

**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE UNLESS WAIVERS HAVE BEEN APPROVED.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
  - MIS UTILITY 1-800-257-7777
  - VERIZON TELEPHONE COMPANY: 1-410-954-6281
  - HOWARD COUNTY BUREAU OF UTILITIES: 410-313-2366
  - AT&T CABLE LOCATION DIVISION: 1-800-393-3553
  - B.G.&E. CO. CONTRACTOR SERVICES: 410-850-4620
  - B.G.&E. CO. UNDERGROUND DAMAGE CONTROL: 410-787-4620
  - STATE HIGHWAY ADMINISTRATION: 410-531-5533
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- THE SUBJECT PROPERTY IS ZONED R-SC. PER SECTION 100.0.3 OF THE ZONING REGULATIONS, AS THE INITIAL PRELIMINARY EQUIVALENT SKETCH PLAN WAS APPROVED PRIOR TO 10-6-13. THIS PLAN WAS PREPARED IN ACCORDANCE WITH 02/02/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/06. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/7/2007 PER COUNCIL BILL 75-2003.
- PROPERTY OUTLINE SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED FEBRUARY 2012.
- TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL PHOTOGRAMETRY COMPILED BY POTOMAC AERIAL SURVEYS INC. JANUARY 12, 2012.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 47HC AND 47CC WERE USED FOR THIS PROJECT.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WALKER FETTER, OR BUILDING PERMITS AND GRADING PERMITS.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY.
- THE ARE NO EXISTING MONUMENTS ON THESE PARCELS.
- OLD SCAGGSVILLE ROAD IS CLASSIFIED AS A MINOR COLLECTOR.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. REFER TO SECTION ONE CONTRACT 24-4778-0
- WATER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 30-5 AND CONTRACT NO. 30-3253.
- SEWER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 30-5 AND CONTRACT NO. 30-3253.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, TOPOGRAPHIC SURVEY, PUBLIC WATER AND AND SEWER EXTENSION PLANS, AND AS-BUILT DRAWINGS. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
- ANY DAMAGE INCURRED TO THE EXISTING UTILITIES, DUE TO CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE WEBB SOIL SURVEY - HOWARD COUNTY, MARYLAND.
- THE OFFICIAL PRE-SUBMISSION COMMUNITY MEETING WAS HELD FOR THIS PROJECT ON FEBRUARY 28, 2012 AT SAINT VINCENT PALOTTI HIGH SCHOOL. ON APRIL 12, 2012 A SECOND, NON-OFFICIAL, MEETING WAS HELD AT THE LAUREL COMMUNITY CENTER.
- NO FLOODPLAINS EXIST ON SITE.
- STEEP SLOPES ARE LOCATED AND SHOWN HEREON.
- WETLANDS AND STREAMS SHOWN HEREON ARE BASED ON DELINEATION BY MCCARTHY & ASSOCIATES, INC., DECEMBER 2011. THE REPORT WAS AMENDED OCTOBER 2012.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN.
- THE PROPOSED SUBDIVISION (SECTION ONE) AND RELATED CONSTRUCTION WILL NOT IMPACT ENVIRONMENTAL FEATURES OR BUFFERS.
- A FOREST STAND DELINEATION PLAN WAS PREPARED BY MCCARTHY & ASSOCIATES, INC., APRIL 2012 AND AMENDED OCTOBER 2012.
- A TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC., DATED AUGUST 2012, WAS APPROVED 3/2013.
- NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT. NOISE WALL MITIGATION CURRENTLY EXISTS ALONG INTERSTATE 95.
- A GEOLOGICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC., DATED AUGUST 2012.
- AN ENVIRONMENTAL CONCEPT PLAN (ECP12-047) WAS APPROVED ON OCTOBER 1, 2012.
- A PRELIMINARY EQUIVALENT SKETCH PLAN (ESP13-007) WAS APPROVED ON JULY 3, 2013.
- STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF ALTERNATIVE SURFACES, NON STRUCTURAL PRACTICES & MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. NON STRUCTURAL PRACTICES INCLUDE ROOFTOP DISCONNECTS, MICRO-SCALE PRACTICES INCLUDE MICRO-BIOTRETENTION, BIO SWALES, DRYWELLS, RAIN BARRELS AND RAIN GARDENS. ALTERNATIVE SURFACES INCLUDE PERMEABLE SURFACES, TYPICALLY ALTERNATIVE SURFACE, NON STRUCTURAL AND MICRO-SCALE FACILITIES ONLY WILL BE PRIVATELY OWNED AND MAINTAINED. MICRO-SCALE FACILITIES MANAGING ROAD RUNOFF SHALL BE DESIGNATED AS PRIVATELY OWNED AND MAINTAINED FACILITIES (H.O.A. AND HOWARD COUNTY). HOWARD COUNTY WILL MAINTAIN OUTLET STRUCTURES AND PIPES WHILE THE H.O.A. SHALL MAINTAIN MULCH, WEEDING, PLANTINGS, PERFORATED UNDERDRAINS, FEEDER PIPES, AND ROUTINE SOIL REPLACEMENT.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$ 20,490 FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS PART OF THE FINAL PLAN DEVELOPER'S AGREEMENT FOR THE 45 REQUIRED SHADE (\$13,500), 41 EVERGREEN TREES (\$6,150), 8 TRASH PAD SCREENING SHRUBS (\$240) 2 PARKING ISLAND SHADE TREES (\$800). PER NOTE 48, THE REQUIRED REPLACEMENT TREES FOR THE REMOVAL OF THE SPECIMEN TREES WERE PROVIDED WITH F14-022.
- PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$ 26,700 SHALL BE PROVIDED FOR THE 89 REQUIRED STREET TREES AS PART OF THE FINAL PLAN DEVELOPER'S AGREEMENT.
- A FOREST CONSERVATION PLAN PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. WAS SUBMITTED AND APPROVED UNDER F 14-022.
- FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED UNDER F14-022 TO FULFILL THE REQUIREMENTS OF SECTION 16.120 OF THE HOWARD COUNTY ZONING REGULATIONS FOR BOTH SECTIONS OF DEER SPRINGS (F14-022 AND F14-023). 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.
- IN ACCORDANCE WITH SECTION 16.121(a)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS THE OPEN SPACE REQUIREMENTS FOR THIS RSC PROJECT IS 25% OF GROSS AREA (36,942 AC. GROSS AREA X 25% = 9,24 AC.). REFER TO TABULATION HEREON.
- OPEN SPACE LOTS 144 - 147 TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
- RECREATIONAL OPEN SPACE REQUIREMENTS FOR THIS PROJECT WERE MET UNDER F14-022. REFER TO TABULATION HEREON.
- IN ACCORDANCE WITH DESIGN MANUAL VOLUME 3, CHAPTER 2 - SECTION 2.9.B, PARKING IS REQUIRED AT TWO (2) SPACES PER UNIT OFF STREET PARKING TO INCLUDE GARAGE SPACE, DRIVEWAY, PARKING PAD AND COURTS. GARAGES COUNT AS A FULL SPACE.
- ALL DRIVEWAY ENTRANCES SHALL BE 10'-0" WIDE.
- LOTS 88 - 90 AND 93 & 94 WILL UTILIZE USE-IN-COMMON DRIVEWAYS. THE USE-IN-COMMON MAINTENANCE AGREEMENT WILL BE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAN.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
  - a) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
  - b) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CLIP COATING.
  - c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT DEPTH TURNING RADIUS.
  - d) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD).
  - e) DRAINAGE ELEMENTS-CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
  - f) STRUCTURE CLEARANCES-MINIMUM 12 FEET.
  - g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- FOR FLAG OR PIPE STEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE TO BE PROVIDED AT THE JUNCTION OF FLAG OR PIPE STEM AND THE ROAD R/W AND NOT ONTO THE FLAG OR PIPE STEM DRIVEWAY. TRASH AND RECYCLING COLLECTION WILL BE WITHIN 5' OF THE EDGE OF THE COUNTY ROADWAY.
- THE REQUIRED TRASH PAD FOR THE USE-IN-COMMON DRIVEWAYS SERVING LOTS 88-90 AND 93-94 SHALL BE LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY AS SHOWN HEREON. THE TRASH PAD AND ASSOCIATED LANDSCAPING ARE TO BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
- A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY FOR THE USE-IN-COMMON DRIVEWAYS ALONG PEACE SPRINGS RIDGE SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY - BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- TRAFFIC CONTROL DEVICES:
  - A. THE R1-1(S)TOP SIGNS AND STREET NAME SIGN (SNS) ASSEMBLIES FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETE.
  - B. 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.
  - C. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUMUTCD).
  - D. ALL SIGN POST 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 THE TOP OF EACH POST.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (2009). SECTION 5.5.A. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER. ON DECEMBER 4, 2013, THE CHIEF OF THE DEVELOPMENT ENGINEERING DIVISION APPROVED THE REQUEST TO WAIVE THE REQUIREMENTS OF SECTION 2.5 AND APPENDIX A OF DESIGN MANUAL VOLUME III, WHICH REQUIRES AN 85TH PERCENTILE SPEED STUDY AND PUBLIC ROADWAY SECTION DESIGN. THE DIVISION APPROVED THE REQUEST 1. BASED ON CONDITIONS MADE IN THE REQUEST. 2) THE ASSUMED 85TH PERCENTILE SPEED IS IN LINE WITH THE ACTUAL SPEED MADE BY THE ENGINEER AT THE NEXT INTERSECTION. 3) MINIMUM CURVE RADIUS HAS BEEN REDUCED WITHIN RESIDENTIAL AREA PROVIDING STUDY CREDIT WITHIN THIS PORTION OF THE SUBDIVISION. IT IS NOTED THAT ALL ROAD WITHIN THE SUBDIVISION MEETS THE HOWARD COUNTY FIRE DEPARTMENT REQUIREMENTS. THE REQUESTED WAIVER TO DESIGN MANUAL VOLUME 4, DETAIL R1.02 HAS BEEN DEFERRED UNTIL THE SUBMISSION OF THIS FINAL PLAN.
- THE DEVELOPER WILL OBTAIN ALL NECESSARY STATE PERMITS FOR THE PROPOSED ENVIRONMENTAL IMPACTS.
  - A) NUMBER: 142820
  - MDE TRACKING NUMBER: #201460226
  - NONTIDAL WETLAND AND WATERWAYS APPLICATION NUMBER: 14-N-3048 / 14-N-3048.

ALL WORK IN THE NONTIDAL WETLANDS, WETLAND BUFFERS SHALL BE COMPLETED PER THE BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS. SEE SHEET 7

**GENERAL NOTES (CON'T)**

- THIS PROJECT IS SUBJECT TO WP-13-080. ON MARCH 27, 2013, THE PLANNING DIRECTOR APPROVED THE REQUEST TO WAIVE SECTION 16.116(A) FOR DISTURBANCE TO STREAM, STREAM BUFFERS, WETLANDS AND WETLAND BUFFERS ON THE NORTHEAST PORTION OF THE PROJECT FOR A STORM DRAINAGE PIPE, AND SECTION 16.120(A)(7) TO REMOVE UP TO 3 SPECIMEN TREES. THE PLANNING DIRECTOR DENIED YOUR REQUEST TO WAIVE SECTION 16.120(B)(6)(V)(C) TO ALLOW PIPESTEM LOTS ON MULTIPLE SIDES OF A FRONTAGE LOT IN THE SAME SUBDIVISION.
  - APPROVAL OF THE WAIVER TO SECTION 16.116(A) AND SECTION 16.120(A)(7) IS SUBJECT TO THE FOLLOWING CONDITIONS:
    - ENVIRONMENTAL DISTURBANCE MUST BE LIMITED ON WALKER FETTER PLAN EXHIBIT. ANY EXPANSION OF THE DISTURBED AREA MAY REQUIRE ADDITIONAL WAIVER APPROVAL IF DETERMINED SIGNIFICANT.
    - PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITIES THAT RESULT IN THE APPROVED ENVIRONMENTAL DISTURBANCES, ALL APPROVALS FROM MDE, APPLICABLE SRC AGENCIES AND PERMISSIONS FROM ADJACENT/AFFECTED PROPERTY OWNERS MUST BE OBTAINED AND DOCUMENTED. COPIES OF DOCUMENTATION MUST BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING PRIOR TO THE FINAL PLAN APPROVAL (OR PRIOR TO SITE DEVELOPMENT PLAN APPROVAL, AT THE DISCRETION OF DPZ).
    - PRIOR TO REMOVAL OF THE TWO OAK TREES, PLEASE REVIEW THE PROPOSED DESIGN ALTERNATIVES RECOMMENDED BY THE DIVISION OF LAND DEVELOPMENT IN THE REVISED SUBMISSION COMMENTS DATED MARCH 28, 2013. INCORPORATE DESIGN RECOMMENDATIONS OR PROVIDE AMPLE JUSTIFICATION TO THE DEPARTMENT OF PLANNING AND ZONING IF NOT FEASIBLE (LOSS OF LOT YIELD ALONE WILL NOT BE CONSIDERED AMPLE JUSTIFICATION).
    - REMOVAL OF EACH SPECIMEN TREE WILL REQUIRE MITIGATION WITH THE PLANTING OF TWO NEW NATIVE SHADE TREES (FOR UP TO 6 NEW SHADE TREES) WITH A MINIMUM 2-1/2" CALIPER TRUNK - SURETY OF THESE SHADE TREES SHALL BE INCORPORATED INTO THE LANDSCAPE SURETY WITH THE FINAL ROAD CONSTRUCTION DRAWINGS.
    - PRIOR TO REMOVING THE SILVER MAPLE SPECIMEN TREE ON THE NORTH PARCEL, THE DEVELOPER SHALL FIRST ATTEMPT DESIGN ALTERNATIVES THAT WOULD ALLOW PRESERVATION OF THE TREE. IF REMOVED, THE TWO TREES PLANTED FOR MITIGATION SHOULD BE PLACED WITHIN THE PROXIMITY OF THE REMOVED TREE OR AT LEAST ON THE PORTION OF THE PROPERTY BOUNDARY SHARED BY PARCEL 398.
  - DENIAL OF THE WAIVER TO SECTION 16.120(B)(6)(V)(C) WAS BASED ON THE FOLLOWING REASONS:
    - EXTRAORDINARY CIRCUMSTANCES OR DESIGN CONSTRAINTS RESULTING IN SIGNIFICANT HARDSHIP WERE NOT INDICATED IN THE WAIVER JUSTIFICATION.
    - DESIGN ALTERNATIVES EXIST THAT WOULD PREVENT THE LOT BEING SURROUNDED ON FOUR SIDES BY PAVED DRIVE LINES. PLEASE SEE OLD COMMENTS DATED MARCH 28, 2013.
    - THE DESIGN PROPOSES APPROXIMATELY 60% OF ENSURING AN OPTIMAL LOT YIELD. THE DEVELOPER HAS THE OPTION OF INCORPORATING ADDITIONAL TOWNHOME LOTS TO OBTAIN DESIRED LOT YIELD IN THE PROPOSED SUBDIVISION DESIGN.
    - THE WAIVER, IF APPROVED WOULD NULLIFY THE INTENT AND PURPOSE OF THE REGULATIONS, WHICH IS TO ACHIEVE A WELL THOUGHT-OUT DESIGN THAT PROVIDES ORDERLY SUBDIVISION LAYOUT AND AVOIDS ORIENTATION AND PRIVACY PROBLEMS FOR NEW HOUSES ON PIPESTEM AND FRONTAGE LOTS. AS PROPOSED, LOT 74 WOULD HAVE LIMITED USABILITY AND PRIVACY. OLD RECOMMENDS A SUBDIVISION REDESIGN TO REMOVE AND RELOCATE LOTS 72, 73 AND 74 ELSEWHERE IN THE DEVELOPMENT. IN LAYING OUT THE SUBDIVISION DESIGN, THE DEVELOPER SHOULD GIVE MORE CONSIDERATION TO THE ARRANGEMENT OF LOTS SO THAT PROPOSED HOUSES WILL NOT LOOK INTO NEIGHBORING REAR YARDS OF THE FRONT LOTS. EACH NEW LOT IN THE SUBDIVISION SHOULD INCORPORATE GOOD LOT DESIGN AND PLANNED AS TO THE SIZE, SHAPE AND ORIENTATION TO AVOID UNDESIRABLE VIEWS FROM ADJOINING LOTS. WAIVERS SHALL NOT BE USED TO ACHIEVE MAXIMUM LOT YIELD AT THE EXPENSE OF GOOD SUBDIVISION DESIGN.
  - ON JUNE 3, 2013, A REQUEST FOR RECONSIDERATION WAS SUBMITTED WHICH AMENDED THE REQUESTED SPECIMEN TREES TO BE REMOVED. TO SPECIMEN TREES # 3 AND #4 PREVIOUSLY APPROVED TO BE REMOVED AND IN CONJUNCTION WITH THE REVISED LAYOUT, ARE NOW PROPOSED TO BE REMOVED. AS A RESULT OF THE REVISED LAYOUT, SPECIMEN TREE # 15 AND 16 (35'7" TWIN TRUNK SOUTHERN RED OAK IN FAIR CONDITION) IS PROPOSED TO BE REMOVED.

APPROVED: DEPARTMENT OF PUBLIC WORKS

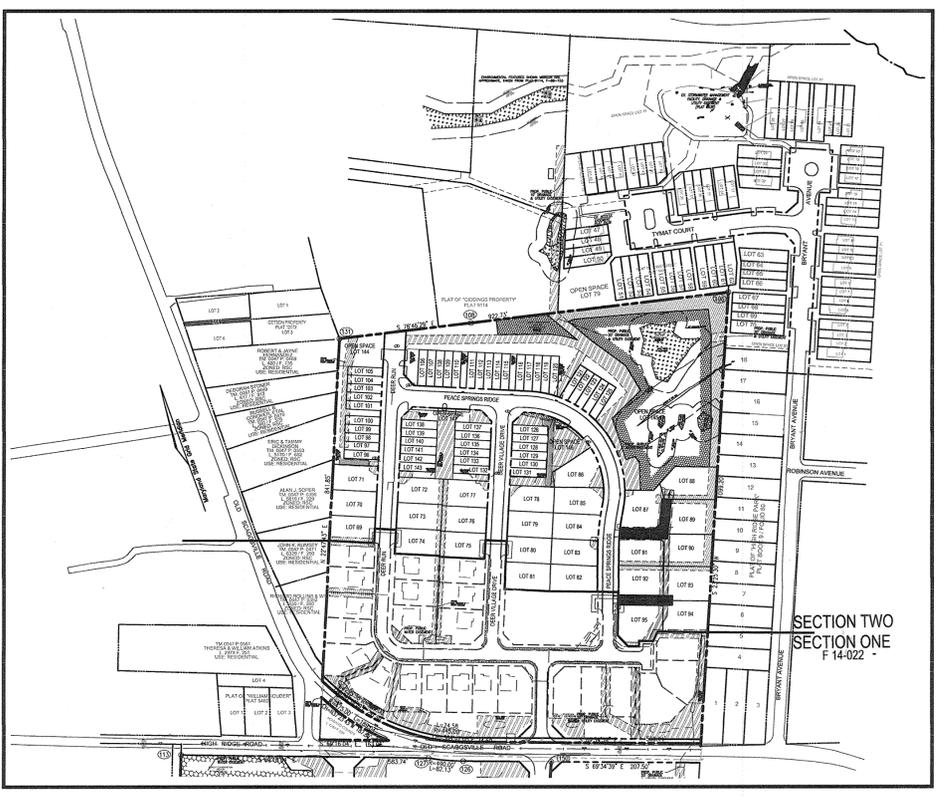
*John Selman* DATE: 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS

*Chris Edwards* DATE: 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Kate Schaefer* DATE: 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT

# FINAL ROAD CONSTRUCTION PLAN HIGH RIDGE MEADOWS - SEC. 2

SFD LOTS 69 - 95, SFA LOTS 96 - 143  
AND OPEN SPACE LOTS 144 - 147  
OLD SCAGGSVILLE ROAD  
PARCELS 363 & 542  
HOWARD COUNTY, MARYLAND

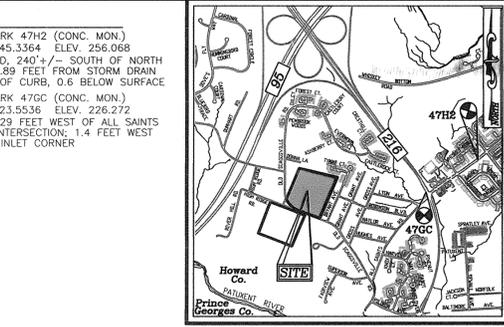


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**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

*[Signature]* DATE: 6/19/13 7-18-14  
 P.E. NAME: P.E.#: DATE:



**VICINITY MAP**  
SCALE: 1"=2,000'  
PARCEL 542: L 619 / F 519  
ADC MAP COORDINATE: 5169 B1/5169 B2  
5169 C1/5169 C2

**SITE DATA**

DEED REFERENCE: PARCEL 363: L 619 / F 519  
 PARCEL 542: L 619 / F 519

ELECTION DISTRICT: 6TH  
 LOCATION: OLD SCAGGSVILLE ROAD,  
 WEST OF BRYANT AVENUE

EXISTING ZONING:  
 R-SC

GROSS AREA:  
 SECTION TWO: 12.99 AC +/-  
 RESUB OF NON-BUILDABLE BULK PARCEL B

AREA OF 100 YEAR FLOODPLAIN: N/A  
 AREA OF STEEP SLOPES: 0.34 AC (F14-022)  
 AREA OF WETLANDS & BUFFERS: 1.61 AC (F14-022)  
 NET AREA (GROSS-STEEP SLOPES & FLOODPLAIN): 12.99 AC.

BASE DENSITY:  
 4 LOTS PER NET ACRE (4X36.60): 146 LOTS  
 NUMBER OF PROPOSED RESIDENTIAL LOTS: 129 LOTS  
 F14-022 - SECTION 1 54 SFD  
 F14-023 - SECTION 2 27 SFD / 48 SFA

AREA OF PROPOSED RESIDENTIAL LOTS (SFD): 4.58 AC  
 AREA OF PROPOSED RESIDENTIAL LOTS (SFA): 1.87 AC  
 AREA OF PROPOSED RESIDENTIAL LOTS (TOTAL): 6.45 AC  
 AREA OF ROAD RIGHT OF WAY (ON-SITE): 1.89 AC

OPEN SPACE REQUIRED: 25% OF GROSS AREA = 9.24 AC TOTAL  
 DEER SPRINGS (F14-022 & F14-023) 36.94 X 25% = 9.24 AC  
 SEC TWO AREA OF OPEN SPACE PROPOSED: 4.65 AC +/-  
 TOTAL OPEN SPACE PROVIDED (F14-022 & F14-023): 14.24 AC +/-

TOTAL RECREATION OPEN SPACE REQUIRED FOR SEC TWO = 17.75 SF  
 \*\* SEE TABULATION

TOWNHOMES SFA = 400 SF/UNIT X 48 UNITS = 19,200 SF  
 SINGLE FAMILY HOMES SFD = 300 SF/UNIT X 27 UNITS = 8,100 SF

LIMIT OF DISTURBANCE: 12.8 AC  
 EXISTING USE OF SITE:  
 PROPOSED USE OF SITE:  
 SINGLE FAMILY DETACHED  
 SINGLE FAMILY ATTACHED  
 PUBLIC  
 PUBLIC

PROPOSED WATER SYSTEM:  
 MINIMUM LOT AREA: 6,000 SF - SFD  
 MAXIMUM SFA LOT COVERAGE FOR STRUCTURES: 60%  
 TYP. 20' X 42' = 840 ON MIN LOT SIZE OF 1,700 SF = 49%  
 TYP. 20' X 42' = 840 ON MIN LOT SIZE OF 1,640 SF = 39%

**OWNER**  
 KATHY MIESSE, PERSONAL REPRESENTATIVE,  
 ESTATE OF ARTHUR P. KRAESKI,  
 9222 OLD SCAGGSVILLE ROAD,  
 LAUREL, MD 20723-1730  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

**DEVELOPER**  
 LAND DESIGN & DEVELOPMENT, INC.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELLICOTT CITY, MARYLAND 21023-1919  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

NO.	REVISION	DATE

**FINAL ROAD CONSTRUCTION PLAN**

**COVER SHEET  
HIGH RIDGE MEADOWS - SECTION 2  
LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147**

A RESUBDIVISION OF  
DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
 DPZ REF'S: F-10-085, WP-10-087, ECP-12-047,  
 WP-13-080, SP 13-007, F 14-022

ZONED: R-SC  
 PARCELS: 363 & 542  
 HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL  
ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET  
 ELLICOTT CITY, MD 21043  
 TEL: 410-461-7666  
 FAX: 410-461-8111

DESIGN BY: RHV / EDS  
 DRAWN BY: RVE/EJS  
 CHECKED BY: RHV  
 DATE: MAY 2014  
 SCALE: AS SHOWN  
 W.O. NO.: 11-28

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2014.

1 SHEET OF 20

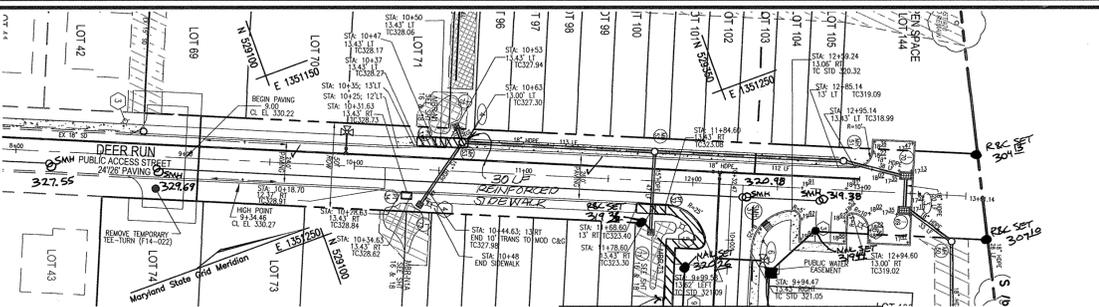
DEER SPRING - DENSITY TABULATION									
FINAL PLAN #	SECTION	GROSS AREA	FLOODPLAIN	STEEP SLOPES	NET AREA	UNITS ALLOWED	UNITS PROP.	OPEN REQ.	OPEN PROV.
F14-022	SEC. 1	36.94 ACRES	0.00 ACRES	0.34 ACRES	36.60 ACRES	146	54 SFD	9.24 ACRES	9.92 ACRES
F14-023	SEC. 2	12.99 ACRES	0.00 ACRES	0.34 ACRES	12.65 ACRES	51	27 SFD	0.00 ACRES	4.65 ACRES
TOTAL	-	49.93 ACRES	0.00 ACRES	0.68 ACRES	49.25 ACRES	197	81 SFD	9.24 ACRES	14.57 ACRES

\*\* F14-022 - NON-BUILDABLE BULK PARCEL "B" RESUBDIVIDED UNDER F14-023 INTO 27 SFD / 48 SFA

NO AS-BUILT INFORMATION ON THIS SHEET

200' 0 200' 400' 600'

AS-BUILT - DECEMBER 2018

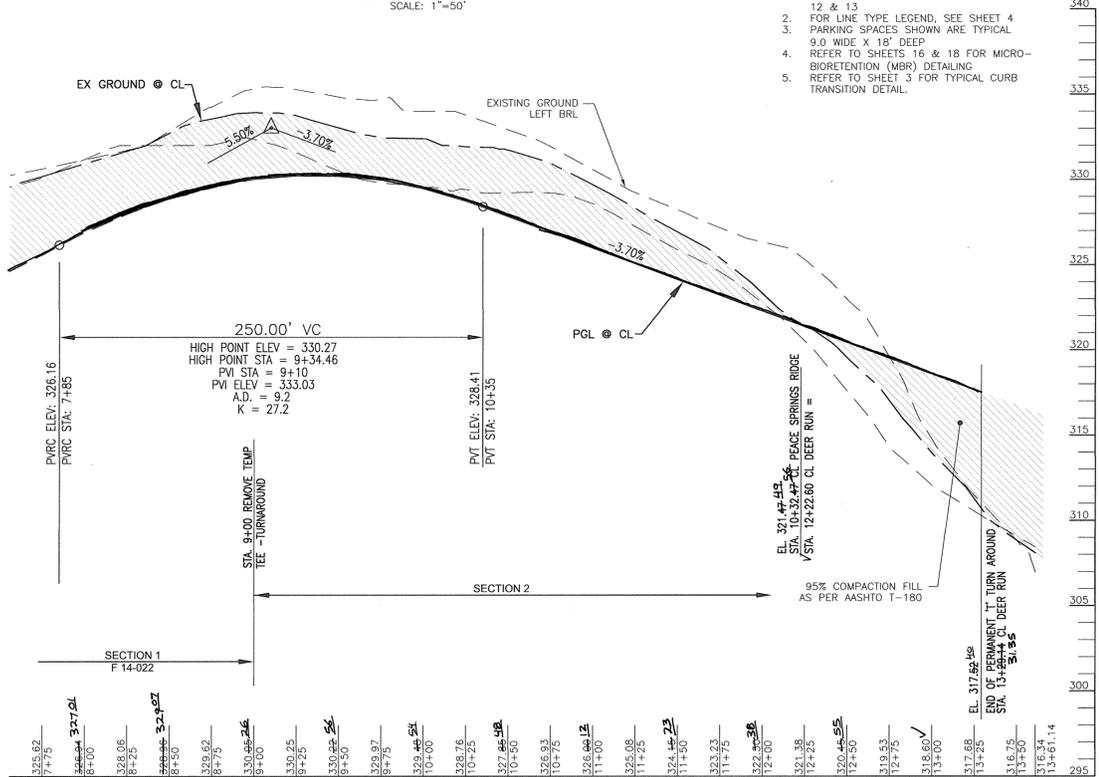


NOTE:  
1. REFER TO SHEET 20 FOR SIGN & LIGHT DATA

**DEER RUN - PLAN VIEW PUBLIC ACCESS STREET**  
DESIGN SPEED: 30 MPH  
SCALE: 1"=50'

SEE SHEET 3 (SEE DETAIL #1)

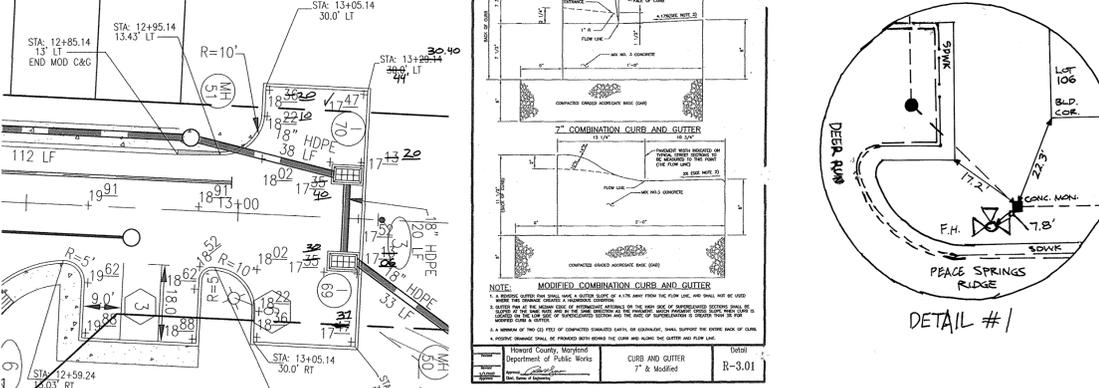
NOTES:  
1. FOR STRUCTURE SCHEDULE SEE SHEETS 12 & 13  
2. FOR LINE TYPE LEGEND, SEE SHEET 4  
3. PARKING SPACES SHOWN ARE TYPICAL  
4. 9.0 WIDE X 18' DEEP  
5. REFER TO SHEETS 16 & 18 FOR MICRO-BIODETENTION (MBR) DETAILING (MBR) DETAILING  
6. REFER TO SHEET 3 FOR TYPICAL CURB TRANSITION DETAIL



NOTE:  
1. FOR STRUCTURE SCHEDULE SEE SHEETS 12 & 13  
2. REFER TO SHEETS 16 & 18 FOR MICRO-BIODETENTION (MBR) DETAILING  
3. REFER TO SHEET 3 FOR TYPICAL CURB TRANSITION DETAIL

**DEER VILLAGE DRIVE - PLAN VIEW PUBLIC ACCESS STREET**  
DESIGN SPEED: 30 MPH  
SCALE: 1"=50'

NOTES:  
1. FOR STRUCTURE SCHEDULE SEE SHEETS 12 & 13  
2. REFER TO SHEETS 16 & 18 FOR MICRO-BIODETENTION (MBR) DETAILING  
3. REFER TO SHEET 3 FOR TYPICAL CURB TRANSITION DETAIL

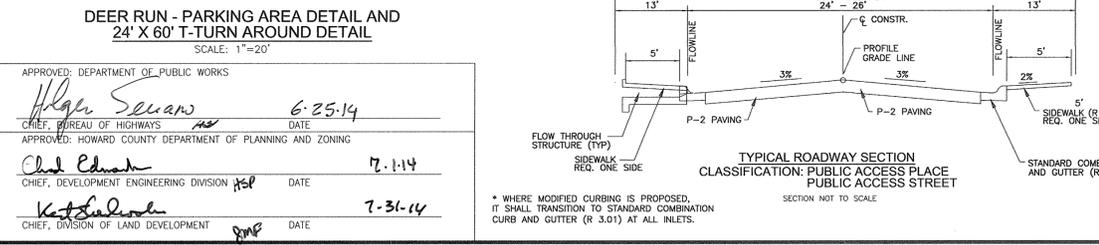


**DEER RUN - PARKING AREA DETAIL AND 24' X 60' T-TURN AROUND DETAIL**  
SCALE: 1"=20'

APPROVED: DEPARTMENT OF PUBLIC WORKS  
DATE: 6-25-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 7-1-14

APPROVED: CHIEF, DIVISION OF ENGINEERING  
DATE: 7-31-14



SECTION	ROAD AND STREET	SECTION NUMBER	SECTION LENGTH (FEET)	SECTION START (STA)	SECTION END (STA)
P-1	DEER RUN	1	100	10+00	11+00
P-2	DEER RUN	2	100	11+00	12+00
P-3	DEER RUN	3	100	12+00	13+00
P-4	DEER RUN	4	100	13+00	14+00

PRIVING SECTIONS  
P-1 to P-4  
R-2.01

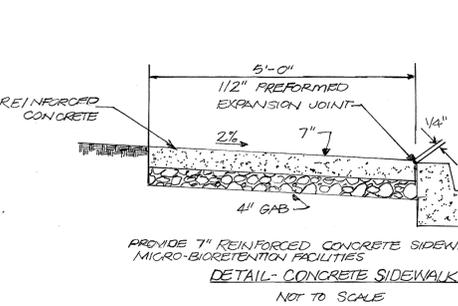
STR #	DETAIL	LOCATION
M-36	G 5.12	N 529684.03, E 1352118.74
M-36A	G 5.12	N 529595.45, E 1352096.98
M-37	G 5.12	N 529738.96, E 1351872.31
M-38	G 5.12	N 529607.90, E 1351818.06
M-39	G 5.12	N 529384.13, E 1351725.43
M-39A	G 5.12	N 529366.75, E 1351735.66
M-40	G 5.12	N 529291.44, E 1351779.82
M-41	G 5.12	N 529219.95, E 1351686.78
M-42	G 5.12	N 529208.97, E 1351835.39
M-43	G 5.12	N 529151.86, E 1351846.93
M-44	G 5.12	N 529114.25, E 1351762.93
M-45	G 5.12	N 529099.52, E 1351994.30
M-46	G 5.12	N 529146.32, E 1351638.09
M-47	G 5.12	N 529241.67, E 1351424.64
M-48	G 5.12	N 529071.18, E 1351584.23
M-49	G 5.12	N 529109.85, E 1351350.91
M-50	G 5.12	N 529446.05, E 1351378.78
M-51	G 5.12	N 529403.23, E 1351313.60
M-52	G 5.12	N 529393.23, E 1351270.37
M-53	G 5.12	N 529195.80, E 1351226.42
M-54	G 5.12	N 529195.80, E 1351226.42

STR #	DETAIL	LOCATION
PT-23	MD 374.68	STA 2+69.45, 12.00' LT
PT-24	MD 374.68	STA 3+78.83, 12.00' LT
PT-25	MD 374.68	STA 4+84.24, 12.00' LT
PT-26	MD 374.68	STA 5+95.70, 13.00' RT
PT-27	MD 374.68	STA 6+56.70, 13.00' RT
PT-28	MD 374.68	STA 8+48.47, 28.00' LT
PT-29	MD 374.68	STA 9+16.72, 31.00' LT
PT-30	MD 374.68	STA 4+00.05, 12.00' RT
PT-31	MD 374.68	STA 4+01.26, 12.00' LT
PT-32	MD 374.68	STA 11+81.60, 13.00' RT
PT-33	MD 374.68	STA 10+48.83, 13.00' LT
PT-34	MD 374.68	STA 10+31.83, 13.00' RT
ES-15	HDPE	N 529192.04, E 1352116.31
ES-16	HDPE	N 529681.96, E 1352163.61
ES-17	HDPE	N 529424.86, E 1351441.56
ES-18	HDPE	N 529645.14, E 1351760.32

STR #	DETAIL	LOCATION
L-45	D-4.11	N 529202.19, E 1352095.70
L-46	D-4.11	N 529129.22, E 1352038.82
L-47	D-4.11	N 528999.43, E 1351981.07
L-48	D-4.11	N 528847.31, E 1351929.81
L-49	D-4.11	N 528980.94, E 1351814.81
L-50	D-4.11	N 529103.27, E 1351967.82
L-51	D-4.11	N 528745.52, E 1351756.20
L-52	D-4.11	N 529367.04, E 1351768.90
L-53	D-4.11	N 529375.85, E 1351914.55
L-54	D-4.11	N 529277.94, E 1352094.21
L-55	D-4.11	N 529283.47, E 1351769.44
L-56	D-4.01	N 529190.17, E 1351962.08
L-57	D-4.01	N 529260.67, E 1351959.34
L-58	D-4.01	N 529284.84, E 1351463.11
L-59	D-4.11	N 528997.35, E 1351760.05
L-60	D-4.11	N 529989.74, E 1351703.72
L-61	D-4.23	STA 3+78.83, 12.00' RT
L-62	D-4.11	N 529079.45, E 1351870.38
L-63	D-4.11	STA 5+56.33, 32.82' RT
L-64	D-4.11	STA 5+56.33, 30.81' LT
L-65	D-4.11	N 529227.88, E 1351402.85
L-66	D-4.11	N 528999.01, E 1351582.39
L-67	D-4.11	N 529447.16, E 1351513.05
L-68	D-4.11	N 529075.75, E 1351444.95
L-69	D-4.23	STA 13+25.37, 10.18' RT
L-70	D-4.23	STA 13+25.42, 10.18' LT
L-71	D-4.11	STA 13+48.30, 30.81' LT
L-72	D-4.11	STA 10+58.25, 27.30' LT
L-73	D-4.11	STA 10+37.03, 25.00' RT

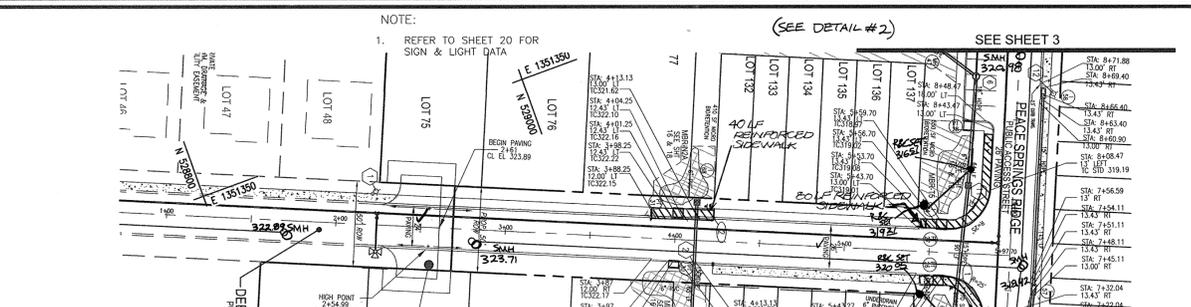
NOTE: FOR SIDEWALK AREAS ADJACENT TO MICRO-BIODETENTION FACILITIES, SIDEWALK SHALL BE TRAFFIC BEARING, SEE DETAIL HEIGHT.

LEGEND:  
REINFORCED CONCRETE SIDEWALK



LEGEND:

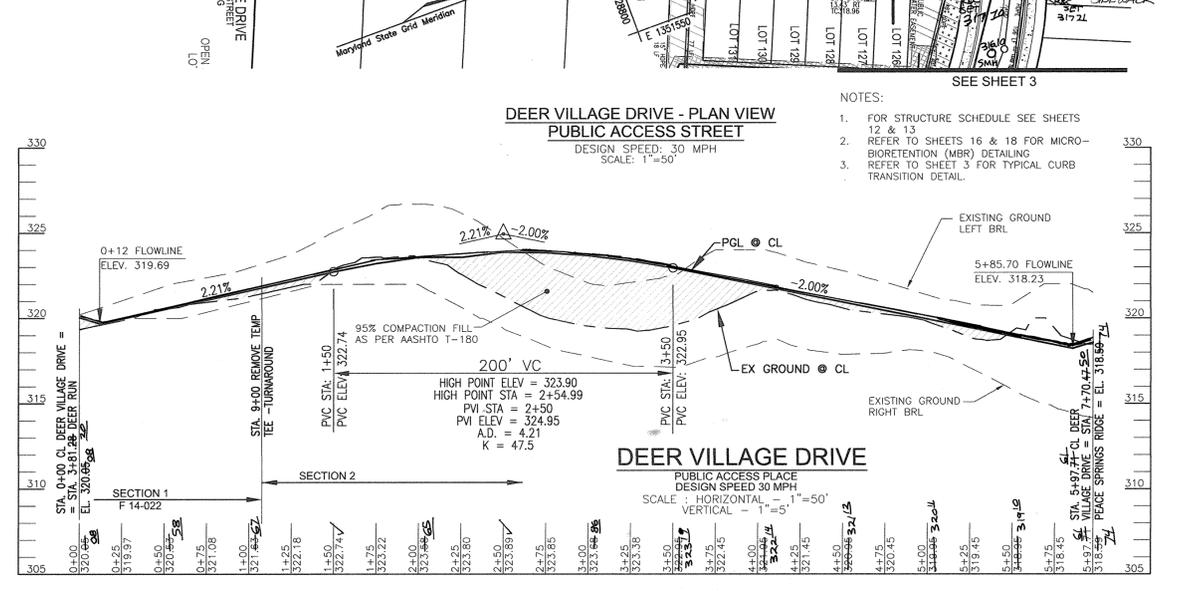
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING UTILITY POLE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED CURB
- PROPOSED STREET LIGHT
- MICRO BIO RETENTION FACILITY
- PROP. PUBLIC DRIVEWAY & UTILITY EASEMENT
- PROP. PUBLIC DRIVEWAY & UTILITY EASEMENT
- PRIVATE SHW DRIVEWAY & UTILITY EASEMENT



NOTE:  
1. REFER TO SHEET 20 FOR SIGN & LIGHT DATA

**DEER VILLAGE DRIVE - PLAN VIEW PUBLIC ACCESS STREET**  
DESIGN SPEED: 30 MPH  
SCALE: 1"=50'

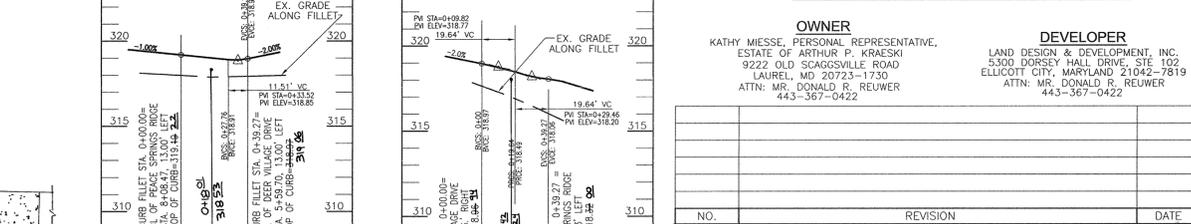
NOTES:  
1. FOR STRUCTURE SCHEDULE SEE SHEETS 12 & 13  
2. REFER TO SHEETS 16 & 18 FOR MICRO-BIODETENTION (MBR) DETAILING  
3. REFER TO SHEET 3 FOR TYPICAL CURB TRANSITION DETAIL



AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 16193 7-18-19  
P.E. NAME: [Signature]  
P.E. #



**FINAL ROAD CONSTRUCTION PLAN ROAD PROFILE & PLAN DETAILS**  
DEER RUN  
DEER VILLAGE DRIVE  
LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
A RESUBDIVISION OF  
DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
TAX MAP: 50 GRID: 1  
GZP: RES-10-085, WP-10-087, ECP-12-047, WP-13-080, SP-13-007, FV-022

ZONED: R-SC  
PARCELS: 363 & 542  
HOWARD COUNTY, MARYLAND

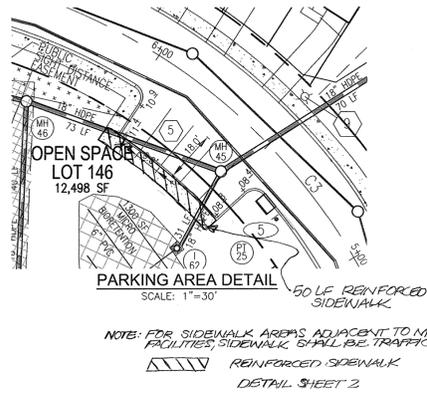
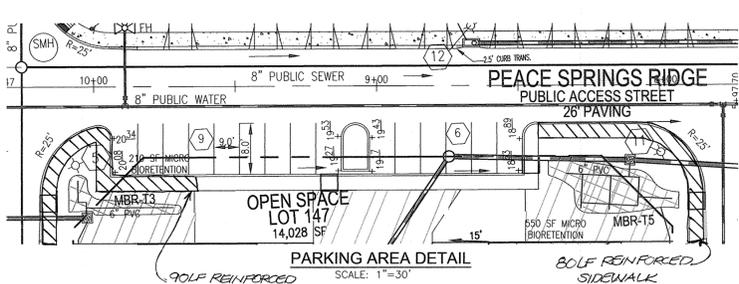
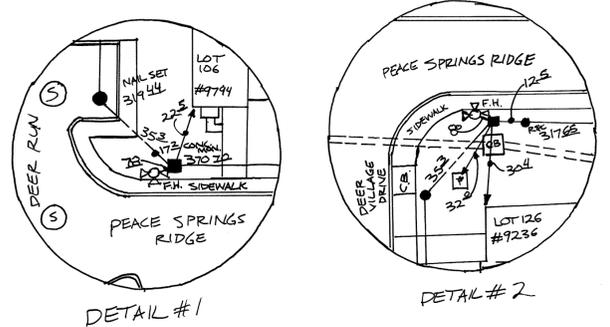
**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET  
ELLIOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961

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. 16193, EXPIRATION DATE: 09-27-2014

DESIGN BY: RHV / EDS  
DRAWN BY: RVF/EDS  
CHECKED BY: RHV  
DATE: MAY 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-28

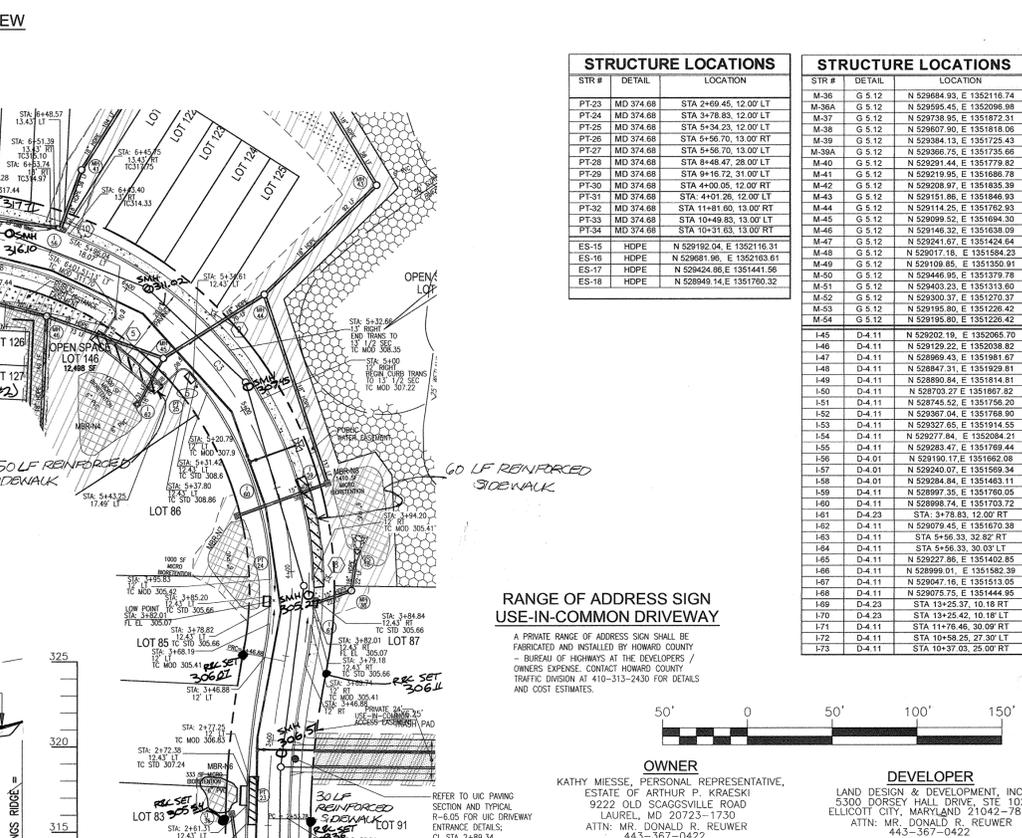
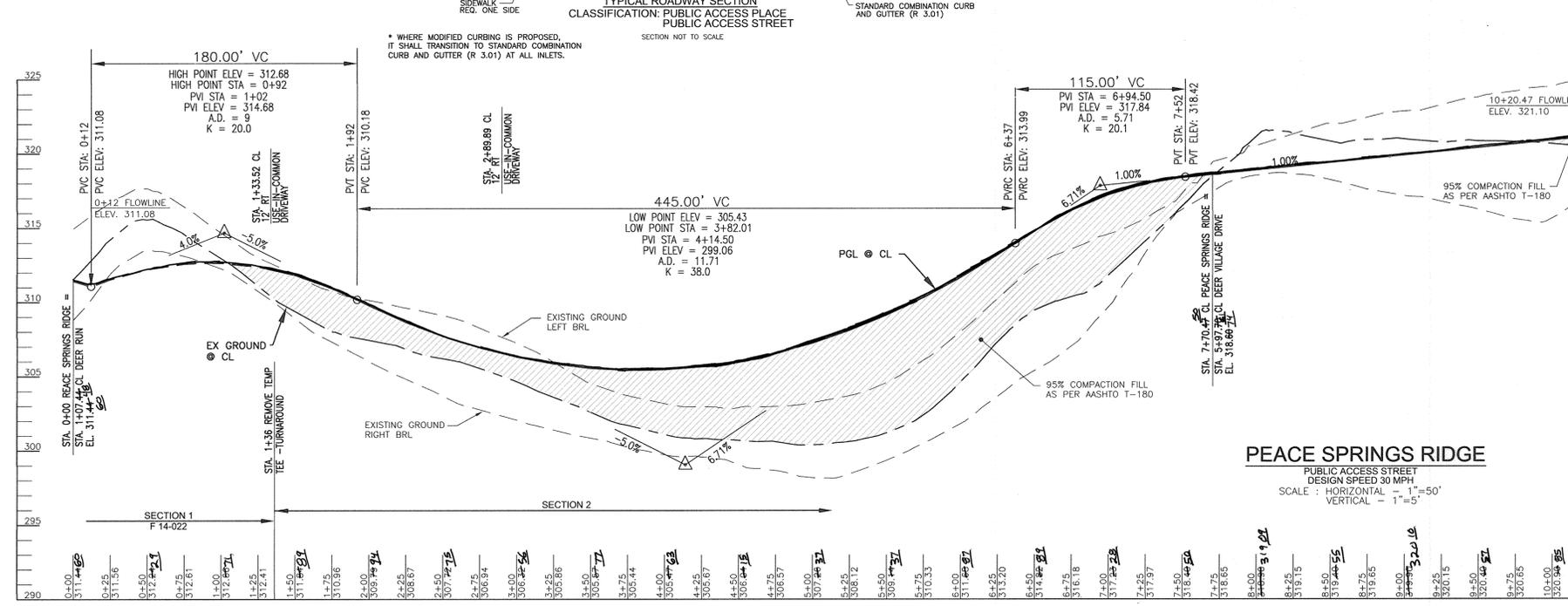
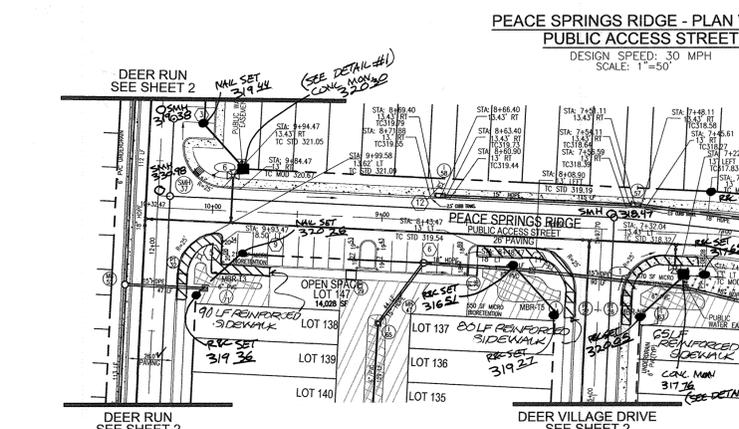
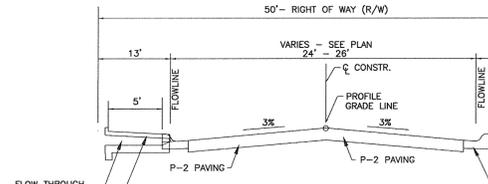
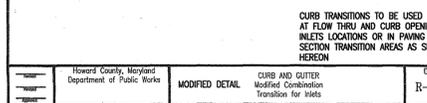
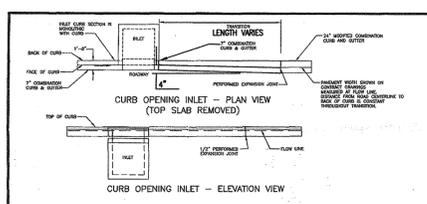
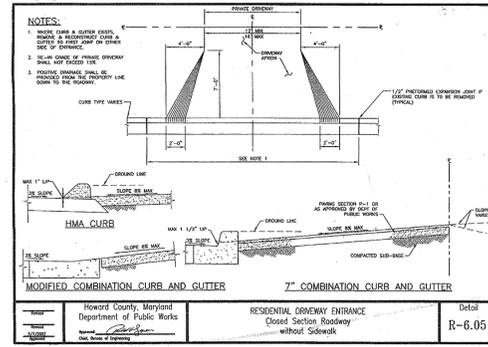
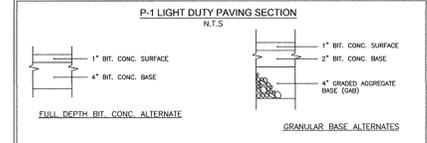
2 SHEET OF 20

CURVE	LENGTH	RADIUS	TANGENT	DELTA	CHORD BEARING	CHORD LENGTH
2+53.78	93.09	500.00	46.68	10°40'04"	N26°03'58"E	92.96
3+46.88	361.40	210.00	244.17	98°36'17"	N17°54'08"W	318.43
7+08.28						



**LEGEND:**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING UTILITY POLE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED CURB
- PROPOSED STREET LIGHT
- MICRO BIO RETENTION FACILITY
- PROP. PUBLIC SEWER, WATER & UTILITY FACEMENT
- PROP. PUBLIC DRAINAGE UTILITY FACEMENT
- PRIVATE SWM DRAINAGE FACEMENT



**RANGE OF ADDRESS SIGN USE-IN-COMMON DRIVEWAY**

A PRIVATE RANGE OF ADDRESS SIGN SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY - BUREAU OF HIGHWAYS AT THE DEVELOPER'S OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.

**OWNER:** KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRASKI, 9222 OLD SCAGGSVILLE ROAD, LAUREL, MD 20723-1730, ATTN: MR. DONALD R. REUWER, 443-367-0422

**DEVELOPER:** LAND DESIGN & DEVELOPMENT, INC., 102 ELLICOTT CITY, MARYLAND 21042-7819, ATTN: MR. DONALD R. REUWER, 443-367-0422

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Hagen Scurans 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chad Coleman 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 Keith Schindler 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT

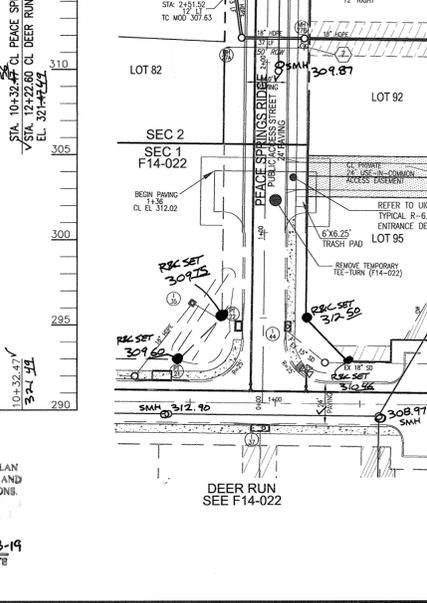
**NOTES:**

- FOR STRUCTURE SCHEDULE SEE SHEETS 12 & 13
- FOR LINE TYPE LEGEND, SEE SHEET 2

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 10/19/13  
 P.E. NAME: [Signature]  
 DATE: 7-18-19



**FINAL ROAD CONSTRUCTION PLAN**  
 ROAD PROFILE & PLAN DETAILS  
 PEACE SPRINGS RIDGE  
**HIGH RIDGE MEADOWS - SECTION 2**  
 LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
 A RESUBDIVISION OF  
 DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
 TAX MAP: 50 GRID: 1  
 DEP. REF'S: F-10-065, WP-10-087, ECP-12-047,  
 WP-13-080, SF-13-007, F-14-022

ZONED: R-SC  
 PARCELS: 363 & 542  
 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 DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014

DESIGN BY: RHW / EDS  
 DRAWN BY: RVF / EDS  
 CHECKED BY: RHW  
 SCALE: AS SHOWN  
 W.O. NO.: 11-28

3 SHEET OF 20

NOTE:  
EITHER PERMANENT OR TEMPORARY STABILIZATION SHALL BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

MATCHLINE

SHEET 9

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING SANITARY MANHOLE
- SS EXISTING SANITARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING TREELINE
- EXISTING TREES
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- EXISTING SPECIMEN TREE
- PROP. PUBLIC SEWER, WATER & UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT
- EX MODERATE SLOPES
- EX STEEP SLOPES
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED SILT FENCE
- PROPOSED STANDARD INLET PROTECTION
- PROPOSED TREE PROTECTION FENCE
- EARTH DIKE
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED DRAINAGE DIVIDE
- EXISTING DRAINAGE DIVIDE



NOTE:  
PROPOSED CONNECTION TO FIRST RIDGE F-84-103 STORM DRAIN SYSTEM. STORM DRAINAGE TO BE CONVEYED TO RECONSTRUCTED FIRST RIDGE (F84-103) FACILITY. SEE SHEET 9.

NOTE:  
CONSTRUCTION MAY NOT BEGIN UNTIL THE PIPE MATERIALS NEEDED TO CONSTRUCT BASIN #5 ARE ON-SITE.

NO AS-BUILT INFORMATION ON THIS SHEET

NOTE:  
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.  
- SILT FENCE SHALL BE CURLED UPHILL WHERE IT RUNS DOWNHILL. NO MORE THAN 35 FEET APART.  
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.



OWNER  
KATHY MIESSE, PERSONAL REPRESENTATIVE,  
ESTATE OF ARTHUR P. KRAESKI  
9222 OLD SCAGGSVILLE ROAD  
LAUREL, MD 20723-1730  
ATTN: MR. DONALD R. REUWERLITZ CERTIFICATION 443-367-0422

DEVELOPER  
LAND DESIGN & DEVELOPMENT, INC.  
5300 DORSEY HALL DRIVE, STE 102  
ELLCOTT CITY, MARYLAND 21042-7819  
ATTN: MR. DONALD R. REUWERLITZ CERTIFICATION 443-367-0422

NO.	REVISION	DATE	DATE
1	16193	7-18-14	

FINAL ROAD CONSTRUCTION PLAN  
PHASE 1 - GRADING AND SOIL EROSION,  
AND SEDIMENT CONTROL PLAN  
**HIGH RIDGE MEADOWS - SECTION 2**  
LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
A RESUBDIVISION OF  
DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
TAX MAP: 50 GRID: 1  
DPZ REF'S: F-10-065, WP-10-087, EOP-12-047, ZONED: R-SC PARCELS: 363 & 542  
WP-13-080, SP-13-307, F-14-022 HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERS • SURVEYORS • PLANNERS**  
8407 MAIN STREET TEL: 410.461.7666  
ELLCOTT CITY, MD 21043 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. 18193  
EXPIRATION DATE: 09-27-2014

DESIGN BY: RHV / EDS.  
DRAWN BY: RVE / EDS.  
CHECKED BY: RHV  
DATE: MAY 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-28

4 SHEET OF 20

NOTE

THE DEVELOPER WILL OBTAIN ALL NECESSARY STATE PERMITS FOR THE PROPOSED ENVIRONMENTAL IMPACTS:  
MDE TRACKING NUMBER IS: #201460226 / NTW 14-NI-3048.  
ALL WORK IN THE NONTIDAL WETLANDS, WETLAND BUFFERS SHALL BE COMPLETED PER THE BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS. SEE SHEET 7

APPROVED: DEPARTMENT OF PUBLIC WORKS  
Hilga Semans C. 25.14  
CHIEF, BUREAU OF HIGHWAYS DATE  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Chad Edwards 7.1.14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
Kathleen Lavelle 7.31.14  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

BY THE DEVELOPER:  
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

BY THE ENGINEER:  
"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

John R. Robertson 8/12/14  
HOWARD S.C.D. DATE

NOTES

- REFER TO SHEET 7 FOR SEQUENCE OF CONSTRUCTION
- REFER TO SHEET 8 FOR BASIN DETAILS
- REFER TO SHEETS 7 & 8 FOR STANDARD DETAILS AND STABILIZATION NOTES
- ALL WORK IN THE NONTIDAL WETLANDS, WETLAND BUFFERS SHALL BE COMPLETED PER THE BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS. SEE SHEET 7.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

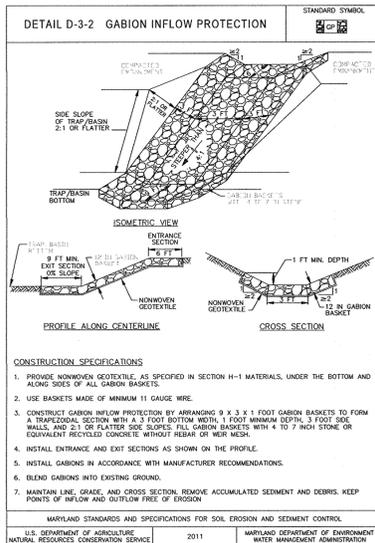
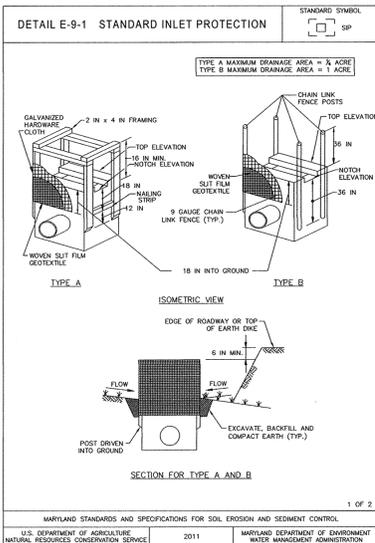
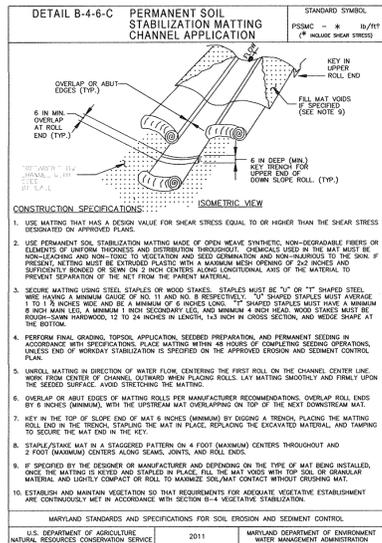
MAPPED SOILS TYPES

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	PERCENT	Kw RANGE*	EROSION	SOILS
CeB	CHILLUM LOAM, 2 TO 5 PERCENT SLOPES	B	NO	0.15 - 0.37	NO	NO	NO
CnC	CHILLUM LOAM, 5 TO 10 PERCENT SLOPES	B	NO	0.15 - 0.37	PARTIAL	NO	NO
GdD	CRDOM & EVERBORO, 10 TO 15 PERCENT SLOPES	C	NO	0.28	NO	NO	NO
Fs	FALUNSTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	D	YES	0.02 - 0.24	NO	NO	NO
SfB	SASSAFRAS GRANELY SANDY LOAM, 2 TO 5 PERCENT SLOPES	B	NO	0.17 - 0.24	NO	NO	NO
SfD	SASSAFRAS AND CRDOM SOILS, 10 TO 15 PERCENT SLOPES	B	NO	0.32 - 0.37	PARTIAL	NO	NO
UCB	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	NO	0.37	NO	NO	NO

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY  
K-FACTOR = Kw @ 0-4" DEPTH  
\* BASED UPON ESTIMATED CUTS



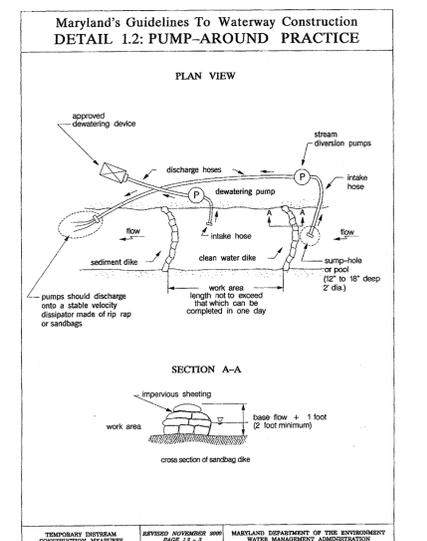
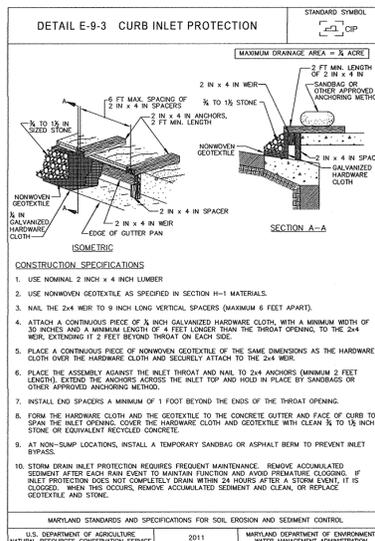
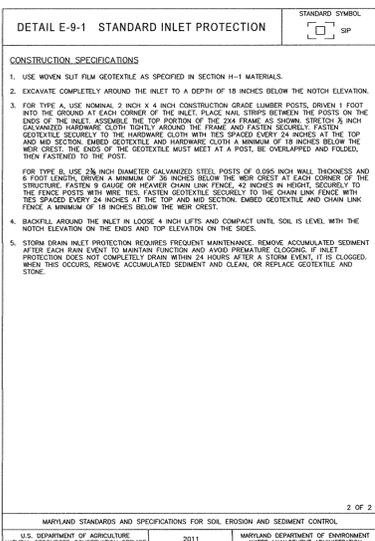
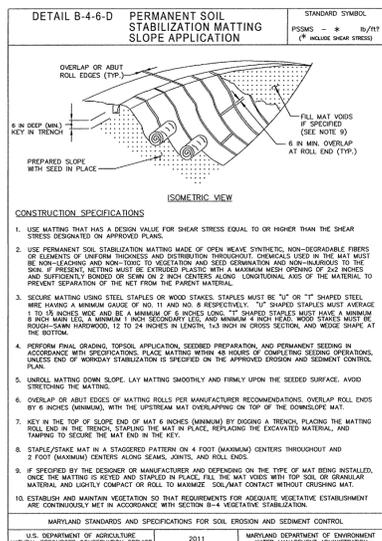




- BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS**
- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
  - PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
  - DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DETERIORATING SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DETERIORATING SUBSTANCE.
  - PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
  - REPAIR AND MAINTAIN ANY SERVICABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100 YEAR FLOODPLAIN IN EXCESS OF THAT LISTED UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
  - RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
  - ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOULIA MULTIFLORA), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (Avena SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDING AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
  - AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
  - TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.
    - USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
    - USE II WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
    - USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
  - STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
  - CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

**SEQUENCE OF CONSTRUCTION**

- PHASE 1 - "FIRST RIDGE POND" RECONSTRUCTION (SHEETS 9 & 10)**
- OBTAIN GRADING PERMIT. - 1 DAY
  - DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO BEGINNING CONSTRUCTION. (1 DAY)
  - NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. (1 DAY)
  - STAKEOUT LIMITS OF DISTURBANCE. - 3 DAYS
- PHASE 2**
- CLEAR & GRUB REMAINING SITE WITHIN THE LIMITS OF PHASE 1 DISTURBANCE. - 5 DAYS
  - COMPLETE SITE MASS GRADING AS SHOWN HEREON, BRINGING SITE TO ROAD SUBGRADE ELEVATIONS AND COMPACTED FILLS FOR PROPOSED HOME CONSTRUCTION. 3 WEEKS
    - WITH PEACE SPRINGS RIDGE TO SUBGRADE AND WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, EXPAND FILL TO ALLOW FOR STORM DRAIN TO CONVEY WATER TO THE BASIN THROUGH TEMPORARY PIPE DIVERSIONS (SEE 56/MH41 AND MH44) AND FILLS TO BE ACCOMPLISHED IN THE LOT 87-95 AREA OF THE SITE.
  - WITH MASS GRADING COMPLETE, STABILIZE THOSE AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. - 2 DAYS
  - INSTALL REMAINING STORM DRAIN SYSTEMS AND INLET PROTECTION AS WORK PROGRESSES. STORM DRAIN SHALL BE INSTALLED IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100 YEAR FLOODPLAINS AS SHOWN HEREON. - 1 MONTH
  - INSTALL WATER MAIN & SEWER EXTENSIONS. ALLOW FOR CONTINUED CONVEYANCE OF SEDIMENT LAZED WATER TO THE BASIN. - 3 MONTH
  - BASIN SHALL REMAIN AS DIRECTED BY SEDIMENT CONTROL INSPECTOR AND SHALL BE BACKFILLED ONLY WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR AS SITE IS STABILIZED AND FILL SLOPES / PHASE 2 GRADING OPERATIONS ARE COMPLETED. FILL SLOPE AT REAR OF LOTS 100 - 119 SHALL BE STABILIZED WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. - (2 WEEKS)
  - WITH PHASE 2 GRADING COMPLETE, IMMEDIATELY STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. DAILY
  - INSTALL CURB & GUTTER, BASE COURSE PAVEMENT AND SIDEWALKS - 2 WEEKS
  - INSTALL INLET PROTECTION FOR AREAS DRAINING TO STORMWATER FEATURES.
  - WITH CONTRIBUTING AREA STABILIZED, CONSTRUCT BOW-SWALS TO RECEIVE ROAD RUNOFF FROM DEER RUN. THE BOWSAL SHALL NOT RECEIVE "DIRTY" WATER FROM DEER RUN. 5 DAYS
  - WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO REMAINING WORK ASSOCIATED WITH PHASE 1.
  - COMPLETE ANY REMAINING CLEARING & GRUBbing AREA COMMON TO THE "FIRST RIDGE POND" RECONSTRUCTION AND STORM DRAIN SYSTEM ES-16 TOWARD ONSITE MH40 ACROSS THE OFFSITE GIDDONS' PROPERTY. STORM DRAIN SHALL BE INSTALLED IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100 YEAR FLOODPLAINS AS SHOWN HEREON. - (5 DAYS)
  - RECONSTRUCT "FIRST RIDGE POND" PER DETAILS AND SPECIFICATIONS SHOWN ON SHEET 9. EXCAVATED MATERIALS SHALL BE STOCKPILED OR USED AS FILL MATERIAL PER THE OVERALL SITE GRADING PROPOSAL (PHASE 2). INSTALLATION OF THE SAND FILTER AND ASSOCIATED UNDER DRAIN NETWORK SHALL BE COMPLETED AT THE END OF PHASE 2 TO AVOID FILTER CLOGGING AND ADDITIONAL MAINTENANCE. - 2 WEEKS
  - REVISE EXISTING STORM DRAIN OUTFALL FROM BRYANT AVENUE STORM DRAIN SYSTEM TO DIRECT FLOW TO "NEW" POND FOREBAY OVER PROPOSED GABION. - 2 DAYS
  - UPON COMPLETION OF "FIRST RIDGE POND" RECONSTRUCTION, STABILIZE THE DISTURBED AREAS FROM THE AFOREMENTIONED DISTURBANCES WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH - 1 DAY
  - WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO REMAINING WORK ASSOCIATED WITH PHASE 1.
  - "FIRST RIDGE POND" IS A CONVERTED STORMWATER FACILITY. IT IS NOT INTENDED TO BE UTILIZED TO PROVIDE SEDIMENT CONTROL FOR THE REMAINING PHASE 1 AND PHASE 2 WORK
- PHASE 1 - ON-SITE PHASE 1 WORK**
- CLEAR AND GRUB ON-SITE AREA FOR THE INSTALLATION OF PERIMETER CONTROLS (1 DAY)
  - INSTALL STABILIZED CONSTRUCTION ENTRANCE, WHERE SHOWN HEREON. - 1 DAY
  - INSTALL SILT FENCE (SF), SUPER SILT FENCE (SSF) AND OTHER E/S CONTROLS AT THE LIMIT OF DISTURBANCE, WHERE SHOWN OR AS DIRECTED BY SEDIMENT CONTROL INSPECTOR. - 3 DAYS
  - WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, COMPLETE THE CONSTRUCTION OF THE REMAINING PORTION OF THE STORM DRAIN SYSTEM ES-16 THROUGH MH40 ACROSS THE OFFSITE GIDDONS' PROPERTY AND ONTO MH40 ON-SITE. ONLY THAT PORTION OF STORM DRAIN WHICH CAN BE COMPLETED ON A DAILY BASIS SHALL BE EXCAVATED. ALL INLETS FEEDING THIS PORTION OF STORM DRAIN SHALL BE PROTECTED WITH INLET PROTECTION. BACKFILL AND STABILIZE THE DISTURBANCES AT THE END OF EACH WORKING DAY. - (2 WEEKS)
  - PROPOSED WORK IMPACTING THE WETLAND, WETLAND BUFFER AND ASSOCIATED STREAM PER MD-NON-TIDAL WETLAND NUMBER 14-N-3048, TRACKING NUMBER 20144022 SHALL BE COMPLETED IN ACCORDANCE WITH MDE DETAILS AND SPECIFICATIONS SHOWN HEREON.
  - "FIRST RIDGE POND" RECONSTRUCTION AND STORM DRAIN SYSTEM ES-16 THROUGH MH40 SHALL BE IN PLACE AND ALL PIPE MATERIALS FOR THE CONSTRUCTION OF BASIN #5 (SHEETS 4 & 8) SHALL BE ON-SITE PRIOR TO THE CONSTRUCTION OF BASIN #5.
  - WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONSTRUCT SEDIMENT BASIN #5 (SHEETS 4 & 8) PER THE DETAILS AND SPECIFICATIONS SHOWN HEREON. BASIN RIPS (B5) AND BARREL SHALL OUTFALL INTO MH40. EXCAVATED MATERIAL SHALL BE STOCKPILED OR USED AS FILL MATERIAL PER THE OVERALL SITE GRADING PROPOSAL (PHASE 2). BASIN CONSTRUCTION SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF EARTH DIKS CONVEYING WATER TO THE BASIN.
  - CONSTRUCT EARTH DIKS DIRECTING SITE DISTURBANCES TO THE BASIN SHALL BE CONSTRUCTED AT THIS TIME AS THE SEDIMENT BASIN. EARTH DIKS SHALL BE LINED AS DETAILED HEREON. TEMPORARY MATTING IS MADE WITH DEGRADABLE (6 MONTH), NATURAL OR MANMADE FIBERS OF UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND IS SMALLER RESISTANT.
  - STABILIZE THE DISTURBED AREAS FROM THE AFOREMENTIONED DISTURBANCES WITH TEMPORARY SEEDING MIXTURE AND STRAW MULCH - 1 DAY
  - THE SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE CLEANOUT ELEVATION HAS BEEN REACHED. - 2 DAYS
  - THE SEDIMENT BASIN SHALL BE DOWNTENDED BY PUMPING. THE ACCUMULATED SEDIMENT FROM THE TRAPS SHALL BE PLACED UP GRADE FROM THE STRUCTURE IN SUCH A MANNER AS NOT TO INTERFERE WITH CONSTRUCTION OPERATIONS OR CAUSE EROSION DOWN GRADE FROM THE STRUCTURE. - 2 DAYS
  - WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO PHASE 2.
- NOTE:** ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
- NOTE:** THE PLAN FOR INTERIOR CONTROLS MAY BE ELIMINATED IF F14-022 AND THIS SECTION TWO NEED ARE UNDER CONSTRUCTION SIMULTANEOUSLY.



BY THE DEVELOPER:

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Signature: [Signature]  
DATE: 6/14/14

BY THE ENGINEER:

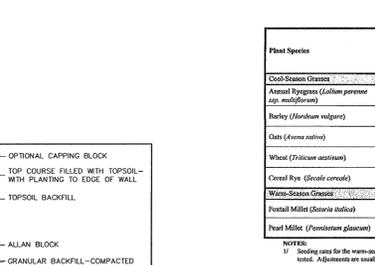
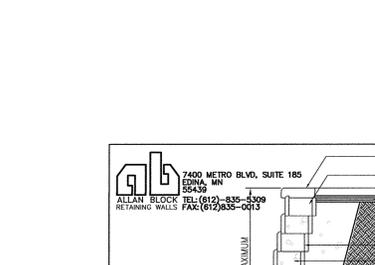
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Signature: [Signature]  
DATE: 6/12/14

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DATE: 6/25-14

Signature: [Signature]  
DATE: 7-1-14

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DATE: 7-31-14

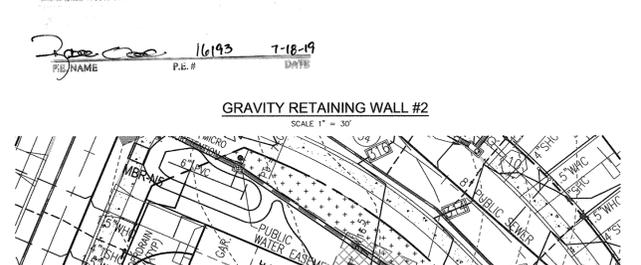


**Table B.1: Temporary Seeding for Site Stabilization**

Plant Species	Seeding Rate <sup>1</sup>		Recommended Seeding Date by Plant Hardiness Zone <sup>2</sup>	
	lb/1000 ft <sup>2</sup>	lb/1000 ft <sup>2</sup> (dry)	5b and 6a	7a and 7b
Annual Ryegrass ( <i>Lolium perenne</i> spp. <i>multiflorum</i> )	40	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 15 to Oct 15
Ryegrass ( <i>Lolium perenne</i> )	96	2.2	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 15 to Oct 15
Orchard Grass ( <i>Dactylis glomerata</i> )	72	1.7	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 15 to Oct 15
Creole Blue ( <i>Trisetum corymbosum</i> )	112	2.8	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 15 to Nov 15
Worm-seed Grass ( <i>Deschampsia cespitosa</i> )	30	0.7	Jun 1 to Jul 31	May 1 to Aug 14
Poa Millet ( <i>Pennisetum glaucum</i> )	20	0.5	Jun 1 to Jul 31	May 1 to Aug 14

**NOTES:**

- Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect present seed germination and purity, as noted. Adjustments are usually not needed for the cool-season grasses.
- Seeding rates listed above are for temporary seedings, when planted alone. When planted in a mixture with permanent seed mixtures, use 1/3 of the seeding rate listed above for forky, ree, and blue. For winter-sown grasses (annual ryegrass, orchard grass, poa millet, etc.), do not exceed more than 75% dry weight of the overall permanent seeding rate. Control any grasses that do not seed in a mixture crop, unless planting will occur in very fall but beyond the seeding date for the temporary seedings. Control any undesirable species that inhibit the germination and growth of other plants. If it must be used as a mixture crop, seed at 1/3 of the seed rate given.
- Use the recommended seed crops for warm-season grasses.
- For sandy soils, plant seeds to twice the depth listed.
- The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.



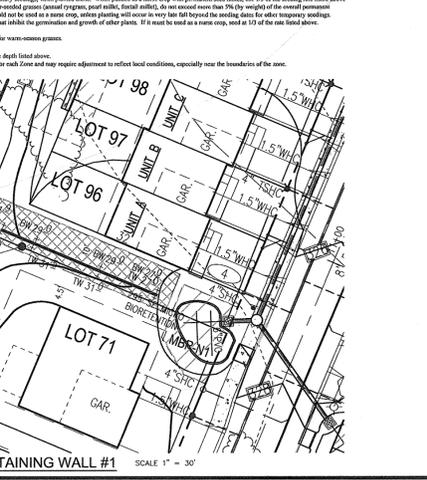
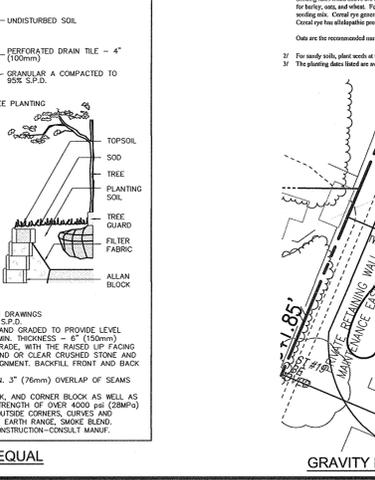
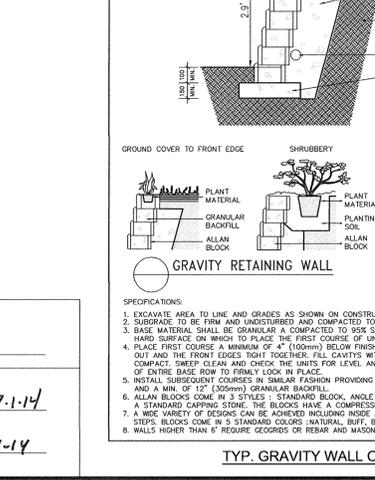
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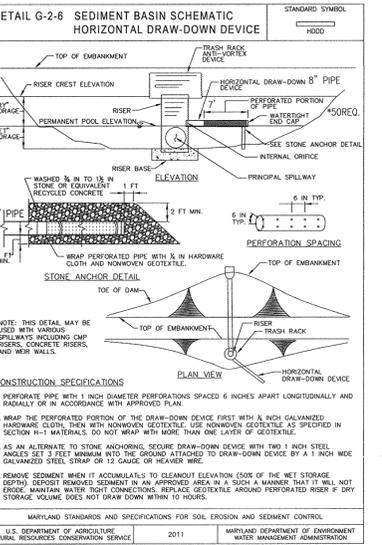
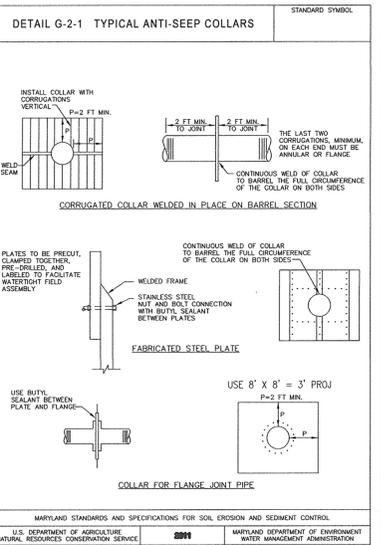
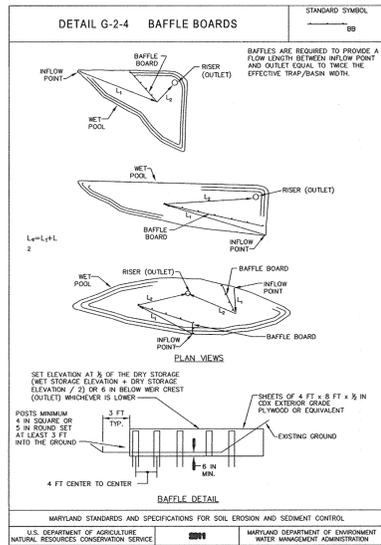
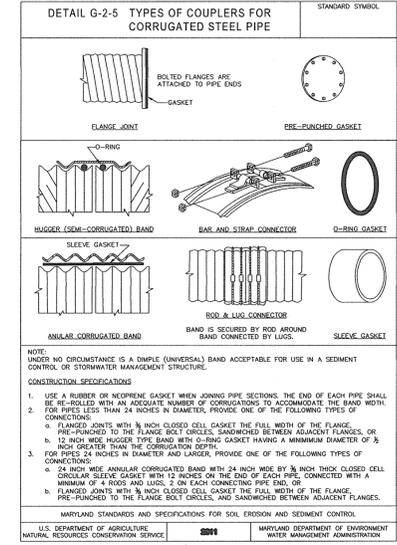
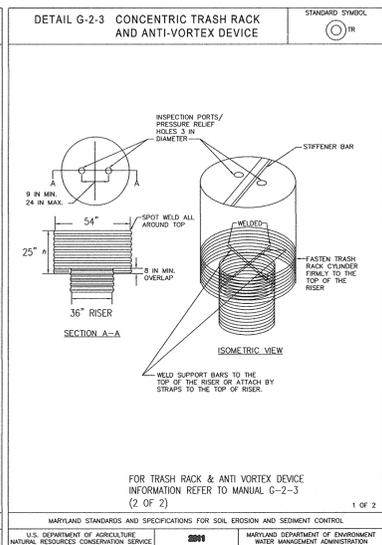
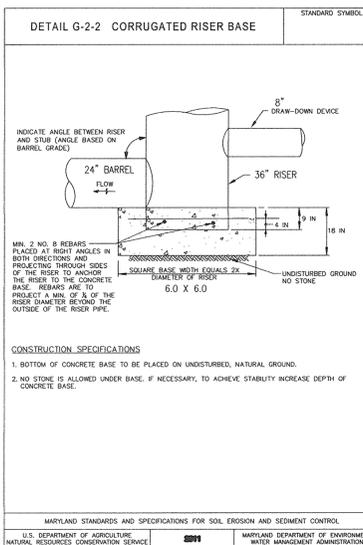
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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DATE: 7-1-14

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DATE: 7-31-14





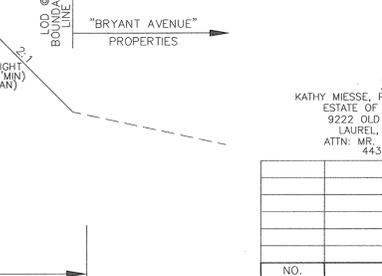
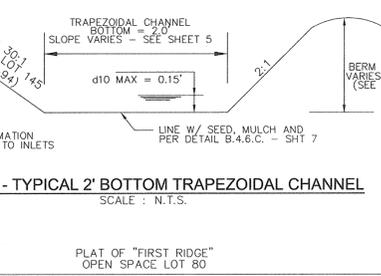
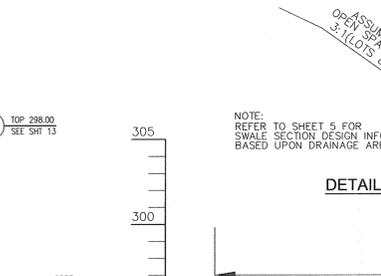
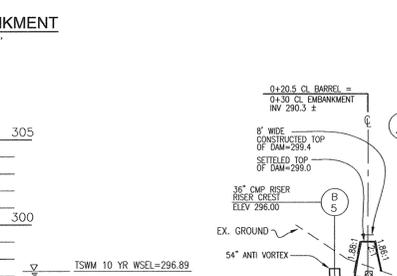
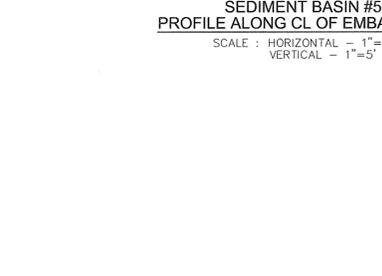
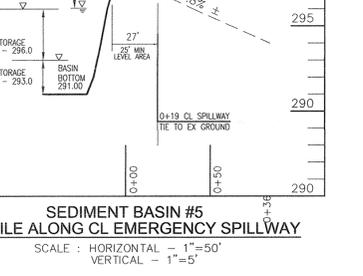
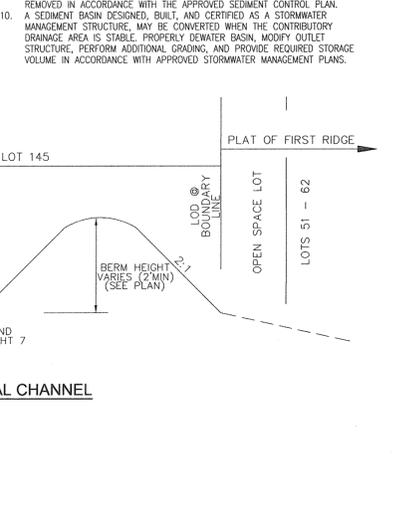
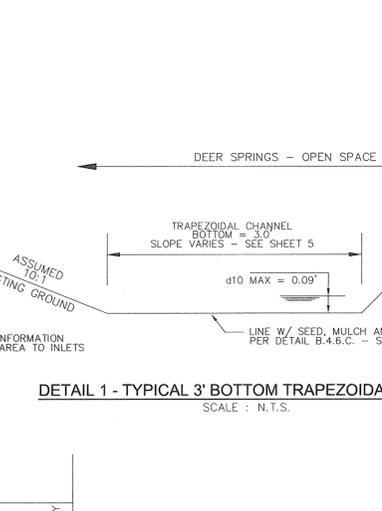
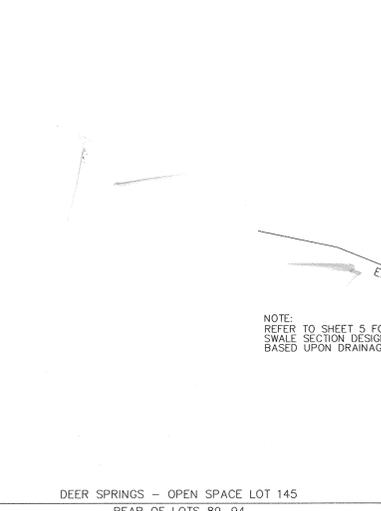
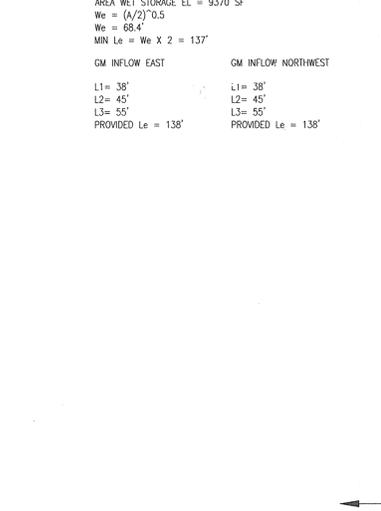
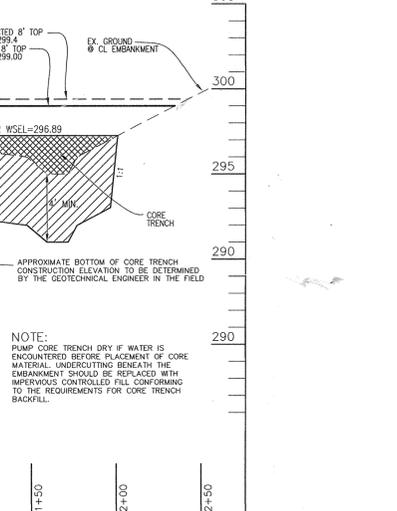
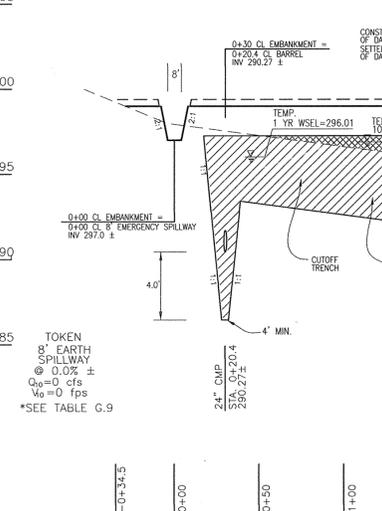
**CONSTRUCTION SPECIFICATIONS**

- INSTALL SEDIMENT CONTROL PRACTICES NECESSARY TO CONSTRUCT BASIN, CLEAR AND GRUB TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL FROM THE AREAS WHERE THE EMBANKMENT IS TO BE PLACED. DO NOT CLEAR THE POOL AREA UNTIL COMPLETION OF THE EMBANKMENT; UNLESS THE POOL AREA IS TO BE USED FOR BORROW, SALVAGE TOPSOIL FOR LATER USE.
- EXCAVATE CUT-OFF TRENCH ALONG CENTERLINE OF PROPOSED EMBANKMENT A MINIMUM DEPTH OF 4 FEET AND A BOTTOM (MIN. 4 FEET) WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT. CONSTRUCT SIDE SLOPES 1:1 OR FLATTER. CUT-OFF TRENCH MUST BE CONTINUOUS AND EXTEND THE ENTIRE LENGTH OF EMBANKMENT. CONSTRUCTION REQUIREMENTS ARE THE SAME AS THOSE FOR THE EMBANKMENT. DETOUR THE TRAFFIC DURING THE BACKFILLING/COMPACTION OPERATIONS, USING AN APPROVED PRACTICE.
- CONSTRUCT EMBANKMENT OF CLEAN SOIL FREE OF ROOTS, WOODY VEGETATION, OVERCAST STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL. FILL MATERIAL FOR IMPERVIOUS CORE AND CUT-OFF TRENCH MUST CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30 PERCENT PASSING THE #200 sieve. USE FILL MATERIAL CONTAINING SUFFICIENT MOISTURE SO THAT THE SOIL CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN SIX-INCH TO EIGHT INCH THICK CONTINUOUS LIFTS OVER THE ENTIRE LENGTH OF THE FILL. OBTAIN COMPACTION BY PASSING CONSTRUCTION EQUIPMENT OR COMPACTOR OVER THE FILL, SO THAT THE ENTIRE SURFACE OF EACH LAYER OF FILL IS TRaversED BY AT LEAST FOUR TIMES. CONSTRUCT THE EMBANKMENT TO AN ELEVATION A MINIMUM OF 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT.
- INSTALL PRINCIPAL SPILLWAY PRIOR TO, OR CONCURRENTLY WITH, FILL PLACEMENT. DO NOT EXCAVATE EMBANKMENT FOR PLACEMENT OF SPILLWAY. ALL PIPE CONNECTIONS, INCLUDING ANTI-SEEP COLLARS MUST BE COMPLETELY WATERTIGHT. INSTALL FILTER DAPHRAGM WHEN SPECIFIED ON PLAN. BARREL CONNECTION TO RISER MUST BE HELD ALIGNED WITH THE PIPE AND RISER ARE METAL ATTACH BARREL STUB TO RISER AT THE SAME PERCENT (SLOPE) OF GRADE AS THE BARREL FOR CONCRETE RISER/BARREL ASSEMBLY. POUR RISER WITH BARREL IN PLACE OR SET PRE-CAST RISER AND INSTALL PROJECTION COLLAR FOR WATERTIGHT CONNECTION. PLACE FILL MATERIAL AROUND THE PIPE TO A DEPTH OF 1.5 TIMES THE PIPE DIAMETER (MINIMUM). SECURELY INSTALL ANTI-VORTEX DEVICE AND TRASH RACK AS SHOWN ON PLAN.
- INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED NATURAL GROUND. CONSTRUCT SPILLWAY WITHIN A TOLERANCE OF ± 0.2 FEET.
- STABILIZE EMBANKMENT AND ASSOCIATED DISTURBED AREAS WITHIN THREE (3) DAYS OF COMPLETION WITH SEED AND MULCH. MONITOR EMBANKMENT AND MAINTAIN EROSION FREE DURING THE LIFE OF THE BASIN.
- INSTALL FENCING AND SIGNAGE IN ACCORDANCE WITH THE APPROVED PLAN. REMOVE SEDIMENT WHEN ACCUMULATED MATERIAL HAS REACHED 25 PERCENT OF THE TOTAL STORAGE DEPTH. RESTORE BASIN TO ORIGINAL DESIGN VOLUME. PLACE REMOVED SEDIMENTS IN A CONTROLLED AREA AND STABILIZE. DO NOT DEPOSIT SEDIMENT DOWNSTREAM OF THE EMBANKMENT, ADJACENT TO A STREAM OR FLOODPLAIN.
- IF THE CONTRIBUTING DRAINAGE AREA IS STABLE, THE BASIN CAN BE REMOVED IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN. A SEDIMENT BASIN DESIGNED, BUILT, AND CERTIFIED AS A STORMWATER MANAGEMENT STRUCTURE, MAY BE CONVERTED WHEN THE CONTRIBUTORY DRAINAGE AREA IS STABLE. PROPERLY DEWATER BASIN, MOODY OUTLET STRUCTURE, PERFORM ADDITIONAL GRADING, AND PROVIDE REQUIRED STORAGE VOLUME IN ACCORDANCE WITH APPROVED STORMWATER MANAGEMENT PLANS.

**BASIN #5** SEE SHT 4

FACILITY TYPE: TEMPORARY BASIN  
 EX. DRAINAGE AREA: 1.95 AC.  
 PROP. DRAINAGE AREA: 9.2 AC.  
 TOTAL WET STORAGE RQD: 16,560 CF  
 TOTAL DRY STORAGE RQD: 16,560 CF  
 TOTAL STORAGE REQUIRED: 33,120 CF  
 TOTAL WET STORAGE PRVD: 16,754 CF  
 TOTAL DRY STORAGE PRVD: 48,970 CF  
 TOTAL STORAGE PROVIDED: 65,724 CF  
 BOTTOM ELEV.: 291.00  
 RISER CREST ELEVATION: 296.00  
 WET STORAGE ELEVATION: 291.00-293.00  
 DRY STORAGE ELEVATION: 293.00-296.00  
 TOTAL STORAGE DEPTH: 2' (291.0-293.0)  
 TOP OF EMBANKMENT: 299.00 (SETTLED)  
 CLEANOUT ELEVATION: 292.20  
 SIDE SLOPES: 2:1 INSIDE, 3:1 OUTSIDE  
 EMERGENCY SPILLWAY: 8'

Q1 (EX.): 0.1 CFS  
 Q1 (BASIN): 0.4 CFS +  
 THROUGH DRAINAGE DEVICE ORIFICE  
 OUTFALL INTO STORM DRAIN SYSTEM  
 1 YR TSWM WSEL = 296.01  
 10 YR TSWM WSEL = 296.89



**OWNER**  
 KATHY MIESSE, PERSONAL REPRESENTATIVE,  
 ESTATE OF ARTHUR P. KRAESKI  
 9222 OLD SCAGGSVILLE ROAD  
 LAUREL, MD 20723-1730  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

**DEVELOPER**  
 LAND DESIGN & DEVELOPMENT, INC.  
 5300 DORCHESTER DRIVE, SITE 102  
 ELLICOTT CITY, MARYLAND 21042-7819  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

**DEWATERING STRATEGY**

Dewatering refers to the act of removing and discharging water from excavated areas on construction sites or from sediment traps or basins on construction sites. Standards and specifications for dewatering practices follow:

These standards apply to removal and discharge of water from any excavated area or sediment trap or basin at any construction site. Given the unique conditions of any particular construction site, any or all of the practices may apply. Regardless of the applicability of the practices listed herein, operators are required to use acceptable procedures for maintenance and dewatering. In all cases, every effort shall be made to eliminate sediment pollution associated with dewatering.

Designers shall specify the preferred procedures for dewatering on plans. In particular, designers should identify procedures for dewatering sediment traps and basins prior to elimination of the last sediment control facility on the site or prior to conversion of sediment control facilities to stormwater management facilities. Recommended procedures shall be consistent with these standards. Typical site conditions may require innovative dewatering designs. Dewatering measures not referenced in this standard may be used with the consent of the approval authority.

Dewatering of Excavated Areas

- Designers shall specify on plans, and in sequences of construction included on plans, practices for dewatering of excavated areas. Plan reviewers shall check to see that procedures for dewatering are included on plans.
- In all cases, water removed from excavated areas shall be discharged such that it shall pass through a sediment control device prior to entering receiving waters. Sediment control devices include sediment traps and basins, in addition to the practices in this section.

**Approved Practices for Dewatering of Excavated Areas**

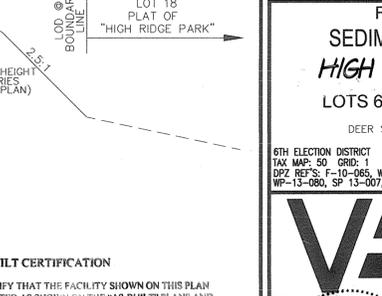
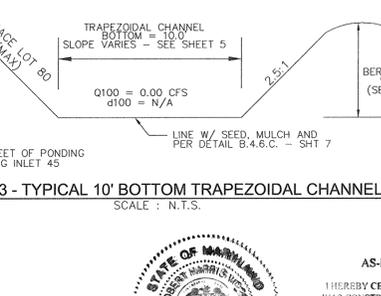
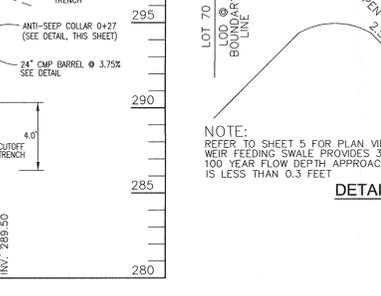
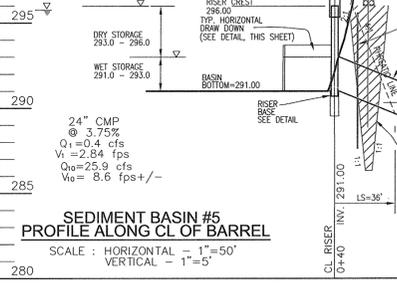
- Pumping of water to an existing sediment basin or trap in which the entire volume of water from the area to be dewatered can be contained without discharging to receiving waters.
- Pumping of water to an existing sediment basin or trap such that the entire volume of water from the area to be dewatered can be managed without exceeding the design outflow from the sediment control structure.
- Removable Pumping Station? Standards and specifications for Removable Pumping Station are on Detail 20A.
- Use of a Sump Pit: Standards and specifications for a sump pit are on Detail 20B.
- Sediment Tank: Standards and specifications for a sump pit are on Detail 21.

**Dewatering of Sediment Traps and Basins**

Designers shall specify on plans, and in sequences of construction included on plans, the practices for dewatering of traps and basins. Plan reviewers shall check to see that procedures for dewatering to be used are included on plans. In all cases, water removed from traps and basins shall be discharged so that it passes through a sediment control device prior to entering receiving waters.

**Approved Practices for Dewatering of Traps and Basins**

- Removable pumping station.
- Use of a Sump Pit.
- Use of a floating suction hose to pump the cleaner water from the top of the pond. As the cleaner water is pumped the suction hose will lower and eventually encounter sediment bottom water. When this happens the pumping operation will cease. Provisions shall be made to filter water.



**FINAL ROAD CONSTRUCTION PLAN**  
**SEDIMENT BASIN #5 - NOTES AND DETAILS**  
**HIGH RIDGE MEADOWS-SECTION 2**  
 LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
 A RESUBDIVISION OF  
 DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
 TAX MAP: 50 GRID: 1  
 DPZ REFS: F-10-065, WP-10-087, EC-12-047,  
 WP-13-080, SP-13-007, F-14-022

ZONED: R-3C  
 PARCELS: 363 & 542  
 HOWARD COUNTY, MARYLAND

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Hilda Seligson 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chad Edwards 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION #ER DATE  
 Kestelshelch 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT #MP DATE

BY THE DEVELOPER:  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

BY THE ENGINEER:  
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL IS A REPRESENTATIVE AND ACCURATE STATEMENT OF MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Hilda Seligson 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
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 Chad Edwards 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION #ER DATE  
 Kestelshelch 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT #MP DATE

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

DESIGN BY: RHW / EDS  
 DRAWN BY: RVE/EDS  
 CHECKED BY: RHW  
 DATE: MAY 2014  
 SCALE: AS SHOWN  
 W.O. NO.: 11-28

PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193  
 EXPIRATION DATE: 09-27-2014

8 SHEET OF 20



**TYMAT SWM RETROFIT - SAND FILTER**

TYPE: NON-MD 378  
HAZARD CLASS: A  
EX. DRAINAGE AREA: 18.8 AC.  
PROP. DRAINAGE AREA: 13.5 AC.  
BOTTOM ELEV.: 256.0 (255.0 SAND FILTER)  
LOW RISE INVERT: 256.00  
SAND FILTER: 253.0 - 255.0 (SURFACE)  
So Sand = 0.24 cfs (Site <75% Impervious)  
So Sand = 1.96cfs Worst Case (Site >75% Impervious)

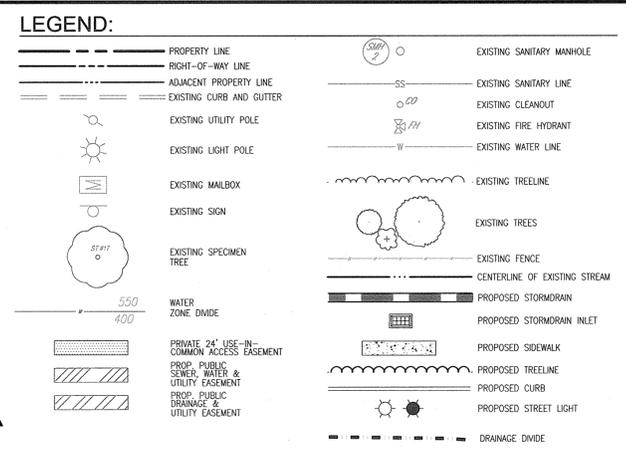
TOP OF EMBANKMENT: 261.00± (EXISTING)  
EMERGENCY SPILLWAY: 259.00

Q1 (EX.): 7 CFS  
Q10 (EX.): 41 CFS  
Q100 (EX.): 77 CFS

Q1 (DEV.): 1.1 CFS  
1 YR SWM WSEL = 257.03  
Q10 (DEV.): 32.4 CFS  
10 YR SWM WSEL = 258.56  
Q100 (DEV.): 78.6 CFS  
100 YR SWM WSEL = 259.22

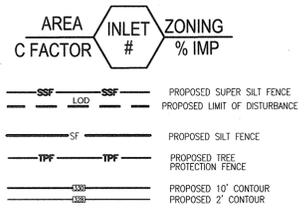
Q1 (SAFETY\*): 9.4 CFS  
1 YR WSEL = 257.74  
Q10 (SAFETY\*): 59.9 CFS  
10 YR WSEL = 259.06  
Q100 (SAFETY\*): 105.6 CFS  
100 YR WSEL = 259.45

\* ASSUMES FAILURE OF ESD PRACTICES



**FENCE GENERAL NOTES**

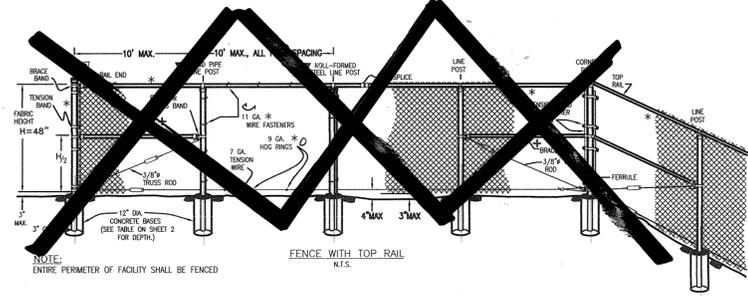
- HEIGHT OF FABRIC SHALL BE AS SHOWN ON THE PLANS. FABRIC IS TO BE THE FOLLOWING HEIGHTS: 36", 42", 48", 60", 72", 84", 96", 120", 144".
- CHAIN LINK FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 181. CHAIN LINK FABRIC SHALL BE 2" MESH NO. 9 GALV. ALUMINUM. LINE POSTS, RAILS, BRACES, STRETCHER BARS SPACED AS SHOWN. WIRE FASTENERS AND THE CLIPS SHALL BE NO. 11 GAGE (W/M) GALV. ALUMINUM STEEL WIRE OR NO. 7 GAGE ALUMINUM WIRE AND HOOKS SHALL BE NO. 9 GAGE. ALL IN CONFORMANCE WITH ASTM F 626.
- STEEL POSTS, RAILS AND BRACES SHALL CONFORM TO ASTM 181 TYPE 1, GRADE 1 OR GRADE 2.
- AT THE CONTRACTOR'S OPTION, FOR FENCE CONSTRUCTION SHALL CONFORM TO THE DIMENSIONS AND SPECIFICATIONS FOR EITHER "ORDINARY PIPE" OR "ALTERNATIVE PIPE" AS SHOWN. "ALTERNATIVE PIPE" SHALL BE HIGH STRENGTH STEEL PIPE MEETING THE REQUIREMENTS OF FED. SPEC. RR-1-191/3C.
- TENSION WIRE SHALL BE 12 GA. GALV. ALUMINUM END OR CORNER POST AND LINE BRACE POST. A TURNBUCKLE OR OTHER TIGHTENING DEVICE SHALL BE USED FOR EACH CONTINUOUS SPAN OF WIRE.
- TENSION WIRE SHALL BE AS SPECIFIED IN ASTM A 181.
- CONCRETE PIER SHALL HAVE TOPS CROWNED TO LEVEL AND SHALL BE CLASSIFIED CONCRETE WITH LIGHTWEIGHT AGGREGATE CONFORMING TO ASTM C 940. ALL SHALL BE PERMITTED.
- TENSION OF FENCE AT BRIDGES OR OTHER STRUCTURES SHALL BE AS SHOWN.
- CHAIN LINK FABRIC UP TO 5 FEET HIGH SHALL BE KNUCKLED AT TOP AND BOTTOM SELVAGES. FABRIC OVER 5 FEET HIGH SHALL BE TWISTED BARBED ON THE TOP SELVAGE AND KNUCKLED ON THE BOTTOM SELVAGE.
- FENCE MAY BE CONSTRUCTED WITH OTHER ROUND PIPE OR ROLL-FORMED STEEL COMPONENTS. THE CONTRACTOR SHALL STATE THE TYPE OF CONSTRUCTION AND TYPE OF LINE POST TO BE USED THROUGHOUT THE PROJECT, AT THE PRECONSTRUCTION CONFERENCE.



**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 7-16-19  
P.E. # 16193

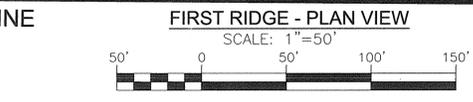


**NOTE**

THE DEVELOPER WILL OBTAIN ALL NECESSARY STATE PERMITS FOR THE PROPOSED ENVIRONMENTAL IMPACTS.

MDE TRACKING NUMBER IS: #201460226 \ NTV 14-NI-3048.

ALL WORK IN THE NONTIDAL WETLANDS, WETLAND BUFFERS SHALL BE COMPLETED PER THE BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS. SEE SHEET 7.



**SOIL BORINGS**

Boring No.	Depth (ft)	Soil Description	Moisture (%)	Optimum Moisture (%)	Relative Density (D <sub>r</sub> )
X1	0-1	Topsoil	12	12	1.0
	1-2	Very silty clay	18	18	0.8
	2-3	Clayey silty sand	15	15	0.7
	3-4	Sandy clay	14	14	0.6
X2	0-1	Topsoil	12	12	1.0
	1-2	Very silty clay	18	18	0.8
	2-3	Clayey silty sand	15	15	0.7
	3-4	Sandy clay	14	14	0.6
X3	0-1	Topsoil	12	12	1.0
	1-2	Very silty clay	18	18	0.8
	2-3	Clayey silty sand	15	15	0.7
	3-4	Sandy clay	14	14	0.6
X4	0-1	Topsoil	12	12	1.0
	1-2	Very silty clay	18	18	0.8
	2-3	Clayey silty sand	15	15	0.7
	3-4	Sandy clay	14	14	0.6

**HILLIS-CARNES ENGINEERING ASSOCIATES, INC. 9/12**

**RETIROFIT/RECONSTRUCTION OF EXISTING POND**

THESE ARE AN EXISTING POND ADJACENT TO THE SITE THAT IS TO BE RETIROFITTED / RECONSTRUCTED. WE UNDERSTAND THAT THE PROPOSED FACILITY IS TO BE CLASSIFIED AS A NON-MD378 POND. BASED ON THE PLAN PROVIDED, THE BOTTOM OF THE POND IS TO BE LOCATED AT EL. 251 AND THE POND IS TO HAVE A NET POOL LOCATED AT EL. 254. EXISTING GRASSES IN THE VICINITY OF THE POND RANGE FROM EL. 256.4 TO EL. 268.4. AS SUCH, IT APPEARS THAT THE MAJORITY OF THE POND WILL BE A CUT POND.

**GENERAL SITE PREPARATION**

ALL TREES, TOPSOIL, ORGANIC MATERIALS, FROZEN, WET, SOFT OR LOOSE SOILS AND OTHER DELETERIOUS MATERIALS SHOULD BE REMOVED FROM THE AREAS OF PROPOSED NEW EMBANKMENT AND INSTALLED PRIOR TO THE PLACEMENT OF FILL. THESE STRIPPING OPERATIONS SHOULD BE PERFORMED IN A MANNER CONSISTENT WITH GOOD EROSION AND SEDIMENT CONTROL PRACTICES AND IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES.

HEAVY STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROTECTED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE COVERED WITH A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROFFILING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE SOIL, AND THEN GRADERS RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

**GROUNDWATER**

GROUNDWATER LEVELS WERE MONITORED IN THE BORINGS DURING OUR FIELD EXPLORATION. GROUNDWATER WAS GENERALLY ENCOUNTERED AT THE FOLLOWING ELEVATIONS IN THE FACILITY BORING LOCATIONS AT THE TIME OF OUR FIELD EXPLORATION (PLEASE NOTE THAT THE WATER LEVELS NOTED MAY BE IMPACTED BY WATER ASSOCIATED WITH THE EXISTING POND):

- DURING DRILLING: EL. 248.4 TO EL. 251.4
- AT COMPLETION: EL. 247.56 TO EL. 251.4

AFTER 24 HOURS: EL. 248.56 TO EL. 256.6

AN ACCURATE DETERMINATION OF THE HYDROSTATIC WATER TABLE WOULD REQUIRE THE INSTALLATION OF PERFORATED PIPES OR PIEZOMETERS WHICH COULD BE MONITORED OVER AN EXTENDED PERIOD OF TIME. THE ACTUAL LEVEL OF THE HYDROSTATIC WATER TABLE AND THE AMOUNT AND LEVEL OF PERCHED WATER SHOULD BE ANTICIPATED TO FLUCTUATE THROUGHOUT THE YEAR, DEPENDING ON THE AMOUNT OF WATER IN THE EXISTING POND, VARIATIONS IN PRECIPITATION, SURFACE RUN-OFF, INFILTRATION, SITE TOPOGRAPHY, AND DRAINAGE. SITE, SEASONAL OPERATIONS AT OTHER PARTS OF THE SITE CAN ALSO INFLUENCE THE LEVEL OF THE GROUNDWATER AT THE STORMWATER MANAGEMENT AREA SIGNIFICANTLY. HICKS CANNOT BE RESPONSIBLE FOR CHANGES IN GROUNDWATER CONDITIONS AT THE SITE DUE TO SEASONAL VARIATION AND CHANGES CAUSED BY OTHER FACTORS SUCH AS GRASSING OPERATIONS AT THE SITE.

ANY WATER INFILTRATION RESULTING FROM A SHALLOW INTERCEPTION OF THE GROUNDWATER TABLE, SURFACE RUN-OFF, OR PERCHED WATER, IF NOT TOO EXTENSIVE, SHOULD BE ABLE TO BE CONTROLLED BY MEANS OF SUMP PIT AND PUMP, OR BY GRAVITY DRAINING PROCEDURES. PROVIDED THAT THE GROUNDWATER LEVEL MUST ONLY BE LOWERED BY A DEPTH OF 1.5 FT TO 2.0 FT. IF THE GROUNDWATER MUST BE LOWERED BY MORE THAN 1.5 FT TO 2.0 FT, OR IF LESSER AMOUNTS OF WATER CANNOT BE SATISFIED BY PUMPING, THEN THE USE OF A MORE EXTENSIVE DRAINAGE SYSTEM WILL BE REQUIRED.

**FILL SELECTION, PLACEMENT AND COMPACTION**

ALL MATERIALS TO BE USED AS FILL SHOULD BE INSPECTED, TESTED AND APPROVED BY THE GEOTECHNICAL ENGINEER. BASED ON OUR EVALUATION OF THE SOILS ENCOUNTERED BORINGS CONDUCTED ON THE SITE, IT APPEARS THAT THE ON-SITE SOILS THAT ARE FREE FROM ORGANICS AND OTHER DELETERIOUS MATERIALS CAN BE USED FOR CONSTRUCTION. IMPORTED FILL MATERIALS SHOULD BE OF EQUAL OR GREATER QUALITY THAN THE ON-SITE MATERIALS AND SHOULD BE APPROVED FOR USE BY THE GEOTECHNICAL ENGINEER.

MOISTURE CONDITIONING (THAT IS, WETTING OR DRYING) OF THE MATERIALS MAY BE REQUIRED IN ORDER TO ACHIEVE PROPER COMPACTION DEPENDING ON THE SEASON OF THE YEAR. THE MOISTURE CONTENTS OF THE SOILS SHOULD BE PROPERLY CONTROLLED TO AVOID EXTENSIVE CONSTRUCTION DELAYS. ADDITIONAL LABORATORY TESTS SHOULD BE PERFORMED ON THE BORROW MATERIALS PRIOR TO THEIR USE IN THE COMPACTION.

CARE SHOULD BE EXERCISED DURING THE GRADING OPERATIONS AT THE SITE. DUE TO THE NATURE OF SOME OF THE SOILS ENCOUNTERED IN THE BORINGS, THE TRAFFIC OF HEAVY EQUIPMENT, INCLUDING HEAVY CONSTRUCTION EQUIPMENT, COULD CREATE PUMPING AND A GENERAL DETERIORATION THESE SOILS IF CONDUCTED IN THE PRESENCE OF WATER. AGAIN, THE GRADING SHOULD THEREFORE, IF AT ALL POSSIBLE, BE CARRIED OUT DURING A DRY SEASON. THIS SHOULD MINIMIZE THESE POTENTIAL PROBLEMS, ALTHOUGH THEY MAY NOT BE ELIMINATED. IF SUCH PROBLEMS ARISE, THE GEOTECHNICAL ENGINEER SHOULD BE CONSULTED FOR AN EVALUATION OF THE CONDITIONS.

ALL FILL MATERIALS SHOULD BE PLACED IN RELATIVELY HORIZONTAL LAYERS, LAYERS OF 8-INCH MAXIMUM THICKNESS SHOULD BE PROPERLY COMPACTED TO 95% OF OPTIMUM MOISTURE CONTENT AND 92 PERCENT OF OPTIMUM MOISTURE CONTENT. NEW FILLS SHOULD BE MAINTAINED WITHIN 22 PERCENT OF OPTIMUM MOISTURE CONTENT, AND PRESENTLY BETWEEN OPTIMUM MOISTURE CONTENT AND 42 PERCENT OF OPTIMUM MOISTURE CONTENT. NEW FILLS SHOULD BE PROPERLY BENCHED INTO EXISTING SLOPES.

A SUFFICIENT NUMBER OF IN-PLACE DENSITY TESTS SHOULD BE PERFORMED BY AN EXPERIENCED ENGINEERING TECHNICIAN ON A FULL-TIME BASIS TO VERIFY THAT THE PROPER DEGREE OF COMPACTION IS BEING OBTAINED. IF ANY COMPACTION PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE GEOTECHNICAL ENGINEER SHOULD BE CONTACTED FOR ADVICE, AS MODIFICATIONS TO THE COMPACTION PROCEDURES MAY BE APPROPRIATE.

APPROVED: DEPARTMENT OF PUBLIC WORKS

*Alger Serrano* 6-25-14  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chad Edmund* 7-1-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Kate Schloeder* 7-31-14  
CHIEF, DIVISION OF LAND DEVELOPMENT

**OPERATION, MAINTENANCE AND INSPECTION**

INSPECTION OF THIS POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

**NOTE**

AFTER STAKING THE LOD AND CENTER LINE OF EMBANKMENT AND PRIOR TO STARTING CONSTRUCTION ON THIS POND, CONTACT HOWARD COUNTY, MARSHALL DAVIDSON AT 410-313-5806

**FINAL ROAD CONSTRUCTION PLAN**

**FIRST RIDGE - F-84-103 EXISTING STORMWATER MANAGEMENT FACILITY RECONSTRUCTION PLAN**

**HIGH RIDGE MEADOWS - SECTION 2**

LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147

A RESUBDIVISION OF DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
TAX MAP: 50 GRID: 1  
DPZ REF: F-10-085, WP-10-087, ECP-12-047, WP-13-080, SP 13-007, F 14-022

ZONED: R-SC  
PARCELS: 363 & 340  
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 / EDS  
DRAWN BY: RVE/EJS  
CHECKED BY: RHV  
DATE: MAY 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-28

PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2014.

9 SHEET OF 20

**MARYLAND 378  
STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS**

**CONSTRUCTION SPECIFICATIONS**

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

**Site Preparation**

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

**Earth Fill**

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification Code, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within  $\pm 1\%$ -2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being 4 feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

**Structure Backfill**

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over, and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump line of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

**Pipe Conduits**

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

- Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymeric coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-190 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

- Coupling, bands, anti-seep collars, and sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at all joints in this thickness.

Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be reinforced with an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket; Pre-Punched to the flange bolt sandwich between adjacent flanges; a 12 inch wide standard lap type band with 12 inch wide by 3/8 inch thick closed cell neoprene gasket; and a 12-inch wide hanger type band with a-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth.

Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling shall conform to "Structure Backfill."
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

- Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.
- Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe to least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

- Backfilling shall conform to "Structure Backfill."
- Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

Plastic Pipe - The following criteria shall apply for plastic pipe:

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.
- Joints and connections to anti-seep collars shall be completely watertight.

Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

- Backfilling shall conform to "Structure Backfill."
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete - Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

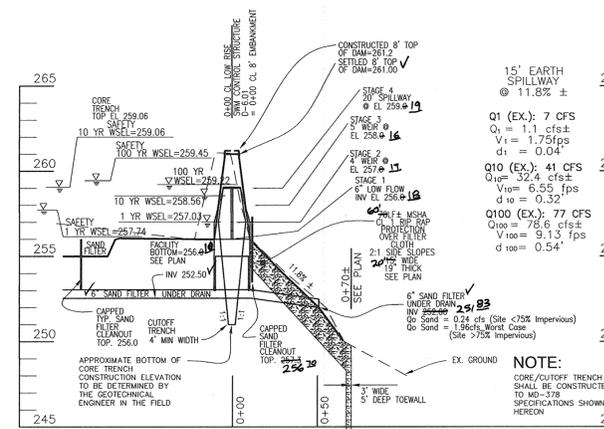
Rock Riprap - Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction - All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water pumps from which the water shall be pumped.

Stabilization - All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control - Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.



**FIRST RIDGE NON MD-378 STORMWATER FACILITY  
PROFILE ALONG LOW RISE STRUCTURE**  
SCALE: HORIZONTAL - 1"=50'  
VERTICAL - 1"=5'

**SAND FILTER - PLANTING**

SAND FILTER PLANTINGS SHALL CONSIST OF A MIXTURE:  
RED CANARY GRASS PHALARIS ARUNDINACEA  
SWITCHGRASS PANICUM VIRGATUM  
CREEPING BENTGRASS - AGROSTIS PALUSTRIS  
OR EQUAL COMBINATION OF COOL / WARM SEASON GRASSES  
TOLERANT OF FREQUENT INUNDATION

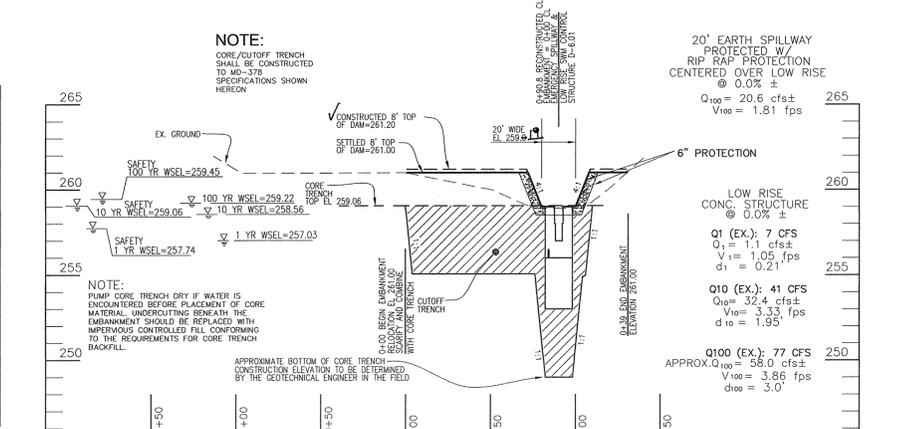


**FIRST RIDGE NON MD-378 STORMWATER FACILITY  
TYPICAL SAND FILTER DETAILS**  
SCALE: HORIZONTAL - N.T.S.

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

*[Signature]* 6/19/13 7-18-19  
DATE



**FIRST RIDGE NON MD-378 STORMWATER FACILITY  
PROFILE ALONG CENTER OF EMBANKMENT**  
SCALE: HORIZONTAL - 1"=50'  
VERTICAL - 1"=5'

**FOREBAY GABION BASKET WEIR DETAIL**

FOREBAY EARTH EMBANKMENT SHALL BE COMPACTED IN ACCORDANCE WITH SHEET 10 MD 378 STANDARD GABION BASKETS.



**FOREBAY GABION BASKET WEIR DETAIL**  
SCALE: N.T.S.

**OPERATION AND MAINTENANCE SCHEDULE FOR  
STORMWATER MANAGEMENT FACILITY**

- ALL WIRE USED IN GABION CONSTRUCTION SHALL BE GALVANIZED AND PLASTIC COATED.
- FILTER CLOTH SHALL BE PLACED WHEREVER GABIONS COME INTO CONTACT WITH SOIL.
- STONE FILL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE 4"-8" IN DIAMETER.
- CONSTRUCTION MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- FOREBAY EMBANKMENT SHALL BE KEPT INTO EARTH EMBANKMENT.

OPERATION, MAINTENANCE AND INSPECTION  
INSPECTION OF THE POND(S) CHECKLIST HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE SHOW AND REQUIREMENTS CONTAINED WITHIN UDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378), THE POND OWNER(S) AND ANY OTHERS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

STORMWATER MANAGEMENT FACILITY ROUTINE MAINTENANCE (HOWA)  
1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF IT IS FUNCTIONING PROPERLY.  
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.  
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.  
4. VISUAL SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.  
NON-ROUTINE MAINTENANCE (HOWARD COUNTY)  
1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE LOW RISE STRUCTURE, SAND FILTER & PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.  
2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

OWNER: KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRASKI, 9222 OLD SCAGSVILLE ROAD, LAUREL, MD 20723-1730, ATTN: MR. DONALD R. REUWER 443-367-0422  
DEVELOPER: LAND DESIGN & DEVELOPMENT, INC., 5300 DORSEY HALL DRIVE, STE 102, ELLICOTT CITY, MARYLAND 21042-7819, ATTN: MR. DONALD R. REUWER 443-367-0422

REVISION UNDER DRAIN DETAIL, FUR MICRO-BORERTENTION AND 3/30/15  
BIOSWALE FACILITY; REVISE SAND FILTER DETAIL

NO.	REVISION	DATE
1	REVISION UNDER DRAIN DETAIL, FUR MICRO-BORERTENTION AND 3/30/15 BIOSWALE FACILITY; REVISE SAND FILTER DETAIL	

**SECTION B-B  
FIRST RIDGE NON MD-378 STORMWATER FACILITY  
STAGE 1 - STAGE 3 - DETAIL**



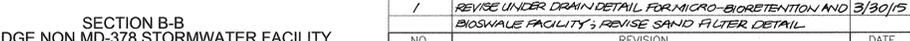
**SECTION B-B  
FIRST RIDGE NON MD-378 STORMWATER FACILITY  
STAGE 1 - STAGE 3 - DETAIL**  
SCALE: HORIZONTAL - 1" = 2'

**SECTION A-A  
FIRST RIDGE NON MD-378 STORMWATER FACILITY  
STAGE 1 - STAGE 3 - DETAIL**



**SECTION A-A  
FIRST RIDGE NON MD-378 STORMWATER FACILITY  
STAGE 1 - STAGE 3 - DETAIL**  
SCALE: HORIZONTAL - 1" = 2'

**SECTION C-C  
FIRST RIDGE NON MD-378 STORMWATER FACILITY  
STAGE 1 - STAGE 3 - DETAIL**



**SECTION C-C  
FIRST RIDGE NON MD-378 STORMWATER FACILITY  
STAGE 1 - STAGE 3 - DETAIL**  
SCALE: HORIZONTAL - 1" = 2'

**DEWATERING STRATEGY**

Dewatering refers to the act of removing and discharging water from excavated areas on construction sites or from sediment traps or basins on construction sites. Standards and specifications for dewatering practices follow:

These standards apply to removal and discharge of water from any excavated area or sediment trap or basin at any construction site. Given the unique conditions of any particular construction site, any or all of the practices may apply. Regardless of the applicability of the practices listed herein, operators are required to use acceptable procedures for maintenance and dewatering. In all cases, every effort shall be made to eliminate sediment pollution associated with dewatering.

Designers shall specify the preferred procedures for dewatering on plans. In particular, designers should identify procedures for dewatering sediment traps and basins prior to elimination of the last sediment control facility on the site and sediment control facilities to stormwater management facilities. Recommended procedures shall be consistent with these standards. Applicable site conditions may require innovative dewatering designs. Dewatering measures not referenced in this standard may be used with the consent of the reviewing authority.

Dewatering of Excavated Areas  
A. Designers shall specify on plans, and in sequences of construction included on plans, practices for dewatering of excavated areas. Plan reviewers shall check to see that procedures for dewatering are included on plans.  
B. In all cases, water removed from excavated areas shall be discharged such that it shall pass through a sediment control device prior to entering receiving waters. Sediment control devices include sediment traps and basins, in addition to the practices in this section.

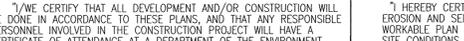
**Approved Practices for Dewatering of Excavated Areas**

- Pumping of water to an existing sediment basin or trap in which the entire volume of water from the area to be dewatered can be contained without discharge to receiving waters.
- Pumping of water to an existing sediment basin or trap such that the entire volume of water from the area to be dewatered can be managed without exceeding the design outflow from the sediment control structure.
- Removable Pumping Station? Standards and specifications for Removable Pumping Station are on Detail 204.
- Use of a Sump Pit. Standards and specifications for a sump pit are on Detail 208.
- Sediment Pump. Standards and specifications for a sump pit are on Detail 211.

**Approved Practices for Dewatering of Traps and Basins**

- Removable pumping station.
- Use of a Sump Pit.
- Use of a floating suction hose to pump the cleaner water from the top of the pond. As the cleaner water is pumped the suction hose will lower and eventually encircle sediment side water. When this happens the pumping operation will cease. Provisions shall be made to filter water.

**STAGE 1 - 6" LOW FLOW  
EXPANDED METAL TRASH RACK (NFS)**



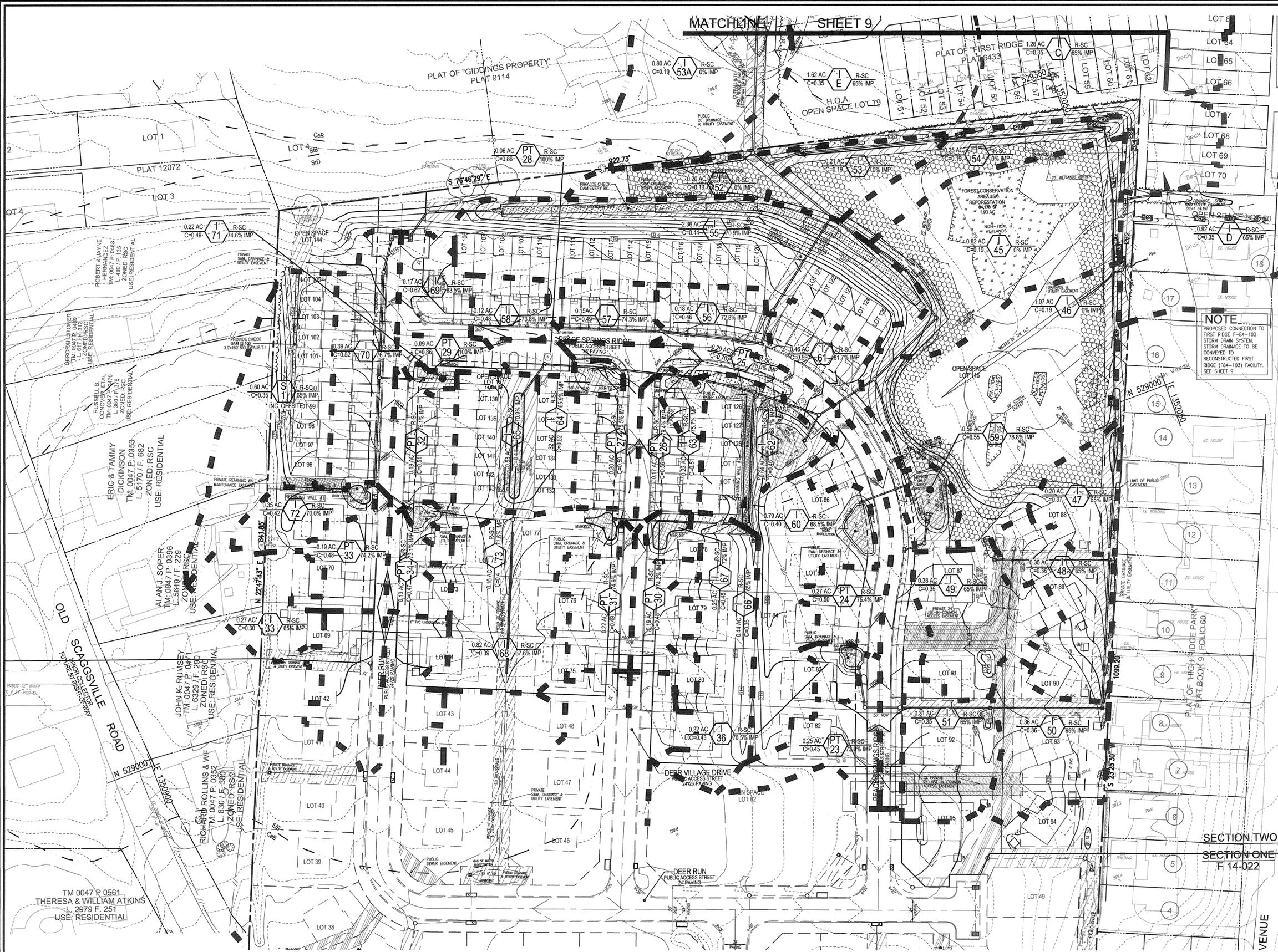
APPROVED: DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 6-25-14  
CHIEF, BUREAU OF HIGHWAYS  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 7-1-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*[Signature]* 7-31-14  
CHIEF, DIVISION OF LAND DEVELOPMENT

BY THE DEVELOPER:  
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*[Signature]* 6/1/14  
SIGNATURE OF DEVELOPER

BY THE ENGINEER:  
I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*[Signature]* 6/12/14  
SIGNATURE OF ENGINEER

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*[Signature]* 6/12/14  
HOWARD S.C.D.

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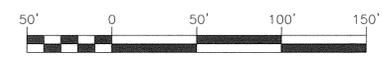
**LEGEND:**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING TREE LINE
- EXISTING TREES
- DRAINAGE DIVIDE
- DRAINAGE AREA DESIGNATION
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING WETLAND
- PRIVATE 24' USE-IN-COMMON ACCESS EASEMENT
- PROP. PUBLIC SEWER WATER & UTILITY EASEMENT
- PROP. PUBLIC DRAINAGE & UTILITY EASEMENT
- PRIVATE SEWER DRAINAGE & UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT

**DA-3**

**AS-BUILT CERTIFICATION**  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

*[Signature]* 12/19 7-18-19  
 P.E. NAME P.E.# DATE



**OWNER**  
 MARTIN JR & MICHAEL A. KRAESKI ET AL  
 9222 OLD SCAGGSVILLE ROAD  
 LAUREL, MD 20723-1730  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

**DEVELOPER**  
 LAND DESIGN DEVELOPMENT, INC.  
 5300 DORSEY HALL DRIVE, STE 102  
 ELLICOTT CITY, MARYLAND 21042-7819  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 7-28-14  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 7-30-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

**STORM DRAIN DRAINAGE AREA MAP**  
 SCALE: 1"=50'

NO AS-BUILT INFORMATION ON THIS SHEET

**MAPPED SOILS TYPES**

SYMBOL NAME / DESCRIPTION	GROUP	HYDRIC	TOPOG. INCLUSIONS	Kw RANGE*	DRIVE PAVEMENT	STRENGTH CORRECTION
CHILLUM LOAM, 2 TO 5 PERCENT SLOPES	B	NO		0.15 - 0.37		NO
CHILLUM LOAM, 5 TO 10 PERCENT SLOPES	B	NO		0.15 - 0.37		PARTIAL
CROOM & EVERSBORO, 10 TO 15 PERCENT SLOPES	C	NO		0.28		NO
FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	D	YES		0.02 - 0.24		NO
SASSAPARAS & CROOM SOILS, 10 TO 15 PERCENT SLOPES	B	NO		0.17 - 0.24		NO
URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	NO		0.32 - 0.37		PARTIAL
	D	NO		0.37		NO

TAKEN FROM: USDA, SCS-WEBB SOIL SURVEY, HOWARD COUNTY  
 K-FACTOR = Kw @ 0-4" DEPTH  
 \* BASED UPON ESTIMATED CUTS

**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

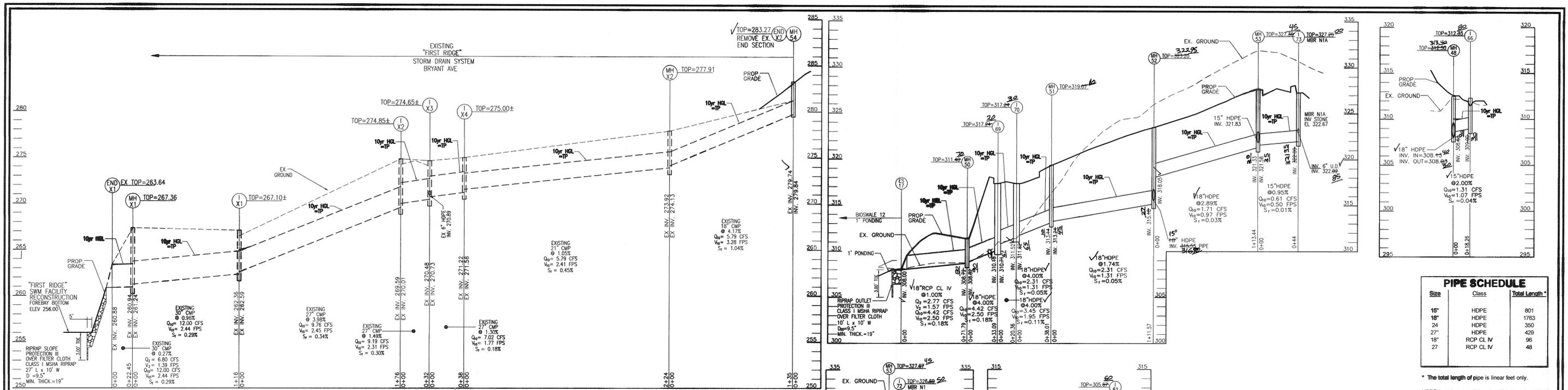
**FINAL ROAD CONSTRUCTION PLAN**  
**STORM DRAIN DRAINAGE AREA MAP**  
**HIGH RIDGE MEADOWS - SEC. 2**  
 LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
 DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
 TAX MAP: 50 GRID: 1  
 DPZ REF: F-10-065, WP-10-087, ECP-12-047, ZONED: R-SC  
 WP-13-080, SP 13-007, F 14-022 PARCELS: 363 & 542  
 HOWARD COUNTY, MARYLAND

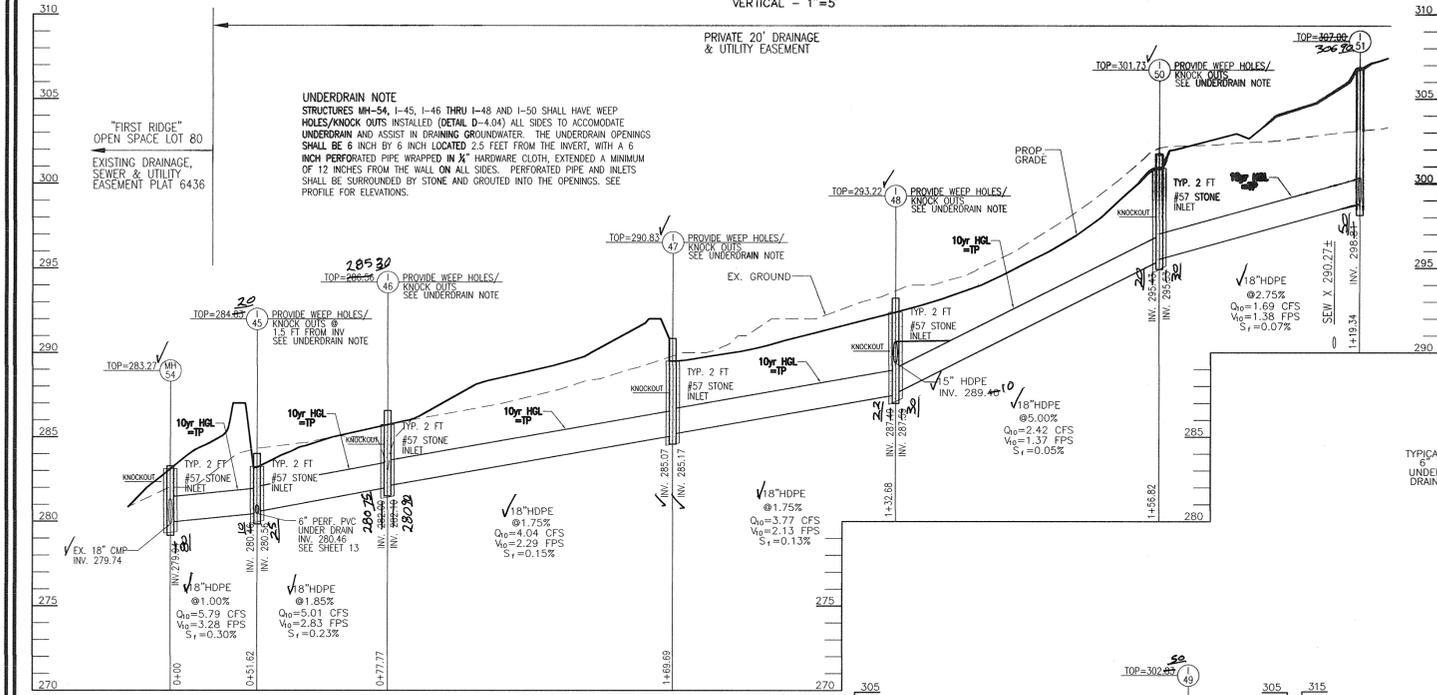
**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

**PROFESSIONAL CERTIFICATE**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18193, EXPIRATION DATE: 09-27-2014

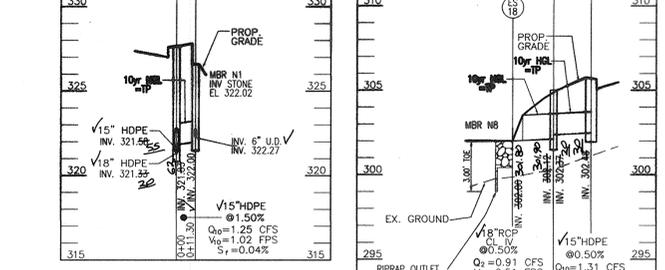
DESIGN BY: RHY / EDS  
 DRAWN BY: RVE/EJS  
 CHECKED BY: RHY  
 DATE: MAY 2014  
 SCALE: AS SHOWN  
 W.O. NO.: 11-28



**FIRST RIDGE EXISTING STORM DRAIN PROFILE**  
SCALE: HORIZONTAL - 1"=50'  
VERTICAL - 1"=5'



**UNDERDRAIN NOTE**  
STRUCTURES MH-54, I-45, I-46 THRU I-48 AND I-50 SHALL HAVE WEEP HOLES/KNOCK OUTS INSTALLED (DETAIL D-4.04) ALL SIDES TO ACCOMMODATE UNDERDRAIN AND ASSIST IN DRAINING GROUNDWATER. THE UNDERDRAIN OPENINGS SHALL BE 6 INCH BY 6 INCH LOCATED 2.5 FEET FROM THE INNER, WITH A 6 INCH PERFORATED PIPE WRAPPED IN 1/2\"/>



**TYPICAL STRUCTURE STONE SURROUND**  
N.T.S.

STRUCTURES MH-54, I-45, I-46 THRU I-48 AND I-50 SHALL HAVE WEEP HOLES/KNOCK OUTS INSTALLED (DETAIL D-4.04) ALL SIDES TO ACCOMMODATE UNDERDRAIN AND ASSIST IN DRAINING GROUNDWATER. THE UNDERDRAIN OPENINGS SHALL BE 6 INCH BY 6 INCH LOCATED AS DETAILED HEREON FROM THE INVERT, WITH A 6 INCH PERFORATED PIPE WRAPPED IN 1/2\"/>

**AS-BUILT CERTIFICATION**  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.



**PIPE SCHEDULE**

Size	Class	Total Length
16"	HDPE	801
18"	HDPE	1763
24"	HDPE	350
27"	HDPE	429
18"	RCP CL IV	96
27"	RCP CL IV	48

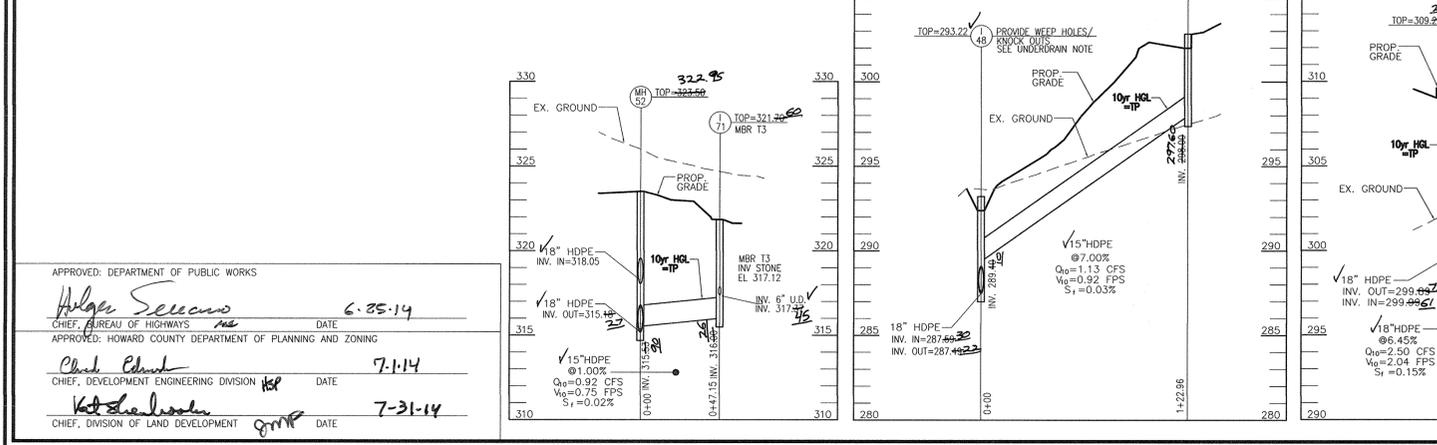
\* The total length of pipe is linear feet only.  
HDPE is to be smooth interior. Contractor shall install pipe in accordance with manufacturer's specifications

**STRUCTURE SCHEDULE**

STR #	TYPE	INV. IN	INV. OUT	TOP ELEV.	THROAT ELEV.	DETAIL	LOCATION	REMARKS
MH-27A	48" MANHOLE	301.36	301.11	308.16	-	G-5.12	N 528793.48, E 1351632	
MH-27B	48" MANHOLE	300.93	300.83	308.92	-	G-5.12	N 528779.9, E 1351666	
MH-36	60" MANHOLE	280.63	280.54	285.60	-	G-5.13	N 529684.93, E 1352116.74	
MH-36A	48" MANHOLE	280.10	280.23	282.90	287.00	G-5.13	N 529684.93, E 1352116.74	264.15 262.30
MH-36B	48" MANHOLE	270.65	270.40	274.30	-	G-5.12	N 529685.45, E 1352098.98	
MH-37	60" MANHOLE	287.29	287.23	274.60	-	G-5.13	N 529738.95, E 1351872.31	
MH-38	48" MANHOLE	302.27	299.20	305.00	-	G-5.12	N 528933.21, E 1351751.67	
MH-39	48" MANHOLE	278.04	276.24	286.27	-	G-5.12	N 529384.13, E 1351725.43	G-5.11 / G-5.16
MH-39A	48" MANHOLE	278.45	278.34	277.65	287.20	G-5.12	N 529386.75, E 1351735.06	G-5.11 / G-5.16
MH-40	48" MANHOLE	288.06	287.85	288.60	277.15	G-5.12	N 529201.44, E 1351779.82	
MH-41	48" MANHOLE	301.79	298.75	315.60	-	G-5.12	N 529219.95, E 1351686.78	
MH-42	48" MANHOLE	288.97	288.80	288.00	279.40	G-5.12	N 529208.97, E 1351835.39	
MH-43	48" MANHOLE	295.94	295.80	295.90	297.50	G-5.12	N 529151.86, E 1351946.93	
MH-44	48" MANHOLE	296.46	296.18	295.05	305.30	G-5.12	N 529114.25, E 1351762.93	
MH-45	48" MANHOLE	299.99	299.69	309.25	-	G-5.12	N 529099.52, E 1351694.30	
MH-46	48" MANHOLE	306.69	306.63	306.00	314.80	G-5.12	N 529146.32, E 1351638.09	
MH-47	48" MANHOLE	312.74	312.49	319.00	-	G-5.12	N 529241.67, E 1351424.84	
MH-48	48" MANHOLE	308.19	308.09	308.00	312.50	G-5.12	N 529017.18, E 1351584.23	308.30 308.30
MH-50	48" MANHOLE	308.02	308.00	311.40	-	G-5.12	N 529446.95, E 1351379.78	
MH-51	48" MANHOLE	313.24	313.10	319.00	-	G-5.12	N 529403.23, E 1351313.60	
MH-52	48" MANHOLE	344.96	344.98	315.40	322.95	G-5.12	N 529300.37, E 1351270.37	312.85 315.30
MH-53	48" MANHOLE	327.67	327.68	327.60	-	G-5.12	N 529198.80, E 1351228.42	321.82 321.33
MH-54	48" MANHOLE	279.94	279.94	283.27	-	G-5.12	N 529192.04, E 1352116.31	

**OWNER**  
KATHY MIESSE, PERSONAL REPRESENTATIVE,  
ESTATE OF ARTHUR P. KRAESKI  
9222 OLD SCAGSVILLE ROAD  
LAUREL, MD 20723-1730  
ATTN: MR. DONALD R. REUWER  
443-367-0422

**DEVELOPER**  
LAND DESIGN & DEVELOPMENT, INC.  
5300 DORSEY HALL DRIVE, STE 102  
ELLCOTT CITY, MARYLAND 21042-7819  
ATTN: MR. DONALD R. REUWER  
443-367-0422



**STRUCTURE SCHEDULE**

STR #	TYPE	INV. IN	INV. OUT	THROAT ELEV.	DETAIL	LOCATION	REMARKS
136	S	301.57	301.57	306.90	D-2.22	N 528838.48, E 1351639.11	
145	D	280.66	280.46	284.82	D-4.11	N 529202.19, E 1352065.70	OPEN ALL 4 SIDES
146	D	285.17	285.07	290.00	D-4.11	N 529129.22, E 1352038.82	OPEN ALL 4 SIDES
147	D	285.17	285.07	290.00	D-4.11	N 529685.45, E 1351961.67	OPEN ALL 4 SIDES
148	D	288.46	287.97	293.27	D-4.11	N 528847.31, E 1351929.81	OPEN ALL 4 SIDES
149	D	288.00	287.80	292.80	D-4.11	N 528890.84, E 1351914.81	OPEN ALL 4 SIDES
150	D	295.60	295.43	301.73	D-4.11	N 528703.27, E 1351867.82	OPEN ALL 4 SIDES
151	D	298.91	298.91	306.00	D-4.11	N 528745.52, E 1351796.20	OPEN ALL 4 SIDES
152	D	278.64	278.64	283.07	D-4.11	N 529397.04, E 1351768.90	OPEN ALL 4 SIDES
153	D	279.60	279.60	288.97	D-4.11	N 529327.65, E 1351914.55	OPEN ALL 4 SIDES
153A	D	270.41	269.99	281.00	D-4.11	N 529607.90, E 1351818.06	OPEN 3 SIDES (S, E, W)
154	D	282.77	282.77	284.00	D-4.11	N 529277.84, E 1352084.21	OPEN ALL 4 SIDES
155	D	288.97	287.36	296.02	D-4.11	N 529283.47, E 1351769.44	OPEN ALL 4 SIDES
156	A-5	322.48	322.48	314.95	D-4.01	N 529190.17, E 1351662.08	
157	A-5	312.74	312.74	318.00	D-4.01	N 529240.07, E 1351959.34	
158	A-5	315.30	315.30	319.26	D-4.01	N 529284.84, E 1351463.11	
159	S	297.60	297.60	300.00	D-4.22	N 528997.35, E 1351760.05	
160	S	302.49	302.49	305.60	D-4.22	N 528996.74, E 1351703.72	
161	A-5	302.49	302.49	305.60	D-4.01	STA 342.01, 12.42 RT	
162	S	302.49	302.49	305.60	D-4.22	N 529079.45, E 1351670.38	
163	S	310.92	310.92	317.26	D-4.22	STA 54-56.33, 32.82 RT	
164	S	311.55	311.55	317.40	D-4.22	STA 54-56.33, 30.03 LT	
165	D	311.55	311.55	317.40	D-4.11	N 529277.86, E 1351402.85	OPEN ALL 4 SIDES
166	D	309.69	309.69	311.50	D-4.11	N 528959.01, E 1351582.39	OPEN ALL 4 SIDES
167	S	314.14	314.14	320.70	D-4.22	N 529047.16, E 1351513.05	
168	S	316.97	316.97	321.00	D-4.22	N 529075.75, E 1351444.95	
169	DOUBLE S	310.74	310.74	317.24	D-4.23	STA 13-25.37, 10.18 RT	
170	DOUBLE S	311.62	311.62	317.24	D-4.23	STA 13-25.42, 10.18 LT	
171	S	316.00	316.00	321.76	D-4.22	STA 11-76.46, 30.09 RT	
172	S	322.00	322.00	326.00	D-4.22	STA 10-58.25, 27.30 LT	
173	S	322.95	322.95	327.25	D-4.22	STA 10-37.03, 25.00 RT	

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Alger Seawans* 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chris Clinton* 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*Katrina Linder* 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT

**FINAL ROAD CONSTRUCTION PLAN**  
**STORM DRAIN PROFILES**  
**HIGH RIDGE MEADOWS - SECTION 2**  
 LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
 A RESUBDIVISION OF  
 DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
 TAX MAP: 50 GRID: 1  
 DPZ REF'S: F-10-065, WP-10-087, ECP-12-047,  
 WP-13-080, SP-13-007, F-14-022

ZONED: R-SC  
 PARCELS: 363 & 542  
 HOWARD COUNTY, MARYLAND

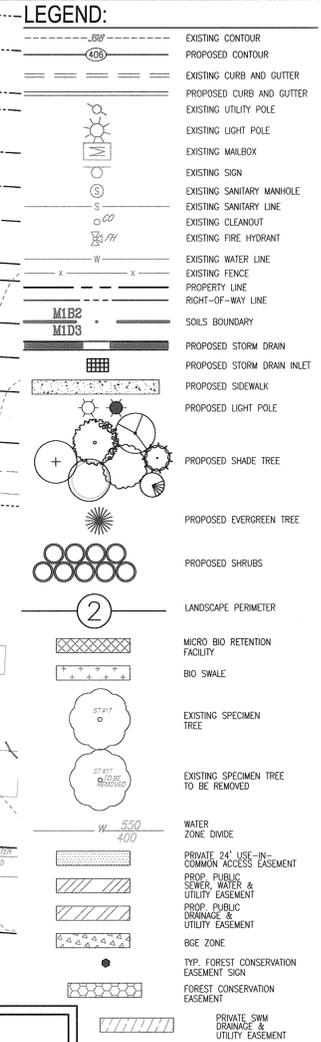
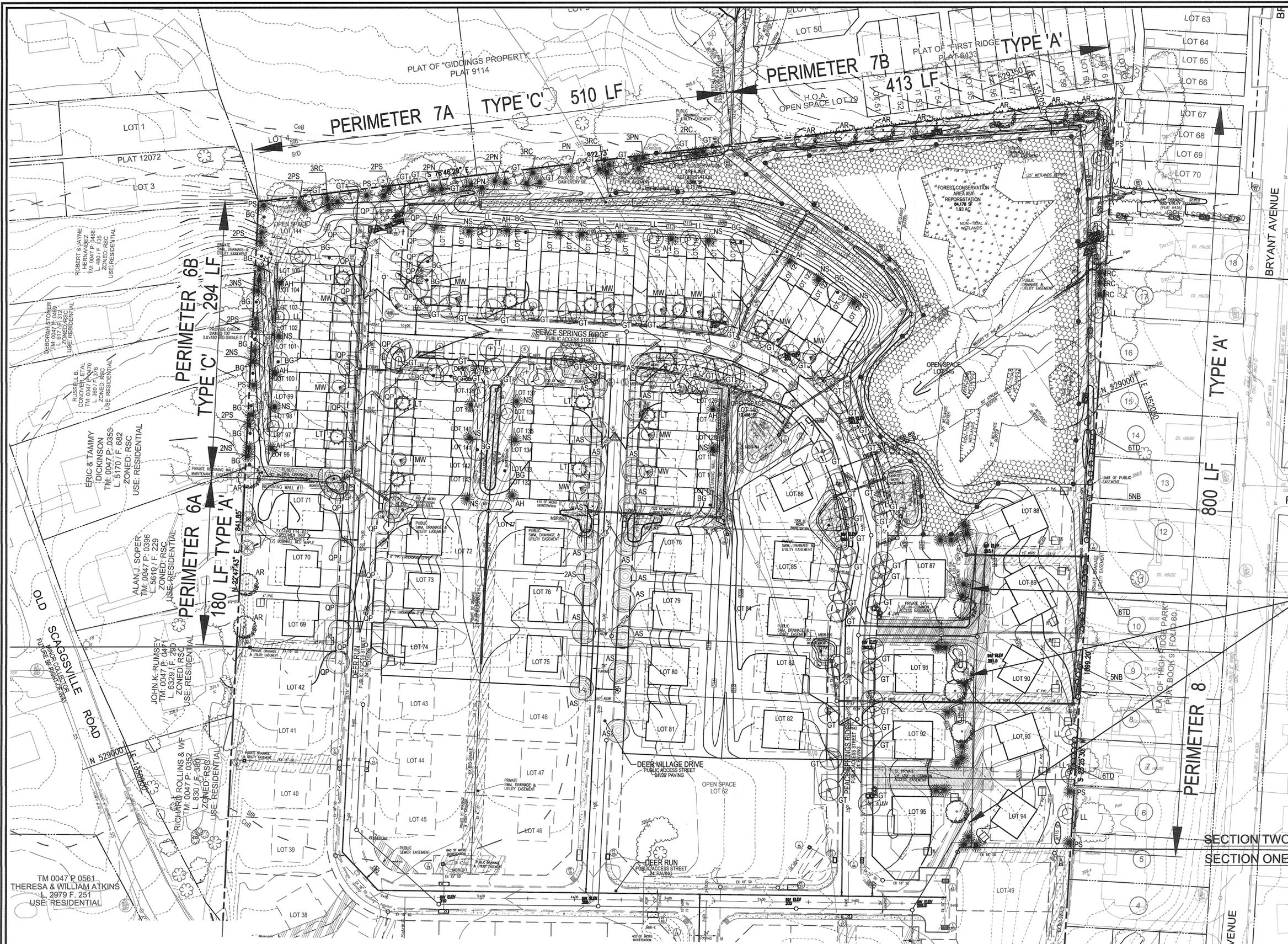
**ROBERT H. VOGEL, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET  
 ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666  
 FAX: 410.461.8961

DESIGN BY: RHV / EDS.  
 DRAWN BY: RVE/EJS.  
 CHECKED BY: RHV.  
 DATE: MAY 2014.  
 SCALE: AS SHOWN.  
 W.O. NO.: 11-28.

PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS  
 WERE PREPARED OR APPROVED BY ME, AND  
 THAT I AM A DULY LICENSED PROFESSIONAL  
 ENGINEER UNDER THE LAWS OF THE STATE  
 OF MARYLAND, LICENSE NO. 16193  
 EXPIRATION DATE: 09-27-2014

12 SHEET OF 20





**NOTE**  
 ADDITIONAL SCREENING SHOWN SCHEMATICALLY. PLANTINGS SHALL BE PROVIDED AT THE REAR OF LOTS 82, 85, 86 AND 89 TO PROVIDE SCREENING OF THE REAR YARD FROM THE FRONT YARDS OF LOTS 83, 84, 87 AND 88 RESPECTIVELY. PLANTINGS SHALL BE PART OF THE BUILDERS SITE DEVELOPMENT PLAN.

**OWNER**  
 KATHY MESSER, PERSONAL REPRESENTATIVE,  
 ESTATE OF ARTHUR P. KRAESKI  
 9222 OLD SCAGGSVILLE ROAD  
 LAUREL, MD 20723-1750  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

**DEVELOPER**  
 LAND DESIGN & DEVELOPMENT, INC.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELLICOTT CITY, MARYLAND 21042-7419  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

NO.	REVISION	DATE

**FINAL ROAD CONSTRUCTION PLAN**  
**LANDSCAPE PLAN**  
**HIGH RIDGE MEADOWS - SEC. 2**  
 LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
 A RESUBDIVISION OF  
 DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
 TAX MAP: 50 0800-1  
 DPZ REF'S: F-10-065, WP-10-087, ECP-12-047,  
 WP-13-080, SP 13-007, F 14-022

ZONED: R-SC  
 PARCELS: 363 & 542  
 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:** RHW / EDS  
**DRAWN BY:** RVE / EDS  
**CHECKED BY:** RHW  
**DATE:** MAY 2014  
**SCALE:** AS SHOWN  
**W.O. NO.:** 11-28

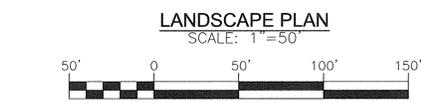
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 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2014

14 SHEET OF 20

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Allyn Serrano* 7-28-14  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chad Eche* 7-30-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*Walt Steinhilber* 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT

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

*[Signature]* 7/16/2014  
 SIGNATURE OF DEVELOPER DATE



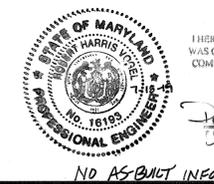
**NOTES**

- THIS SHEET SHALL NOT BE USED FOR GRADING PURPOSES SEE SHEET 4 & 5
- REFER TO SHEET 12 & 13 FOR STORM DRAIN PROFILES, STRUCTURE AND PIPE SCHEDULE.

**AS-BUILT CERTIFICATION**  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

*[Signature]* 16193 7-18-14  
 NAME P.E.# DATE

NO AS-BUILT INFORMATION ON THIS SHEET







AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 7-18-19  
P.E. # 16193

MAPPED SOILS TYPES

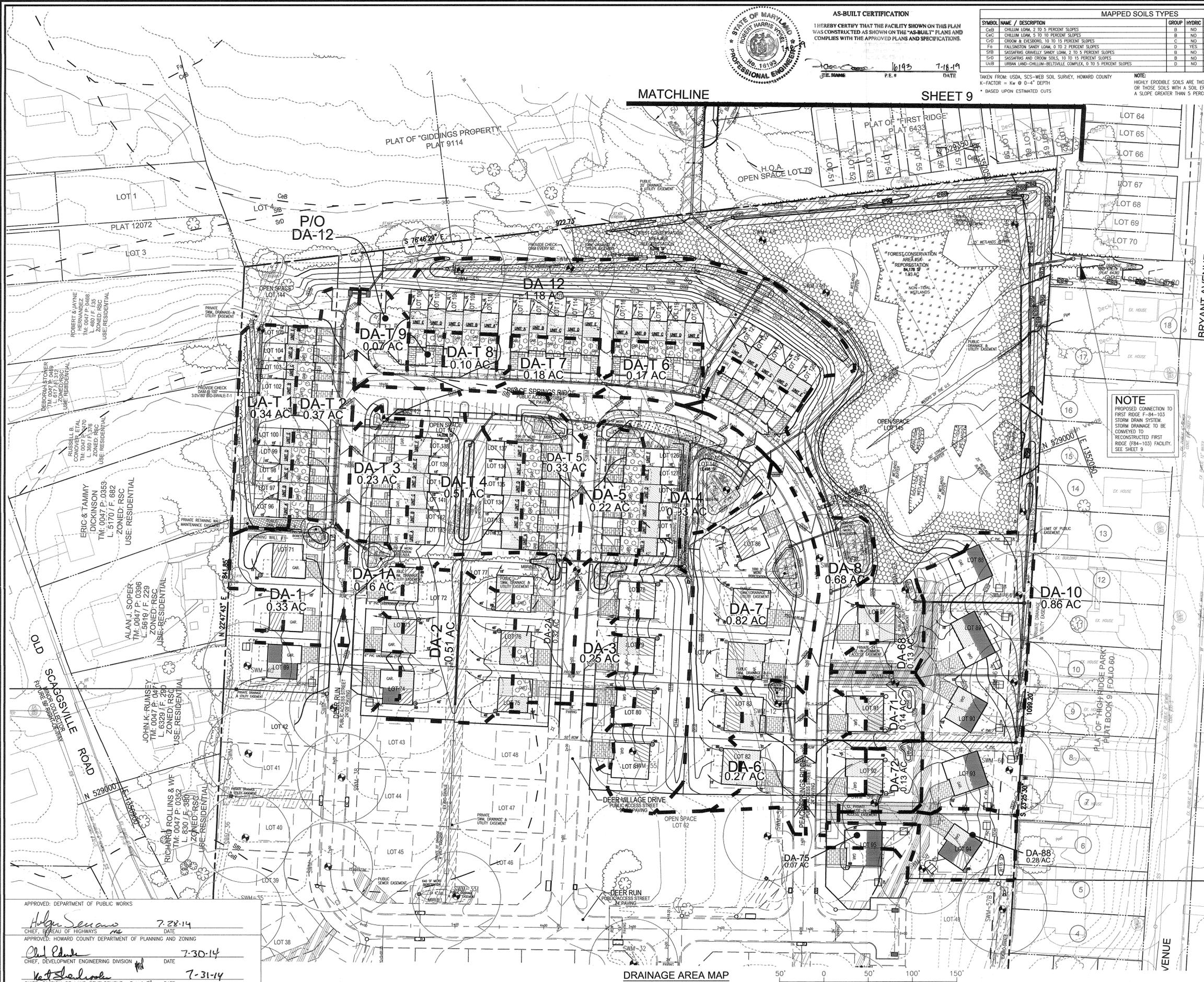
SYMBOL / NAME / DESCRIPTION	GROUP	HYDRIC	PERCENT	Kw RANGE*	PERCENT	PERCENT
CeB CHILLUM LOAM, 2 TO 5 PERCENT SLOPES	B	NO	NO	0.15 - 0.37	NO	NO
CcC CHILLUM LOAM, 5 TO 10 PERCENT SLOPES	B	NO	NO	0.15 - 0.37	PARTIAL	PARTIAL
CdD CROOM & EVELSON, 10 TO 15 PERCENT SLOPES	C	NO	NO	0.28	NO	NO
Fo FALLSTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	D	YES	NO	0.02 - 0.24	NO	NO
SfE SASSAPARIS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES	B	NO	NO	0.17 - 0.24	NO	NO
SfD SASSAPARIS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES	B	NO	NO	0.32 - 0.37	PARTIAL	PARTIAL
UcB URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	NO	NO	0.37	NO	NO

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

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING TREELINE
- EXISTING TREES
- DA-3
- DRAINAGE DIVIDE
- DRAINAGE AREA DESIGNATION
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- NON-STRUCTURAL ROOFTOP DISCONNECTS
- ROOFTOP DISCONNECTS TO DRYWELL
- MICRO-SCALE PRACTICE BIO-SWALE
- NON-STRUCTURAL PROP. PERMEABLE DRIVEWAY W/ PERMEABLE ROOFTOP TO PERMEABLE SURFACE SUBBASE
- MICRO-SCALE PRACTICE MICRO BIORETENTION / BIOPRETENTION
- 200 GAL RAIN BARREL
- PROPOSED DRYWELL
- EXISTING WETLAND
- NON-STRUCTURAL PROP. PERMEABLE DRIVEWAY W/ PERMEABLE ROOFTOP TO PERMEABLE SURFACE SUBBASE
- ROOFTOP DISCONNECTS FLOW PATH
- ROOFTOP DISCONNECTS RAIN BARREL

NOTE: PROPOSED CONNECTION TO FIRST RIDGE F-84-103 STORM DRAIN SYSTEM. STORM DRAINAGE TO BE CONVEYED TO RECONSTRUCTED FIRST RIDGE (F84-103) FACILITY. SEE SHEET 9



MATCHLINE

SHEET 9

DRAINAGE AREA MAP SCALE: 1"=50'

NO AS-BUILT INFORMATION ON THIS SHEET

**OWNER**  
KATHY MESSE, PERSONAL REPRESENTATIVE,  
ESTATE OF ARTHUR P. KRAESKI  
9222 OLD SCAGGSVILLE ROAD  
LAUREL, MD 21043-1730  
ATTN: MR. DONALD R. REUWER  
443-367-0422

**DEVELOPER**  
LAND DESIGN & DEVELOPMENT, INC.  
5300 DORSEY HALL DRIVE, SITE 102  
ELLICOTT CITY, MARYLAND 21042-7819  
ATTN: MR. DONALD R. REUWER  
443-367-0422

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN  
ESDv - DRAINAGE AREA MAP - NORTH AREA 1  
**HIGH RIDGE MEADOWS - SEC. 2**  
LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
A RESUBDIVISION OF  
DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
DPZ MAP: 50 GRID: 1  
DPZ REFS: F-10-065, WP-10-087, ECP-12-047, PARCELS: 363 & 542  
WP-13-080, SP 13-007, F 14-022 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 DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18183, EXPIRATION DATE: 09-27-2014

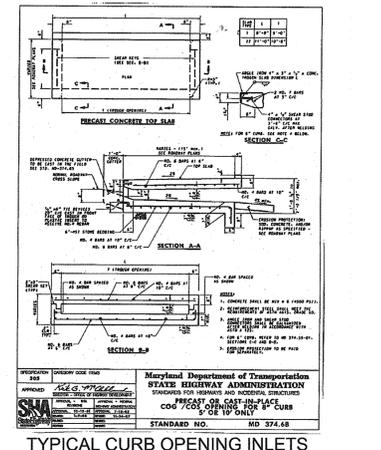
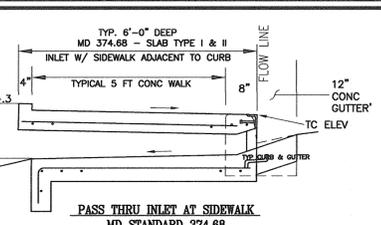
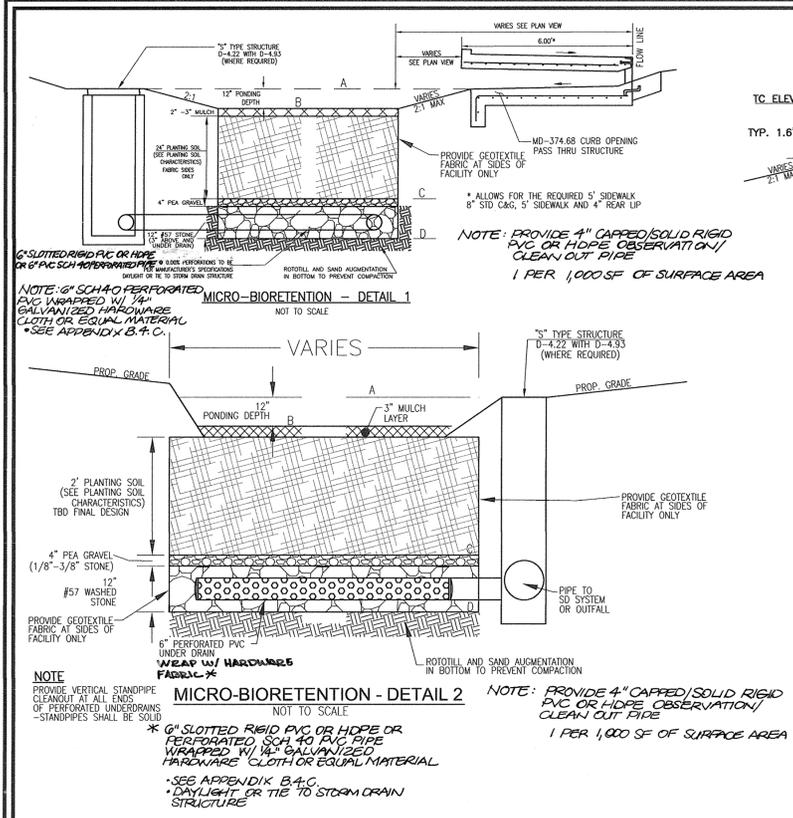
DESIGN BY: RHY / EDS  
DRAWN BY: RVE/EDS  
CHECKED BY: RHY  
DATE: MAY 2014  
SCALE: AS SHOWN  
W.O. NO.: 11-28

16 SHEET OF 20

APPROVED: DEPARTMENT OF PUBLIC WORKS  
Helen Seawans 7-28-14  
CHIEF, BUREAU OF HIGHWAYS  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Chris Edick 7-30-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
Kurt Schaefer 7-31-14  
CHIEF, DIVISION OF LAND DEVELOPMENT

AS-BUILT-DECEMBER 2018

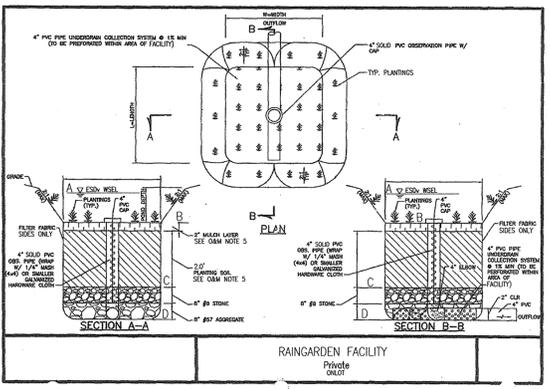




**MICRO-BIORETENTION FACILITY - DESIGN ELEVATION CHART**

MBR FACILITY #	TOP 5" INLET MAX WSEL	ESD WSEL A	TOP MULCH B	BOTTOM PLANT SOIL C	INV STONE D	SURFACE AREA SF	MBR DETAIL TYPE	APPROX DIM
SECTION TWO								
N1	326.60	326.60	325.50	323.35	322.00	295.340	1	SEE PLAN
N1A	327.25	327.25	326.25	324.00	322.65	390.375	1	SEE PLAN
T3	321.70	321.70	320.70	318.45	317.10	210.280	1	SEE PLAN
T4	318.40	318.40	317.40	315.15	313.80	160.750	2	SEE PLAN
T5	317.40	317.40	316.40	314.15	312.80	550.510	1	SEE PLAN
N5	317.20	317.20	316.20	313.95	312.60	370.510	1	SEE PLAN
N2A	320.70	320.70	319.70	317.45	316.10	410.420	1	SEE PLAN
N3	320.70	320.70	319.70	317.45	316.10	572.580	1	SEE PLAN
N6	305.90	305.90	304.90	302.65	301.30	333.375	1	SEE PLAN
N7	304.20	304.20	303.20	300.95	299.60	300.055	1	SEE PLAN
N8	303.00	303.00	302.00	299.75	298.40	340.180	2	SEE PLAN
N4	307.00	307.00	306.00	303.75	302.40	1300.150	2	SEE PLAN

REFER TO SHEET 19 FOR PLANTING NOTES, DETAIL AND SCHEDULES



**ON-LOT RAIN GARDEN - PLANTING SCHEDULE**

RG FACILITY #	SURFACE AREA	REQUIRED PLANTINGS	PROPOSED PLANTINGS
SOUTH AREA			
87	150	3	3 LINDERA BENZON - SPICEBUSH
91	125	2	2 VIBURNUM TRILOBUM - AMERICAN HIGHBUSH CRANBERRY
92	135	2	2 LINDERA BENZON - SPICEBUSH
94	115	2	2 LINDERA BENZON - SPICEBUSH

1. RG # REFERS TO PROPOSED LOT NUMBER FOR LOCATION  
2. TYP: 100 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS

**ON-LOT RAIN GARDEN - DESIGN ELEVATION CHART**

RG FACILITY #	MAX WSEL	ESD WSEL A	TOP MULCH B	BOTTOM PLANT SOIL C	INV STONE D	SURFACE AREA SF
87	303.83	303.00	300.00	299.75	298.42	150
91	305.83	305.00	300.00	300.75	300.42	125
92	307.83	307.00	300.00	303.75	302.42	135
94	303.83	303.00	300.00	299.75	298.42	115



**ONLOT RAIN GARDEN PLANTING SCHEDULE**

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
9	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	5 GALLON	CONT
9	LINDERA BENZON	3 GALLON	CONT

TYP: 100 SF X 75% X .0229 STEMS PER SQUARE FOOT = 2 PLANTS  
FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH



Deer Springs HCEA Project No. 12324A  
Deer Springs HCEA Project No. 12324A

**Table 1. Auger Probe Summary**

Boring	Surface Elevation	Proposed	Boring Depth	At Completion	Water (ft)	Cave-In (ft)
SWM-1	304	14	14	Dry	8.0	
SWM-1A	309	15	15	Dry	8.0	
SWM-2	304	18	18	Dry	8.5	
SWM-3	302	17	17	Dry	8.4	
SWM-4	304	19	19	Dry		
SWM-5	280	11	11	Dry	5.3	
SWM-6	282	5	5	Dry	2.6	
SWM-7	276	11.5	11.5	Dry	7.0	
SWM-8	272	11.5	11.5	Dry	7.0	
SWM-9	273	13	14	Dry	8.0	
SWM-10	277	11	11	Dry	7.3	
SWM-10.5	288	5	5	Dry	2.5	
SWM-11	282	13	13	Dry	7.0	
SWM-12	308.5	23.5	24.5	Dry	13.3	
SWM-13	310	21	21	Dry	13.6	
SWM-14	298	18	18	Dry	11.3	
SWM-15	298	13	13	Dry	9.0	
SWM-16	292	16	16	Dry	12.0	
SWM-17	302	9	9	Dry	4.4	
SWM-18	303	15	15	Dry	10.0	
SWM-19	304	9	9	Dry	4.8	
SWM-20	312	13	13	Dry	7.8	
SWM-21	313	13	13	Dry	8.0	
SWM-22	308	12.5	12.5	Dry	10.0	
SWM-23	301	14	14	Dry	10.0	
SWM-24	280.5	11	11	Dry	6.8	
SWM-25	290.5	16.5	16.5	Dry	11.0	
SWM-26	291.5	16.5	16.5	Dry	12.5	
SWM-27	297	12	13	Dry	7.0	
SWM-28	307	14	14	Dry	9.0	
SWM-29	308	13	13	Dry	10.0	
SWM-30	312	13	13	Dry	12.5	
SWM-31	314	12	12	Dry	8.7	
SWM-32	317.5	12.5	12	Dry	8.3	
SWM-33	323	17.5	17.5	Dry	13.0	
SWM-34	326	16	16	Dry	11.0	
SWM-35	321	15	15	Dry	11.3	
SWM-36	330	18	18	Dry	12.0	

**STORMWATER MANAGEMENT TEST PIT DATA**

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Approved: *John Selman* DATE: 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Approved: *Chad Ewald* DATE: 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION H&P

Approved: *Kate Sladovich* DATE: 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT

**DEER SPRINGS - SECTION TWO - ESDv COMPUTATIONS**

Site Computations: Rv = 0.2887, A = 36.94 Acres, ESDv = 61940 cuft, Pe = 1.6 inches

Rv=0.05+0.009Xl  
 Vmin=1.0" rainfall  
 Vmax=1yr rainfall=2.6"

DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.6" VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	REMARKS
<b>NORTH AREA # 1 - Pe = 1.6" Provided</b>												
2	19.67	0.2270	22215	0.51	420	1093	673	717	4370	0.10	0.41	NON-STRUCTURAL, MICROSCALE & BIO SWALE
2A	51.12	0.5101	14079	0.32	598	1556	1063	7197	0.17	0.16	NON-STRUCTURAL, ALT SURFACE, & MICRO-BIO RETENTI	
3	70.75	0.6868	10900	0.25	624	1622	998	998	7112	0.18	0.07	NON-STRUCTURAL, ALT SURFACE, & MICRO-BIO RETENTI
4	34.97	0.3647	40520	0.93	1232	3202	1971	2197	14170	0.33	0.60	NON-STRUCTURAL, ALT SURFACE, MICRO SCALE, & MICRO
5	75.31	0.7278	9800	0.22	594	1545	951	966	7380	0.17	0.06	ALT SURFACE, & MICRO-BIO RETENTION
6	45.87	0.4629	11800	0.27	455	1183	728	800	5413	0.12	0.15	NON-STRUCTURAL, ALT SURFACE & MICRO-BIO RETENTI
7	35.10	0.3659	35870	0.82	1094	2844	1750	1838	12592	0.29	0.53	NON-STR. & MICRO-SCALE PRAC., ALT SURFACE & MICRO-BIO RET
8	62.07	0.6086	29600	0.68	1501	3903	2402	2466	18372	0.42	0.26	NON-STR, ALT SURFACE, & MICRO-BIO RETENTION
T 4	51.86	0.5168	22000	0.51	947	2463	1516	1550	11410	0.26	0.24	NON-STRUCTURAL & MICRO-BIO RETENTION
T 5	68.39	0.6655	14300	0.33	793	2062	1269	1358	9780	0.22	0.10	NON-STRUCTURAL, ALT SURFACE, & MICRO-BIO RETENTI
46.6	0.4695	211084	4.85	8259	21474	13215	13953	98396	2.26	2.59		

**NORTH AREA # 1 - MIN Pe = 1.00" Provided (Underdrain / Outfall Flows Toward Subarea 12)**

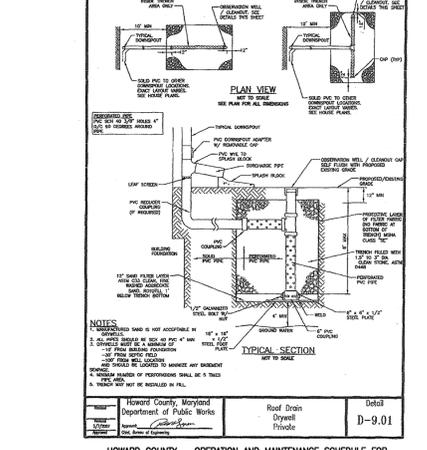
DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.6" VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	REMARKS
1	47.71	0.4794	14510	0.33	580	1507	927	591	6923	0.16	0.17	NON-STRUCTURAL, MICRO SCALE, ALT SURFACE & MICRO
1A	59.80	0.5882	7062	0.16	346	900	554	601	4223	0.10	0.07	NON-STRUCTURAL, ALT SURFACE, & MICRO-BIO RETENTI
T 2	77.77	0.7499	16330	0.37	1021	2653	1633	1211	12700	0.29	0.08	NON-STRUCTURAL, ALT SURFACE
T 3	66.80	0.6512	10000	0.23	543	1411	868	566	6680	0.15	0.08	ALT SURFACE, & MICRO-BIO RETENTION
T 6	72.41	0.7017	7575	0.17	443	1152	709	739	5485	0.13	0.05	ALT SURFACE
T 7	72.57	0.7031	7660	0.18	449	1167	718	739	5559	0.13	0.05	ALT SURFACE
T 8	80.25	0.7723	4360	0.10	281	730	449	506	3499	0.08	0.02	ALT SURFACE
T 9	93.31	0.8898	3230	0.07	240	623	383	337	3014	0.07	0.00	ALT SURFACE
12	21.99	0.2479	51230	1.18	1058	2752	1694	4007	11267	0.26	0.92	Pe = 1.6" provided
48.7	0.4880	121957	2.80	4959	12894	7935	9297	59350	1.36	1.44		

**NORTH AREA # 1 - REQUIRED Pe = 1.6" Provided (Underdrains / Outfall Flows Freely)**

DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.6" VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	REMARKS
T 1	28.28	0.3045	14850	0.34	377	980	603	750	4200	0.10	0.24	NON-STRUCTURAL & BIO SWALE
68	28.88	0.3099	5665	0.13	146	380	234	241	1636	0.04	0.09	NON-STR, MICROSCALE PRACTICES
71	26.60	0.2894	6150	0.14	148	386	237	238	1636	0.04	0.10	NON-STR, MICROSCALE PRACTICES
72	32.00	0.3380	5425	0.12	153	397	244	250	1736	0.04	0.08	NON-STR, MICROSCALE PRACTICES
75	28.57	0.3071	3150	0.07	81	210	129	131	900	0.02	0.05	NON-STR, MICROSCALE PRACTICES
88	26.84	0.2916	12000	0.28	292	758	467	487	3221	0.07	0.20	NON-STR, MICROSCALE PRACTICES
10	26.65	0.2898	37300	0.86	901	2342	1441	1448	9940	0.23	0.63	NON-STR, ALT SURFACE, MICROSCALE PRACTICES
27.5	0.2977	84540	1.94	2097	5453	3356	3545	23269	0.53	1.41		

**NORTH TOTALS**

% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.6" VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA
43.3	0.4401	417581	9.59	15316	39822	24506	26795	181015	4.16	5.43



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 GRAVEL MEDIA. IF WATER PONDING FOR MORE THAN 48 HOURS AFTER A MAJOR STORM OR MORE THAN SIX INCHES OF SEDIMENT HAS ACCUMULATED, THE GRAVEL MEDIA SHOULD BE EXCAVATED AND REPLACED.

**ON-LOT DRYWELL - DESIGN ELEVATION CHART**

SWM DA	DW LOT #	NUMBER	PROP GRADE	TOP STONE	INV STONE	SURFACE FT	STONE FT	DEPTH FT
LOT 63	69 F	1	331.00	330.00	326.00	6.0X6.0	4	
F14-022	69 R	1	333.00	332.00	328.00	6.0X6.0	4	
LOT 68	74 F	1	329.50	328.50	324.50	8.0X8.0	4	
F14-022	88 R	1	293.00	292.00	287.00	8.0X8.0	5	
	88 R	1	295.00	294.00	289.00	8.0X8.0	5	
	89 R	1	295.00	294.00	289.00	8.0X8.0	5	
	89 R	1	298.00	297.00	292.00	8.0X8.0	5	
	90 R	1	298.50	297.50	292.50	8.0X8.0	5	
	90 R	1	302.50	301.50	296.50	8.0X8.0	5	
	93 R	1	302.00	301.00	296.00	8.0X8.0	5	
	93 R	1	304.00	303.00	298.00	8.0X8.0	5	
G3	94 F	1	304.50	303.50	300.50	8.0X8.0	3	
	94 R	1	308.20	307.20	304.20	8.0X8.0	3	
"75"	95 R	1	309.00	308.00	304.00	8.5X8.5	4	
	95 R	1	309.90	308.90	304.90	8.0X8.0	4	

R= REAR OF LOT  
F= FRONT OF LOT

**OPERATION AND MAINTENANCE SCHEDULE FOR RAIN GARDEN AREAS**

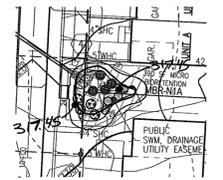
- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE BEFORE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VE

MBR #N1 - PLANTING DETAIL:



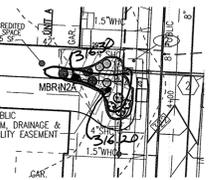
MICRO-BIORETENTION #N1 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
4	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
4	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
295 SF X 75% X .0229 STEMS PER SQUARE FOOT = 6 PLANTS REQUIRED 6 PROVIDED			

MBR #N1A - PLANTING DETAIL:



MICRO-BIORETENTION #N1A PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
4	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
4	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
50	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
390 SF X 75% X .0229 STEMS PER SQUARE FOOT = 7 PLANTS REQUIRED 7 PROVIDED			

MBR #N2A - PLANTING DETAIL:



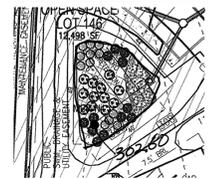
MICRO-BIORETENTION #N2A PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
4	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
4	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
50	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
410 SF X 75% X .0229 STEMS PER SQUARE FOOT = 7 PLANTS REQUIRED 7 PROVIDED			

MBR #N3 - PLANTING DETAIL:



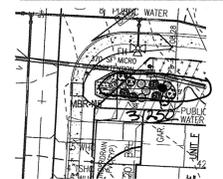
MICRO-BIORETENTION #N3 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
6	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
6	ILEX GLABRA INKBERRY	3 GALLON	CONT
6	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
50	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
570 SF X 75% X .0229 STEMS PER SQUARE FOOT = 10 PLANTS REQUIRED 10 PROVIDED			

MBR #N4 - PLANTING DETAIL:



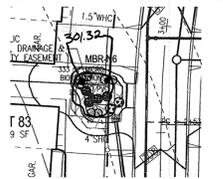
MICRO-BIORETENTION #N4 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
12	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
12	ILEX GLABRA INKBERRY	3 GALLON	CONT
12	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
250	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
1300 SF X 75% X .0229 STEMS PER SQUARE FOOT = 23 PLANTS REQUIRED 23 PROVIDED			

MBR #N5 - PLANTING DETAIL:



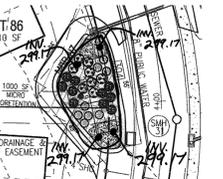
MICRO-BIORETENTION #N5 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
4	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
4	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
100	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
370 SF X 75% X .0229 STEMS PER SQUARE FOOT = 7 PLANTS REQUIRED 8 PROVIDED			

MBR #N6 - PLANTING DETAIL:



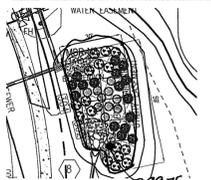
MICRO-BIORETENTION #N6 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
4	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
4	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
333 SF X 75% X .0229 STEMS PER SQUARE FOOT = 6 PLANTS REQUIRED 6 PROVIDED			

MBR #N7 - PLANTING DETAIL:



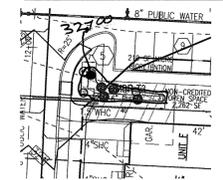
MICRO-BIORETENTION #N7 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
8	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
8	ILEX GLABRA INKBERRY	3 GALLON	CONT
10	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
250	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
1000 SF X 75% X .0229 STEMS PER SQUARE FOOT = 18 PLANTS REQUIRED 18 PROVIDED			

MBR #N8 - PLANTING DETAIL:



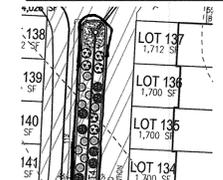
MICRO-BIORETENTION #N8 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
16	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
10	ILEX GLABRA INKBERRY	3 GALLON	CONT
16	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
250	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
1490 SF X 75% X .0229 STEMS PER SQUARE FOOT = 26 PLANTS REQUIRED 26 PROVIDED			

MBR #T3 - PLANTING DETAIL:



MICRO-BIORETENTION #T3 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
2	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
210 SF X 75% X .0229 STEMS PER SQUARE FOOT = 4 PLANTS REQUIRED 4 PROVIDED			

MBR #T4 - PLANTING DETAIL:



MICRO-BIORETENTION #T4 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
10	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
10	ILEX GLABRA INKBERRY	3 GALLON	CONT
10	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
200	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
1100 SF X 75% X .0229 STEMS PER SQUARE FOOT = 19 PLANTS REQUIRED 19 PROVIDED			

MBR #T5 - PLANTING DETAIL:



MICRO-BIORETENTION #T5 PLANTING SCHEDULE			
QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
6	VIBURNUM TRILOBUM AMERICAN Highbush Cranberry	5 GALLON	CONT
6	ILEX GLABRA INKBERRY	3 GALLON	CONT
6	SPICEBUSH LINDERA BENZON	3 GALLON	CONT
50	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT 1' O.C.	
550 SF X 75% X .0229 STEMS PER SQUARE FOOT = 10 PLANTS REQUIRED 10 PROVIDED			

"MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAS SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDV SUMMARY.
- FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH

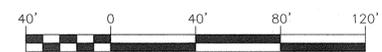
APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Holger Slevans* 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chad Chubb* 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Karl Stalinski* 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



AS-BUILT CERTIFICATION:  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.  
 R.H.V. 16193 7-18-14  
 P.E. # DATE



OWNER: KATHY MIESSE, PERSONAL REPRESENTATIVE, ESTATE OF ARTHUR P. KRAESKI, 9222 OLD SCAGGSVILLE ROAD, LAUREL, MD 20723-1730, ATTN: MR. DONALD R. REUWER, 443-367-0422

DEVELOPER: LAND DESIGN & DEVELOPMENT, INC., 5300 DORSEY HALL DRIVE, SUITE 102, ELLICOTT CITY, MARYLAND 21042-7819, ATTN: MR. DONALD R. REUWER, 443-367-0422

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN  
 MICRO-BIORETENTION - PLANTING DETAILS  
**HIGH RIDGE MEADOWS-SECTION 2**  
 LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147  
 A RESUBDIVISION OF  
 DEER SPRINGS - SECTION ONE, NON-BUILDABLE BULK PARCEL "B"

6TH ELECTION DISTRICT  
 TAX MAP: 50 GRID: 1  
 DPZ REF: F-10-065, WP-10-067, ECP-12-047, WP-13-060, SP-13-007, F-14-022

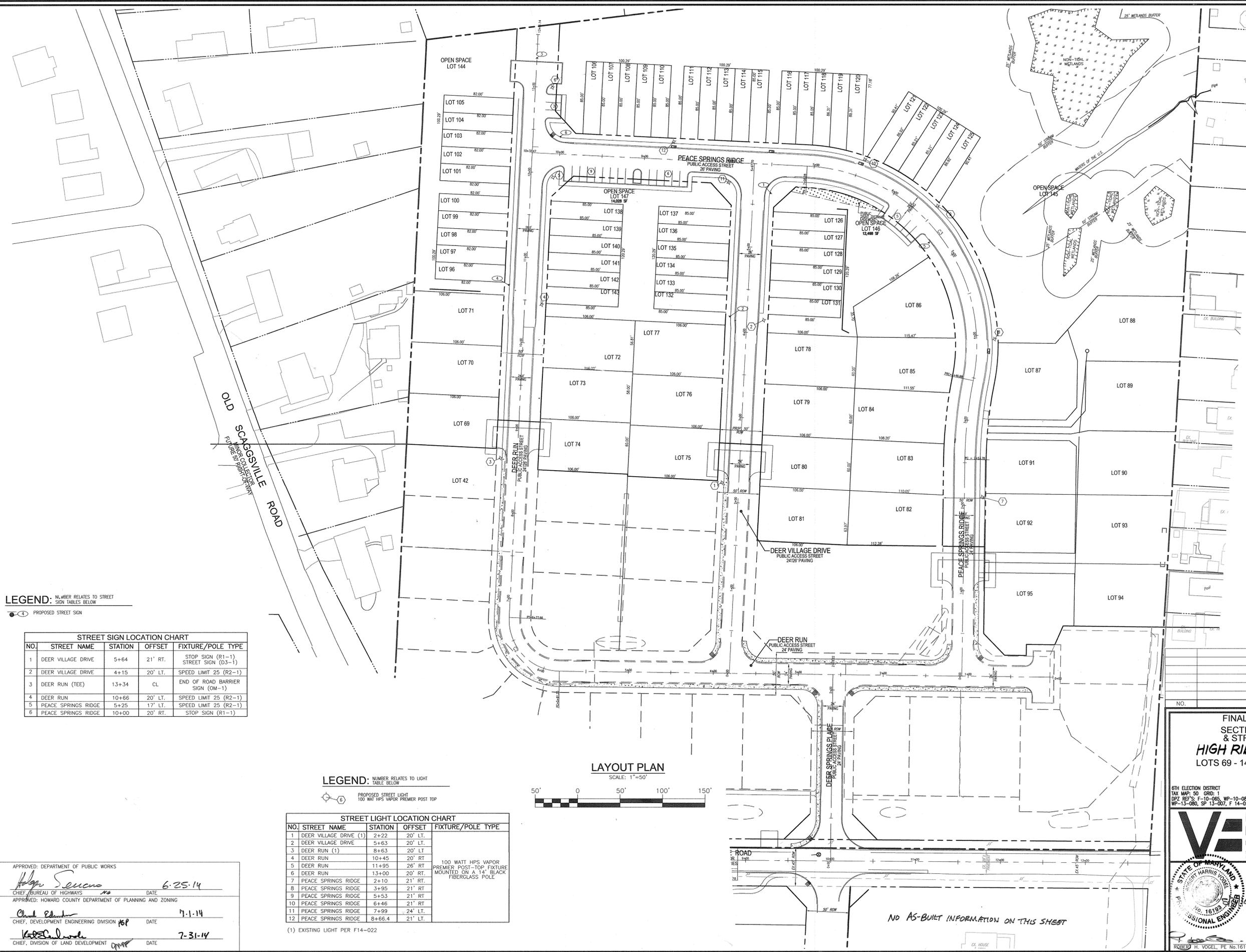
ZONED: R-5C  
 PARCELS: 363 & 542  
 HOWARD COUNTY, MARYLAND

**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 DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2014

DESIGN BY: RHY / EDS  
 DRAWN BY: RVE / EDS  
 CHECKED BY: RHY  
 DATE: MAY 2014  
 SCALE: AS SHOWN  
 W.O. NO.: 11-28

19 SHEET OF 20



- NOTES:**
- TRAFFIC CONTROL DEVICES:
    - THE R1-1 (STOP) SIGNS AND STREET NAME SIGN (SNS) ASSEMBLIES FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETE.
    - THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2450) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
    - ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUMUCD).
    - ALL SIGN POST 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 THE TOP OF EACH FOOT.
  - STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME II (2006), SECTION 5.5.A. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.



**AS-BUILT CERTIFICATION**  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 10/13/14  
 P.E. # 16193

**OWNER**  
 KATHY MIESSE, PERSONAL REPRESENTATIVE,  
 ESTATE OF ARTHUR P. KRAESKI  
 9222 OLD SCAGSVILLE ROAD  
 LAUREL, MD 20723-1730  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

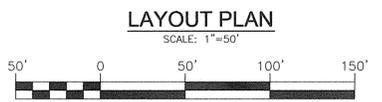
**DEVELOPER**  
 LAND DESIGN & DEVELOPMENT, INC.  
 3300 DORSEY HALL DRIVE, STE 102  
 ELLICOTT CITY, MARYLAND 21042-7819  
 ATTN: MR. DONALD R. REUWER  
 443-367-0422

**LEGEND:** NUMBER RELATES TO STREET SIGN TABLES BELOW

STREET SIGN LOCATION CHART				
NO.	STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
1	DEER VILLAGE DRIVE	5+64	21' RT.	STOP SIGN (R1-1) STREET SIGN (D3-1)
2	DEER VILLAGE DRIVE	4+15	20' LT.	SPEED LIMIT 25 (R2-1)
3	DEER RUN (TEE)	13+34	CL	END OF ROAD BARRIER SIGN (OM-1)
4	DEER RUN	10+66	20' LT.	SPEED LIMIT 25 (R2-1)
5	PEACE SPRINGS RIDGE	5+25	17' LT.	SPEED LIMIT 25 (R2-1)
6	PEACE SPRINGS RIDGE	10+00	20' RT.	STOP SIGN (R1-1)

**LEGEND:** NUMBER RELATES TO LIGHT TABLE BELOW

STREET LIGHT LOCATION CHART				
NO.	STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
1	DEER VILLAGE DRIVE (1)	2+22	20' LT.	100 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE
2	DEER VILLAGE DRIVE	5+63	20' LT.	
3	DEER RUN (1)	8+63	20' LT.	
4	DEER RUN	10+45	20' RT.	
5	DEER RUN	11+95	26' RT.	
6	DEER RUN	13+00	20' RT.	
7	PEACE SPRINGS RIDGE	2+10	21' RT.	
8	PEACE SPRINGS RIDGE	3+95	21' RT.	
9	PEACE SPRINGS RIDGE	5+53	21' RT.	
10	PEACE SPRINGS RIDGE	6+46	21' RT.	
11	PEACE SPRINGS RIDGE	7+99	24' LT.	
12	PEACE SPRINGS RIDGE	8+66.4	21' LT.	



APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Adrian Seneca* 6-25-14  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chad Edwards* 7-1-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*Karl L. Lunde* 7-31-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT

(1) EXISTING LIGHT PER F14-022

NO AS-BUILT INFORMATION ON THIS SHEET

**FINAL ROAD CONSTRUCTION PLAN**  
**SECTION TWO - TRAFFIC SIGNAGE & STREET LIGHT LOCATION PLAN**  
**HIGH RIDGE MEADOWS - SECTION 2**  
 LOTS 69 - 143 AND OPEN SPACE LOTS 144 - 147

6TH ELECTION DISTRICT  
 TAX MAP: 50 GRID: 1  
 DPZ REF'S: F-10-065, WP-10-087, ECP-12-047,  
 WP-13-080, SP-13-007, F-14-022  
 ZONED: R-SC PARCELS: 363 & 542  
 HOWARD COUNTY, MARYLAND

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DESIGN BY: RHY / EDS.  
 DRAWN BY: RVE / EDS.  
 CHECKED BY: RHY  
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PROFESSIONAL CERTIFICATE  
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20 SHEET OF 20