ENVIRONMENTAL CONCEPT PLAN
FALCON CREST
LOTS 1-10 AND OPEN SPACE LOTS 11 & 12

PARCEL 100 (L. 16697 / F. 114)
9438 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723
PARCEL 428 (L. 973 / F. 467)
10029 SUPERIOR AVENUE
LAUREL, MD 20723

ENVIRONMENTAL SITE DESIGN NARRATIVE:

1. THIS PROJECT DOES NOT CONTAIN ANY WETLANDS, STREAMS, BUFFERS OR FLOODPLAINS. THERE ARE A TOTAL OF 8 SPECIMEN TREES LOCATED ON-SITE. FIVE SPECIMEN TREES WILL BE REMOVED. THREE SPECIMEN TREES WILL BE RETAINED. AN ALTERNATIVE COMPLIANCE PETITION WILL BE REQUIRED FOR THE REMOVAL OF THESE FIVE SPECIMEN TREES.

2. THE PROPOSED GRADING DOES NOT ALTER THE EXISTING DRAINAGE PATTERNS.

3. THERE IS NO PROPOSED GRADING WITHIN THE STEEP SLOPES. THERE WILL BE A NECESSARY DISTURBANCE TO THE STEEP SLOPES FOR A SEWER OUTFALL.

4. THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT. STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE USE OF MICRO-SCALE PRACTICES INCLUDING MICRO-BIORETENTION FACILITIES (M-6) AND A BIO SWALE (M-8). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.

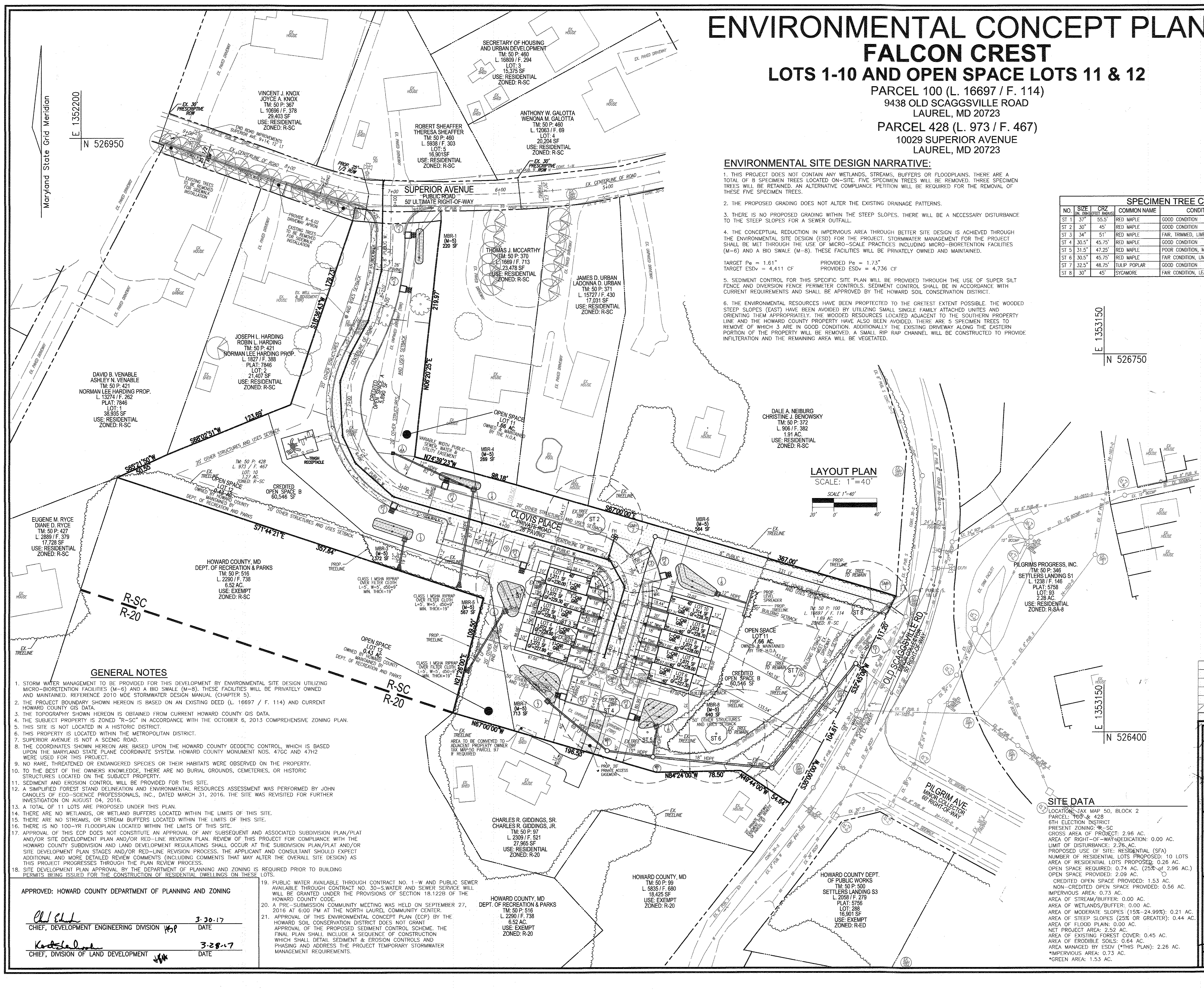
TARGET Pe = 1.61" PROVIDED Pe = 1.73"
TARGET ESDv = 4,411 CF PROVIDED ESDv = 4,736 CF

5. SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF SUPER SILT FENCE AND DIVERSION FENCE PERIMETER CONTROLS. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.

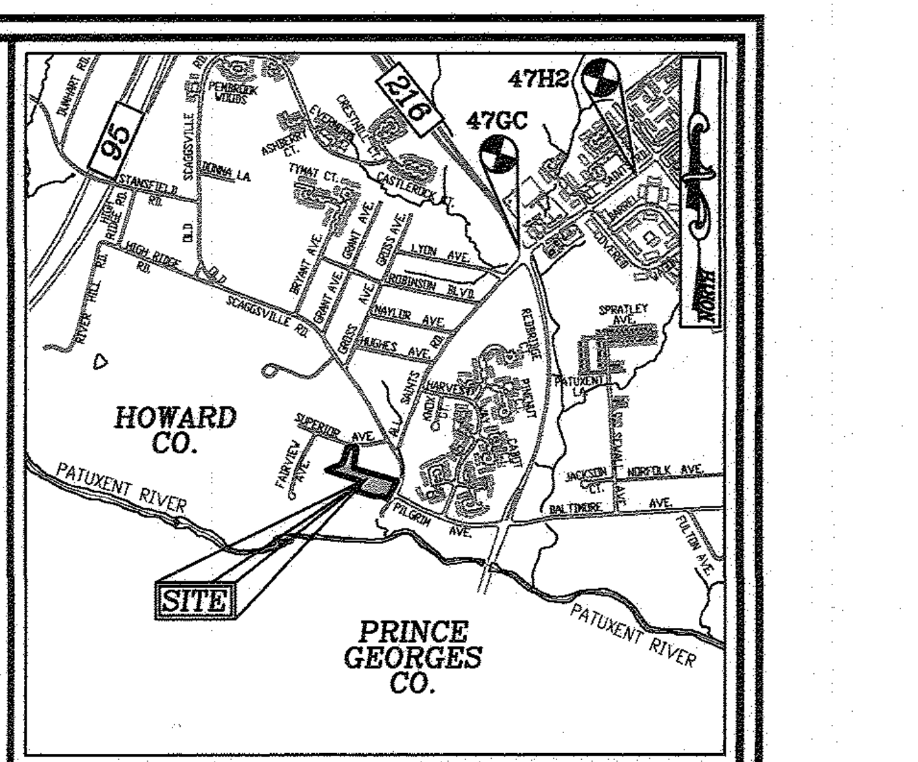
6. THE ENVIRONMENTAL RESOURCES HAVE BEEN PROPTECTED TO THE GRETEST EXTENT POSSIBLE. THE WOODED STEEP SLOPES (EAST) HAVE BEEN AVOIDED BY UTILIZING SMALL SINGLE FAMILY ATTACHED UNITES AND ORIENTING THEM APPROPRIATELY. THE WOODED RESOURCES LOCATED ADJACENT TO THE SOUTHERN PROPERTY LINE AND THE HOWARD COUNTY PROPERTY HAVE ALSO BEEN AVOIDED. THERE ARE 5 SPECIMEN TREES TO REMOVE OF WHICH 3 ARE IN GOOD CONDITION. ADDITIONALLY THE EXISTING DRIVEWAY ALONG THE EASTERN PORTION OF THE PROPERTY WILL BE REMOVED. A SMALL RIP RAP CHANNEL WILL BE CONSTRUCTED TO PROVIDE INFILTERATION AND THE REMAINING AREA WILL BE VEGETATED.

SPECIMEN TREE CHART

NO.	SIZE (IN. DBH)	CRZ (FEET RADIUS)	COMMON NAME	CONDITION	COMMENTS
ST 1	37"	55.5'	RED MAPLE	GOOD CONDITION	TO BE REMOVED
ST 2	30"	45'	RED MAPLE	GOOD CONDITION	TO BE REMOVED
ST 3	34"	51'	RED MAPLE	FAIR, TRIMMED, LIMB DIEBACK	TO BE REMOVED
ST 4	30.5"	45.75'	RED MAPLE	GOOD CONDITION	TO BE REMOVED
ST 5	31.5"	47.25'	RED MAPLE	POOR CONDITION, MAJOR TRUNK ROT	TO BE REMOVED
ST 6	30.5"	45.75'	RED MAPLE	FAIR CONDITION, LIMB DIEBACK	TO REMAIN
ST 7	32.5"	48.75'	TULIP POPLAR	GOOD CONDITION	TO REMAIN
ST 8	30"	45'	SYCAMORE	FAIR CONDITION, LEANING, NARROW CROWN	TO REMAIN



LAYOUT PLAN
SCALE: 1"=40'



VICINITY MAP
SCALE: 1"=2,000'
ADC MAP COORDINATE: PAGE: 40, GRID: A8

BENCHMARKS

HOWARD COUNTY BENCHMARK 47GC (CONC. MON.)
N 528939.75 E 1354223.59 ELEV. 226.32
LOCATION: ISLE AT INTERSECTION OF RT. 216 AND ALL SAINTS RD.

HOWARD COUNTY BENCHMARK 47H2 (CONC. MON.)
N 529706.44 E 1355445.38 ELEV. 256.12
LOCATION: ALL SAINTS RD. 0.4 MI. SOUTH OF WHISKEY BOTTOM RD.

LEGEND:

PROPERTY LINE
RIGHT-OF-WAY LINE
ADJACENT PROPERTY LINE
EXISTING EDGE OF PAVING
SMH 2 ○ EXISTING SANITARY MANHOLE
SS EXISTING SANITARY LINE
FH EXISTING FIRE HYDRANT
W EXISTING WATER LINE
EXISTING TREELINE
ST 1 EXISTING SPECIMEN TREES
PROPOSED TREELINE
VARIABLE WIDTH PUBLIC SEWER, WATER & UTILITY EASEMENT
20' PRIVATE ACCESS EASEMENT
EXISTING TREES

SHEET INDEX

DESCRIPTION	SHEET NO.
LAYOUT PLAN	1 OF 3
SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN	2 OF 3
SWM DRAINAGE AREA MAP, NOTES AND DETAILS	3 OF 3

OWNER (PARCEL 100)

NORMAN E. GIDDINGS
JANET E. GIDDINGS
9063 OLD SCAGGSVILLE RD.
LAUREL, MD 20723
(410) 480-0023

OWNER (PARCEL 428)

IRMA M. HARDING
JOAN B. HARDING
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(410) 480-0023

DEVELOPER

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

NO.	REVISION	DATE

GENERAL NOTES

1. STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIORETENTION FACILITIES (M-6) AND A BIO SWALE (M-8). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. REFERENCE 2010 MDE STORMWATER DESIGN MANUAL (CHAPTER 5).
2. THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON AN EXISTING DEED (L. 16697 / F. 114) AND CURRENT HOWARD COUNTY GIS DATA.
3. THE TOPOGRAPHY SHOWN HEREON IS OBTAINED FROM CURRENT HOWARD COUNTY GIS DATA.
4. THE SUBJECT PROPERTY IS ZONED "R-SC" IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
5. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
6. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
7. SUPERIOR AVENUE IS NOT A SCENIC ROAD.
8. 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. 47GC AND 47H2 WERE USED FOR THIS PROJECT.
9. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
10. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THE SUBJECT PROPERTY.
11. SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
12. A SIMPLIFIED FOREST STAND DELINEATION AND ENVIRONMENTAL RESOURCES ASSESSMENT WAS PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH 31, 2016. THE SITE WAS REVISITED FOR FURTHER INVESTIGATION ON AUGUST 04, 2016.
13. A TOTAL OF 11 LOTS ARE PROPOSED UNDER THIS PLAN.
14. THERE ARE NO WETLANDS, OR WETLAND BUFFERS LOCATED WITHIN THE LIMITS OF THIS SITE.
15. THERE ARE NO STREAMS, OR STREAM BUFFERS LOCATED WITHIN THE LIMITS OF THIS SITE.
16. THERE IS NO 100-YR FLOODPLAIN LOCATED WITHIN THE LIMITS OF THIS SITE.
17. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.
18. SITE DEVELOPMENT PLAN APPROVAL BY THE DEPARTMENT OF PLANNING AND ZONING IS REQUIRED PRIOR TO BUILDING PERMITS BEING ISSUED FOR THE CONSTRUCTION OF RESIDENTIAL DWELLINGS ON THESE LOTS.
19. PUBLIC WATER AVAILABLE THROUGH CONTRACT NO. 1-W AND PUBLIC SEWER AVAILABLE THROUGH CONTRACT NO. 30-S.WATER AND SEWER SERVICE WILL WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122B OF THE HOWARD COUNTY CODE.
20. A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON SEPTEMBER 27, 2016 AT 6:00 PM AT THE NORTH LAUREL COMMUNITY CENTER.
21. APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING AND ADDRESS THE PROJECT TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson 3.30.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION HSP DATE

Kent Sheubrooks 3.28.17
CHIEF, DIVISION OF LAND DEVELOPMENT JWK DATE

SITE DATA

LOCATION: TAX MAP 50, BLOCK 2
PARCEL: 100 & 428
6TH ELECTION DISTRICT
PRESENT ZONING: R-SC
GROSS AREA OF PROJECT: 2.96 AC.
AREA OF RIGHT-OF-WAY DEDICATION: 0.00 AC.
LIMIT OF DISTURBANCE: 2.26 AC.
PROPOSED USE OF SITE: RESIDENTIAL (SFA)
NUMBER OF RESIDENTIAL LOTS PROPOSED: 10 LOTS
AREA OF RESIDENTIAL LOTS PROPOSED: 0.26 AC.
OPEN SPACE REQUIRED: 0.74 AC. (25% of 2.96 AC.)
OPEN SPACE PROVIDED: 2.09 AC.
  CREDITED OPEN SPACE PROVIDED: 1.53 AC.
  NON-CREDITED OPEN SPACE PROVIDED: 0.56 AC.
IMPERVIOUS AREA: 0.73 AC.
AREA OF STREAM/BUFFER: 0.00 AC.
AREA OF WETLANDS/BUFFER: 0.00 AC.
AREA OF MODERATE SLOPES (15%-24.99%): 0.21 AC.
AREA OF STEEP SLOPES (25% OR GREATER): 0.44 AC.
AREA OF FLOOD PLAIN: 0.00 AC.
NET PROJECT AREA: 2.52 AC.
AREA OF EXISTING FOREST COVER: 0.45 AC.
AREA OF ERODIBLE SOILS: 0.64 AC.
AREA MANAGED BY ESDV (*THIS PLAN): 2.26 AC.
*IMPERVIOUS AREA: 0.73 AC.
*GREEN AREA: 1.53 AC.

ENVIRONMENTAL CONCEPT PLAN
LAYOUT PLAN
FALCON CREST
LOTS 1-10 AND OPEN SPACE LOTS 11 & 12
PARCEL 100 (L. 16697 / F. 114)
9438 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723
PARCEL 428 (L. 973 / F. 467)
10029 SUPERIOR AVENUE
LAUREL, MD 20723

TAX MAP: 50 GRID: 2
6TH ELECTION DISTRICT

ZONED: R-SC
PARCEL: 100 & 428
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

ROBERT HARRIS VOGEL
NO. 16193
3/1/17

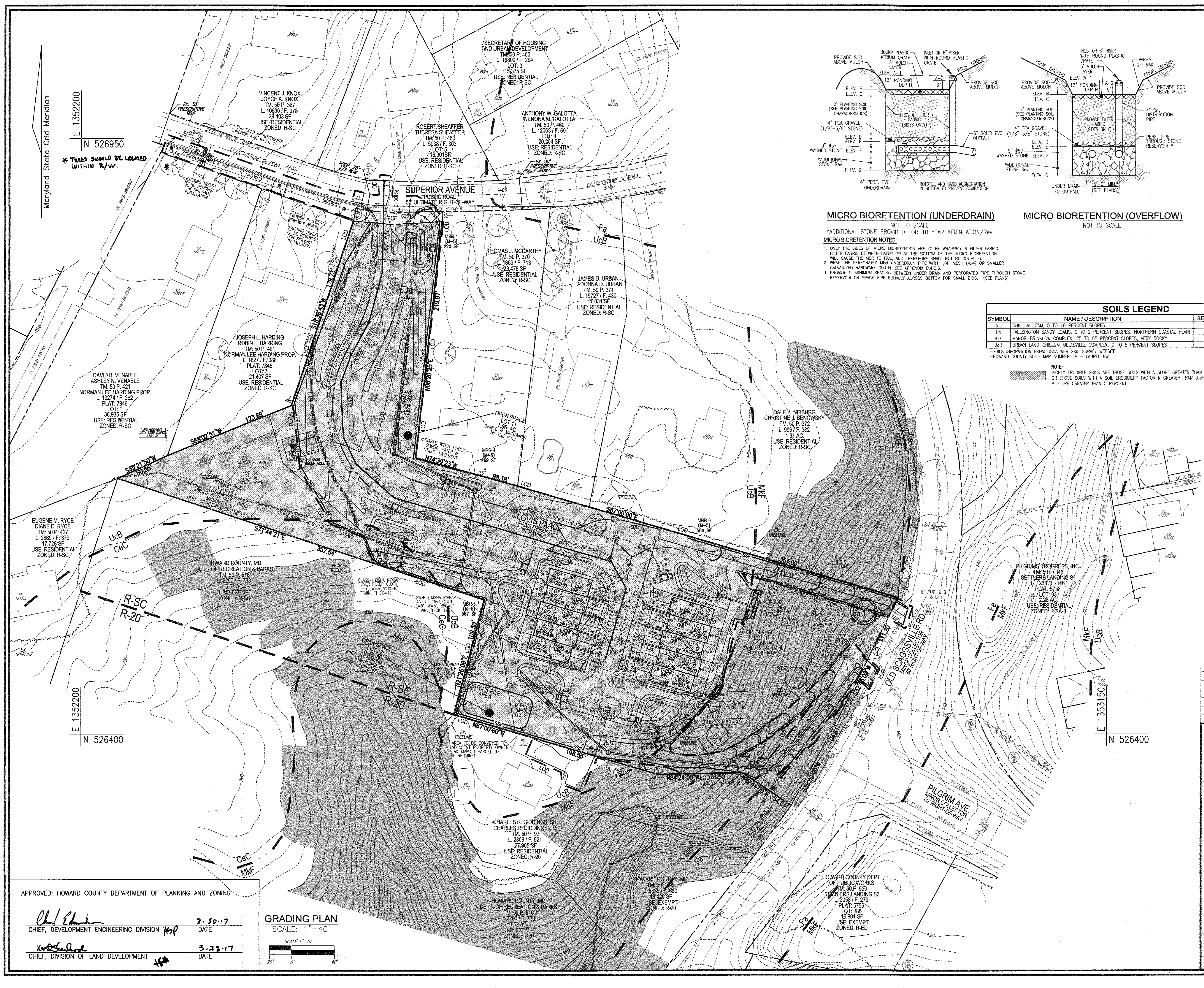
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV
DRAWN BY: JMR/KG
CHECKED BY: RHV
DATE: MARCH 2017
SCALE: AS SHOWN
W.O. NO.: 16-15

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: 09-27-2018

1 SHEET OF 3



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson 3.30.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION HSP DATE

Kent Sheubrooks 3-28-17
CHIEF, DIVISION OF LAND DEVELOPMENT KEW DATE

GRADING PLAN

SCALE: 1"=40'

MICRO BIORETENTION (UNDERDRAIN)

NOT TO SCALE

*ADDITIONAL STONE PROVIDED FOR 10 YEAR ATTENUATION/Rev

MICRO BIORETENTION (OVERFLOW)

NOT TO SCALE

MICRO BIORETENTION NOTES:

1. ONLY THE SIDES OF MICRO BIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICRO BIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH. SEE APPENDIX B.4.C.6.
3. PROVIDE 5' MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
CeC	CHILLUM LOAM, 5 TO 10 PERCENT SLOPES	B	0.37	YES
Fa	FALLSINGTON SANDY LOAMS, 0 TO 2 PERCENT SLOPES, NORTHERN COASTAL PLAIN	D	0.02	NO
MkF	MANOR-BRINKLOW COMPLEX, 25 TO 65 PERCENT SLOPES, VERY ROCKY	B	0.24	NO
UcB	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	0.37	YES

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 28 - LAUREL NW

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 EDGE OF PAVING
SMH 2 ○	EXISTING SANITARY MANHOLE
—SS—	EXISTING SANITARY LINE
FH	EXISTING FIRE HYDRANT
—W—	EXISTING WATER LINE
	EXISTING TREELINE
ST 1	EXISTING SPECIMEN TREES
	PROPOSED TREELINE
	VARIABLE WIDTH PUBLIC SEWER, WATER & UTILITY EASEMENT
	20' PRIVATE ACCESS EASEMENT
330	EXISTING 10' CONTOUR
328	EXISTING 2' CONTOUR
SsE SfC2	SOILS
330	PROPOSED 10' CONTOUR
328	PROPOSED 2' CONTOUR
+328 28	PROPOSED SPOT ELEVATION
▨	EXISTING STEEP SLOPES (MDE 20% SLOPES OR GREATER)
▨	EXISTING ERODIBLE SOILS
—SSF—	SUPER SILT FENCE
—DF—	DIVERSION FENCE
— — —	PROPOSED LIMIT OF DISTURBANCE
▨	PROPOSED EROSION CONTROL MATTING
SCE	PROPOSED STABILIZED CONSTRUCTION ENTRANCE
ST 1	PROPOSED TREE PROTECTION FENCE
	PROPOSED MICRO-BIORETENTION FACILITY (M-6)

DEVELOPER

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NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN

FALCON CREST

LOTS 1-10 AND OPEN SPACE LOTS 11 & 12

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TAX MAP: 50 GRID: 2
6TH ELECTION DISTRICT

ZONED: R-SC
PARCEL: 100 & 428
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ROBERT HARRIS VOGEL
NO. 16193
3/21/17

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV
DRAWN BY:	JMR/KG
CHECKED BY:	RHV
DATE:	MARCH 2017
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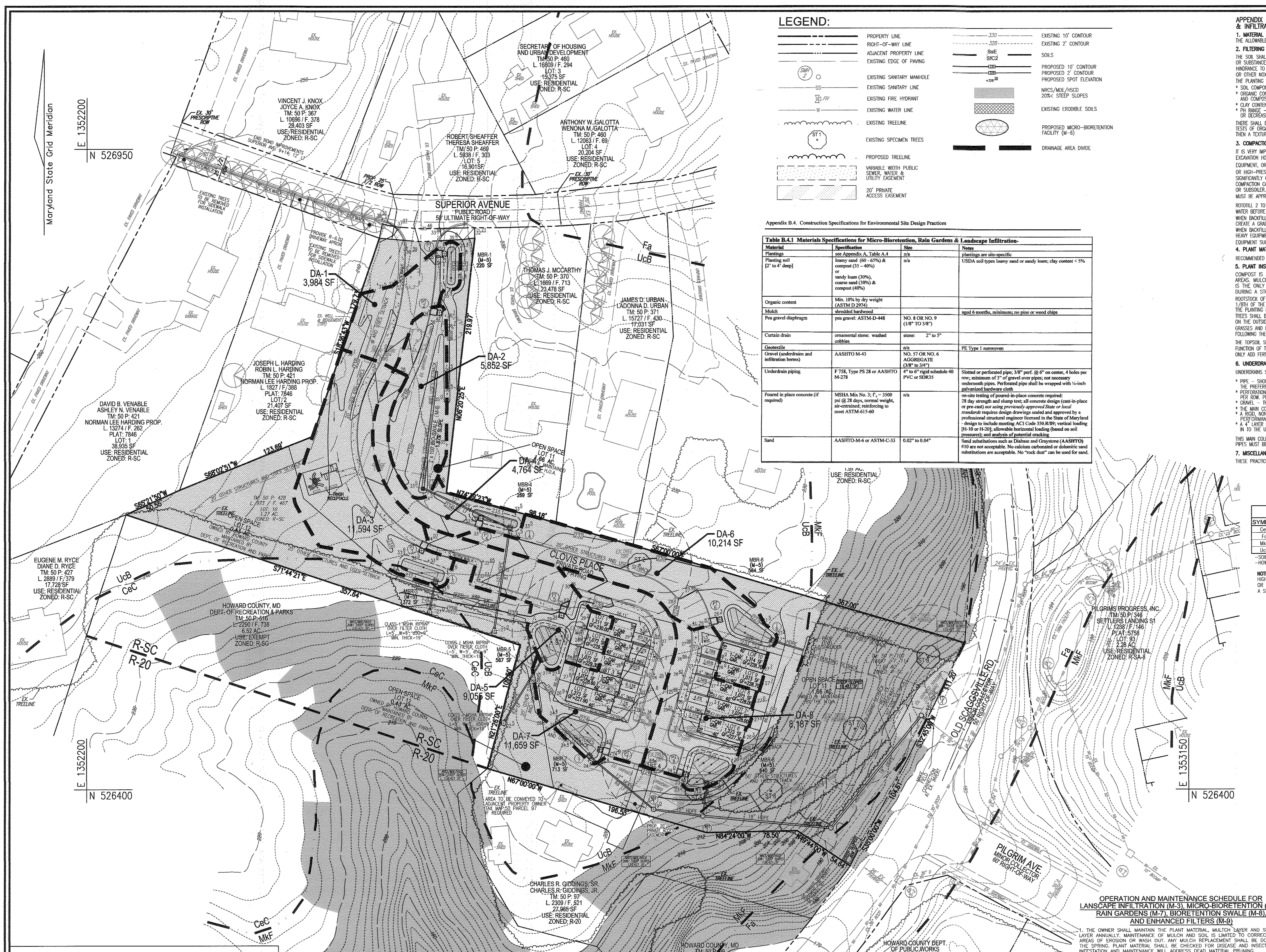
2 SHEET OF 3



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3-30-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION HSP DATE

3-28-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

SWM PLAN

SCALE: 1"=40'

SCALE 1"=40'
20' 0' 40'

LEGEND:

	PROPERTY LINE	330	EXISTING 10' CONTOUR
	RIGHT-OF-WAY LINE	328	EXISTING 2' CONTOUR
	ADJACENT PROPERTY LINE	SsE SfC2	SOILS
	EXISTING EDGE OF PAVING	330	PROPOSED 10' CONTOUR
SMH 2 ○	EXISTING SANITARY MANHOLE	328	PROPOSED 2' CONTOUR
SS	EXISTING SANITARY LINE	+328 28	PROPOSED SPOT ELEVATION
FH	EXISTING FIRE HYDRANT	▨	NRCS/MDE/HSCD 20%< STEEP SLOPES
W	EXISTING WATER LINE	▨	EXISTING ERODIBLE SOILS
	EXISTING TREELINE		PROPOSED MICRO-BIORETENTION FACILITY (M-6)
ST 1	EXISTING SPECIMEN TREES		DRAINAGE AREA DIVIDE
	PROPOSED TREELINE		
	VARIABLE WIDTH PUBLIC SEWER, WATER & UTILITY EASEMENT		
	20' PRIVATE ACCESS EASEMENT		

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (**AASHTO**) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION. RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

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 DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE 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 BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

* SOIL COMPONENT – LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
* ORGANIC CONTEN – MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), 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 BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, 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 ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH 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 BIORETENION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 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 BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION 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". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE 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 BRACED USING 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 PLUGS 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 BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA 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 RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
* PERFORATIONS – IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
* GRAVEL – THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS 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.

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
CeC	CHILLUM LOAM, 5 TO 10 PERCENT SLOPES	B	0.37	YES
Fa	FALLSINGTON SANDY LOAMS, 0 TO 2 PERCENT SLOPES, NORTHERN COASTAL PLAIN	D	0.02	NO
MkF	MANOR-BRINKLOW COMPLEX, 25 TO 65 PERCENT SLOPES, VERY ROCKY	B	0.24	NO
UcB	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	0.37	YES

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 28 – LAUREL NW

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.

OWNER (PARCEL 100)

NORMAN E. GIDDINGS
JANET E. GIDDINGS
9063 OLD SCAGGSVILLE RD.
LAUREL, MD 20723
(410) 480-0023

DEVELOPER

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

OWNER (PARCEL 428)

IRMA M. HARDING
JOAN B. HARDING
10029 SUPERIOR AVE.
LAUREL, MD 20723
(410) 480-0023

OPERATION AND MAINTENANCE SCHEDULE FOR LANSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULTCH 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 PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.

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.

3. 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.

4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN

SWM DRAINAGE AREA MAP

FALCON CREST

LOTS 1-10 AND OPEN SPACE LOTS 11 & 12

PARCEL 100 (L. 16697 / F. 114)
9438 OLD SCAGGSVILLE ROAD
LAUREL, MD 20723
PARCEL 428 (L. 973 / F. 467)
10029 SUPERIOR AVENUE
LAUREL, MD 20723

TAX MAP: 50 GRID: 2
6TH ELECTION DISTRICT

ZONED: R-SC
PARCEL: 100 & 428
HOWARD COUNTY, MARYLAND

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ROBERT HARRIS VOGEL
NO. 16193
3/21/17

ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV
DRAWN BY: JMR/KG
CHECKED BY: RHV
DATE: MARCH 2017
SCALE: AS SHOWN
W.O. NO.: 16-15

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: 09-27-2018

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