ACREAGE	DOMINANT VEGETATION	GENERAL CONDITION	PRIORITY ACREAGE
F1	SUCCESSIONAL	0.6 NTA	ACER RUBRUM, ACER SACCHARINUM, ACER NEGUNDO, PRUNUS SEROTINA, JUGLANS NIGRA	GOOD	0.6 WETLANDS AND BUFFERS

FOREST CONSERVATION:
FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1202 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL SHALL BE PROVIDED BY THE PLACEMENT OF 2.76 AC. (2:1 RATIO) OF RETENTION INTO AN OFF-SITE FOREST CONSERVATION BANK IDENTIFIED AS DENSITY SOLUTIONS, APPROVED UNDER SDP-13-059FC, WHICH IS SUFFICIENT TO MEET THE 1.28 AC. OF REQUIRED REFORESTATION AND 0.10 AC. OF REQUIRED AFFORESTATION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Phil Church
CHIEF, DEVELOPMENT ENGINEERING DIVISION
4.7.14
DATE

Rest Stehoback
CHIEF, DIVISION OF LAND DEVELOPMENT
4-09-14
DATE

John Canoles
DNR QUALIFIED FOREST PROFESSIONAL
3/26/14
DATE

REVISE THE PLAN TO MODIFY THE PERIMETER LANDSCAPING 12/19/17

SUPPLEMENTAL INFORMATION PLAN

LANDSCAPE AND FOREST CONSERVATION PLAN

STELLA GLEN
LOTS 1-7
PARCELS 57, 58 & 417 (L. 8293 / F. 433)

TAX MAP: 36 GRID: 19
6TH ELECTION DISTRICT
DPZ REF'S: SEE GENERAL NOTE #4 ON COVER SHEET

10580 SHAKER DRIVE
COLUMBIA, MD 21046
ZONED: R-20
PARCELS: 57, 58 & 417
HOWARD COUNTY, MARYLAND

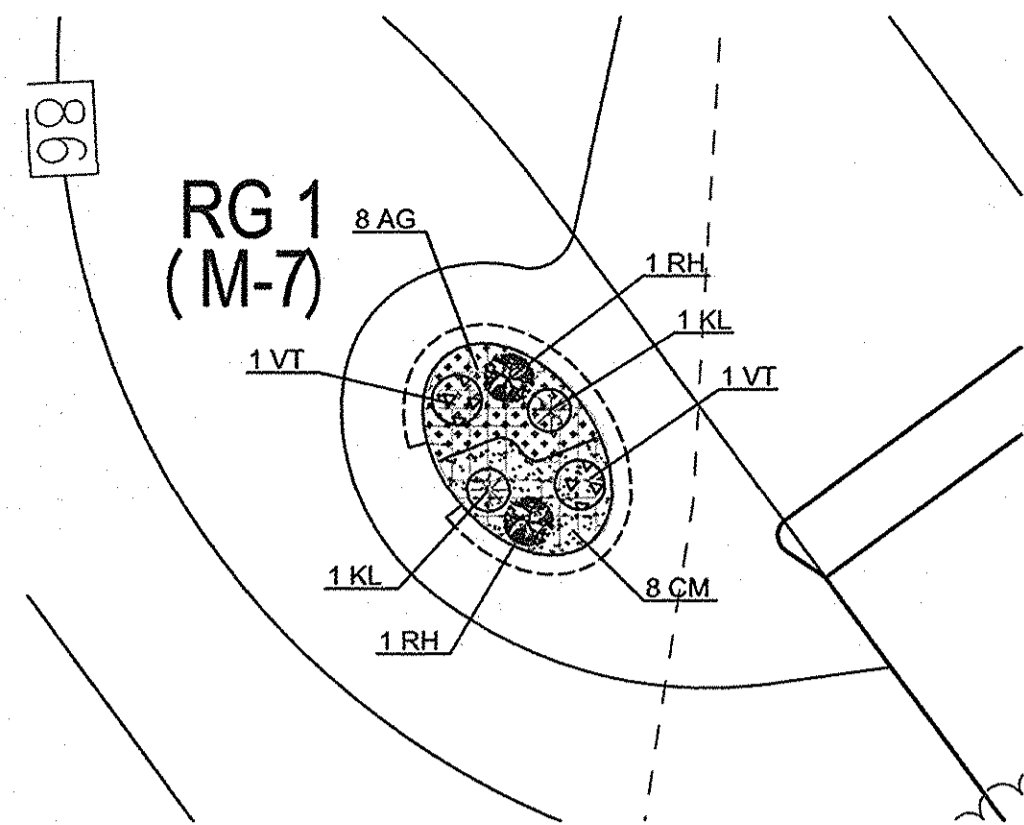
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET #1043
ELLICOTT CITY, MD 21043
TEL: 410-461-7666
FAX: 410-461-8961

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 12-23

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: 09-27-2014.

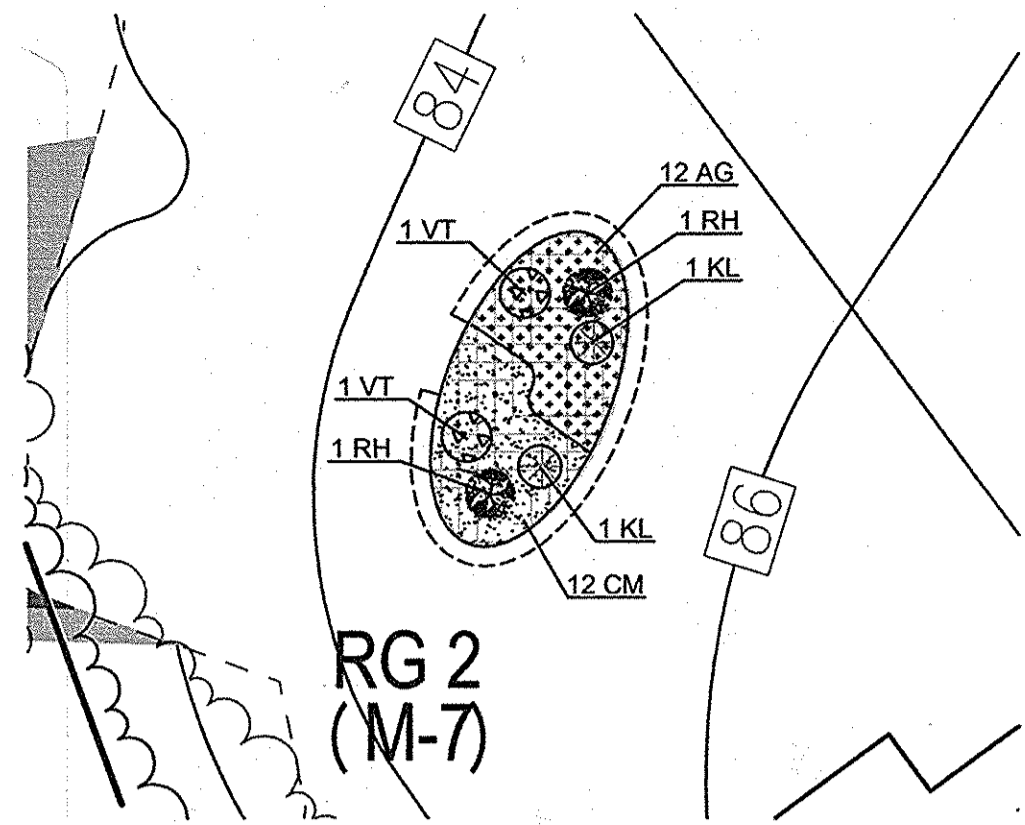
7 SHEET OF 8



RAIN GARDEN #1 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
8	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
8	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

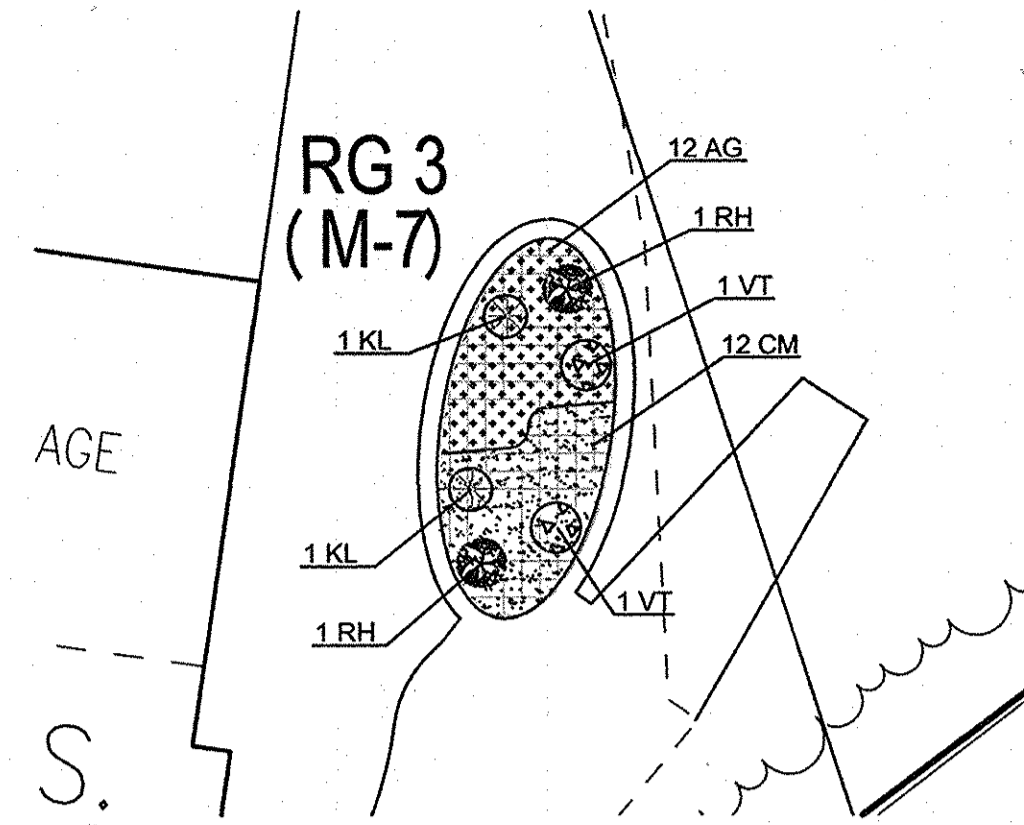
79 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS REQUIRED
2 PROVIDED



RAIN GARDEN #2 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
12	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
12	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

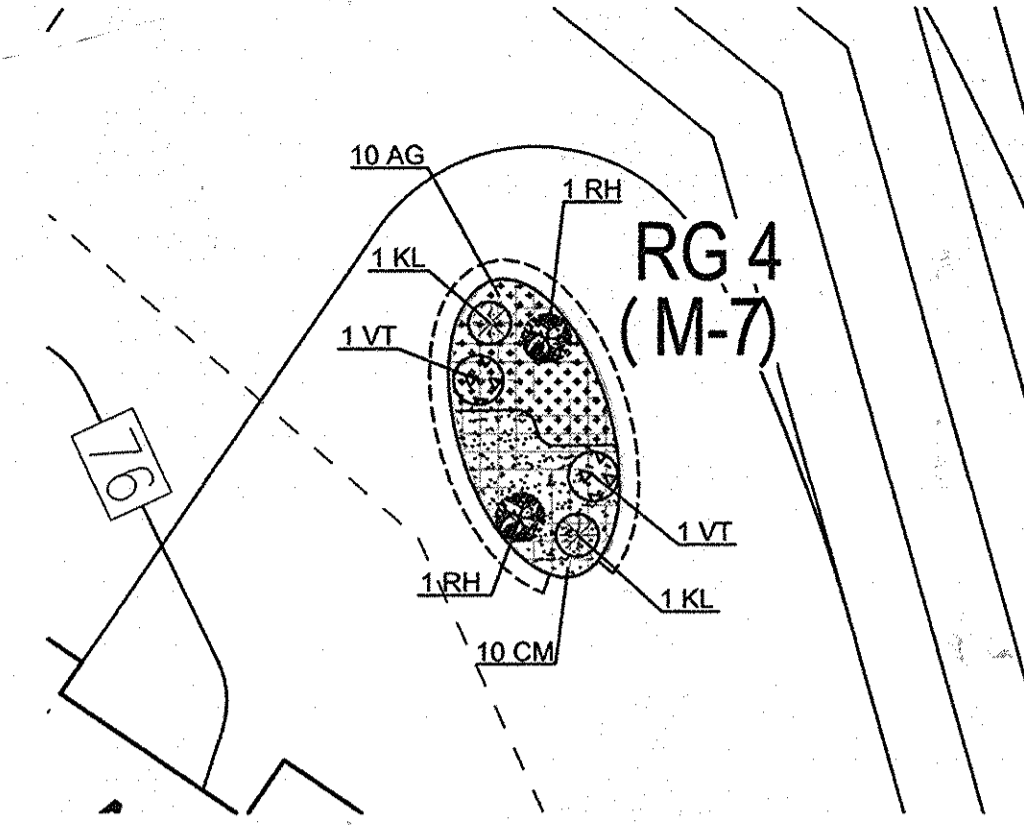
118 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS REQUIRED
2 PROVIDED



RAIN GARDEN #3 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
12	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
12	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

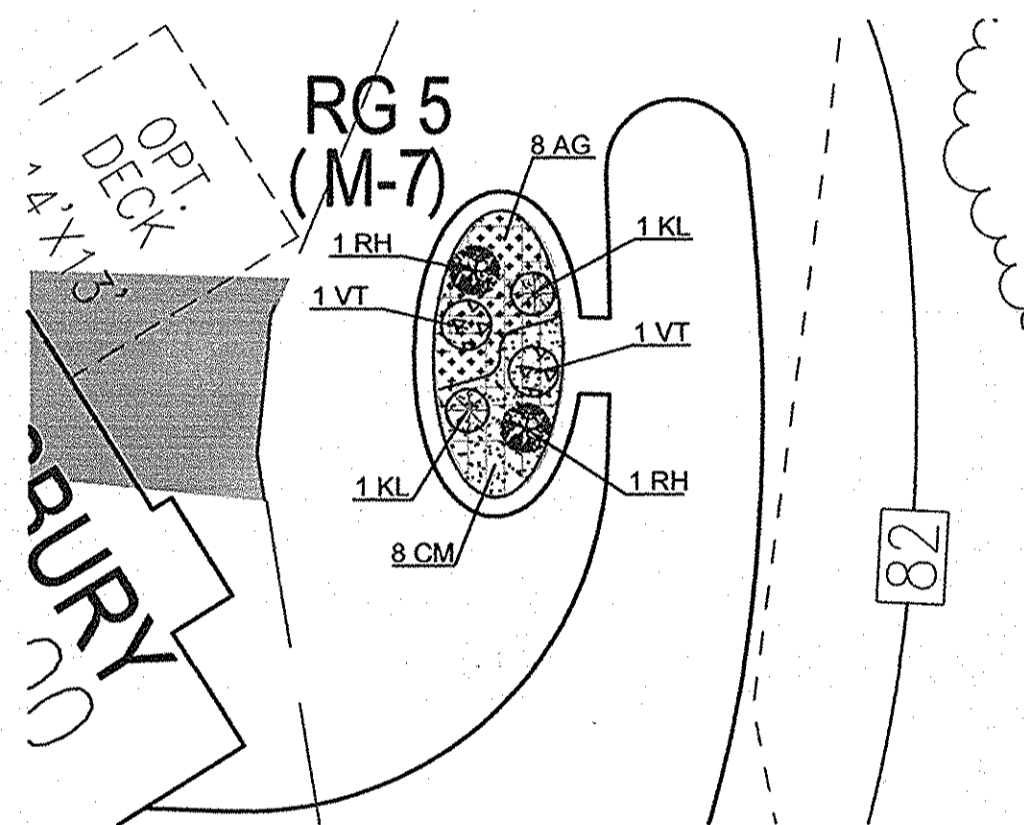
140 SF X 75% X .0229 STEMS PER SQUARE FOOT = 3 PLANTS REQUIRED
3 PROVIDED



RAIN GARDEN #4 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
10	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
10	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

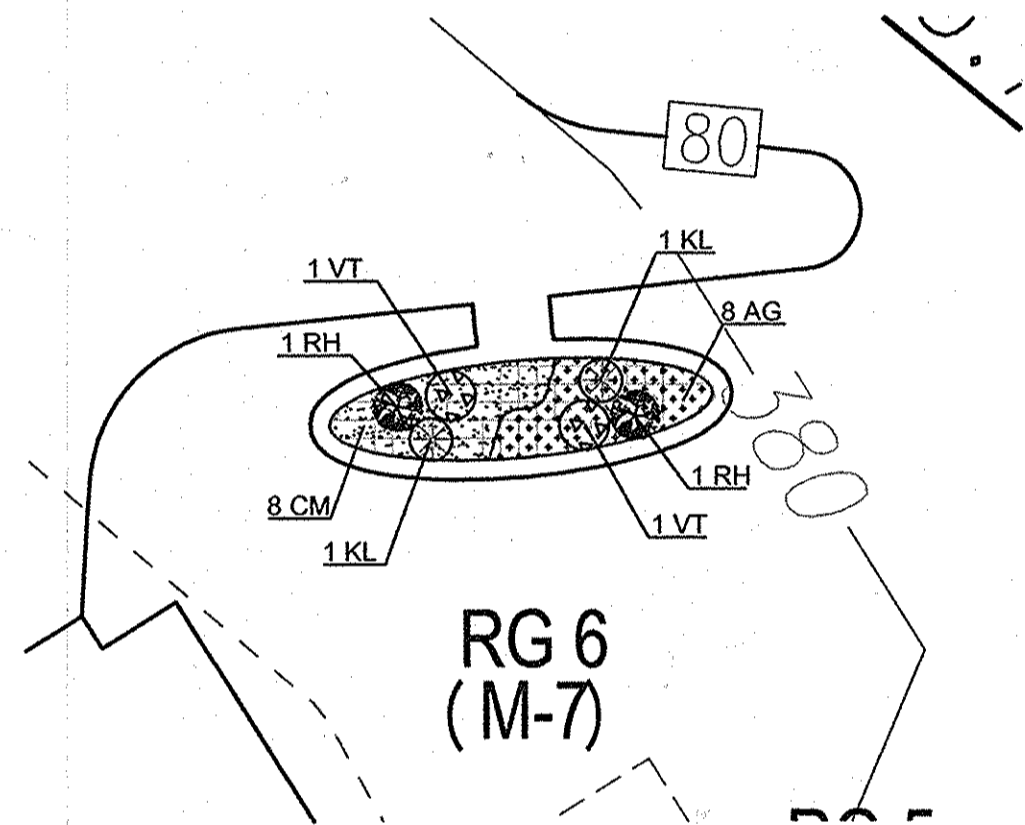
100 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS REQUIRED
2 PROVIDED



RAIN GARDEN #5 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
8	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
8	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

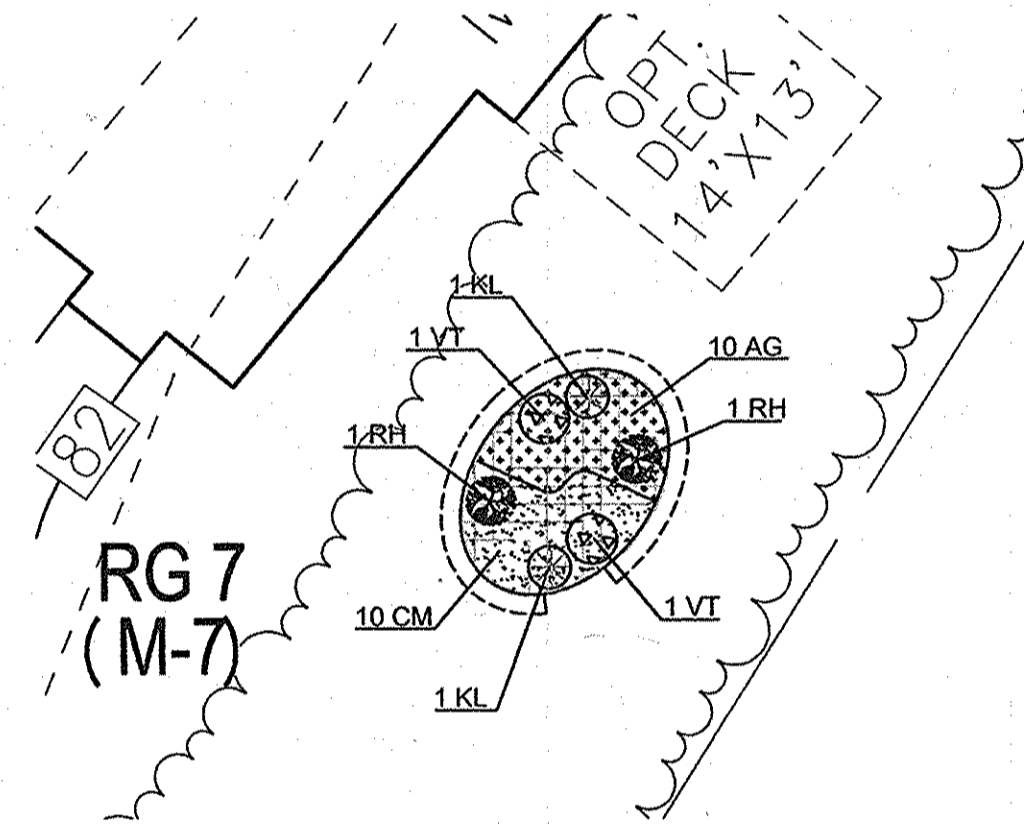
79 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS REQUIRED
2 PROVIDED



RAIN GARDEN #6 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
8	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
8	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

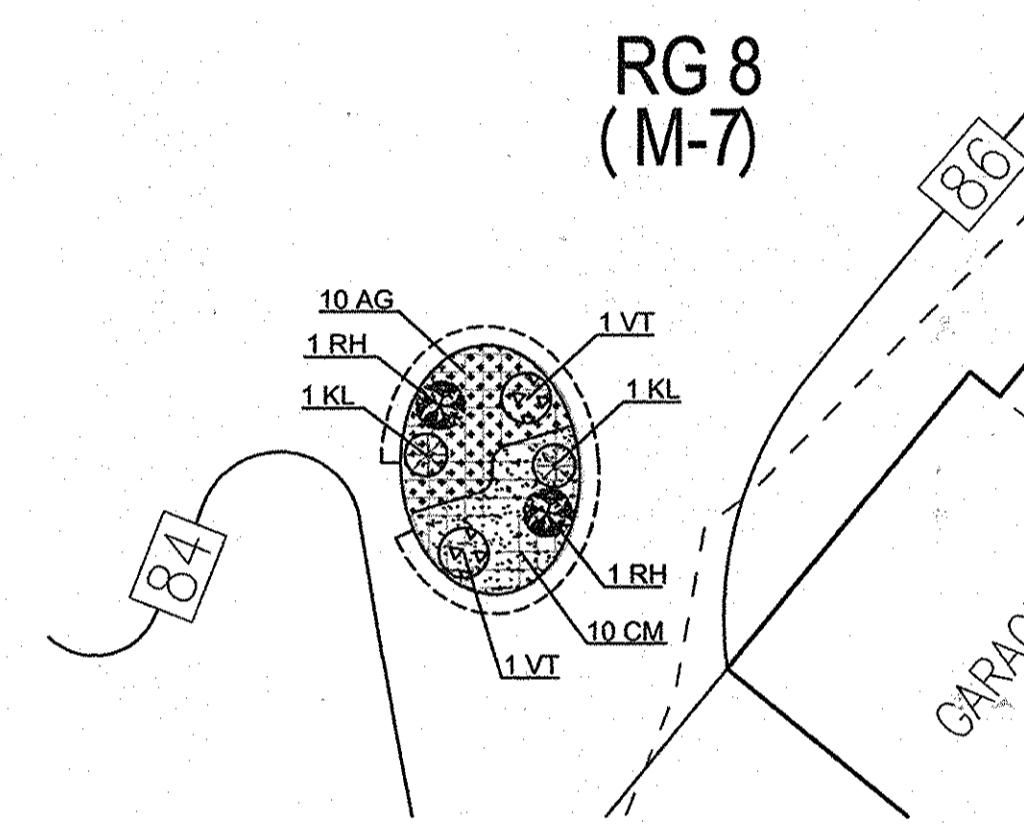
79 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS REQUIRED
2 PROVIDED



RAIN GARDEN #7 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
10	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
10	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

95 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS REQUIRED
2 PROVIDED



RAIN GARDEN #8 - PLANTING DETAIL
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIORNIUM TRILOBUM AMERICAN HIGBUSH CRANBERRY	5 GALLON	CONT
2	KALMA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
2	RHOODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
10	CONVALLARIA MAJALIS LILY-OF-THE-VALLEY	1 QT.	12" O.C.
10	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 QT.	12" O.C.

95 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS REQUIRED
2 PROVIDED

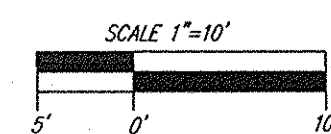
"MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAS SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY 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.
- MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDY SUMMARY.
- FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edmister 4-7-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Ken Stedman 4-09-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



NO.	REVISION	DATE

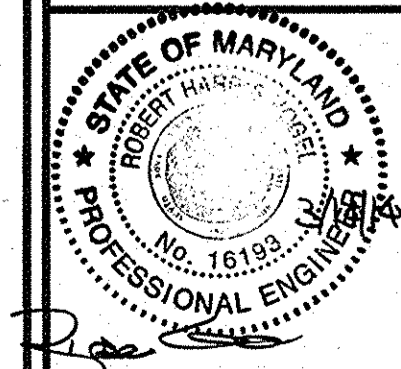
**SUPPLEMENTAL INFORMATION PLAN
MICRO-BIORETENTION PLANTING DETAILS**

STELLA GLEN

LOTS 1-7
PARCELS 57, 58 & 417 (L. 8293 / F. 433)

TAX MAP: 36 GRID: 19 10580 SHAKER DRIVE ZONED: R-20
6TH ELECTION DISTRICT COLUMBIA, MD 21046 PARCELS: 57, 58 & 417
DPZ REF'S: SEE GENERAL NOTE #4 ON COVER SHEET HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410-461-7666
ELICOTT CITY, MD 21043 FAX: 410-461-8961



DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: MARCH 2014
SCALE: AS SHOWN
W.O. NO.: 12-23

PROFESSIONAL CERTIFICATE
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 03-27-2014.

8 SHEET OF 8

OWNER
MARY THERESE PFAU
3675 PARK AVE., SUITE 301
ELICOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
3675 PARK AVE., SUITE 301
ELICOTT CITY, MD 21043
(410) 480-0023