

LEGEND:

- PROPERTY LINE
RIGHT-OF-WAY LINE
ADJACENT PROPERTY LINE
EXISTING EDGE OF PAVING
EXISTING STREAM BUFFER
EXISTING STREAM
EXISTING WETLANDS
EXISTING WETLAND BUFFER
EX. PUBLIC 100-YEAR FLOOD PLAN
PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
EX. 25' EASEMENT FOR INGRESS AND EGRESS TO LOT 17 AND LOT 1 (GREEN PROP. (PRIVATE) (PLAT 7871))
EX. 24' WIDE PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4 (PLAT 12949)
EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
EX. 20' DRAINAGE & UTILITY EASEMENT (PLAT 4622)

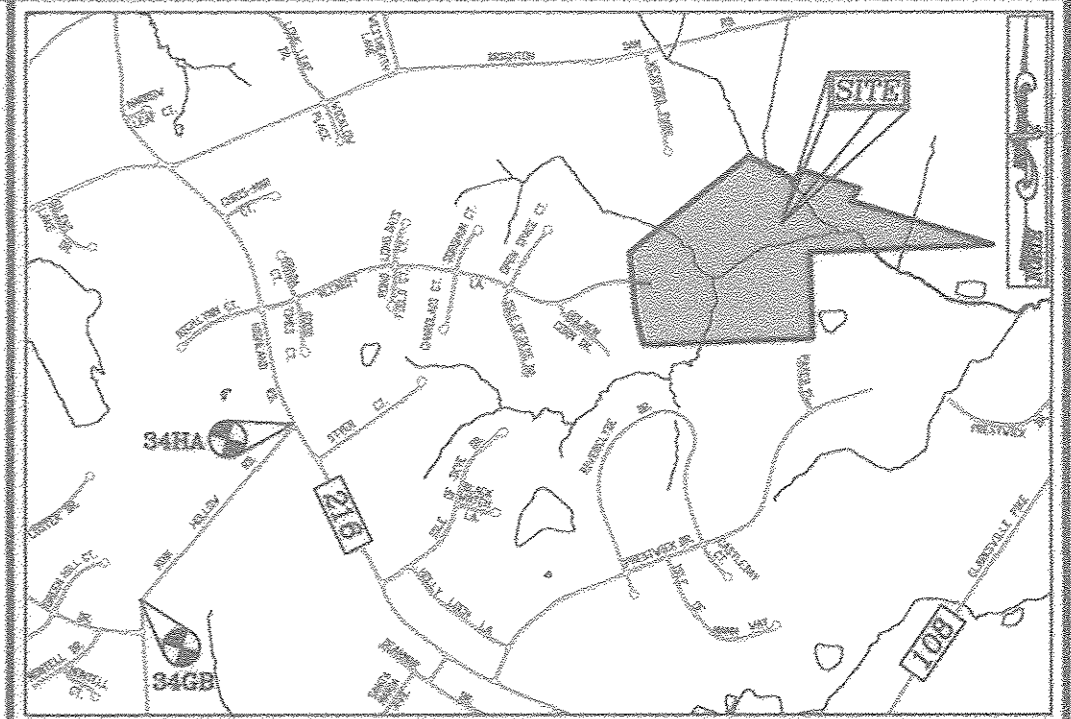
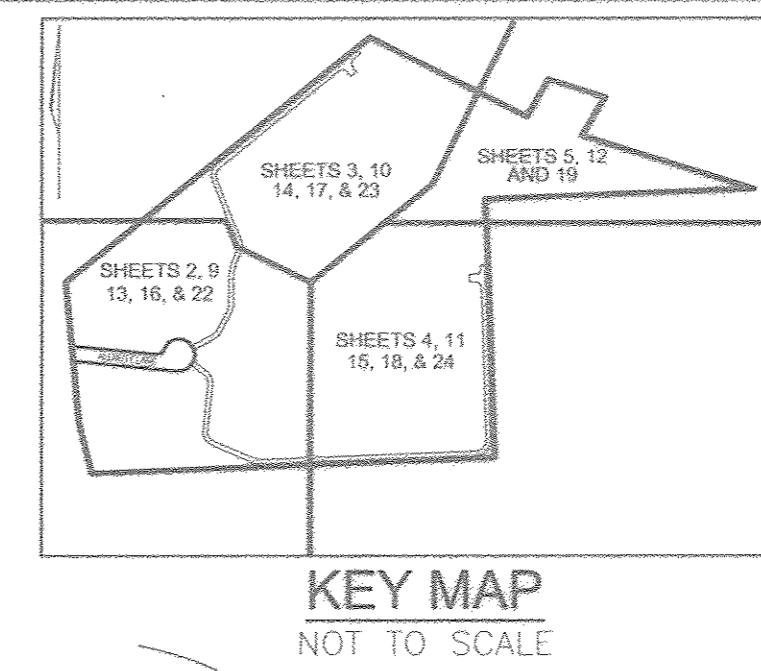
SITE DATA

LOCATION: TAX MAP 34, BLOCK 23 PARCEL 389
5TH ELECTION DISTRICT
PRESENT ZONING: RR-DEO
GROSS AREA OF PROJ: 42.60 AC.
AREA OF RIGHT-OF-WAY (DEDICATION): 0.59 AC.
LIMIT OF DISTURBANCE: 16.76 AC.
PROPOSED USE OF SITE: RESIDENTIAL (SFD)
NUMBER OF RESIDENTIAL LOTS PROPOSED: 16 LOTS
AREA OF RESIDENTIAL LOTS PROPOSED: 20.83 AC.
IMPERVIOUS AREA: 3.49 AC.
AREA OF STREAM/BUFFER: 12.75 AC.
AREA OF WETLANDS/BUFFER: 9.22 AC.
AREA OF MODERATE SLOPES (15% - 24.99%): 0.00 AC.
AREA OF STEEP SLOPES (25% OR GREATER): 0.00 AC.
AREA OF FLOOD PLAIN: 7.50 AC.
NET PROJECT AREA: 35.10 AC.
AREA OF EXISTING FOREST COVER: 12.60 AC.
AREA OF EROSION SOILS: 0.39 AC.
AREA MANAGED BY ESDV (MHS PLAN): 16.74 AC.
IMPERVIOUS AREA: 3.49 AC.
GREEN AREA: 13.25 AC.
DPZ REFERENCES: EOP-16-064, WP-17-034, WP-17-128

LOT AREA TABULATION

Table with 4 columns: LOT, GROSS AREA, PIPESTEM AREA, NET AREA. Lists lots 1 through 16 with their respective areas.

PRELIMINARY EQUIVALENT SKETCH PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1
13550 ALLNUTT LANE
HIGHLAND, MD 20777



BENCHMARKS
HOWARD COUNTY BENCHMARK 346B (CONC. MON.)
N 553966.73 E 117752.53 ELEV. 505.18
LOCATION: MINK HOLLOW RD. 0.45 MI. SW OF HIGHLAND RD.

GENERAL NOTES

- 1. THE PROJECT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JULY 2016.
2. THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM HOWARD COUNTY GIS AND SUPPLEMENTED WITH FIELD RUN SURVEYS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH AND MAY OF 2016.
3. THE COORDINATES SHOWN HEREON ARE BASED ON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM, HOWARD COUNTY MONUMENT NOS. 344A AND 146B WERE USED FOR THIS PROJECT.
4. THE SUBJECT PROPERTY IS ZONED "RR-DEO" IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
5. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT OR IN THE METROPOLITAN DISTRICT.
6. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
7. AN ENVIRONMENTAL CONCEPT PLAN (EOP-16-064) WAS APPROVED ON DECEMBER 21, 2016.
8. A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON MARCH 29, 2016 AT 8:00 PM AT THE BOARD ROOM AT CLARET SHALL A SECOND COMMUNITY MEETING WAS HELD ON FEBRUARY 21, 2017 AT THE SAME TIME AND LOCATION AS THE FIRST. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS, UNLESS ALTERNATIVE COMPLIANCE REQUESTS HAVE BEEN APPROVED.
9. A TOTAL OF 23 LOTS ARE PROPOSED UNDER THIS PLAN.
10. ALL LOTS ARE PROPOSED UNDER THIS PLAN.
11. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
12. ALLNUTT LANE IS CLASSIFIED AS A PUBLIC ACCESS ROAD. NO IMPROVEMENTS TO THE EXISTING ROAD ARE PROPOSED. THE PROPOSED EXTENSION OF ALLNUTT LANE SHALL CONFORM WITH GUIDELINES WITHIN THE DESIGN MANUAL.
13. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE 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.
C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT TURNING RADII.
D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (425 LOADS).
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 ENSURE ALL WEATHER USE.
14. AN APFD TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP AND APPROVED SEPTEMBER 21, 2017. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
15. IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL - VOLUME 3, CHAPTER 2 - SECTION 2.9.B, AND THE HOWARD COUNTY ZONING REGULATIONS SECTION 13.0.0.2.C, PARKING IS REQUIRED AT 2.0 SPACES PER UNIT. OFF-STREET PARKING SPACES, DRIVEWAYS, PARKING PADS AND COUNTS. GARAGES COUNT AS TWO SPACES. SEE TABULATION THIS SHEET.
17. STREET LIGHTING IS NOT REQUIRED FOR THIS SITE IN ACCORDANCE WITH SECTION 16.135 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
18. ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MHI FEE--LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICANT.
19. IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, OPEN SPACE IS NOT REQUIRED FOR PROJECTS ZONED RR-DEO.
20. IN ACCORDANCE WITH SECTIONS 105.0 AND 105.0 OF THE ZONING REGULATIONS, THIS PROJECT IS BEING DEVELOPED UTILIZING THE GREENER SUBDIVISION SCHEMES AND LIGHTLY EXCAVATE OPTION. THIS SUBDIVISION REQUIRES 7 DWELLING UNITS ON AN ELIGIBLE SENDING PARCEL.
21. FLAG AND PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
22. LOTS 4-9, 12-15, BUILDABLE PRESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B', 'C', 'D', 'E', 'F', 'G', AND 'H' WILL UTILIZE A USE-IN-COMMON DRIVEWAY. A USE-IN-COMMON MAINTENANCE AGREEMENT FOR THE SHARED DRIVEWAYS SHALL BE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAN.
23. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DRIVEWAY ACCESS POINT ONTO ALLNUTT LANE AT THE DEVELOPERS/OWNERS EXPENSE. COMPLY WITH HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES. THE R1-1 (STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
24. LOCATION OF EXISTING WELL AND SEPTIC SYSTEM FEATURES ON GREENE PROPERTY, LOT 1, TAKEN FROM PUBLIC RECORDS AND FIELD SURVEYS.
25. THE WELL AND SEPTIC SYSTEM DISTRIBUTION BOX AND TRENCHES SERVING THE EXISTING HOUSE MUST BE PROPERLY ABANDONED, WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT, PRIOR TO HEALTH DEPARTMENT SIGNATURE OF THE FINAL RECORD PLAN.
26. THIS PROPERTY IS IN GROWTH TIER III, PER SB-236. MAJOR SUBDIVISIONS OF 5 LOTS OR MORE ARE PERMITTED UTILIZING ON-SITE SEPTIC SYSTEMS, COMMUNITY SEPTIC SYSTEMS OR A SHARED FACILITY IN HOWARD COUNTY SUBJECT TO PLANNING BOARD REVIEW AND APPROVAL RECOMMENDATION.
27. WATER AND SEWER SERVICE TO BE PROVIDED BY PRIVATE WELLS AND SEPTIC SYSTEMS.
28. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
29. THERE IS APPROXIMATELY 7.50 AC. OF 100-YR FLOODPLAIN LOCATED WITHIN THE LIMITS OF THIS SITE.
30. APPROXIMATE FLOODPLAIN DELINEATION GENERATED FROM PRELIMINARY HEC-RAS ANALYSIS, PREPARED BY ROBERT H. VOGEL ENGINEERING, INC.
31. WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC., DATED JUNE 10, 2016. THESE WILL BE LIMITED DISTURBANCES TO THE PERENNIAL STREAM SYSTEM, STREAM BUFFERS, WETLANDS OR WETLAND BUFFERS.
32. A FOREST STAND DELINEATION AND ENVIRONMENTAL RESOURCES ASSESSMENT WAS PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC., DATED JUNE 10, 2016.
33. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FOREST CONSERVATION EASEMENT AREA AND 100-YEAR FLOODPLAIN, UNLESS WAIVER APPROVAL IS GRANTED.
34. WETLANDS AND THEIR BUFFERS WILL NOT BE IMPACTED BY THE CONSTRUCTION OF THE SITE.
35. AN ALTERNATIVE COMPLIANCE PETITION (WP-17-034) HAS BEEN FILED FOR A STREAM CROSSING/STREAM BUFFER DISTURBANCES. A SEPARATE ALTERNATIVE COMPLIANCE HAS BEEN FILED FOR THE REMOVAL OF SPECIMEN TREES.
36. FOREST CONSERVATION REQUIREMENTS AS SET FORTH IN SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL 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.
37. THE FOREST CONSERVATION OBLIGATION TO BE FULFILLED BY THE PLACEMENT OF 7.44 ACRES INTO RETENTION EASEMENTS AND BY THE PLACEMENT OF 3.69 ACRES INTO AN AFFORESTATION EASEMENT. 3.83 ACRES OF ADDITIONAL AFFORESTATION HAVE BEEN PROVIDED FOR THE PURPOSE OF A FOREST BANK FINANCIAL SURETY FOR THE REQUIRED AFFORESTATION SHALL BE POSTED WITH THE FINAL PLAN DEVELOPERS AGREEMENT.
38. PERMITS LANDSCAPING AND TREES AND SCREENING FOR THIS DEVELOPMENT SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL, POSTING OF FINANCIAL SURETY WILL BE PROVIDED IN CONJUNCTION WITH THE FINAL PLAN AND PLAT.
39. LANDSCAPING IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$26,500.00 FOR THE REQUIRED 101 SHADE TREES, 19 STREET TREES AND 10 SHRUBS SHALL BE POSTED AT THE TIME OF FINAL PLAT SUBMISSION.
40. CERTIFIED TEST PITS HAVE BEEN PROVIDED TO VERIFY THAT GROUNDWATER AND ROCK ARE NOT PRESENT AT RAIN GARDEN AND MICRO-BIORETENTION LOCATIONS. INFORMATION REGARDING THE FINDINGS IS LOCATED IN THE SWM REPORT.
41. STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIORETENTION FACILITIES (M-6), A BIO-SWALE (M-8), ROOFTOP DISCONNECTS (N-1), NON-ROOFTOP DISCONNECTS (N-2), SHEETFLOW TO BUFFER (N-3), AND DRY WELLS (M-5). THE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION OR THE PRIVATE LOT OWNER. REFERENCE 2010 MDE STORMWATER DESIGN MANUAL (CHAPTER 5).
42. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE OCTOBER 6, 2013.
43. PER SECTION 105.0.1.d., NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C' WILL BE DEDICATED TO THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS WITH HOWARD COUNTY MD AS THE EASEMENT HOLDER.
44. PROTECTIVE DEVICES THAT DETECT HEAVY EQUIPMENT MUST BE INSTALLED AROUND WELLS PRIOR TO COMMENCEMENT OF GRADING OPERATIONS TO ENHANCE VISIBILITY OF THE WELLS LOCATIONS. PLASTIC ORANGE FENCING SHOULD BE INCLUDED.
45. ANY CHANGES TO A PRIVATE SEWER DISPOSAL AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
46. ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION OR THE PRIVATE LOT OWNER.
47. TRAFFIC CONTROL DEVICES:
A) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
B) ALL TRAFFIC CONTROL DEVICES, AND THEIR LOCATIONS, SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MANUTCD).
C) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3" LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

DENSITY EXCHANGE TABULATION

Table with 2 columns: RECEIVING PARCEL INFORMATION, SENDING PARCEL INFORMATION. Details density exchange between parcels.

PARKING TABULATION:

TOTAL NUMBER OF DWELLING UNITS PROPOSED: 16
TOTAL NUMBER OF OFF-STREET PARKING SPACES: 32
TOTAL NUMBER OF SPACES PER UNIT: 2.0
TOTAL REQUIRED: 32 SPACES
TOTAL PROVIDED: 64 SPACES

COVER SHEET

SCALE: 1" = 100'
48. A PROPOSED 16' WIDE BRIDGE SHALL BE CONSTRUCTED ACROSS THE STREAM FOR THE PURPOSE OF PROVIDING ACCESS TO FUTURE LOTS 4-9.

SHEET INDEX

Table with 3 columns: COVER SHEET, DESCRIPTION, SHEET NO. Lists various sheets and their descriptions.

PRELIMINARY EQUIVALENT SKETCH PLAN

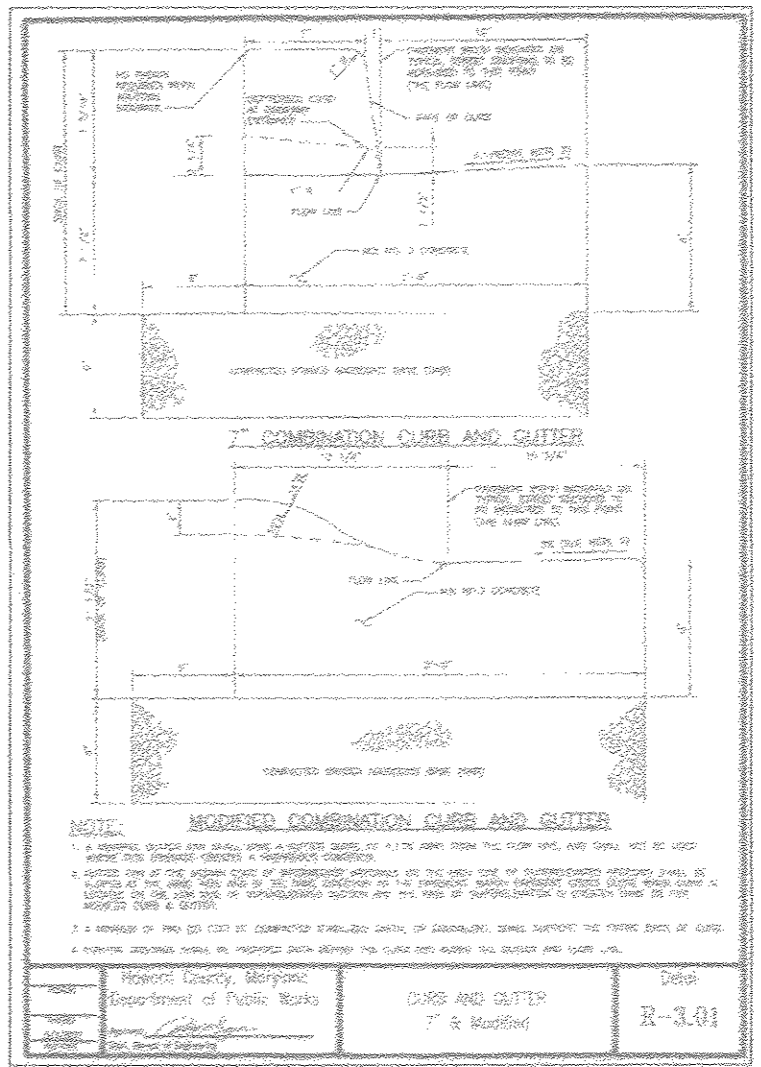
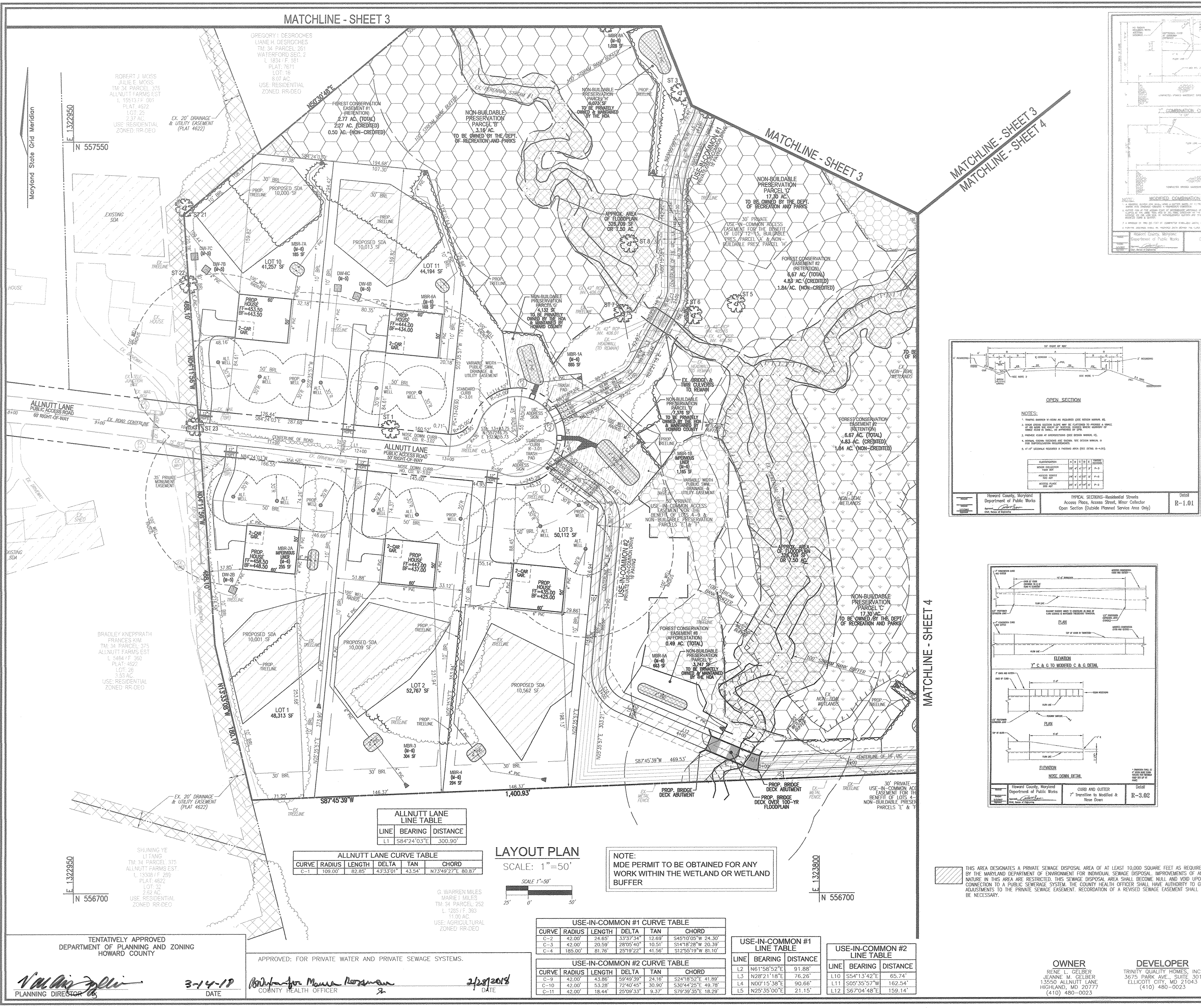
COVER SHEET
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

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
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18183 EXPIRATION DATE: 09-27-2018

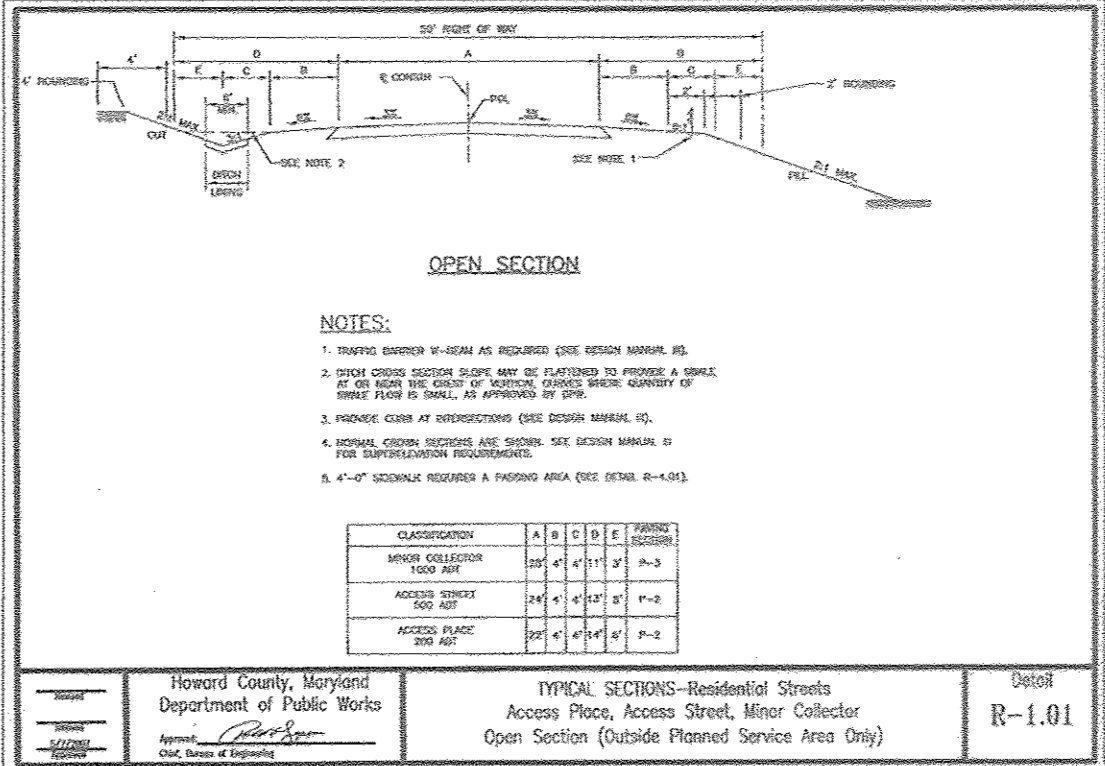
TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
APPROVED BY PLANNING BOARD ON 12-14-17; SIGNATURE OF DRO ON 1-25-18
3-14-18 DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.
COUNTY HEALTH OFFICER
2/28/2018 DATE



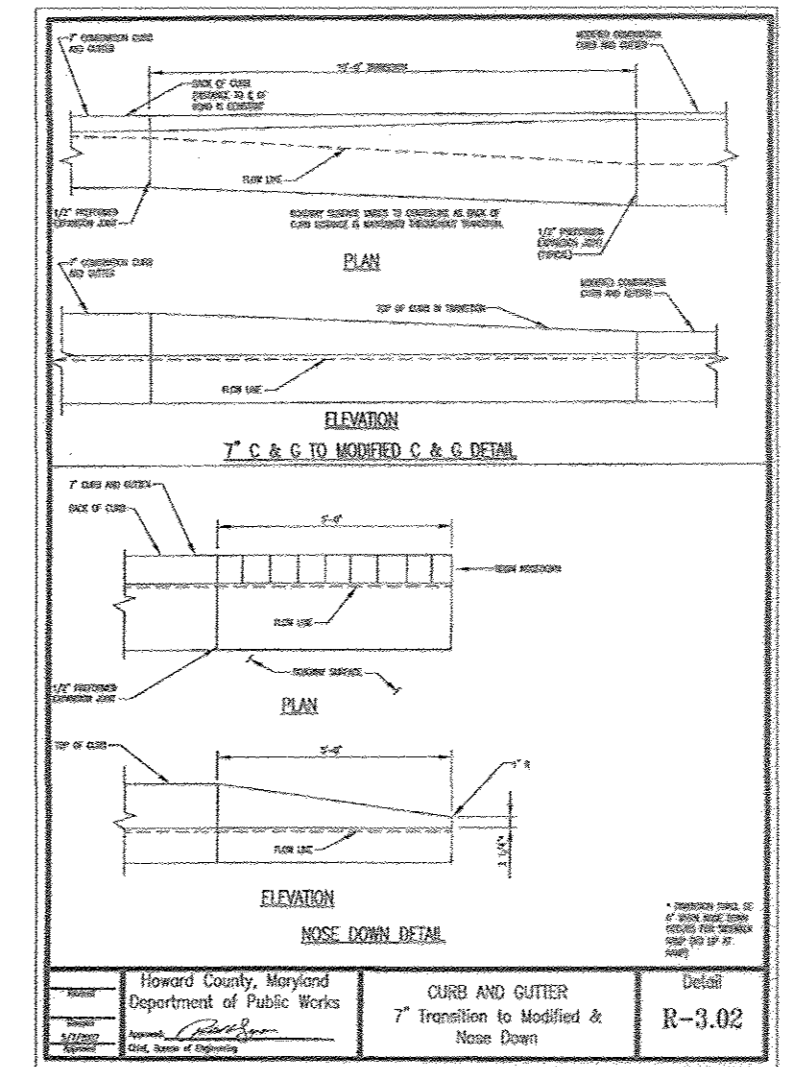
LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
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- EXISTING EDGE OF PAVING
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- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- EX. 20' DRAINAGE & UTILITY EASEMENT (PLAT 12949)
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. PUBLIC SIM. DRAINAGE & UTILITY EASEMENT
- PROP. 35' PRIVATE MONUMENT EASEMENT
- PROP. SEWAGE DISPOSAL AREA
- PROP. WELL AREA



SECTION	ROAD AND STREET CLASSIFICATION	PROPOSED MEDIAN WIDTH (FEET)	2 TO 4 FT TO 4 FT	4 TO 6 FT TO 6 FT	6 TO 8 FT TO 8 FT	8 TO 10 FT TO 10 FT	10 TO 12 FT TO 12 FT
P-1	PROPOSED PAVING FOR THE PROPOSED USE-IN-COMMON DRIVEWAYS AND P-2 PAVING FOR THE ALLNUTT LANE PUBLIC ROAD EXTENSION.	10.0	1.0	1.0	1.0	1.0	1.0
P-2	PROPOSED PAVING FOR THE PROPOSED USE-IN-COMMON DRIVEWAYS AND P-2 PAVING FOR THE ALLNUTT LANE PUBLIC ROAD EXTENSION.	10.0	1.0	1.0	1.0	1.0	1.0
P-3	PROPOSED PAVING FOR THE PROPOSED USE-IN-COMMON DRIVEWAYS AND P-2 PAVING FOR THE ALLNUTT LANE PUBLIC ROAD EXTENSION.	10.0	1.0	1.0	1.0	1.0	1.0
P-4	PROPOSED PAVING FOR THE PROPOSED USE-IN-COMMON DRIVEWAYS AND P-2 PAVING FOR THE ALLNUTT LANE PUBLIC ROAD EXTENSION.	10.0	1.0	1.0	1.0	1.0	1.0

Department of Public Works
Design: R-2.01

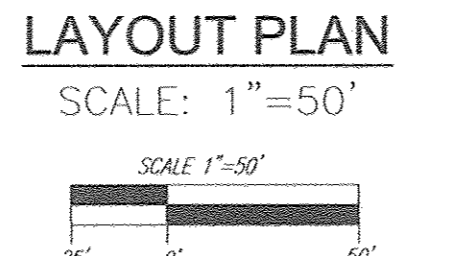


ALLNUTT LANE LINE TABLE

LINE	BEARING	DISTANCE
L1	S84°24'03"E	300.90'

ALLNUTT LANE CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TAN	CHORD
C-1	109.00'	82.85'	43°33'01"	43.54'	N73°49'27"E 80.87'



NOTE:
MDE PERMIT TO BE OBTAINED FOR ANY WORK WITHIN THE WETLAND OR WETLAND BUFFER

USE-IN-COMMON #1 CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TAN	CHORD
C-2	42.00'	24.65'	33°37'34"	12.69'	S45°10'05"W 24.30'
C-3	42.00'	20.59'	28°05'40"	10.51'	S14°18'28"W 20.39'
C-4	185.00'	81.78'	25°19'22"	41.56'	S12°35'10"W 81.10'

USE-IN-COMMON #1 LINE TABLE

LINE	BEARING	DISTANCE
L2	N61°58'52"E	91.88'
L3	N28°21'18"E	76.26'
L4	N00°15'38"E	90.66'
L5	N25°35'00"E	21.15'

USE-IN-COMMON #2 LINE TABLE

LINE	BEARING	DISTANCE
L10	S54°13'42"E	65.74'
L11	S05°35'57"W	162.54'
L12	S67°04'48"E	159.14'

USE-IN-COMMON #2 CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TAN	CHORD
C-9	42.00'	43.86'	59°49'39"	24.16'	S24°18'52"E 41.89'
C-10	42.00'	53.28'	72°40'45"	30.90'	S30°44'25"W 49.78'
C-11	42.00'	18.44'	25°09'33"	9.37'	S79°39'59"E 18.29'

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
3875 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

William J. Kelly
PLANNING DIRECTOR

3-14-18
DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

Robert H. Vogel
COUNTY HEALTH OFFICER

3-14-18
DATE

PRELIMINARY EQUIVALENT SKETCH PLAN

LAYOUT PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

ZONED: RR-DEO
L 4772 / F. 285
HOWARD COUNTY, MARYLAND

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: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

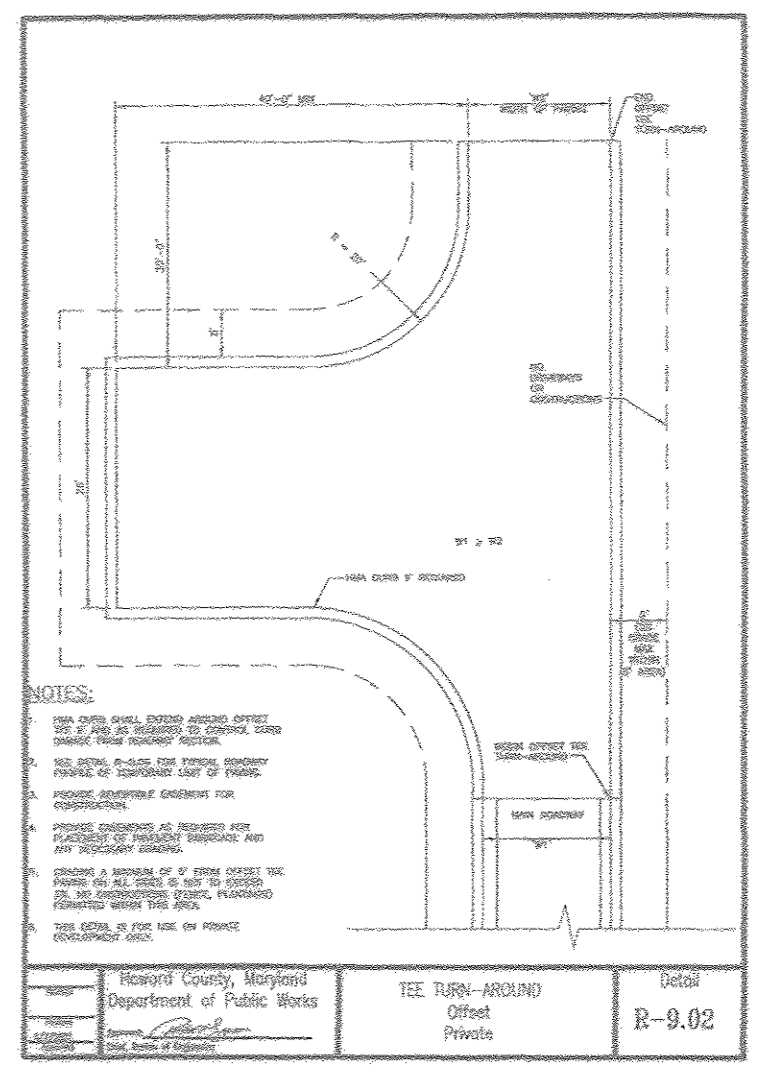
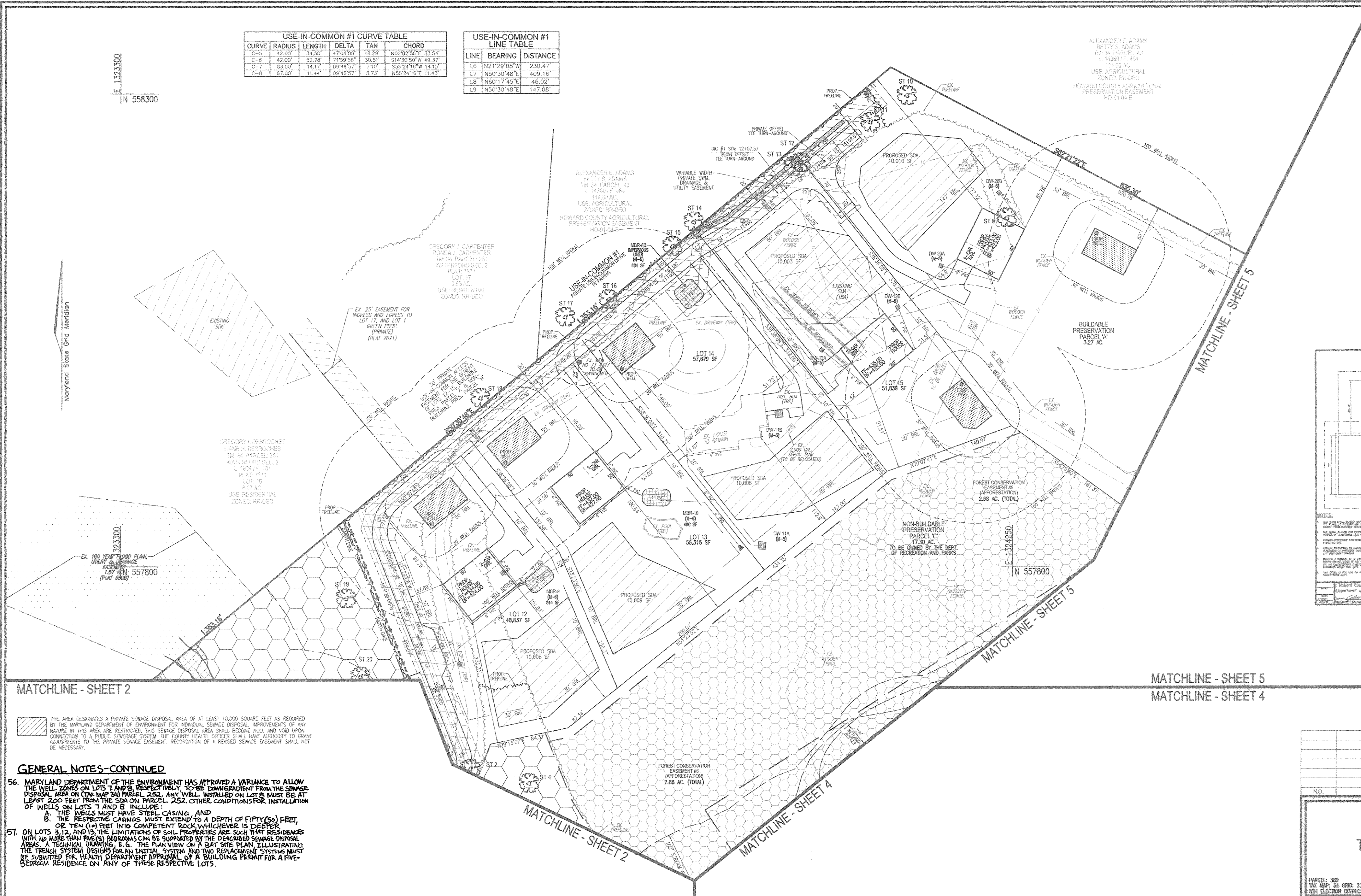
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2018.

2 SHEET OF 24

USE-IN-COMMON #1 CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	TAN	CHORD
C-5	42.00'	34.50'	47°04'08"	18.29'	N02°02'56"E 33.54'
C-6	42.00'	32.78'	71°59'06"	30.51'	S14°30'50"W 49.37'
C-7	83.00'	14.17'	09°46'57"	7.10'	S55°24'16"W 14.15'
C-8	67.00'	11.44'	09°46'57"	5.73'	N55°24'16"E 11.43'

USE-IN-COMMON #1 LINE TABLE		
LINE	BEARING	DISTANCE
L6	N21°29'08"W	230.47'
L7	N50°30'48"E	409.16'
L8	N60°17'45"E	46.02'
L9	N50°30'48"E	147.08'

LEGEND:	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
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	PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
	PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
	EX. 25' EASEMENT FOR INGRESS AND EGRESS TO LOT 17 AND LOT 1 GREEN PROP. (PRIVATE) (PLAT 7671)
	PROP. SEWAGE DISPOSAL AREA
	PROP. WELL AREA



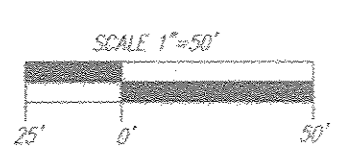
MATCHLINE - SHEET 2

MATCHLINE - SHEET 5
MATCHLINE - SHEET 4

THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECONSTRUCTION OF A REVISED SEWAGE EASEMENT SHALL NOT BE NECESSARY.

GENERAL NOTES-CONTINUED

- 56. MARYLAND DEPARTMENT OF THE ENVIRONMENT HAS APPROVED A VARIANCE TO ALLOW THE WELL ZONES ON LOTS 7 AND 8, RESPECTIVELY, TO BE DOWNGRADIENT FROM THE SEWAGE DISPOSAL AREA ON (THE MAP 54) PARCEL 252. ANY WELL, INSTALLED ON LOTS 7 AND 8 MUST BE AT LEAST 2.00 FEET FROM THE SDA ON PARCEL 252. OTHER CONDITIONS FOR INSTALLATION OF WELLS ON LOTS 7 AND 8 INCLUDE:
 - A. THE WELLS MUST HAVE STEEL CASING, AND
 - B. THE RESPECTIVE CASINGS MUST EXTEND TO A DEPTH OF FIFTY(50) FEET, OR TEN (10) FEET INTO COMPETENT ROCK, WHICHEVER IS DEEPER.
- 57. ON LOTS 3, 12, AND 15 THE LIMITATIONS OF SOIL PROPERTIES ARE SUCH THAT RESIDENCES WITH NO MORE THAN FIVE (5) BEDROOMS CAN BE SUPPORTED BY THE DESCRIBED SEWAGE DISPOSAL AREAS. A TECHNICAL DRAWING, E.G. THE PLAN VIEW ON A SAT SITE PLAN, ILLUSTRATING THE TRENCH SYSTEM DESIGN FOR AN INITIAL SYSTEM AND TWO REPLACEMENT SYSTEMS MUST BE SUBMITTED FOR HEALTH DEPARTMENT APPROVAL OF A BUILDING PERMIT FOR A FIVE-BEDROOM RESIDENCE ON ANY OF THESE RESPECTIVE LOTS.



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Valerie Flynn
PLANNING DIRECTOR

3-14-18
DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

Monica Rossman
COUNTY HEALTH OFFICER

2/28/2018
DATE

LAYOUT PLAN
SCALE: 1"=50'

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 21077
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
3875 PARK AVE., SUITE 501
ELlicOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN

LAYOUT PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389
TAX MAP: 34 GRD: 23
5TH ELECTION DISTRICT

ZONED: RR-DEO
L 4772 / F. 285
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

DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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. 16183 EXPIRATION DATE: 03-27-2018

3 SHEET OF 24



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING SPECIMEN TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
- EX. 24' WIDE PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4 (PLAT 12949)
- EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
- PROP. SEWAGE DISPOSAL AREA
- PROP. WELL AREA

THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A REVISED SEWAGE EASEMENT SHALL NOT BE NECESSARY.

USE-IN-COMMON #2 LINE TABLE

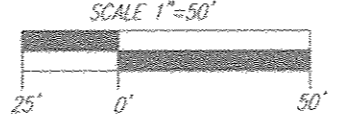
LINE	BEARING	DISTANCE
L13	N87°45'39"E	754.84'
L14	N02°09'43"W	606.37'

USE-IN-COMMON #2 CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TAN	CHORD
C-12	42.00'	85.92'	89°52'22"	41.94'	N42°47'58"E 59.36'

LAYOUT PLAN

SCALE: 1"=50'



E 1323950
N 557600

E 1323950
N 556700

E 1324850
N 556700

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

William J. J...
PLANNING DIRECTOR

3-14-18
DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

Benjamin for Mauna Rossman
COUNTY HEALTH OFFICER

2/28/2018
DATE

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN

LAYOUT PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 388 ZONED: RR-DEO
TAX MAP: 34 GRID: 23 L. 472 / F. 295
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE

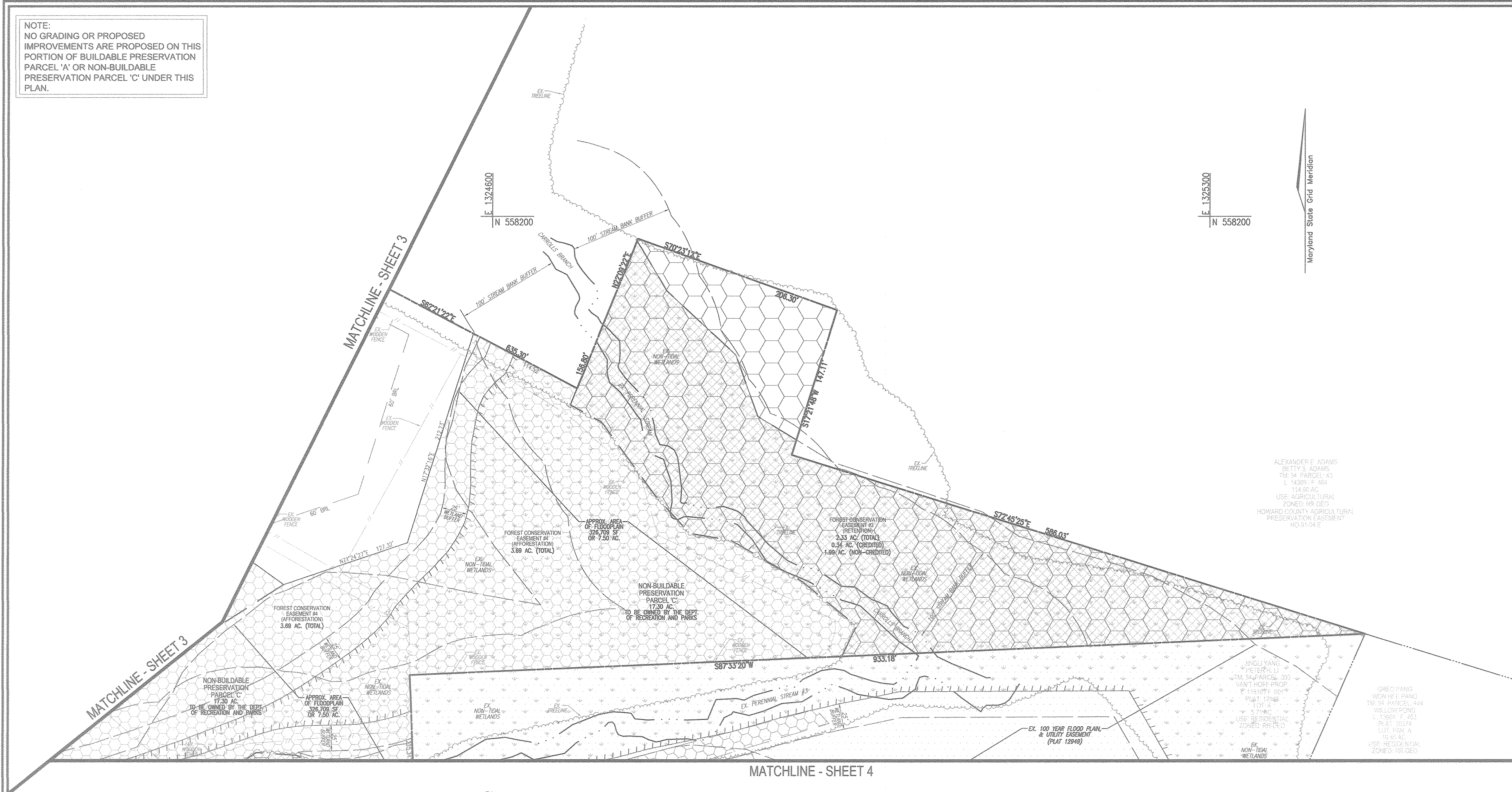
DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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4 SHEET OF 24

NOTE:
NO GRADING OR PROPOSED IMPROVEMENTS ARE PROPOSED ON THIS PORTION OF BUILDABLE PRESERVATION PARCEL 'A' OR NON-BUILDABLE PRESERVATION PARCEL 'C' UNDER THIS PLAN.

- LEGEND:**
- PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - ADJACENT PROPERTY LINE
 - EXISTING EDGE OF PAVING
 - EXISTING STREAM BUFFER
 - EXISTING STREAM
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - EXISTING WETLANDS
 - EXISTING WETLAND BUFFER
 - EXISTING SPECIMEN TREES
 - EXISTING WOOD FENCE
 - EX. PUBLIC 100-YEAR FLOOD PLAN
 - EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)



ALEXANDER F. ADAMS
BETTY S. ADAMS
TM. 34 PARCEL 43
L. 14389.1 ± 464
144.89 AC
USE: AGRICULTURAL
ZONED RR-DED
HOWARD COUNTY AGRICULTURAL
PRESERVATION EASEMENT
HO-01-04-E

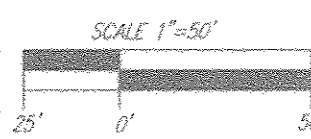
JINGLI YANG
PETER H. LI
TM. 34 PARCEL 395
VANT WOOD PROP.
PLOT 115187 ± 091
1.01 ±
5.79 AC
USE: RESIDENTIAL
ZONED RR-DED
15.45 AC
USE: RESIDENTIAL
ZONED RR-DED

GREO PANG
WEN HE E PANG
TM. 34 PARCEL 444
WILLOW POND
1.1962 ± 221
PLOT 05574
LOT PARK A
15.45 AC
USE: RESIDENTIAL
ZONED RR-DED

MATCHLINE - SHEET 4

E. 1324600
N 557600

LAYOUT PLAN
SCALE: 1"=50'



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

N. Williams
PLANNING DIRECTOR

3-14-18
DATE

OWNER
RENE L. GELBER
JEANNIE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN

LAYOUT PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE 'GREENE PROPERTY', LOT 1

PARCEL 369
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

ZONED: RR-DED
L. 4772 / E. 285
HOWARD COUNTY, MARYLAND

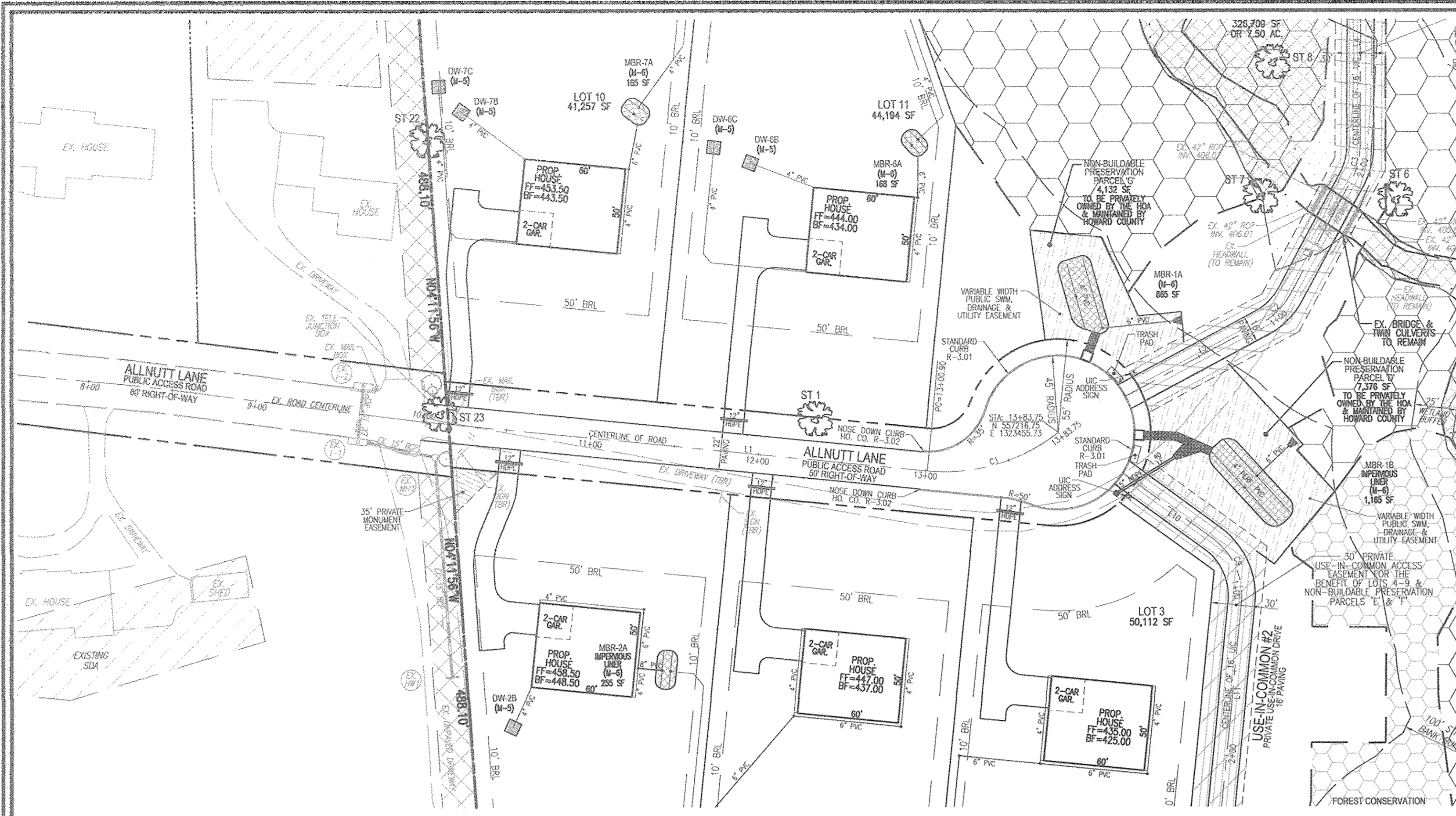
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELlicOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

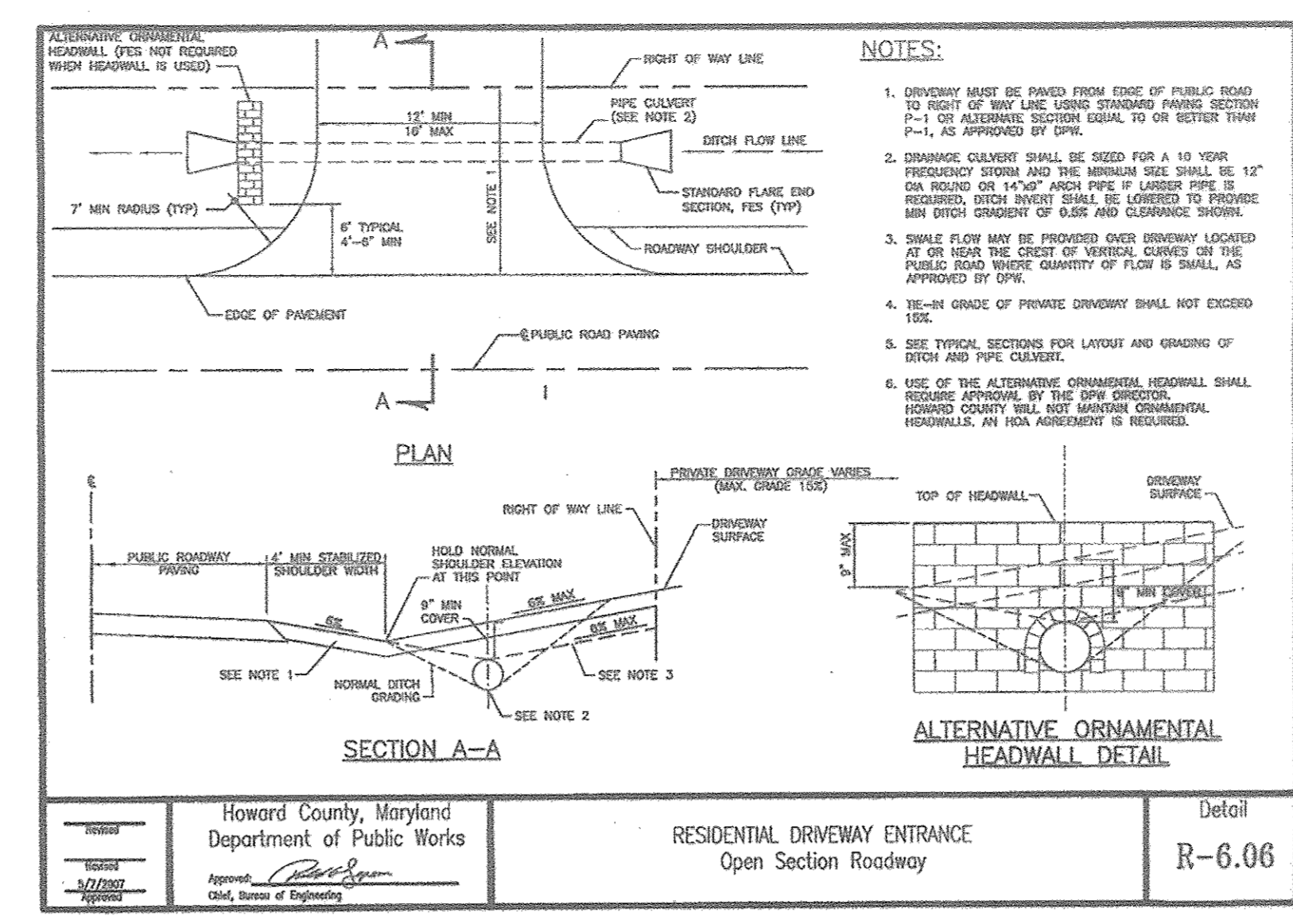
DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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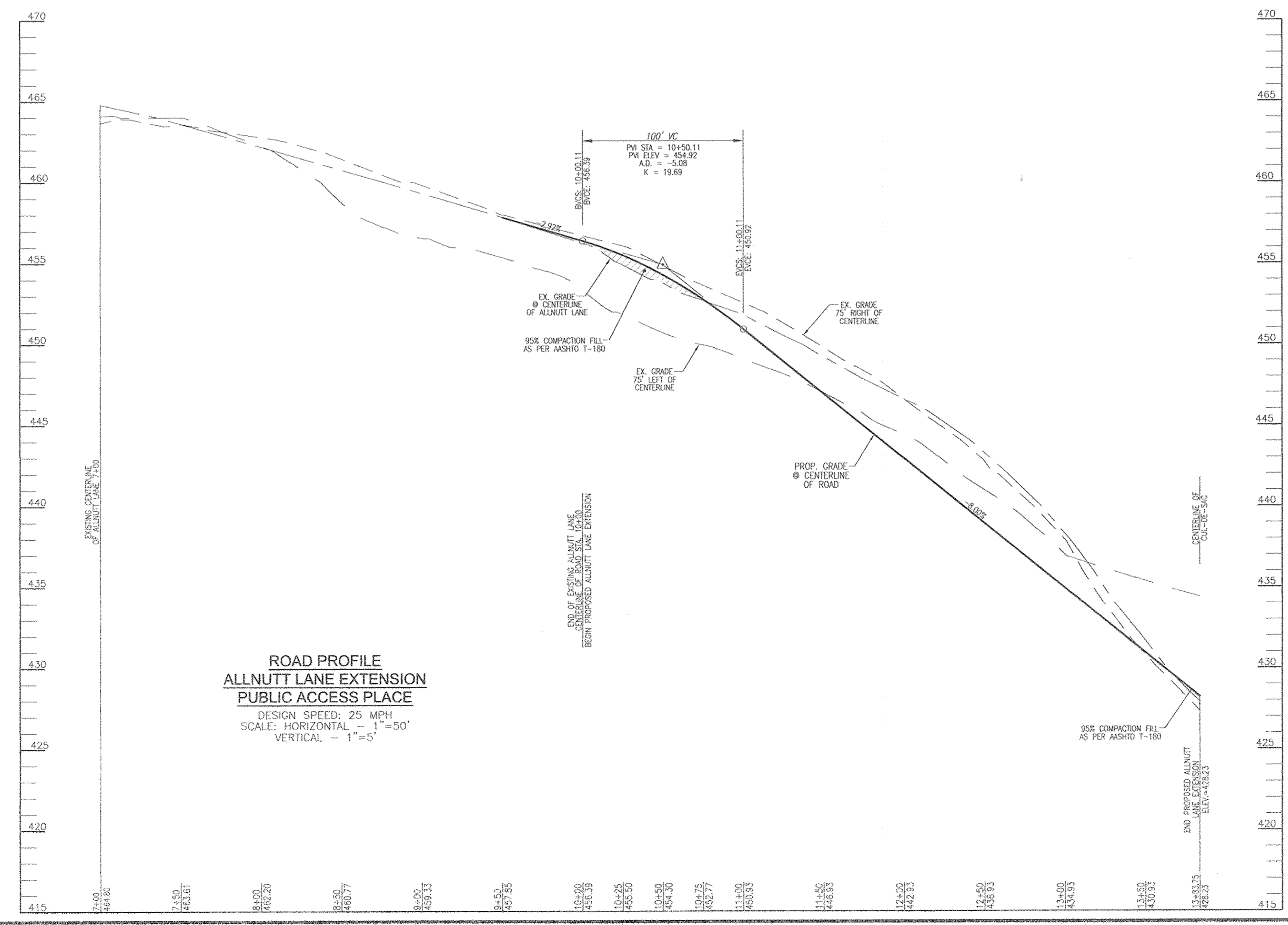
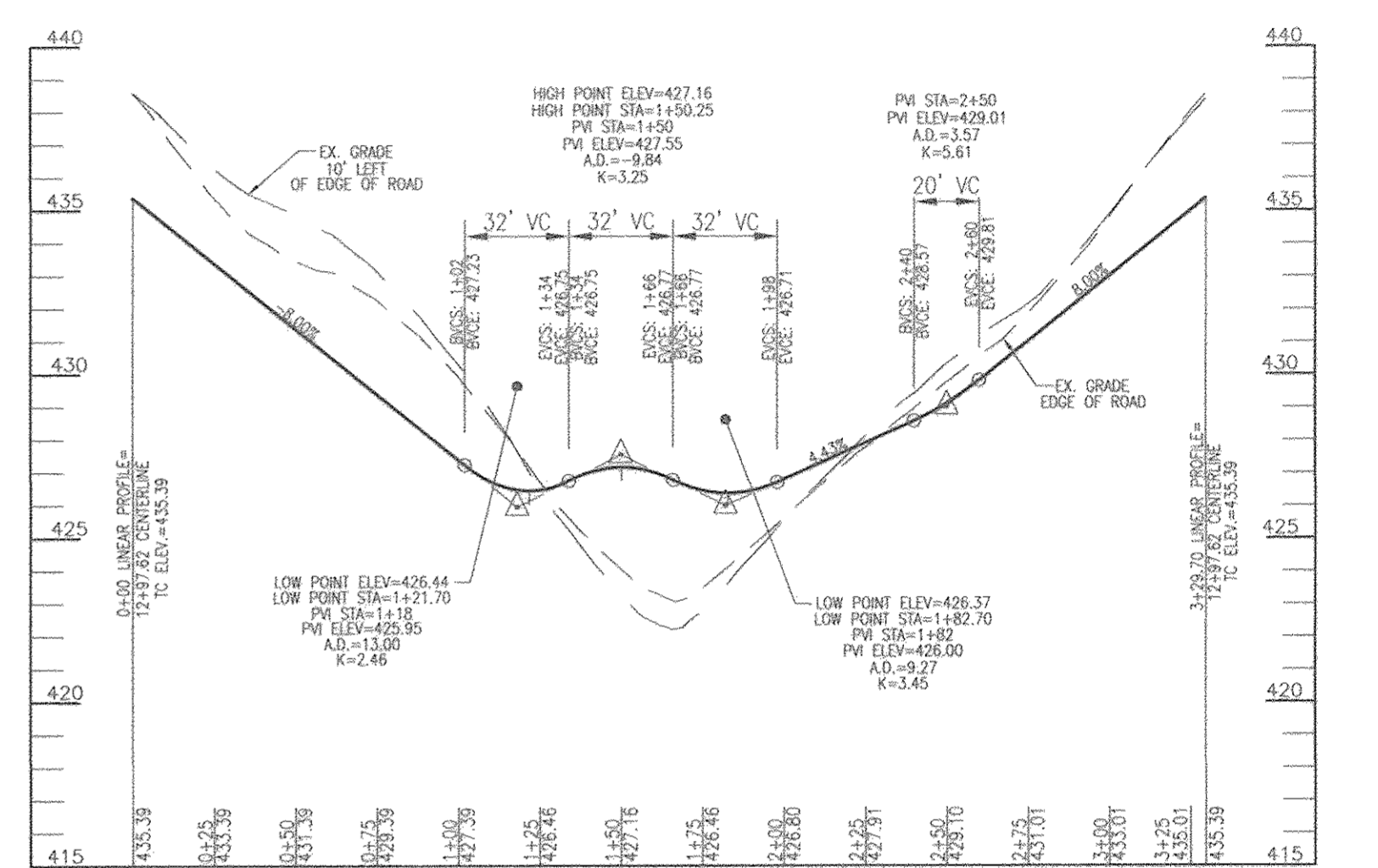
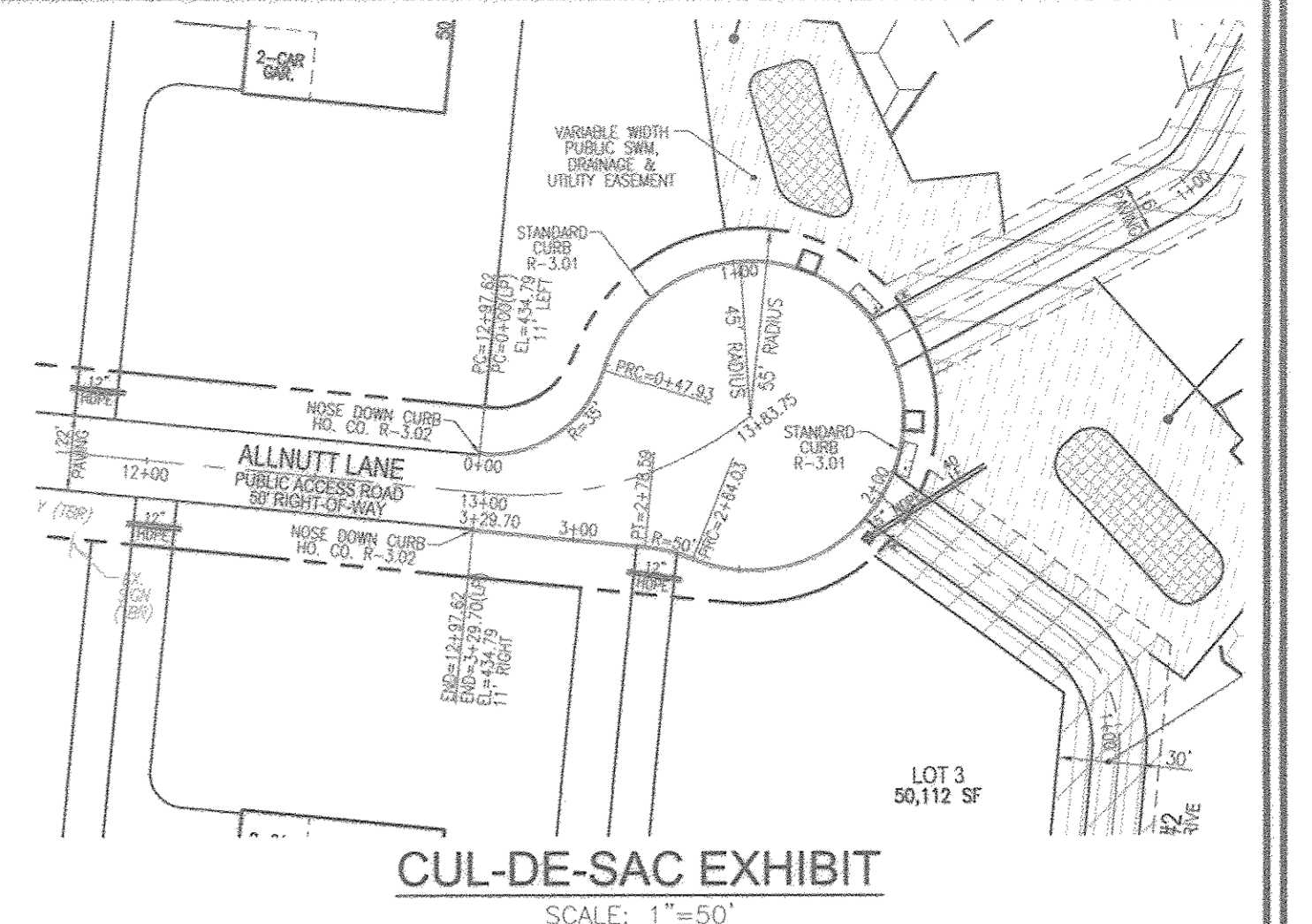
5 SHEET OF 24



ALLNUTT LANE EXTENSION
SCALE: 1"=50'



Howard County, Maryland
Department of Public Works
RESIDENTIAL DRIVEWAY ENTRANCE
Open Section Roadway
Detail
R-6.06



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR: *[Signature]*
DATE: 3-14-18

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, 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

PRELIMINARY EQUIVALENT SKETCH PLAN
PUBLIC ROAD PLAN, PROFILES AND DETAILS
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 388
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

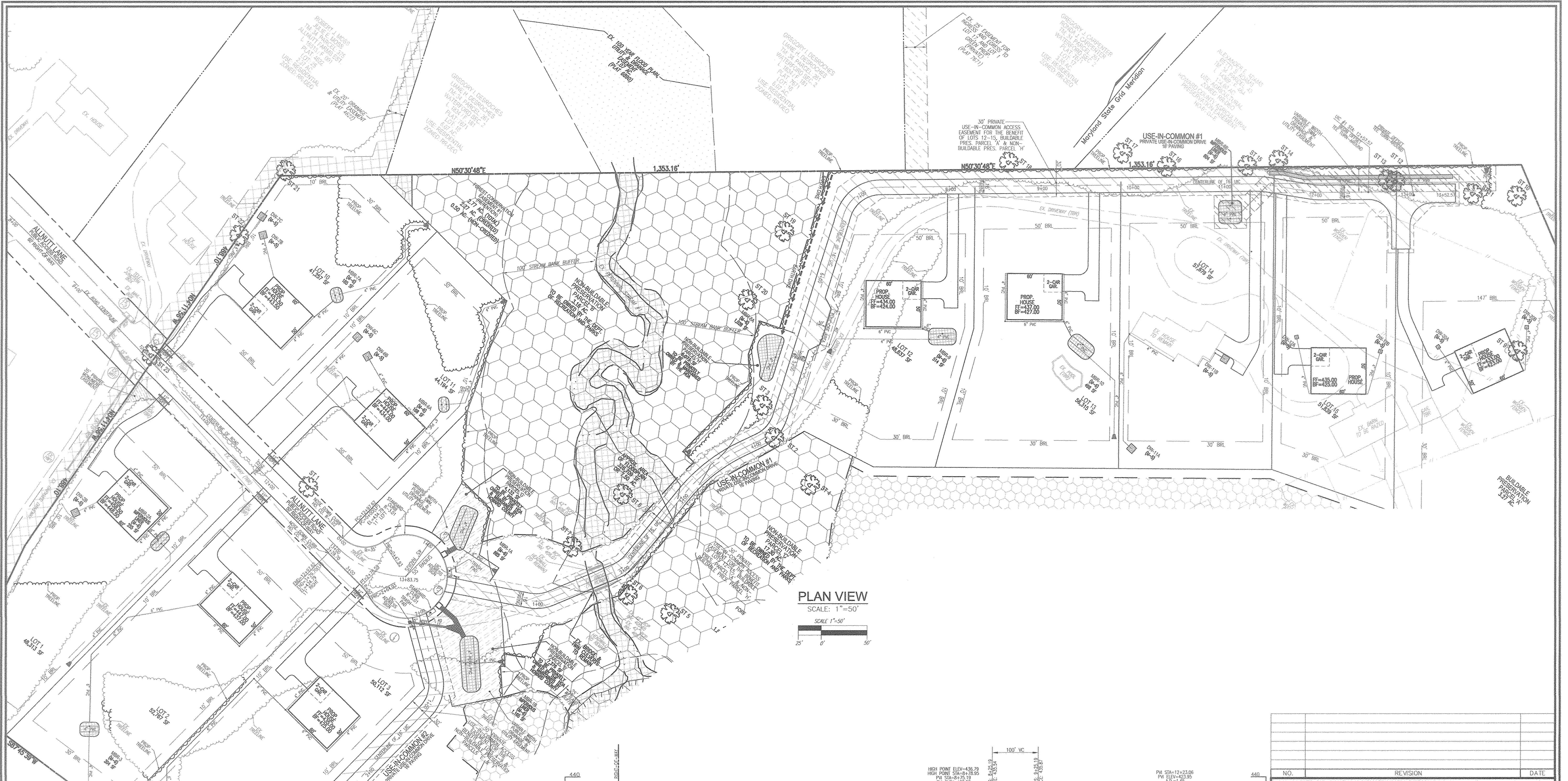
ZONED: RR-DEO
L 4772 / F. 285
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
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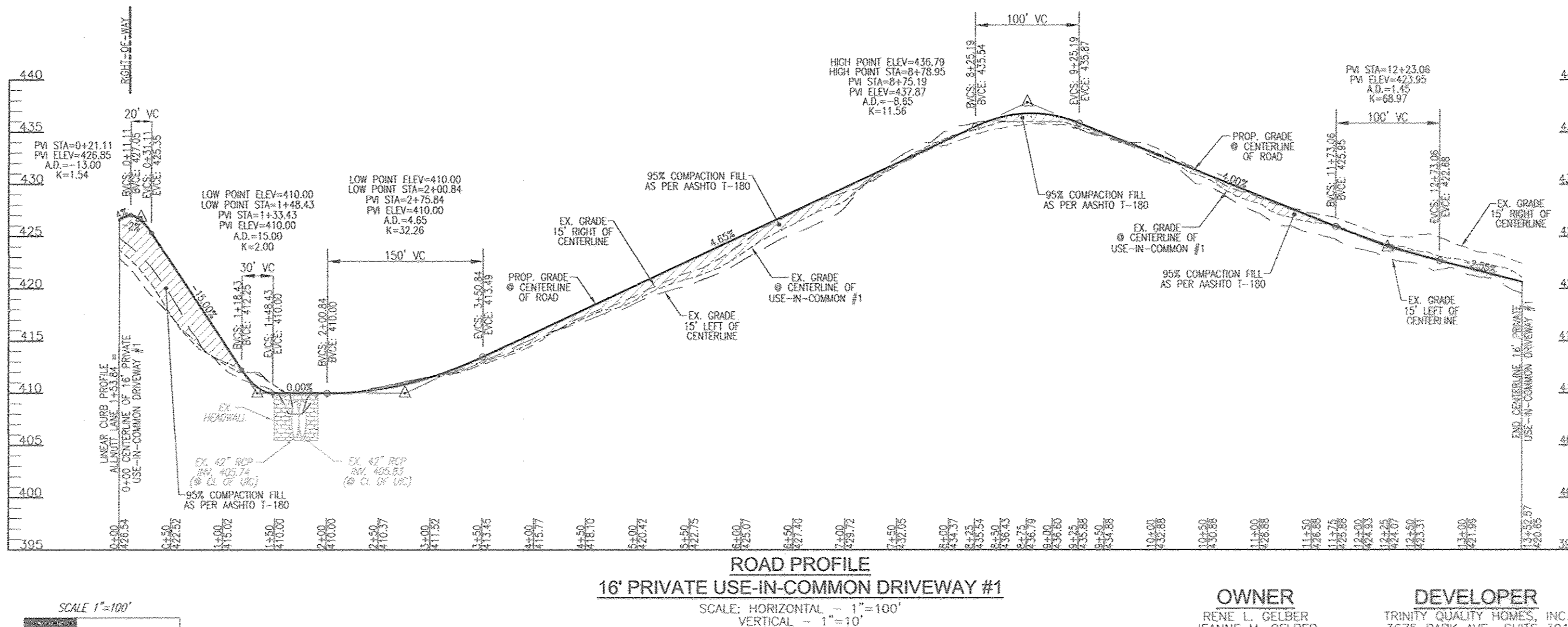
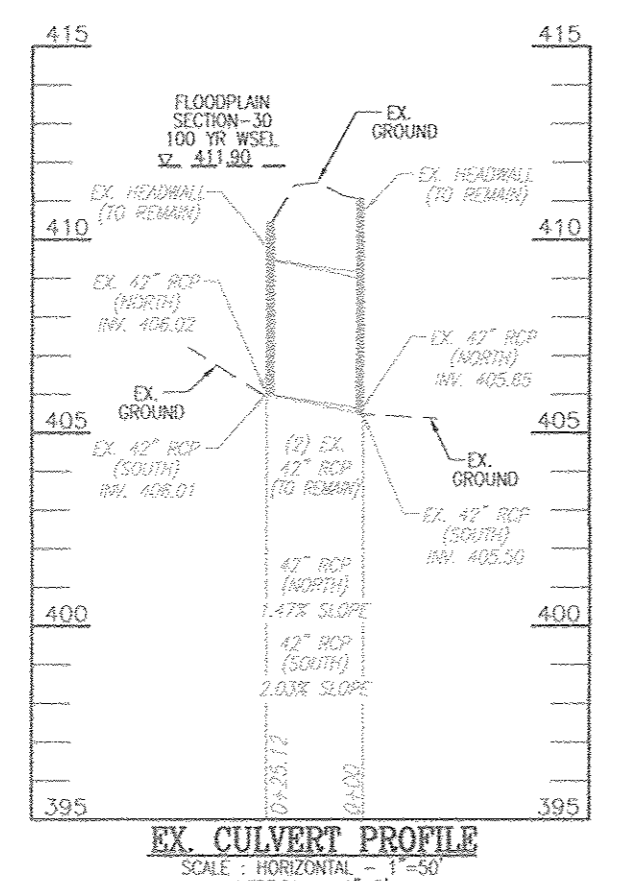
DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

PROFESSIONAL CERTIFICATE
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6 SHEET OF 24



PLAN VIEW
SCALE: 1"=50'
SCALE 1"=50'



ROAD PROFILE
16' PRIVATE USE-IN-COMMON DRIVEWAY #1
SCALE: HORIZONTAL - 1"=100'
VERTICAL - 1"=10'

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

3-14-18
DATE

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
PRIVATE USE-IN-COMMON DRIVEWAY #1
PLAN, PROFILE AND DETAILS
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE 'GREENE PROPERTY', LOT 1

PARCEL: 389
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

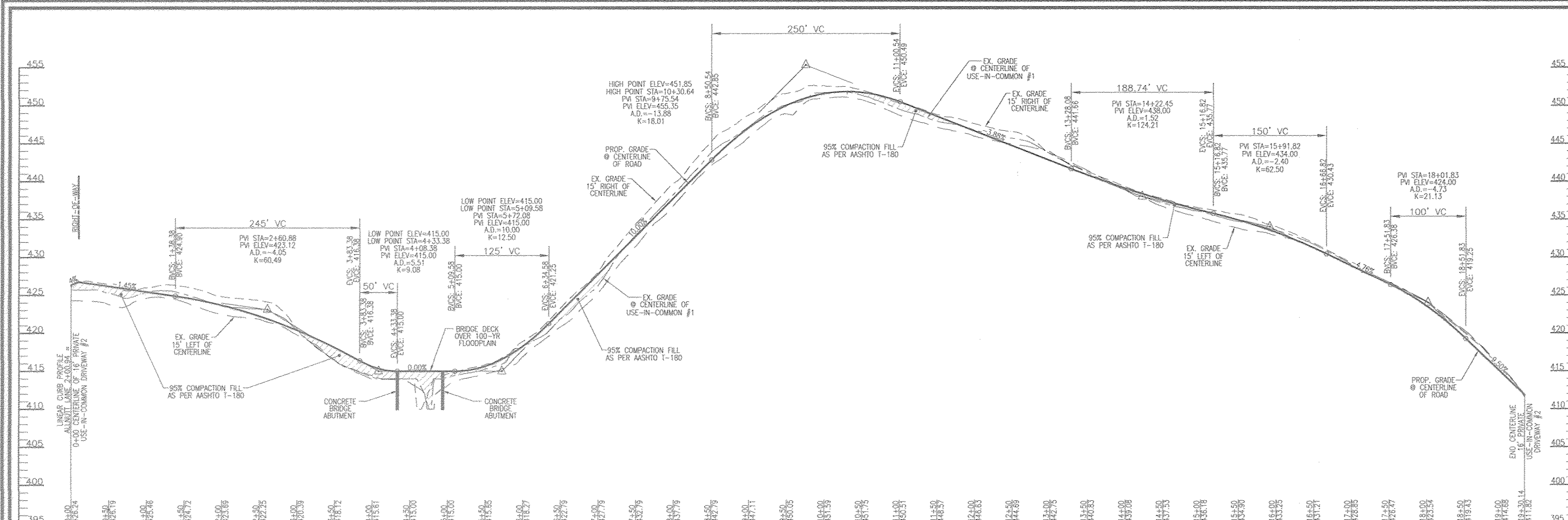
ZONED: RR-DEO
L 4772 / F. 285
HOWARD COUNTY, MARYLAND

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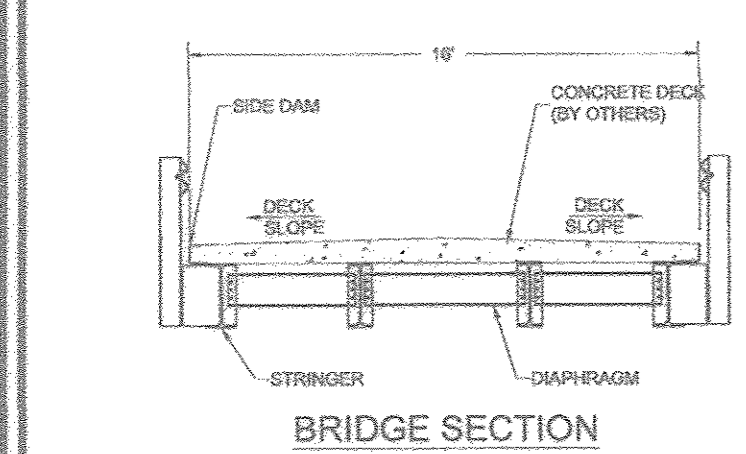
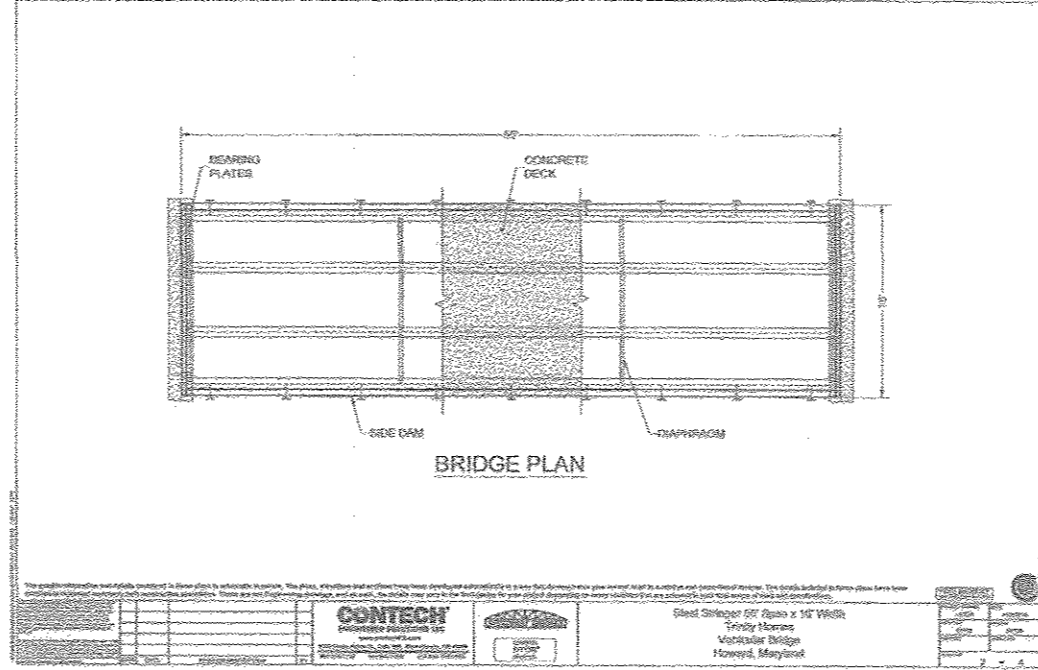
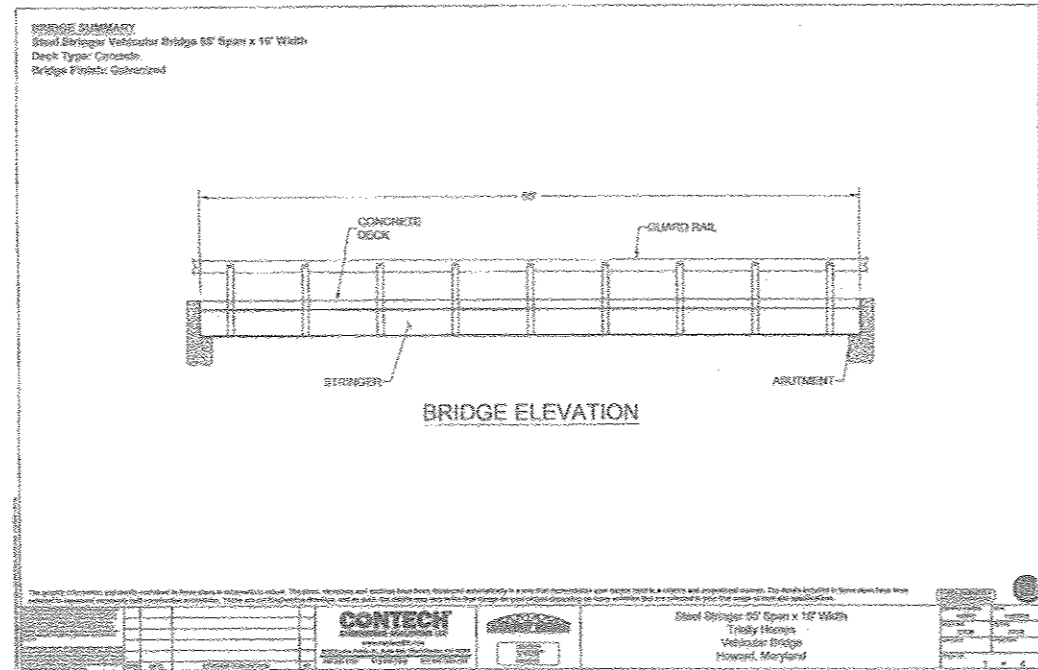
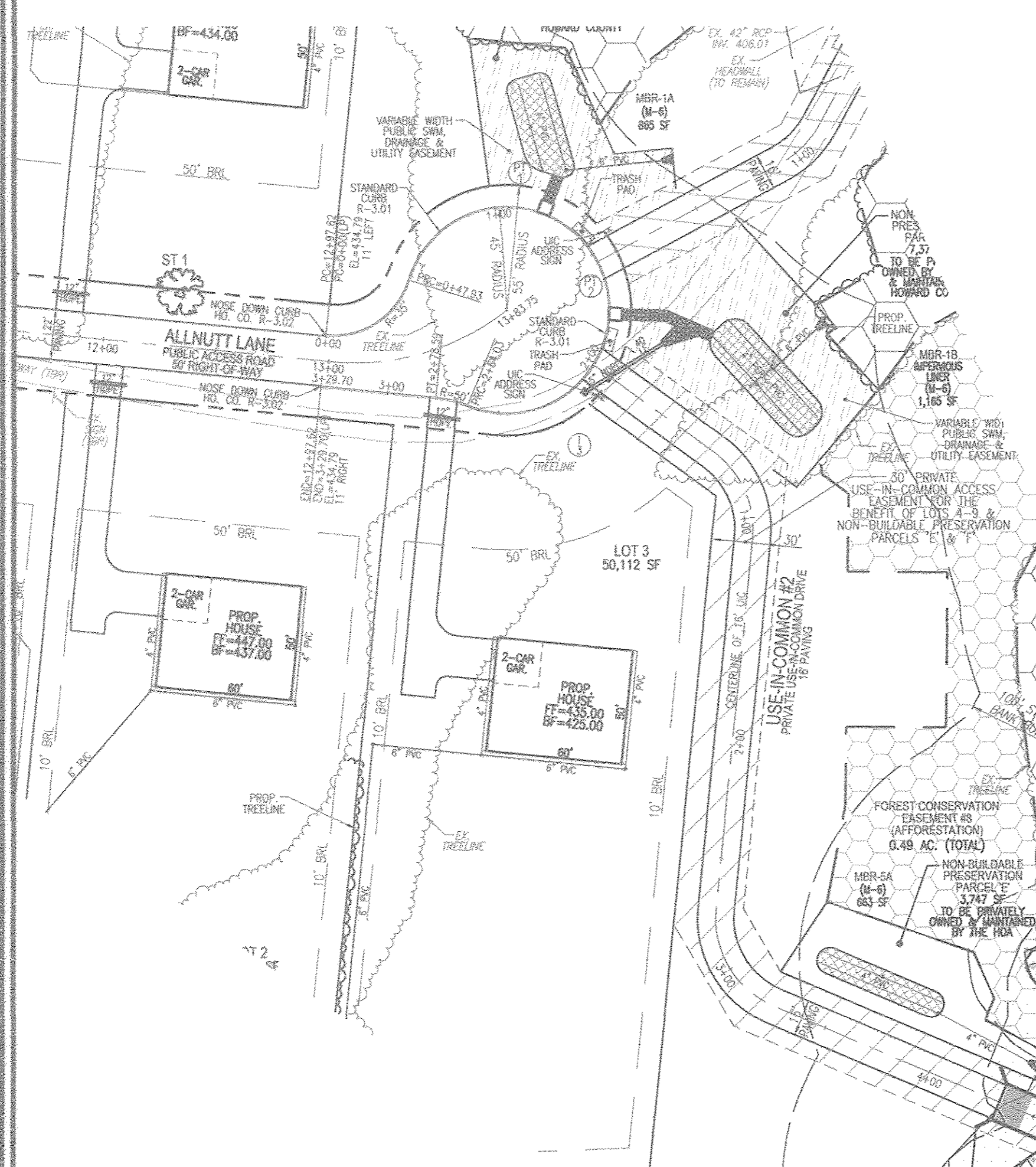
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND
THAT I AM A DAILY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE
OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2018

DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

7 SHEET OF 24

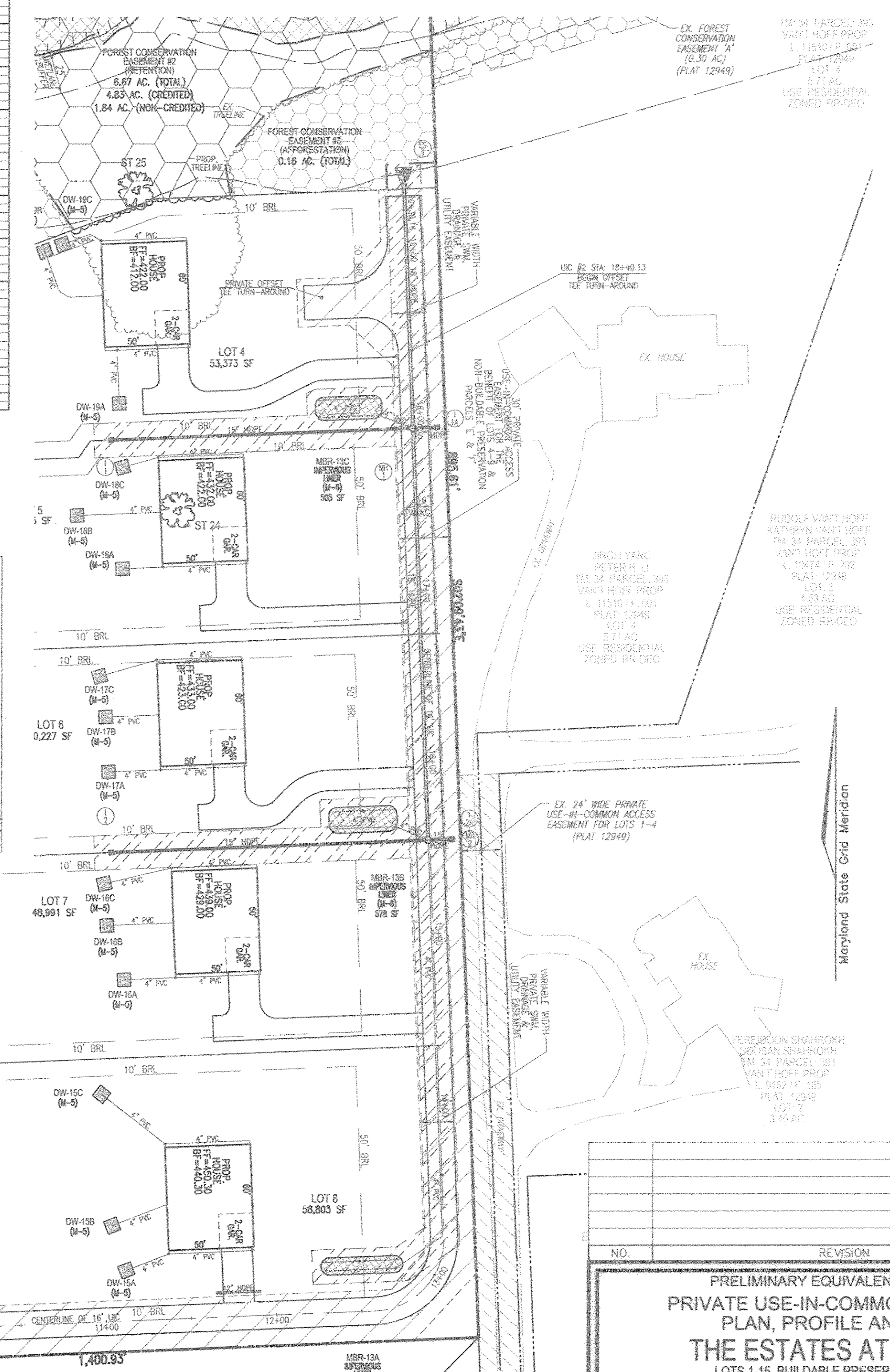


ROAD PROFILE
16' PRIVATE USE-IN-COMMON DRIVEWAY #2
 SCALE: HORIZONTAL 1"=100'
 VERTICAL 1"=10'



G. WARREN MILES
 MARIE L. MILES
 TM 34 PARCEL 252
 L 1285 F 383
 11.00 AC.
 USE AGRICULTURAL
 ZONED RR-DEO

PLAN VIEW
 SCALE: 1"=50'

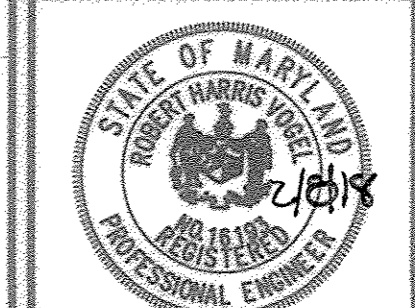


NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
PRIVATE USE-IN-COMMON DRIVEWAY #2
PLAN, PROFILE AND DETAILS
THE ESTATES AT RIVER HILL
 LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
 AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
 A RE-SUBDIVISION OF THE 'GREENE PARK', LOT 1

PARCEL 369
 TAX MAP 34 GRID 23
 5TH ELECTION DISTRICT
 ZONED RR-DEO
 L 4772 / E 288
 HOWARD COUNTY, MARYLAND

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



DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: FEBRUARY 2018
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 W.O. NO.: 15-39

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 THAT I AM A DULY LICENSED PROFESSIONAL
 ENGINEER UNDER THE LAWS OF THE STATE
 OF MARYLAND, LICENSE NO. 16193
 EXPIRATION DATE: 09-27-2018

8 SHEET OF 24

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
 Planning Director
 3-14-18
 DATE

OWNER
 RENE L. GELBER
 JEANNE M. GELBER
 13550 ALLNUTT LANE
 HIGHLAND, MD 20777
 (410) 480-0023

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

MATCHLINE - SHEET 10

NOTE: NO AREAS OF STEEP SLOPES AS HATCHED HEREON ARE REGULATED PER SECTION 16.116 OF THE HOWARD COUNTY SUB. REG'S.



MATCHLINE - SHEET 11

- LEGEND:**
- PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - ADJACENT PROPERTY LINE
 - EXISTING EDGE OF PAVING
 - EXISTING STREAM BUFFER
 - EXISTING STREAM
 - EXISTING TREETRINE
 - PROPOSED TREETRINE
 - EXISTING WETLANDS
 - EXISTING WETLAND BUFFER
 - EXISTING SPECIMEN TREES
 - EXISTING WOOD FENCE
 - EXISTING METAL FENCE
 - EX. PUBLIC 100-YEAR FLOOD PLAN
 - EX. 20' DRAINAGE & UTILITY EASEMENT (PLAT 12945)
 - PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
 - PROP. PUBLIC SWM, DRAINAGE & UTILITY EASEMENT
 - PROP. 35' PRIVATE MONUMENT EASEMENT
 - EXISTING 10' CONTOUR
 - EXISTING 2' CONTOUR
 - SOILS
 - PROPOSED 10' CONTOUR
 - PROPOSED 2' CONTOUR
 - EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
 - EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
 - PROP. SEWAGE DISPOSAL AREA
 - PROP. WELL AREA

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
SaA	SABLE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODRUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GsB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GcC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
HsA	HATBORO-CODRUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE NW

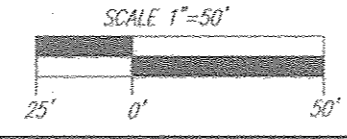
NOTE:
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL CROSBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

GRADING PLAN

SCALE: 1"=50'



PLANNING DIRECTOR

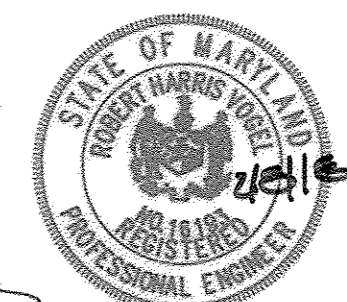
3-14-18
DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.
COUNTY HEALTH OFFICER

2/28/2018
DATE

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
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(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 21043
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DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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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

9 SHEET OF 24

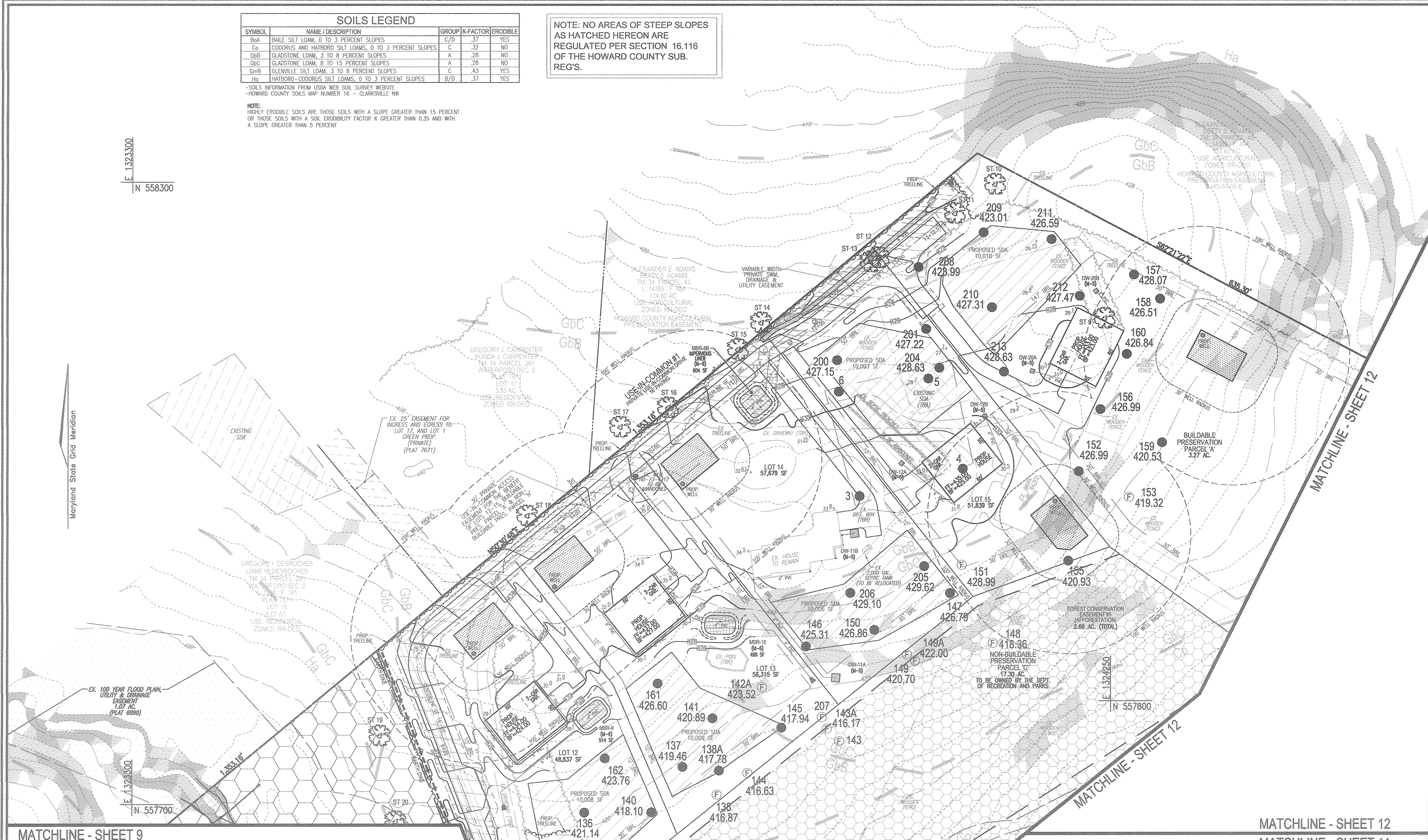
SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
Ba	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Ca	CODORUS AND HARBOR SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GhB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hg	HARBOR-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

-SOILS INFORMATION FROM USGS WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE 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

NOTE: NO AREAS OF STEEP SLOPES AS HATCHED HEREON ARE REGULATED PER SECTION 16.116 OF THE HOWARD COUNTY SUB. REG'S.

LEGEND:	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EX. PUBLIC 100-YEAR FLOOD PLAIN
	PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
	PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
	EX. 25' EASEMENT FOR ACCESS AND EGRESS TO LOT 17, AND LOT 1 GREEN PROP. (PRIVATE) (PLAT 7671)
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
	EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
	PROP. SEWAGE DISPOSAL AREA
	PROP. WELL AREA



MATCHLINE - SHEET 9

MATCHLINE - SHEET 12
MATCHLINE - SHEET 11

MATCHLINE - SHEET 9
MATCHLINE - SHEET 11

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
SOILS MAP AND GRADING PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389 ZONED: RR-05D
TAX MAP: 54 GRID: 23 L. 4772 / E. 285
5TH ELECTION DISTRICT 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

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018

10 SHEET OF 24

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

N. Williams
PLANNING DIRECTOR

3-14-18
DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

Benjamin for Maureen Rosman
COUNTY HEALTH OFFICER

2/28/2018
DATE

GRADING PLAN
SCALE: 1"=50'
SCALE: 1"=50'

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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



LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EX. PUBLIC 100-YEAR FLOOD PLAIN
	PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
	PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
	EX. 24' WIDE PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4 (PLAT 12949)
	EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
	EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
	PROP. SEWAGE DISPOSAL AREA
	PROP. WELL AREA

NOTE: NO AREAS OF STEEP SLOPES AS HATCHED HEREON ARE REGULATED PER SECTION 16.116 OF THE HOWARD COUNTY SUB. REG'S.

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
SOILS MAP AND GRADING PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT
ZONED: RR-DEO
L. 4772 / F. 285
HOWARD COUNTY, MARYLAND

SOILS LEGEND

SYMBOL	NAME/DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
Ba	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODORUS AND HARBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GcC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hg	HARBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE 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

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

William J. Griffin
PLANNING DIRECTOR

3-14-18
DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

Barbara M. Roman
COUNTY HEALTH OFFICER

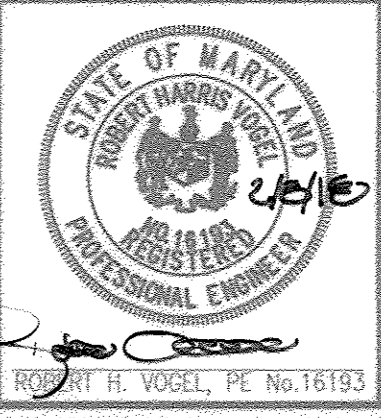
2/28/2018
DATE

GRADING PLAN
SCALE: 1"=50'

SCALE 1"=50'

OWNER
RONE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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



PROFESSIONAL CERTIFICATE

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DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

11 SHEET OF 24

NOTE:
NO GRADING OR PROPOSED IMPROVEMENTS ARE PROPOSED ON THIS PORTION OF BUILDABLE PRESERVATION PARCEL 'A' OR NON-BUILDABLE PRESERVATION PARCEL 'C' UNDER THIS PLAN.

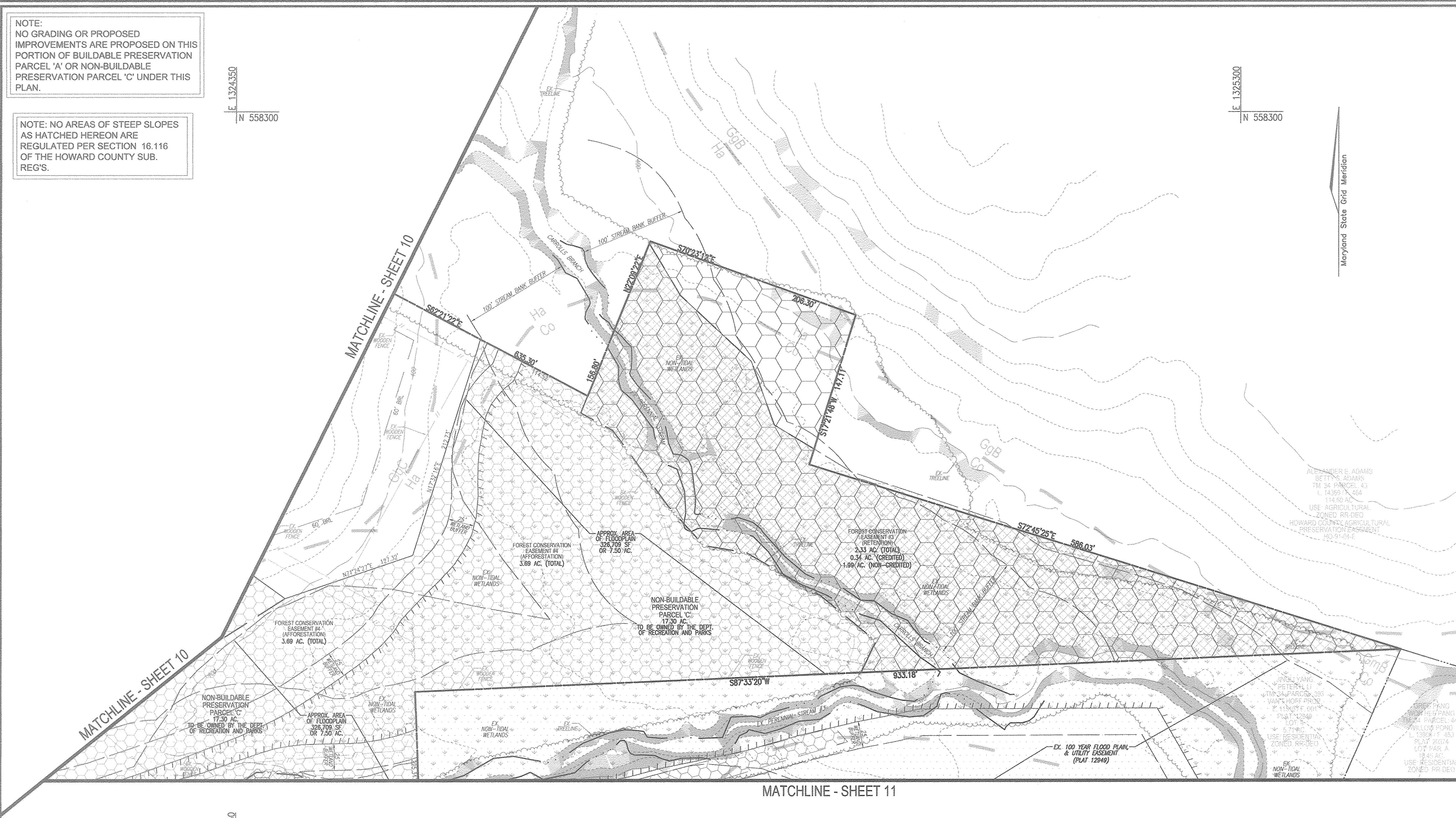
NOTE: NO AREAS OF STEEP SLOPES AS HATCHED HEREON ARE REGULATED PER SECTION 16.116 OF THE HOWARD COUNTY SUB. REG'S.

E 1324350
N 558300

E 1324300
N 558300

LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
	EX. PUBLIC 100-YEAR FLOOD PLAN
	EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12849)
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
	EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)



GRADING PLAN
SCALE: 1"=50'

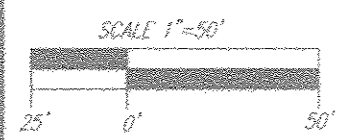
E 1324350
N 557600

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
B5A	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Cc	CODORUS AND HATHORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
G5B	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
G5C	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
G5H	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
H5	HATHORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE NW

NOTE:
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TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

N. J. ...
PLANNING DIRECTOR

3-14-18
DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

Barbara ...
COUNTY HEALTH OFFICER

2/28/2018
DATE

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
5875 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
SOILS MAP AND GRADING PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389
TAX MAP: 54 GRID: 23
5TH ELECTION DISTRICT

ZONING: RR-DEO
L. 4772 / F. 285
HOWARD COUNTY, MARYLAND

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
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. 16183, EXPIRATION DATE: 09-27-2019.

DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

12 SHEET OF 24

THE ESTATES AT RIVER HILL

Runoff Coefficient Justification

Inlet #	Soil Group	Description	Area acres	Table 3.01 "C"	CA
INLET 1	C	O.S. Grass (Steep)	1.05	0.24	0.2520
	C	Impervious Area	0.22	0.86	0.1892
			1.27		0.4412
			C = 0.35		
			% Imp = 11		
INLET 1A	C	O.S. Grass (Steep)	0.05	0.24	0.0120
	C	Impervious Area	0.00	0.86	0.0000
			0.05		0.0120
			C = 0.24		
			% Imp = 0		
INLET 2	C	O.S. Grass (Steep)	1.00	0.24	0.2400
	C	Impervious Area	0.17	0.86	0.1462
			1.17		0.3862
			C = 0.33		
			% Imp = 9		
INLET 2A	C	O.S. Grass (Steep)	1.94	0.24	0.4656
	C	Impervious Area	0.11	0.86	0.0948
			2.05		0.5602
			C = 0.27		
			% Imp = 3		
INLET 3	C	O.S. Grass (Steep)	0.50	0.24	0.1200
	C	Impervious Area	0.20	0.86	0.1720
			0.70		0.2920
			C = 0.42		
			% Imp = 19		
PT-1	C	O.S. Grass (Steep)	0.00	0.24	0.0000
	C	Impervious Area	0.09	0.86	0.0774
			0.09		0.0774
			C = 0.86		
			% Imp = 100		
PT-2	C	O.S. Grass (Steep)	0.00	0.24	0.0000
	C	Impervious Area	0.09	0.86	0.0774
			0.09		0.0774
			C = 0.86		
			% Imp = 100		

THE ESTATES AT RIVER HILL

Runoff Coefficient Justification

Inlet #	Soil Group	Description	Area acres	Table 3.01 "C"	CA
CLUVERT LOT 1	C	O.S. Grass (Steep)	0.03	0.24	0.0072
	C	Impervious Area	0.01	0.86	0.0086
			0.04		0.0158
			C = 0.40		
			% Imp = 16		
CLUVERT LOT 2	C	O.S. Grass (Steep)	0.25	0.24	0.0600
	C	Impervious Area	0.11	0.86	0.0946
			0.36		0.1546
			C = 0.43		
			% Imp = 20		
CLUVERT LOT 3	C	O.S. Grass (Steep)	0.47	0.24	0.1128
	C	Impervious Area	0.19	0.86	0.1634
			0.66		0.2762
			C = 0.42		
			% Imp = 19		
CLUVERT LOT 10	C	O.S. Grass (Steep)	0.005	0.24	0.0012
	C	Impervious Area	0.005	0.86	0.0040
			0.010		0.0052
			C = 0.54		
			% Imp = 31		
CLUVERT LOT 11	C	O.S. Grass (Steep)	0.07	0.24	0.0168
	C	Impervious Area	0.05	0.86	0.0430
			0.12		0.0598
			C = 0.50		
			% Imp = 27		

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
BaA	BAILEY SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GaB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GaC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Ho	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE, MD

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
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREETLINE
- PROPOSED TREETLINE
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING SPECIMEN TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- EX. 20' DRAINAGE & UTILITY EASEMENT (PLAT 12949)
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. PUBLIC SWM, DRAINAGE & UTILITY EASEMENT
- PROP. 25' PRIVATE MOVEMENT EASEMENT
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
- DRAINAGE AREA DIVIDE
- MBR (M-5)
- DW (M-5)
- PROP. SEWAGE DISPOSAL AREA
- PROP. WELL AREA



SD DRAINAGE AREA MAP

SCALE: 1"=60'

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

N. Walden
PLANNING DIRECTOR

3-14-18
DATE

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
STORM DRAINAGE AREA MAP
THE ESTATES AT RIVER HILL
LOTS 1-11, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389 ZONED: RR-DEO
TAX MAP: 34 GRID: 23 L. 4772 / F. 265
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE

DESIGN BY: RHW
DRAWN BY: JMR
CHECKED BY: RHW
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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: 09-27-2018

13 SHEET OF 24

LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
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	EX. PUBLIC 100-YEAR FLOOD PLAIN
	PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
	PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
	EX. 25' EASEMENT FOR ADDRESS AND ACCESS TO LOT 17, AND LOT 1 GREEN PROP. (PRIVATE) (PLAT 7671)
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
	EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
	DRAINAGE AREA DIVIDE
	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
	PROPOSED DRY WELL (M-5)
	PROP. SEWAGE DISPOSAL AREA
	PROP. WELL AREA



SOILS LEGEND

SYMBOL	NAME/DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
Ba	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
G6B	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
G6C	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GwB	GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hd	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

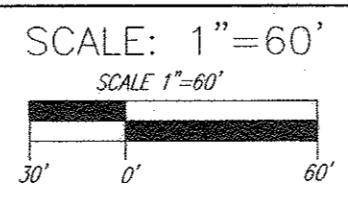
—SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
 —HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE NW

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TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

William J. Miller
 PLANNING DIRECTOR
 3-14-18
 DATE

SD DRAINAGE AREA MAP



OWNER
 RENE L. GELBER
 JEANNE M. GELBER
 13550 ALLNUTT LANE
 HIGHLAND, MD 20777
 (410) 480-0023

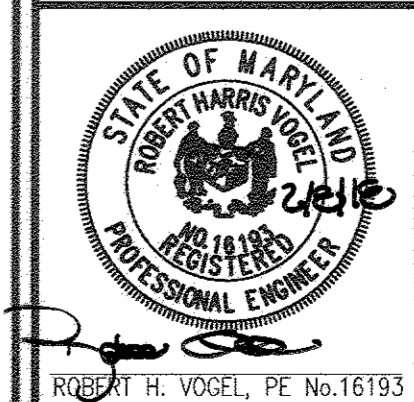
DEVELOPER
 TRINITY QUALITY HOMES, INC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
STORM DRAIN DRAINAGE AREA MAP
THE ESTATES AT RIVER HILL
 LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
 AND NON-BUILDABLE PRESERVATION PARCELS 'B'-'H'
 A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 369 ZONED: RR-DEO
 TAX MAP: 34 GRID: 23 L 4772 / F. 265
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.2991



PROFESSIONAL CERTIFICATE

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DESIGN BY: RHW
 DRAWN BY: JMR
 CHECKED BY: RHW
 DATE: FEBRUARY 2018
 SCALE: AS SHOWN
 W.D. NO.: 15-39

14 SHEET OF 24

LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EX. PUBLIC 100-YEAR FLOOD PLAIN
	PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
	PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
	EX. 24' WIDE PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4 (PLAT 12949)
	EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
	EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
	DRAINAGE AREA DIVIDE
	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
	PROPOSED DRY WELL (M-5)
	PROP. SEWAGE DISPOSAL AREA
	PROP. WELL AREA



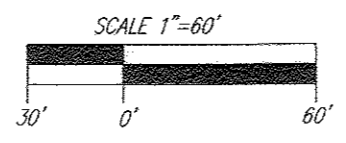
SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
Bok	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hs	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
 -HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE, MD

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

SD DRAINAGE AREA MAP
 SCALE: 1"=60'



TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

William J. Glin
 PLANNING DIRECTOR
 3-14-18
 DATE

OWNER
 BENE L. GELBER
 JEANNE M. GELBER
 13550 ALLNUTT LANE
 HIGHLAND, MD 20777
 (410) 480-0023

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

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
STORM DRAIN DRAINAGE AREA MAP
THE ESTATES AT RIVER HILL
 LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
 AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
 A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389 ZONED: RR-DEO
 TAX MAP: 34 GRID: 23 L. 4772 / F. 283
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

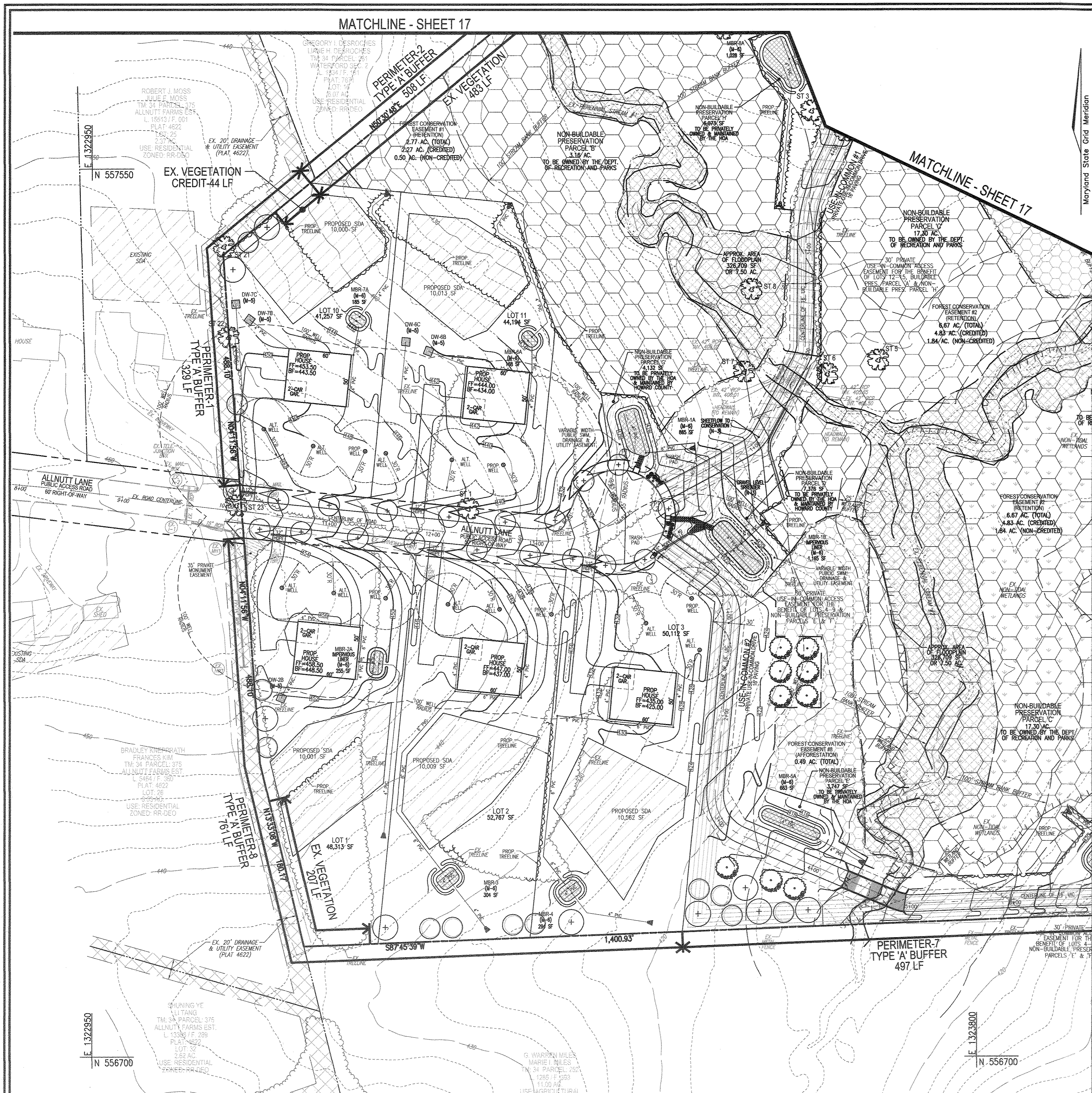
PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: FEBRUARY 2018
 SCALE: AS SHOWN
 W.O. NO.: 15-39

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16183 EXPIRATION DATE: 09-27-2018

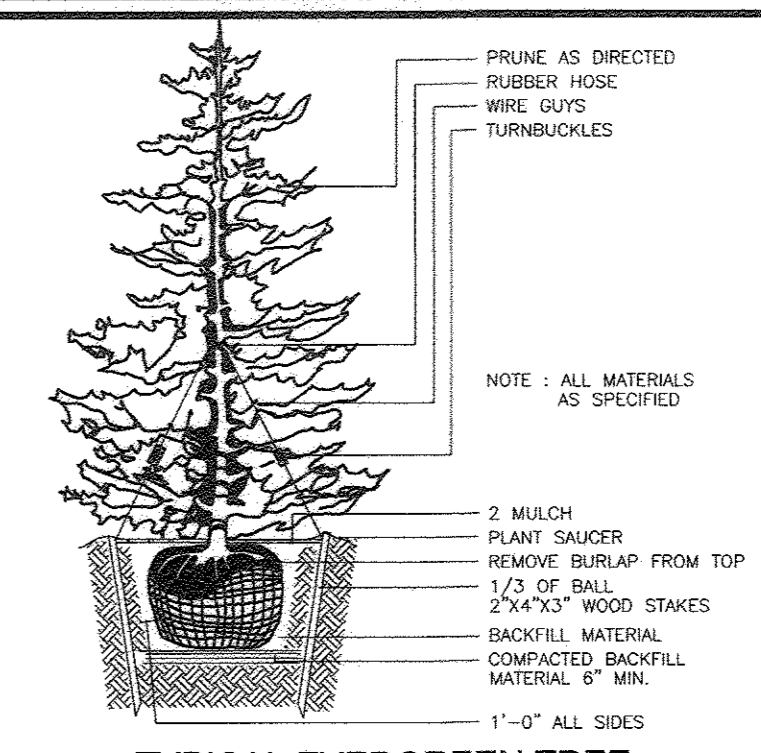
15 SHEET OF 24

MATCHLINE - SHEET 17

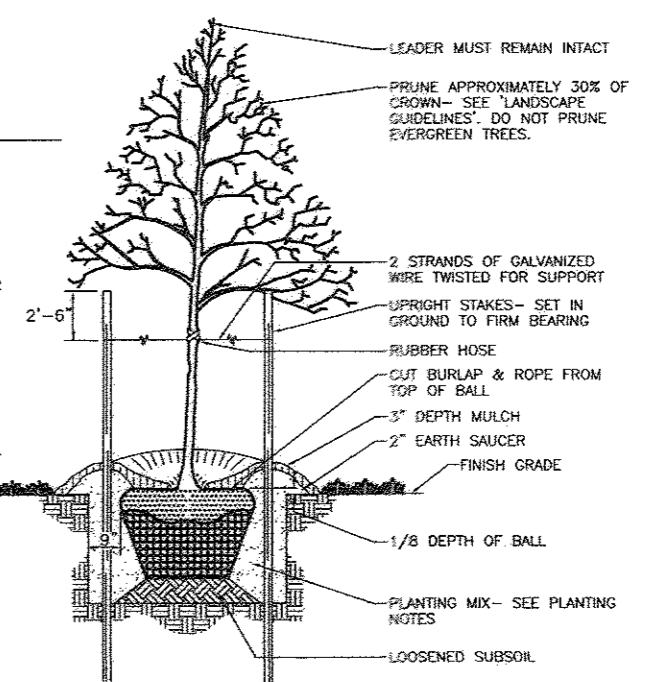


MATCHLINE - SHEET 17
MATCHLINE - SHEET 18

MATCHLINE - SHEET 18



TYPICAL EVERGREEN TREE PLANTING DETAIL NOT TO SCALE



TREE PLANTING AND STAKING DETAIL NOT TO SCALE

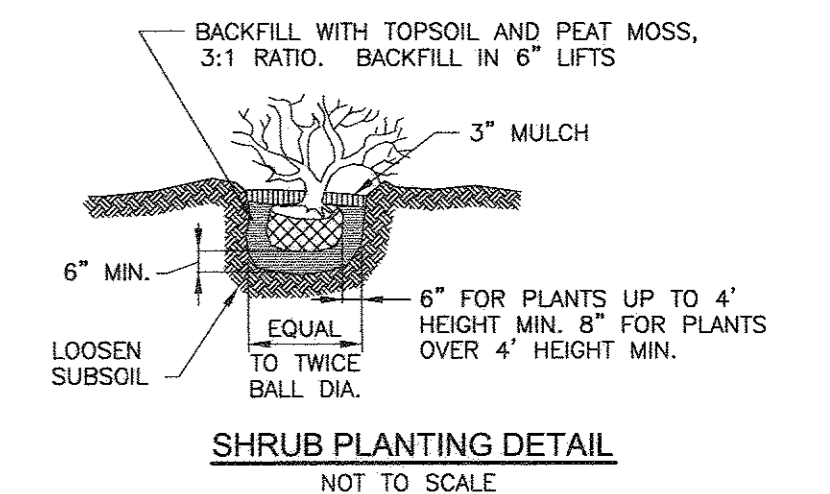
LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING SPECIMEN TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- EX. 20' DRAINAGE & UTILITY EASEMENT (PLAT 12849)
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. PUBLIC SWM. DRAINAGE & UTILITY EASEMENT
- PROP. 30' PRIVATE MONUMENT EASEMENT
- EXISTING 10' CONTOUR
- EXISTING 7' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 7' CONTOUR
- PROP. SEWAGE DISPOSAL AREA
- PROP. WELL AREA

- NOTES:**
- SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE REQUIREMENTS.
 - SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
 - PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
 - KEEP MULCH 1" FROM TRUNK.
 - SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTING WHICH CHECKED HOWARD COUNTY MINIMUM REQUIREMENTS.
 - TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.

SPECIMEN TREE CHART

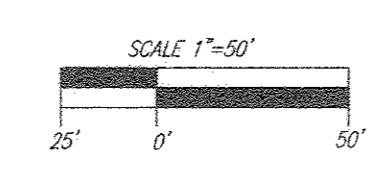
NO.	SIZE (IN. DBH/FEET BRUSH)	CRZ	COMMON NAME	CONDITION	COMMENTS
ST 1	30" 45'		TULIP POPLAR	GOOD CONDITION	TO BE REMOVED
ST 3	35" 52.5'		BLACK OAK	POOR CROWN AND SHAPE	TO BE REMOVED
ST 5	32" 48'		TULIP POPLAR	TRIPLE STEMMED	TO REMAIN
ST 6	57" 85.5'		RED OAK	GOOD, SPLITS TO THREE STEMS ABOVE BH	TO REMAIN
ST 7	44.5" 66.75'		TULIP POPLAR	FAIR, SOME DIEBACK NOTED	TO REMAIN
ST 8	62.5" 93.75'		TULIP POPLAR	FAIR, CROWN DIEBACK, TWO STEMS ABOVE BH	TO REMAIN
ST 21	44" 66"		RED OAK	POOR, SEVERE DIEBACK	TO REMAIN
ST 22	38" 57"		RED OAK	POOR, NOTABLE DIEBACK	TO REMAIN
ST 23	33.5" 50.25'		TULIP POPLAR	POOR, TRUNK ROT	TO BE REMOVED



SHRUB PLANTING DETAIL NOT TO SCALE

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

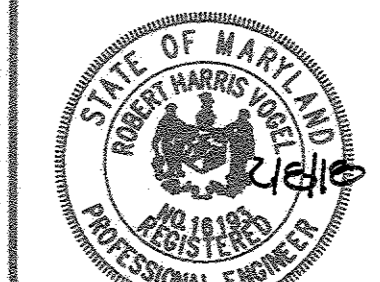
N. J. ...
PLANNING DIRECTOR
3-14-18
DATE



LANDSCAPE PLAN
SCALE: 1"=50'

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
5679 PARK AVE., SUITE 301
ELICOTT CITY, MD 21043
(410) 480-0023



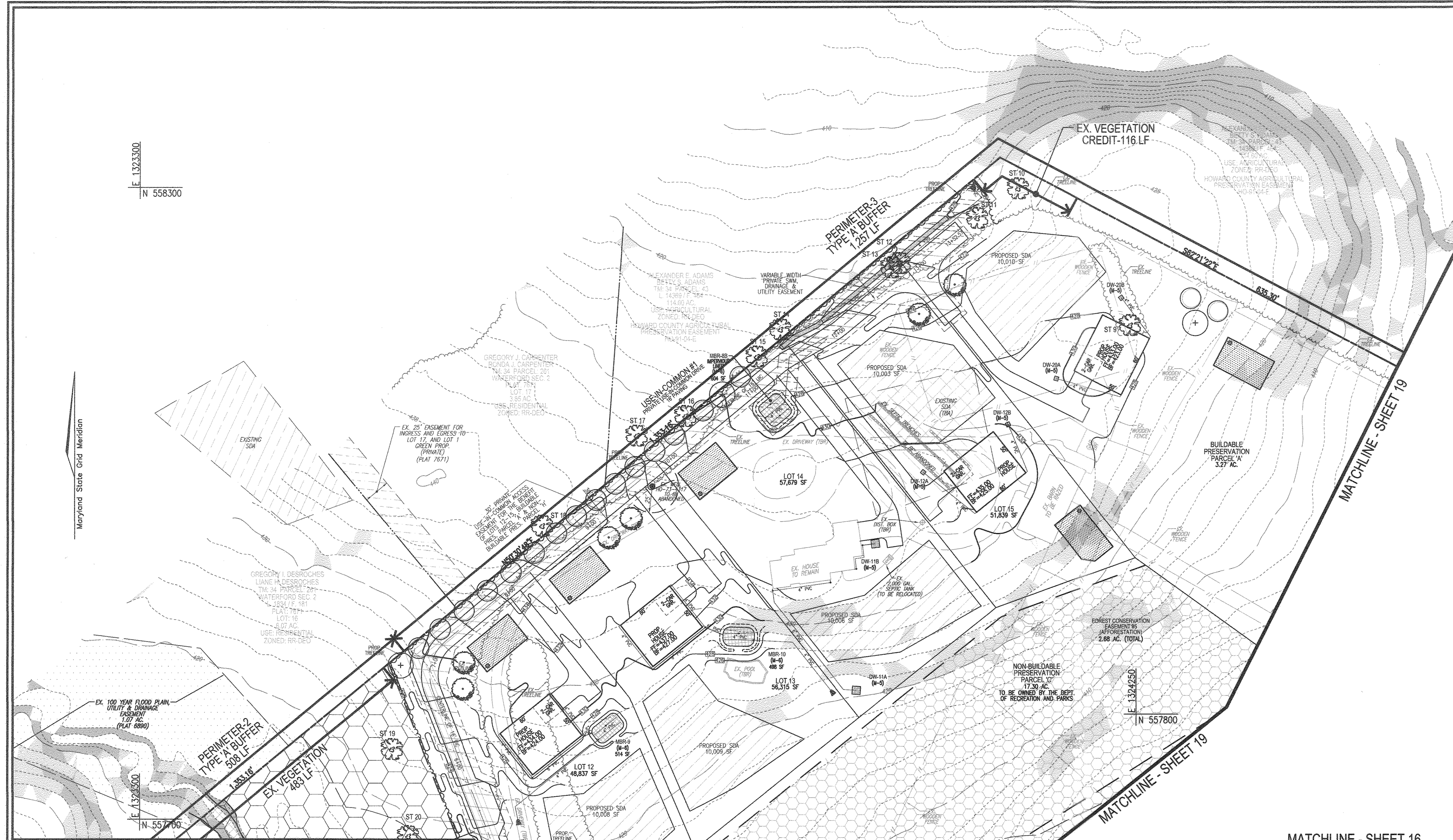
DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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. 16183, EXPIRATION DATE: 02-27-2018.

16 SHEET OF 24

LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EX. PUBLIC 100-YEAR FLOOD PLAIN
	PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
	PROP. VARIABLE WIDTH PRIVATE SWM DRAINAGE & UTILITY EASEMENT
	EX. 25' EASEMENT FOR INGRESS AND EGRESS TO LOT 17 AND LOT 1 GREEN PROP. (PRIVATE) (PLAT 7671)
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	PROP. SEWAGE DISPOSAL AREA
	PROP. WELL AREA



MATCHLINE - SHEET 16

MATCHLINE - SHEET 16
MATCHLINE - SHEET 18

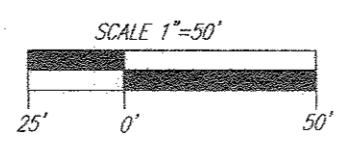
SPECIMEN TREE CHART

NO.	SIZE	CRZ	COMMON NAME	CONDITION	COMMENTS
ST 2	30.5'	45.75'	TULIP POPLAR	FAIR, SOME DIEBACK NOTED	TO BE REMOVED
ST 4	33'	49.5'	BLACK OAK	POOR, DIEBACK NOTED	TO BE REMOVED
ST 9	30'	45'	WHITE PINE	GOOD CONDITION	TO BE REMOVED
ST 10	31'	46.5'	TULIP POPLAR	GOOD CONDITION	TO BE REMOVED
ST 11	42'	63'	WHITE OAK	GOOD CONDITION	TO BE REMOVED
ST 12	39.5'	59.25'	WHITE OAK	GOOD CONDITION	TO BE REMOVED
ST 13	30'	45'	TULIP POPLAR	FAIR, LIMITED CROWN	TO BE REMOVED
ST 14	58.5'	87.75'	TULIP POPLAR	POOR, TRUNK ROT	TO BE REMOVED
ST 15	33.5'	50.25'	TULIP POPLAR	LIMITED CROWN	TO BE REMOVED
ST 16	31'	46.5'	SILVER MAPLE	FAIR, LEANING	TO BE REMOVED
ST 17	47'	70.5'	WHITE OAK	GOOD CONDITION	TO BE REMOVED
ST 18	34.5'	51.75'	TULIP POPLAR	GOOD CONDITION	TO BE REMOVED
ST 19	45'	67.5'	BLACK OAK	FAIR, LIMBS DIEBACK	TO BE REMOVED
ST 20	37.5'	56.25'	BLACK OAK	POOR, SEVERE DIEBACK	TO BE REMOVED

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

N. J. ...
PLANNING DIRECTOR

3-14-18
DATE



LANDSCAPE PLAN
SCALE: 1"=50'

OWNER
RENE L. GELBER
JEANNE M. GELBER
13550 ALLIANCE LANE
HIGHLAND, MD 21077
(410) 480-0023

DEVELOPER
TRINITY QUALITY HOMES, INC.
3875 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
LANDSCAPE PLAN

THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A'
AND NON-BUILDABLE PRESERVATION PARCELS 'B'-'H'
A RE-SUBDIVISION OF THE 'GREENE PROPERTY', LOT 1

PARCEL: 389
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

ZONED: RR-DEO
L 4772 / F. 285
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

DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2018.

17 SHEET OF 24



- LEGEND:**
- PROPERTY LINE
 - - - RIGHT-OF-WAY LINE
 - - - ADJACENT PROPERTY LINE
 - - - EXISTING EDGE OF PAVING
 - - - EXISTING STREAM BUFFER
 - - - EXISTING STREAM
 - - - EXISTING TREETRINE
 - - - PROPOSED TREETRINE
 - - - EXISTING WETLANDS
 - - - EXISTING WETLAND BUFFER
 - - - EXISTING SPECIMEN TREES
 - - - EXISTING WOOD FENCE
 - - - EXISTING METAL FENCE
 - - - EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
 - - - EX. 24' WIDE PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4 (PLAT 12949)
 - - - EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
 - - - EXISTING 10' CONTOUR
 - - - EXISTING 2' CONTOUR
 - - - SOILS
 - - - PROPOSED 10' CONTOUR
 - - - PROPOSED 2' CONTOUR
 - - - PROP. SEWAGE DISPOSAL AREA
 - - - PROP. WELL AREA

MATCHLINE - SHEET 16

MATCHLINE - SHEET 17

MATCHLINE - SHEET 19

EX. VEGETATION CREDIT-59 LF

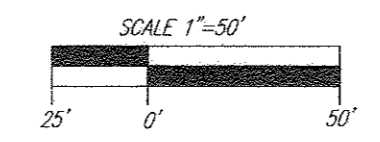
E 1324950
N 557400

E 1324950
N 556650

PERIMETER-6 TYPE 'A' BUFFER 1,210 LF

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Valerie J. Jolin
PLANNING DIRECTOR
3-14-18
DATE



LANDSCAPE PLAN
SCALE: 1"=50'

NO.	SIZE (IN. DBH)	CRZ	COMMON NAME	CONDITION	COMMENTS
ST 24	3.7"	55.5'	TULIP POPLAR	MAJOR TRUNK WOUND	TO BE REMOVED
ST 29	34.5"	51.75'	TULIP POPLAR	POOR, TRUNK CAVITY	TO REMAIN

OWNER
RENE L. GELBER
JEANNE W. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
LANDSCAPE PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A',
AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H'
A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL 389
TAX MAP 34 GRID: 23
5TH ELECTION DISTRICT

ZONED: RR-DEO
L 4772 / F. 265
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
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 161893, EXPIRATION DATE: 09-27-2018.

DESIGN BY: RHW
DRAWN BY: JMR
CHECKED BY: RHW
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.D. NO.: 15-39

18 SHEET OF 24

E 1324350
N 558300

E 1324300
N 558300

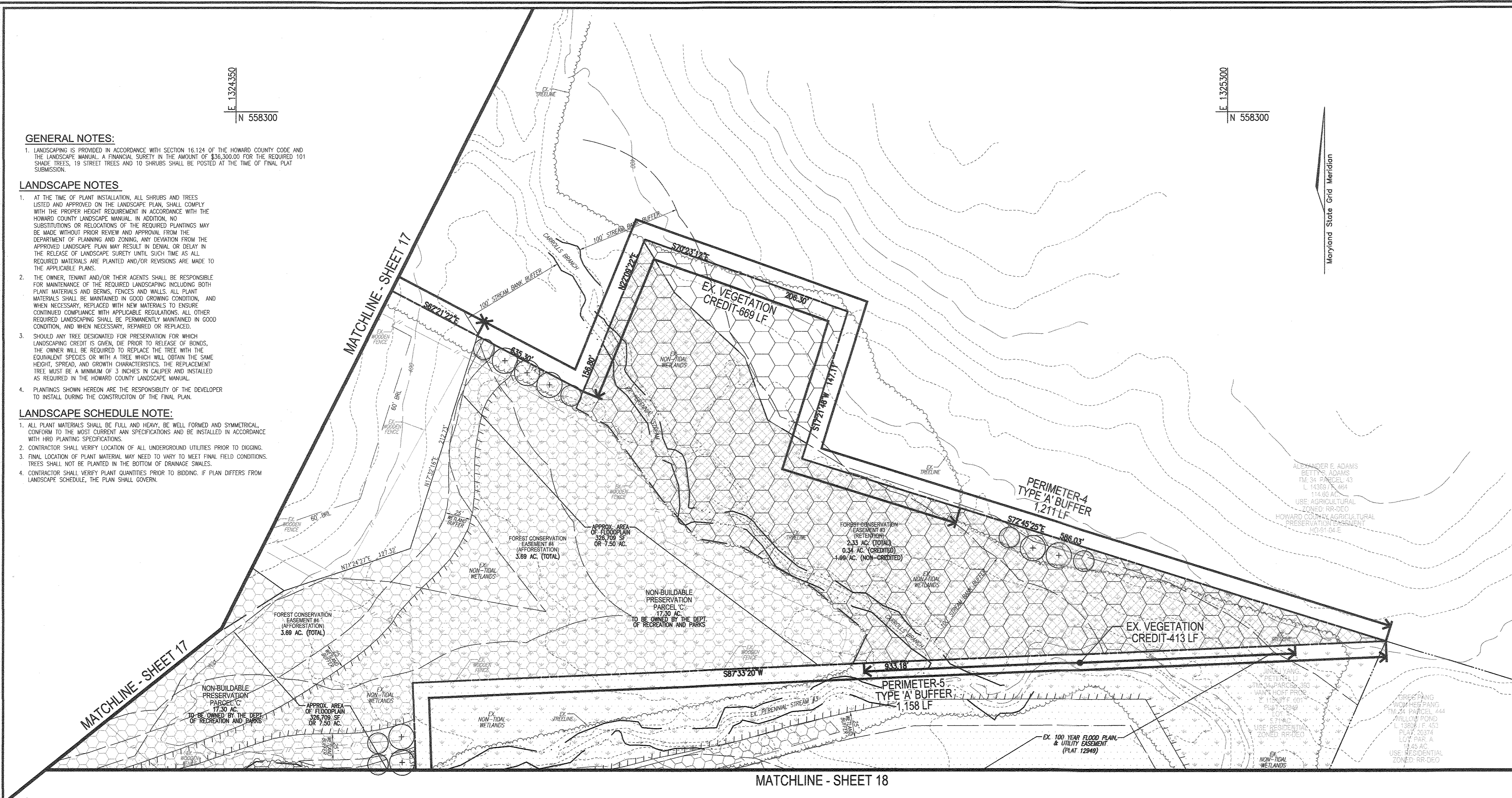
LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EXISTING SPECIMEN TREES
	EXISTING WOOD FENCE
	EX. PUBLIC 100-YEAR FLOOD PLAN
	EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS

GENERAL NOTES:
1. LANDSCAPING IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$30,000.00 FOR THE REQUIRED 101 SHADE TREES, 19 STREET TREES AND 10 SHRUBS SHALL BE POSTED AT THE TIME OF FINAL PLAT SUBMISSION.

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 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.
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.

LANDSCAPE SCHEDULE NOTE:
1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH IRB PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. 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.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.



LANDSCAPE PLAN
SCALE: 1"=50'

E 1324350
N 557600

SCHEDULE A: PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES AND ROADWAYS								SPECIMEN TREE MITIGATION	TOTAL
	1	2	3	4	5	6	7	8		
PERIMETER/FRONTAGE DESIGNATION	A	A	A	A	A	A	A	B		
LANDSCAPE TYPE										
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	329'	508'	1,257'	1,211'	1,158'	1,210'	497'	761'		
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	YES*	YES	YES	YES	YES	NO	NO	YES		207'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO		
NUMBER OF PLANTS REQUIRED (LF REMAINING)	285'	25'	1,141'	542'	689'	1,210'	497'	554'		102
SHADE TREES	1:60 5 (4*)	1:60 1	1:60 19	1:60 9	1:60 11	1:60 20	1:60 8	1:60 9		20
EVERGREEN TREES										
SHRUBS										
NUMBER OF PLANTS PROVIDED	4*	1	19	9	11	20	8	9		20
SHADE TREES										
EVERGREEN TREES										101*
OTHER TREES (2:1 SUBSTITUTION)										
SHRUBS (10:1 SUBSTITUTION)										
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED										

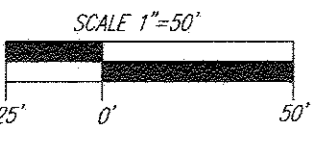
NOTE:
*CREDIT IS BEING TAKEN FOR SPECIMEN TREE #22.

TRASH PAD LANDSCAPING

SYMBOL	QTY.	DESCRIPTION	SIZE	REMARKS
	10	DWARF JAPANESE YEW	3'-4' HT	B & B

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
ALLNUTT LANE EXT.	768/40	19	19



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

William J. Hill
PLANNING DIRECTOR

3-14-18
DATE

OWNER
RENE L. GELBER
JEANNE M. GELBER
13250 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

DEVELOPER
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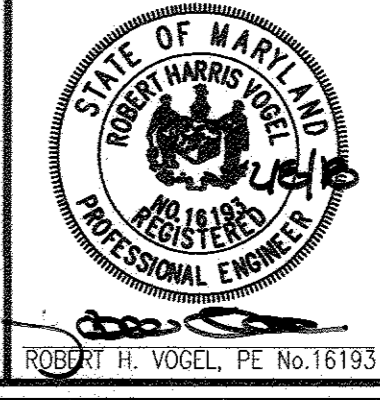
NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
LANDSCAPE PLAN
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCELS 'A', 'H' AND NON-BUILDABLE PRESERVATION PARCELS 'B', 'H' A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

ZONED: RR-DEO
L 4772 / F. 285
HOWARD COUNTY, MARYLAND

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PROFESSIONAL CERTIFICATE

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DRAWN BY: JMR
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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19 SHEET OF 24

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING SPECIMEN TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
- EX. 25' EASEMENT FOR INGRESS AND EGRESS TO LOT 17 AND LOT 1 GREEN PROP. (PRIVATE) (PLAT 7671)
- EX. 20' DRAINAGE & UTILITY EASEMENT (PLAT 12949)
- FOREST CONSERVATION SIGNS

FOREST CONSERVATION LEGEND:

- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)

Maryland State Grid Meridian

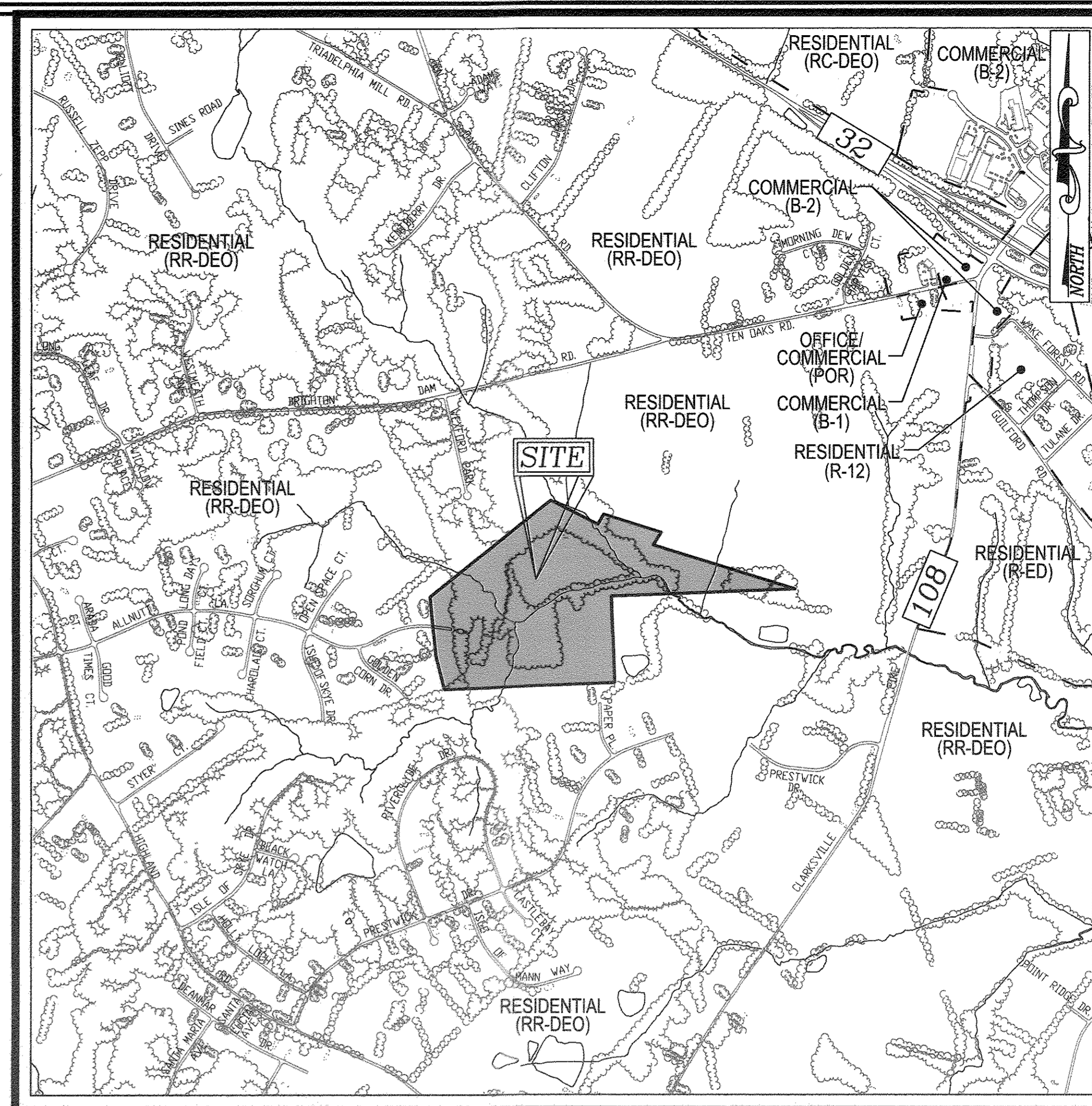
E 1323200
N 557800

E 1323200
N 556700



E 1324550
N 558000

MATCHLINE-SHEET 21



VICINITY MAP

SCALE: 1"=1,000'
ADC MAP: PAGE: 31 / GRID: B2, B3, & C2

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 2066 Glen Arm, Maryland 21087 Telephone (410) 832-5488 Fax (410) 832-3488

MD DNR Qualified Professional USACOE Wetland Delineator
Certification # WD-C938D061004B2
John P. Canoles

WATERSHED NAME: MIDDLE PATUXENT RIVER
WATERSHED NUMBER: 02131106

- A. GROSS SITE AREA: 42.60 AC.
- NET SITE AREA: 35.10 AC.
- B. AREA OF 100-YEAR FLOODPLAIN: 7.50 AC. HEC-RAS
- C. AREA OF WETLANDS AND BUFFERS(ONSITE): 9.22 AC.
- AREA OF STREAM AND BUFFERS(ONSITE): 12.75 AC.
- D. AREA OF >25% STEEP SLOPES: 0.00 AC.
- E. EXISTING FOREST: 12.60 AC.
- F. ZONED: RR-DEO
- G. EXISTING USE: RESIDENTIAL
- H. PROPOSED USE: RESIDENTIAL

GENERAL NOTES

1. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITAT WERE OBSERVED ON THE PROPERTY.
2. SURROUNDING LAND USE IS PRIMARILY RURAL DENSITY RESIDENTIAL DEVELOPMENT. APPROXIMATELY 4.0 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SUBJECT PROPERTY.
3. ALL WETLANDS AND STREAMS ON THE PROPERTY ARE PART OF THE MIDDLE PATUXENT RIVER WATERSHED (02-13-11). THE STREAMS ON SITE ARE CONSIDERED TO BE USE IV-P WATERS. PERENNIAL STREAMS WILL REQUIRE 100 FOOT BUFFERS, INTERMITTENT STREAMS WILL REQUIRE 50 FOOT BUFFERS AND WETLANDS WILL REQUIRE 25 FOOT BUFFERS.
4. THERE IS APPROXIMATELY 7.50 ACRES OF 100 YEAR FLOODPLAIN LOCATED WITHIN THE LIMITS OF THIS SITE. APPROXIMATE FLOODPLAIN DELINEATION GENERATED FROM PRELIMINARY HEC-RAS ANALYSIS, PREPARED BY ROBERT H. VOGEL ENGINEERING.
5. NO AREAS OF STEEP SLOPES AS SHOWN HEREON. THE PLAN ARE REGULATED PER SECTION 16.116 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS.
6. THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES ON THIS PROPERTY.
7. THERE ARE 25 SPECIMEN TREES LOCATED ON, AND AROUND THE PERIMETER OF 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.
- 8.

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
BuA	BAILEY SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Cp	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GmB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GmC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hg	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

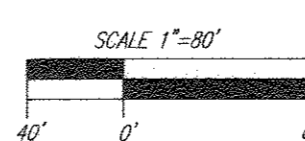
SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKVILLE NW

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

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

FOREST CONSERVATION PLAN

SCALE: 1"=80'

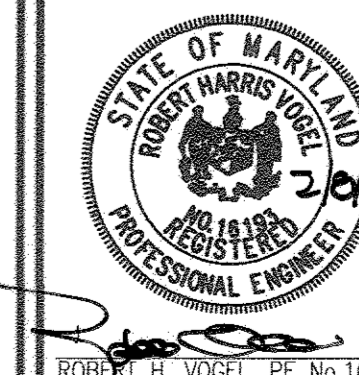


Valerie Hill
PLANNING DIRECTOR

3-14-18
DATE

OWNER
RENEE L. GELBER
JEANNE M. GELBER
13550 ALLNUTT LANE
HIGHLAND, MD 20777
(410) 480-0023

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



DESIGN BY: RHW
DRAWN BY: JMR
CHECKED BY: RHW
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16183 EXPIRATION DATE: 09-27-2018

20 SHEET OF 24

REFOREST / AFFORESTATION PLAN

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED IN THE SOIL SURVEY ON TYPICAL VEGETATION FOR THE SOIL TYPE ON THE PLANTING SITE. SPECIES SELECTION WAS ALSO BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

REFOREST / AFFORESTATION SHALL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF WHIPS AND BRANCHED TRANSPLANTS. CONTAINER STOCK IS RECOMMENDED BUT BAREROOT STOCK MAY BE USED TO HELP CONTROL AFFORESTATION COSTS. IF BAREROOT STOCK IS USED THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PRIOR TO PLANTING THE PROPOSED FOREST CONSERVATION EASEMENTS ALL MULTIFLORA ROSE IN THE PLANTING AREA SHALL BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD BE RETAINED WHEREVER POSSIBLE. HERBICIDES TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURER'S SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

B. PLANTING AND SOIL SPECIFICATIONS

PLANT MATERIAL WILL BE INSTALLED IN ACCORDANCE WITH THE PLANTING DETAIL AND PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN.

AMENDMENTS TO EXISTING SOIL WILL BE IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. SOIL DISTURBANCE WILL BE LIMITED TO INDIVIDUAL PLANTING LOCATIONS.

C. MAINTENANCE OF PLANTINGS

FOR INFORMATION REGARDING MAINTENANCE OF THE AFFORESTATION PLANTINGS, SEE SECTION VIII B.

D. GUARANTEE REQUIREMENTS

A 90 PERCENT SURVIVAL RATE OF THE AFFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

E. SECURITY FOR AFFORESTATION

SECTION 16-1209 OF THE HOWARD COUNTY FOREST CONSERVATION ACT REQUIRES THAT A DEVELOPER SHALL POST A SECURITY (BOND, LETTER OF CREDIT, ETC.) WITH THE COUNTY TO INSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF ITS ROOTS MAY BE FOUND. THE MAJORITY OF ROOTS RESPONSIBLE FOR WATER AND NUTRIENT UPTAKE ARE LOCATED JUST BELOW THE SOIL SURFACE. TEMPORARY FENCING SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

EXISTING FOREST LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY INSPECTOR. THE PURPOSE OF THE MEETING WILL BE TO VERIFY THAT ALL SEDIMENT CONTROL IS IN ORDER, AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT WILL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT. CLEANING MATERIAL WILL BE LIMITED TO AREA WITHIN THE LOD OF THE PROPOSED HOMESITES. WASTEWATER RESULTING FROM EQUIPMENT CLEANING WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE ENACTED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.

BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION.

- 1. INSTALL ALL SIGNAGE AND SEDIMENT CONTROL DEVICES.
2. HOLD PRE-CONSTRUCTION MEETING BETWEEN DEVELOPER, CONTRACTOR AND COUNTY INSPECTOR.
3. BUILD ACCESS ROADS, INSTALL UTILITIES, AND CONSTRUCT HOME. STABILIZE ALL DISTURBED AREAS ACCORDINGLY.
4. BEGIN MULTIFLORA ROSE REMOVAL, AS NEEDED. INSTALL PERMANENT PROTECTIVE SIGNAGE FOR EASEMENTS AND INITIATE PLANTINGS IN ACCORDANCE WITH FOREST CONSERVATION PLAN. PLANTINGS WILL BE COMPLETED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.
5. REMOVE SEDIMENT CONTROL.
6. HOLD POST-CONSTRUCTION MEETING WITH COUNTY INSPECTORS TO ASSURE COMPLIANCE WITH FCP.
7. MONITOR AND MAINTAIN PLANTINGS FOR 2 YEARS.

E. CONSTRUCTION MONITORING

ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO ENSURE THAT ALL ACTIVITIES ARE IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.

F. POST-CONSTRUCTION MEETING

UPON COMPLETION OF CONSTRUCTION, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL NOTIFY THE COUNTY THAT CONSTRUCTION HAS BEEN COMPLETED AND ARRANGE FOR A POST-CONSTRUCTION MEETING TO REVIEW THE PROJECT SITE. THE MEETING WILL ALLOW THE COUNTY INSPECTOR TO VERIFY THAT AFFORESTATION PLANTINGS HAVE BEEN INSTALLED.

POST-CONSTRUCTION MANAGEMENT PLAN

HOWARD COUNTY REQUIRES A TWO YEAR POST-CONSTRUCTION MANAGEMENT PLAN BE PREPARED AS PART OF THE FOREST CONSERVATION PLAN. THE PLAN GOES INTO EFFECT UPON ACCEPTANCE OF THE CONSTRUCTION CERTIFICATION OF COMPLETION BY THE COUNTY. ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THE POST-CONSTRUCTION MANAGEMENT PLAN.

THE FOLLOWING ITEMS WILL BE INCORPORATED INTO THE PLAN:

A. FENCING AND SIGNAGE

PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/AFFORESTATION AREA SHALL BE MAINTAINED.

B. GENERAL SITE INSPECTIONS/MAINTENANCE OF PLANTINGS

SITE INSPECTIONS WILL BE PERFORMED A MINIMUM OF THREE TIMES DURING THE GROWING SEASON. THE PURPOSE OF THE INSPECTIONS WILL BE TO ASSESS THE HEALTH OF THE AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE.

IN ADDITION, MAINTENANCE OF THE AFFORESTATION PLANTINGS WILL INVOLVE THE FOLLOWING STEPS:

- 1. WATERING - ALL PLANT MATERIAL SHALL BE WATERED THREE TIMES A MONTH DURING THE 1ST GROWING SEASON. MORE OR LESS FREQUENTLY DEPENDING ON WEATHER CONDITIONS. DURING THE SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
2. REMOVAL OF INVASIVE EXOTICS AND NOXIOUS WEEDS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
3. IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES, TREATMENT WITH APPROPRIATE AGENT.
4. PRUNING OF DEAD BRANCHES.
5. AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.
C. EDUCATION

THE DEVELOPER WILL PROVIDE APPROPRIATE MATERIALS TO PROPERTY OWNERS INFORMING THEM OF THE LOCATION AND PURPOSE OF THE AFFORESTATION AREA. MATERIALS MAY INCLUDE SITE PLANS AND INFORMATION EXPLAINING THE INTENT OF THE FOREST CONSERVATION LAW.

D. FINAL INSPECTION

AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL, WILL SUBMIT TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM CERTIFICATION THAT ALL RETENTION/AFFORESTATION REQUIREMENTS HAVE BEEN MET. UPON ACCEPTANCE OF THIS CERTIFICATION, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE DEVELOPER'S BOND.

PLANTING NOTES:

- PLANTING DENSITY BASED SPACING REQUIREMENTS WHIPS WITH SHELTER @ 11' ON CENTER.
- PLANTING MAY BE MADE IN A CURVILINEAR FASHION ALONG CONTOUR. THE PLANTING SHOULD AVOID A GRID APPEARANCE BUT SHOULD BE SPACED TO FACILITATE MAINTENANCE.
- MULTIFLORA ROSE/HEAVY BRUSH REMOVAL/CONTROL MAY BE REQUIRED PRIOR TO INSTALLATION OF PLANTING.
- ALL WHIPS ARE REQUIRED TO BE INSTALLED WITH TREE SHELTERS PER HOWARD COUNTY FCA REQUIREMENTS.
- PLANTING UNITS DEFINED BY THE SPACING REQUIREMENTS ESTABLISHED IN THE FCA MANUAL. ONE PLANT UNIT IS DEFINED AS 1 SEEDLING OR WHIP WITHOUT SHELTER. THE MANUAL STATES THAT 700 SEEDLINGS/WHIPS WITHOUT SHELTERS ARE REQUIRED PER ACRE, OR 350 WHIPS W/SHELTERS, OR 200 1" CALIPER TREES, OR 100 2" CALIPER TREES. BY CONVERSION IT HAS BEEN DETERMINED THAT A SEEDLING OR WHIP WITHOUT SHELTER = 1 UNIT, WHIP WITH SHELTER = 2 UNITS, 1" CALIPER TREE = 3.5 UNITS, 2" CALIPER TREE = 7 UNITS. THE USE OF PLANT UNITS SIMPLIFIES THE PLANT DENSITY CALCULATIONS WHEN MIXING STOCK SIZE.

PLANTING/SOIL SPECIFICATIONS

- 1. INSTALLATION OF BAREROOT/PLUG PLANT STOCK SHALL TAKE PLACE BETWEEN MARCH 15 - APRIL 20; B&B/CONTAINER STOCK MARCH 15 -MAY 30 OR SEPTEMBER 15 - NOVEMBER 15. FALL PLANTING OF B&B STOCK IS NOT RECOMMENDED.
2. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. BAREROOT PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. ROOTS SHALL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART FINE PINES OR EQUIVALENT. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS, FOR WOODY PLANTS. HERBACEOUS PLANT SHALL BE FERTILIZED WITH OSMOCOTE 8-6-12.
4. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING. THE CONTRACTOR SHALL REMOVE ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION FROM THE SITE.

SEQUENCE OF CONSTRUCTION

- 1. SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE.
2. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND THE PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
3. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS SHOWN.
4. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

- 1. MAINTENANCE OF PLANTINGS SHALL LAST FOR A PERIOD OF TWO YEARS.
2. PLANTINGS MUST RECEIVE 2 GALLONS OF WATER, EITHER THROUGH PRECIPITATION OR WATERING, WEEKLY DURING THE 1ST GROWING SEASON, AS NEEDED. DURING SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED, AS REQUIRED, FROM PLANTING AREAS MECHANICALLY AND/OR WITH LIMITED HERBICIDE. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
4. PLANTS SHALL BE EXAMINED A MINIMUM TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

- 1. A 90 PERCENT SURVIVAL RATE OF THE REFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

EDUCATION OF NEW OCCUPANTS

- 1. THE DEVELOPER SHALL PROVIDE EDUCATIONAL INFORMATION TO ALL PROPERTY OWNERS WITHIN THE NEW DEVELOPMENT/HOME ABOUT THE PROPER USE OF FOREST CONSERVATION AREAS.

FINAL INSPECTION AND RELEASE OF OBLIGATIONS

AT THE END OF THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD THE DEVELOPER SHALL SUBMIT A CERTIFICATION TO THE COUNTY THAT ALL FOREST CONSERVATION AREAS HAVE REMAINED INTACT OR HAVE BEEN RESTORED TO APPROPRIATE CONDITION, THAT THE STIPULATED SURVIVAL RATES HAVE BEEN ACHIEVED, AND THAT ANY PERMANENT PROTECTION MEASURES REQUIRED BY THE PLAN ARE IN PLACE. UPON REVIEW AND ACCEPTANCE, THE COUNTY WILL INFORM THE DEVELOPER OF THEIR RELEASE OF THE DEVELOPER OF FUTURE OBLIGATIONS RELATED TO THE FOREST CONSERVATION ACT.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

- PRE-CONSTRUCTION PHASE
1. FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNING SHALL BE LIMITED TO THE LOD OF THE PROPOSED HOMESITES. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURER'S SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

- CONSTRUCTION PHASE
1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
2. NO EQUIPMENT SHALL BE OPERATED, STAGED OR STORED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF PROTECTIVE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

- POST-CONSTRUCTION PHASE
1. A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
2. FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
3. 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
4. DO NOT REMOVE SIGNS.

SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION

- 1. PRE-CONSTRUCTION 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.
2. STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
3. INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
4. PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
5. 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.

Table with 6 columns: KEY, COMMUNITY TYPE, ACREAGE (NTA), DOMINANT VEGETATION, GENERAL CONDITION, PRIORITY ACREAGE. Rows include F1 OAK/POPLAR and F2 SUCCESSIONAL.

Table with 3 columns: WETLAND SYSTEM, COWARDIN CLASSIFICATION, DOMINANT VEGETATION. Rows include A FORESTED and A PASTURE.

Table with 4 columns: SYMBOL, NAME/DESCRIPTION, GROUP, K-FACTOR/ERODIBLE. Rows include Ba, Cb, Gbc, Gnd, and Hg.

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:

Legend symbols for PROPERTY LINE, RIGHT-OF-WAY LINE, ADJACENT PROPERTY LINE, EXISTING EDGE OF PAVING, EXISTING STREAM BUFFER, EXISTING STREAM, EXISTING TREETLINE, PROPOSED TREETLINE, EXISTING WETLANDS, EXISTING WETLAND BUFFER, EXISTING SPECIMEN TREES, EXISTING WOOD FENCE, EX PUBLIC 100-YEAR FLOOD PLAN, EXISTING 10' CONTOUR, EXISTING 2' CONTOUR, SOILS, PROPOSED 10' CONTOUR, PROPOSED 2' CONTOUR, EXISTING STEEP SLOPES (20% SLOPES OR GREATER), EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES), EX FOREST CONSERVATION EASEMENT 'A' (PLAT 12949), FOREST CONSERVATION EASEMENT (RETENTION), FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION), FOREST CONSERVATION EASEMENT (REFORESTATION), FOREST CONSERVATION SIGNS.

SPECIMEN TREE CHART with columns: NO, SIZE (IN DBH), CRZ (FEET), COMMON NAME, CONDITION, COMMENTS. Lists trees like Tulip Poplar, Black Oak, White Pine, etc.

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED R-20 NET TRACT AREA: A. TOTAL TRACT AREA: 42.80 AC, B. AREA WITHIN 100 YEAR FLOODPLAIN: 7.50 AC, C. AREA TO REMAIN IN AGRICULTURAL PRESERVATION: 0.00 AC, D. NET TRACT AREA: 35.10 AC.

LAND USE CATEGORY

INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY. ZONED R-20: ARA 0, MDR 1, IDA 0, HDR 0, MPD 0, CIA 0.

EXISTING FOREST COVER:

C. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 12.60 AC, H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 5.58 AC, I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 3.83 AC.

BREAK EVEN POINT:

J. FOREST RETENTION ABOVE THRESHOLD W/ NO MITIGATION = 9.54 AC, K. CLEARING PERMITTED WITHOUT MITIGATION = 3.06 AC.

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED = 5.19 AC, M. TOTAL AREA OF FOREST TO BE RETAINED = 7.41 AC.

PLANTING REQUIREMENTS:

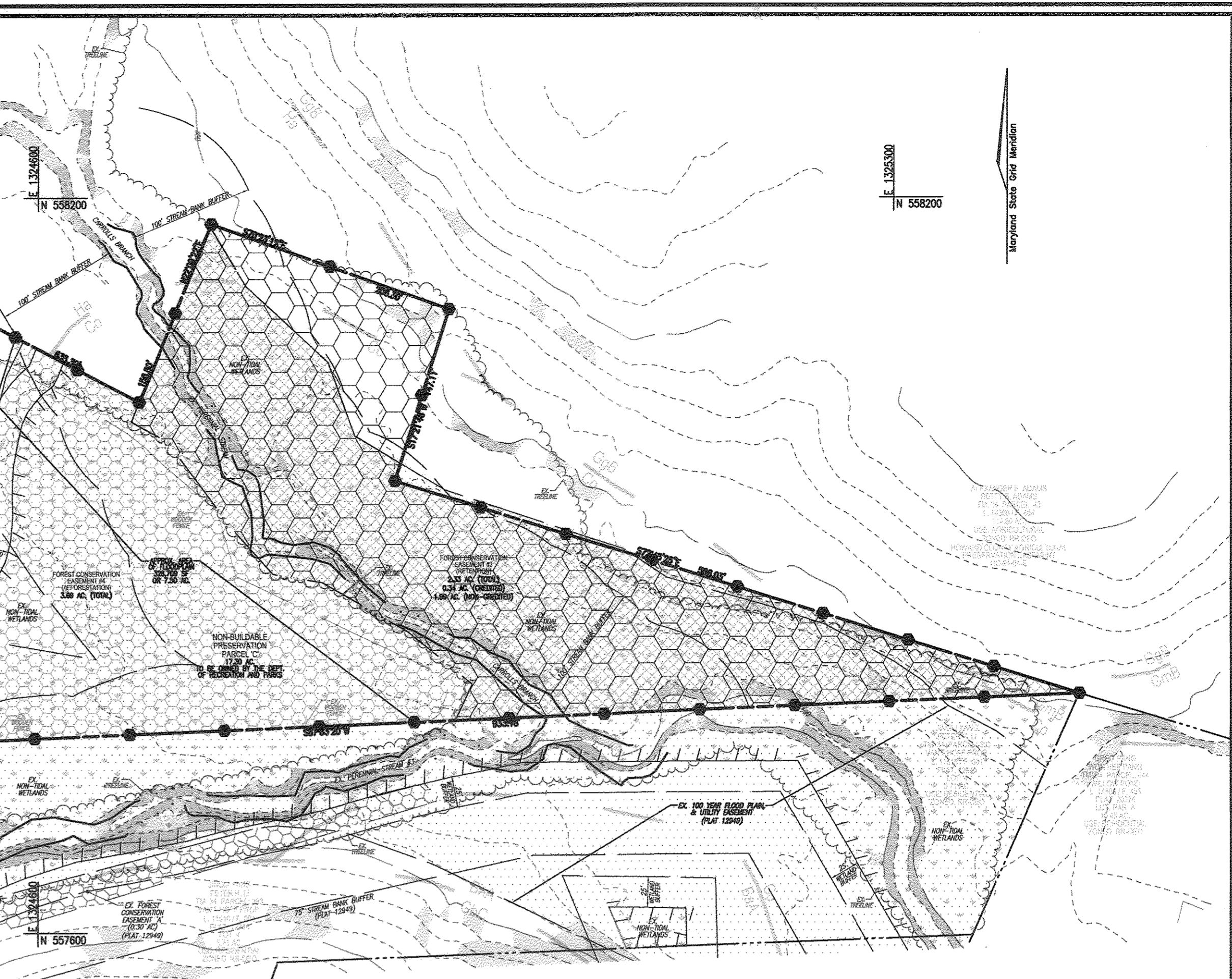
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X M) = 0.96 AC, O. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F) = 2.73 AC, P. TOTAL REFORESTATION REQUIRED (N+P-Q) = 3.69 AC, Q. TOTAL AFFORESTATION REQUIRED = 3.69 AC, R. TOTAL PLANTING REQUIREMENT (REFORESTATION AND AFFORESTATION) = 3.69 AC.

FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL A PORTION OF THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. 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.

THE REQUIRED FOREST CONSERVATION WILL BE PROVIDED ON NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C' AND SHALL MEET THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY: - 7.44 AC CREDITED ONSITE RETENTION (NO SURETY REQ) - 0.89 ACRES OF AFFORESTATION - 3.83 ACRES OF ADDITIONAL AFFORESTATION HAVE BEEN PROVIDED FOR THE PURPOSE OF A FOREST BANK.

FINANCIAL SURETY FOR THE REQUIRED AFFORESTATION SHALL BE POSTED WITH THE FINAL PLAN DEVELOPERS AGREEMENT.



FOREST RETENTION AREAS AND NOTES
1. THE WETLANDS AND WETLAND BUFFERS ARE LOCATED ON A NON-BUILDABLE LOT.
2. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
3. FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
4. CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDUCED CONCENTRATED RUNOFF TO STORMWATER MANAGEMENT FACILITIES. RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
5. 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.

FOREST CONSERVATION PLAN

SCALE: 1"=80'

FOREST CONSERVATION EASEMENT TABLE with columns: EASEMENT, RETENTION (CREDITED, NON-CREDITED), AFFORESTATION, TOTAL. Rows include FCE #1 through #8.

Eco-Science Professionals, Inc. Consulting Ecologists. MD DNR Qualified Professional. Certification # WDCP93MD061004B2. John J. Canoles.

SPECIMEN TREE and FOREST RETENTION AREA signs. Includes instructions: DO NOT REMOVE, DO NOT DISTURB, MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED.

FOREST CONSERVATION AREA SIGNS. Includes instructions: SIGN LOCATION SYMBOL = [dot].

OWNER: RENE L. GELDER, JEANNE M. GELBER, 13550 ALFALFA LANE, HIGHLAND, MD 20777, (410) 480-0023. DEVELOPER: TRINITY QUALITY HOMES, INC., 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043, (410) 480-0023.

Table with 3 columns: NO., REVISION, DATE.

PRELIMINARY EQUIVALENT SKETCH PLAN FOREST CONSERVATION PLAN THE ESTATES AT RIVER HILL

LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C' A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS - SURVEYORS - PLANNERS. 8407 MAIN STREET, ELLICOTT CITY, MD 21043. TEL: 410.461.7666, FAX: 410.461.8951. Includes State of Maryland Professional Engineer seal and Professional Certificate section.

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY. Includes signature of Planning Director and date 3-16-18.

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
Ba	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODORUS AND HAIBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GcC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GmB	GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hs	HAIBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

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

SWM PRACTICE CHART	
ESD PRACTICES BY LOT	
AREA	ESD PRACTICE
LOT 1	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), DRY WELL (M-5) AND MICRO BIO-RETENTION (M-6), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 2	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) AND MICRO BIO-RETENTION (M-6), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 3	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) AND MICRO BIO-RETENTION (M-6), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 10	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), DRY WELLS (M-5) AND MICRO BIO-RETENTION, PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 11	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), DRY WELLS (M-5) AND MICRO BIO-RETENTION, PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
ALLNUTT LANE EXTENSION	MICRO BIO-RETENTIONS (M-5), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION AND JOINTLY MAINTAINED BY THE HOMEOWNERS ASSOCIATION AND HOWARD COUNTY.
USE - COMMON #1	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), DRY WELL (M-5), MICRO BIO-RETENTIONS (M-6) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
USE - COMMON #2	MICRO BIO-RETENTIONS (M-6) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING WETLAND TRIFUR
- EXISTING SPECIMEN TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- EX. 20' DRAINAGE & UTILITY EASEMENT (PLAT 1244)
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. PUBLIC SWM DRAINAGE & UTILITY EASEMENT
- PROP. 25' PRIVATE MONUMENT EASEMENT
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING SLOPE SLOPES (20% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
- DRAINAGE AREA DIVIDE
- PROPOSED MICRO-BIORETENTION FACILITY (M-5)
- PROPOSED DRY WELL (M-5)
- AREA OF DRAINAGE TO SHEETFLOW TO LEVEL SPREADER AND CONSERVATION (N-3)
- AREA OF DRAINAGE TO GO TO DRY WELL (M-5)
- AREA OF DRAINAGE TO GO TO MICRO BIO-RETENTION FACILITY (M-6)
- AREA OF DRIVEWAY DRAINAGE TO GO TO NON-ROOFTOP DISCONNECT (N-2)
- AREA OF ROOFTOP DRAINAGE TO GO TO ROOFTOP DISCONNECT (N-1)
- ROOFTOP DISCONNECT (N-1)
- PROP. SEWAGE DISPOSAL AREA
- PROP. WELL AREA
- PROP. MBR TEST PIT

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 SUBSTITUTES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HAZARD 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 CONTENT - 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 PRACTICE. 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 STOPPED 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 HEES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARCH TRACK EQUIPMENT OR LIGHT EQUIPMENT WITH TYRE TREADS. 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 BY THE USE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS SHOVEL 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 BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY POKED 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 BIORETENTION FACILITY TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MASH 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". SHREDED 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. SHREDED 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 1/3RD OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST 30 INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED AFTER INSTALLATION. TREES SHALL BE SPACED 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.

6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
• PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 756, TYPE PS 28, OR ASHTO 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 4" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4A) GALVANIZED IRONWARE 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 1,000 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".
THE MAIN COLLECTOR PIPE FOR UNDERDRAINS SHOULD BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5% OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1,000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

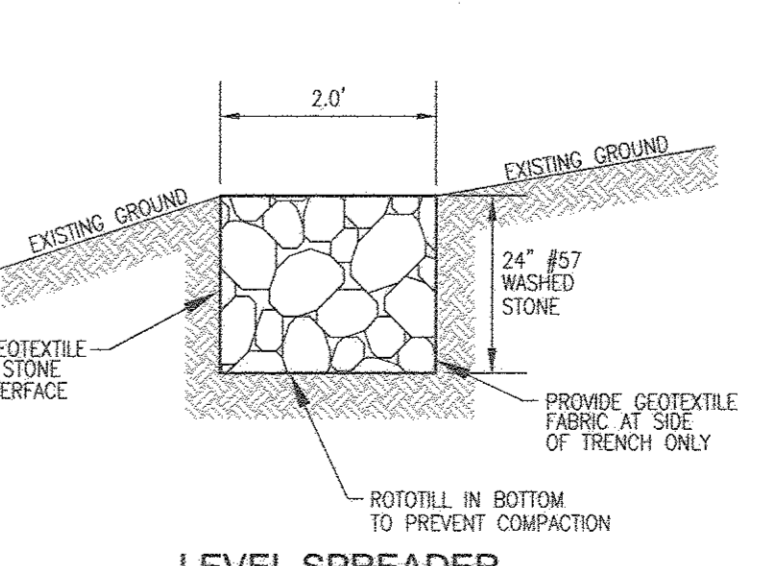
THE ESTATES AT RIVER HILL
STORMWATER TEST PITS

TEST PIT	SURFACE ELEVATION	BORING DEPTH	CONDITION
300	448.84	11'	NO ROCK OR WATER PRESENT
301	431.87	10'	WATER PRESENT AT 421.87
302	425.69	9'	NO ROCK OR WATER PRESENT
303	420.57	9'	WATER PRESENT AT 411.57
309	441.73	12'	NO ROCK OR WATER PRESENT
310	428.00	12'	NO ROCK OR WATER PRESENT
311	418.42	9'	ROCK PRESENT AT 412.42

MICRO-BIORETENTION FACILITY ELEVATIONS (M-6)

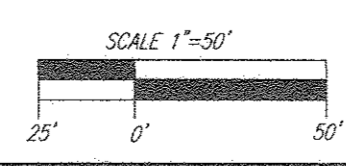
LOT #	FACILITY	A	B	C	D	E	F	G	UNDERDRAIN	OUTFALL	FACILITY
MBR-1A	428.00	428.00	424.75	422.75	422.42	421.42	420.72	421.75	421.75	421.50	385 SF
MBR-1B	421.00	420.00	419.75	417.75	417.42	416.42	415.72	416.75	416.00	416.50	1,165 SF
LOT 1	MBR-2A	450.00	449.00	448.75	446.75	446.42	445.42	444.72	445.75	437.00	255 SF
LOT 2	MBR-3	432.00	431.00	430.75	428.75	428.42	427.42	426.72	427.75	427.00	304 SF
LOT 3	MBR-4	426.00	425.00	424.75	422.75	422.42	421.42	420.72	421.75	421.00	294 SF
MBR-5A	418.00	417.00	416.75	414.75	414.42	413.42	412.72	413.75	413.00	683 SF	
LOT 11	MBR-6A	434.00	433.00	432.75	430.75	430.42	429.42	428.72	429.75	423.50	168 SF
LOT 10	MBR-7A	442.00	441.00	440.75	438.75	438.42	437.42	436.72	437.75	432.50	185 SF
MBR-8A	418.00	417.00	416.75	414.75	414.42	413.42	412.72	413.75	413.00	1,028 SF	

*PROVIDE AN IMPERVIOUS LINER WITH THIS FACILITY.



SWM DRAINAGE AREA MAP

SCALE: 1"=50'



TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY

PLANNING DIRECTOR

3-14-18 DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
STORMWATER MANAGEMENT DRAINAGE AREA MAP, NOTES, AND DETAILS
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCELS 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' - 'H' A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

ZONED: RR-DED
L 4772 / F 265
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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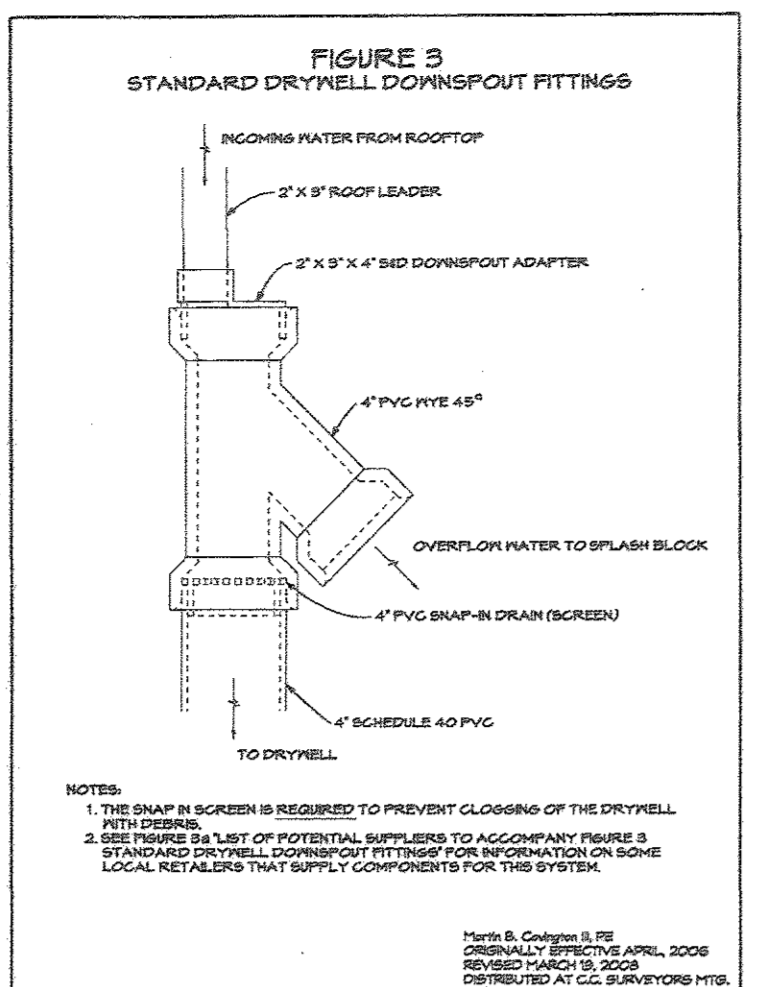
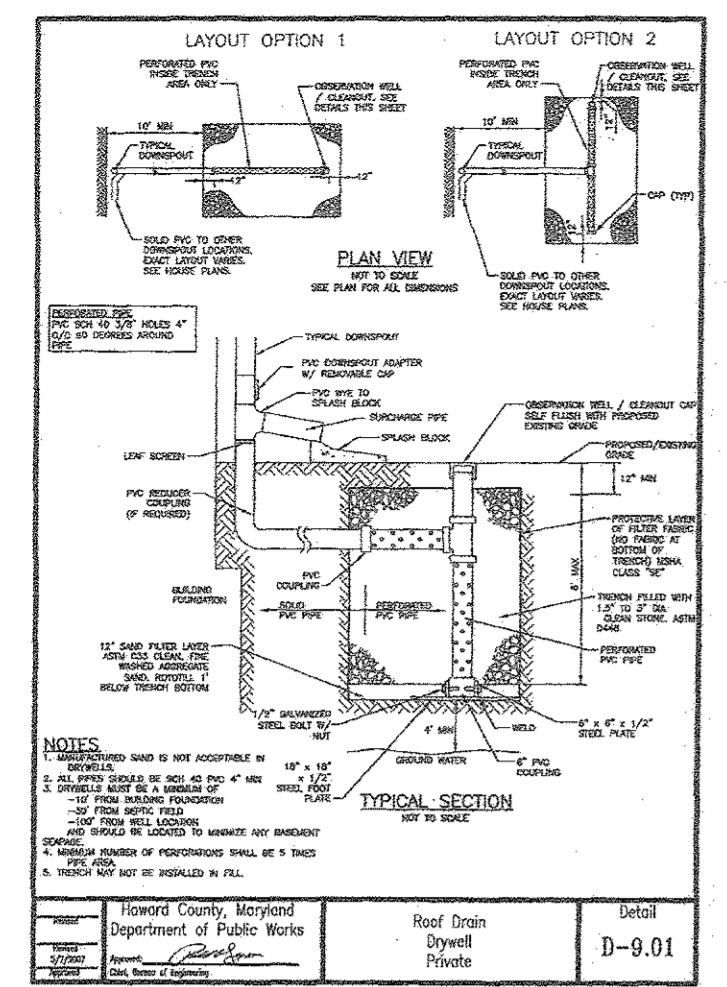
PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19193, EXPIRATION DATE: 08-27-2018.

22 SHEET OF 24

E 1323200
N 558300



HOWARD COUNTY - OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRYWELL (M-5)

A. THE OWNER SHALL INSPECT & CLEAN ANNUALLY, INCLUDING PIPES, GUTTERS, DOWNSPOUTS AND FILTERS.

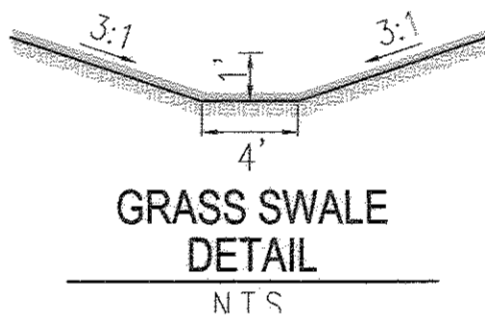
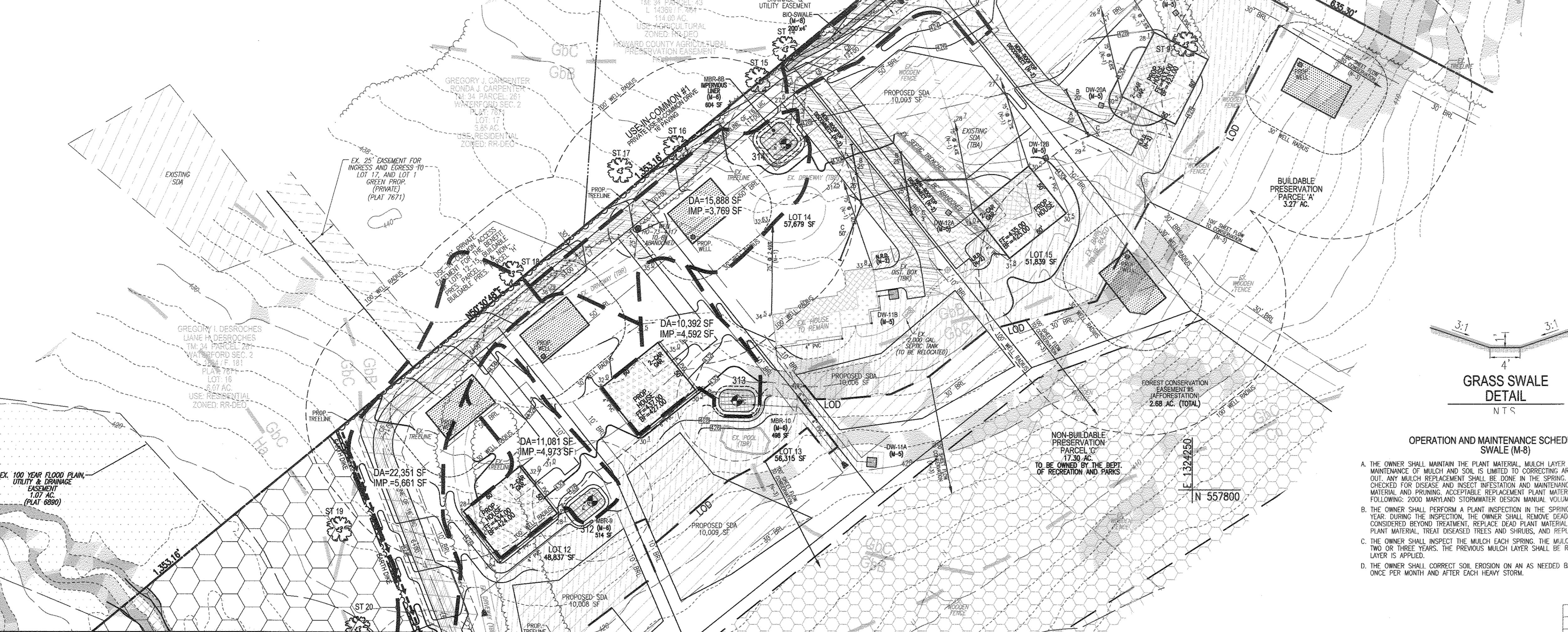
B. PONDING STANDING WATER OR ALGAL GROWTH ON THE TOP OF A DRYWELL MAY INDICATE FAILURE DUE TO SEDIMENTATION IN THE DRYWELL MEDIA. IF WATER PONDING FOR MORE THAN 48 HOURS AFTER A MAJOR STORM OR MORE THAN SIX INCHES OF SEDIMENT HAS ACCUMULATED, THE DRYWELL MEDIA SHOULD BE EXCAVATED AND REPLACED.

LEGEND:

[Symbol]	PROPERTY LINE
[Symbol]	RIGHT-OF-WAY LINE
[Symbol]	ADJACENT PROPERTY LINE
[Symbol]	EXISTING EDGE OF PAVING
[Symbol]	EXISTING STREAM BUFFER
[Symbol]	EXISTING STREAM
[Symbol]	EXISTING TREELINE
[Symbol]	PROPOSED TREELINE
[Symbol]	EXISTING WETLANDS
[Symbol]	EXISTING WETLAND BUFFER
[Symbol]	EXISTING SPECIMEN TREES
[Symbol]	EXISTING WOOD FENCE
[Symbol]	EXISTING METAL FENCE
[Symbol]	EX. PUBLIC 100-YEAR FLOOD PLAN
[Symbol]	PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
[Symbol]	PROP. VARIABLE WIDTH PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
[Symbol]	EX. 25' EASEMENT FOR INGRESS AND EGRESS TO LOT 17, AND LOT 1 GREEN PROP. (PRIVATE) (PLAT 7671)
[Symbol]	EXISTING 10' CONTOUR
[Symbol]	EXISTING 2' CONTOUR
[Symbol]	SOILS
[Symbol]	PROPOSED 10' CONTOUR
[Symbol]	PROPOSED 2' CONTOUR
[Symbol]	EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
[Symbol]	EXISTING MODERATE SLOPES (15% TO 19.99% SLOPES)
[Symbol]	DRAINAGE AREA DIVIDE
[Symbol]	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
[Symbol]	PROPOSED DRY WELL (M-5)
[Symbol]	AREA OF DRAINAGE TO SHEETFLOW TO LEVEL SPREADER AND CONSERVATION (N-3)
[Symbol]	AREA OF DRAINAGE TO GO TO DRY WELL (M-5)
[Symbol]	AREA OF DRAINAGE TO GO TO MICRO-BIO-RETENTION FACILITY (M-6)
[Symbol]	AREA OF DRAINAGE TO GO TO NON-ROOFTOP DISCONNECT (N-2)
[Symbol]	AREA OF ROOFTOP DRAINAGE TO GO TO ROOFTOP DISCONNECT (N-1)
[Symbol]	AREA OF ROOFTOP DRAINAGE TO GO TO MICRO-BIO-RETENTION FACILITY (M-6) AND SHEETFLOW TO CONSERVATION (N-3)
[Symbol]	AREA OF ROOFTOP DRAINAGE TO GO TO DRY WELL (M-5) AND SHEETFLOW TO CONSERVATION (N-3)
[Symbol]	AREA OF DRAINAGE TO GO TO DRY WELLS (M-5) AND SHEETFLOW TO CONSERVATION (N-3)
[Symbol]	ROOFTOP DISCONNECT (N-1)
[Symbol]	PROP. SEWAGE DISPOSAL AREA
[Symbol]	PROP. WELL AREA
[Symbol]	PROP. MBR TEST PIT

Maryland State Grid Meridian

E 1323200
N 557800



OPERATION AND MAINTENANCE SCHEDULE FOR SWALE (M-8)

A. 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 AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A-1.1 AND 2.

B. THE OWNER SHALL PERFORM A PLANT INSPECTION 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.

C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO OR THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

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

MATCHLINE - SHEET 22

MATCHLINE - SHEET 24

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.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SHEETFLOW TO CONSERVATION AREA (N-3)

1. CONSERVATION AREAS SHALL REMAIN UNDISTURBED AND UNMANAGED OTHER THAN ROUTINE DEBRIS REMOVAL AND REPAIRING AREAS OF CONCENTRATED FLOW. INVASIVE AND NOXIOUS PLANT REMOVAL AND BI-ANNUAL MOWING FOR MEADOW AREAS MAY BE NEEDED. SIGNS DELINEATING THE LIMITS OF THE CONSERVATION SHOULD BE MAINTAINED AND SUPPLEMENTAL PLANTINGS PERFORMED AS NEEDED.

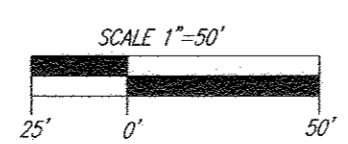
SOILS LEGEND

SYMBOL	NAME/DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
BaA	BALF SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODORUS AND HAIBORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GbB	GLENALLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hg	HAIBORUS-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE 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

SWM DRAINAGE AREA MAP
SCALE: 1"=50'



SWM PRACTICE CHART
ESD PRACTICES BY LOT

AREA	ESD PRACTICE
LOT 12	MICRO-BIO-RETENTION (M-6) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 13	MICRO-BIO-RETENTION (M-6) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 14	DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), DRY WELLS (M-5) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 15	DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), DRY WELLS (M-5) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
BUILDABLE PRES. PARCEL 'A'	DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), DRY WELLS (M-5) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
USE-IN-COMMON #	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2), BIO-SWALE (M-8), MICRO-BIO-RETENTIONS (M-6), LEVEL SPREADER (N-3) AND SHEETFLOW TO CONSERVATION (N-3), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

THE ESTATES AT RIVER HILL
STORMWATER TEST PITS

TEST PIT	SURFACE ELEVATION	BORING DEPTH	CONDITION
312	427.40	10'	NO ROCK OR WATER PRESENT
313	427.29	10'	NO ROCK OR WATER PRESENT
314	429.13	10'	NO ROCK OR WATER PRESENT

MICRO-BIORETENTION FACILITY ELEVATIONS (M-6)

LOT #	FACILITY	A	B	C	D	E	F	G	UNDERDRAIN INV. OUT	OUTFALL INV.	FACILITY SIZE
LOT 14	MBR-89	427.00	426.00	425.75	423.75	423.42	422.42	421.72	418.00	418.00	604 SF
LOT 12	MBR-9	426.00	425.00	424.75	422.75	422.42	421.42	420.72	421.75	421.00	514 SF
LOT 13	MBR-10	429.00	428.00	427.75	425.75	425.42	424.42	423.72	424.75	420.50	488 SF

*PROVIDE AN IMPERVIOUS LINER WITH THIS FACILITY.

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

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Valerie J. J...
PLANNING DIRECTOR

3-14-18
DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
STORMWATER MANAGEMENT DRAINAGE AREA MAP, NOTES, AND DETAILS
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B'-'H' A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389
TAX MAP: 34 GRID: 23
5TH ELECTION DISTRICT

ZONED: RR-DEO
L 4772 / F 285
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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DESIGN BY: RHW
DRAWN BY: JMR
CHECKED BY: RHW
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.D. NO.: 15-39

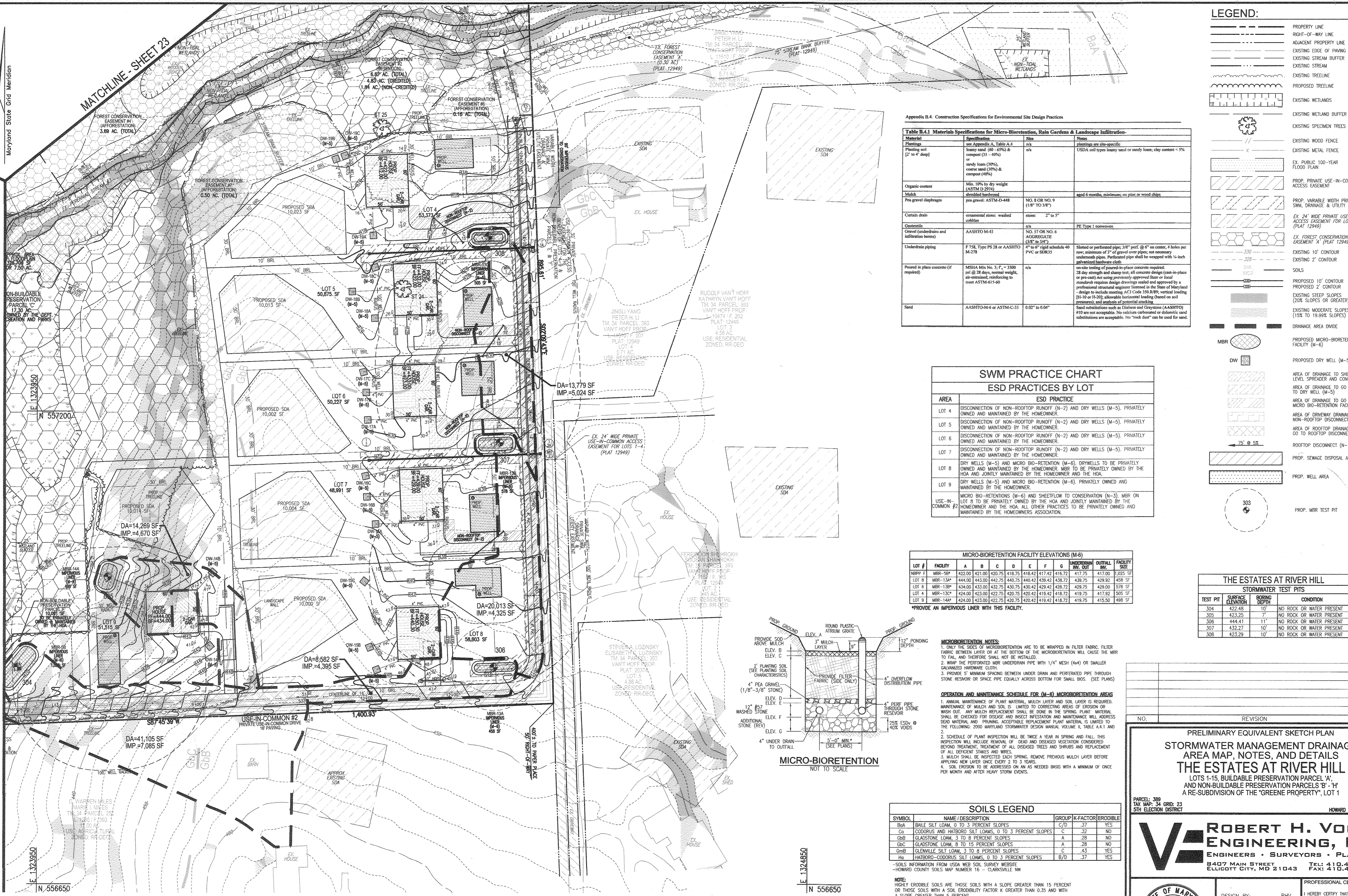
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018

23 SHEET OF 24

MATCHLINE - SHEET 23

MATCHLINE - SHEET 22

Maryland State Grid Meridian



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
Planting soil (2" to 4" deep)	see Appendix A, Table A.1	n/a	plantings are site-specific
	loamy sand (60-65%) & compost (35-40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2924)	n/a	aged 6 months, minimum; no pine or wood chips
Mulch	shredded hardwood	n/a	
Pea gravel (infiltration)	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	AASHTO M-43	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	n/a	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	NO. 2" 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 pipe; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/2-inch geotextile fabric.
Poured in place concrete (if required)	MSHA Min. No. 3, f' = 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 318.2R; vertical loading [10 to 14-20] allowable horizontal loading (based on soil penetration and analysis of potential cracking)
Sand	AASHTO M-6 or ASTM C-33	0.075" to 0.04"	Sand substitution such as Diabase and Craystone (AASHTO #10) are not acceptable. No volcanic carbonated or dolomitic sand substitutions are acceptable. No "rock dump" can be used for sand.

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING SPECIMEN TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. VARIABLE WIDTH PRIVATE SWM DRAINAGE & UTILITY EASEMENT
- EX. 24" WIDE PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4 (PLAT 12949)
- EX. FOREST CONSERVATION EASEMENT 'A' (PLAT 12949)
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 19.9% SLOPES)
- DRAINAGE AREA DIVIDE
- PROPOSED MICRO-BIORETENTION FACILITY (M-6)
- PROPOSED DRY WELL (M-5)
- AREA OF DRAINAGE TO SHEETFLOW TO LEVEL SPREADER AND CONSERVATION (N-3)
- AREA OF DRAINAGE TO GO TO DRY WELL (M-5)
- AREA OF DRAINAGE TO GO TO MICRO BIO-RETENTION FACILITY (M-6)
- AREA OF DRAINAGE TO GO TO NON-ROOFTOP DISCONNECT (N-2)
- AREA OF ROOFTOP DRAINAGE TO GO TO ROOFTOP DISCONNECT (N-1)
- ROOFTOP DISCONNECT (N-1)
- PROP. WASTE DISPOSAL AREA
- PROP. WELL AREA
- PROP. MBR TEST PIT

SWM PRACTICE CHART ESD PRACTICES BY LOT

AREA	ESD PRACTICE
LOT 4	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) AND DRY WELLS (M-5), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 5	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) AND DRY WELLS (M-5), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 6	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) AND DRY WELLS (M-5), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 7	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) AND DRY WELLS (M-5), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
LOT 8	DRY WELLS (M-5) AND MICRO BIO-RETENTION (M-6), DRYWELLS TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER. MBR TO BE PRIVATELY OWNED BY THE HOA AND JOINTLY MAINTAINED BY THE HOMEOWNER AND THE HOA.
LOT 9	DRY WELLS (M-5) AND MICRO BIO-RETENTION (M-6), PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
USE-IN-COMMON #2	MICRO BIO-RETENTIONS (M-6) AND SHEETFLOW TO CONSERVATION (N-3), MBR ON LOT 8 TO BE PRIVATELY OWNED BY THE HOMEOWNER AND THE HOA. ALL OTHER PRACTICES TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

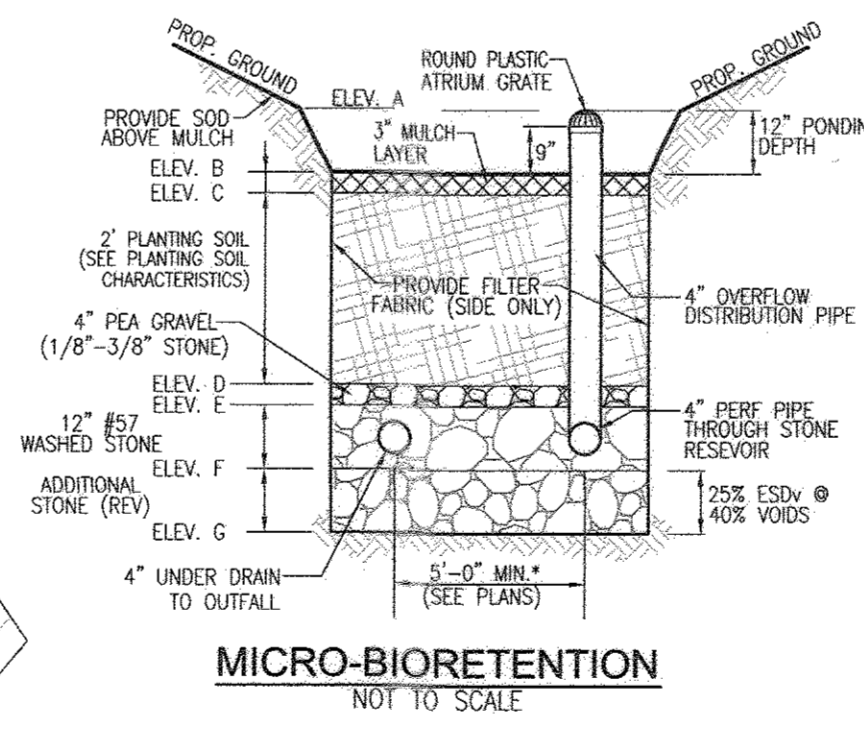
MICRO-BIORETENTION FACILITY ELEVATIONS (M-6)

LOT #	FACILITY	A	B	C	D	E	F	G	UNDERDRAIN INV. OUT	OUTFALL INV.	FACILITY SIZE
NRPP 1	MBR-5B*	422.00	421.00	420.75	418.75	418.42	417.42	416.72	417.75	417.00	1,025 SF
LOT 8	MBR-13A*	444.00	443.00	442.75	440.75	440.42	439.42	438.72	439.75	429.92	499 SF
LOT 6	MBR-13B*	434.00	433.00	432.75	430.75	430.42	429.42	428.72	429.75	429.00	579 SF
LOT 4	MBR-13C*	424.00	423.00	422.75	420.75	420.42	419.42	418.72	419.75	417.92	565 SF
LOT 9	MBR-14A*	424.00	423.00	422.75	420.75	420.42	419.42	418.72	419.75	415.50	498 SF

*PROVIDE AN IMPERVIOUS LINER WITH THIS FACILITY.

THE ESTATES AT RIVER HILL STORMWATER TEST PITS

TEST PIT	SURFACE ELEVATION	BORING DEPTH	CONDITION
304	422.48	10'	NO ROCK OR WATER PRESENT
305	423.25	7'	NO ROCK OR WATER PRESENT
306	444.41	11'	NO ROCK OR WATER PRESENT
307	432.27	10'	NO ROCK OR WATER PRESENT
308	423.29	10'	NO ROCK OR WATER PRESENT



MICROBIORETENTION NOTES:

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

OPERATION AND MAINTENANCE SCHEDULE FOR (M-6) MICROBIORETENTION AREAS

- ANNUAL MAINTENANCE OF PLANT MATERIAL MULCH LAYER AND SOIL LAYER IS REQUIRED. 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 SOIL MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME A, TABLE A.4.1 AND 2.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLANTING OF ALL DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION IS TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

SOILS LEGEND

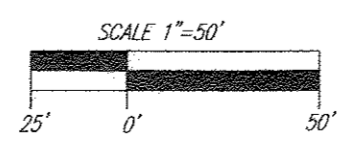
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
Ba	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.37	YES
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	.28	NO
GcC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	.28	NO
GmB	ELEVENILE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	YES
Hb	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.37	YES

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE -HOWARD COUNTY SOILS MAP NUMBER 16 - CLARKSVILLE, MD

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

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY

SWM DRAINAGE AREA MAP
SCALE: 1"=50'



PLANNING DIRECTOR: [Signature] DATE: 3-14-18

OWNER: RENE L. GELBER, JEANNE M. GELBER, 13550 ALLNUTT LANE, HIGHLAND, MD 20777, (410) 490-0023

DEVELOPER: TRINITY QUALITY HOMES, INC., 3875 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043, (410) 480-0023

PRELIMINARY EQUIVALENT SKETCH PLAN
STORMWATER MANAGEMENT DRAINAGE AREA MAP, NOTES, AND DETAILS
THE ESTATES AT RIVER HILL
LOTS 1-15, BUILDABLE PRESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B', 'H' A RE-SUBDIVISION OF THE "GREENE PROPERTY", LOT 1

PARCEL: 389 TAX MAP: 54 GRID: 23 L. 4772 / F. 265 5TH ELECTION DISTRICT ZONED: RR-DEO 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

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 15-39

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: 09-27-2019

PROFESSIONAL CERTIFICATE

24 SHEET OF 24