

REVISE SIDEWALK AND ADD SIDEWALK EASEMENT REVISION DATE: 8-31-23

FINAL SUPPLEMENTAL PLAN SITE LAYOUT, ROAD IMPROVEMENTS AND STRIPING PLAN

MAGNOLIA MANOR EAST
LOTS 1 - 4 AND OPEN SPACE LOT 5 & 6
A SUBDIVISION OF TAX MAP 47 - PARCEL 154 AND A RESUBDIVISION OF MAGNOLIA MANOR - NON-BUILDABLE PARCEL A - PLAT 25489

TAX MAP: 47 PARCEL: 154 **BLOCK: 19 ZONING: R-SC**
5TH ELECTION DISTRICT **HOWARD COUNTY, MARYLAND**

VOGEL ENGINEERING

TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLCOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUGUST 2022
SCALE: AS SHOWN
W.O. NO.: 4054B

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. 18163 EXPIRATION DATE: 09-27-2022

2 SHEET OF 9

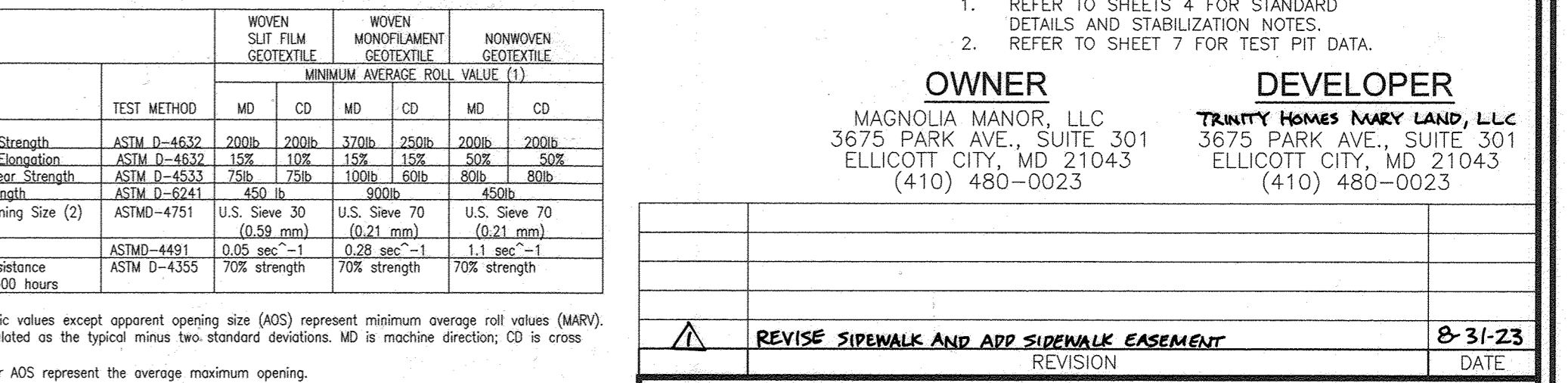
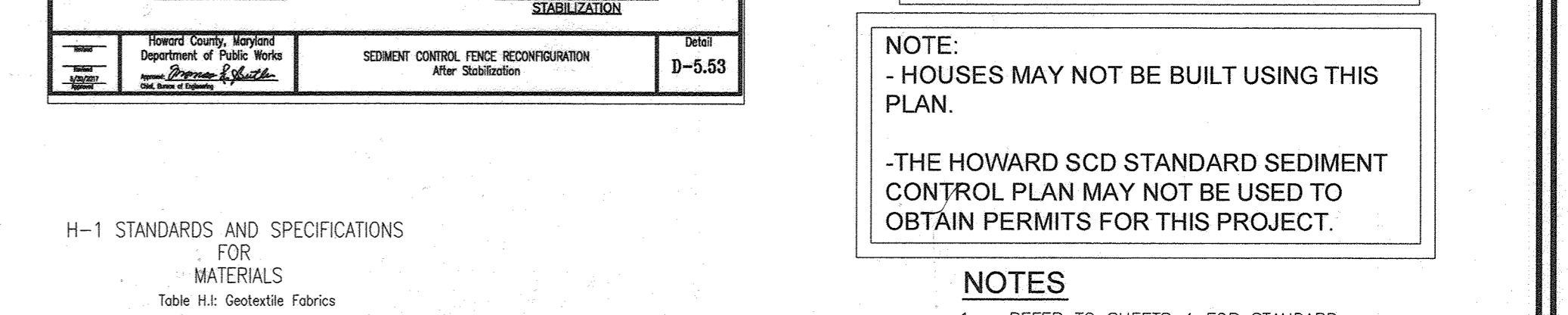
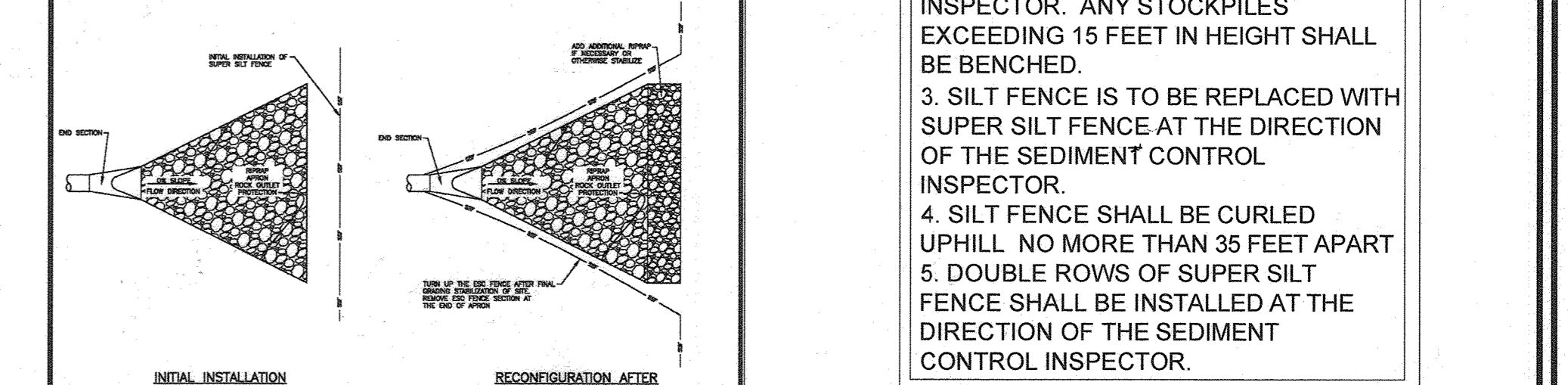
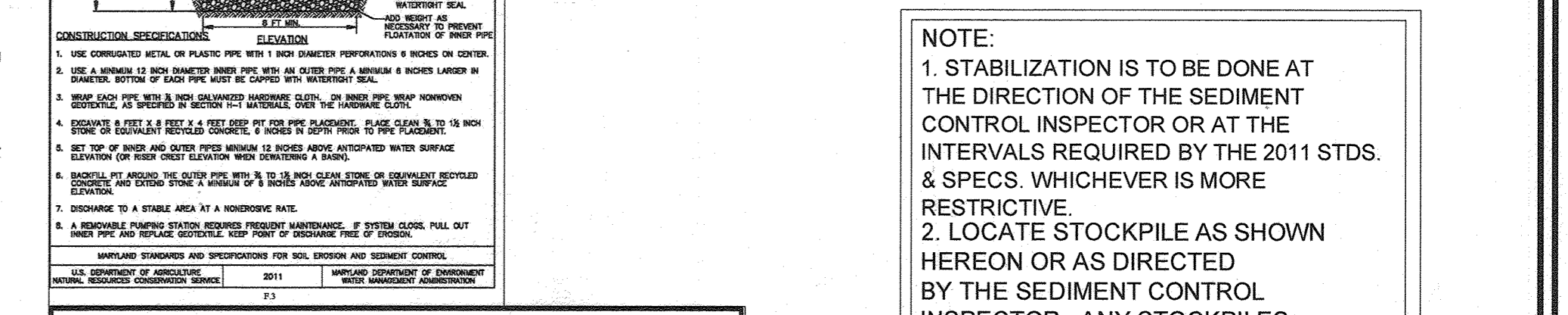
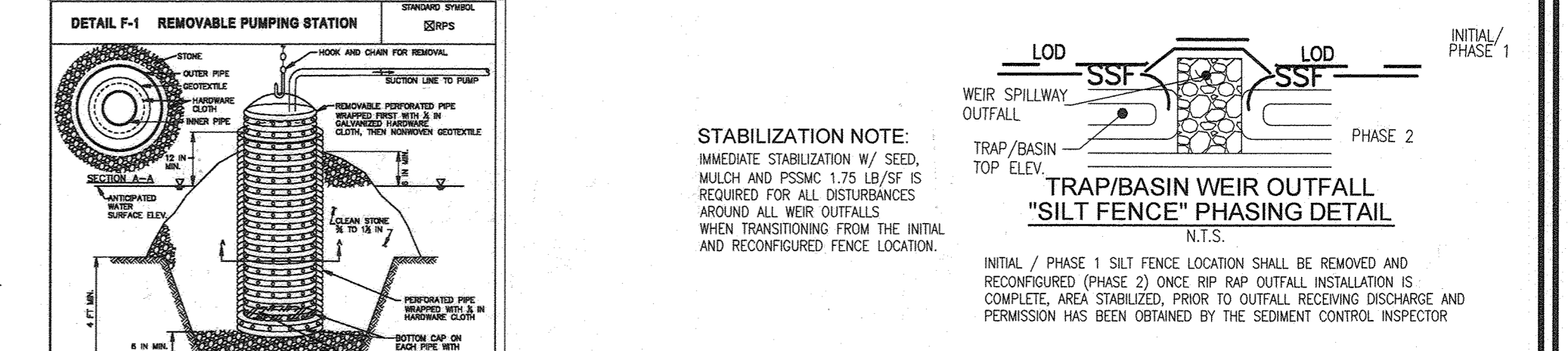
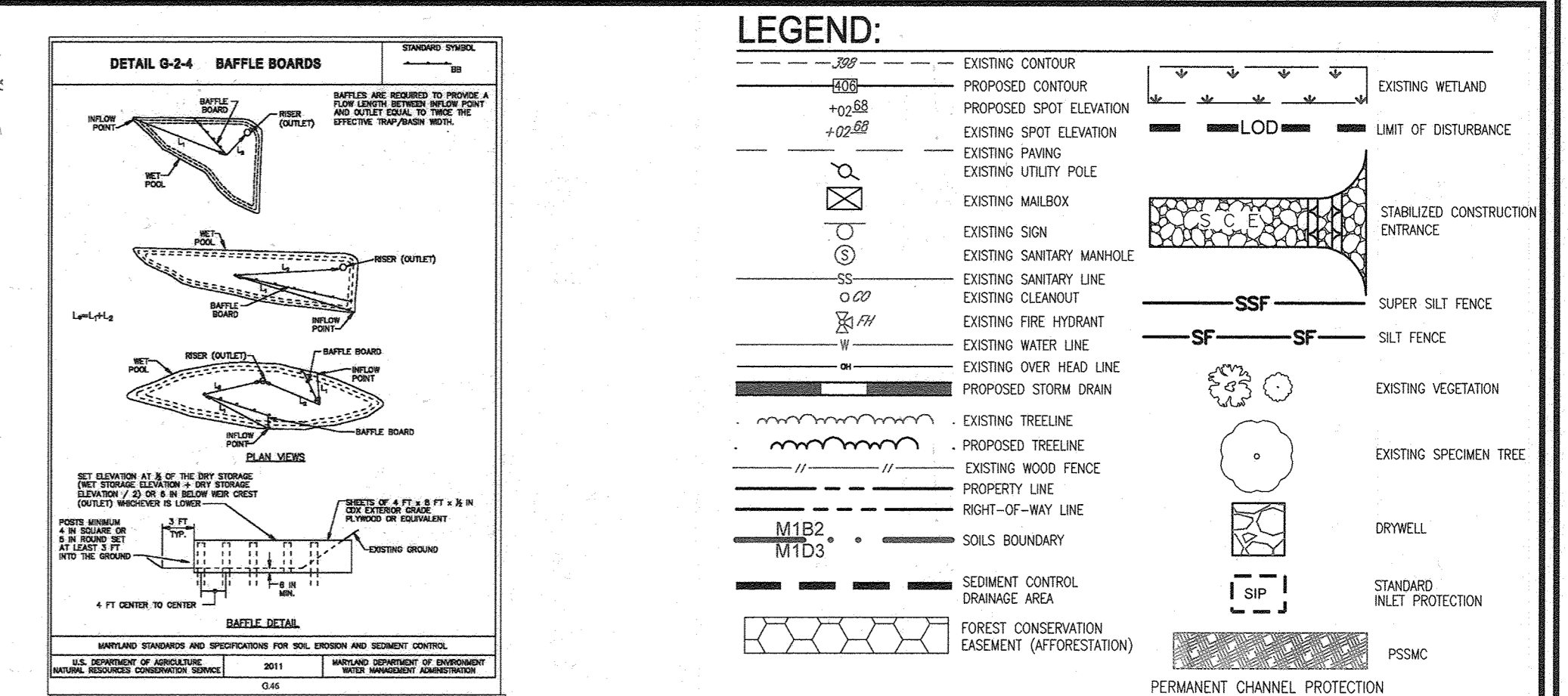
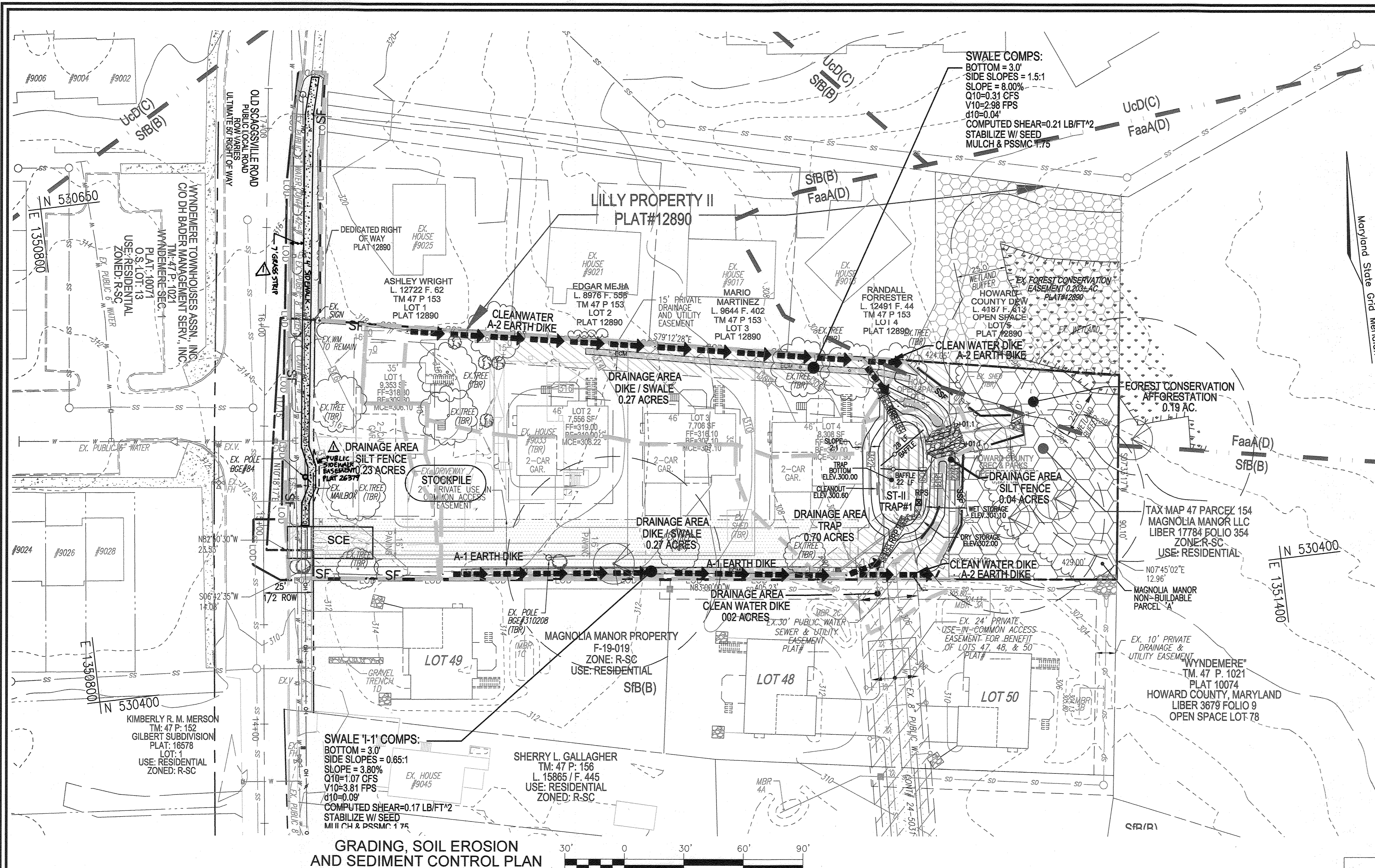


Table H.2: Stone Size

TYPE	SIZE RANGE	d50	d100	AASHTO	MIDSIZE
NUMBER 5(1)	1/2 to 1-inch	1/2in	1-in	M-43	N/A
NUMBER 1	2 to 3 inch	1 1/2in	3in	M-43	N/A
RIPPRAP(2)	4 to 7 inch	5-in	7in	N/A	N/A
CLASS I	N/A	9-19in	15in	N/A	40b
CLASS II	N/A	16in	24in	N/A	200b
CLASS III	N/A	23in	34in	N/A	600b

(1) This classification is to be used on the upstream face of stone outlets and check dams.
 (2) This classification is to be used for gabions.
 (3) Optimum gradation is 50 percent of the stone being above and 50 percent below the midsize.

Stone must be composed of a well graded mixture of stone sizes so that fifty (50) percent of the pieces by weight are larger than the size determined by using the charts. A well graded mixture, as set forth, is defined as a mixture composed primarily of larger stone sizes but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone in such a mixture must not exceed the respective d100 selected from Table H.2. The d50 refers to the median diameter of the stone. This is the size for which 50 percent, by weight, will be smaller and 50 percent will be larger.

Note: Recycled concrete equivalent may be substituted for all stone classifications for temporary control measures only. Concrete broken into the sizes meeting the appropriate classification, containing no steel reinforcement, and having a minimum density of 150 pounds per cubic foot may be used as an equivalent.

Table H.1: Geotextile Fabrics

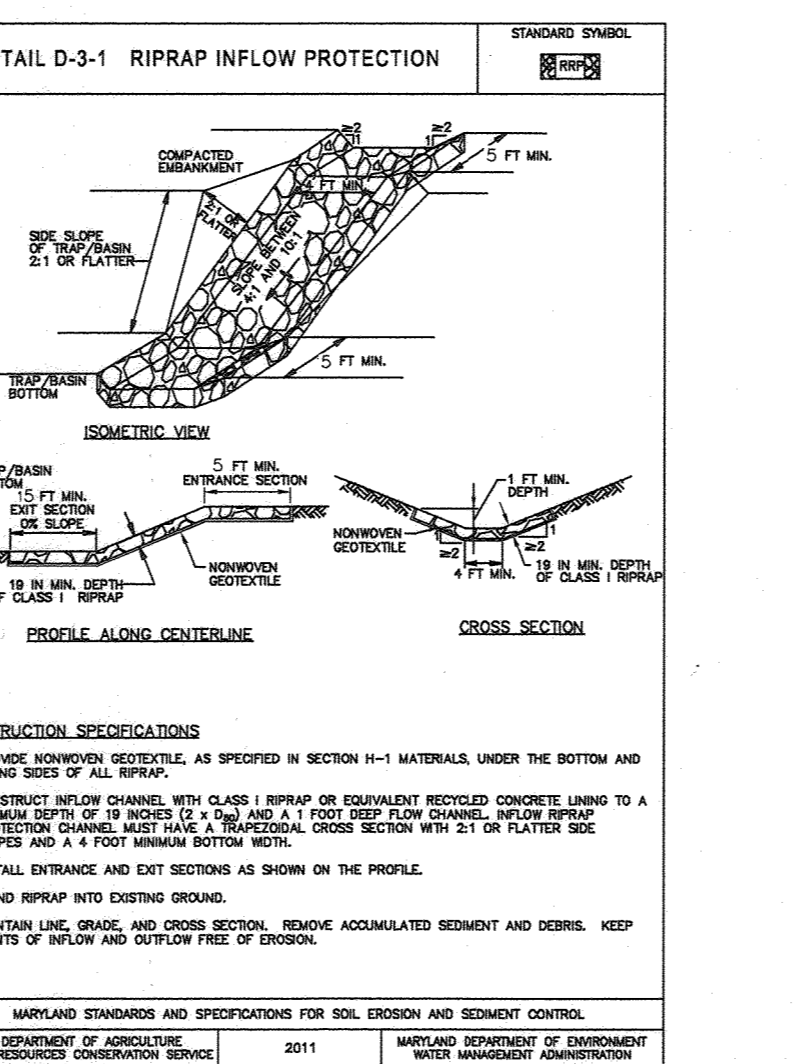
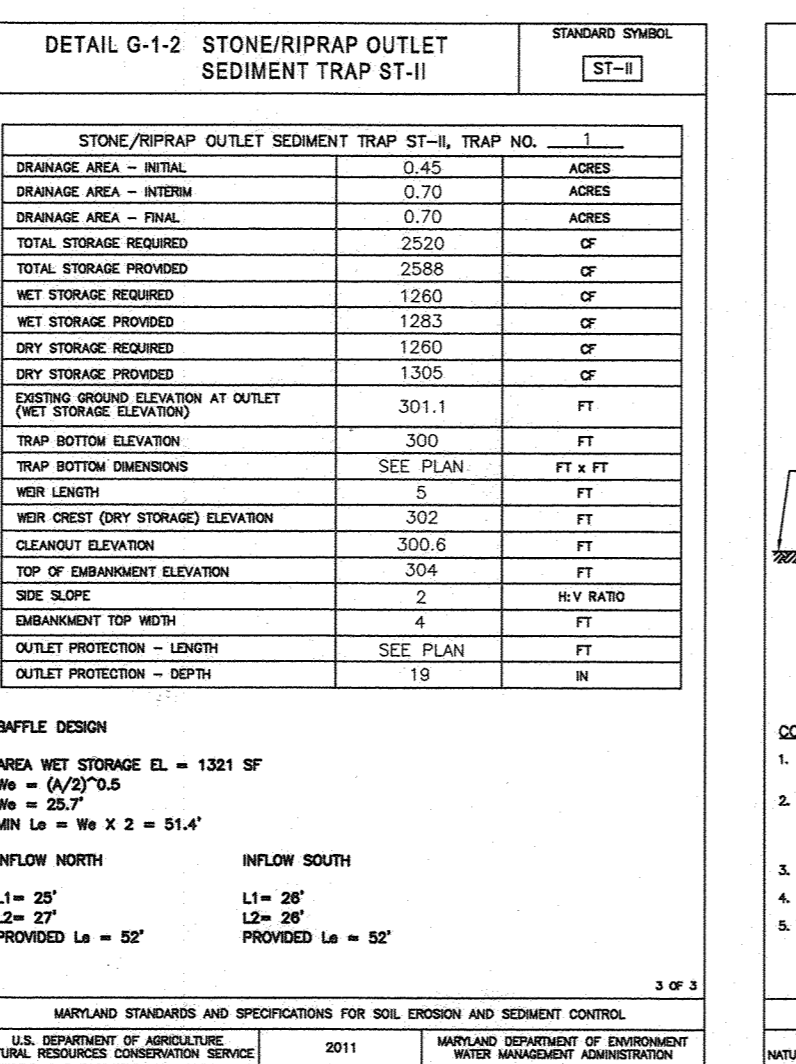
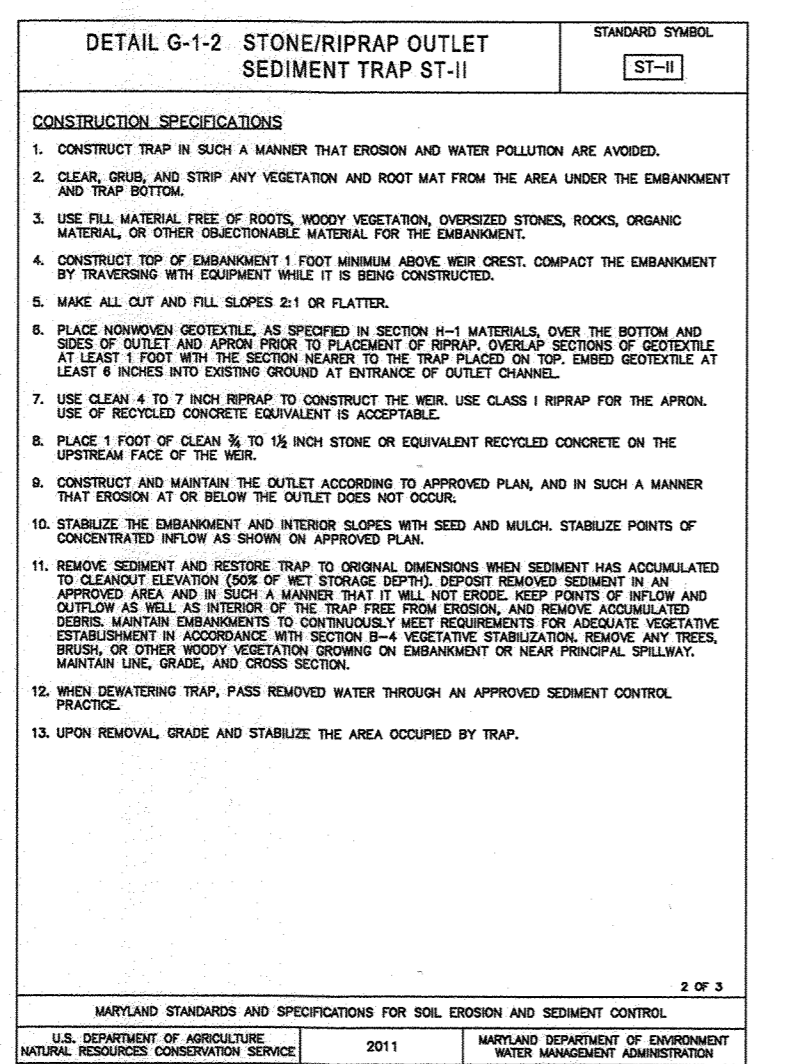
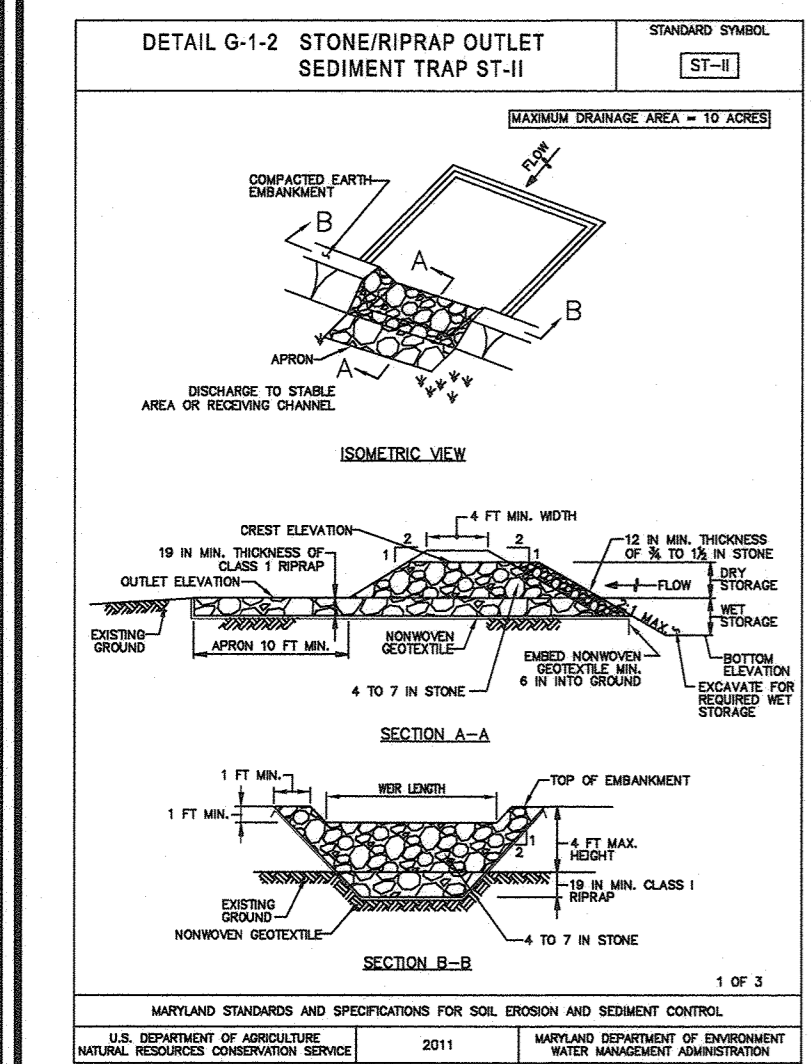
PROPERTY	TEST METHOD	WOVEN SPLIT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200lb	200lb	370lb	270lb	200lb	200lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4633	75lb	75lb	100lb	100lb	80lb	80lb
Caulate Strength	ASTM D-4621	450	450	1000	1000	600	600
Apparent Opening Size (2)	ASTM-D-4751	U.S. Sieve 30 (0.60 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permeability	ASTM-D-4491	0.02 sec ⁻¹		0.02 sec ⁻¹		1.1 sec ⁻¹	
Ultraviolet Resistance	ASTM D-4355	70% strength		70% strength		70% strength	
Retained at 300 hours		70% strength		70% strength		70% strength	

(1) All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.
 (2) Values for AOS represent the average maximum opening.
 Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPPE) and conform to the values in Table H.1.
 The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 85 percent by weight of polypropylene or polyester, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including swells.
 When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled out over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

SOILS LEGEND
 HOWARD COUNTY SOILS MAP #24

SYMBOL	NAME / DESCRIPTION	GROUP	K FACTOR	ERODIBLE
SFB	SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES	B	0.32	NO
FaA	FALLSANGRASS SANDY LOAM, 0 TO 2 PERCENT SLOPES/NORTHERN COASTAL PLAIN	D	0.24	NO

—SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
 —HOWARD COUNTY SOILS MAP NUMBER 24
 —K VALUES PER https://www.howardcounty.org/documents - "K" FACTORS (USE KW)
 NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL EROSION FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT * LIMITS OF PROJECT



APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT

OWNER/DEVELOPER CERTIFICATION:
 I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT MARYLAND APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 OWNER/DEVELOPER SIGNATURE: *Michael P. Pfen*
 PRINTED NAME & TITLE: Michael P. Pfen (MEMBER)

DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 DESIGNER'S SIGNATURE: *Robert H. Vogel*
 PRINTED NAME: ROBERT H. VOGEL
 MD REGISTRATION NO. 16193
 R.L.S. OR R.L.A. (Circle one)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD S.C.D. SIGNATURE: *Alexandra Bostick*
 DATE: 09/14/22

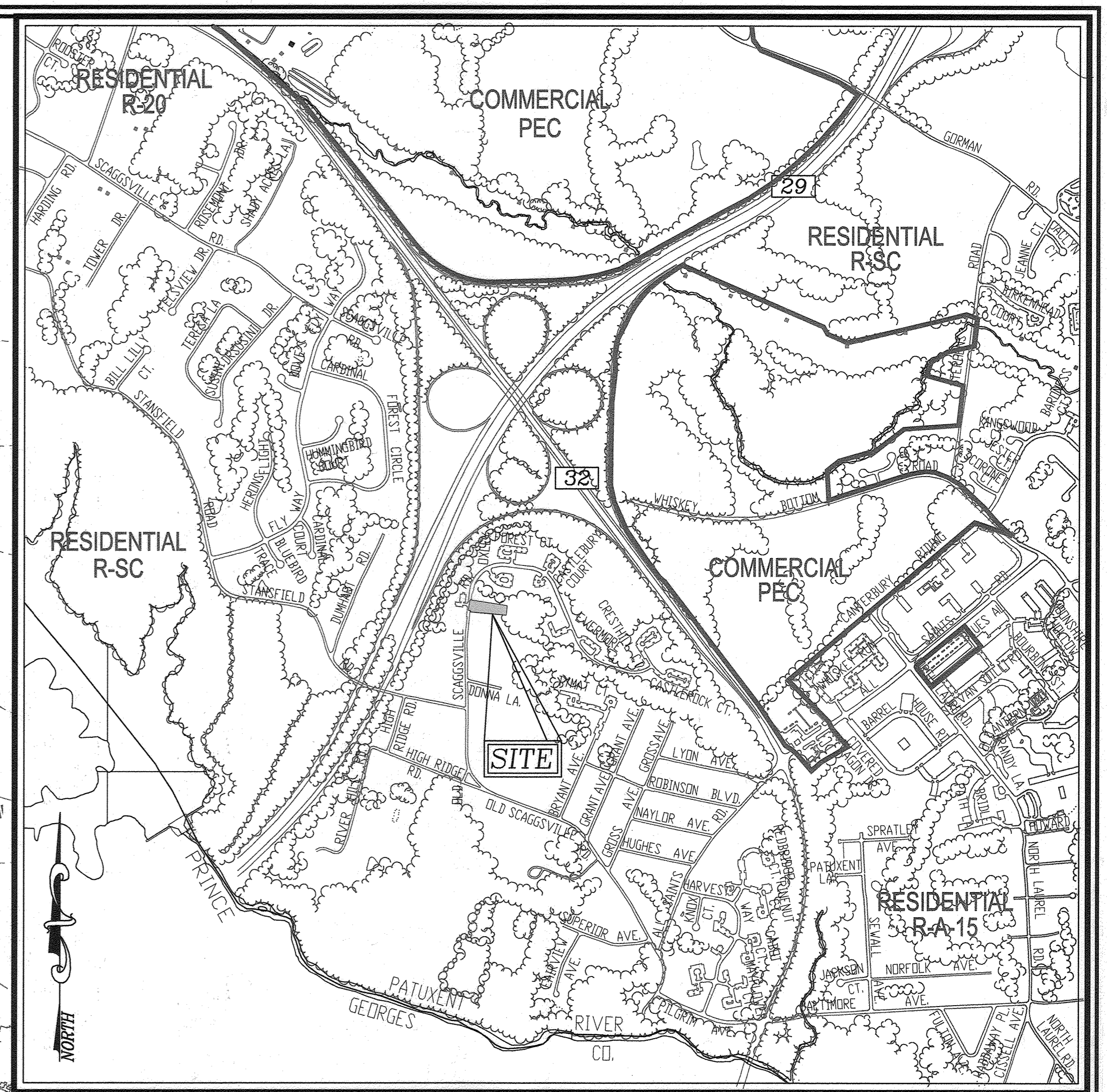
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DESIGN BY: RHV
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 CHECKED BY: RHV
 DATE: AUGUST 2022
 SCALE: AS SHOWN
 W.O. NO.: 40548

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. 18163, EXPIRATION DATE: 09-27-2022

3 SHEET OF 9



FOREST CONSERVATION PLAN
SCALE 1"=30'

GENERAL NOTES

- WATERSHED NAME: PATUXENT RIVER UPPER
WATERSHED NUMBER: 2131104
- A. GROSS SITE AREA: 1.14 AC.
 - B. NET SITE AREA: 1.14 AC.
 - C. AREA OF 100-YEAR FLOODPLAIN: 0.00 AC.
 - D. AREA OF WETLANDS AND BUFFERS(ONSITE): 0.05 AC. +/-
 - E. AREA OF STREAM AND BUFFERS(ONSITE): 0.00 AC.
 - F. AREA OF > 25% STEEP SLOPES: 0.00 AC.
 - G. EXISTING FOREST (FSD): 0.00 AC.**
 - H. PROPOSED USE: R-SC RESIDENTIAL
- * 0.00474 AC WETLAND
**EXISTING STAND ONSITE IS LESS THAN 10,000 SF

REFORESTATION PLANTING SCHEDULE
FOREST CONSERVATION EASEMENTS
0.20 ACRES

EASEMENT #	QTY.	BOTANICAL NAME	SIZE	SPACING
#1: 0.45 AC. (REFORESTATION) @ 200 TREES/AC. = 90 TREES				
8		BETULA NIGRA RIVER BIRCH	1" CAL.	15' x 15'
8		PLATANUS OCCIDENTALIS AMERICAN SYCAMORE	1" CAL.	15' x 15'
8		NYSSA SYLVATICA BLACK GUM	1" CAL.	15' x 15'
8		QUERCUS RUBRA RED OAK	1" CAL.	15' x 15'
8		TAXODIUM DISTICHUM COMMON BALD PINE	1" CAL.	15' x 15'

AFFORESTATION TO BE PROVIDED

0.2 ACRES
1" CALIPER TREES
40 TREES @ 200 TREES PER ACRE OR EQUAL

FOREST CONSERVATION AREA DO NOT DISTURB
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED
VIOLATIONS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

- NOTE:**
- BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 - SIGNS TO BE PLACED APPROXIMATELY 50-100 FEET APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART. WHERE SIGNS ARE TO BE PLACED AT THE REAR OF PROPOSED LOTS, SPACING SHALL BE APPROX. 25'-30' +/-.
 - ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
 - ALL FOREST CONSERVATION SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.
 - SIGN LOCATION SYMBOL = ●

FOREST CONSERVATION AREA SIGNS

Specimen Tree Chart

Key	Species	Size (in dbh)	CRZ (feet radius)	Comments
1	Red maple	36	54	poor condition, major dieback
2	Tulip poplar	32	48	good condition, twin trunks
3	Tulip poplar	30	45	good condition two fused trunks
4	White oak	41	61.5	good condition - offsite

SOILS LEGEND
HOWARD COUNTY SOILS MAP #24

SYMBOL	NAME / DESCRIPTION	GROUP	K FACTOR	ERODIBLE
SfB	SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES	B	0.32	NO
FaBa	FALLSINGTON SANDY LOAMS, 0 TO 2 PERCENT SLOPES, NORTHERN COASTAL PLAIN	D	0.24	NO

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
HOWARD COUNTY SOILS MAP NUMBER 24
K-VALUES PER https://www.howarddcd.org/documents - *K FACTORS (USE KW)
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 * LIMITS OF PROJECT

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5066 Glee Arm, Maryland 21057 Telephone (410) 832-2480 Fax (410) 832-2488

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDC03MD0610044B2

John P. Canoles

JOHN CANOLES
DNR QUALIFIED PROFESSIONAL

FSD NOTES:

- No rare, threatened, or endangered species were observed on the property.
- Surrounding land use is high density residential and forest.
- Wetlands are present on the subject property.
- No 100 year floodplain is present on the subject property.
- No historic elements or cemeteries are known to occur on this property.
- No steep slopes are present on the site.
- There are approximately 0.4 acres of forest located within 100 feet of the subject property.

FOREST CONSERVATION WORKSHEET
Version 1.0

Project: Magnolia Manor East
Date: July 18, 2018

NET TRACT AREA	Acres
A. Total tract area	1.14
B. Area within 100 Year Floodplain & Utility Easement	0
C. Area to remain in agricultural production	0
D. Net Tract Area	1.14

LAND USE CATEGORY:	ARA	MDR	IDA	MPD	CIA
E. Afforestation Threshold (percentage)	15%				0.2
F. Conservation Threshold (percentage)	25%				0.2

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)	0
H. Area of forest above afforestation threshold	0
I. Area of forest above conservation threshold	0

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation	NA
K. Clearing permitted without mitigation	Break Even Point

PROPOSED FOREST CLEARING

L. Total area of forest to be Cleared or Retained Outside FCE	0
M. Total area of forest to be Retained in FCE	0

PLANTING REQUIREMENTS

N. Reforestation for clearing above Conservation Threshold	0
O. Reforestation for clearing below Conservation Threshold	0
P. Credit for retention above conservation threshold	0
R. Total reforestation required	0
S. Total afforestation required	0.2
T. Total reforestation and afforestation required	0.2

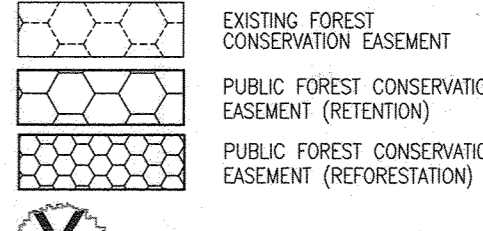
FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY FOREST CONSERVATION MANUAL.
NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY ONSITE AFFORESTATION OF 0.2 AC. FINANCIAL SURETY = \$4,356 (8,712 SF @ \$0.50/SF) SHALL BE POSTED WITH THIS FINAL PLAN DEVELOPER AGREEMENT.

NOTE:

- REFER TO SHEET 5 FOR AFFORESTATION AND PLANTING NOTES

VICINITY MAP
SCALE: 1"=1,000'
ADC MAP COORDINATE: 40-A6 & A7

FOREST CONSERVATION LEGEND:



BENCHMARKS

HOWARD COUNTY BENCHMARK 47H2 (CONC. MON.)
N 529706.4221 E 1355445.3364 ELEV. 256.068
LOCATION: ALL SAINTS ROAD, 240' +/- SOUTH OF NORTH LAUREL ROAD 2.89 FEET FROM STORM DRAIN INLET, 1' EAST OF CURB, 0.6 BELOW SURFACE

HOWARD COUNTY BENCHMARK 47C (CONC. MON.)
N 528939.7281 E 1354223.5536 ELEV. 226.272
LOCATION: MEDIUM ISLAND 29 FEET WEST OF ALL SAINTS RD RT 216 INTERSECTION, 1.4 FEET WEST OF SOUTHWEST INLET CORNER

OWNER
MAGNOLIA MANOR, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

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

REVISE SIDEWALK AND ADD SIDEWALK EASEMENT REVISION **8-31-23** DATE

FINAL SUPPLEMENTAL PLAN
FOREST CONSERVATION PLAN
NOTES & DETAILS
MAGNOLIA MANOR EAST
LOTS 1 - 4 AND OPEN SPACE LOT 5 & 6
A SUBDIVISION OF TAX MAP 47 - PARCEL 154 AND A RESUBDIVISION OF MAGNOLIA MANOR - NON-BUILDABLE PARCEL A - PLAT 25489

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BLOCK: 19 ZONING: R-SC
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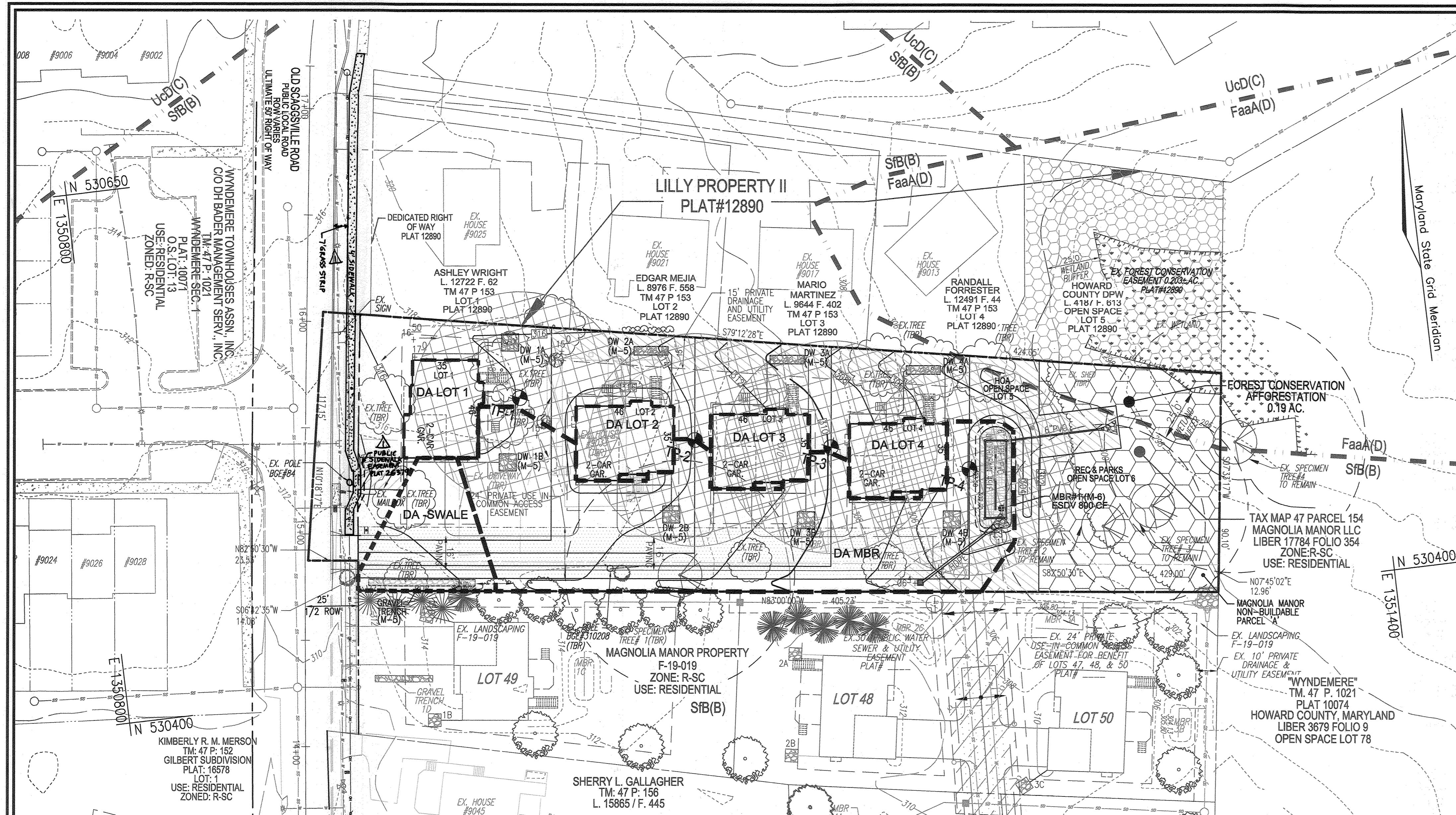
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ROBERT H. VOGEL, PE No. 16193

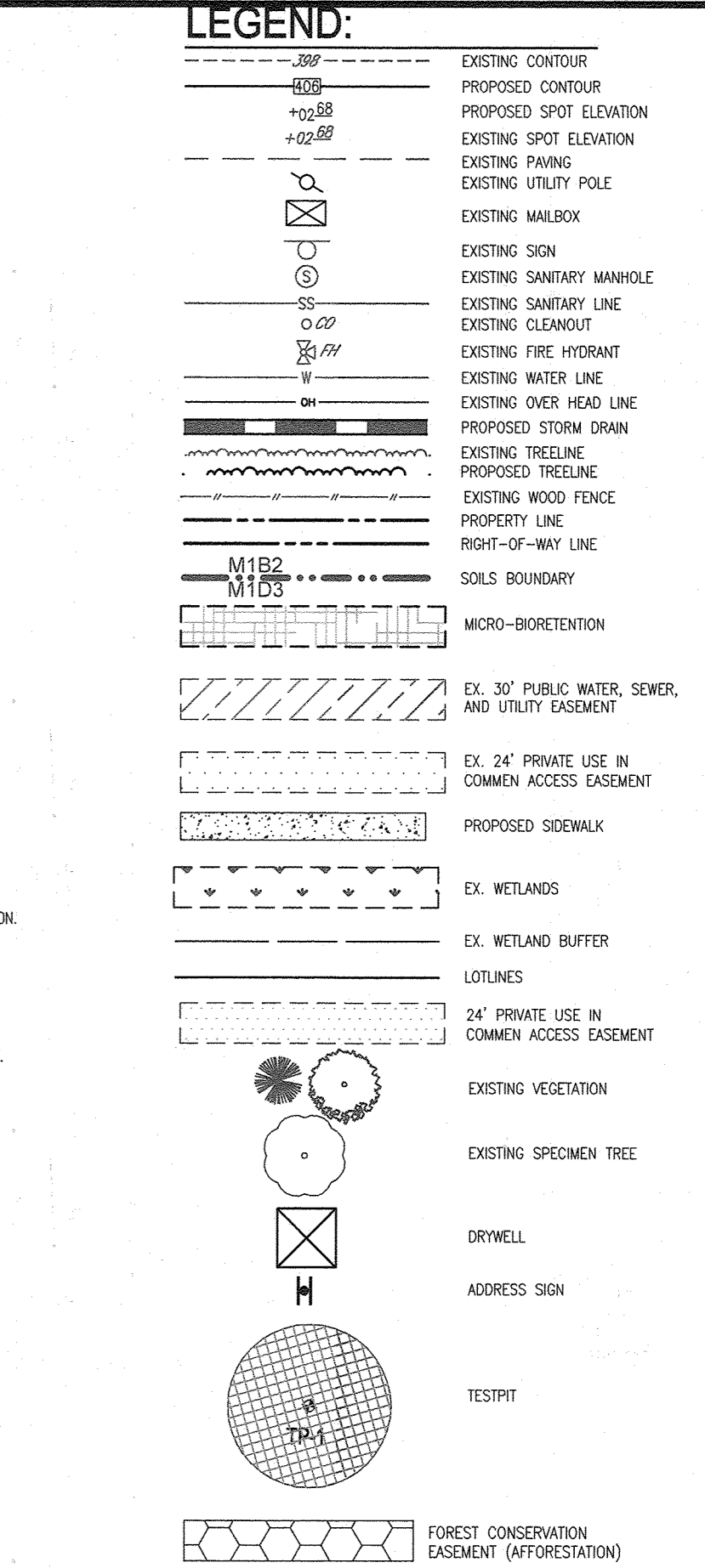
APPROVED: DEPARTMENT OF PUBLIC WORKS
James 10/04/2022
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John P. Canoles 10-27-22
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DEPARTMENT OF LAND DEVELOPMENT
HBT 11/22
CHIEF, DIVISION OF LAND DEVELOPMENT



- APPENDIX B.A.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS**
- MATERIAL SPECIFICATIONS**
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.A.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 UNDER THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
• SOIL COMPOST - 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 (50%-50%) AND COMPOST (50% TO 100% SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION), AND COMPOST (50%)
• CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 2%
• PH - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
THESE SHALL BE AT LEAST ONE SOIL TEST PER PRACTICE. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURE 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 REES TO REMOVE ORIGINAL SOIL. PRACTICES ARE ENCOURAGED USING LOWER, USE EQUIPMENT WITH WIDE TRACKS OR MESH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LOGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE AVOIDED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO RESTRUCTURE THE SOIL PROFILE, THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROLLERS TYPICALLY DO NOT KEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE SANDY SAND LAYER. PUMP ANY POKED WATER BEFORE PREPARING (ROTILLING) BASE.
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. SAND BIORETENTION MATERIALS WITH LOGS SHOULD BE COMPACTED AS A COMPACT LAYER OR A DOZER/LOADER WITH MESH TRACKS.
 - PLANT MATERIAL**
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION 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 ACCEPTABLE MULCH. FINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIPHERY OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
POST-INSTALLATION CARE: PLANT MATERIAL SHOULD BE PLANTED WITHIN THE BIORETENTION FACILITY. 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 AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" X 4" STAKES ONLY AS NECESSARY AND THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EXACTLY 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. GRASSES AND LEGUME PLOWS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
 - 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 AASHTO M-278) IN A GRAVEL LAYER.
• PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER FOOT OF PIPE LENGTH.
• SLOPE - UNDERDRAINS SHOULD BE INSTALLED WITH A MINIMUM SLOPE OF 0.5% TO INSURE FLOW.
• GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
• SOIL COLLECTION - THE SOIL COLLECTION SYSTEM SHALL BE PROVIDED (ONCE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR FOR CLOGGING.
• A 6" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".
• THE MAIN COLLECTION 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 1,000 SQUARE FEET OF SURFACE AREA).
 - MISCELLANEOUS**
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER DRY WELLS (M-5)

- THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
- WATER LEVELS IN SEVERAL BUILDING OR MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL YEARS TO INSURE TRENCH DRAINAGE.
- LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN THE FACILITY COMES 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 LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL. TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

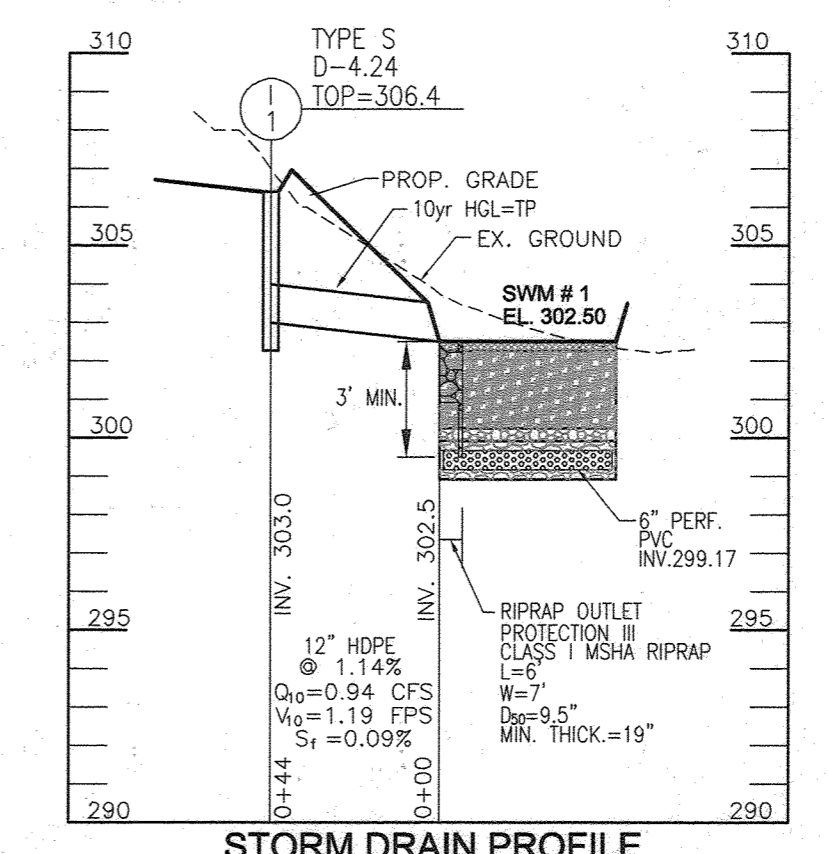
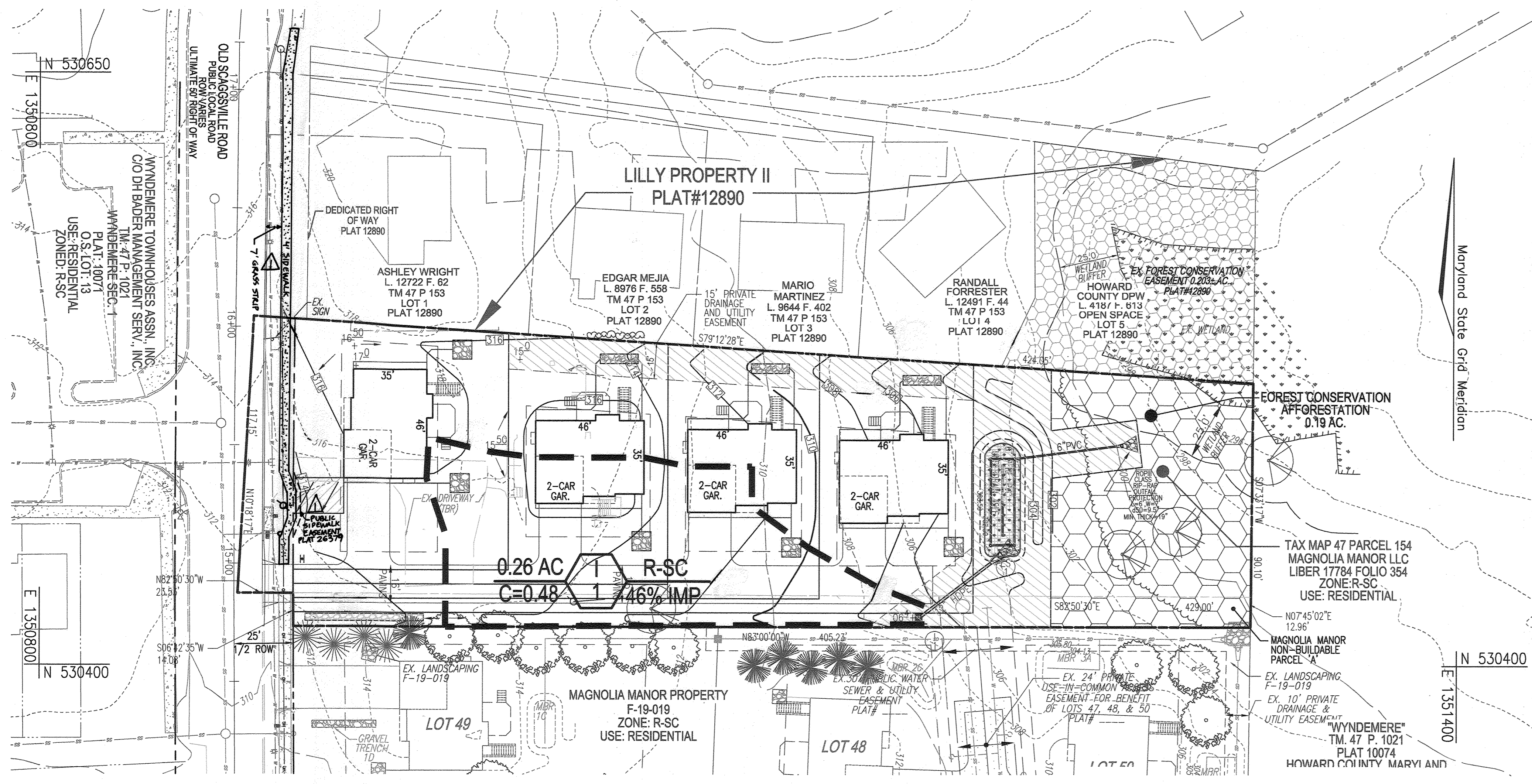
ROBERT H. VOGEL ENGINEERING, INC.

MAGNOLIA MANOR EAST

PROJECT: MAGNOLIA MANOR EAST
 AREA: 12.12 AC
 AREA: 0.98 AC
 IMPERVIOUS: 0.31 AC
 TARGET P: 3.56 IN
 RY: 0.36
 ESUV: 1911

GROSS AREA: 12.12 AC
 LIMIT OF DISTURBANCE: 0.31 AC
 IN: 3.56 IN
 CF: 0.36
 TOTAL ESUV TARGET: 1911

DRAINAGE AREA	AREA	PERCENT IMPERVIOUS	RY	ESUV	ESUV MIN	ESUV MAX	ESUV TARGET	ESUV PROVIDED
LOT 1	1546	0	1.00	0.95	122	318	193	256
LOT 2	1546	0	1.00	0.95	122	318	215	256
LOT 3	1546	0	1.00	0.95	122	318	215	256
LOT 4	1546	0	1.00	0.95	122	318	193	256
LOT 5	1546	0	1.00	0.95	122	318	193	256
LOT 6	1546	0	1.00	0.95	122	318	193	256
LOT 7	1546	0	1.00	0.95	122	318	193	256
LOT 8	1546	0	1.00	0.95	122	318	193	256
LOT 9	1546	0	1.00	0.95	122	318	193	256
LOT 10	1546	0	1.00	0.95	122	318	193	256
LOT 11	1546	0	1.00	0.95	122	318	193	256
LOT 12	1546	0	1.00	0.95	122	318	193	256
LOT 13	1546	0	1.00	0.95	122	318	193	256
LOT 14	1546	0	1.00	0.95	122	318	193	256
LOT 15	1546	0	1.00	0.95	122	318	193	256
LOT 16	1546	0	1.00	0.95	122	318	193	256
LOT 17	1546	0	1.00	0.95	122	318	193	256
LOT 18	1546	0	1.00	0.95	122	318	193	256
LOT 19	1546	0	1.00	0.95	122	318	193	256
LOT 20	1546	0	1.00	0.95	122	318	193	256
LOT 21	1546	0	1.00	0.95	122	318	193	256
LOT 22	1546	0	1.00	0.95	122	318	193	256
LOT 23	1546	0	1.00	0.95	122	318	193	256
LOT 24	1546	0	1.00	0.95	122	318	193	256
LOT 25	1546	0	1.00	0.95	122	318	193	256
LOT 26	1546	0	1.00	0.95	122	318	193	256
LOT 27	1546	0	1.00	0.95	122	318	193	256
LOT 28	1546	0	1.00	0.95	122	318	193	256
LOT 29	1546	0	1.00	0.95	122	318	193	256
LOT 30	1546	0	1.00	0.95	122	318	193	256
LOT 31	1546	0	1.00	0.95	122	318	193	256
LOT 32	1546	0	1.00	0.95	122	318	193	256
LOT 33	1546	0	1.00	0.95	122	318	193	256
LOT 34	1546	0	1.00	0.95	122	318	193	256
LOT 35	1546	0	1.00	0.95	122	318	193	256
LOT 36	1546	0	1.00	0.95	122	318	193	256
LOT 37	1546	0	1.00	0.95	122	318	193	256
LOT 38	1546	0	1.00	0.95	122	318	193	256
LOT 39	1546	0	1.00	0.95	122	318	193	256
LOT 40	1546	0	1.00	0.95	122	318	193	256
LOT 41	1546	0	1.00	0.95	122	318	193	256
LOT 42	1546	0	1.00	0.95	122	318	193	256
LOT 43	1546	0	1.00	0.95	122	318	193	256
LOT 44	1546	0	1.00	0.95	122	318	193	256
LOT 45	1546	0	1.00	0.95	122	318	193	256
LOT 46	1546	0	1.00	0.95	122	318	193	256
LOT 47	1546	0	1.00	0.95	122	318	193	256
LOT 48	1546	0	1.00	0.95	122	318	193	256
LOT 49	1546	0	1.00	0.95	122	318	193	256
LOT 50	1546	0	1.00	0.95	122	318	193	256
LOT 51	1546	0	1.00	0.95	122	318	193	256
LOT 52	1546	0	1.00	0.95	122	318	193	256
LOT 53	1546	0	1.00	0.95	122	318	193	256
LOT 54	1546	0	1.00	0.95	122	318	193	256
LOT 55	1546	0	1.00	0.95	122	318	193	256
LOT 56	1546	0	1.00	0.95	122	318	193	256
LOT 57	1546	0	1.00	0.95	122	318	193	256
LOT 58	1546	0	1.00	0.95	122	318	193	256
LOT 59	1546	0	1.00	0.95	122	318	193	256
LOT 60	1546	0	1.00	0.95	122	318	193	256
LOT 61	1546	0	1.00	0.95	122	318	193	256
LOT 62	1546	0	1.00	0.95	122	318	193	256
LOT 63	1546	0	1.00	0.95	122	318	193	256
LOT 64	1546	0	1.00	0.95	122	318	193	256
LOT 65	1546	0	1.00	0.95	122	318	193	256
LOT 66	1546	0	1.00	0.95	122	318	193	256
LOT 67	1546	0	1.00	0.95	122	318	193	256
LOT 68	1546	0	1.00	0.95	122	318	193	256
LOT 69	1546	0	1.00	0.95	122	318	193	256
LOT 70	1546	0	1.00	0.95	122	318	193	256
LOT 71	1546	0	1.00	0.95	122	318	193	256
LOT 72	1546	0	1.00	0.95	122	318	193	256
LOT 73	1546	0	1.00	0.95	122	318	193	256
LOT 74	1546	0	1.00	0.95	122	318	193	256
LOT 75	1546	0	1.00	0.95	122	318	193	256
LOT 76	1546	0	1.00	0.95	122	318	193	256
LOT 77	1546	0	1.00	0.95	122	318	193	256
LOT 78	1546	0	1.00	0.95	122	318	193	256
LOT 79	1546	0	1.00	0.95	122	318	193	256
LOT 80	1546	0	1.00	0.95	122	318	193	256
LOT 81	1546	0	1.00	0.95	122	318	193	256
LOT 82	1546	0	1.00	0.95	122	318	193	256
LOT 83	1546	0	1.00	0.95	122	318	193	256
LOT 84	1546	0	1.00	0.95	122	318	193	256
LOT 85	1546	0	1.00	0.95	122	318	193	256
LOT 86	1546	0	1.00	0.95	122	318	193	256
LOT 87	1546	0	1.00	0.95	122	318	193	256
LOT 88	1546	0	1.00	0.95	122	318	193	256
LOT 89	1546	0	1.00	0.95	122	318	193	256
LOT 90	1546	0	1.00	0.95	122	318	193	256
LOT 91	1546	0	1.00	0.95	122	318	193	256
LOT 92	1546	0	1.00	0.95	122	318	193	256
LOT 93	1546	0	1.00	0.95	122	318	193	256
LOT 94	1546	0	1.00	0.95	122	318	193	256
LOT 95	1546	0	1.00	0.95	122	318	193	256
LOT 96	1546	0	1.00	0.95	122	318	193	256
LOT 97	1546	0	1.00	0.95	122	318	193	256
LOT 98	1546</							



PIPE SCHEDULE

Size	Class	Total Length
12"	HDPE	39

* The total length of pipe is linear feet only.
** All proposed storm drain is private.
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	DETAIL	REMARKS
ES-1	12" HDPE END SECTION		302.50	303.50		
I-1	'S'		303.00	306.40	D-4.24	

Note: Coordinate is given to center of structure at face of curb for pass thru inlets and center of structure for manholes and other inlets.

DETAIL D-4-1-C ROCK OUTLET PROTECTION III

CONSTRUCTION NOTES

- RIPPAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
- USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
- PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3% TO 1% INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
- CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
- WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
- CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDERS IN WITH EXISTING GROUND.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLOADED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

"MICRO-BIORETENTION/RAINGARDEN" PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AN 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 (0.229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDY SUMMARY.
- FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH.

MICRO-BIORETENTION PLANTING REQUIREMENTS

MBR-RG #	LF	AREA	STEMS REQUIRED (0.0229)	STEMS PROVIDED	IG	IV	HQ	LR	PV	BA	AG	TOTAL
MBR-1	337	650	14	14	2	2	2	4	4	1	21	42
TOTALS	337	650	14	14	2	2	2	4	4	1	21	42

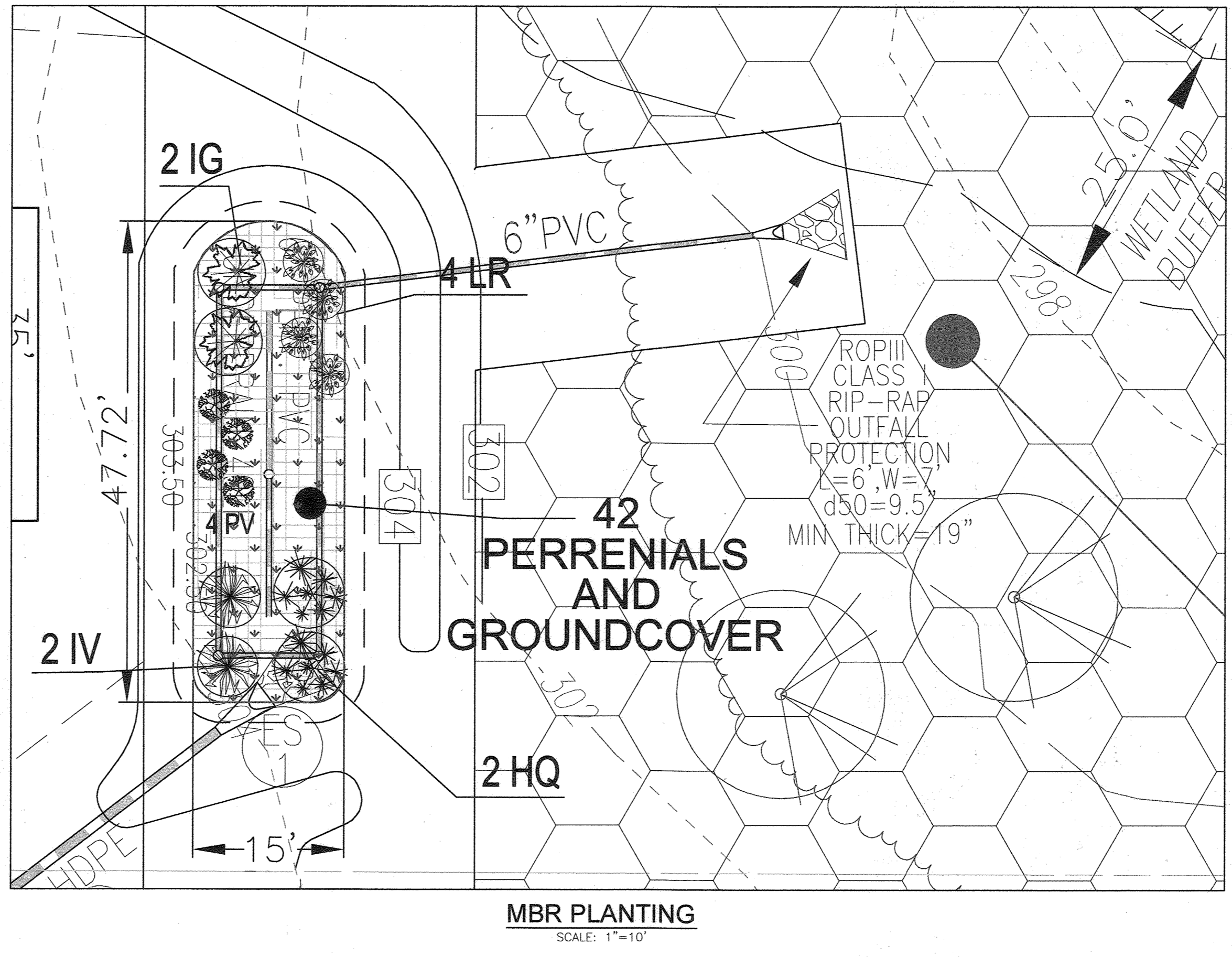
BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0229 STEMS PER SQUARE FOOT).

Appendix A. Landscaping Guidelines for Stormwater BMPs. Specific Landscaping Criteria

Table A.4 Commonly Used Species for Bioretention Areas

Trees	Shrubs	Herbaceous Species
<i>Acer rubrum</i>	<i>Arctostaphylos</i>	<i>Andropogon virginicus</i>
<i>Red Maple</i>	<i>Baccharis</i>	<i>Bromus</i>
<i>Rubus nigra</i>	<i>Cephalanthus occidentalis</i>	<i>Eupatorium purpureum</i>
<i>Black Birch</i>	<i>Burns</i>	<i>Joe Pye Weed</i>
<i>Juniperus virginiana</i>	<i>Hamamelis virginiana</i>	<i>Scirpus pungens</i>
<i>Eastern Red Cedar</i>	<i>Witch Hazel</i>	<i>Three Square Bulrush</i>
<i>Chionodoxa virginiana</i>	<i>Vaccinium corymbosum</i>	<i>Iris verticillata</i>
<i>Fringe Tree</i>	<i>Highbush Blueberry</i>	<i>Blue Flag</i>
<i>Nyssa sylvatica</i>	<i>Ilex glabra</i>	<i>Lobelia cardinalis</i>
<i>Black Gum</i>	<i>Inkberry</i>	<i>Cardinal Flower</i>
<i>Diospyros virginiana</i>	<i>Ilex verticillata</i>	<i>Panicum virgatum</i>
<i>Periwinkle</i>	<i>Winterberry</i>	<i>Wistergrass</i>
<i>Pistacia occidentalis</i>	<i>Viburnum dentatum</i>	<i>Dichanthium scoparium</i>
<i>Sycamore</i>	<i>Arrowwood</i>	<i>Broom Panic Grass</i>
<i>Quercus alba</i>	<i>Lindera benzoin</i>	<i>Indivicta lachnosa</i>
<i>Pine Oak</i>	<i>Spicebush</i>	<i>Tall Coneflower</i>
<i>Quercus phellos</i>	<i>Myrica pensylvanica</i>	<i>Scirpus caryopatus</i>
<i>White Oak</i>	<i>Bayberry</i>	<i>Woolgrass</i>
<i>Saxifraga</i>		<i>Vernonia noveboracensis</i>
<i>Black Willow</i>		<i>New York Ironweed</i>

Note 1: For more options on plant selection for bioretention, consult *Bioretention Manual* (ETAB, 1993) or the *Design of Stormwater Filtering Systems* (Clayton and Schaefer, 1997).



BIORETENTION PLANTING SCHEDULE (SHRUB/ORNAMENTAL GRASSES)

LEGEND KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	2	ILEX GLABRA "SHAMROCK" INKBERRY HOLLEY	1 GALLON	
IV	2	ITEA VIRGINICA "HENRY'S GARNETT" VIRGINIA SWEETSPICE	1 GALLON	
HQ	2	HYDRANGEA QUERCIFOLIA OAKLEAF HYDRANGEA	1 GALLON	
LR	4	LEUCOETHO RACEMOSA FETTERBUSH	1 GAL.	
PV	4	PANICUM VIRGATUM SWITCHGRASS	1 GAL.	

BIORETENTION PERENNIALS/GROUND COVER PLANTING SCHEDULE

LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
	21	BAPTISIA AUSTRALIS FALSE INDIGO	4" POT	12"-18" O.C. FOR SIDES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP.
	21	ACORUS GRAMINEUS "OGON" GOLDEN VAREGATED SWEET FLAG	1 QT.	

NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN TABLE A-4 AS SHOWN HEREON.

APPROVED: DEPARTMENT OF PUBLIC WORKS

James MZ 10/04/2022
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

10/27/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION

11/15/22
CHIEF, DIVISION OF LAND DEVELOPMENT

- NOTES:**
- TABLE A.4 IS TAKEN FROM THE "2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II - APPENDIX A."
 - CONTRACTOR SHALL BE FAMILIAR WITH APPENDIX B.4.C. CONSTRUCTION SPECIFICATIONS AND TABLE B.4.1 MATERIAL SPECIFICATIONS. IN ADDITION THE "2000 MARYLAND STORMWATER DESIGN MANUAL - VOLUME II - APPENDIX A OFFERS ADDITIONAL HELPFUL INFORMATION.
 - NO TREES SHALL BE PLANTED WITHIN A RAIN GARDEN FACILITY. USE ONLY SHRUB OR HERBACEOUS SPECIES.
 - ABOVE TABLE A.4. IS FOR INFORMATIONAL PURPOSES ONLY. LANDSCAPE CONTRACTOR SHALL INSTALL PLANTINGS SPECIFIED OR USE APPROVED EQUAL SPECIES WHICH ARE TOLERANT TO FLUCTUATING WATER LEVELS.
 - PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THIS FINAL PLAN.

OWNER
MAGNOLIA MANOR, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

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

REVISE SIDEWALK AND ADD SIDEWALK EASEMENT
REVISION DATE: 8-31-23

FINAL SUPPLEMENTAL PLAN
MICRO-BIORETENTION - NOTES & DETAILS AND
STORM DRAIN DRAINAGE AREA MAP & PROFILE
MAGNOLIA MANOR EAST
LOTS 1 - 4 AND OPEN SPACE LOT 5 & 6
A SUBDIVISION OF TAX MAP 47 - PARCEL 154 AND A RESUBDIVISION OF
MAGNOLIA MANOR - NON-BUILDABLE PARCEL A - PLAT 25489

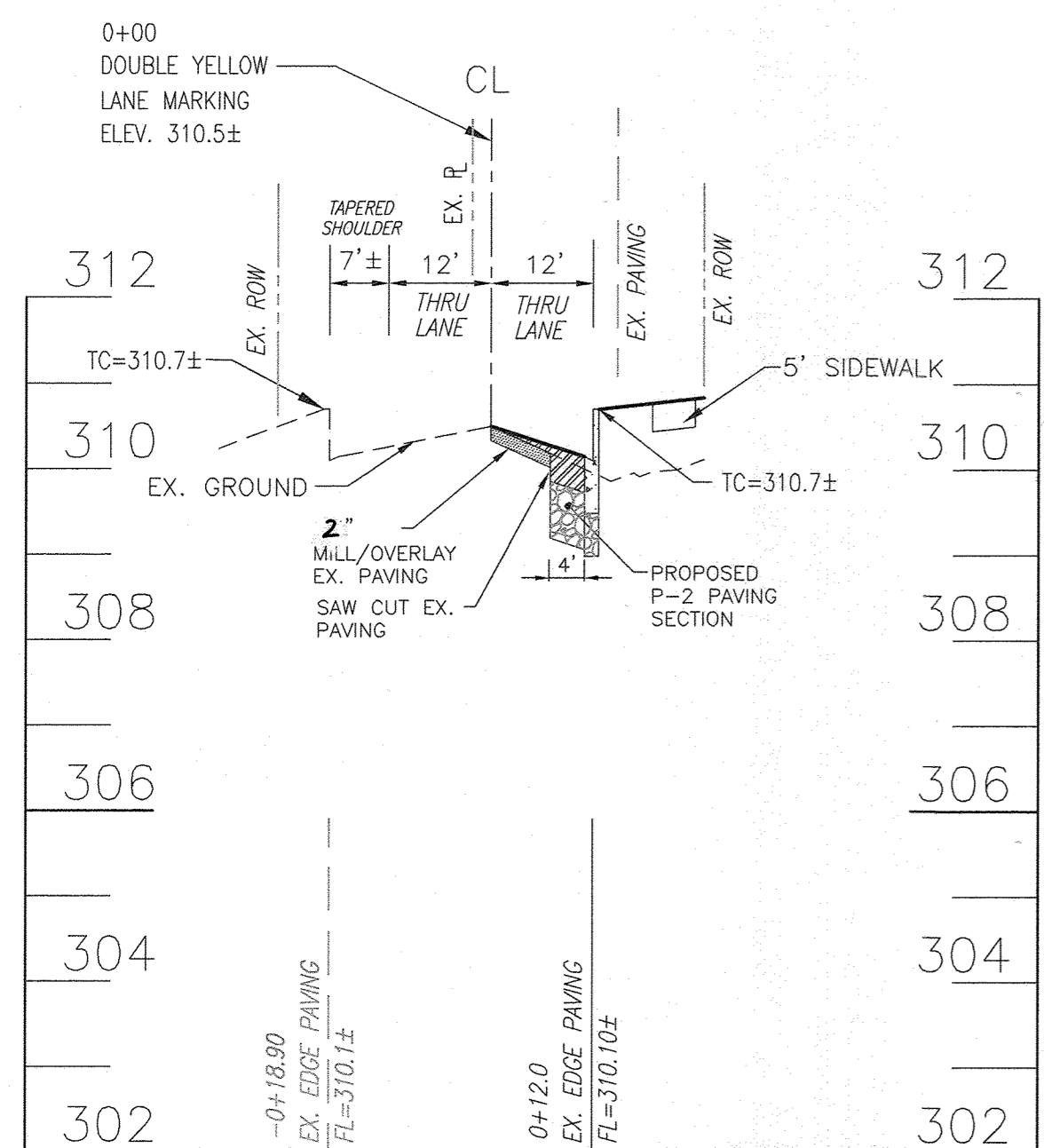
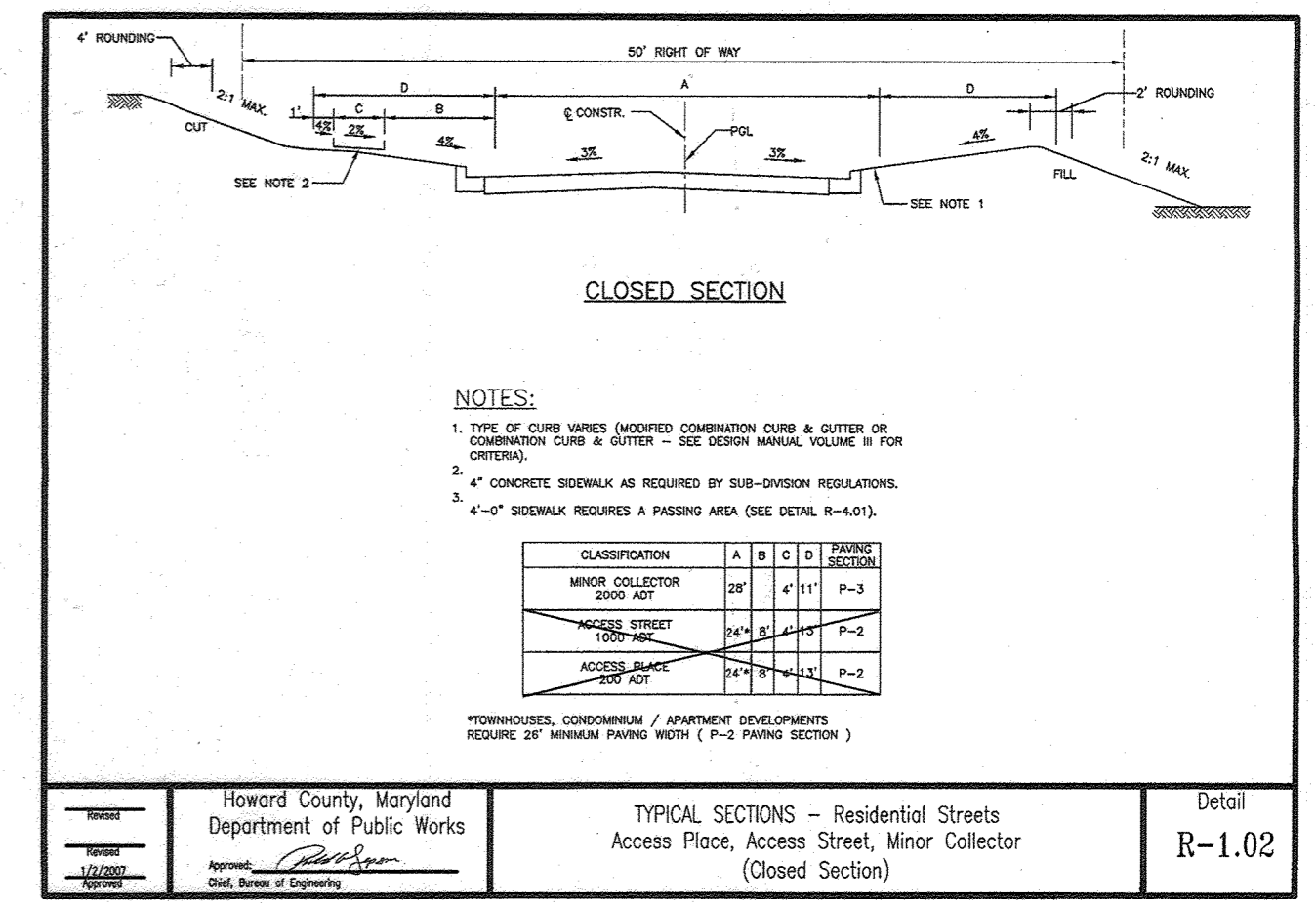
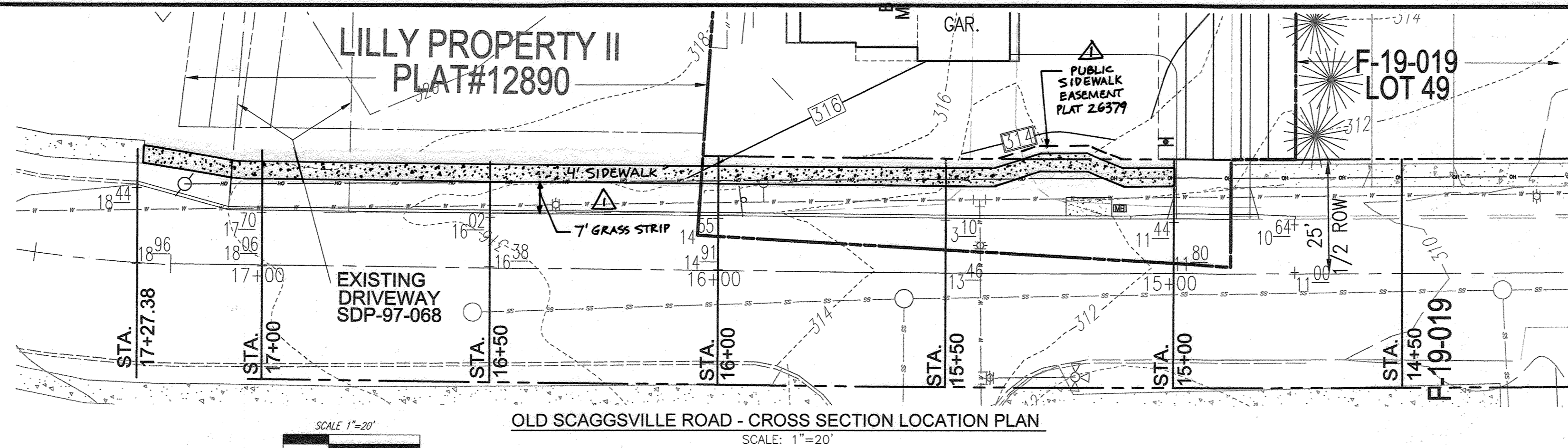
TAX MAP: 47 PARCEL: 154 BLOCK: 19 ZONING: R-SC
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLCOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

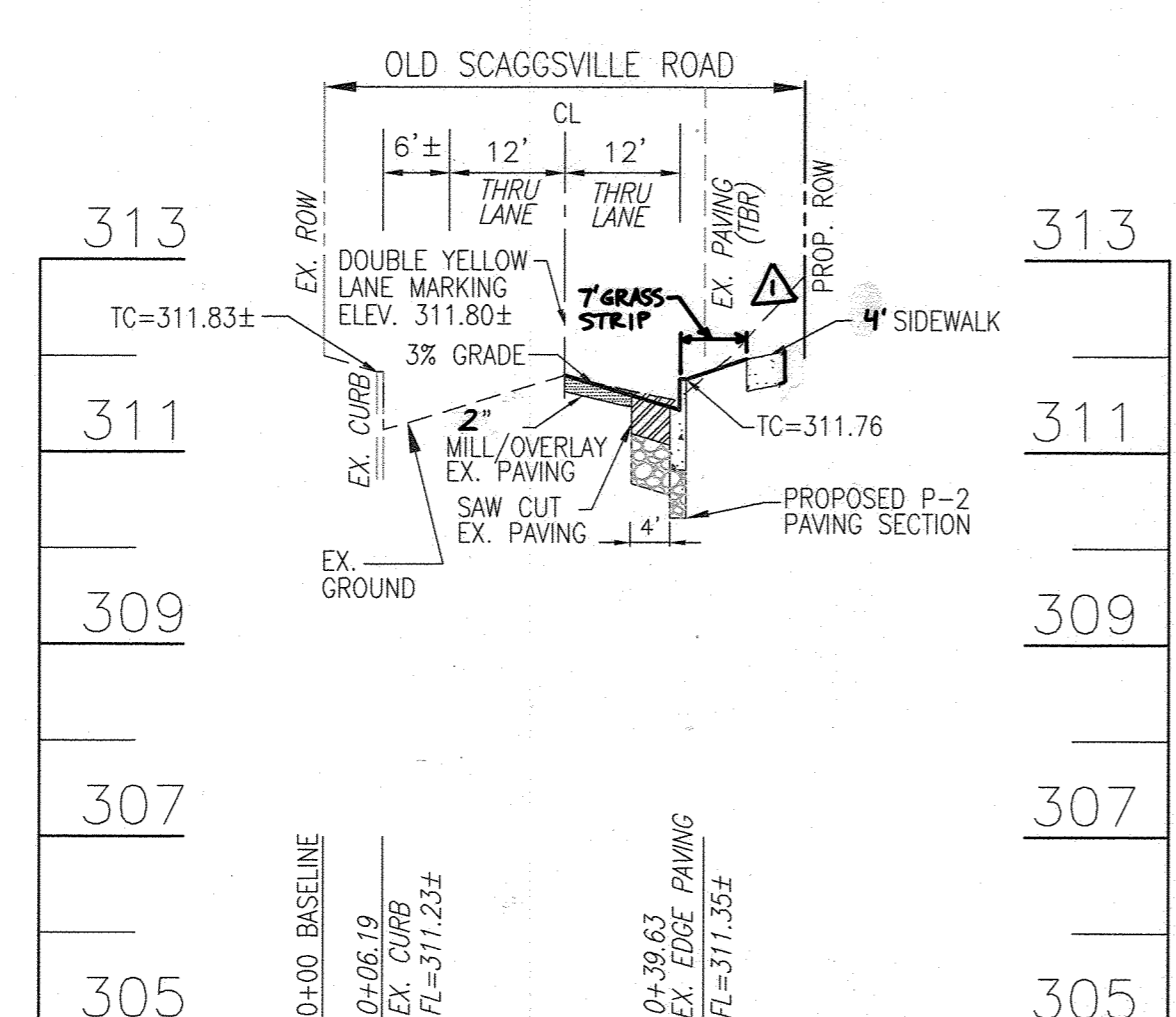
DESIGN BY: RHV
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUGUST 2022
SCALE: AS SHOWN
W.O. NO.: 40548

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: 09-27-2022.

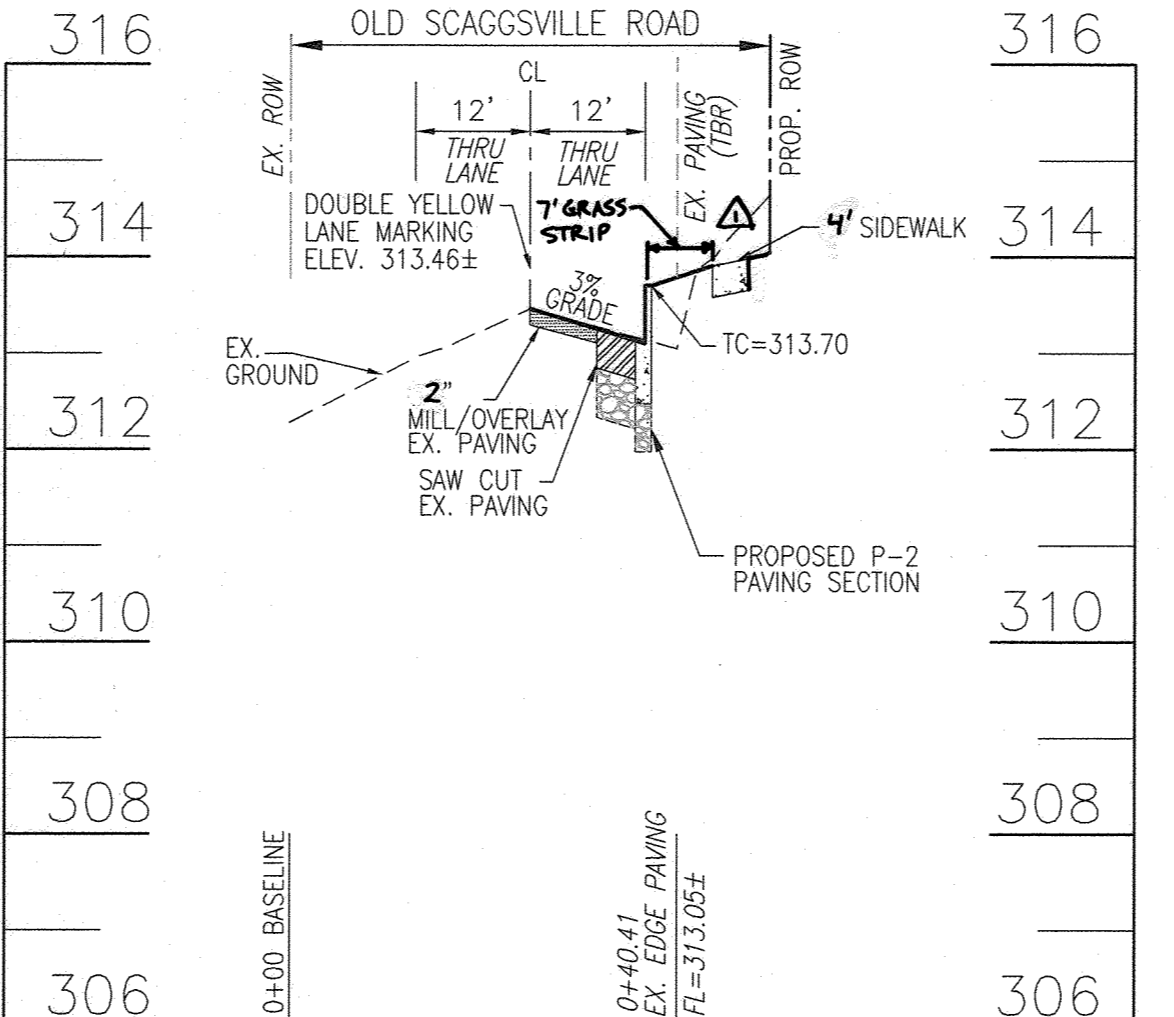
8 SHEET OF 9



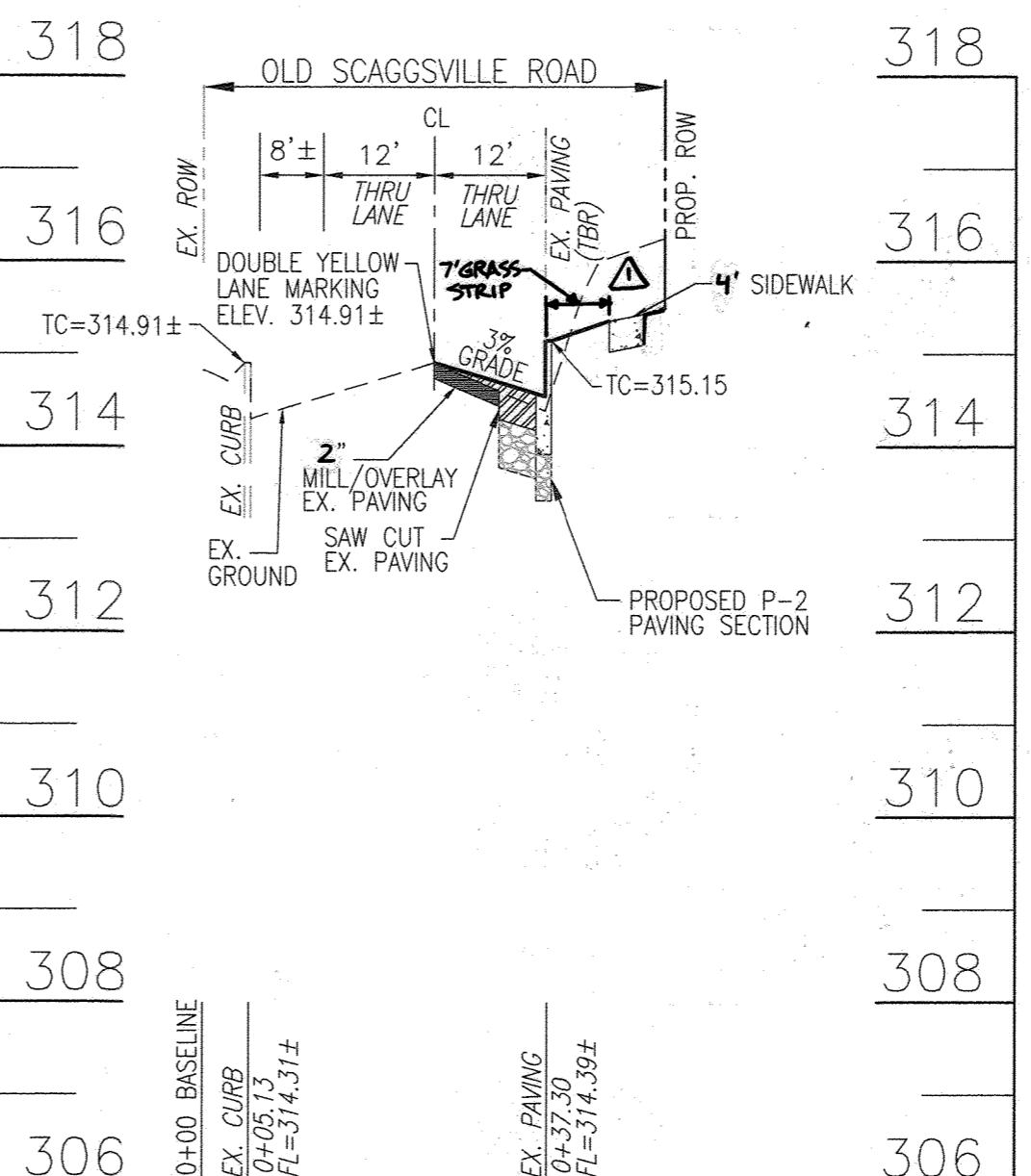
OLD SCAGGSVILLE ROAD
F-19-019 STA. 14+50
SCALE: HORIZONTAL - 1"=20'
VERTICAL - 1"=2'



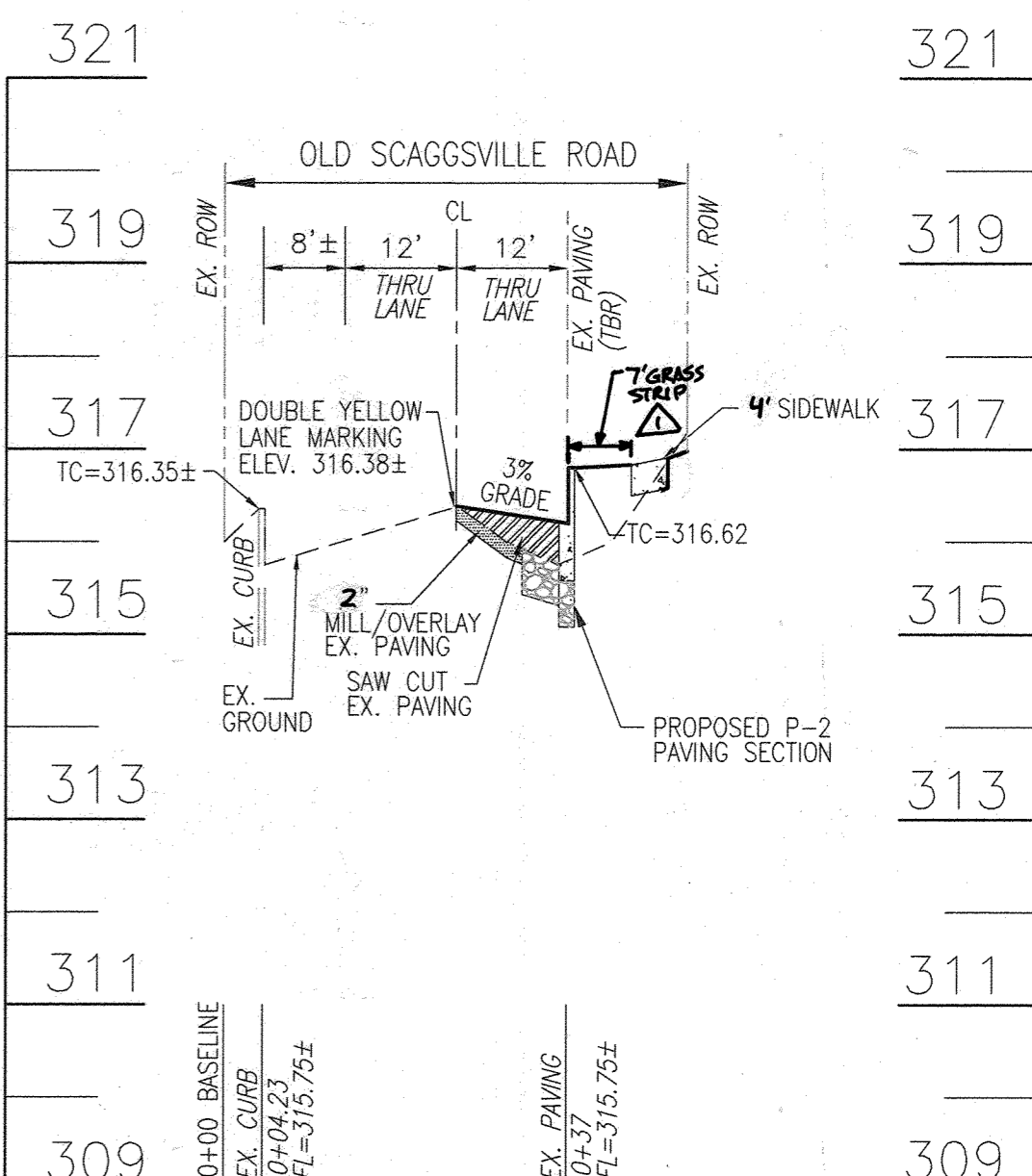
OLD SCAGGSVILLE ROAD
STA. 15+00
SCALE: HORIZONTAL - 1"=20'
VERTICAL - 1"=2'



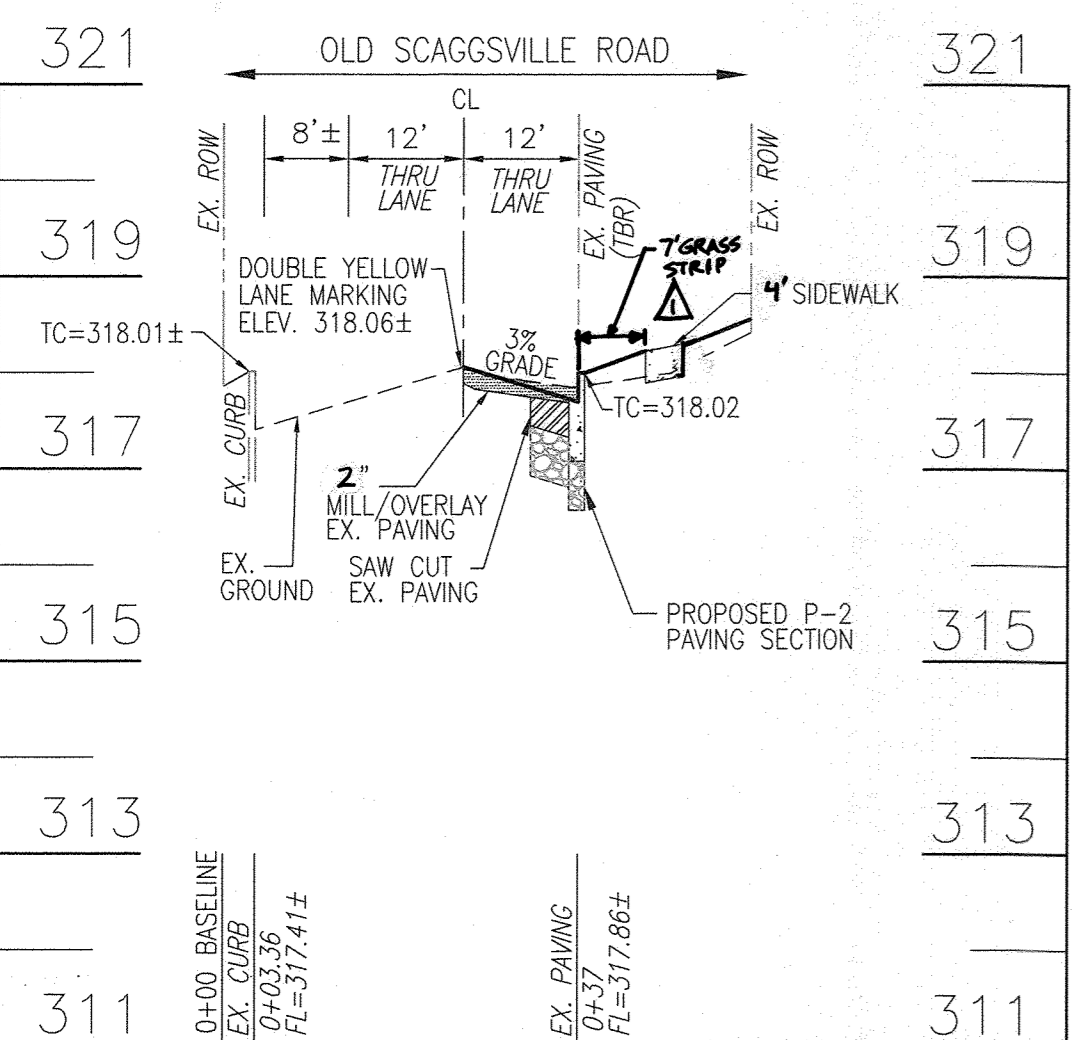
OLD SCAGGSVILLE ROAD
STA. 15+50
SCALE: HORIZONTAL - 1"=20'
VERTICAL - 1"=2'



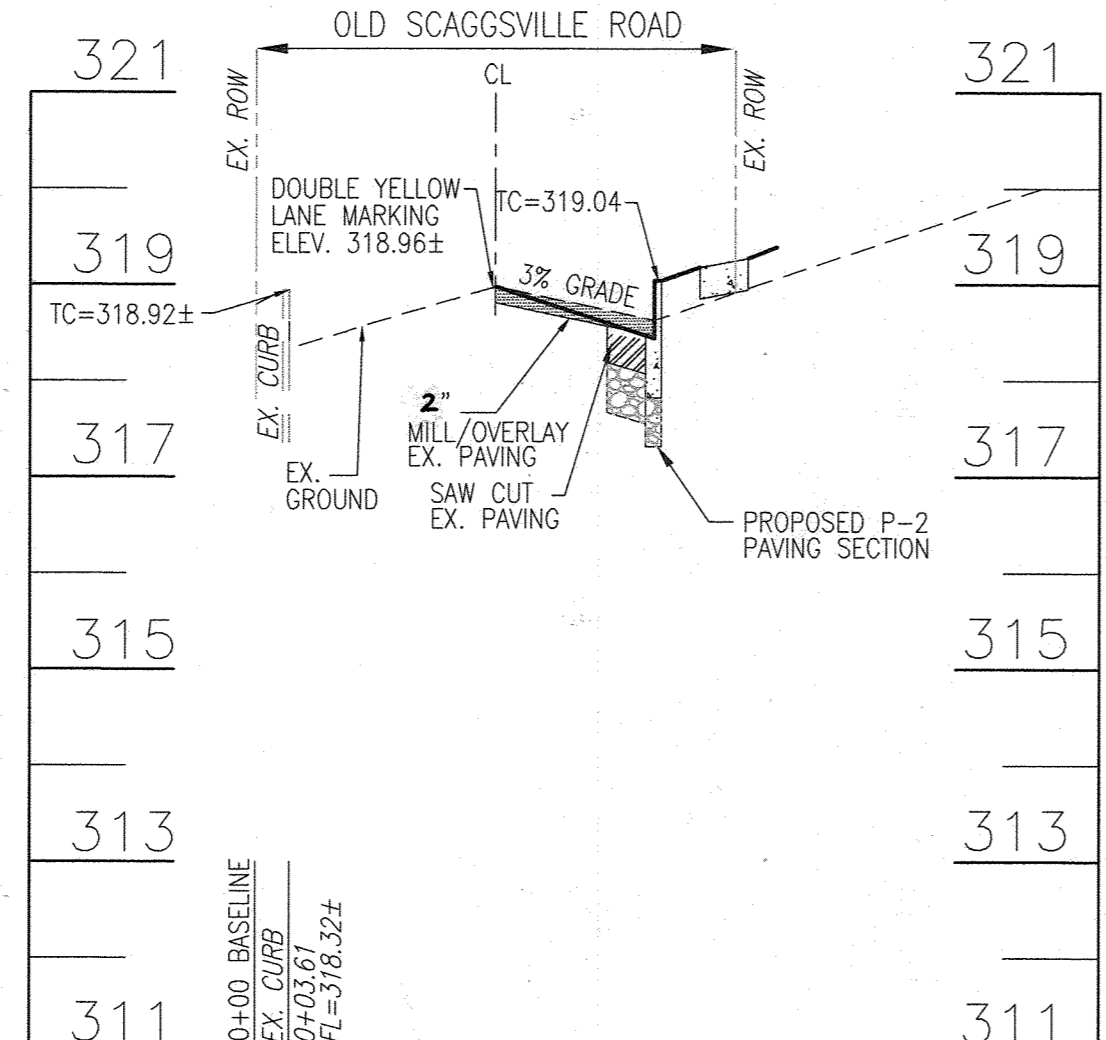
OLD SCAGGSVILLE ROAD
STA. 16+00
SCALE: HORIZONTAL - 1"=20'
VERTICAL - 1"=2'



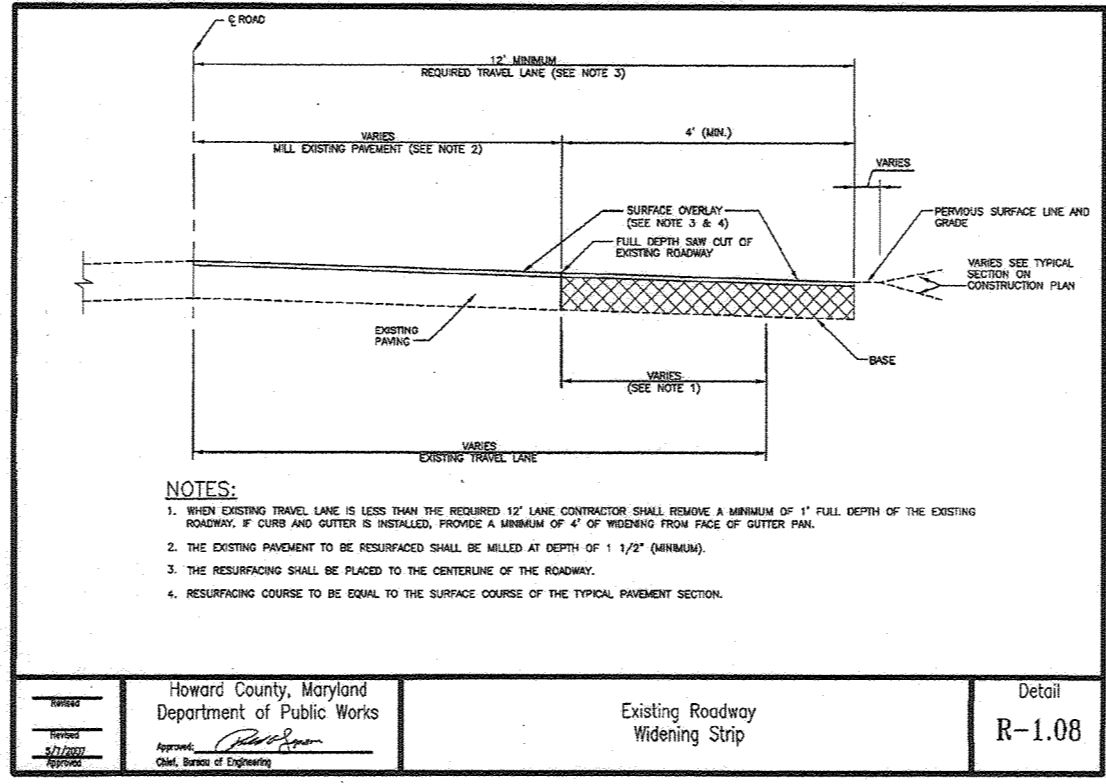
OLD SCAGGSVILLE ROAD
STA. 16+50
SCALE: HORIZONTAL - 1"=20'
VERTICAL - 1"=2'



OLD SCAGGSVILLE ROAD
STA. 17+00
SCALE: HORIZONTAL - 1"=20'
VERTICAL - 1"=2'



OLD SCAGGSVILLE ROAD
STA. 17+27.38
SCALE: HORIZONTAL - 1"=20'
VERTICAL - 1"=2'



NOTE:
SURFACE OVERLAY (2") SHALL EXTEND TO CENTERLINE OF OLD SCAGGSVILLE ROAD.

NOTE:
1. EXISTING DOUBLE YELLOW / CL ELEVATIONS TAKEN FROM FIELD SURVEY ON OR ABOUT JUNE 2015. CONTRACTOR SHALL VERIFY PRIOR TO SETTING CURB GRADES.

OWNER: MAGNOLIA MANOR, LLC
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

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

REVISION	DATE
REVISE SIDEWALK AND ADD SIDEWALK EASEMENT	8-31-23

FINAL SUPPLEMENTAL PLAN
OLD SCAGGSVILLE ROAD
CROSS SECTIONS
MAGNOLIA MANOR EAST
LOTS 1 - 4 AND OPEN SPACE LOT 5 & 6
A SUBDIVISION OF TAX MAP 47 - PARCEL 154 AND A RESUBDIVISION OF MAGNOLIA MANOR - NON-BUILDABLE PARCEL A - PLAT 25489

TAX MAP: 47 PARCEL: 154 BLOCK: 19 ZONING: R-SC
8TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUGUST 2022
SCALE: AS SHOWN
W.O. NO.: 40548

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9 SHEET OF 9

APPROVED: DEPARTMENT OF PUBLIC WORKS
10/04/2022
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
10-27-22
APPROVED: DIVISION OF LAND DEVELOPMENT
11/1/22