

- GENERAL NOTE CONTINUED:
- IN ACCORDANCE WITH SECTION 110.0.E OF THE ZONING REGULATIONS AT LEAST 10% OF THE DWELLING UNITS SHALL BE MODERATE INCOME HOUSING UNITS (MIHU). THIS DEVELOPMENT PROJECT REQUIRES 1 UNIT AND IS PROPOSING A FEE-IN-LIEU.
 - AS A RESULT OF THE TRAFFIC STUDY IT WAS DETERMINED THAT THE INTERSECTION OF WHISKEY BOTTOM ROAD AND ROUTE 1 WILL REQUIRE THE ADDITION OF FOUR NEW TURN-LANES. THE DEVELOPER MAY ELECT TO PROVIDE FEE-IN-LIEU OF THE IMPACTS TO THE INTERSECTION.
 - DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
 - SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING. (1-1/2" MIN.)
 - GEOMETRY - MAX. 1.5% GRADE, MAX. 10% GRADE CHANGE & MIN. 45° TURNING RADIUS.
 - STRUCTURES/CURBS/BERMS - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD)
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
 - MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
 - THIS PLAN IS SUBJECT TO THE 5TH EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND AMENDED HOWARD COUNTY ZONING REGULATIONS.
 - FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND RIGHT-OF-WAY AND NOT INTO THE PIPESTEM LOT DRIVEWAY.
 - THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 18.127 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS FOR INFILL DEVELOPMENT. THE DEVELOPER OF THIS PROJECT SHALL CREATE COMPATIBILITY WITH THE EXISTING NEIGHBORHOOD THROUGH THE USE OF ENHANCED PERIMETER LANDSCAPING, BERMS, FENCES, SIMILAR HOUSING UNIT TYPES AND THE DIRECTIONAL ORIENTATION OF THE PROPOSED HOUSES.
 - "BRL" INDICATED BUILDING RESTRICTION LINE.
 - UNLESS NOTED "PRIVATE" ALL EASEMENTS SHOWN ON SITE ARE PUBLIC.

FINAL PLAT SUPPLEMENTAL PLAN

KINGS ARMS, SECTION 6

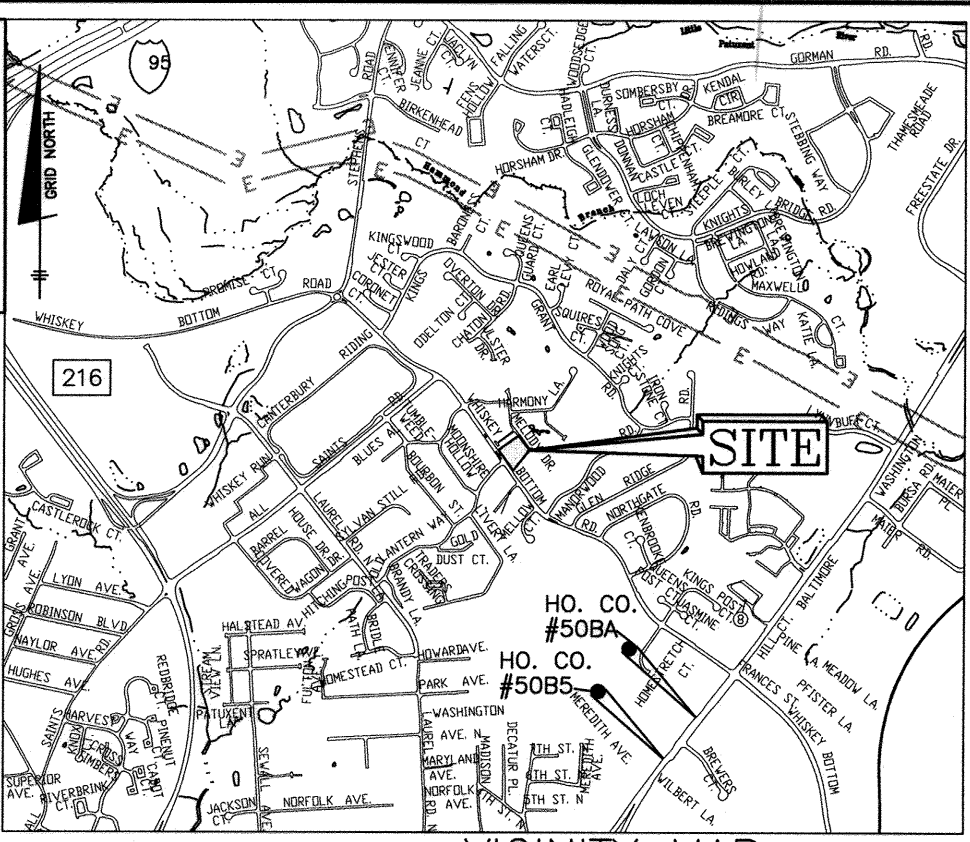
LOTS 1 THRU 5 AND OPEN SPACE LOTS 6 - 8

6TH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

RIGHT OF WAY ELEVATION CHART		
R/W PT. NO.	DESCRIPTION	ELEVATION
120	REBAR & CAP	299.72'
10E	REBAR & CAP	290.82'

BENCH MARKS-(NAD'83)		
HO. CO. #508A	EL. 178.242	
STANDARD DISC ON CONC. MONUMENT		
N 527561.6702	E 1359725.5936	
HO. CO. #5085	EL. 178.242	
STANDARD DISC ON CONC. MONUMENT		
N 524999.3640	E 1359725.6751	



AS-BUILT NOTES:

- HORIZONTAL DATA FOR THIS AS-BUILT IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM (NAD 83) ADJUSTED AS PROJECTED FROM HO. CO. GEODETIC CONTROL STATIONS 508A AND 5085. VERTICAL DATUM FOR THIS AS-BUILT IS NORTH AMERICAN VERTICAL DATUM (NVD 29) AS PROJECTED FROM THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATIONS.
- THE INSTRUMENTS USED IN PERFORMING THE AS-BUILT WERE A 5" TOTAL STATION AND PRISM AND RTK GPS.
- THIS AS-BUILT WAS PERFORMED BY BENCHMARK ENGINEERING, INC.

GENERAL NOTES

- SUBJECT PROPERTY ZONED R-SC PER THE 10-6-13 COMPREHENSIVE ZONING PLAN AND SPECIFICATIONS IF APPLICABLE.
- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY 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.
- EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN SURVEY PREPARED BY BENCHMARK ENGINEERING, INC. DATED AUGUST 2015 AND HOWARD COUNTY 2008 GIS AND ARE 2' INTERVALS.
- 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. 508A AND 5085 WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC TIED TO CONTRACT NUMBER 14-4723-D, DRAINAGE AREA IS PATAPSCO.
- SEWER IS PUBLIC TIED TO CONTRACT NUMBER 14-4723-D, DRAINAGE AREA IS PATAPSCO.
- STORMWATER MANAGEMENT FOR THIS SITE WILL BE A MICRO-BIORETENTION FACILITY(M-6) AND A GRASS SWALE(M-8) AND DRYWELLS(M-5). THE DRYWELLS WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER. THE MICRO-BIORETENTION FACILITY AND GRASS SWALE WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOA.
- THE EXISTING UTILITIES ARE BASED ON FIELD RUN TOPOGRAPHY, HOWARD COUNTY GIS AND HOWARD COUNTY CONTRACT DRAWINGS.
- THERE ARE NO FLOODPLAINS ON THE PROPERTY.
- A FOREST STAND DELINEATION WAS PREPARED BY BENCHMARK ENGINEERING, INC. DATED AUGUST 2015 AND APPROVED UNDER S-16-003.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED MAY 2014 AND APPROVED UNDER S-16-003 DATED MARCH 1, 2016.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN STREAMS, FLOODPLAIN, WETLANDS OR THEIR REQUIRED BUFFERS.
- THERE ARE NO ON SITE STEEP SLOPES.
- TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES LOCATED IN THE DEVELOPMENT AREA.
- THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GEOTECHNICAL LABORATORIES DATED JUNE 2016.
- THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- ALL LANDSCAPING REQUIREMENTS SHALL BE FILLED IN ACCORDANCE WITH THE HOWARD COUNTY CODE, SECTION 16.124 AND THE AFFORRESTATION OBLIGATIONS ARE SLIGHTLY LESS THAN THE MINIMUM FOREST CONSERVATION EASEMENT AREA OF 10,000 SF (0.23 AC.) THE MINIMUM WAS PROVIDED, SURETY IN THE AMOUNT OF \$4,574.00 WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.
- THE FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT WILL BE MET BY THE ON-SITE AFFORESTATION OF 0.21 ACRES. SINCE THE AFFORRESTATION OBLIGATIONS ARE SLIGHTLY LESS THAN THE MINIMUM FOREST CONSERVATION EASEMENT AREA OF 10,000 SF (0.23 AC.) THE MINIMUM WAS PROVIDED, SURETY IN THE AMOUNT OF \$4,574.00 WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.
- PREVIOUS DPZ FILES: ECP-16-021, S-16-003, WP-16-120
- A PRE-SUBMISSION COMMUNITY MEETING FOR THIS PROJECT WAS HELD ON AUGUST 24, 2015 AT 6:00 AT THE NORTH LAUREL COMMUNITY CENTER IN ACCORDANCE WITH SECTION 16.128 AND 16.147(b)(1) OF THE SUBDIVISION REGULATIONS.
- THE PLAN DOES NOT REQUIRE PRESENTATION TO THE HISTORIC DISTRICT COMMISSION FOR PLANNING AND ZONING. THERE ARE NO STRUCTURES ON THIS SITE. THE ON SITE WELL WAS PROPERLY ABANDONED ON NOVEMBER 27, 2015.
- OPEN SPACE LOT 8 TO BE OWNED AND MAINTAINED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. OPEN SPACE LOTS 6 & 7 TO BE OWNED AND MAINTAINED BY THE HOA.
- TRAFFIC CONTROL DEVICES:
 - THE R1-1 (STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
 - 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.
 - ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED SQUARE TUBE POSTED (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 HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THE PROPOSED LOT SIZES ARE BASED ON SECTION 16.121(a)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- THIS PLAN IS SUBJECT TO WAIVER PETITION WP-16-120 APPROVED APRIL 26, 2016 TO WAIVE SECTION 16.144(g) WHICH REQUIRED A PRELIMINARY PLAN SUBMISSION AND SECTION 16.1205(c) WHICH REQUIRES RETENTION OF TREES WITH A 30" DIAMETER OR GREATER/SPECIMEN TREES. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
 - THE FINAL PLAN MUST BE SUBMITTED FOR ALL OF THE DEVELOPMENT APPROVED ON THE SKETCH PLAN WITHIN 4 MONTHS FROM THE DATE OF THE SKETCH PLAN APPROVAL AS NOTED IN DPZ LETTER DATED MARCH 11, 2016 (ON OR BEFORE JULY 1, 2016). IF THE FINAL PLAN IS NOT RECEIVED BY THAT ESTABLISHED MILESTONE DATE, YOUR PLAN APPROVAL WILL BECOME NULL AND VOID AND YOUR PROJECT WILL LOSE ITS TENTATIVE HOUSING UNIT ALLOCATIONS IN ACCORDANCE WITH SECTION 16.144(g) AND/OR (k) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. IF YOU MISS THE ESTABLISHED MILESTONE DATE, ANY PLANS RESUBMITTED MUST BE PROCESSED AS A NEW SKETCH PLAN OR PRELIMINARY EQUIVALENT SKETCH PLAN. YOU WILL BE REQUIRED TO COMPLY WITH ALL PLAN SUBMISSION REQUIREMENTS AND REGULATIONS IN EFFECT AT THE TIME OF THE RE-SUBMISSION.
 - WITH THE SUBMISSION OF THE FINAL SUBMISSION PLAN, THE LANDSCAPE PLAN SHOULD BE DESIGNED TO INCLUDE TWO(2) ADDITIONAL SHADE TREES (OR THEIR EQUIVALENT) TO MITIGATE THE REMOVAL OF THE SPECIMEN TREE. THESE REPLACEMENT TREES ARE TO BE IN ADDITION TO THE REQUIRED PERIMETER LANDSCAPE PLANTINGS. THESE TREES SHOULD BE STRATEGICALLY LOCATED WITHIN THE OPEN SPACE LOT FRONTING OF WHISKEY BOTTOM ROAD TO PROVIDE ADDITIONAL SCREENING AND SHOULD NOT BE LOCATED WITHIN THE RESIDENTIAL LOTS. COMPLIANCE WITH THIS REQUIREMENT WILL BE REVIEWED UNDER THE FINAL LANDSCAPE PLAN.
 - THE FINAL PLAN SUBMISSION SHALL BE IN ACCORDANCE WITH THE ADVISORY COMMENTS FROM THE DEVELOPMENT ENGINEERING DIVISION, DATED APRIL 6, 2016, AND WITH OLD SKETCH PLAN COMMENTS # 6 & 7 DATED JANUARY 28, 2016.
- THIS PROPERTY IS ADJACENT TO MELODY DRIVE AND WHISKEY BOTTOM ROAD WHICH ARE NOT SCENIC ROADS.

LEGEND

SOILS CLASSIFICATION
SOILS DELINEATION
EXISTING CONTOURS
EXISTING WOODS LINE
EXISTING STREET TREE
LIMITS OF DISTURBANCE
PROPOSED CONTOURS
PROPOSED SANITARY MANHOLE
PROPOSED DRYWELL
PROPOSED GRASS SWALE
GABION CHECK DAM
PROPOSED PUBLIC WATER, SEWER & UTILITY EASEMENT
PROPOSED MICRO BIO-RETENTION FACILITY
PROPOSED PRIVATE USE-IN-COMMON ACCESS AND SWM EASEMENT
SPECIMEN TREE TO BE REMOVED
EXISTING FENCELINE
PROP. 5' CONC. SIDEWALK
PROP. FOREST CONSERVATION EASEMENT

STORMWATER MANAGEMENT PRACTICES					
LOT NUMBER	ADDRESS	NON-ROOFTOP DISCONNECT (NUMBER)	DRYWELLS M-5 (NUMBER)	MICRO-RETENTION M-6 (NUMBER)	GRASS SWALE M-8 (NUMBER)
1	9010 MELODY DRIVE	1	2	0	1
2	9014 MELODY DRIVE	0	2	1	0
3	9018 MELODY DRIVE	0	2	1	1
4	9022 MELODY DRIVE	0	0	0	0
5	9028 MELODY DRIVE	1	0	0	1
7	HOA OPEN SPACE	0	0	1	0

PROJECT BACKGROUND INFORMATION

PRESENT ZONING: R-SC
LOCATION: TAX MAP 47 - GRID 22 - P/O PARCEL 174
APPLICABLE DPZ FILE REFERENCES: PLAT-N/A
DEED REFERENCES: L 16044 / F 00404
DPZ FILE REFERENCES: ECP-16-021, S-16-003, WP-16-120
PROPOSED USE OF SITE: SINGLE FAMILY DETACHED
PROPOSED WATER AND SEWER SYSTEMS: PUBLIC WATER & SEWER

SITE DATA TABULATION

- TOTAL PROJECT AREA.....1.37 AC.±
- AREA OF 100-YR FLOODPLAIN.....0.00 AC.
- AREA OF STEEP SLOPES:
 - MODERATE STEEP SLOPES: 15-25.9%.....0.00 AC.
 - STEEP SLOPES: 25% OR GREATER.....0.00 AC.
- AREA OF EXISTING FOREST.....0.00 AC.
- AREA OF ERODIBLE SOILS.....0.00 AC.
- AREA OF WETLANDS (INCLUDING BUFFER).....0.00 AC.
- AREA OF STREAM BUFFER (OUTSIDE WETLANDS & BUFFER).....0.00 AC.
- NET AREA OF SITE(S).....1.37 AC.±
- NUMBER OF LOTS ALLOWED.....5 (4/AC.)
- NUMBER OF RESIDENTIAL LOTS PROPOSED.....5
- AREA OF PLAN SUBMISSION.....1.37 AC.±
- APPROXIMATE LIMIT OF DISTURBANCE.....1.35 AC.±
- PRESENT ZONING DESIGNATION.....R-SC
- PROPOSED USES FOR THE SITE & STRUCTURES.....RESIDENTIAL-SFD
- MINIMUM LOT SIZE.....6,000 SF
- OPEN SPACE REQUIRED (25% OF NET AREA).....0.34 AC.±
- OPEN SPACE PROVIDED (CREDITED).....0.36 AC.± (26.2%)
 - RECREATION AND PARKS.....0.31 AC.±
 - HOA OWNED.....0.05 AC.±
- RECREATIONAL OPEN SPACE REQUIRED.....N/A
(RECREATIONAL OPEN SPACE IS NOT REQUIRED SINCE THERE ARE LESS THAN 10 PROPOSED LOTS)
- AREA OF ROAD DEDICATION.....0.18 AC.±
- NUMBER OF PARKING SPACES REQUIRED.....N/A
- BUILDING COVERAGE AREA (IMPERVIOUS).....N/A
- TOTAL IMPERVIOUS AREA.....0.38 AC.±(28%)

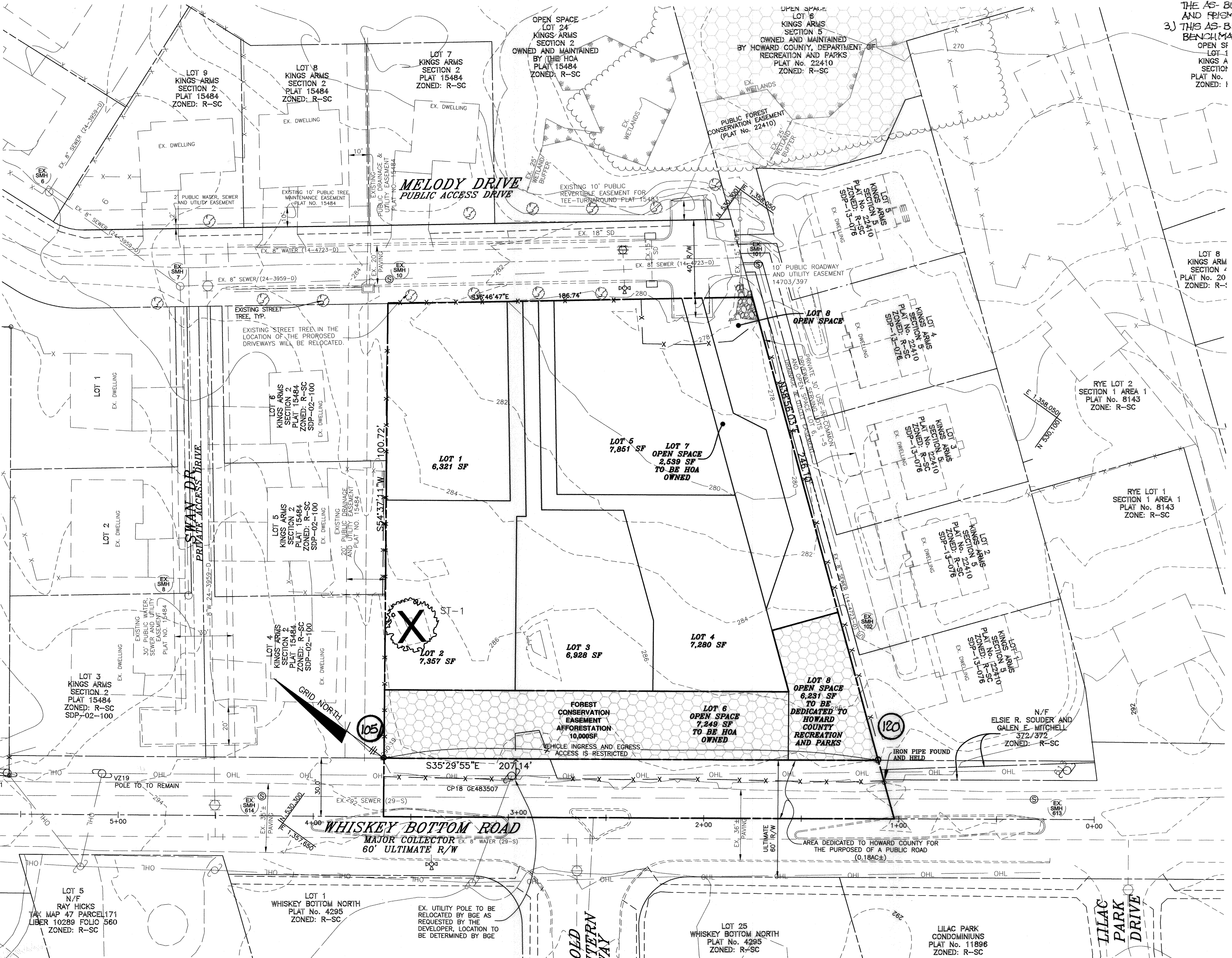
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS *[Signature]* DATE: 3/6/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* DATE: 3-09-17

CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* DATE: 3-8-17



AS-BUILT CERTIFICATION

I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 12-28-2020 License No. 21443 Expiration Date: 12-21-2022

MINIMUM LOT SIZE CHART			
LOT	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
2	7,357	869	6,488
3	6,928	869	6,059
4	7,280	1,130	6,150

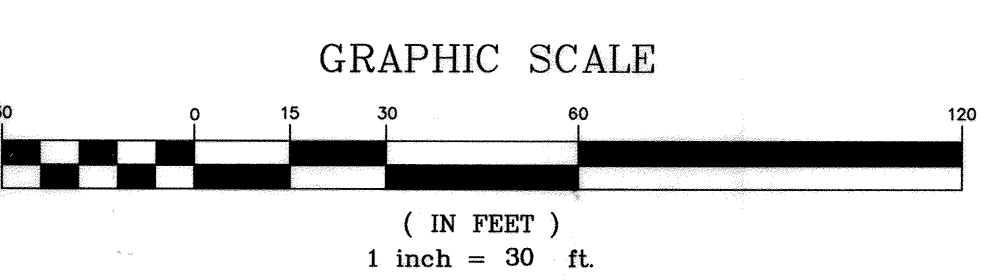
MINIMUM LOT SIZE ALLOWED PER ZONING (SECTION 110.0.D.2): 6,000 SF

Professional Certification

I hereby certify that these documents were prepared, approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 Expiration Date: 12-21-2022

[Signature] DONALD MASON PROFESSIONAL ENGINEER



SHEET INDEX

SHEET	TITLE
1	COVER SHEET
2	LAYOUT PLAN
3	GRADING, SEDIMENT & EROSION CONTROL PLAN
4	GRADING, SEDIMENT & EROSION CONTROL NOTES AND DETAILS
5	DRAINAGE AREA MAP AND DETAILS
6	LANDSCAPE AND FOREST CONSERVATION PLAN AND NOTES

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-8644
WWW.BE-ENGINEERING.COM

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. 21443 Expiration Date: 12-21-2022

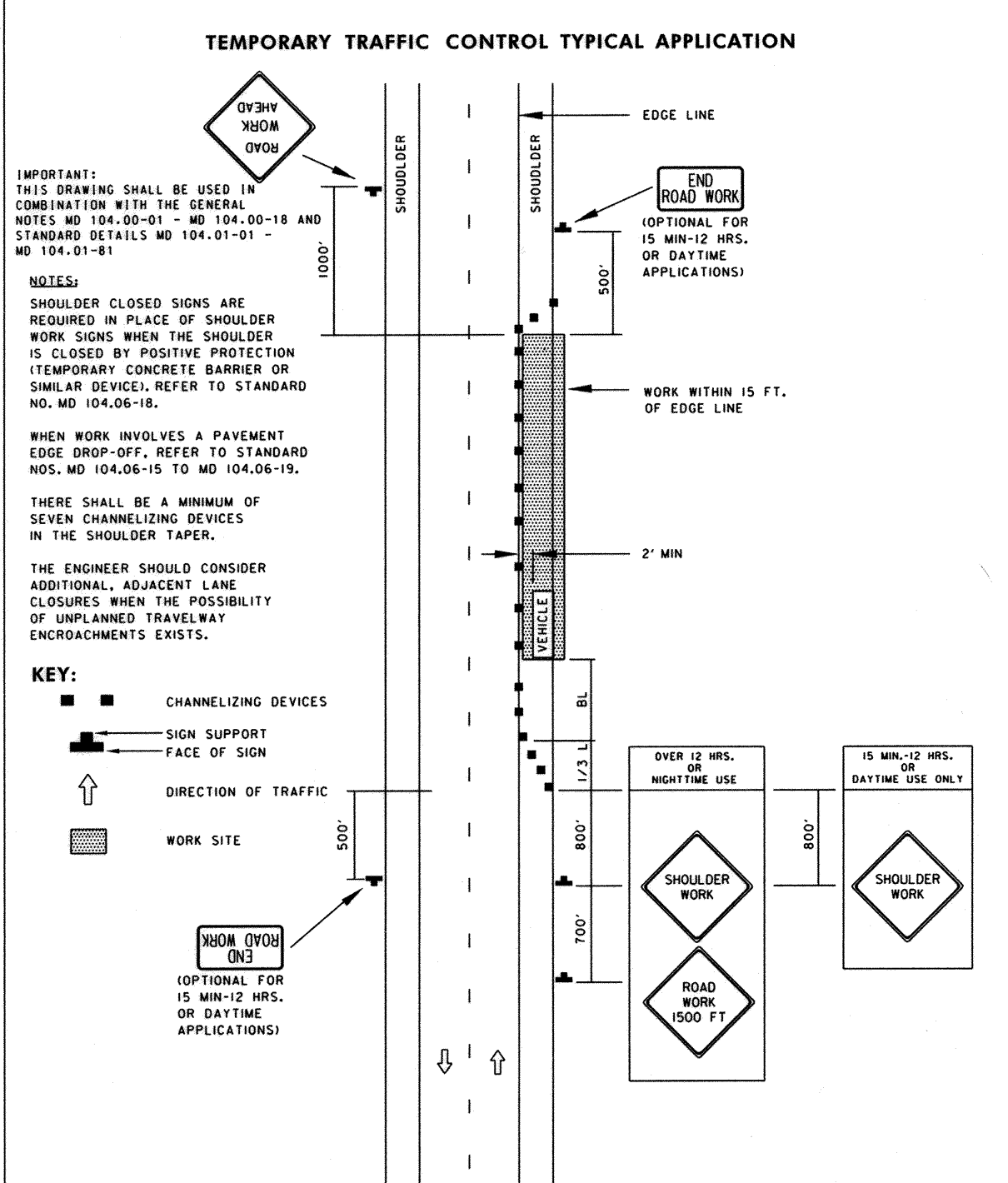
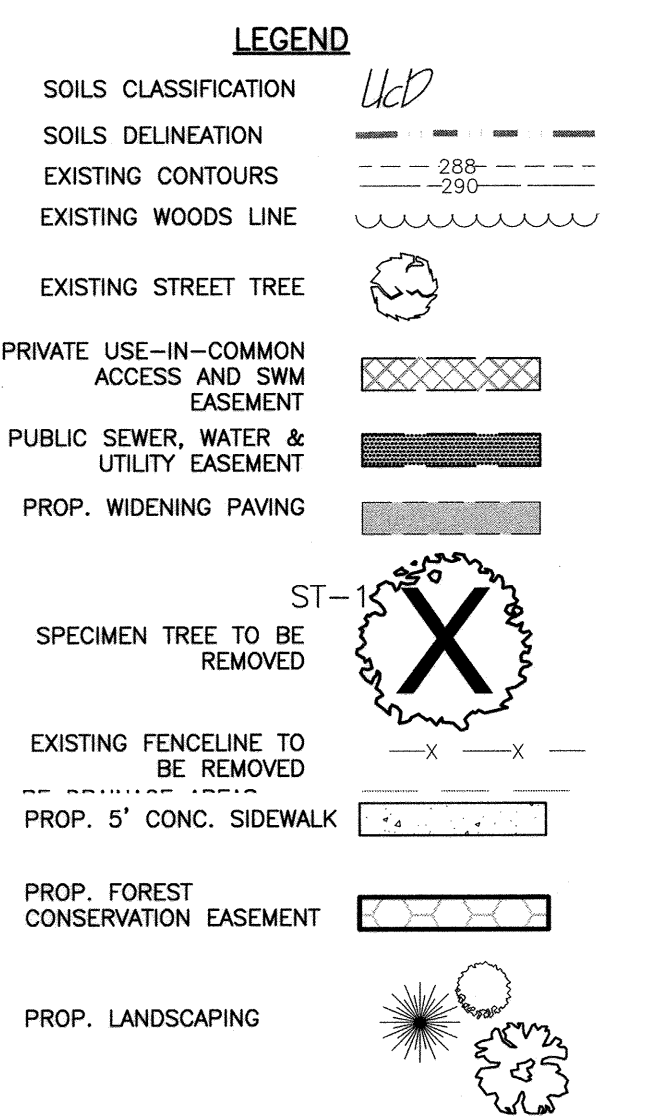
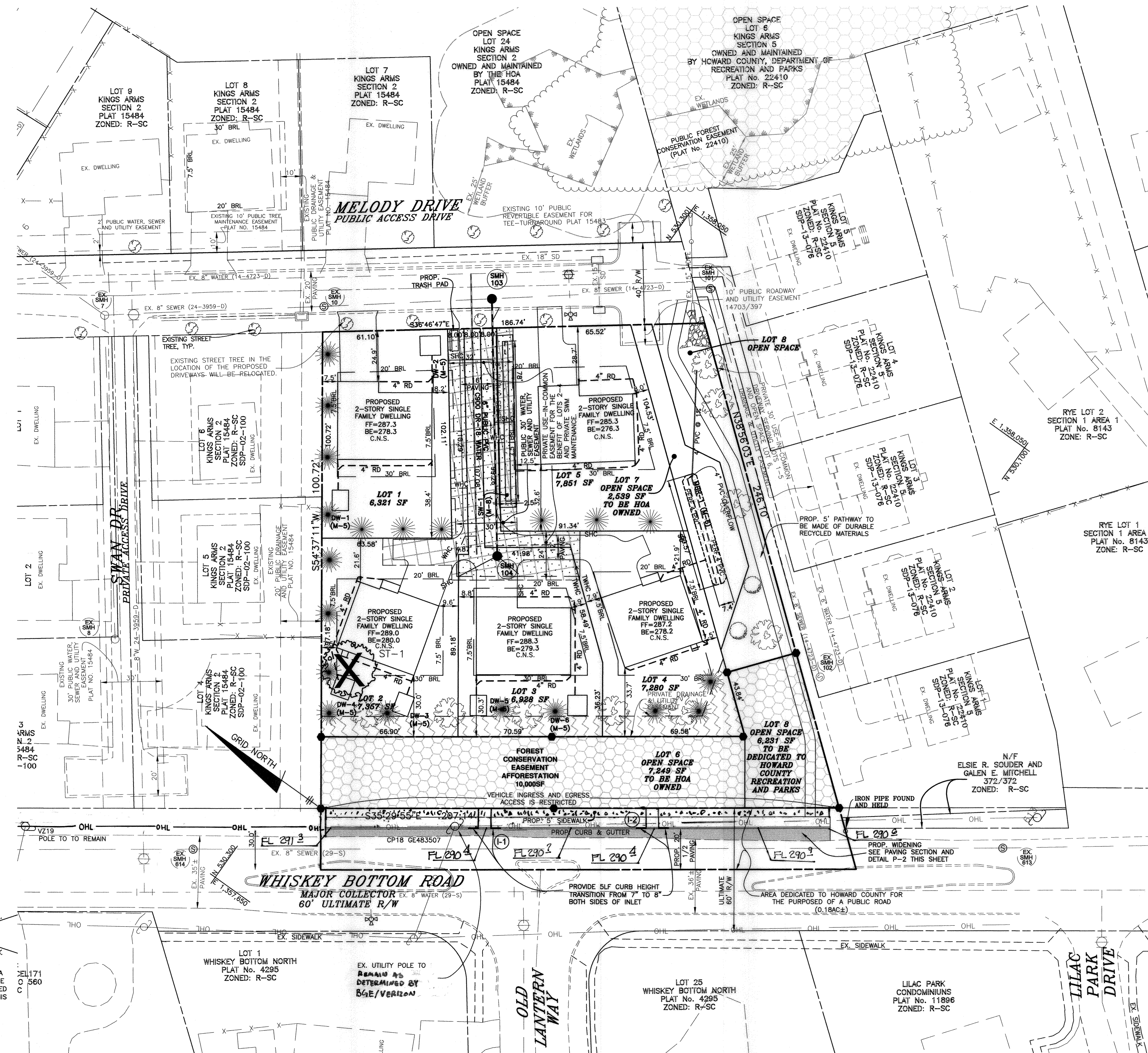
OWNER/DEVELOPER: **KINGS ARMS SECTION 6 LOTS 1-5 AND OPEN SPACE LOTS 6 - 8**

KINGS ARMS 6, LLC
PO BOX 417
ELLICOTT CITY, MARYLAND 21041
410-465-4244

TAX MAP: 47, GRID: 22, PARCEL: 174
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND
DESIGN ZONE: R-SC, DPZ FILE #: ECP-16-021, S-16-003, WP-16-120

FINAL PLAT SUPPLEMENTAL PLAN COVER SHEET

DATE: FEBRUARY 2017 BEI PROJECT NO. 2714
DESIGN: JCO DRAFT: EDD/NAF SCALE: AS SHOWN SHEET 1 OF 6



SPECIFICATION 104	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES SHOULDER WORK/2-LANE, 2-WAY EQL/LESS THAN 40 MPH STANDARD NO. MD 104.02-02
APPROVED	 DIRECTOR • OFFICE OF TRAFFIC AND SAFETY	
APPROVAL	 STATE HIGHWAY	
APPROVAL	 PROFESSIONAL ENGINEER	



NO.	DATE	REVISION
2	11/24/19	RELOCATE SIDEWALK ALONG WHISKEY BOTTOM RD.
1	10/1/17	REMOVE SIDEWALK NORTH OF SITE

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 840 BALTIMORE NATIONAL PIKE SUITE 315 ELICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8844
 WWW.BE-CIVILENGINEERING.COM

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. 21443, Expiration Date: 12-21-2022.

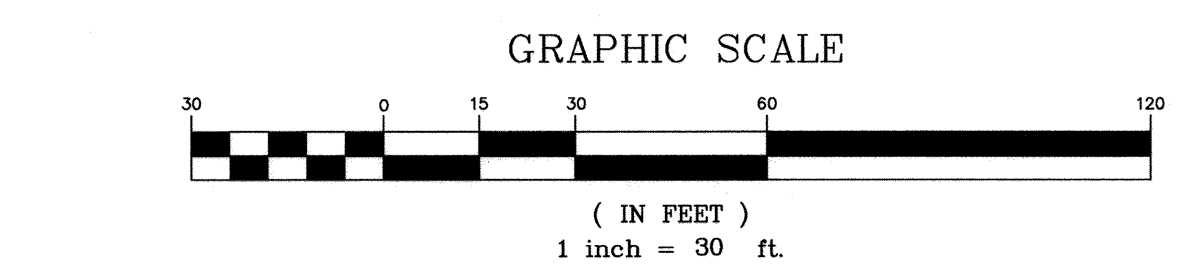
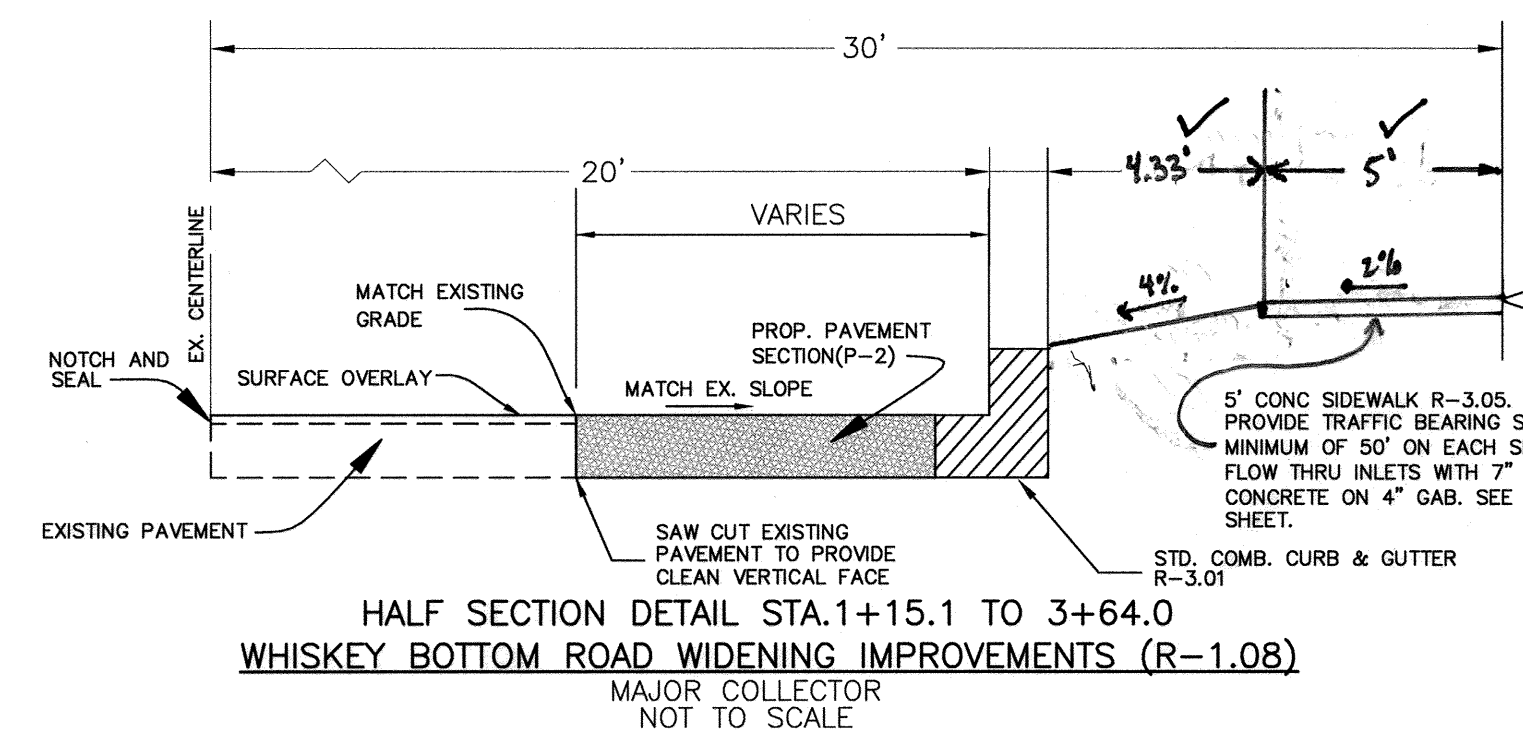
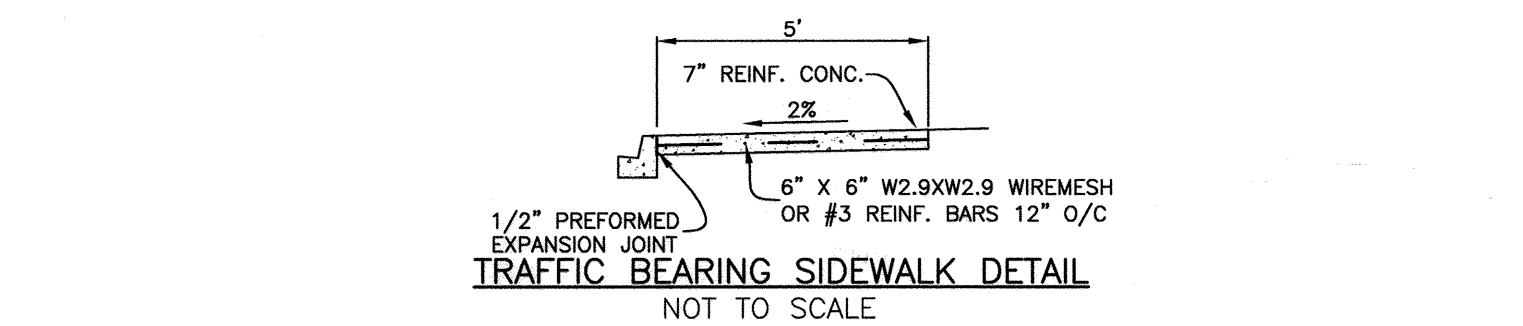
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KINGS ARMS 6, LLC
 PO BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

TAX MAP: 47, GRID: 22, PARCEL: 174
 ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND
 9536 WHISKEY BOTTOM ROAD
 DESIGN ZONE: R-SC, DPZ FILE # EOP-16-021, S-16-003, WP-16-120

FINAL PLAT SUPPLEMENTAL PLAN LAYOUT PLAN

DATE: FEBRUARY 2017
 BEI PROJECT NO. 2714
 DESIGN: JCO DRAFT: EDD/WAF
 SCALE: AS SHOWN SHEET 2 OF 6



APPROVED: DEPARTMENT OF PUBLIC WORKS
 3/6/2017
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 3-09-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

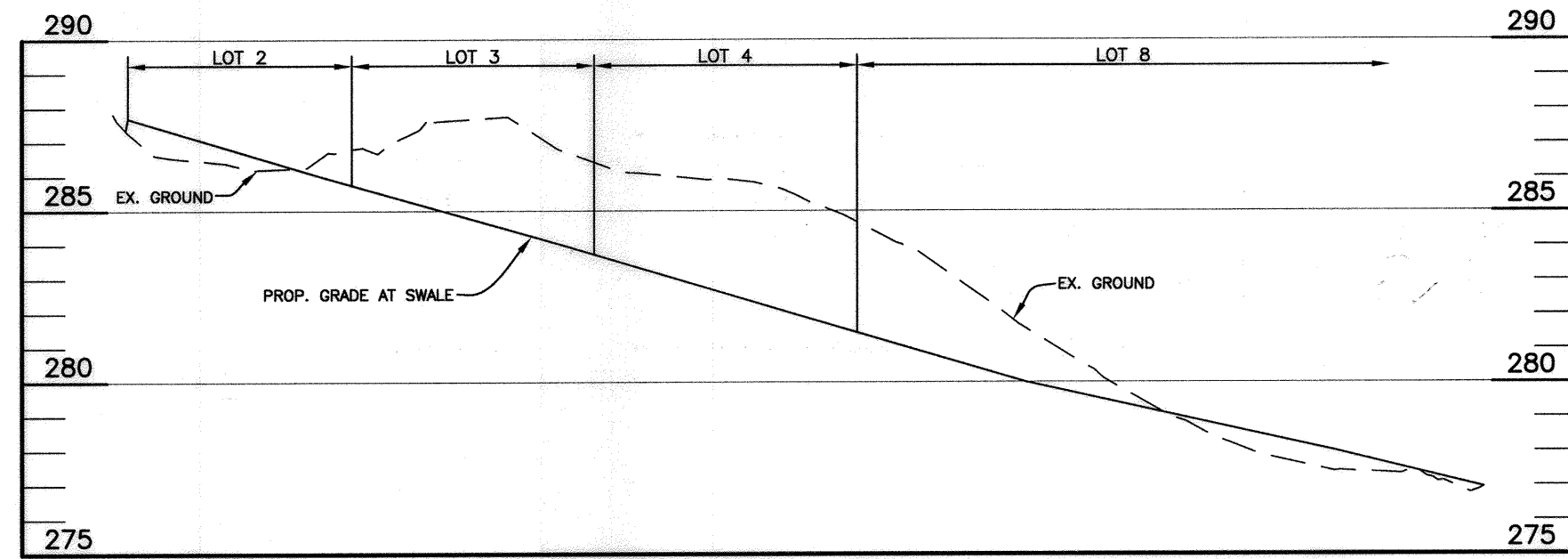
3-8-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)		
		3 TO <5	5 TO <7	
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0
		HMA SUPERPAVE BASE	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	3.0	4.0

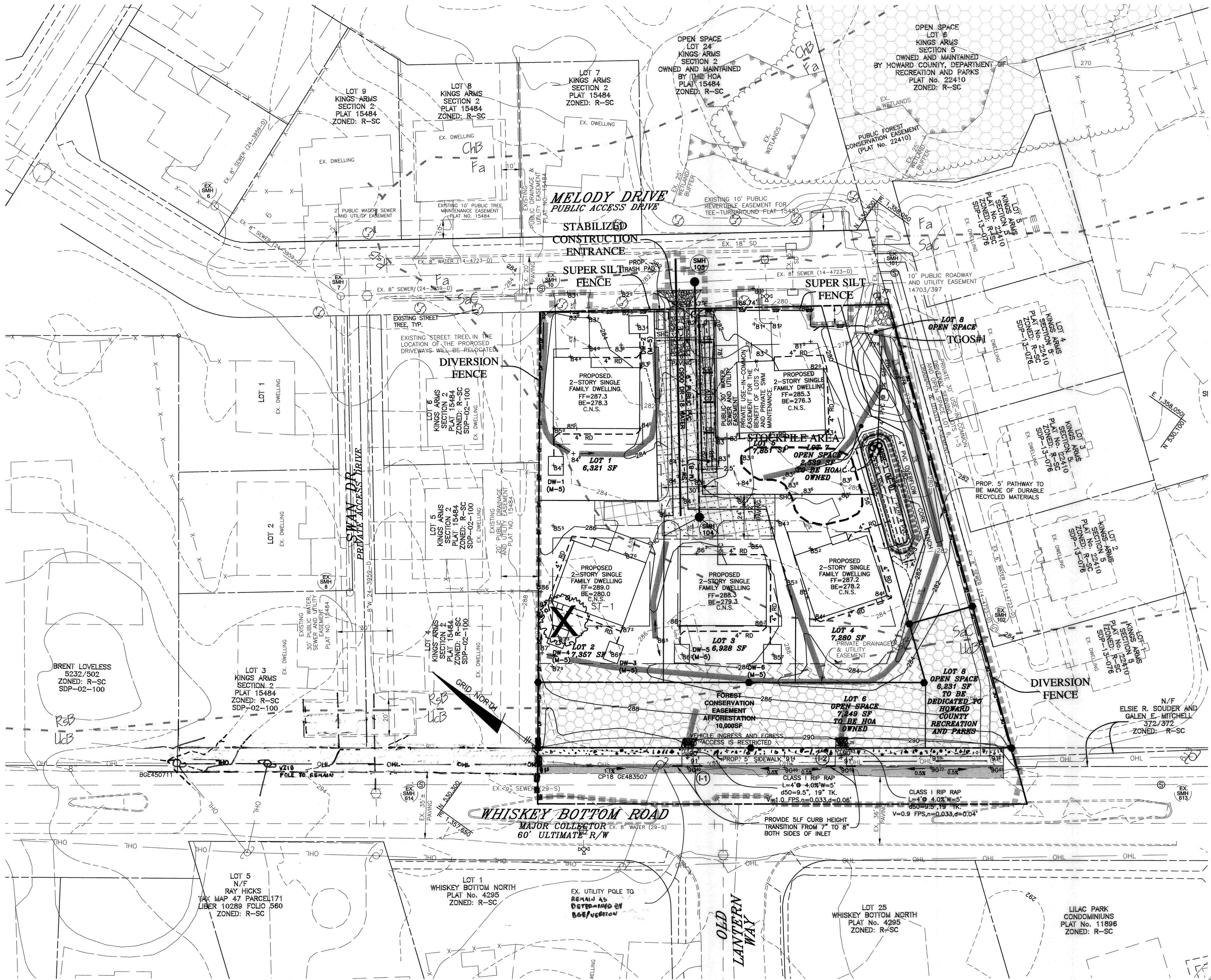


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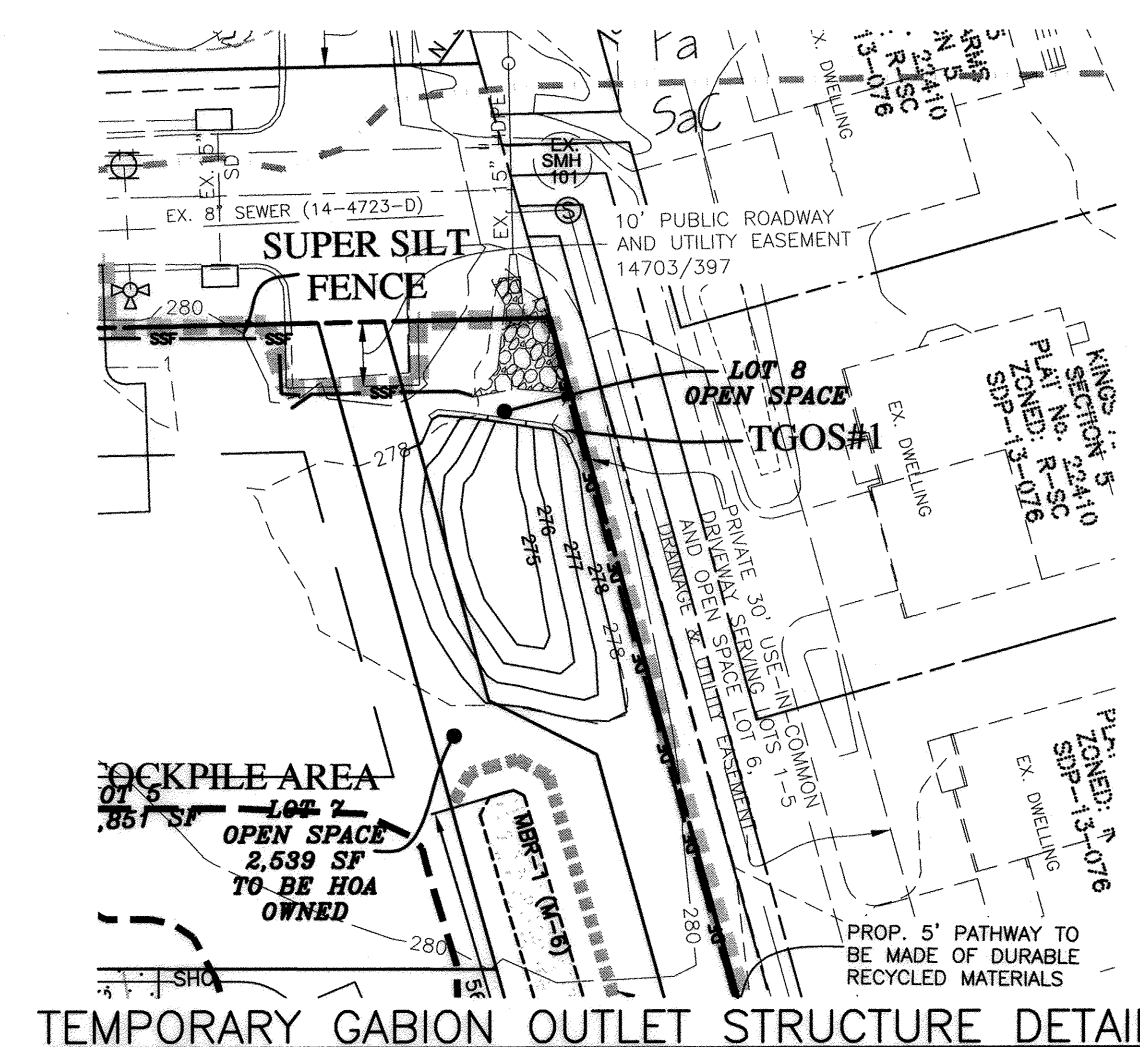
AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 12-28-2020



CL SWALE
 SCALE: 1"=50' HORIZ., 1"=5' VERT.



TEMPORARY GABION OUTLET STRUCTURE		
DRAINAGE AREA	0.87	ACRES
TOTAL STORAGE REQUIRED	1,566	CF
TOTAL STORAGE PROVIDED	1,620	CF
TOP OF WEIR	278.0	FT
TOP OF DAM	278.5	FT
WEIR LENGTH	6	FT



LEGEND

SOILS CLASSIFICATION Ucd

SOILS DELINEATION -288 -290

EXISTING CONTOURS

EXISTING WOODS LINE

EXISTING STREET TREE

LIMITS OF DISTURBANCE

PROPOSED CONTOURS

PROPOSED SANITARY MANHOLE

PROPOSED DRYWELL

PROPOSED GRASS SWALE

PROPOSED PUBLIC WATER, SEWER & UTILITY EASEMENT

PROPOSED MICRO BIO-RETENTION FACILITY

PROPOSED PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT

PROPOSED PRIVATE DRAINAGE & UTILITY EASEMENT

SPECIMEN TREE TO BE REMOVED

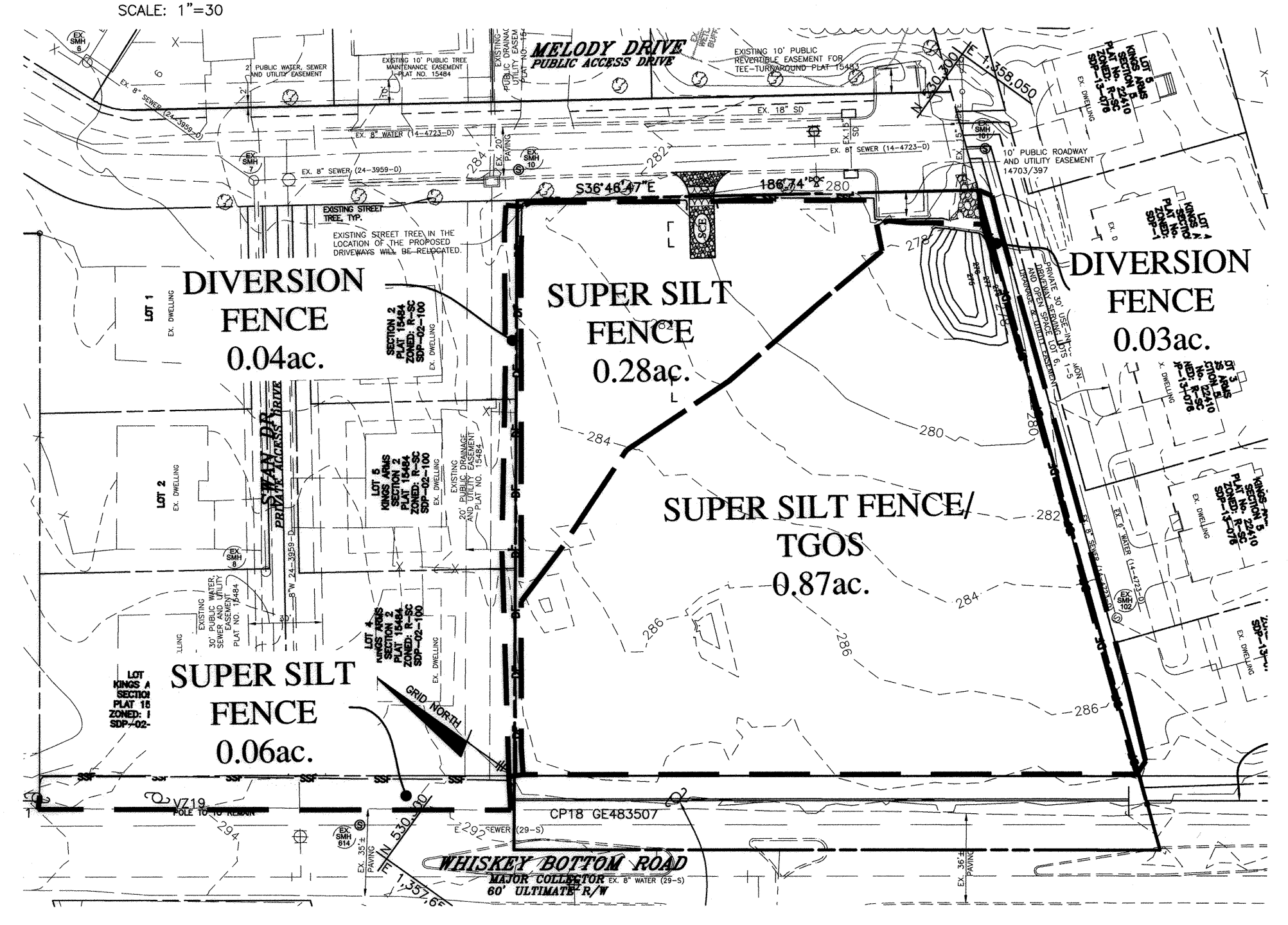
EXISTING FENCELINE

SUPER SILT FENCE

DIVERSION FENCE

STABILIZED CONSTRUCTION ENTRANCE

EROSION CONTROL MATTING



SWALE COMPUTATIONS

Swale Lots 2-4
Trapezoidal
Bottom Width (ft) = 2.50
Side Slopes (z:1) = 3
Total Depth (ft) = 2.50
Slope (%) = 3.00
N-Value = 0.040

Calculations
Compute by: Known Q
Known Q10 (cfs) = 2.80
Depth of Flow (ft) = 0.33
Velocity (ft/s) = 2.43
Wetted Perim (ft) = 4.59
Crit Depth, Yc (ft) = 0.30
Top Width (ft) = 4.48

NO.	DATE	REVISION
2	1/24/18	RELOCATE SIDEWALK ALONG WHISKEY BOTTOM RD
1	10/9/17	REMOVE SIDEWALK NORTH OF SITE

BENCHMARK ENGINEERING, INC.
6480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-8844
WWW.BE-CIVILENGINEERING.COM

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. 28376
2-1-17

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. 21223 Expiration Date 2-21-2022

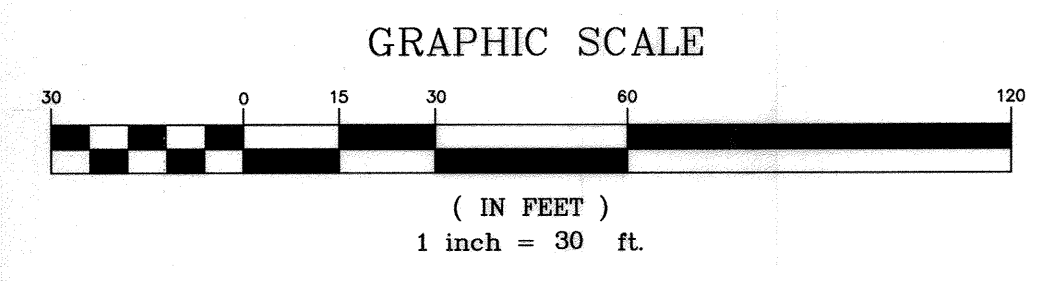


AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Donald Mason, P.E. Date: 12-29-2020

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE	Kc FACTOR
Soc	B	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES	0.37
Rsb	C	RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	0.24
Ucd	D	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES	0.28

THERE ARE NO HYDRIC SOILS ON-SITE.
TAKEN FROM NRCS WEBSITE, MAP NO. 28



APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 3/6/2017

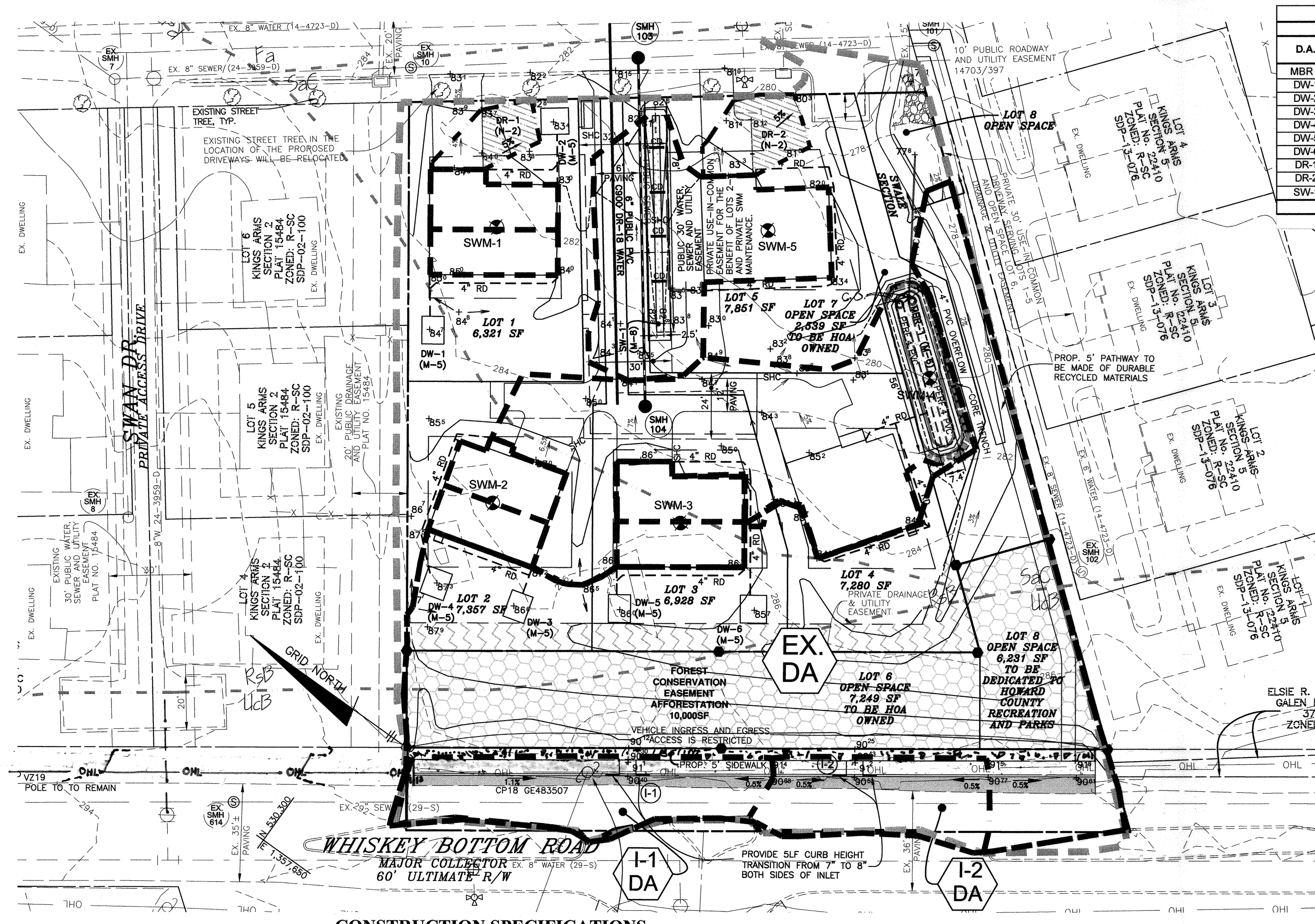
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 3-09-17

DATE: 3-8-16

ENGINEER'S CERTIFICATE
I 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.
ENGINEER: [Signature] DATE: 2-21-17

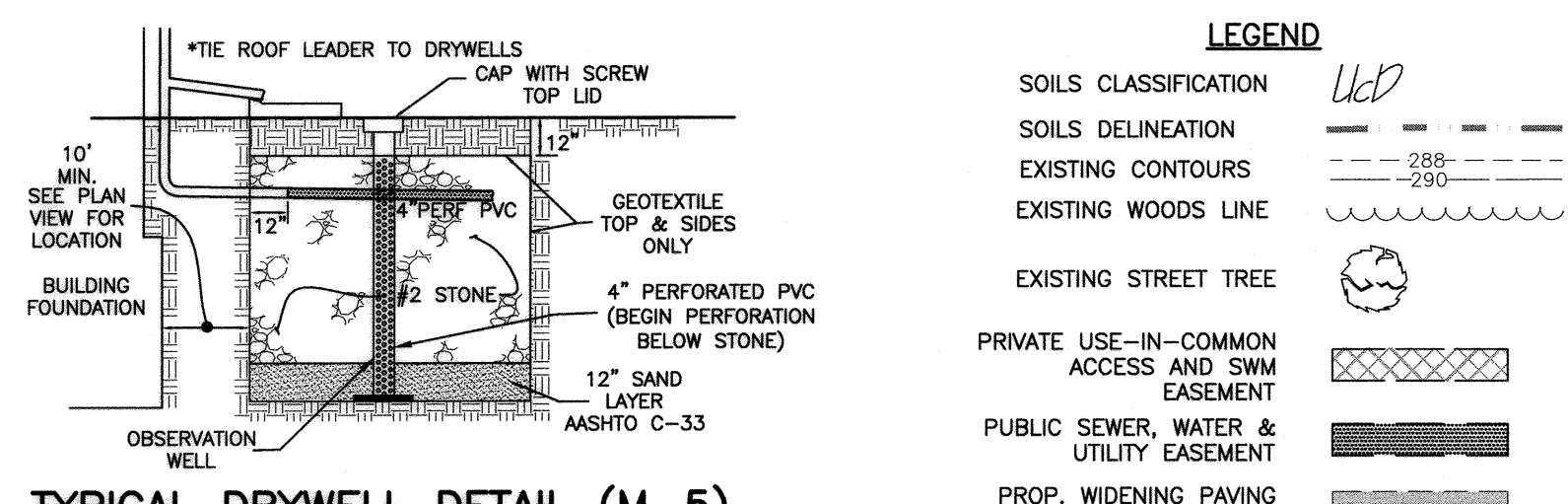
DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING 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.
DEVELOPER: [Signature] DATE: 2/21/17

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
DATE: 2/28/17

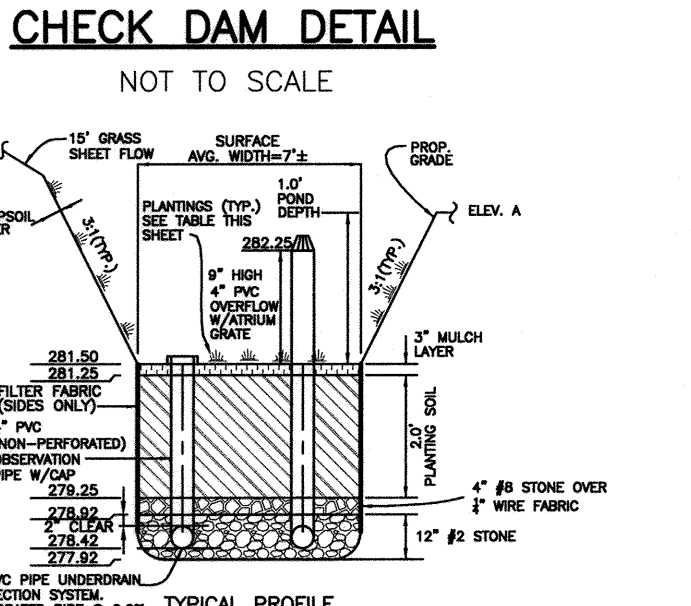
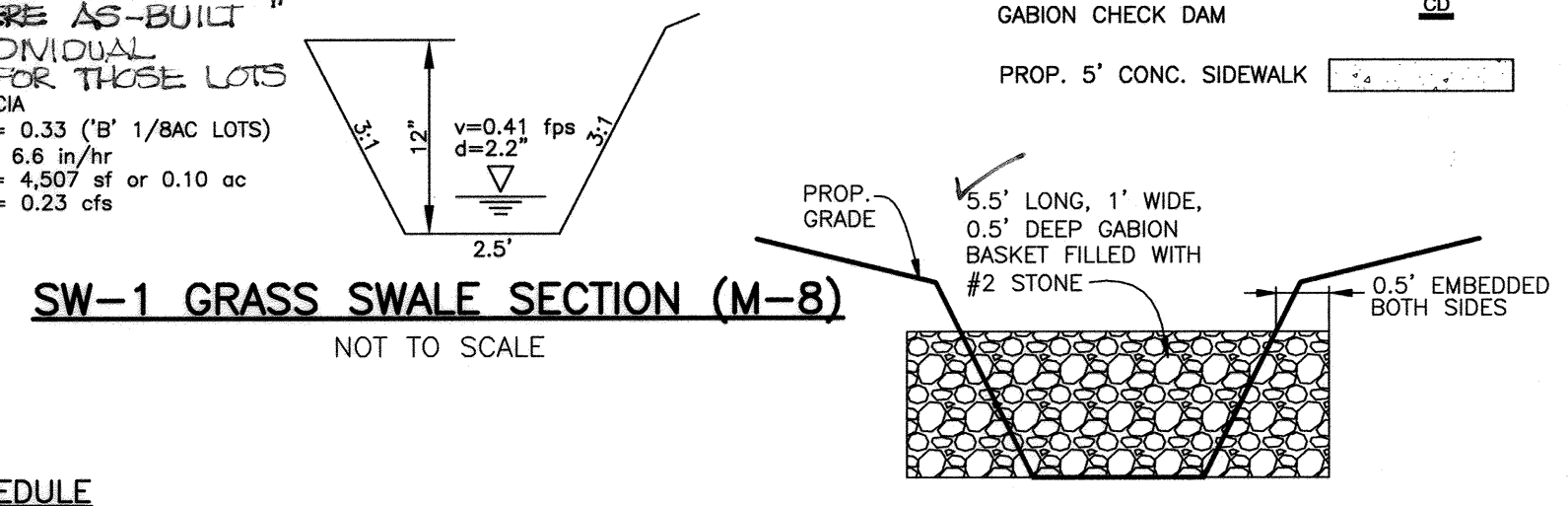


SWM SUMMARY TABLE														
D.A.	MDE Type	Total DA	Impervious Area	Qe	Required	Provided	2% DA	Depth	Required	Provided	ESDv	75% ESDv	RV	Pe
MBR-1	(M-6)	9,092	5,117	0.89	182	405	PASS	1.0	506	803	PASS	0.96	1.91	
DW-1	(M-5)	752	752	1.52	NA	NA	NA	NA	95	96	NA	0.95	1.61	
DW-2	(M-5)	880	880	1.52	NA	NA	NA	NA	109	114	NA	0.95	1.67	
DW-3	(M-5)	752	752	1.52	NA	NA	NA	NA	95	96	NA	0.95	1.61	
DW-4	(M-5)	752	752	1.52	NA	NA	NA	NA	95	108	NA	0.95	1.81	
DW-5	(M-5)	752	752	1.52	NA	NA	NA	NA	95	96	NA	0.95	1.61	
DW-6	(M-5)	880	880	1.52	NA	NA	NA	NA	109	114	NA	0.95	1.67	
DR-1	(N-2)	506	205	0.66	205	301	NA	0.0	11	17	PASS	0.41	1.00	
DR-2	(N-2)	766	331	0.70	331	435	NA	0.0	19	28	PASS	0.44	1.00	
SW-1	(M-8)	4,505	2,734	0.95	90	160	PASS		358	358	PASS	0.60	1.60	
Totals		15,095	13,118	1.33					1,138	1,472				
									2,091	1,963	TOTAL ESDv			

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A: TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND 60-65% COMPOST 35-40% OR SANDY LOAM 30% COARSE SAND 30% & COMPOST 40%	N/A	USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; CLAY CONTENT <5%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT ASTM D 2974	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
MULCH	SHREDDED HARDWOOD	N/A	PE TYPE 1 NONWOVEN
GEOTEXTILE (CLASS 'C')	1/4" WIRE MESH	N/A	1/4" WIRE MESH
GEOTEXTILE (1/4" WIRE MESH)	ASHTO M-43	NO. 57 OR NO. 6 0.375" TO 0.750"	
UNDERDRAIN GRAVEL	F758, TYPE PS28 OR ASHTO M-278	4" TO 6" RIGID SDR35 OR HDPE	3/8" PERFOR. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 2" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES.
UNDERDRAIN PIPING	ASTM-D-4833 (THICKNESS 1/4")	30 MIL THICK	UNDERLAYER TO BE ULTRAVIOLET RESISTANT, A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
IMPERVIOUS LINER	ASTM-D-4833 (TENSILE STRENGTH 1,100 LB., ELONGATION 200%)		
GEOTEXTILE (BELOW IMPERV. LINER)	ASTM-D-4833 (PUNCTURE STRENGTH 129LB)		



Drywell Designation	Length (ft)	Width (ft)	Depth (ft)	Grade	Top of Stone	Bottom of Stone
DW-1	10.00	8.00	3.00	284.7	283.7	280.7
DW-2	10.00	9.50	3.00	283.4	282.4	279.4
DW-3	10.00	8.00	3.00	286.6	285.6	282.6
DW-4	10.00	9.00	3.00	287.3	286.3	283.3
DW-5	10.00	8.00	3.00	286.0	285.0	282.0
DW-6	10.00	9.50	3.00	285.7	284.7	281.7



B.4.C Specifications for Micro-Bioretentation, Rain Gardens, Landscape Infiltration & Infiltration Berms

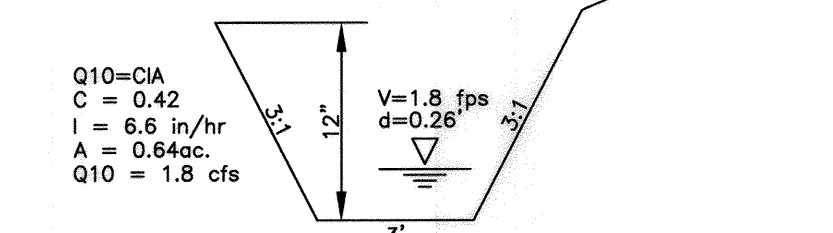
- Material Specifications:** The allowable materials to be used in these practices are detailed in Table B.4.1.
- Filtering Media or Planting Soil:** The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretentation practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.06.01.05. The planting soil shall be tested and shall meet the following criteria:
 - Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
 - Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
 - Clay Content - Media shall have a clay content of less than 5%.
 - pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.
 There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.
- Compaction:** It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure. Compaction can be alleviated at the base of the bioretention facility by using a primary tillage operation such as a chisel plow, ripper, or subsoiler. These tillage operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment. Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base. When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade. When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.
- Plant Material:** Recommended plant material for micro-bioretentation practices can be found in Appendix A, Section A.2.3.
- Plant Installation:** Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance. Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation. Trees shall be banded using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball. Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications. The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.
- Underdrains:** Underdrains should meet the following criteria:
 - Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or ASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
 - Perforations - If perforated pipe is used, perforations should be 3/4" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 or 4x4) galvanized hardware cloth.
 - Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
 - The main collector pipe shall be at a minimum 0.5% slope.
 - A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
 - A 4" layer of pea gravel (1/4" to 3/4" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".
 The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).
- Miscellaneous:** These practices may not be constructed until all contributing drainage area has been stabilized.

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. 21443 Expiration Date: 12-31-2022



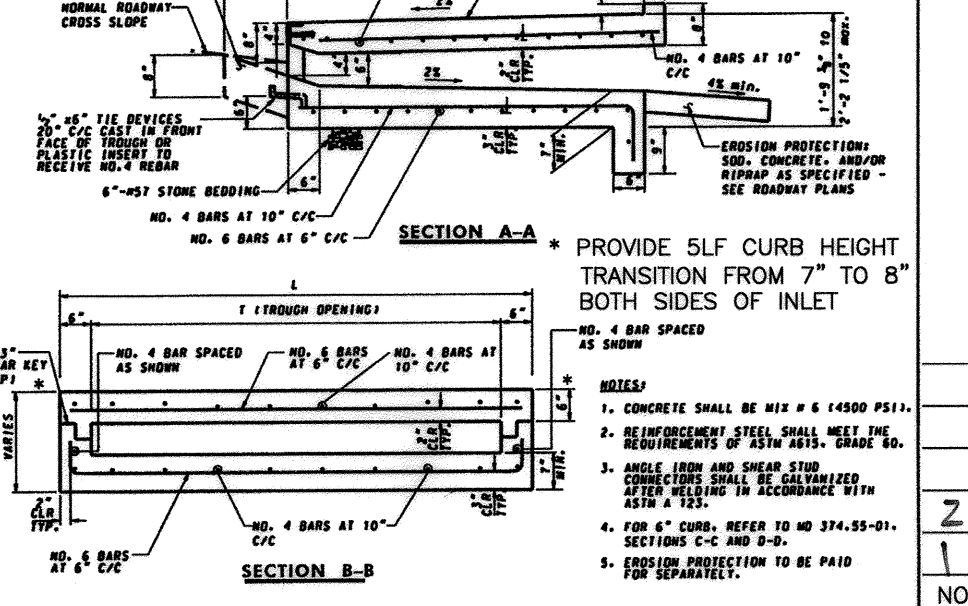
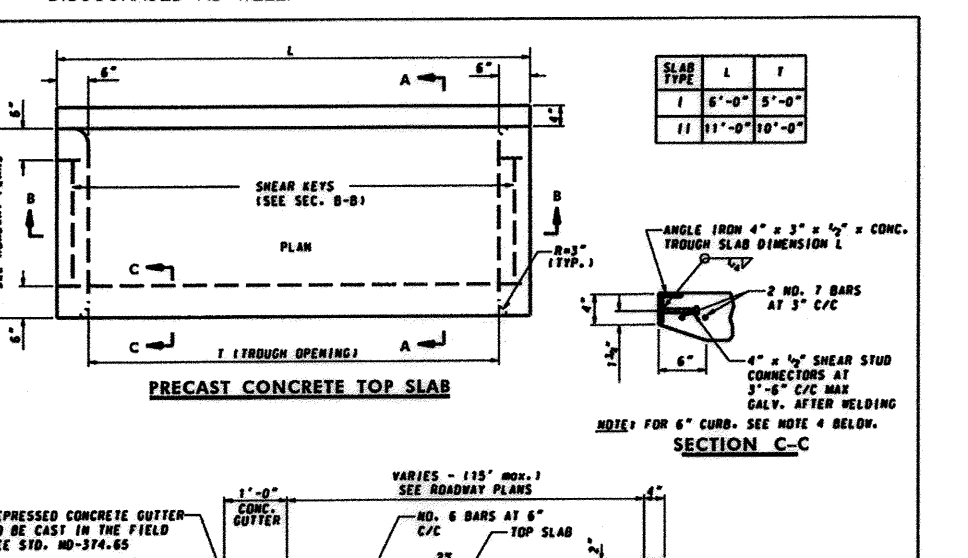
AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 12-29-2020

AREA	FACTOR	IMPERVIOUS	ZONE
AREA = 0.08 AC	0.86	IMPERVIOUS = 100%	ZONE = R-SC
AREA = 0.05 AC	0.86	IMPERVIOUS = 100%	ZONE = R-SC
AREA = 1.45 AC	0.33	IMPERVIOUS = 14%	EX ZONE = R-SC

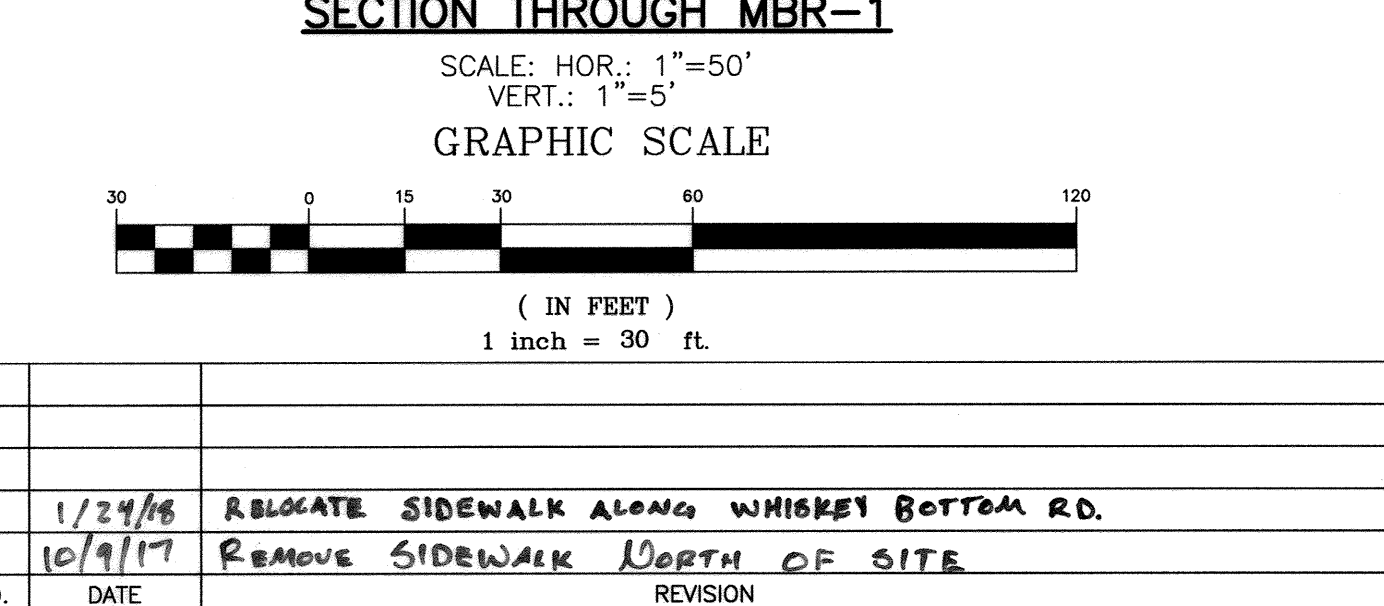
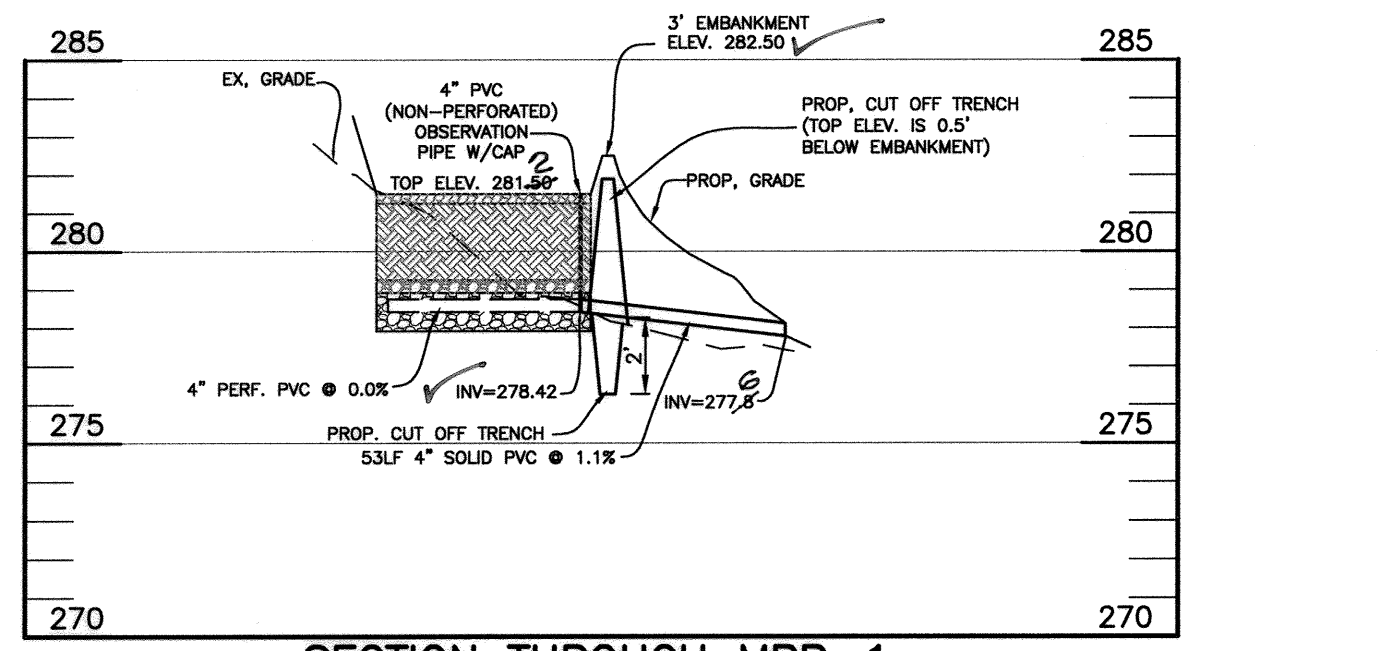
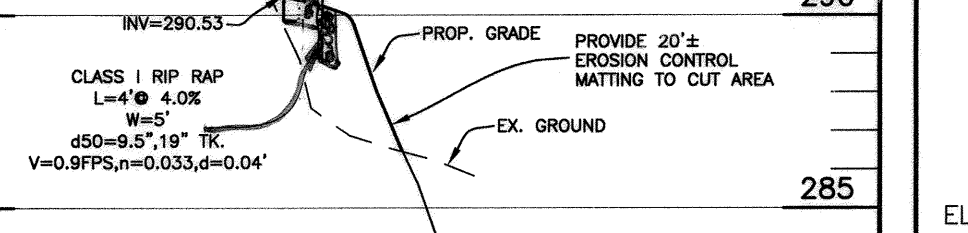
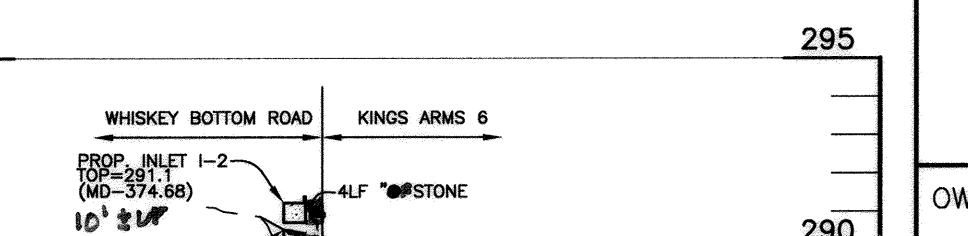


- PLANTING SCHEDULE MBR-1**
- | PLANT NAME | COMMON NAME | TYPE | QUANTITY |
|----------------------|--------------------|------------|----------|
| Betula nigra | RIVER BIRCH | tree | 1 |
| Clethra | COMMON PERIWINKLE | herbaceous | 5 |
| Ajuga reptans | CREeping BUGLEWEED | herbaceous | 13 |
| Iris versicolor | IRIS | herbaceous | 13 |
| Elymus virginicus | VIRGINIA WILD RYE | herbaceous | 5 |
| Vaccinium atrococcum | HIGHBUSH BLUEBERRY | shrub | 5 |
- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)**
- THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
 - WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
 - A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
 - WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
 - THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
 - ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

- OPERATION AND MAINTENANCE SCHEDULE FOR NON-ROOFTOP DISCONNECTS (N-2)**
- MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPING. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTOR OR DEVELOPMENT OF IMPERVIOUS AREA IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.



NO.	DATE	REVISION
2	1/24/16	RELOCATE SIDEWALK ALONG WHISKEY BOTTOM RD.
1	10/9/17	REMOVE SIDEWALK NORTH OF SITE



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. 28376, Expiration Date: 01-01-2019.

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6844
 WWW.BE-ONLINEENGINEERING.COM

OWNER/DEVELOPER: KING'S ARMS 6, LLC
 PO BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

FINAL PLAT SUPPLEMENTAL PLAN DRAINAGE AREA MAP AND DETAILS
 DATE: FEBRUARY 2017
 DESIGN: JCO DRAFT: EDD/NAF
 SCALE: AS SHOWN
 SHEET 5 OF 6

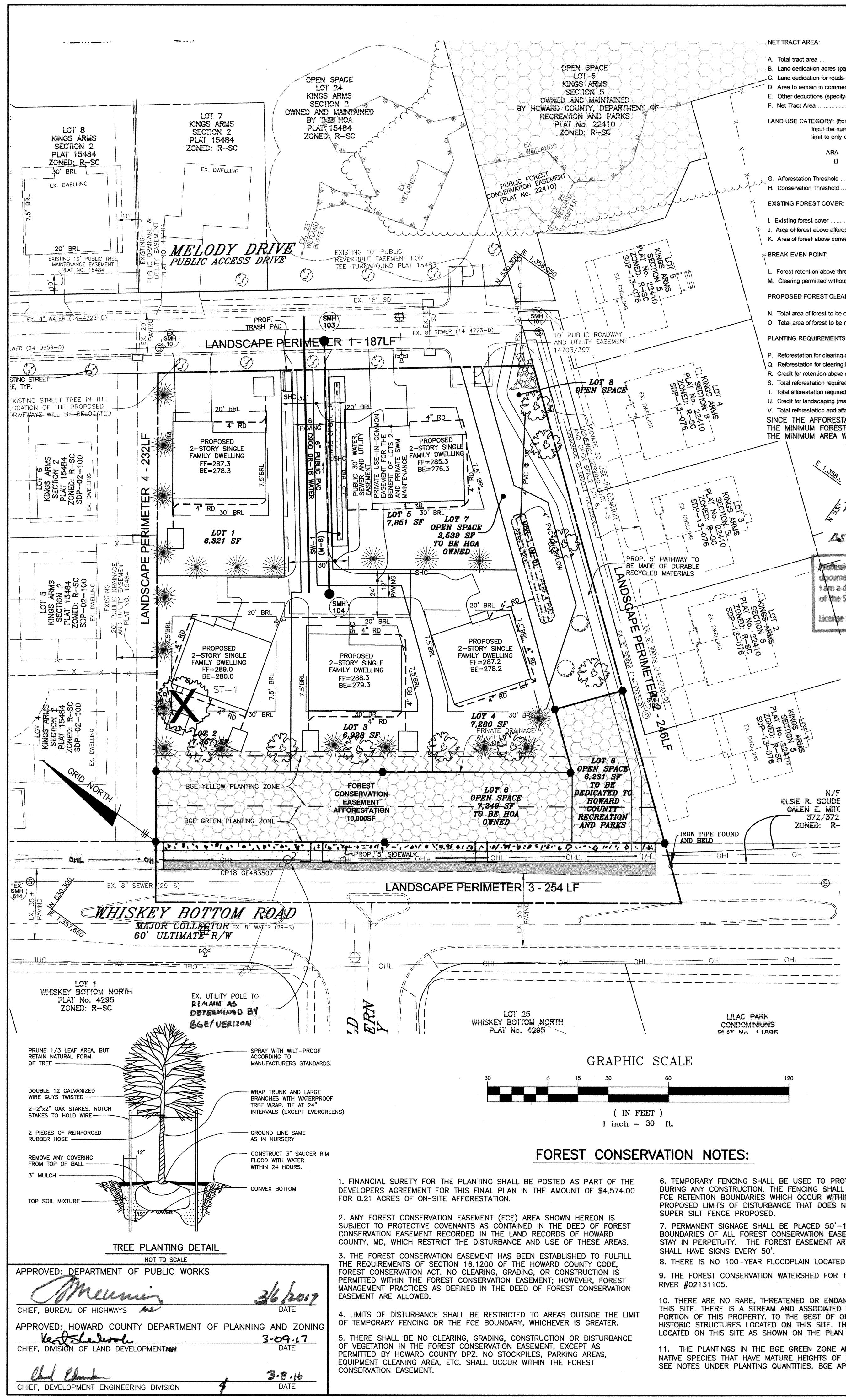
APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 3/6/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 3-09-17

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 3-8-17

NO.	TYPE	LOCATION	PIPE INV. IN	PIPE INV. OUT	THROAT ELEV.	OWNERSHIP	HO. CO. STD.
I-1	5' CONC. FLOW THRU	N 530206.6, E 1357745.7	-	-	291.00	PUBLIC	SHA MD-374.68
I-2	5' CONC. FLOW THRU	N 530139.8, E 1357793.3	-	-	391-13	PUBLIC	SHA MD-374.68

STRUCTURE LOCATION FOR INLETS IS AT THE CENTER OF THE INLET TOP OF CURB. THROAT ELEVATION FOR THE PASSES THRU INLETS IS BACK OF INLET OPENING. PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.



NET TRACT AREA: 5-Aug-02

A. Total tract area	1.37
B. Land dedication acres (parks, county facility, etc.)	0.00
C. Land dedication for roads or utilities (not being constructed by this plan)	0.00
D. Area to remain in commercial agricultural production use	0.00
E. Other deductions (specify)	0.00
F. Net Tract Area	1.37

LAND USE CATEGORY: (from Trees Technical Manual) - limit to only one entry.

ARA	MDR	IDA	HR	MPD	CIA
0	0	0	1	0	0

G. Afforestation Threshold: 10% x F = 0.21
H. Conservation Threshold: 20% x F = 0.27

EXISTING FOREST COVER:

I. Existing forest cover	0.00
J. Area of forest above afforestation threshold	0.00
K. Area of forest above conservation threshold	0.00

BREAK EVEN POINT:

L. Forest retention above threshold with no mitigation	0.00
M. Clearing permitted without mitigation	0.00

PROPOSED FOREST CLEARING:

N. Total area of forest to be cleared	0.00
O. Total area of forest to be retained	0.00

PLANTING REQUIREMENTS:

P. Reforestation for clearing above conservation threshold	0.00
Q. Reforestation for clearing below conservation threshold	0.00
R. Credit for retention above conservation threshold	0.00
S. Total reforestation required	0.00
T. Total afforestation required	0.21
U. Credit for landscaping (may not exceed 20% of 'S')	0.00
V. Total reforestation and afforestation required	0.21

SINCE THE AFFORESTATION OBLIGATIONS ARE SLIGHTLY LESS THAN THE MINIMUM FOREST CONSERVATION EASEMENT AREA OF 10,000SF, THE MINIMUM AREA WAS PROVIDED.

AS-BUILT INFORMATION 15' PROVIDED ON THIS SHEET

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. 21463, Expiration Date: 12-31-2020

FOREST CONSERVATION EASEMENT (0.21 ACRES ± = 74 TREES REQ.)

QTY.	SPECIES	SIZE	SPACING
12	Acer rubrum - RED MAPLE(***)	2'-3" WHIP	**
12	Cornus florida - FLOWERING DOGWOOD	2'-3" WHIP	**
12	Liriodendron tulipifera - POPLAR(***)	2'-3" WHIP	**
6	Nyssa sylvatica - BLACK GUM(***)	2'-3" WHIP	**
6	Fraxinus serotina - BLACK BERRY	2'-3" WHIP	**
6	Quercus alba - WHITE OAK(***)	2'-3" WHIP	**
6	Quercus rubra - RED OAK(***)	2'-3" WHIP	**
5	Sassafras obtusifolia - SASSAPARILLA	2'-3" WHIP	**
5	Viburnum prunifolium - BLACKHAW	2'-3" WHIP	**

KEY:

- ** PLANTINGS TO BE SPACED 11 FOOT CENTERS - PLANTINGS SHOULD BE INSTALLED IN ROWS TO FACILITATE FUTURE MAINTENANCE. WHERE POSSIBLE ROWS SHOULD BE MADE ALONG CONTOUR.
- *** NOT TO BE PLANTED IN THE BGE GREEN PLANTING ZONE.

PER COUNTY REQUIREMENTS, TREE SHELTERS SHOULD BE USED.

Planting Notes:

- Three planting options are provided to allow flexibility for the property owner. Only one planting option schedule needs to be followed.
- Planting density based spacing requirements: 1" caliper trees @ 15' on center, whips with shelter @ 11' on center.
- 1" caliper trees should be staggered along the perimeter of the planting area to serve as demarcation of the boundary. The trees should be no closer than 15 foot spacing. 2.5" caliper trees shall be planted along the property boundary within 10' of boundary edge and approximately 60' apart.
- Planting may be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance.
- Multiflora rose/heavy brush removal/control may be required prior to installation of planting.
- All whips are required to be installed with tree shelters per Howard County FCA requirements.

7. Planting units defined by the spacing requirements established in the FCA Manual. One plant unit is defined as 1 seedling or whip without shelter. The Manual states that 700 seedlings/whips without shelters are required per acre, or 350 whips/shelters, or 200 1" caliper trees, or 100 2" caliper trees. By conversion it has been determined that a seedling or whip without shelter = 1 unit, whip with shelter = 2 units, 1" caliper tree = 3.5 units and 2" caliper tree = 7 units. The use of plant units simplifies the plant density calculations when mixing stock size.

FOREST CONSERVATION EASEMENTS

Easements are a legal means of providing permanent protection of forests, farmland and open space. In accordance with the criteria outlined in the Howard County Forest Conservation Manual, a forest conservation easement will be recorded for the retention and reforestation areas of the subject property.

REFORESTATION NOTES

A. Planting Plan and Methods

Plant species selection was based on our knowledge regarding plant communities in Maryland's Piedmont Plateau and information provided in the soil survey on typical vegetation for the soil type on the planting site. Species selection was also based on our knowledge of plant availability in the nursery industry.

Reforestation will be accomplished through a mixed planting of whips and branched transplants. Container grown stock is recommended but bareroot stock may be used to help control afforestation costs. If bareroot stock is used the root systems of all plants will be dipped in an anti-desiccant gel prior to planting to improve moisture retention in the root systems.

Prior to planting the proposed Forest Conservation Easements all multiflora rose in the planting area shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following by a periodic herbicide treatment of stump sprouts is recommended. Native trees and shrub species occurring within the rose thickets should be retained wherever possible. Herbicides treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicide used shall be made specifically to address woody plant material and shall be applied as per manufacturers specifications, as needed. Care should be taken not to spray planted trees or naturally occurring native tree/shrub seedlings. It is recommended that initiation of rose removal begin at least six months prior to planting.

B. Planting and Soil Specifications

Plant material will be installed in accordance with the Planting Detail and Planting Specifications shown on the Forest Conservation Plan. Soil disturbance will be limited to individual planting locations.

C. Guarantee Requirements

A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 50 percent survival threshold will be replaced at the beginning of the second growing season. All plant material below the 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

D. Security for Reforestation

Section 16-1209 of the Howard County Forest Conservation Act requires that a developer shall post a security (bond, letter of credit, etc.) with the County to insure that all work is done in accordance with the FCP.

Planting/Soil Specifications

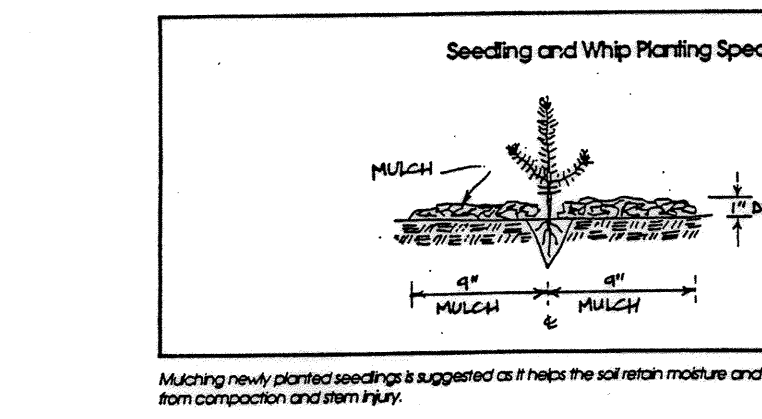
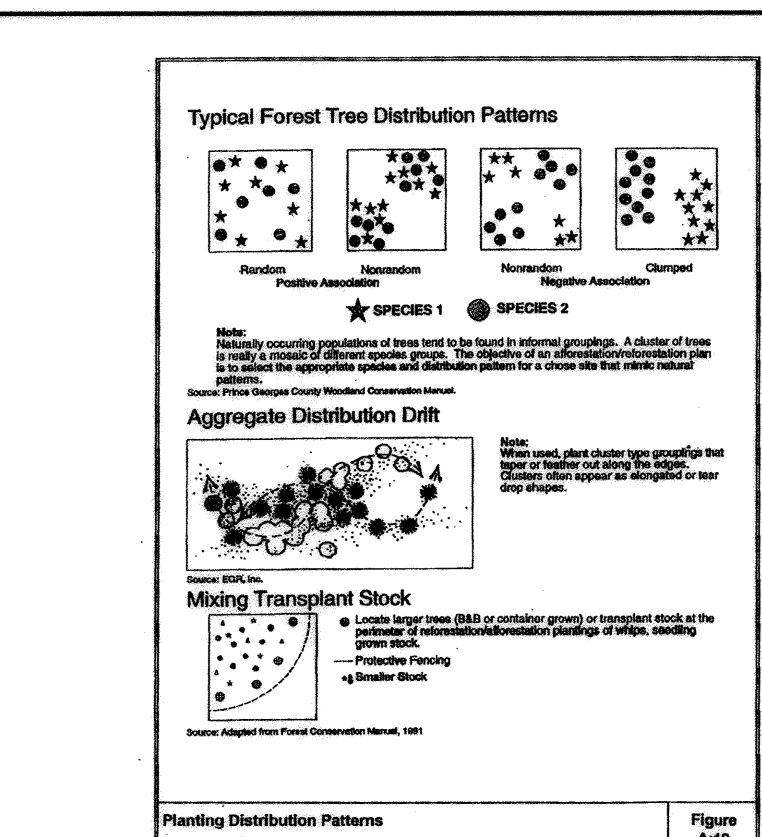
- Installation of bareroot/plug plant stock shall take place between March 15 - April 20, B&B/container stock March 15-May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
- Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
- Bareroot plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
- Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plant shall be fertilized with Osmocote 8-8-12.
- Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
- The contractor shall remove all non-organic debris associated with the planting operation from the site.

Sequence of Construction

- Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
- Upon completion of the planting, signage shall be installed as shown.
- Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

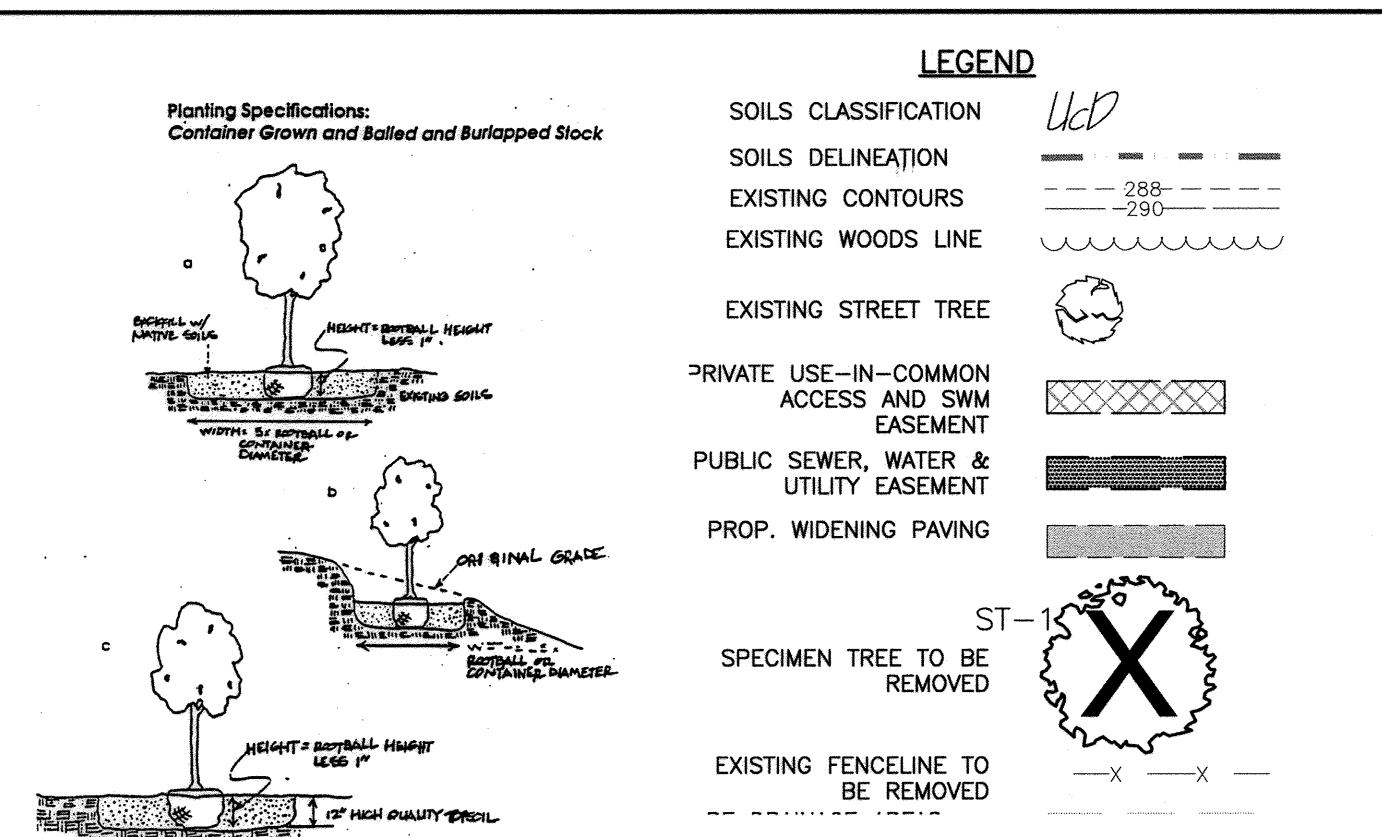
Final Inspection and Release of Obligations

- At the end of the post-construction management and protection period the developer shall submit a certification to the County that all forest conservation areas have remained intact or have been restored to appropriate condition, that the stipulated survival rates have been achieved, and that any permanent protection measures required by the plan are in place. Upon review and acceptance, the County will inform the developer of their release the development of future obligations related to the Forest Conservation Act.



PERIMETER LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
(Symbol)	9	ACER GINNALIA AMUR MAPLE	1 1/2"-2" GAL
(Symbol)	14	PICEA PUNGENS 'GLAUCO' COLORADO BLUE SPRUCE	6"-8" HT.
(Symbol)	6	HEX 'NELLIE R. STEVENS' NELLIE STEVENS HOLLY	5"-6" HT.
(Symbol)	2	QUERCUS COCCINEA SCARLET OAK	2 1/2"-3" GAL



SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAY	ADJACENT TO PERIMETER PROPERTIES	YES	NO	YES	NO	TOTAL
PERIMETER FEET OF PERIMETER (FRONTAGE/ROADWAY)	(A)	(B)	(C)	(D)	(E)	(F)	(G)
CREDIT FOR EXISTING VEGETATION: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)							
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING	NA	246	254	232			
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)							
NUMBER OF PLANTS REQUIRED: SHADE TREES: 4, EVERGREEN TREES: 5, OTHER TREES (2:1 SUBSTITUTED) SHRUBS: 4							13
NUMBER OF PLANTS PROVIDED: SHADE TREES: 4, EVERGREEN TREES: 5, OTHER TREES (2:1 SUBSTITUTED) SHRUBS: 4							14
NUMBER OF PLANTS REQUIRED BY WP-16-120							9
EVERGREENS WERE UTILIZED FOR PERIMETER TO PROVIDE PRIVACY SCREENING FOR THE ADJACENT KINGS ARMS SECTION 2 DEVELOPMENT PER SECTION 16.127 OF THE SUBDIVISION REGULATIONS.							

LANDSCAPING NOTES

- THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS AS SHOWN ON THESE PLANS.
- THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL INTERNAL PLANTINGS, THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION, AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BONDING FOR THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
- TREES MUST BE A MINIMUM OF FOUR (4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE (5) FEET FROM ANY STORM DRAIN.
- A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
- TREE MUST BE PLANTED A MINIMUM OF FIVE (5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN(10) FEET FROM A DRIVEWAY.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
- STREET TREES SHALL BE PLANTED SIX (6) FEET BEHIND FACE OF CURB WHEN THERE ARE NO SIDEWALKS.
- ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
- NO TREES SHALL BE PLACED WITHIN 10' BEHIND A RETAINING WALL OR WITHIN A RELATED MAINTENANCE EASEMENT, WHICHEVER IS GREATER.
- THE SURETY FOR THE 11 SHADE TREES (\$3,300.00) AND 20 EVERGREEN TREES (\$3,000.00) IN THE AMOUNT OF \$6,300.00 HAS BEEN POSTED AS A LANDSCAPE BOND. THE REQUIRED SURETY HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
- THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH MATERIALS AND BERMS. FENCES AND WALLS, ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPLACE WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWIT LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

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 OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER	DATE
Z	1/29/18
N	10/9/17
NO.	DATE
REVISION	

REVISIONS:
1. RELOCATE SIDEWALK ALONG WHISKEY BOTTOM RD.
2. REMOVE SIDEWALK NORTH OF SITE

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. 28368, Expire Date: 01-31-2019.

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE SUITE 315A ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CVLENGINEERING.COM

OWNER/DEVELOPER: KINGS ARMS SECTION 6 LOTS 1-5 AND OPEN SPACE LOTS 6 - 8

TAX MAP: 47, GRID: 22, PARCEL: 174
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND
9536 WHISKEY BOTTOM ROAD
DESIGN ZONE: R-SC, DPZ FILE # EOP-16-021, S-16-003, WP-16-120

DATE: FEBRUARY 2017
BEI PROJECT NO. 2714

DESIGN: JCO DRAFT: EDD/NAF SCALE: AS SHOWN SHEET: 6 OF 6

AG-BUILT