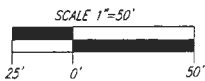


Maryland State Grid Meridian

MODERATE SLOPES
192,883 S.F.

TM 29 P. 25
GRATIA PLENA LLC
L. 15767 F. 428
AREA: 162.074 AC.
ZONED: RC-DEO
USE: AGRICULTURAL

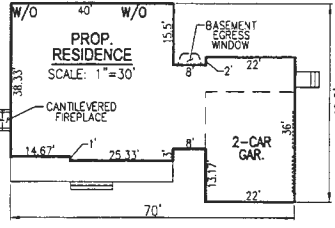
2,000 GALLON SEPTIC TANK EX. GRD. 376.70 HW. IN. 374.28 RW. OUT. 373.81	2,000 GALLON PUMP TANK EX. GRD. 374.97 HW. IN. 373.51 RW. OUT. 373.08
-------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------



SITE LAYOUT
SCALE: 1"=50'

OWNER
GRATIA PLENA, LLC
11140 HOMEWOOD ROAD
ELLICOTT CITY, MD 21042
(443) 677-4612

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



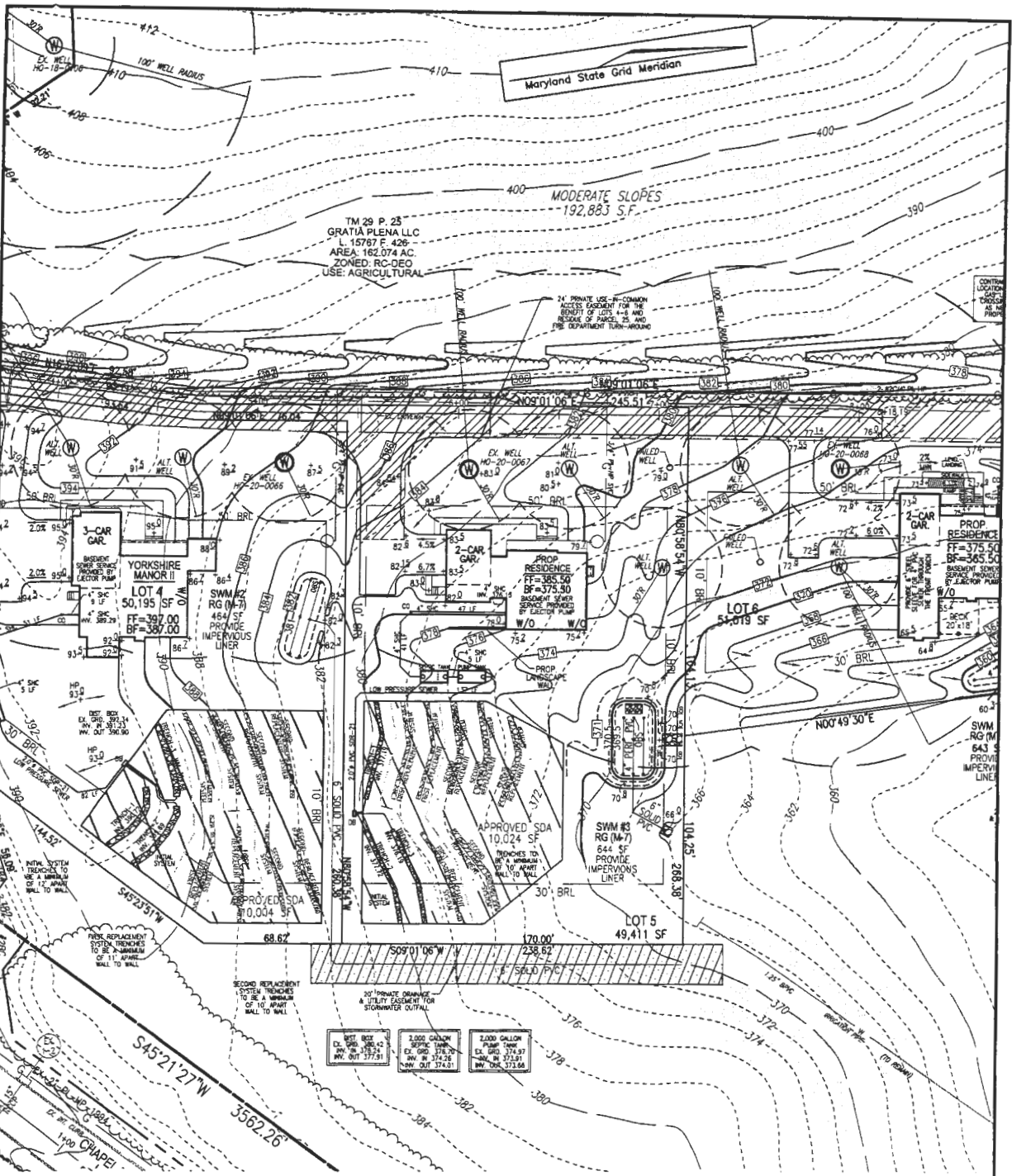
VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7664 F: 410.461.8961 www.timmons.com

PLOT PLAN
CUNNINGHAM PROPERTY - LOT 5
11908 CARITAS WAY
ELLICOTT CITY, MD 21042

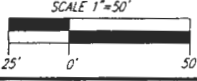
SCALE AS SHOWN
DRAWN BY JMR
CHECKED BY RHV
DATE AUGUST 14, 2023
W. O. # 14-62
SHEET# 1 OF 5

5TH ELECTION DISTRICT
TAX MAP: 29 PARCEL: 25
DPZ REF'S: HO-10-03E, ECP-16-030,
ECP-17-050, GP-17-038, SDP-18-004 & F-19-040

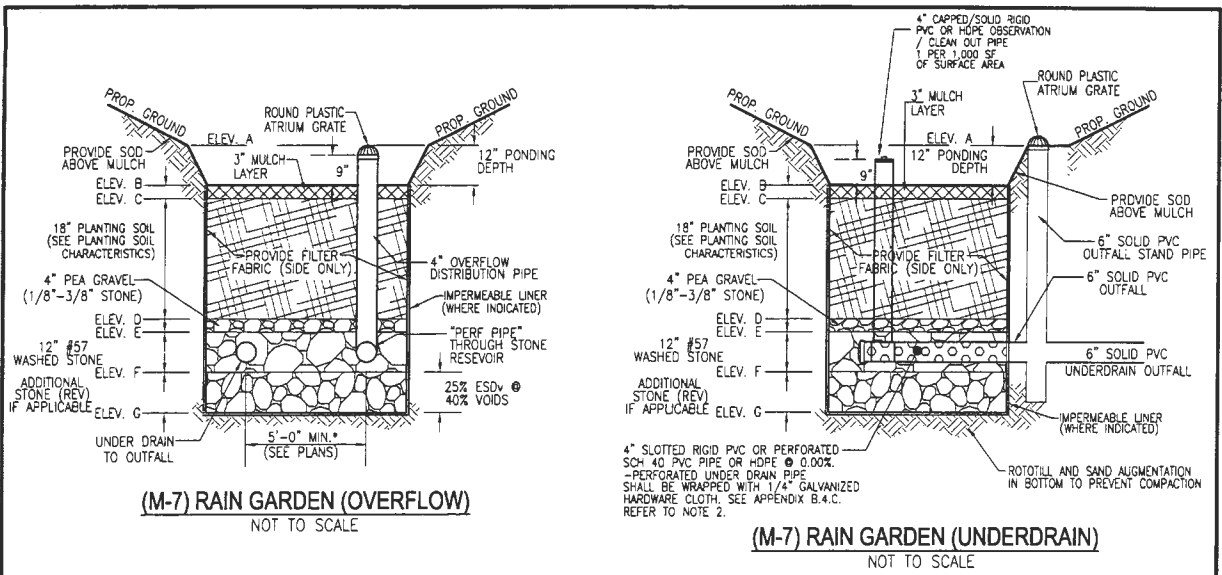
BLOCK: 13
ZONED: RC-DEO
HOWARD COUNTY, MARYLAND



GRADING PLAN
SCALE: 1"=50'



SCALE	AS SHOWN	PLOT PLAN CUNNINGHAM PROPERTY - LOT 5 11908 CARITAS WAY ELLICOTT CITY, MD 21042	BLOCK: 13 ZONED: RC-DEO HOWARD COUNTY, MARYLAND
DRAWN BY	JMR		
CHECKED BY	RHV		
DATE	AUGUST 14, 2023		
W. O. #	14-62		
SHEET#	2 OF 5	5TH ELECTION DISTRICT TAX MAP: 29 PARCEL: 25 DPZ REF'S: HO-10-03E, ECP-16-030, ECP-17-050, GP-17-038, SDP-18-004 & F-19-040	



MICRO-BIORETENTION FACILITY ELEVATIONS (M-6)													
LOT #	FACILITY	A	B	C	D	E	F	G	WEIR ELEV.	4" UNDERDRAIN INV. OUT	6" UNDERDRAIN INV. OUT	OUTFALL INV.	FACILITY SIZE
LOT 5	SWM #3	370.50	369.50	369.25	367.75	367.42	366.42	365.59	370.50	366.75	366.58	366.00	644 SF

*PROVIDE AN IMPERVIOUS LINER WITH THIS FACILITY.

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

1. 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.
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

MICRO-BIORETENTION / RAIN GARDEN NOTES:

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

Material	Specifications	Size	Notes
geotextile fabric (if required)	ASTM-D-4833 (puncture strength - 125 lb.) ASTM-D-4632 (Tensile Strength - 300 lb.)	0.88" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles placed to "separate" sand filter layers.
impermeable liner (if required)	ASTM-D-4833 (thickest) ASTM-D-412 (tensile strength 1,100 lb., elongation 200%) ASTM-D-624 (Tensile resistance - 150 lb./in.) ASTM-D-471 (water absorption: +8 to 2% mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.

IMPERMEABLE LINER SPECIFICATIONS

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

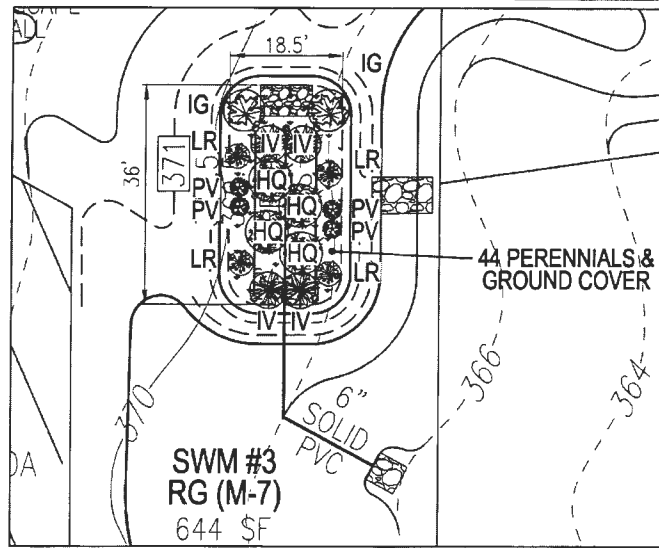
Material	Specifications	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%) coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months; minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	AASHTO M-43	n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 37 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center; 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/2-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; $f'_c = 3500$ psi @ 28 days; normal weight; air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.3R/89; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking.
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Gneissstone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

PLOT PLAN
CUNNINGHAM PROPERTY - LOT 5
11908 CARITAS WAY
ELLCOTT CITY, MD 21042

SCALE	AS SHOWN		
DRAWN BY	JMR		
CHECKED BY	RHV		
DATE	AUGUST 14, 2023		
W. O. #	14-62		
SHEET#	4 OF 5		

5TH ELECTION DISTRICT
TAX MAP: 29 PARCEL: 25
DPZ REF'S: HO-10-03E, ECP-16-030,
ECP-17-050, GP-17-038, SDP-18-004 & F-19-040

BLOCK: 13
ZONED: RC-DEO
HOWARD COUNTY, MARYLAND



SWM-3 PLANTING DETAIL AND DIMENSIONS (644 SF)

SCALE: 1"=20'

RAIN GARDEN PLANTING REQUIREMENTS				PLANTINGS PROVIDED					PERRENIALS/GROUND COVER PROVIDED		
RG - #	AREA	STEMS REQUIRED (0.0229)	STEMS PROVIDED	IG	IV	HQ	LR	PV	BA	AG	TOTAL
SWM-3	644	15	18	2	4	4	4	4	22	22	44

RAIN GARDEN AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0229 STEMS

Table A.4 Commonly Used Species for Bioretention Areas

Trees	Shrubs	Herbaceous Species
<i>Acer rubrum</i> Red Maple	<i>Aesculus parviflora</i> Bottlebrush Buckeye	<i>Andropogon virginicus</i> Broomsedge
<i>Betula nigra</i> River Birch	<i>Cephalanthus occidentalis</i> Buttonbush	<i>Eupatorium perpurea</i> Joe Pye Weed
<i>Juniperus virginiana</i> Eastern Red Cedar	<i>Hamamelis virginiana</i> Witch Hazel	<i>Scirpus pungens</i> Three Square Bulrush
<i>Chionanthus virginicus</i> Fringe-tree	<i>Vaccinium corymbosum</i> Highbush Blueberry	<i>Iris versicolor</i> Blue Flag
<i>Nyssa sylvatica</i> Black Gum	<i>Ilex glabra</i> Inkberry	<i>Lobelia cardinalis</i> Cardinal Flower
<i>Diospyros virginiana</i> Persimmon	<i>Ilex verticillata</i> Winterberry	<i>Panicum virgatum</i> Switchgrass
<i>Platanus occidentalis</i> Sycamore	<i>Viburnum dentatum</i> Arrowwood	<i>Dichanthelium scoparium</i> Broom Panic Grass
<i>Quercus palustris</i> Pin Oak	<i>Lindera benzoin</i> Spicebush	<i>Rudbeckia laciniata</i> Tall Coneflower
<i>Quercus phellos</i> Willow Oak	<i>Myrica pennsylvanica</i> Bayberry	<i>Scirpus cyperinus</i> Woolgrass
<i>Salix nigra</i> Black willow		<i>Vernonia noveboracensis</i> New York Ironweed

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

- TABLE A.4 IS TAKEN FROM THE "2000 MARYLAND STORMWATER 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 MICRO-BIORETENTION FACILITY. USE ONLY SHRUB OR HERBACEOUS SPECIES.
- ABOVE TABLE A.4 IS FOR INFORMATIONAL PURPOSES ONLY. LANDSCAPE CONTRACTOR SHALL INSTALL PLANTINGS SPECIFIED IN THE PLANTING SCHEDULES SHOWN HEREON. CHOOSE FROM THE ABOVE TABLE, OR USE APPROVED EQUAL SPECIES WHICH ARE TOLERANT TO FLUCTUATING WATER LEVELS. IF SUBSTITUTIONS ARE CHOSEN, APPROVAL FROM THE ENGINEER IS REQUIRED.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THIS FINAL PLAN.

RAIN GARDEN PLANTING SCHEDULE				
KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	2	ILEX VERTICILLATA "WINTERBERRY"	1 GALLON	18" O.C.
IV	4	VIBURNUM DENTATUM ARROWWOOD VIBURNUM	1 GALLON	18" O.C.
HQ	4	ASTER NOVAE-ANGLIAE NEW ENGLAND ASTER	1 GALLON	30" O.C.
LR	4	LOBELIA CARDINALIS CARDINAL FLOWER	4" HT	SPECIMIN QUALITY STRAIGHT LEADER
PV	4	KALMIA LATIFOLIA MOUNTAIN LAUREL	4" HT	SPECIMIN QUALITY STRAIGHT LEADER

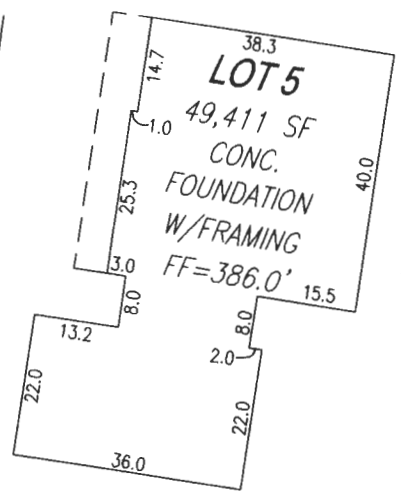
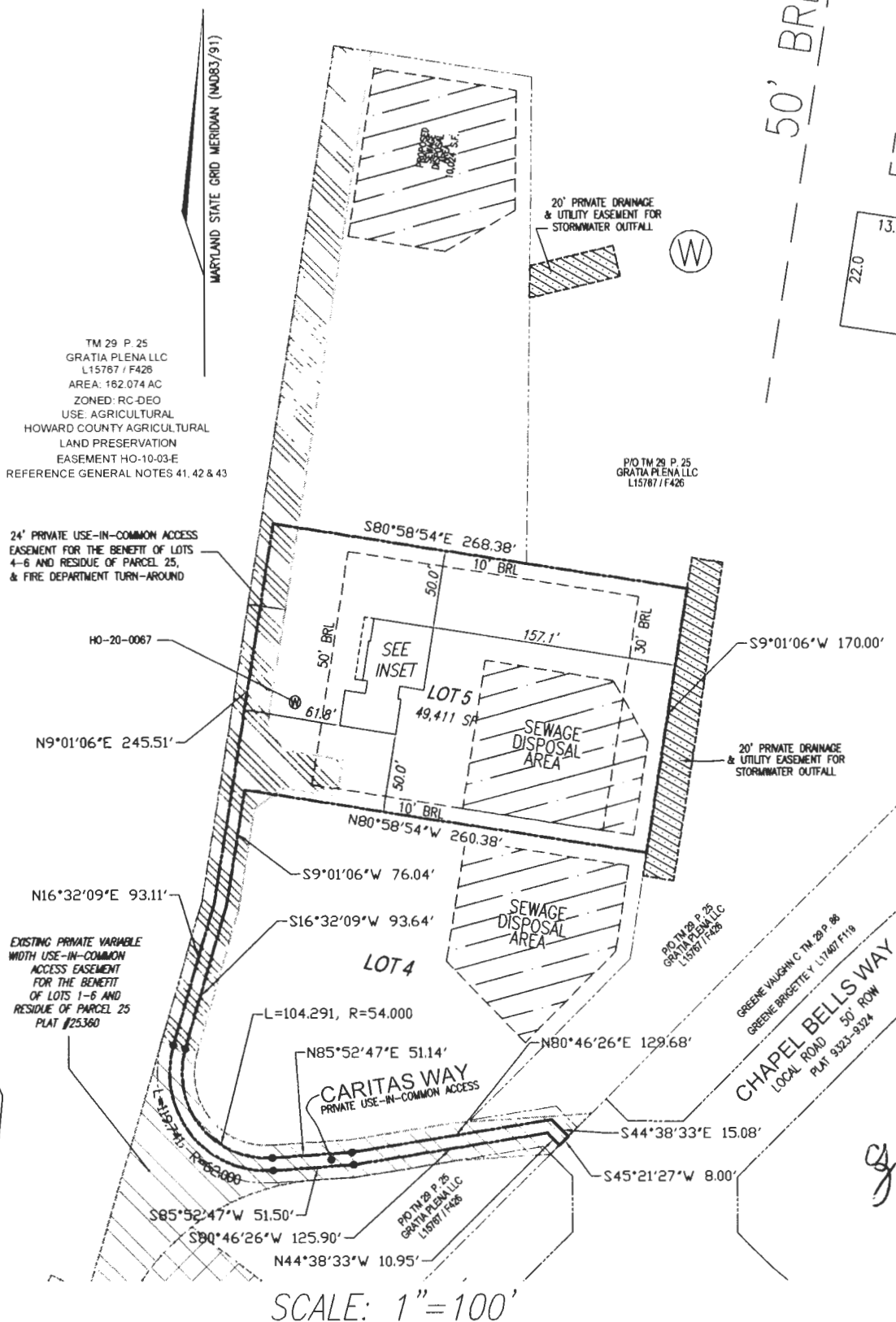
PERENNIALS/GROUND COVER PLANTING SCHEDULE				
LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
[Symbol]	22	RUDBECKIA HIRTA BLACK EYED SUSAN	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR, MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP
[Symbol]	22	PHLOX STOLONIFERA CREEPING PHLOX	1 QT.	

"MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAS SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDV SUMMARY.
- FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH

SCALE AS SHOWN	<p>PLOT PLAN</p> <p>CUNNINGHAM PROPERTY - LOT 5</p> <p>11908 CARITAS WAY</p> <p>ELLCOTT CITY, MD 21042</p>
DRAWN BY JMR	
CHECKED BY RHV	
DATE AUGUST 14, 2023	
W. O. # 14-62	
SHEET# 5 OF 5	<p>5TH ELECTION DISTRICT</p> <p>TAX MAP: 29 PARCEL: 25</p> <p>DPZ REF'S: HO-10-03E, ECP-16-030,</p> <p>ECP-17-050, GP-17-038, SDP-18-004 & F-19-040</p>
	<p>BLOCK: 13</p> <p>ZONED: RC-DEO</p> <p>HOWARD COUNTY, MARYLAND</p>

THIS WALL CHECK DRAWING CONTAINS A HORIZONTAL TOLERANCE IN ACCURACY OF 0.1' AND A VERTICAL TOLERANCE IN ACCURACY OF 0.2'



INSET
SCALE: 1"=30'

SCALE: 1"=100'

gjs 7/10/24

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF THAT THE IMPROVEMENTS ARE LOCATED AS SHOWN AND THAT THERE ARE NO ENCROACHMENTS EXCEPT AS SHOWN; THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROPERTY LINE SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND.

Thomas M. Hoffman Jr.
THOMAS M. HOFFMAN JR.,
PROPERTY LINE SURVEYOR
LICENSE NO. 267
EXP. DATE: JULY 28, 2024

7/10/24
DATE

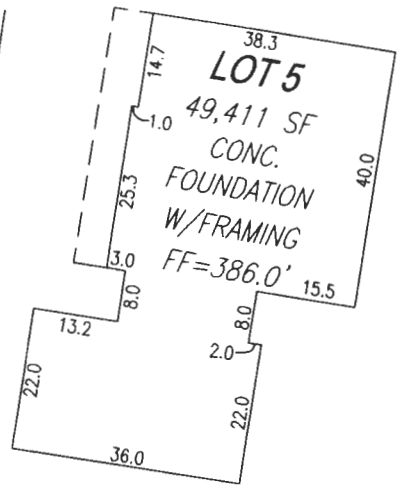
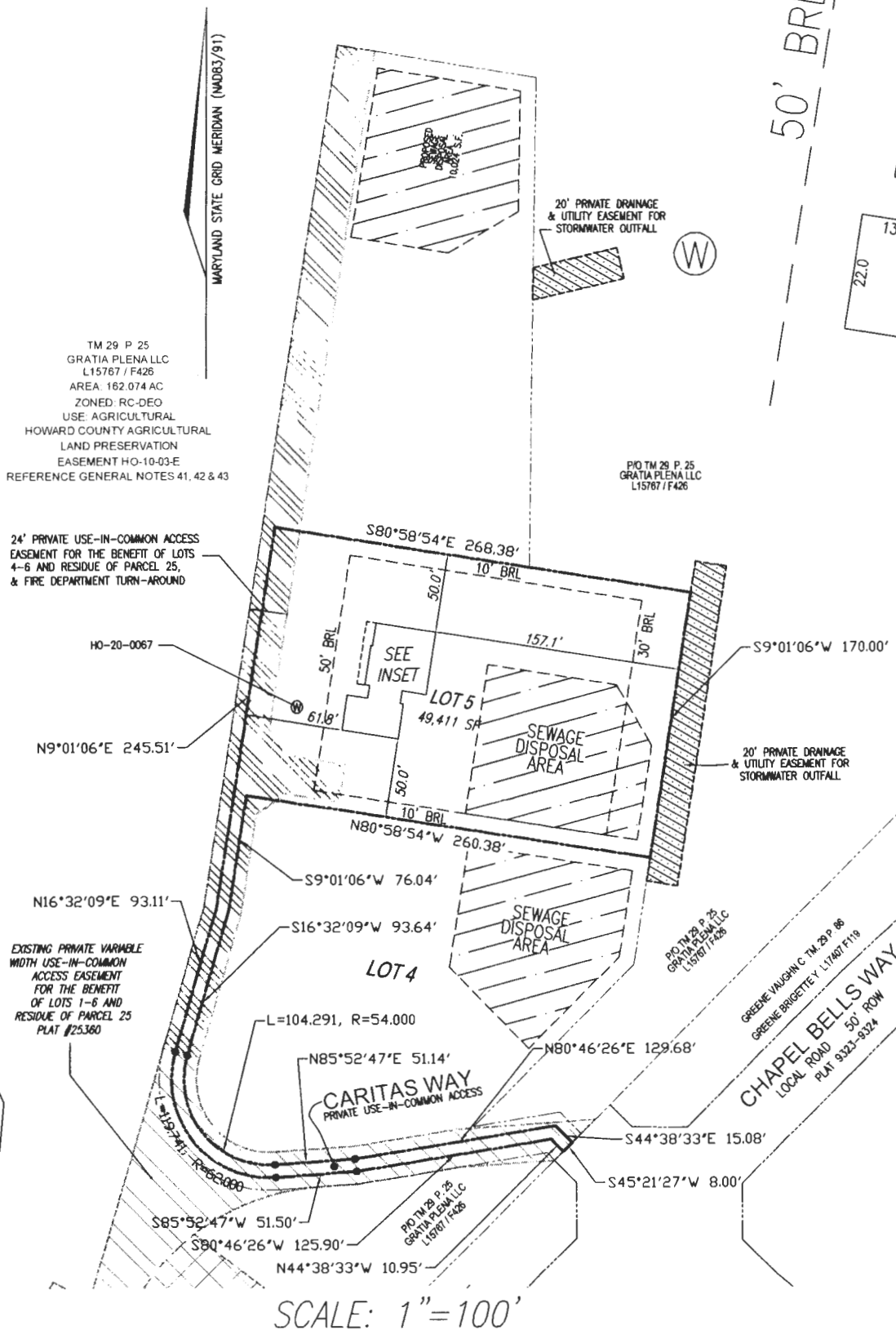


SCALE VARIES	DATE 03/07/2024
DRAWN BY J.M.M.	CHECKED BY T.M.H
PLAT NUMBER 26177-26179	JOB NUMBER 14-62

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

WALL CHECK DRAWING
11908 CARITAS WAY
LOT 5
CUNNINGHAM PROPERTY
26177-26179
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

THIS WALL CHECK DRAWING CONTAINS A HORIZONTAL TOLERANCE IN ACCURACY OF 0.1' AND A VERTICAL TOLERANCE IN ACCURACY OF 0.2'



INSET SCALE: 1"=30'

SCALE: 1"=100'

gjh 7/10/24

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF THAT THE IMPROVEMENTS ARE LOCATED AS SHOWN AND THAT THERE ARE NO ENCROACHMENTS EXCEPT AS SHOWN; THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROPERTY LINE SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND.

Thomas M. Hoffman Jr.
 THOMAS M. HOFFMAN JR.,
 PROPERTY LINE SURVEYOR
 LICENSE NO. 267
 EXP. DATE: JULY 28, 2024

7/10/24
 DATE



SCALE VARIES	DATE 03/07/2024
DRAWN BY J.M.M.	CHECKED BY T.M.H
PLAT NUMBER 26177-26179	JOB NUMBER 14-62

VOGEL ENGINEERING

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

WALL CHECK DRAWING
 11908 CARITAS WAY
 LOT 5
 CUNNINGHAM PROPERTY
 26177-26179
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND