# **GENERAL NOTES**

- 1. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCES HAVE BEEN APPROVED AND NOTED BELOW.
- 2. THE SUBJECT PROPERTY IS ZONED PGCC-2 PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- 3. THIS PROJECT IS SUBJECT TO THE 3RD AMENDED TURF VALLEY MULTI-USE SUB-DISTRICT FINAL DEVELOPMENT PLAN RECORDED AS PLAT NUMBERS 21029-21031 ON MARCH 26, 2010 AND THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- 4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NO. 16E1 AND 0012 WERE USED FOR THIS
- 5. TRACT BOUNDARY IS BASED ON PLAT #26011-26013 PREPARED BY BENCHMARK ENGINEERING, INC. AND RECORDED ON FEBRUARY 28, 2022
- 6. THE EXISTING TOPOGRAPHY SHOWN IS BASED ON THE MASS GRADING AS SHOWN ON THE F-20-071 ROAD CONSTRUCTION
- 7. THE EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN TAKEN FROM THE F-20-071 AND F-20-072 ROAD
- CONSTRUCTION PLANS AND CONTRACT DRAWINGS #24-5089-D AND #24-5090-D.
- 8. THERE ARE NO WETLANDS, STREAMS, THEIR REQUIRED BUFFERS, 100 YEAR-FLOODPLAIN, OR STEEP SLOPES 25% OR GREATER THAT ARE MORE THAN 20.000 SF OF CONTIGUOUS AREA LOCATED ON THESE LOTS.
- 9. THE WETLAND LIMITS FOR TURF VALLEY ARE BASED ON A STUDY CONDUCTED BY EXPLORATION RESEARCH, INC. AND VERIFIED BY ECO-SCIENCE PROFESSIONALS, INC. ON MAY 26, 2016. THE LIMITS SHOWN ARE IN ACCORDANCE WITH THOSE SHOWN ON THE 4TH AMENDMENT TO THE TURF VALLEY COMPREHENSIVE SKETCH PLAN (S-86-13, PB 368) APPROVED JULY 28, 2006.
- 10. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERIES, BURIAL GROUNDS OR HISTORIC STRUCTURES LOCATED ON THE SUBJECT PROPERTY.
- 11. A NOISE STUDY IS NOT REQUIRED FOR THIS DEVELOPMENT AS IT IS NOT LOCATED WITHIN 500 FEET OF THE INTERSTATE 70
- 12. SUMMARY OF FINDINGS FOR APFO TRAFFIC ANALYSIS:

OR ROUTE 40 RIGHTS-OF-WAY.

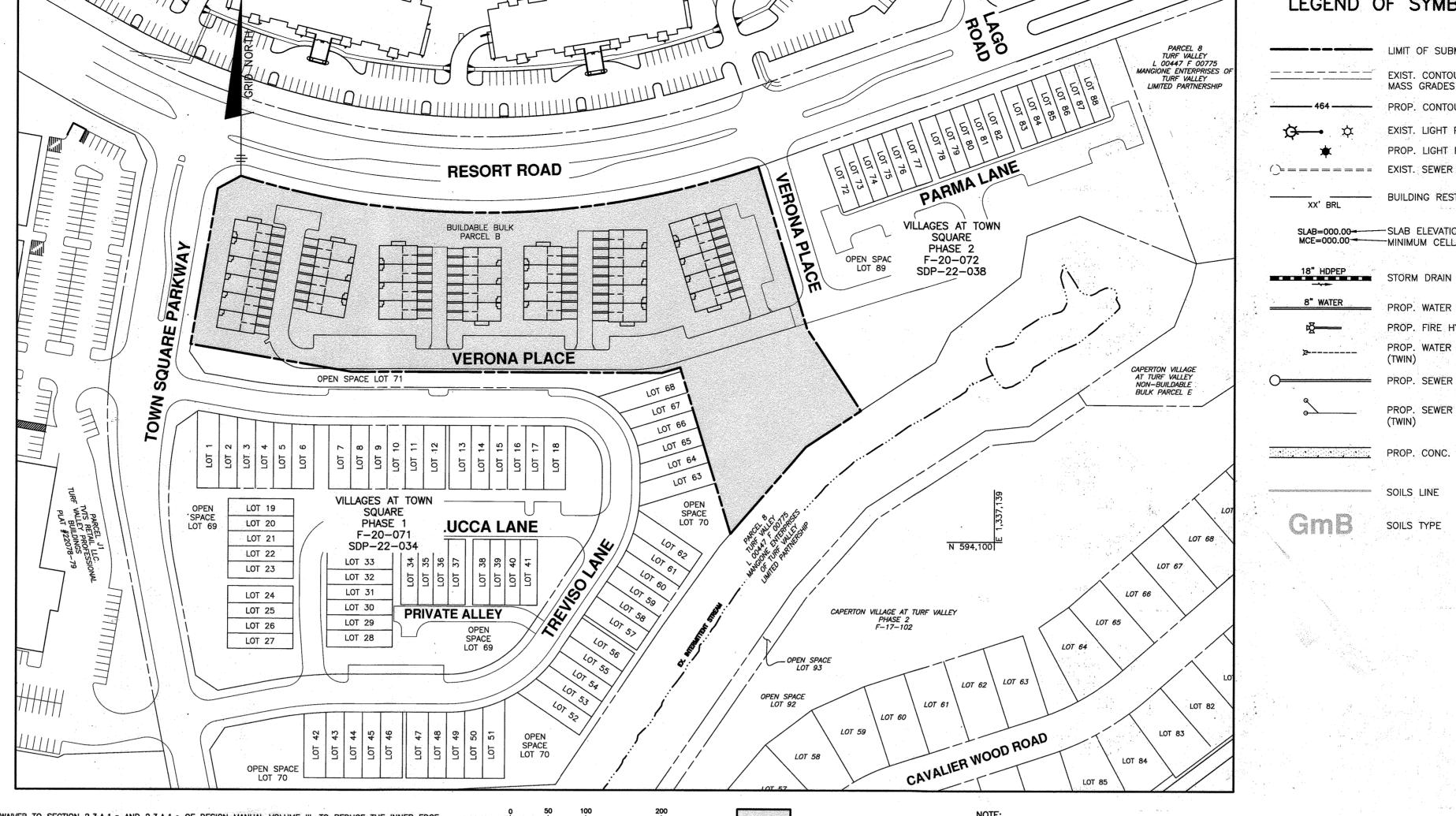
- A. DATE OF REPORT: JANUARY 7, 2005 DATE OF COUNT(S): MARCH 11, 25, AND 30, 2004
- REPORT SUBMITTED AS PART OF PLAN NUMBER: S-86-013
- PROVIDE STATEMENT THAT SCHOOLS WERE IN SESSION ON THAT DATE(S): SCHOOLS WERE IN SESSION DURING THE DAYS OF THE COUNTS
- LIST INTERSECTIONS STUDIED, IDENTIFY INTERSECTION AS STATE OR COUNTY JURISDICTION, AND LABEL LOS FOR THE HORIZON YEAR OF EACH INTERSECTION: MARRIOTTSVILLE ROAD AND RESORT ROAD/ALBETH ROAD, COUNTY JURISDICTION, LOS A IN AM AND LOS B IN PM; US 40 AND MARRIOTTSVILLE ROAD, STATE JURISDICTION, LOS D IN AI AND LOS C IN PM; US 40 AND MD 144/PEBBLE BEACH DR, STATE JURISDICTION, LOS D IN AM AND LOS B IN PM PROVIDE STATEMENT AS TO WHETHER MITIGATION IS REQUIRED AND EXPLAIN THE METHOD OF MITIGATION/IN LIEU FEE.
- MITIGATION WAS REQUIRED AND COMPLETED FOR THIS PHASE. IMPROVEMENTS INCLUDED CONSTRUCTING LEFT AND RIGHT TURN LANES ON MARRIOTTSVILLE ROAD AT RESORT ROAD, PROVIDING 2 APPROACH LANES ON RESORT ROAD AT MARRIOTTSVILLE ROAD, PROVIDING TRAFFIC SIGNALIZATION AT THE MARRIOTTSVILLE ROAD/RESORT ROAD INTERSECTION, AND EXTENDING RESORT ROAD TO TURF VALLEY ROAD.
- VERIFICATION LETTER DATED SEPTEMBER 7, 2022 WITH ABOVE FINDINGS WAS APPROVED BY DEVELOPMENT ENGINEERING DIVISION ON OCTOBER 11, 2022
- 13. THIS SITE IS WITHIN THE METROPOLITAN DISTRICT.
- 14. WATER & SEWER IS PUBLIC. THE CONTRACT NO. IS 24-5091-D. THE DRAINAGE AREA IS THE LITTLE PATUXENT.
- 15. THIS PROJECT IS EXEMPT FROM THE HOWARD COUNTY FOREST CONSERVATION REQUIREMENTS SINCE IT RECEIVED PRELIMINARY PLAN APPROVAL ON 9/30/3019 PRIOR TO THE ENACTMENT OF COUNCIL BILL 62-2019 WHICH WENT INTO EFFECT ON
- 16. LANDSCAPING IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL VIA A CERTIFIED LANDSCAPE PLAN AS PART OF THIS PLAN SET. FINANCIAL SURETY IN THE AMOUNT OF \$3,570.00 FOR THE REQUIRED 8 SHADE TREES, 7 EVERGREEN TREES, AND 4 SHRUBS FOR THE REQUIRED PERIMETER AND INTERNAL RESIDENTIAL LANDSCAPE OBLIGATIONS SHALL BE POSTED AS PART OF THE GRADING PERMIT
- 17. STORMWATER MANAGEMENT FOR THIS PARCEL WAS PARTIALLY PROVIDED VIA AN (M-2) SUBMERGED GRAVEL WETLAND AND AN (F-6) BIORETENTION FACILITY APPROVED UNDER F-20-071. FOR THIS SITE DEVELOPMENT PLAN, AN ADDITIONAL (M-6) MICRO-BIORETENTION FACILITY IS BEING PROVIDED. THE MICRO-BIORETENTION FACILITY SHALL BE PRIVATELY OWNED AND
- 18. THIS PROJECT IS EXEMPT FROM THE MODERATE INCOME HOUSING UNIT REQUIREMENT PER HOWARD COUNTY ZONING REGULATIONS SECTION 100.0.E.3.b.
- 19. 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.
- 20. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 21. 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:
- A) WIDTH 12' (16' SERVING MORE THAN ONE RESIDENCE).
- B) SURFACE 6" OF CRUSHER RUN BASE WITH TAR AND CHIP COATING (1.5" MIN) GEOMETRY - MAX 15% GRADE, MAX 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.
- STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD) E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER
- F) STRUCTURE CLEARANCES MINIMUM 12 FEET

REQUIRED DISTANCE BETWEEN BUILDINGS.

TO BE REDUCED FROM 30 FEET DOWN TO 15 FEET.

DEVELOPER'S EXPENSE.

- G) MAINTENANCE SUFFICIENT TO ENSURE ALL WEATHER USE 22. FOR APPLICABLE PREVIOUS HOWARD COUNTY FILE REFERENCES SEE SITE ANALYSIS DATA CHART ON THIS SHEET.
- 23. IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, WINDOW WELLS, ORIELS, VESTIBULES, BALCONIES AND CHIMNEYS MAY ENCROACH 4 FEET INTO ANY SETBACK OR REQUIRED DISTANCE BETWEEN BUILDINGS PROVIDED THE FEATURE HAS A MAXIMUM WIDTH OF 16 FEET. EXTERIOR STAIRWAYS OR RAMPS. ABOVE OR BELOW GROUND LEVEL (EXCLUDING THOSE ATTACHED TO A PORCH OR DECK) MAY ENCROACH 10 FEET INTO A FRONT SETBACK OR A SETBACK FROM A PROJECT BOUNDARY, 16 FEET INTO A REAR SETBACK, 4 FEET INTO A SIDE SETBACK OR REQUIRED DISTANCE BETWEEN BUILDINGS, OPEN OR ENCLOSED PORCHES OR DECKS AND THE STAIRWAYS OR RAMPS ATTACHED THERETO MAY ENCROACH 10 FEET INTO A FRONT OR REAR SETBACK, SETBACK FROM A PROJECT BOUNDARY OR A
- 24. THIS PLAN HAS NO DRIVEWAYS THAT ACCESS OFF OF A PUBLIC ROAD WITHIN A PUBLIC RIGHT-OF-WAY. THEREFORE, ALL DRIVEWAYS ARE ASPHALT AND NOT BASED ON THE COUNTY STANDARD.
- 25. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY OF EXISTING ADJACENT ROADWAYS SHALL BE CORRECTED AT THE
- 26. SEWER HOUSE CONNECTION (SHC) INVERTS SHOWN ARE LOCATED AT THE PROPERTY (OR EASEMENT) LINE,
- 27. THE GEOTECHNICAL REPORT FOR STORMWATER MANAGEMENT WAS PREPARED BY HILLIS-CARNES DATED APRIL 9, 2020. 28. THE SETBACKS ON THIS SITE DEVELOPMENT PLAN FOR THE RETAINING WALL ALONG RESORT ROAD WAS APPROVED BY THE PLANNING BOARD ON MARCH 2, 2023. THE APPROVAL ALLOWED FOR THE STRUCTURE SETBACK ALONG RESORT ROAD
- THE LENGTHS OF BUILDINGS #1, #2, AND #7 WAS APPROVED BY THE PLANNING BOARD ON MARCH 2, 2023. THE APPROVAL ALLOWED THE LENGTHS TO BE INCREASED FROM 120.0 FEET TO 125.32 FEET, 125.32 FEET, AND 149.33 FEET,
- 29. SNOW REMOVAL AND MAINTENANCE OF ROAD PAVING AND PARKING SPACES SHALL BE PRIVATE.
- 30. CONCRETE DRIVEWAY APRONS ARE NOT REQUIRED SINCE ALL ROADS AND ALLEYWAYS ARE PRIVATE.



The second secon

31. A DESIGN MANUAL WAIVER TO SECTION 2.3.A.1.a AND 2.3.A.1.c OF DESIGN MANUAL VOLUME III, TO REDUCE THE INNER EDGE RADIUS OF CURVE #2 FROM 208 FEET TO 35 FEET AND TO REDUCE THE MINIMUM CURVE LENGTH FROM 100 FEET TO 60.72 FEET FOR CURVE 2 AND 62.20 FEET FOR CURVE 1 WAS APPROVED ON OCTOBER 21, 2022. THE APPROVAL WAS SUBJECT TO CURVE #2 BEING MODIFIED TO WIDEN THE TRAVEL WAY TO 28 FEET AND ADDING "NO PARKING" RESTRICTIONS ALONG BOTH SIDES OF THE STREET WITHIN THE CURVE.

- 32. TRASH COLLECTION IS PRIVATE AND SHALL BE PROVIDED ALONG THE ROAD AND ALLEYWAYS.
- 33. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 34. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE
- 35. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
- 36. 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 POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL. PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF
- 37. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- 38. NO PARKING IS ALLOWED ALONG THE SOUTH SIDE OF VERONA PLACE.
- 39. FOR THE FIRST 40 FEET OF EACH ALLEY, A MINIMUM CLEAR AREA OF 5 FEET ON BOTH SIDES SHALL BE ESTABLISHED. NO OBSTRUCTIONS INCLUDING SIGNS, LIGHT POLES, TREES, AND HYDRANTS CAN BE LOCATED WITHIN THIS 5 FEET,
- 40. HOWARD COUNTY TRAFFIC RESERVES THE RIGHT TO POST NO PARKING RESTRICTIONS ALONG BUILDING 7 FRONTAGE (TOWN SQUARE PARKWAY) BETWEEN TREVISO LANE AND RESORT ROAD TO INSURE SAFE AND ORDERLY TRAFFIC OPERATION."
- 41 "ON THE APPROACH SIDE OF A STOP SIGN, NO STREET TREE CAN BE PLANTED WITHIN 30 FT OF THE STOP SIGN."
- 42. "R1-1 (STOP) SIGN AND STREET NAME SIGN (SNS) ASSEMBLIES MUST BE INSTALLED BEFORE THE BASE PAVEMENT IS

72226

77008

43. "THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY - TRAFFIC (410.313.2430) PRIOR TO INSTALLATION."

				ı	SD STOR	MWAT	ER M	ANAGEM	ENT SUN	IMARY TA	BLE		٤	>	-		
PHASE	Practice			DA	DA Imp Area	np Area   %   _	Pe	Pe	Pe Af (sf)		ESDv (cf)		Pe	REv			
FHASE	MDE	Туре	No.	(sf)	(sf)	lmp	Rv	required	Required	Provided	2% DA?	the first of the second section is the second		Provided	Required	Provided	Ownership
1	(F-6)	Bioretention	#2	139,339	75,478	54%	0.54	2.0	2787	10840	PASS	12483	14659	2.3		3614	Private
1	(F-6)	Bioretention	#3	55,590	36,134	65%	0.64	2.0	1112	4092	PASS	5883	6087	2.1		1964	Private
2	(F-6)	Bioretention	#4	41,908	27,240	65%	0.64	2.0	838	2719	PASS	4435	4443	2.0		0	Private
1	(F-6)	Bioretention	#5	23,864	15,512	65%	0.64	2.0	477	2644	PASS	2526	3708	2.9		631	Private
1	(F-6)	Bioretention	#6	28,900	18,785	65%	0.64	2.0	578	2427	PASS	3059	3582	2.3	8,140 cf	765	Private
1	(F-6)	Bioretention	#7	18,644	12,119	65%	0.64	2.0	373	1239	PASS	1973	1998	2.0		493	Private
3	(M-6)	Micro-Bioretention	#1	15,816	12,627	80%	0.77	2.0	316	1282	PASS	2026	2050	check		688	Private
1	(M-2)	Submerged Gravel Wetlands	SG-1	322,210	209,437	65%	0.64	2.0			**************************************	34101	40482	2.4		0	Private
otals per i	ndividual	Drainage Area					Sindon tagaine, and the same of the same o	1					<del>la en en estado en la como en estado en</del> Estado en estado en e			kitat (1961	The pole let of the party of the party.
	T	otals per individual Drainage Are	a	646,271	407,330	65%	0.64					66485	77008	*			

2.0

Totals per Overall Site

Totals per individual Drainage Area

1. The Pe required column is based on total site Pe calculation. The Rv is based on individual drainage area percent impervious (per DED)

Lot/Parcel Number

440,703 | 60% | 0.59 |

APPROVED: HOWARD	COUNTY DEPARTMENT O  DocuSigned by:	
	Philip M Thompson	5/2/2023
CHIEF, DEVELOPMENT I	ENGINEERING DIVISION	DATE
	DocuSigned by:	5/3/2023
CHIEF, DIVISION OF LA	ND DEVELOPMENT	DATE
	DocuSigned by:	5/4/2023
DIRECTOR	080DB02F044F4CD	DATE

ot/Parcel Number	Facility Name & Number	Practice Type (Quantity)	Public	Private	HOA Maintains	Misc.	
В	(M-6) Micro Bio-Retention	1		Υ	N		
		·					
	PROVED	1000 1000 1800 1800					
PLANNING BOARD	OF HOWARD COUNTY						
DATE MAF	RCH 2, 2023						

STORMWATER MANAGEMENT INFORMATION CHART

44. DMV2-23-015, A DESIGN MANUAL WAIVER TO SECTION 4.5.F TO ALLOW FOR THE USE OF TWIN SEWER HOUSE CONNECTIONS WAS APPROVED ON FEBRUARY 2, 2023 SUBJECT TO THE SEWER IN ALLEY #3 BEING 4 FEET BELOW THE PUBLIC WATER.

**ADDRESS CHART** 

1 inch = 100 ft.

UNIT/LOT	<u>A</u>	DDRESS	UNIT/LOT		<u>ADDRESS</u>
	A = Bottom Ur	nit			
	B = Top Unit				
BUILDING 1			<b>BUILDING 5</b>		
Utility Shed	2498	VERONA PL	37	2550-A	VERONA PL
1	2500-A	VERONA PL	38	2550-B	VERONA PL
2	2500-B	VERONA PL	39	2552-A	VERONA PL
3	2502-A	VERONA PL	40	2552-B	VERONA PL
4	2502-B	VERONA PL	41	2554-A	VERONA PL
5	2504-A	VERONA PL	42	2554-B	VERONA PL
6	2504-B	<b>VERONA PL</b>	43	2556-A	VERONA PL
7 .	2506-A	VERONA PL	44	2556-B	VERONA PL
8	2506-B	<b>VERONA PL</b>	<b>Utility Shed</b>	2558	VERONA PL
9	2508-A	<b>VERONA PL</b>			
10	2508-B	<b>VERONA PL</b>	<b>BUILDING 6</b>		
			45	2570-A	VERONA PL
BUILDING 2			46	2570-B	VERONA PL
Utility Shed	2522	VERONA PL	47	2568-A	VERONA PL
11	2520-A	VERONA PL	48	2568-B	VERONA PL
12	2520-B	VERONA PL	49	2566-A	VERONA PL
13	2518-A	VERONA PL	50	2566-B	VERONA PL
14	2518-B	VERONA PL	51	2564-A	VERONA PL
15	2516-A	VERONA PL	52	2564-B	VERONA PL
16	2516-B	VERONA PL	<b>Utility Shed</b>	2562	VERONA PL
17	2514-A	VERONA PL			
18	2514-B	VERONA PL	<b>BUILDING 7</b>		
19	2512-A	VERONA PL	53	10011-A	TOWN SQUARE PKW
20	2512-B	VERONA PL	54	10011-B	TOWN SQUARE PKW
			55	10009-A	TOWN SQUARE PKW
BUILDING 3			56	10009-B	TOWN SQUARE PKW
21	2526-A	VERONA PL	57	10007-A	TOWN SQUARE PKW
22	2526-B	VERONA PL	58	10007-B	TOWN SQUARE PKW
23	2528-A	VERONA PL	59	10005-A	TOWN SQUARE PKW
24	2528-B	VERONA PL	60	10005-B	TOWN SQUARE PKW
25	2530-A	VERONA PL	61	10003-A	TOWN SQUARE PKW
26	2530-B	VERONA PL	62	10003-B	TOWN SQUARE PKW
27	2532-A	VERONA PL	63		TOWN SQUARE PKW
28	2532-B	VERONA PL	64		TOWN SQUARE PKW
Jtility Shed	2534	VERONA PL	Utility Shed	9999	TOWN SQUARE PKW
BUILDING 4					
Jtility Shed	2546	VERONA PL			
29	2544-A	VERONA PL			

**VERONA PI** 

VERONA PI

**VERONA PI** 

VERONA PI

VERONA PI

**VERONA PI** 

VERONA PL

2544-B

2542-A

2542-B

2540-A

2540-B

2538-A

2538-B

45. A DESIGN MANUAL WAIVER TO DMY III SECTION 1.3. C STEET TYPES AND SECTION 2.6.B TABLE 2-24 TO REDUCE THE PAVEMENT WIDTH FROM 26 FEET TO 24 FEET FROM STATION 7+52.49 TO THE END OF PRIVATE BOAD (VERSINA PLACE) WAS APPRIVED ON SEPTEMBER ZI, ZOZZ SUBJECT TO REDUNING SDP-23-004 AND CONTEACT # 24-5091-D.

ALL ADJACENT PROPERTIES SHOWN

LEGEND OF SYMBOLS

LIMIT OF SUBMISSION

— 464 — PROP. CONTOURS

SLAB=000.00 SLAB ELEVATION

18" HDPEP STORM DRAIN

MASS GRADES FROM F-20-071

EXIST. LIGHT POLES

PROP. LIGHT POLES

BUILDING RESTRICTION LINE

PROP. FIRE HYDRANT

PROP. CONC. SIDEWALK

PROP. SEWER

SOILS LINE

SOILS TYPE

PROP. WATER HOUSE CONNECTION

PROP. SEWER HOUSE CONNECTION

MCE=000.00 MINIMUM CELLAR ELEVATION

EXIST. CONTOURS

**BULK REGULATIONS:** (per 3RD AMENDMENT TO THE TURF VALLEY, MULTI-USE SUBDISTRICT FDP) ALL USES AS PER TURF VALLEY PGCC DISTRICT, MULTI-USE SUBDISTRICT FINAL DEVELOPMENT PLAN, THIRD AMENDMENT, PLATS 21029-21031. (46 USES OUTLINED FROM RESIDENTIAL USES TO SPECIALTY STORES) PROPOSED USE: 2 OVER 2 APARTMENT UNITS PERMITTED HEIGHT: APARTMENT BUILDINGS: 80 FEET MAXIMUM DENSITY FOR TOTAL PGCC DISTRICT IS 2.0 DWELLING UNITS PER ACRE. MAXIMUM BUILDING LENGTH FOR RESIDENTIAL STRUCTURE: 120 FEET NO. (PLANNING BOARD MAY APPROVE GREATER LENGTH UP TO 300 FEET) MINIMUM SETBACK REQUIREMENTS: FROM ARTERIAL ROADS: RESIDENTIAL STRUCTURES\_\_\_\_ ACCESSORY USES\_\_\_\_\_ FROM COLLECTORS AND LOCAL STREETS: RESIDENTIAL STRUCTURES 50 FEET FROM A 60 FT. ROW 20 FEET FROM A 50 FT. ROW ACCESSORY USES FROM NON-PGGC ADJACENT PROPERTIES: FROM RESIDENTIAL DISTRICTS\_\_\_\_ 75 FEET FROM ALL OTHER DISTRICTS\_\_\_\_\_ 30 FEET FROM LOT LINES WITHIN PGCC MULTI-USE SUBDISTRICT SINGLE FAMILY DETACHED - SIDE \_\_\_\_ ZERO LOT LINE AND ALL OTHER USES - SIDE\_\_\_\_\_O FEET A MINIMUM OF 10 FEET MUST BE PROVIDED BETWEEN STRUCTURES MINIMUM DISTANCE BETWEEN ATTACHED DWELLING UNITS FACE TO SIDE/REAR\_ \_\_30 FEET \_15 FEET SIDE TO SIDE \_\_\_ REAR TO REAR \_\_ \_\_60 FEET REAR TO FACE \_\_\_

PERMIT INFORMATION CHART

ZONE

PGCC-2

SECTION/AREA:

PHASE 3

TAX MAP NO

LOT/PARCEL #

PARCEL B

**ELECTION** 

DISTRICT

CENSUS TRACT

6030.00

SUBDIVISION NAME:

26011-26013

VILLAGES AT TOWN SQUARE

GRID No.

19

BENCHMARKS - NAD'83 HORIZONTAI A 3ft DEEP COLUMN OF CONCRETE. N 593250.960' E 1340192.70' N 596502.760' E 1340864.37' ELEVATION: 463.981' ELEVATION: 486.298'

SCALE: 1" = 2000

ADC MAP: 19 GRID: D4

	SHEET INDEX
SHEET	TITLE
1	COVER SHEET
2	BUILDING PLAN
3	LAYOUT PLAN
4	ROAD PROFILES AND DETAILS
5	GRADING PLAN
6	STORM DRAIN DRAINAGE AREA MAP
7	STORM DRAIN PROFILES
8	SEWER PROFILES AND DETAILS
9	STORMWATER MANAGEMENT DETAILS
10	STORMWATER MANAGEMENT DRAINAGE AREA MAP
11	LANDSCAPE PLAN
12	SEDIMENT & EROSION CONTROL PLAN
13 .	SEDIMENT & EROSION CONTROL NOTES AND DETAILS
14-19	RETAINING WALL PLANS
20	TRAFFIC CONTROL DETAILS

# SITE ANALYSIS DATA CHART

- A.) TOTAL PROJECT AREA (PARCEL B) \_\_ 4.67 ACRES B.) AREA OF PLAN SUBMISSION (PARCEL B) \_ 4.67 ACRES C.) LIMIT OF DISTURBED AREA \_ 4.17 ACRES D.) PRESENT ZONING: \_ \_PGCC-2
- E.) PROPOSED USE OF SITE:\_\_\_\_ \_2-OVER-2 APARTMENT UNITS
- F.) FLOOR SPACE ON EACH LEVEL OF BLDG PER USE \_\_\_ N/A
- AS SHOWN ON FINAL PLAT(S)\_ H.) TOTAL NUMBER OF UNITS PROPOSED\_

G.) TOTAL NUMBER OF UNITS ALLOWED

- I.) MAXIMUM NUMBER OF EMPLOYEES.
- TENANTS ON SITE PER USE \_\_ J.) NUMBER OF PARKING SPACES REQUIRED BY HO. CO. ZONING REGS AND/OR FDP CRITERIA \_\_\_\_\_ 148 (64 APTS x 2.3)
- K.) NUMBER OF PARKING SPACES PROVIDED ONSITE \_ 179 (1 SPACE PER GARAGE + 1 SPACE PER DRIVEWAY (INCLUDES HANDICAPPED SPACES)\_\_\_\_ + 51 INDENTED PARKING SPACES
- L.) OPEN SPACE ON-SITE \_\_\_\_\_
- M.) AREA OF RECREATIONAL OPEN SPACE REQUIRED\_\_\_\_ N/A AREA OF RECREATIONAL OPEN SPACE PROVIDED\_\_\_\_ N/A
- N.) BUILDING COVERAGE OF SITE \_\_\_ PERCENTAGE OF GROSS AREA\_
- (MAXIMUM ALLOWED 60%) O.) APPLICABLE DPZ FILE REFERENCES: \_\_\_\_
  - WP-18-002, F-12-055, F-15-056, P-18-004, F-20-071, F-20-072, WP-21-051, SDP-22-034, SDP-22-038

1 10/9/2023 ADD GENERAL NOTE 45 DATE

DATE: MARCH 16, 2023

AS SHOWN

SCALE:

**BENCHMARK** ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC

3300 N. RIDGE ROAD A SUITE 140 A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these docum were prepared or approved by me, and that I am a duly license professional engineer under the laws of the State of Maryland. License No. 23300 Expiration Date: 6-30-2023. RESIDENTIAL APARTMENT BUILDINGS

\_S-86-013, ECP-13-047, S-13-008,

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

**3UILDER:** 9720 PATUXENT WOODS DRIVE COLUMBIA, MARYLAND 21046 703-956-4080

DESIGN: DBT | DRAFT: DBT

VILLAGES AT TOWN SQUARE

Phase 3 Bulk Parcel 'B' (previously recorded as Plat No. 26011-26013)

TAX MAP: 16 - GRID: 19 - PARCEL: 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

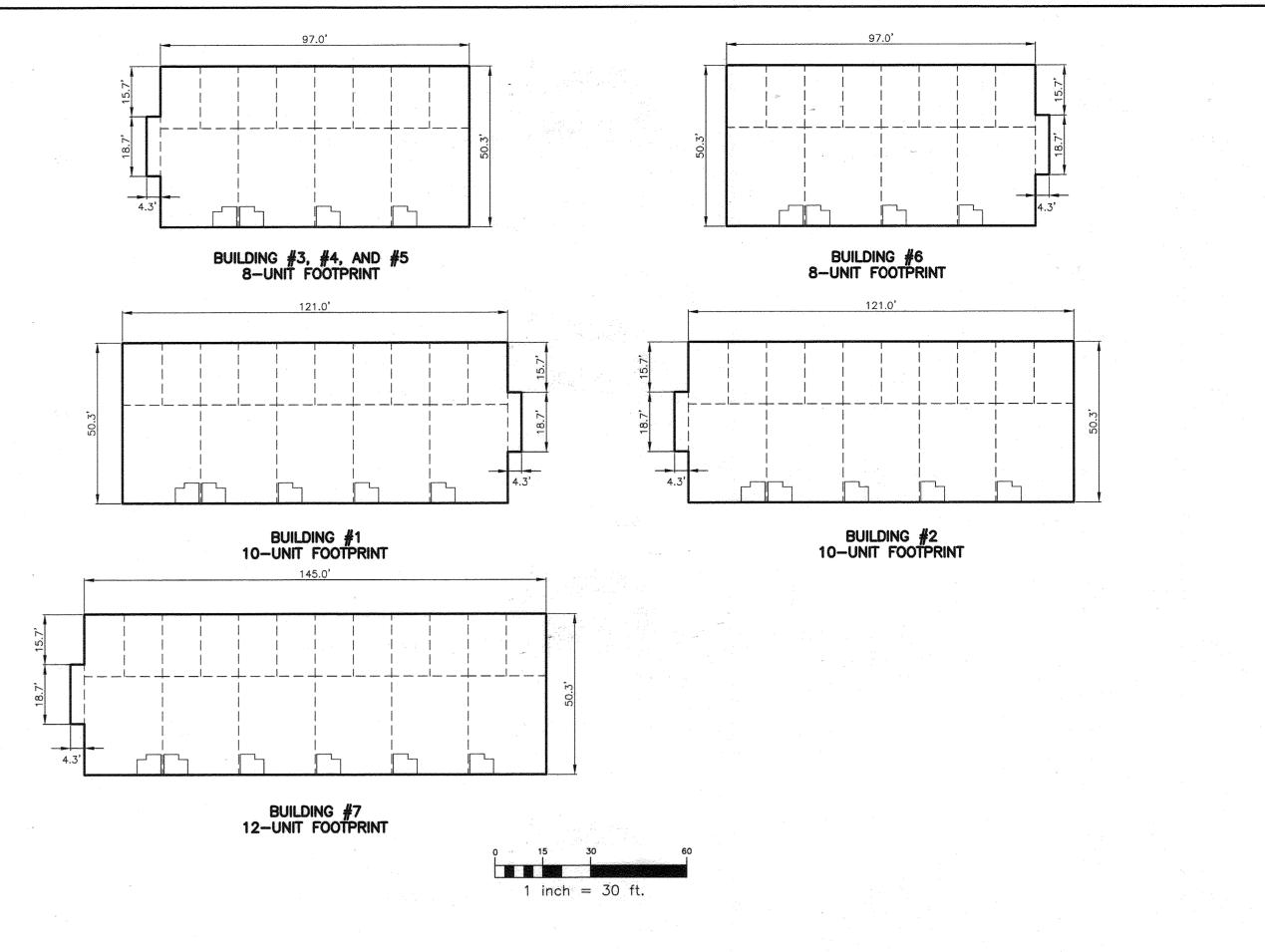
SITE DEVELOPMENT PLAN **COVER SHEET** 

> 1 of 20 SDP-23-004

3124

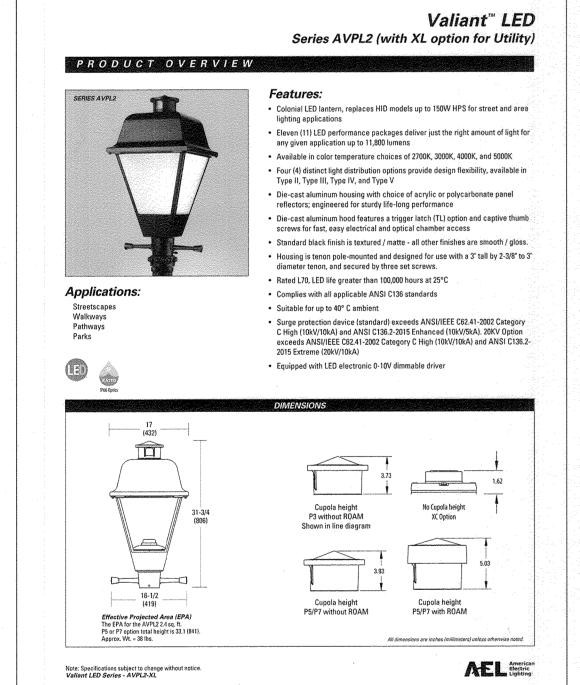
BEI PROJECT NO.

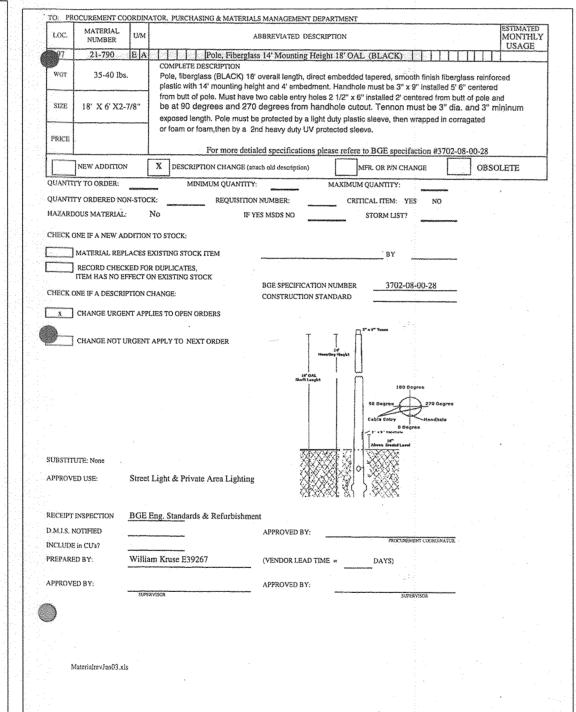




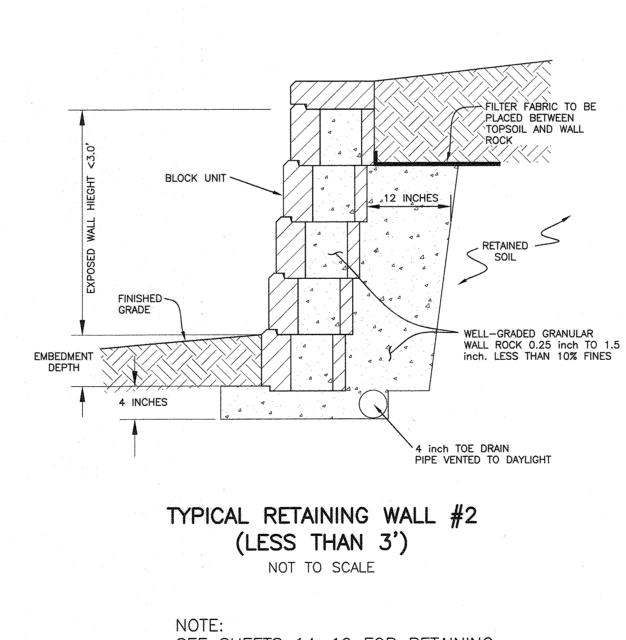
10/9/2023 | REVISE THE BUILDING ELEVATION VIEW

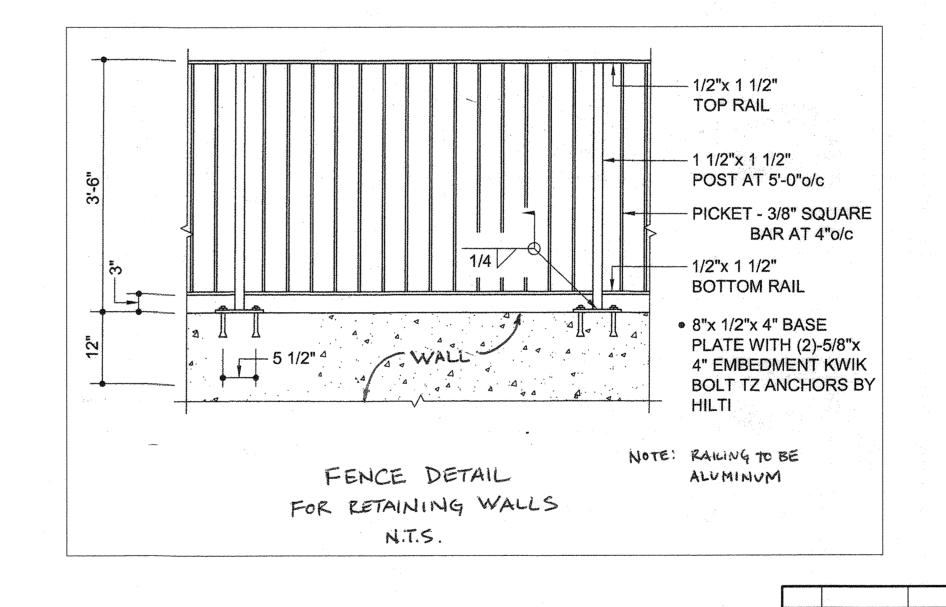
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MATISSE LOWER UNITS PICASSO UPPER UNTIS

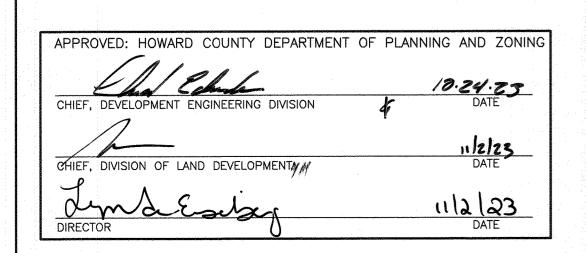


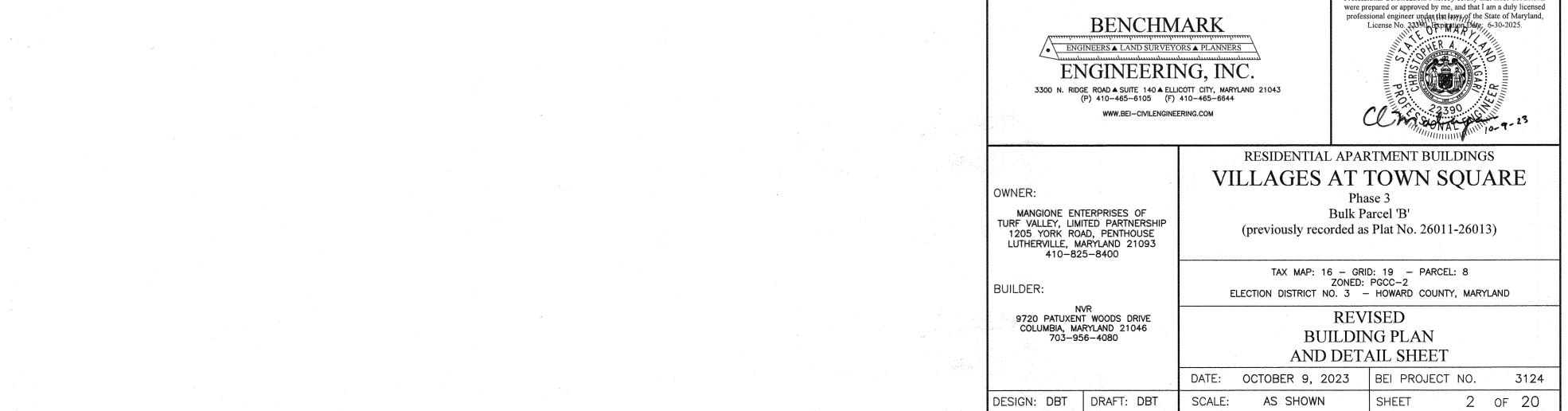


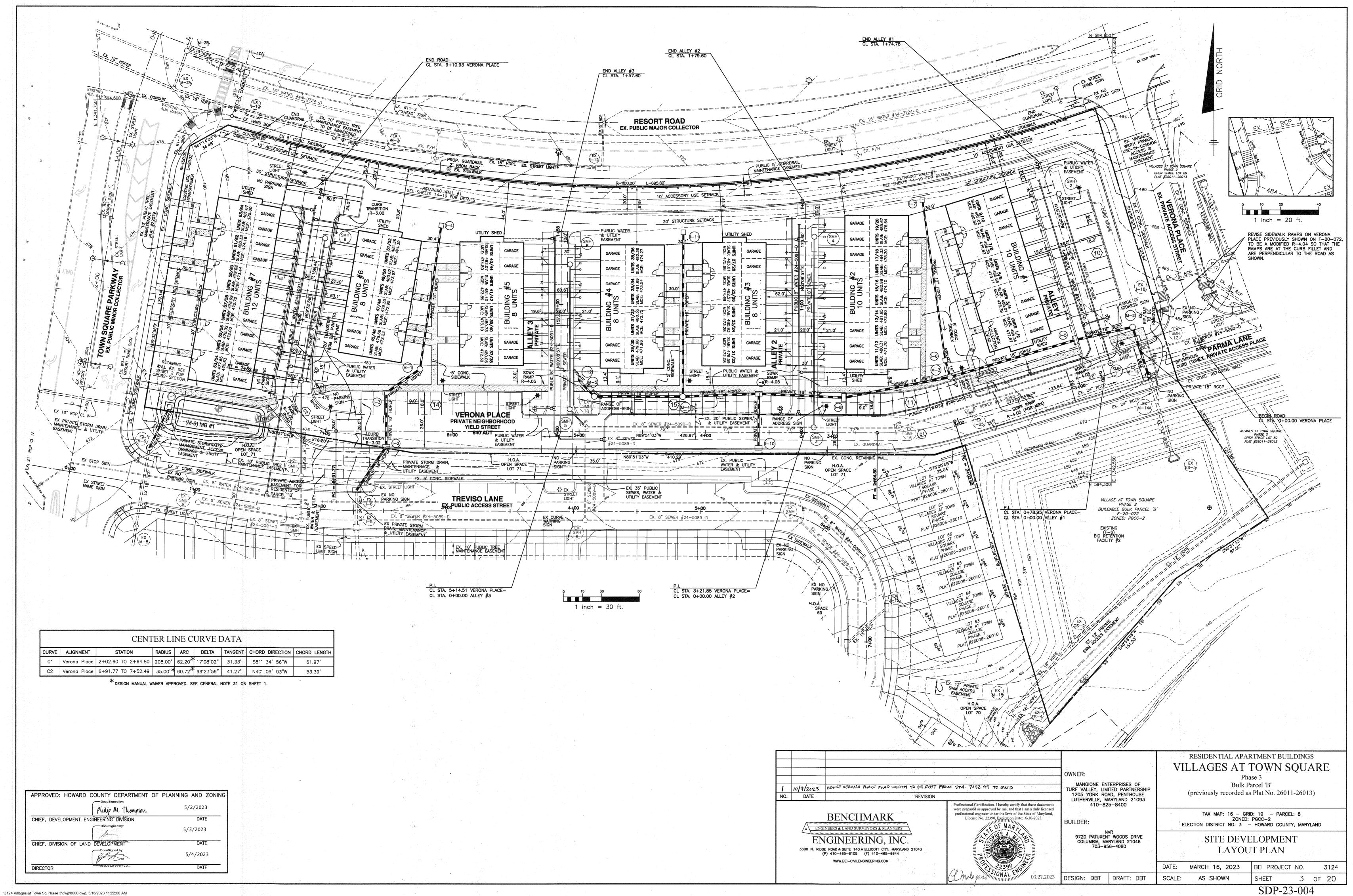
NOTE: SEE SHEETS 14-19 FOR RETAINING WALL #1 CONSTRUCTION DETAILS

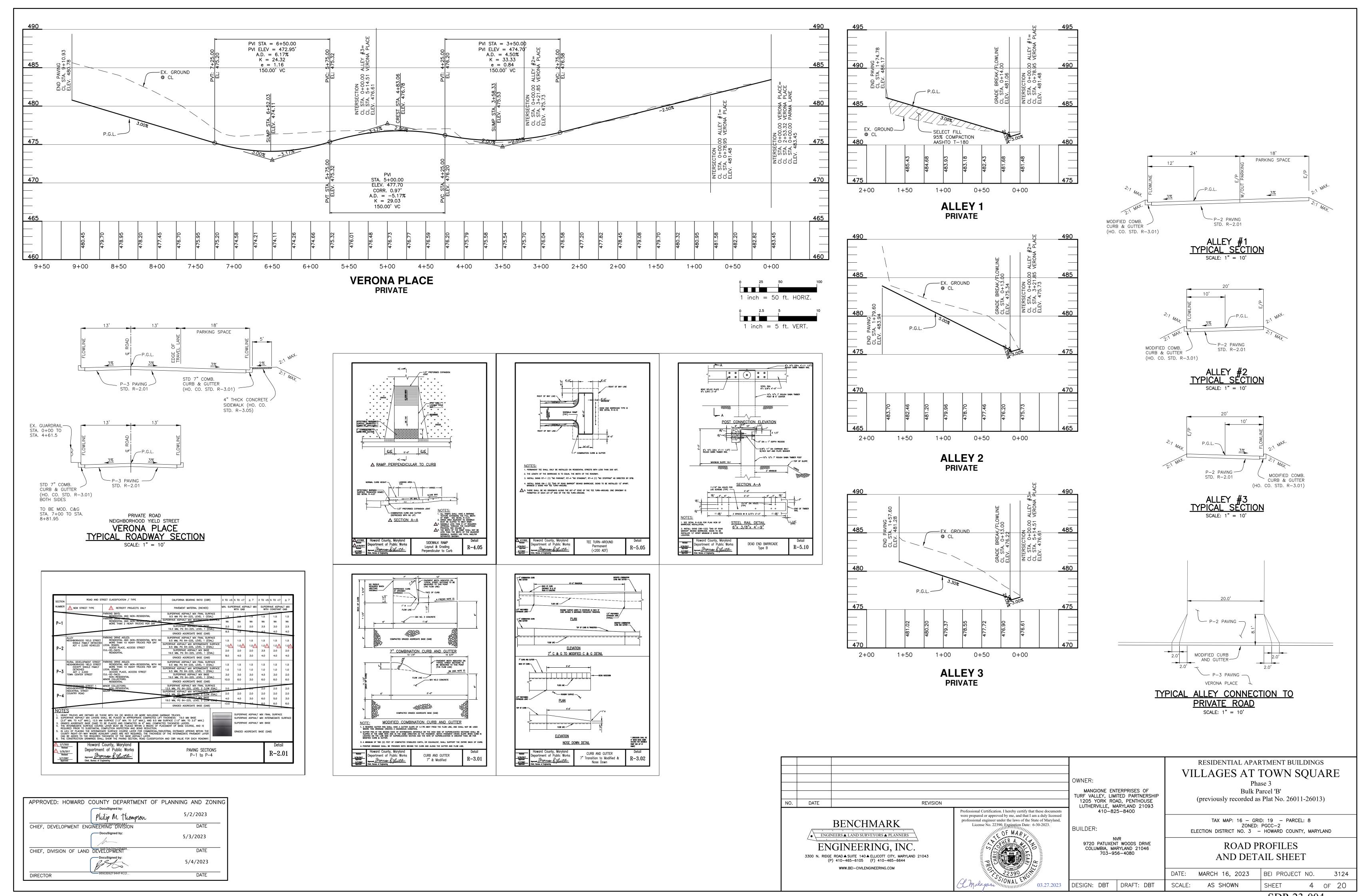
AVPL2 VALIANT WITH R3
DISTRIBUTION, CLEAR ACRYLIC
(PRISMATIC) OPTIC

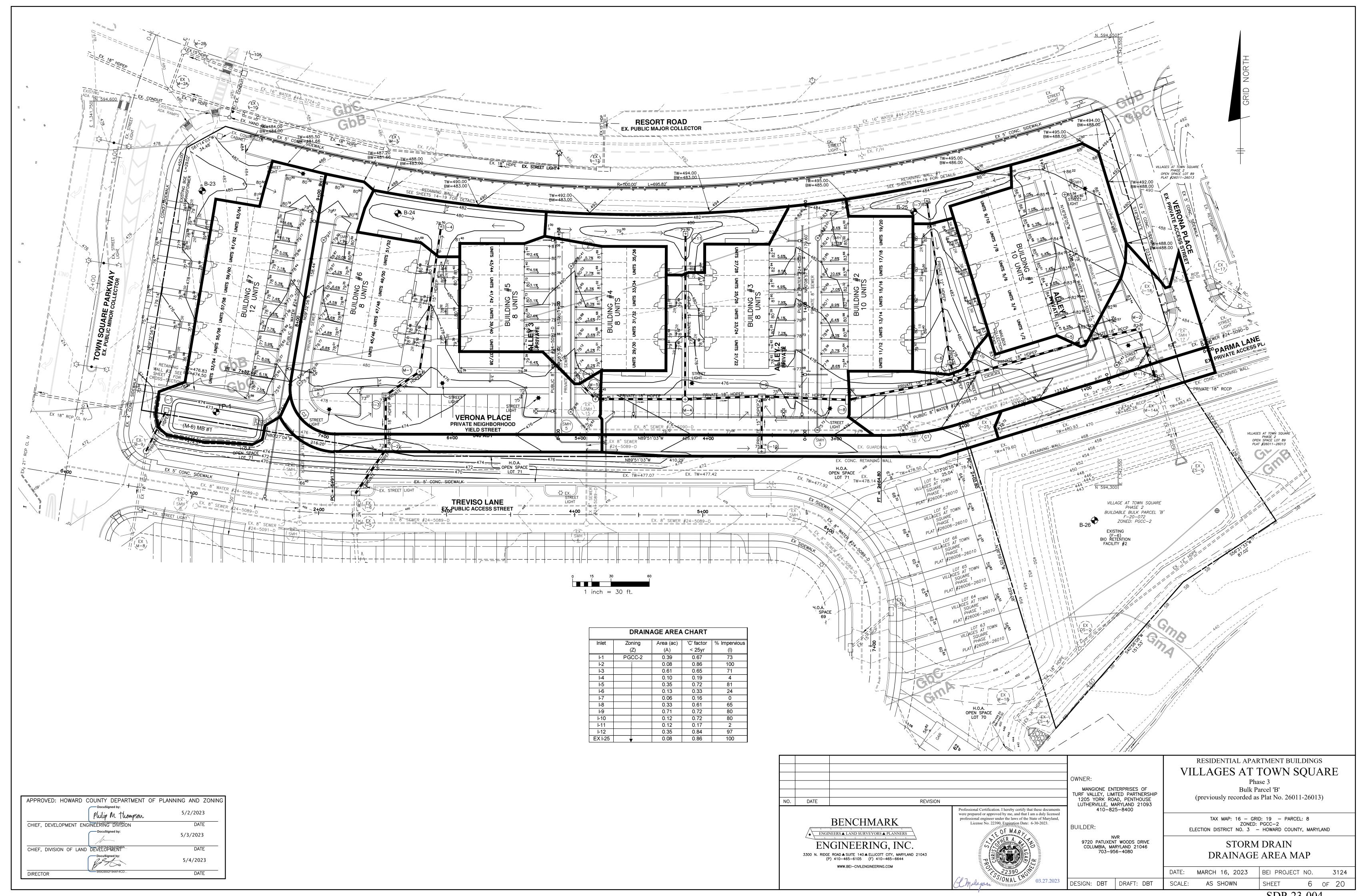
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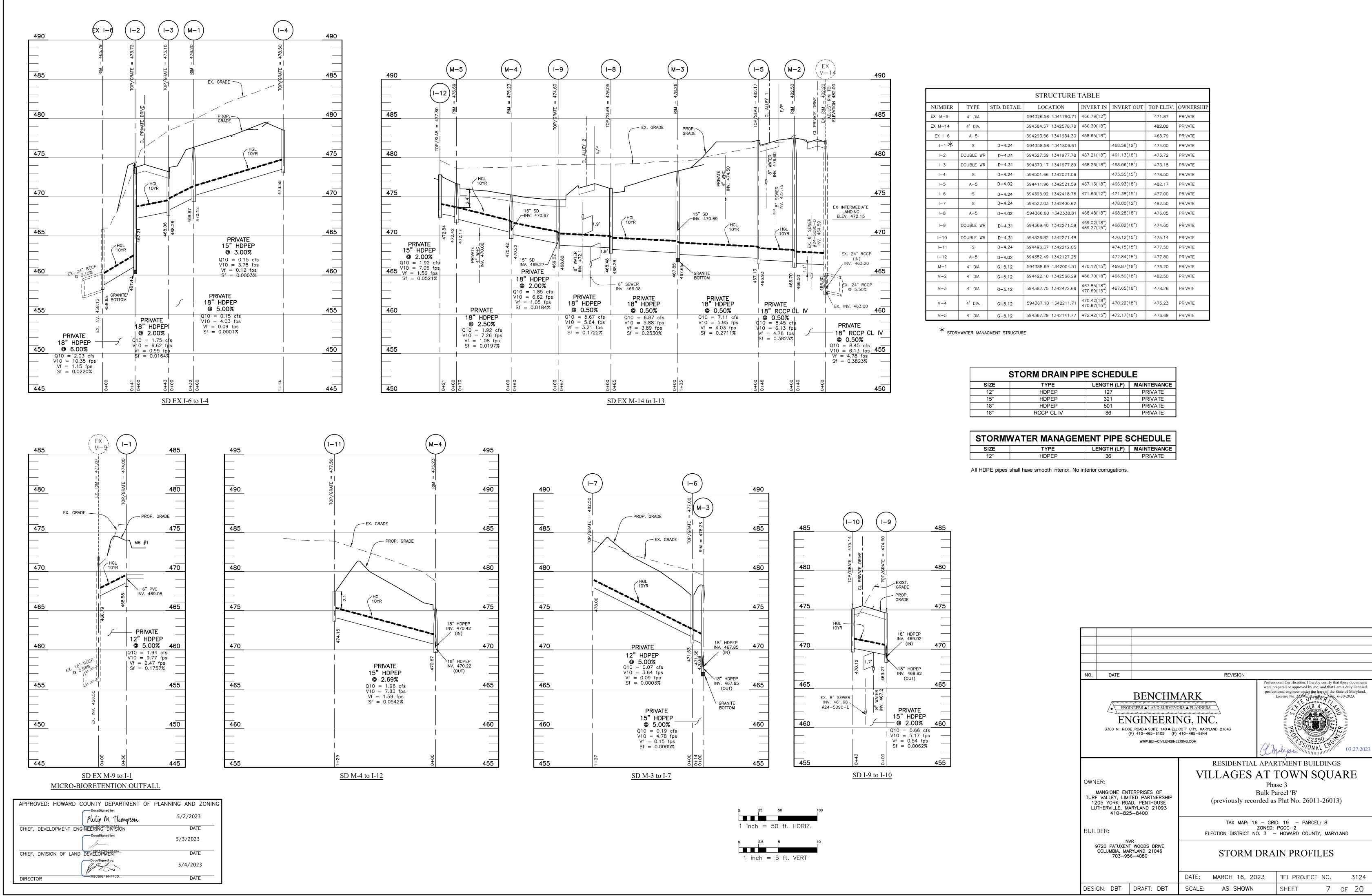


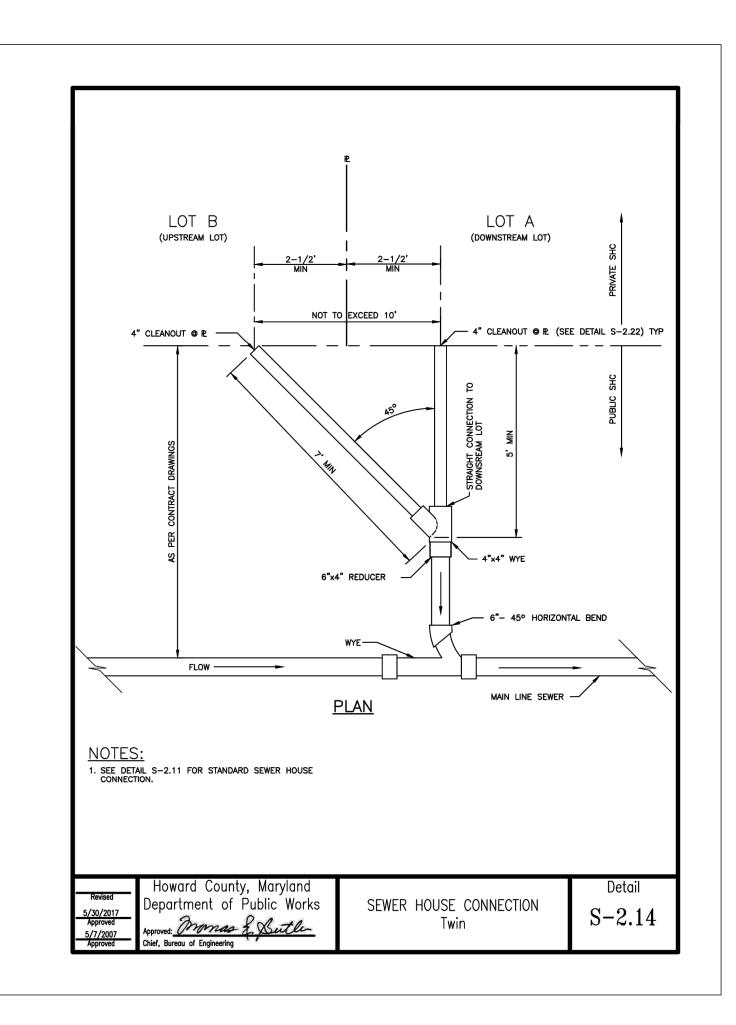


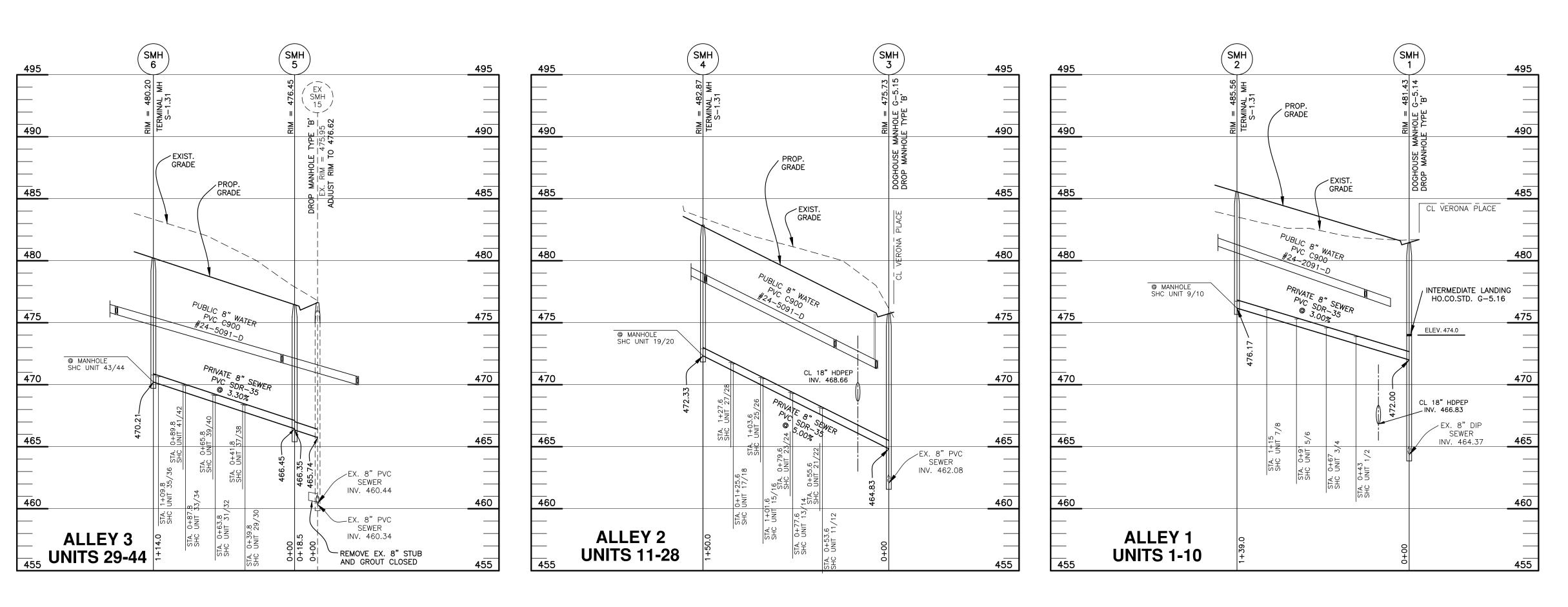


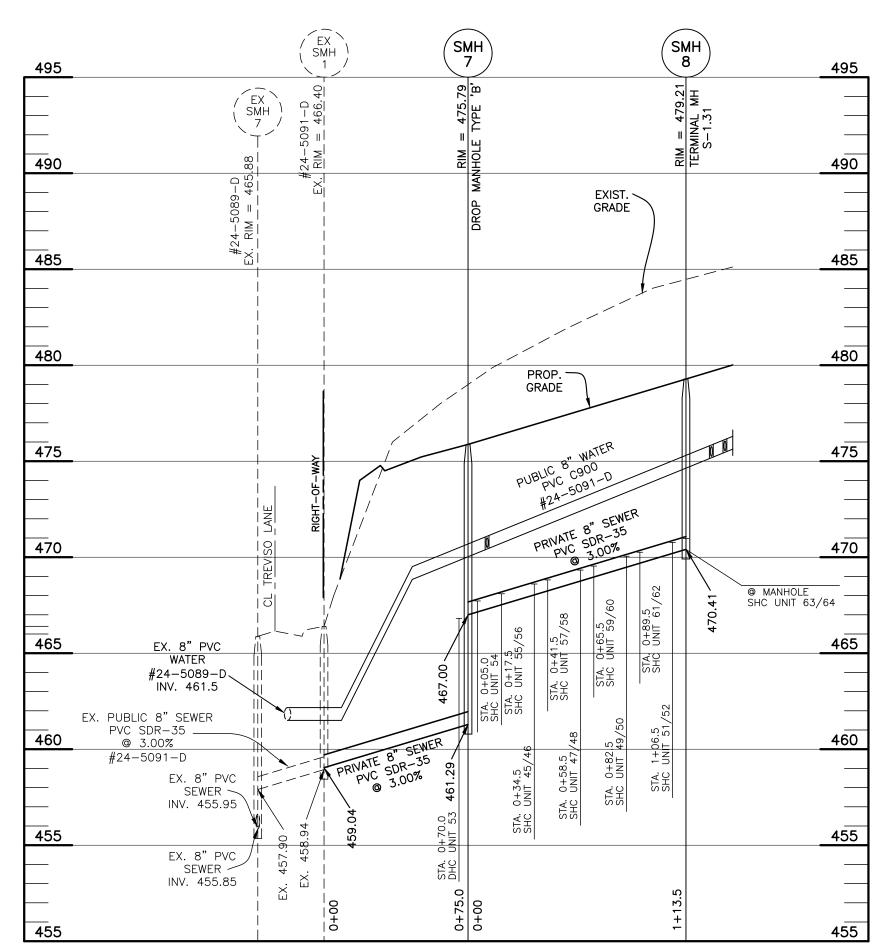










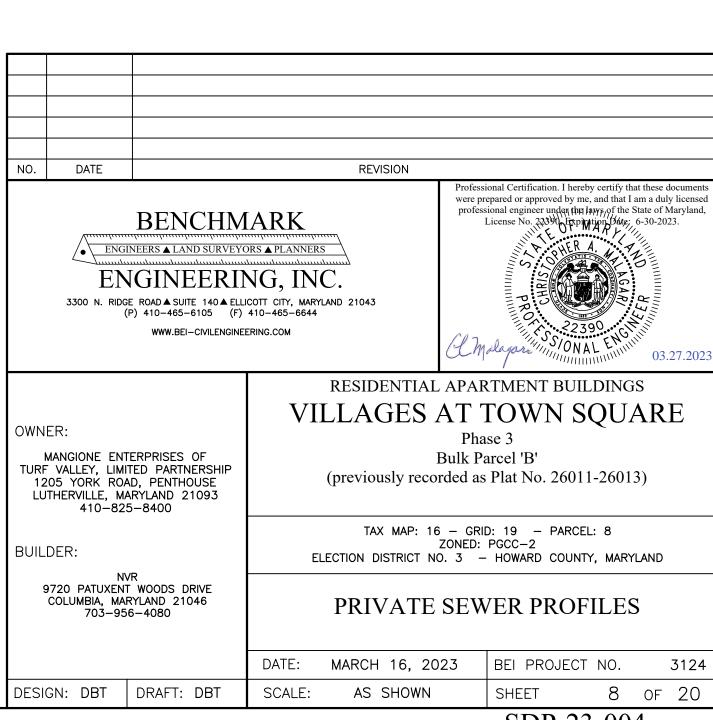


			SHC CHAR	RT			
Unit Number	Invert @ main	DHC?	DHC standpipe	Invert @ R/W	Minimum Cellar	Slab	
Offic Number	Invert @ main		length/height	or esmt line	Elevation		
1/2	473.37	NO		473.81	477.67	484.34	
3/4	474.09	NO		474.53	478.39	485.01	
5/6	474.81	NO		475.25	479.11	485.68	
7/8	475.53	NO		475.97	479.83	486.35	
9/10	476.50	NO		476.94	480.80	487.02	
11/12	467.68	NO		467.84	471.70	480.31	
13/14	468.88	NO		469.04	472.90	481.65	
15/16	470.08	NO		470.24	474.10	482.99	
17/18	471.28	NO		471.44	475.30	484.33	
19/20	472.66	NO		472.78	476.64	485.67	
21/22	467.78	NO		468.22	472.08	479.59	
23/24	468.98	NO		469.42	473.28	480.93	
25/26	470.18	NO		470.62	474.48	482.27	
27/28	471.38	NO		471.82	475.68	483.61	
29/30	467.94	NO		468.10	471.96	479.68	
31/32	468.73	NO		468.89	472.75	480.35	
33/34	469.52	NO		469.68	473.54	481.69	
35/36	470.25	NO		470.41	474.27	482.36	
37/38	468.00	NO		468.44	472.30	480.06	
39/40	468.80	NO		469.24	473.10	480.73	
41/42	469.59	NO		470.03	473.89	481.40	
43/44	470.54	NO		470.94	474.80	482.07	
45/46	468.21	NO		468.37	472.23	478.68	
47/48	468.93	NO		469.09	472.95	479.35	
49/50	469.65	NO		469.81	473.67	480.02	
51/52	470.37	NO		470.53	474.39	481.36	
53	461.31	YES	5.0	466.77	470.63	477.65	
54	467.32	NO		467.76	471.62	477.65	
55/56	467.70	NO		468.14	472.00	478.32	
57/58	468.42	NO		468.86	472.72	478.99	
59/60	469.14	NO		469.58	473.44	479.66	
61/62	469.86	NO		470.30	474.16	480.32	
63/64	470.74	NO		471.14	475.00	481.67	

All SHC's are at a 2.0% unless otherwise noted.
All Drop connections are Ho.Co.Std. S-2.12 Type 'A'

°	25	50	1	00 
1	inch =	= 50 ft.	HORIZ.	
°	2.5	5		10
	1 inch	= 5 ft.	VERT	

SMH	Location (NAD '83)	lnve	ert	Invert	Rim	Howard County
Number		lr lr	า	Out	Elevation	Standard Details
1	N 594393.79 E 1342548.93	472.00	-	EXIST. 464.37	481.43	G-5.14 S-1.32
2	N 594526.96 E 1342508.25	-	-	476.17	485.56	S-1.31
3	N 594343.00 E 1342314.98	464.83	-	EXIST. 462.08	475.73	G-5.15 S-1.32
4	N 594493.00 E 1342315.37	-	-	472.33	482.87	S-1.31
5	N 594357.26 E 1342122.35	468.45	-	468.35	476.45	G-5.12
6	N 594471.10 E 1342122.65	-	-	472.21	480.20	S-1.31
7	N 594379.63 E 1341910.53	467.00	-	461.29	475.79	G-5.12 S-1.32
8	N 594491.55 E 1341929.36	-	-	470.41	479.21	S-1.31
-						



DIRECTOR

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Philip M Thompson

5/2/2023

5/3/2023

5/4/2023

DATE

DATE

DATE

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

Material	Specification	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		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 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 ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f' <sub>c</sub> = 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.R/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 Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

B.4.7

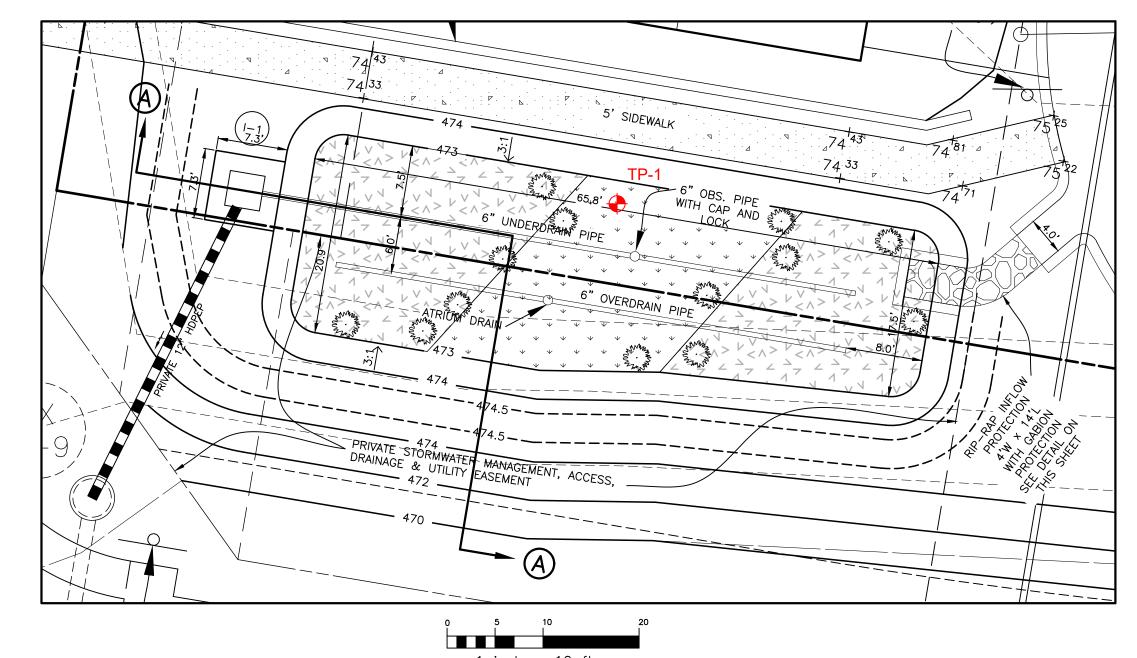
Supp. 1

	F	IE	LD T	EST	PIT	LO	G			_1_ of _1
вог	RING NO.: TP-1 DRILLER: JFC	In	С.							START DATE: 11/29/202
PRO	DJECT NAME: Villages at Town Square Ph	as	e 3						CON	#PLETION DATE: 11/29/202
PRO	DJECT NO.: SDP-23-004 PRO	JEC	T LO	CATIO	ON:					
CLI	ENT: Mangione Enterprises of Turf Valley, L	P.		DRIL	LINC	S ME	THC	D:	Ba	ckhoe
D E P T H	SOIL DESCRIPTION	S A M P L E T Y P E	S A M P L E D D E E P T T			B L O W C O U N T		R E C V E R Y	P E N P E C R K D E M T E R	REMARKS
[FT] 0		0	FROM	то				[IN]	[TSF]	
	starting elevation = 476.5 no defined topsoil									
1	-									
2	brown sandy silty soil fragemented rock encountered at 2.0 feet									
3										
									,	
4			***************************************							
5										
6										
7										
8										
9	heavier gray shale rock encountered.		***************************************		······································				·	
10	able to every etc through									
								***************************************		
11										
12	no water encountered during excavation							***************************************		
13	bottom of boring = 463.5									
14										
15										BORING COMPLETED AT A DEPTH OF 13 FEET.
16										GROUNDWATER WAS NOT ENCOUNTERED DURING OR UPON COMPLETION OF DRILLING.
17										— GROUNDWATER WAS ENCOUNTERED AT A DEPTH O  FEET DURING DRILLING
19										CAVE IN — DEPTH
										ELEVATION

APPROVED: HOWARD COUNTY DEPARTMENT	OF PLANNING AND ZONING
DocuSigned by:	
Philip M thompson	5/2/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
DocuSigned by:	5/3/2023
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DocuSigned by:	5/4/2023
DIRECTOR 989DB92F944F4CD	DATE

	(M-6) Micro Bio-Retention Landscaping Chart											
		Surface Area	<del></del>	<b>MB #1</b> 1282								
PLANT NAME	COMMON NAME	TYPE	SIZE	QUANTITY								
Cornus Amomum	Silky Dogwood	deciduous shrub	18-24" ht. #3 CAN	13								
Echinacea Purpurea	Purple Coneflower	perennial	2 gal. container	80								
Juncus Effusus	Common Rush	perennial	1 qt.	240								

	LANDSCAPE LEGEND						
SYMBOL	NAME						
What was	SILKY DOGWOOD						
* * * * * * * * * * * * * * * * * * *	PURPLE CONEFLOWER						
> V V	COMMON RUSH						



# OPERATION AND MAINTENANCE SCHEDULE FOR PRVATELY OWNED AND PRIVATELY MAINTAINED

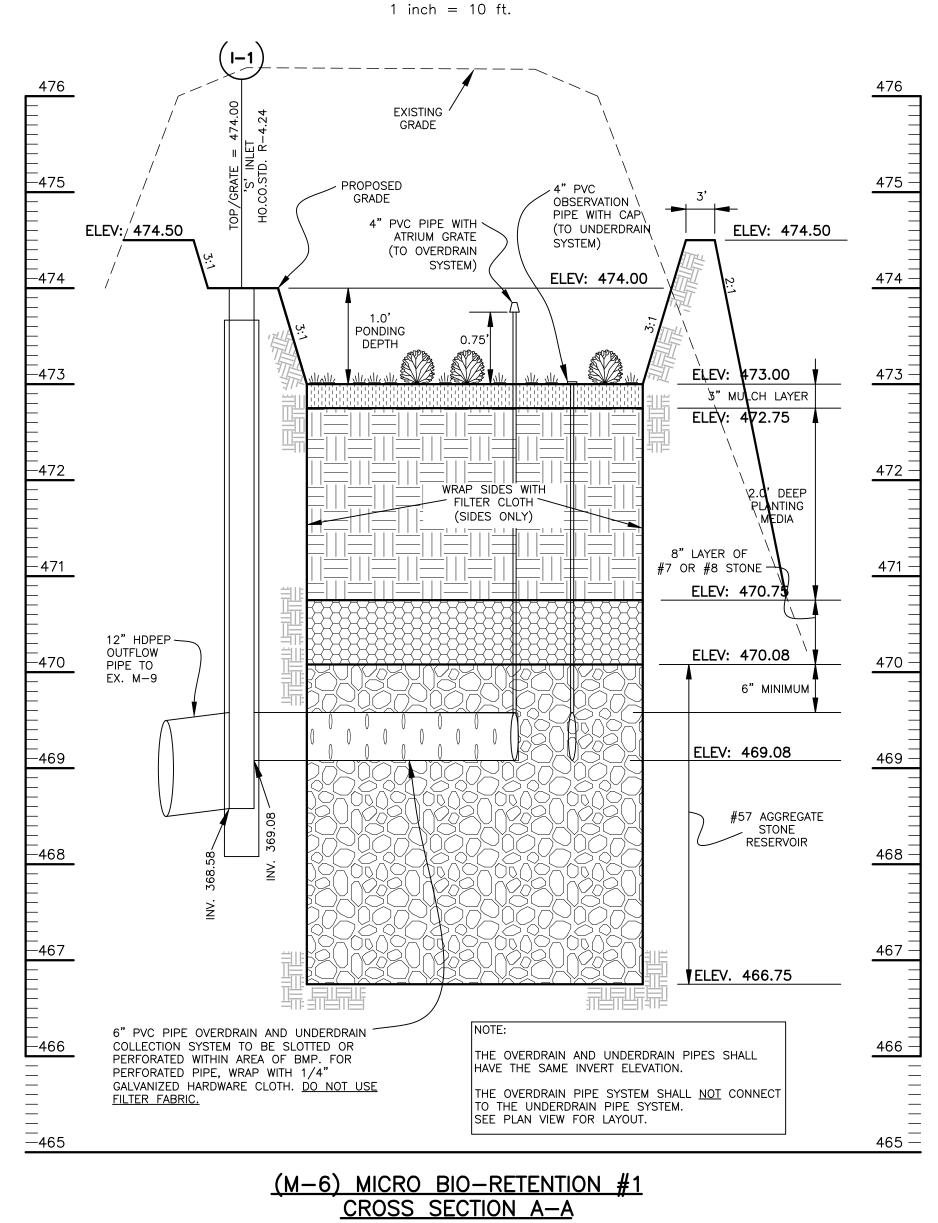
MICRO-BIORETENTION (M-6)

Routine Maintenance (By HOA):

- 1. Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning properly.
- 2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times per year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.
- 3. Under drains, feeders, plantings, observation well, pipe outfall, or other items shall be inspected annually and after major storms.
- 4. Debris/litter and sediment shall be removed during regular mowing operations and
- 5. Keep annual maintenance logs/records for County inspection.

## Non-Routine Maintenance (By HOA):

1. HOA shall be responsible for the drain pipes and outfall structures. The components shall be inspected during routine maintenance operations.



GABION BASKET

1'x3'x6'

CLASS 1 RIP-RAP
UNDERLINED WITH
FILTER CLOTH

3.7

GABION BASKET

1'x3'x6'

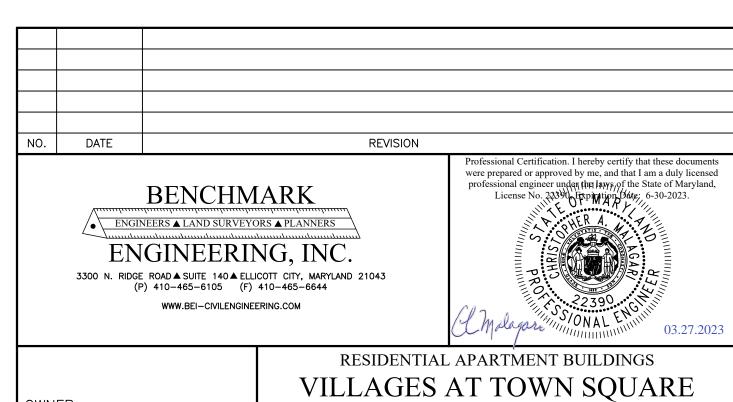
FILTER CLOTH

SURFACE AREA

ELEVATION VIEW

GABION BASKETS TO BE BURIED 18 INCHES. THEY SHOULD EXTEND 18 INCHES ABOVE THE MICRO—BIO SURFACE.

RIP-RAP WITH GABION BASKETS INFLOW DETAIL



SCALE: AS SHOWN

OWNER:

MANGIONE ENTERPRISES OF
TURF VALLEY, LIMITED PARTNERSHIP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

BUILDER:

NVR
9720 PATUXENT WOODS DRIVE
COLUMBIA, MARYLAND 21046
703-956-4080

DESIGN: DBT | DRAFT: DBT

Phase 3
Bulk Parcel 'B'
(previously recorded as Plat No. 26011-26013)

TAX MAP: 16 - GRID: 19 - PARCEL: 8
ZONED: PGCC-2
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT

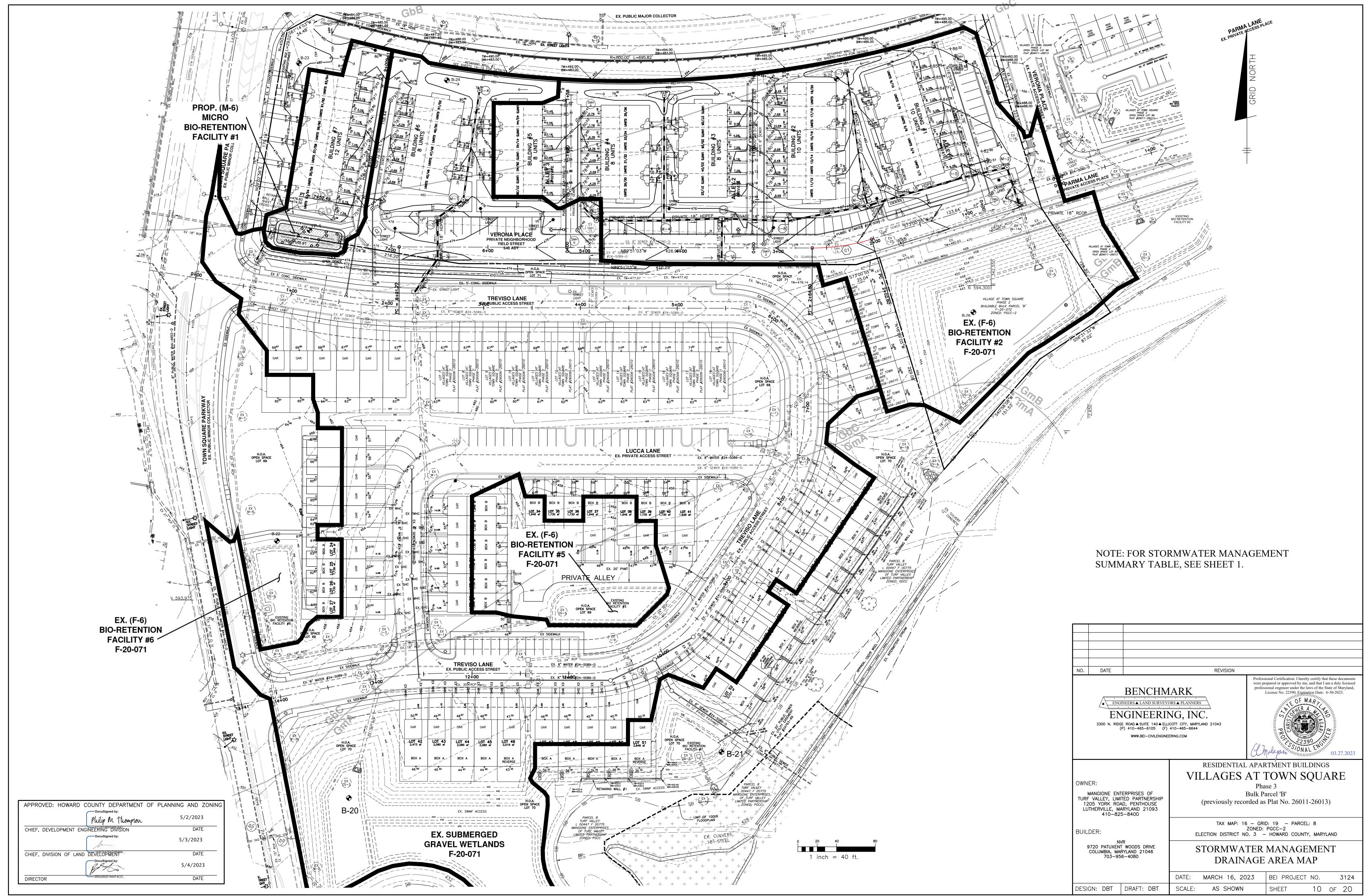
SHEET

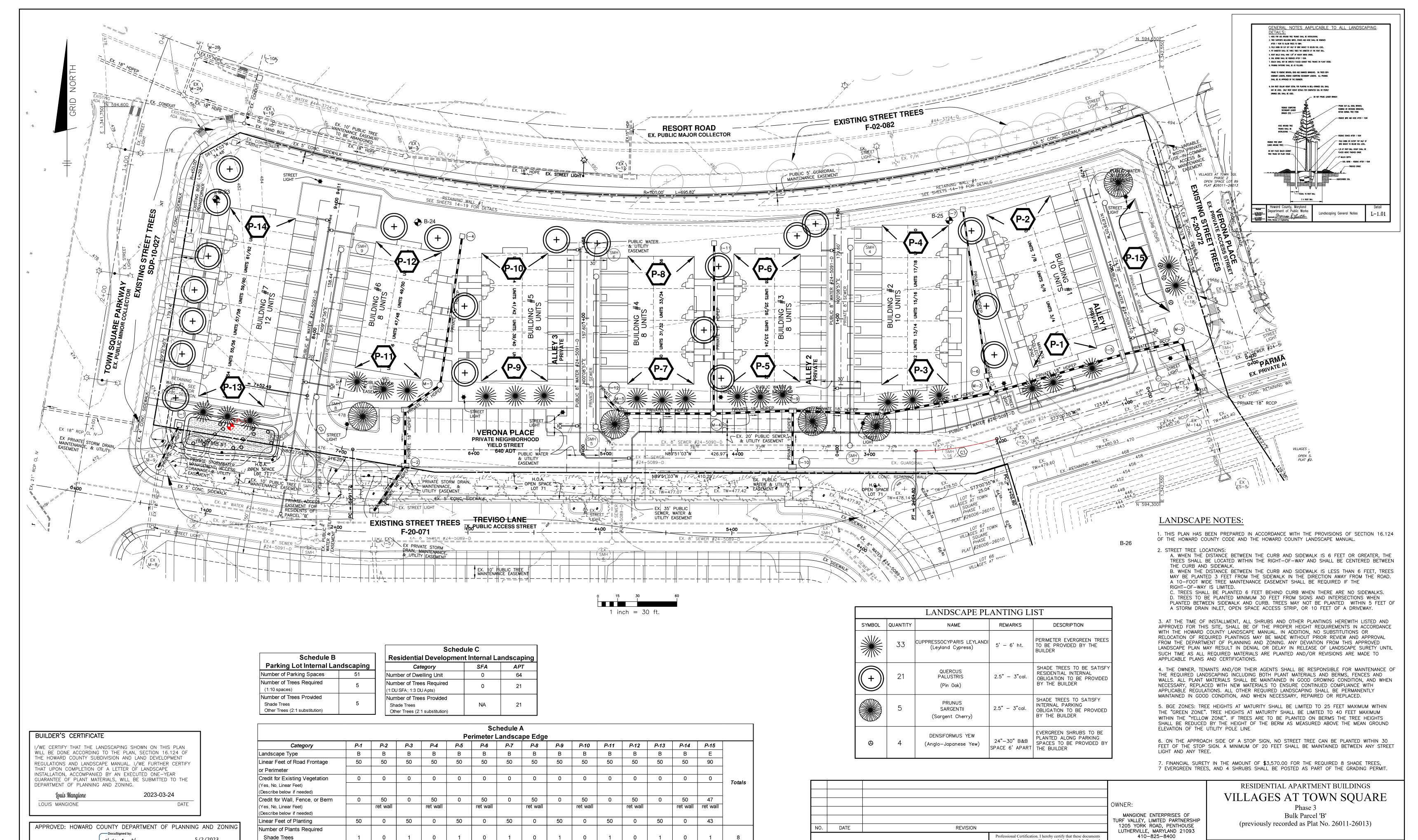
DETAILS

DATE: MARCH 16, 2023 BEI PROJECT NO.

1 inch = 10 ft.

9 of 20





0

0

0

0

13

0

33

BEI PROJECT NO. MARCH 16, 2023 3124 11 of 20 AS SHOWN SHEET SDP-23-004

TAX MAP: 16 - GRID: 19 - PARCEL: 8

ZONED: PGCC-2

ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

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. 22390, Expiration Date: 6-30-2023.

OF MARY

9720 PATUXENT WOODS DRIVE

COLUMBIA, MARYLAND 21046 703-956-4080

DESIGN: DBT | DRAFT: DBT

DATE:

SCALE:

**BENCHMARK** 

ENGINEERING, INC.

3300 N. RIDGE ROAD ▲ SUITE 140 ▲ ELLICOTT CITY, MARYLAND 21043

(P) 410-465-6105 (F) 410-465-6644

WWW.BEI-CIVILENGINEERING.COM

● ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS

DIRECTOR

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMEN

Philip M Thompson

5/2/2023

5/3/2023

5/4/2023

DATE

DATE

DATE

Evergreen Trees

Shade Trees

Shrubs

Evergreen Trees

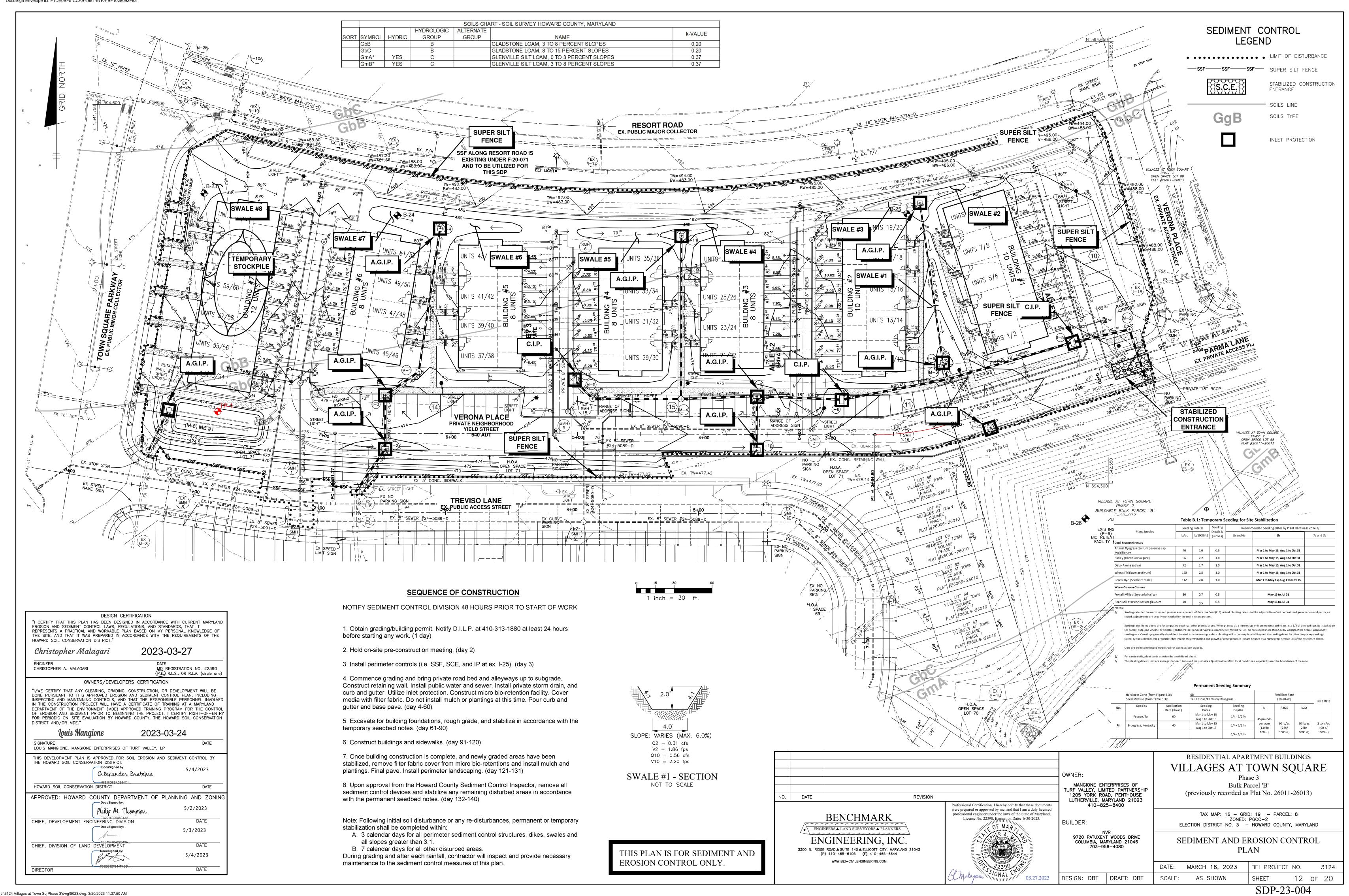
Other Trees (2:1 substitute)

Other Trees (2:1 substitute)

Number of Plant Provided

0

0



# **B-4 STANDARDS AND SPECIFICATIONS**

**VEGETATIVE STABILIZATION** 

Using vegetation as cover to protect exposed soil from erosion. To promote the establishment of vegetation on exposed soil

Conditions Where Practice Applies On all disturbed areas not stabilized by other methods. This specification is divided into sections on stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization:

and permanent stabilization. Effects on Water Quality and Quantity Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall,

reducing sediment loads and runoff to downstream areas. Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and

increase organic matter content and improve the water holding capacity of the soil and subsequent plant Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances

runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment. Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season. 1. Adequate vegetative stabilization requires 95 percent groundcover.

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding. 3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates

originally specified. 4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

# B-4-1 STANDARDS AND SPECIFICATIONS NCREMENTAL STABILIZATION

Establishment of vegetative cover on cut and fill slopes.

Γο provide timely vegetative cover on cut and fill slopes as work progresses Conditions Where Practice Applies Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses. 2. Construction sequence example (Refer to Figure B.1):

a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation. b. Perform Phase 1 excavation, prepare seedbed, and stabilize.

necessary. d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization

3. Incremental Stabilization - Fill Slopes 1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed

A. Incremental Stabilization - Cut Slopes

and apply seed and mulch on all slopes as the work progresses 2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans. 3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept

surface runoff and convey it down the slope in a non-erosive manner 4. Construction sequence example (Refer to Figure B.2): a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans

address this area. b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.

c. Place Phase 1 fill, prepare seedbed, and stabilize d. Place Phase 2 fill, prepare seedbed, and stabilize. e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization. Figure B.

DESIGN CERTIFICATION

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

OWNERS/DEVELOPERS CERTIFICATION

INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED

DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTRO

OF EROSION AND SEDIMENT PRIOR TO BÉGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTR'

FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY

Olexander Bratchie

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Philip M Thompson

"I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING

IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND

2023-03-27

MD REGISTRATION NO. 22390

(P.E.) R.L.S., OR R.L.A. (circle one

2023-03-24

5/4/2023

5/2/2023

5/3/2023

DATE

DATE

DATE

5/4/2023

DATE

DATE

EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT

HOWARD SOIL CONSERVATION DISTRICT."

Christopher Malagari

Louis Mangione

LOUIS MANGIONE, 2602 TURF VALLEY LLC

THE HOWARD SOIL CONSERVATION DISTRICT.

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

HOWARD SOIL CONSERVATION DISTRICT

CHRISTOPHER A. MALAGARI

DISTRICT AND/OR MDE.'

**ENGINEER** 

# **B-4-2 STANDARDS AND SPECIFICATIONS** SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

The process of preparing the soils to sustain adequate vegetative stabilization To provide a suitable soil medium for vegetative growth. Conditions Where Practice Applies

Where vegetative stabilization is to be established <u>Criteria</u>

Soil Preparation

Temporary Stabilization Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope. Apply fertilizer and lime as prescribed on the plans.

Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means. Permanent Stabilization

A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are: i. Soil pH between 6.0 and 7.0.

ii. Soluble salts less than 500 parts per million (ppm). iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt nlus clav) would be acceptable. iv. Soil contains 1.5 percent minimum organic matter by weight.

v. Soil contains sufficient pore space to permit adequate root penetration. Application of amendments or topsoil is required if on-site soils do not meet the above

conditions. Graded areas must be maintained in a true and even grade as specified on the

approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test

Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil

Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by

Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth The soil material is so shallow that the rooting zone is not deep enough to support

plants or furnish continuing supplies of moisture and plant nutrients. The original soil to be vegetated contains material toxic to plant growth.

The soil is so acidic that treatment with limestone is not feasible Areas having slopes steeper than 2:1 require special consideration and design.

Topsoil Specifications: Soil to be used as topsoil must meet the following criteria: a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than

1½ inches in diameter. b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

Topsoil Application

Erosion and sediment control practices must be maintained when applying topsoil. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation. Soil Amendments (Fertilizer and Lime Specifications) Soil tests must be performed to determine the exact ratios and application rates for both lime

nd fertilizer on sites having disturbed areas of 5 acres or n performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the

appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus

magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve. 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of

# **B-4-3 STANDARDS AND SPECIFICATIONS**

<u>Criteria</u>

SEEDING AND MULCHING The application of seed and mulch to establish vegetative cover

To protect disturbed soils from erosion during and at the end of construction. Conditions Where Practice Applies To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

"I CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND

a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate. b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is

frozen. The appropriate seeding mixture must be applied when the ground thaws. c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders. . Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries. ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after

ii. Apply seed in two directions, perpendicular to each other. Apply half the

seeding rate in each direction. c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per acre. ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by

hydroseeding at any one time. Do not use burnt or hydrated lime when iii. Mix seed and fertilizer on site and seed immediately and without interruption. iv. When hydroseeding do not incorporate seed into the soil.

Note: Use only sterile straw mulch in areas where one species of grass is desired.

a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry

ii. WCFM, including dye, must contain no germination or growth inhibiting iii. WCFM materials are to be manufactured and processed in such a

manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic. v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and

water holding capacity of 90 percent minimum. a. Apply mulch to all seeded areas immediately after seeding. b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a

uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre. c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per

of wood cellulose fiber per 100 gallons of water. a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending

upon the size of the area and erosion hazard: i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely.

acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds

If used on sloping land, this practice should follow the contour. ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at

Use of asphalt binders is strictly prohibited iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to

the edges where wind catches mulch, such as in valleys and on crests of banks.

# **B-4-5 STANDARDS AND SPECIFICATIONS** PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation.

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils. Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

A. Seed Mixtures General Use

a Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan. b Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or

for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guild, Section 342 - Critical Area Planting. c For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil

d For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

2. Turfgrass Mixtures a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. b. Select one or more of the species or mixtures listed below based on the site conditions or purpose Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

i. Kentucky Bluegrass: Full sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total mixture by weight. iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

For establishment in high quality, intensively managed turf area. Mixture includes Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 ½ to 3 pounds per 1000 square feet. Notes: Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns.

certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line. c. Ideal Times of Seeding for Turf Grass Mixtures

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a) Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1  $\frac{1}{2}$  inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose e. If soil moisture is deficient, supply new seedings with adequate water for plant growth ( $\frac{1}{2}$  to 1 inch

every 3 to 4 days depending on soil texture) until they are firmly established. This is not especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on

B. Sod: to provide quick cover on disturbed areas (2:1 grade or flatter).

or uneven ends will not be acceptable.

1. General Specifications

a. Class of turfgrass must be Maryland State Certified. Sod labels must be made available to the job b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn

c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section. d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation. Sod Installation

a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod. b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength.

Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots. c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact

exists between sod roots and the underlying soil surface. d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to

b. After the first week, sod watering is required as necessary to maintain adequate moisture content. c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

# **B-4-4 STANDARDS AND SPECIFICATIONS TEMPORARY STABLIZATION**

To stabilize disturbed soils with vegetation for up to 6 month

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time permanent stabilization practices are required.

Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan. 2. For sites having soil tests performed, use and show the recommended rates by the testing agency.

Soil tests are not required for Temporary Seeding. 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

# H-5 STANDARDS AND SPECIFICATIONS

DUST CONTROL Controlling the suspension of dust particles from construction activities.

To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage health and traffic hazards.

Conditions Where Practice Applies Areas subject to dust blowing and movement where on and off-site damage is likely without treatment. Specifications

Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing. Vegetative Cover: See Section B-4-4 Temporary Stabilization.

Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar

6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan

STABILIZED CONSTRUCTION

MIN. 6 IN OF 2 TO 3 IN
AGGREGATE OVER LENGTH
AND WIDTH OF ENTRANCE

50 FT MIN.

LENGTH

**PROFILE** 

PLAN VIEW

PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (\*30 FEET

FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.

PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE, PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.

PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.

MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKI DTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND

RACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR FOUIVALENT RECYCLED CONCRETE

WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.

3 FT

SCE

- EXISTING PAVEMENT

-FARTH FILL

-PIPE (SEE NOTE 6)

material can be used to control air currents and soil blowing.

ENTRANCE

DETAIL B-1

ONSTRUCTION SPECIFICATIONS

# **B-4-8 STANDARDS AND SPECIFICATIONS** STOCKPILE AREA

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading

3 Runoff from the stockpile area must drain to a suitable sediment control practice 4. Access the stockpile area from the upgrade side.

5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner. 6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment

control practice must be used to intercept the discharge. 7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.

8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

STANDARD SYMBOL

⊢—SSF——I

+34 IN MIN

36 IN MIN

STANDARD SYMBOL

GALVANIZED CHAIN LINK FENCE WITH WOVEN SLIT FILM GEOTEXTILE

**ELEVATION** 

INSTALL 2¾ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SI: FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.

FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.

FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THI UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID

SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.

WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.

EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.

Maintenance The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20

accordance with Section B-3 Land Grading.

SUPER SILT

FENCE

CHAIN LINK FENCING -

EMBED GEOTEXTILE AND

CROSS SECTION

WOVEN SLIT FILM GEOTEXTILE-

FLOW —

118118118118

GROUND SURFACE—

CONSTRUCTION SPECIFICATIONS

5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID. feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in

> Total Area of Site: 4.17 Area Disturbed: Acres 2.42 Area to be roofed or paved: \_ Acres

15,068\* Total fill: Cu Yds

7. Any sediment control practice which is disturbed by grading activity for placement of

8 Additional sediment control must be provided if deemed necessary by the CID. The site

and all controls shall be inspected by the contractor weekly; and the next day after each

Name and title of inspector

• Weather information (current conditions as well as time and an=mount of last recorded

• Brief description of project's status (e.g. percent complete) and/or current activities Evidence of sediment discharges • Identification of plan deficiencies

• Identification of sediment controls that require maintenance • Identification of missing or improperly installed sediment controls

 Monitoring/sampling • Maintenance and/or corrective action performed • Other inspection items as required by the General Permit for Stormwater Associated with

9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back filled and stabilized by the end of each work day, whichever is shorter.

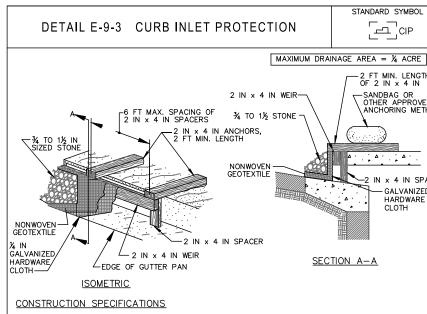
reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may be allowed by the CID per the list of HSCD—approved field changes. 11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the

12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.

25' minimum intervals, with lower ends curled uphill by 2' in elevation. 15. Stream channels must not be disturbed during the following restricted time periods

Use I and IP March 1 — June 15

16. A copy of this plan, the <u>2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL</u>, and associated permits shall be on—site and available when



USE NOMINAL 2 INCH x 4 INCH LUMBER

USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART) ATTACH A CONTINUOUS PIECE OF  $\frac{1}{4}$  INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2×4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.

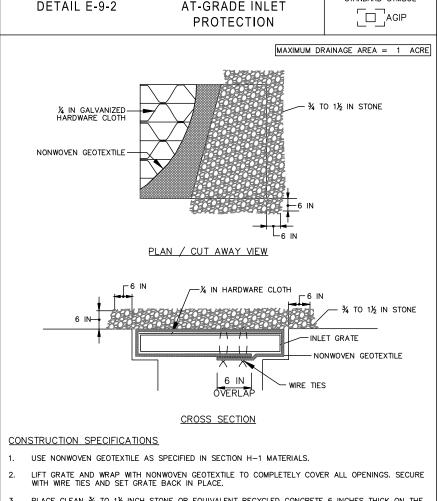
PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS TH HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.

INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.

TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN 34 TO 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE

FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL



PLACE CLEAN 1/4 TO 11/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE

STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DATE were prepared or approved by me, and that I am a duly license professional engineer under the laws of the State of Maryland. **BENCHMARK** License No. 23390 Expiration Date: 6-30-2023. ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC. 3300 N. RIDGE ROAD ▲ SUITE 140 ▲ ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM S/ONAL . RESIDENTIAL APARTMENT BUILDINGS VILLAGES AT TOWN SQUARE OWNER: Phase 3 MANGIONE ENTERPRISES OF Bulk Parcel 'B' TURF VALLEY, LIMITED PARTNERSHI (previously recorded as Plat No. 26011-26013) 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400 TAX MAP: 16 - GRID: 19 - PARCEL: 8 ZONED: PGCC-2 **UILDER:** ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND 9720 PATUXENT WOODS DRIVE SEDIMENT AND EROSION CONTROL COLUMBIA, MARYLAND 21046 703-956-4080 NOTES AND DETAILS BEI PROJECT NO. MARCH 16, 2023 ESIGN: DBT | DRAFT: DBT 13 of 20 SCALE: AS SHOWN SHEET SDP-23-004

J:\3124 Villages at Town Sq Phase 3\dwg\8023.dwg, 3/16/2023 1:25:53 PM

DIRECTOR

protected areas are marked clearly in the field. A minimum of 48 hours notice to CID must be given at the following stages: a. Prior to the start of earth disturbance. b. Upon completion of the installation of perimeter erosion and sediment controls, but

1. A pre—construction meeting must occur with the Howard County Department of Public

Works, Construction Inspection Division (CID), 410-3133-1855 after the future LOD and

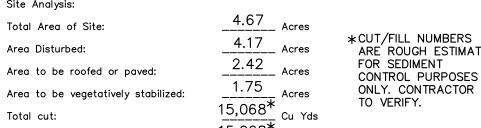
HOWARD SOIL CONSERVATION DISTRICT (HSCD)
STANDARD SEDIMENT CONTROL NOTES

before proceeding with any other earth disturbance or grading, c. Prior to the start of another phase of construction or opening of another grading d. Prior to the removal or modification of sediment control practices.

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the <u>2011 MARYLAND STANDARDS AND</u> SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls dikes. swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1) and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT  $\underline{\text{CONTROL}}$  for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15 of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 feet must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).



SITE WITH AN ACTIVE GRADING PERMIT Off-site waste/borrow area location:

rain event. A written report by the contractor, made available upon request, is part of every • Inspection type (routine, pre-storm event, during rain event)

• Compliance status regarding the sequence of construction and stabilization requirements

Construction Activities (NPDES, MDE). 10. Any major changes or revisions to the plan or sequence of construction must be

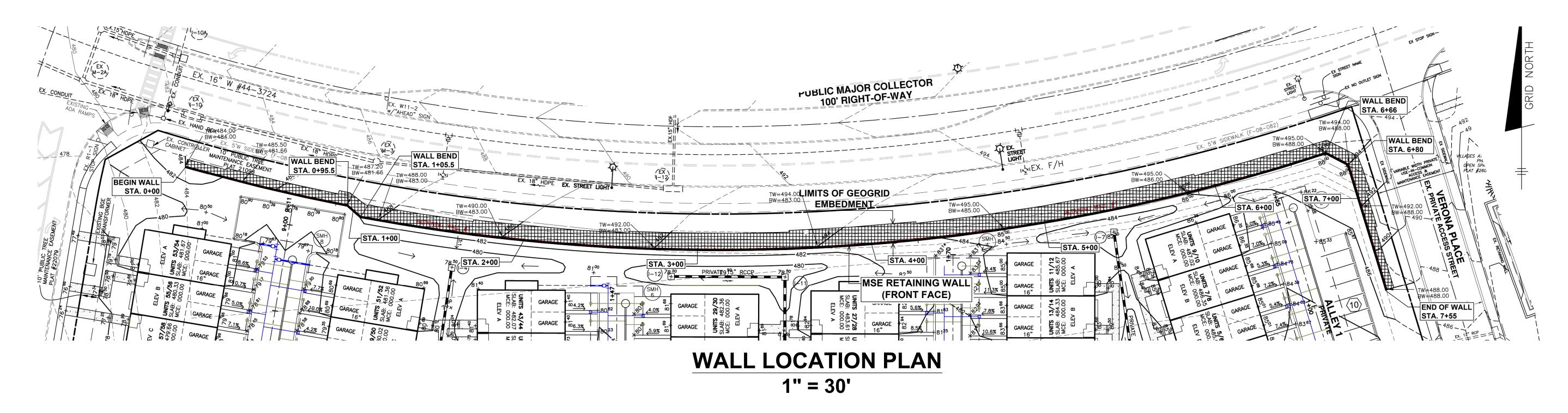
disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the HSCD, no more than 20 acres cumulatively may be disturbed at a given time.

13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade. 14. All silt fence and super silt fence shall be placed on—the—contour, and be imbricated at

• Use III and IIIP October 1 - April 30 • Use IV March 1 − May 31

the site is active.

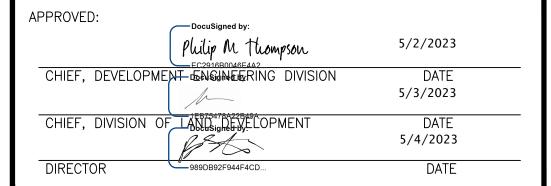


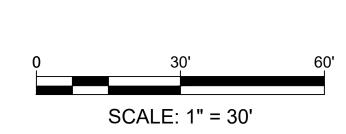


1. PLAN ADAPTED FROM DRAWING, "GRADING PLAN FOR WALL DESIGN" PROVIDED BY BENCHMARK ENGINEERING, INC DATED 07.12.2022.

2. ANY DAMAGE TO THE EXISTING STREET TREES ALONG RESORT ROAD SHALL BE REPLACED BY THE CONTRACTOR.

Timothy Digitally signed by Timothy Hill Date: 2023.03.28 11:58:26 -04'00'





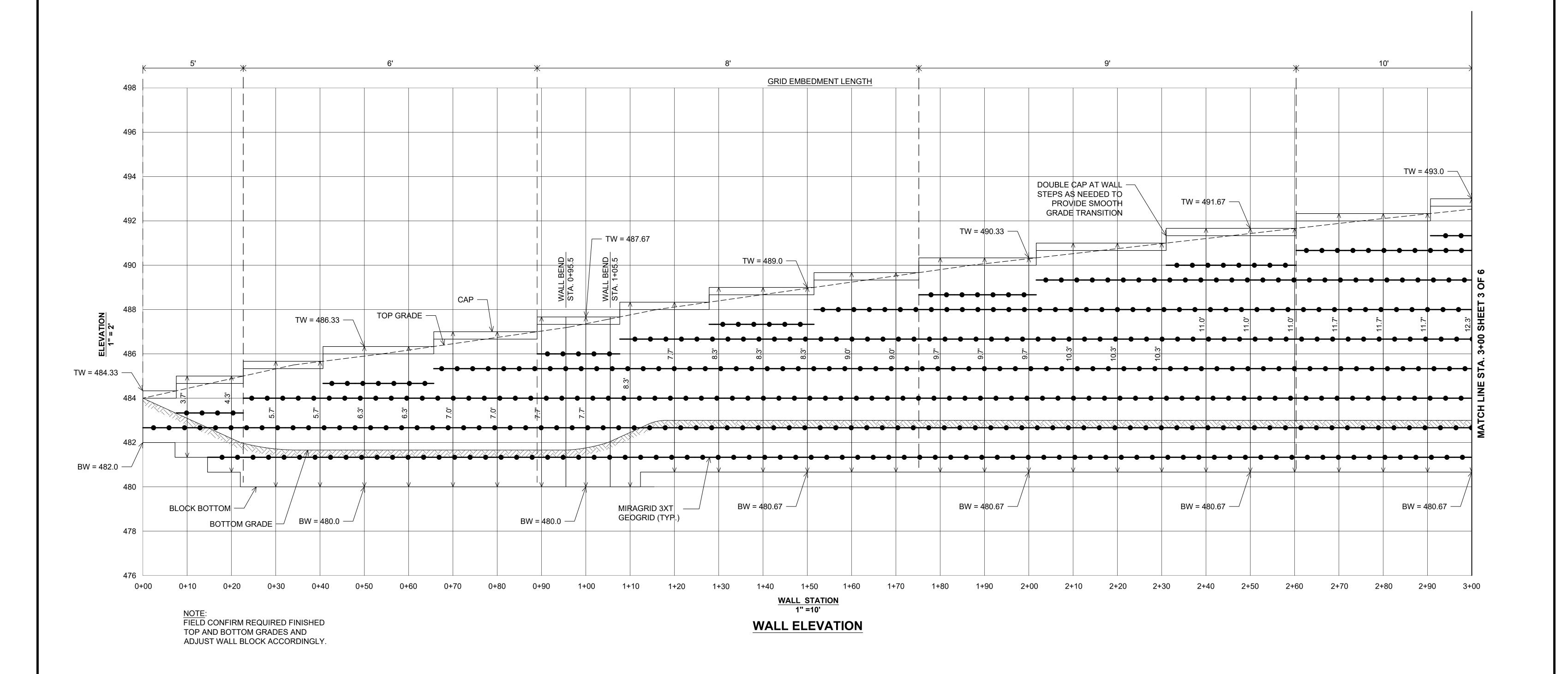
PROFESSIONAL CERTIFICATION WERE PREPARED OR APPROVED BY M AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. <u>14808</u>, EXPIRATION DATE: 02/27/24.



10975 Guilford Road, Suite A Annapolis Junction, Maryland

MSE RETAINING WALL LOCATION PLAN **VILLAGES AT TOWN SQUARE** HOWARD COUNTY, MARYLAND

		5A1L. <u>02/21/24</u> .	EXTRATIONE				
	НМ	DESIGNED BY:	22462A	JOB NUMBER:	DATE	DESCRIPTION	REVISION NO.
		DRAWN BY: 1 11	1" - 30'	SCALE:			
14 of 20	M/JRE		1 - 30				
		APPROVED BY:	9/15/2022	DATE:			



Timothy Digitally signed by Timothy Hill

Date: 2023.03.28 11:59:06 -04'00'

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. <u>14808</u>,

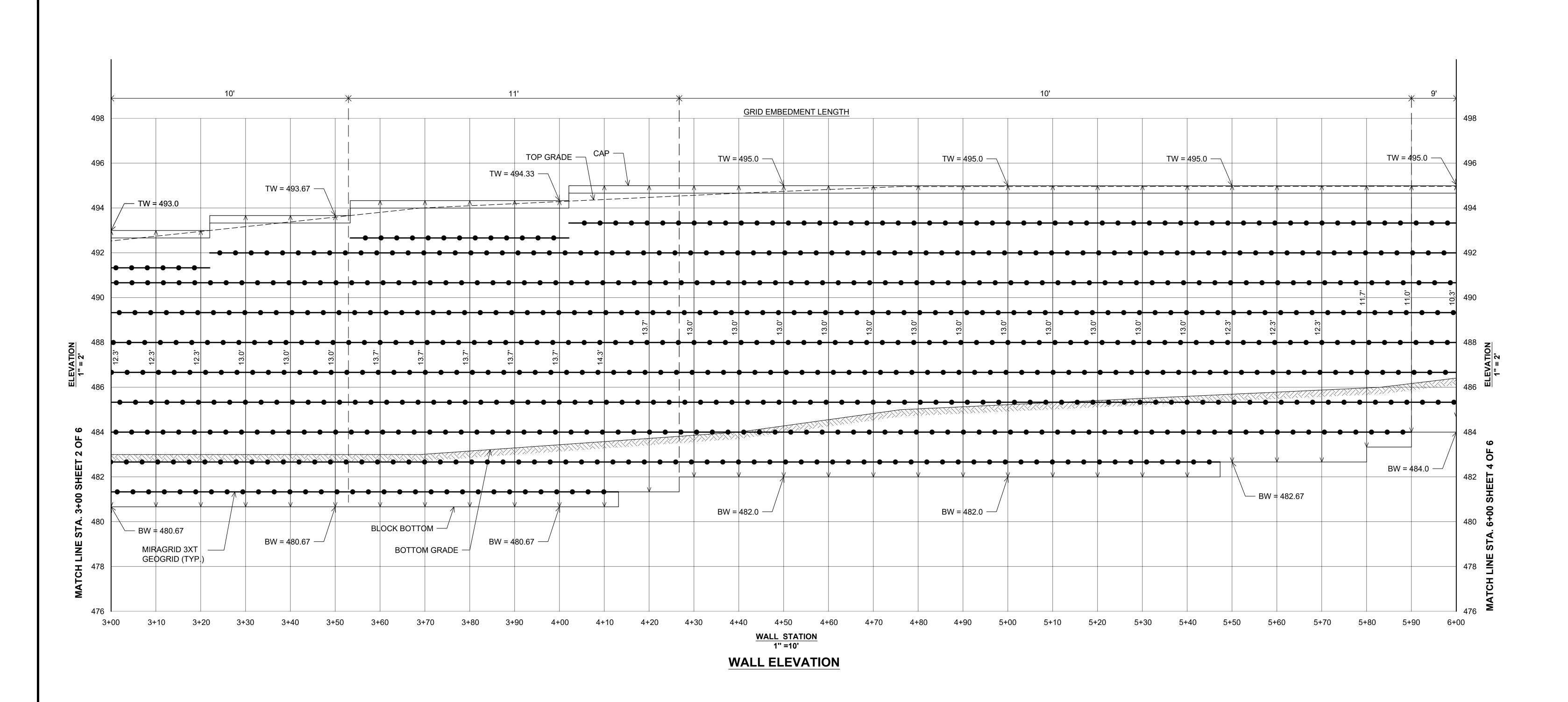
APPROVED: 5/2/2023 Philip M thompson CHIEF, DEVELOPMENT DEVISION 5/3/2023 CHIEF, DIVISION OF LANGUIGNES ELOPMENT DATE 5/4/2023 DATE

10975 Guilford Road, Suite A Annapolis Junction, Maryland

Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

**RETAINING WALL ELEVATION - STA. 0+00 TO 3+00 VILLAGES AT TOWN SQUARE** HOWARD COUNTY, MARYLAND

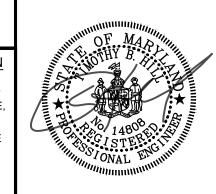
	<u> </u>	DATE: <u>02/27/24</u> .	EXPIRATION I				
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SHEET	HM	APPROVED BY:	8/15/2022	DATE:			



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Date: 2023.03.28 11:55:55 -04'00'

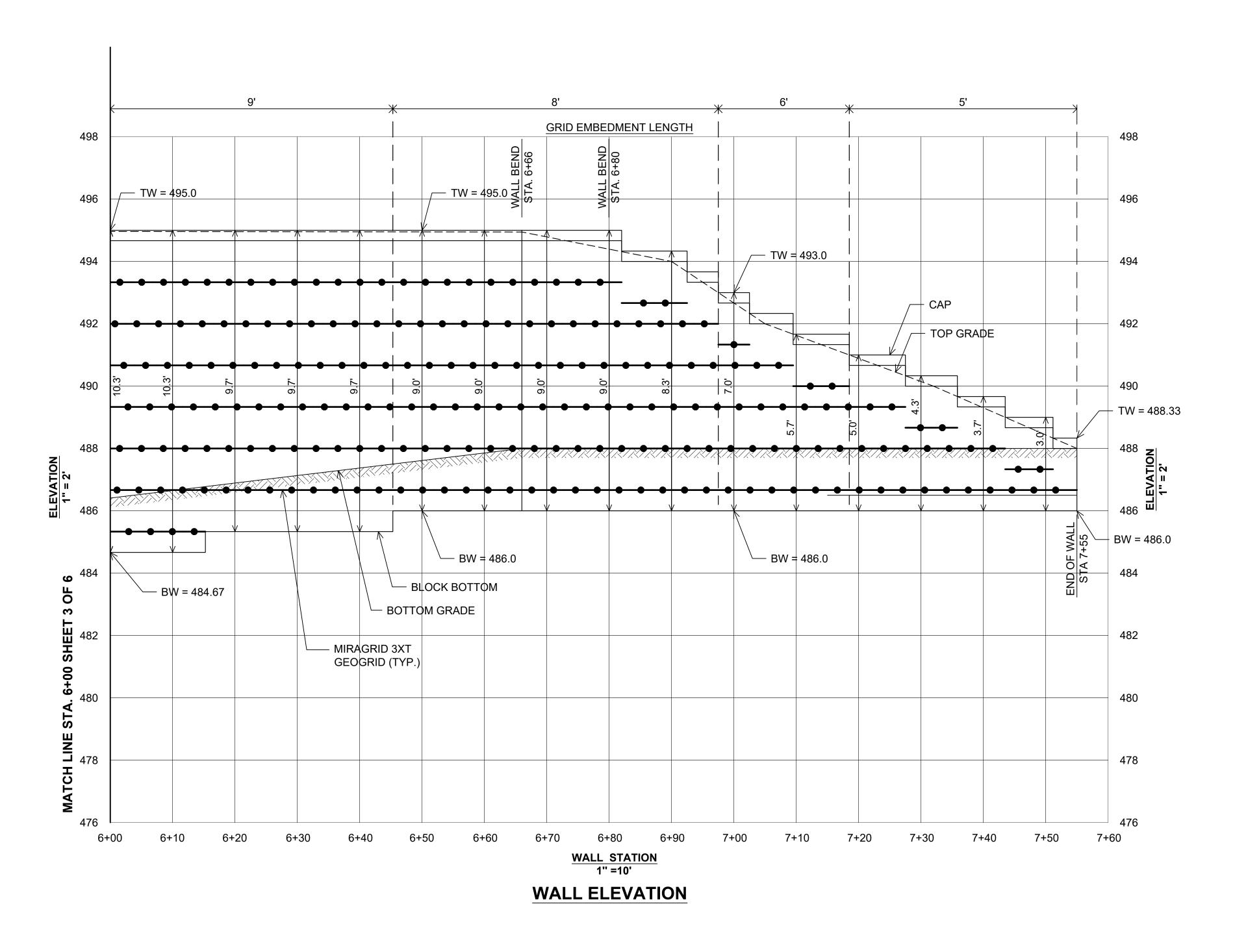
PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. <u>14808</u>,



APPROVED: 5/2/2023 Philip M thompson CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 5/3/2023 CHIEF, DIVISION OF LANDSHIP LE COPMENT DATE 5/4/2023 DATE

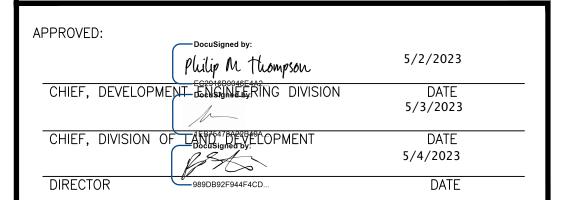
**ENGINEERING ASSOCIATES** 10975 Guilford Road, Suite A Annapolis Junction, Maryland **RETAINING WALL ELEVATION - STA. 3+00 TO 6+00 VILLAGES AT TOWN SQUARE** HOWARD COUNTY, MARYLAND

		DATE: <b>02/27/24</b> .	EXPIRATION I				
	НМ	DESIGNED BY:	22462A	JOB NUMBER:	DATE	DESCRIPTION	REVISION NO.
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SHEET	· HM	APPROVED BY:	8/15/2022	DATE:			



Timothy Digitally signed by Timothy Hill Hill

Date: 2023.03.28 11:56:25 -04'00'



10975 Guilford Road, Suite A Annapolis Junction, Maryland

REVISION NO.

DESCRIPTION

AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. <u>14808</u>, EXPIRATION DATE: 02/27/24. JOB NUMBER: 22462A DRAWN BY: HM/JRE 17 of 20 AS SHOWN

VERE PREPARED OR APPROVED BY ME

**RETAINING WALL ELEVATION - STA. 6+00 TO 7+55 VILLAGES AT TOWN SQUARE** HOWARD COUNTY, MARYLAND

DATE:

NOTES

## FENCE / GUARDRAIL NOTES:

- 1. FENCE / GUARDRAIL SHALL BE A MIN. 42" ABOVE TOP GRADE AND SHALL NOT ALLOW PASSAGE OF A 4" DIA. SPHERE
- 2. THE FENCE SHALL NOT HAVE AN ORNAMENTAL PATTERN THAT WOULD PROVIDE A LADDER

KEYSTONE COMPAC III BLOCK —

4" HDPE DRAIN PIPE WITH 2"

- BOTTOM GRADE

(SLOPE VARIES)

2 BLOCK

NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING

RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION

OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR

ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG

THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE

VERIFIED IN THE FIELD BY AN EXPERIENCE SOILS TECHNICIAN UNDER THE

DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR

PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL

THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM 95%

STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE

AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF

WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.

7. WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD CO. RIGHT-OF-WAY

DIRECTION OF A PROFESSIONAL GEOTECHNICAL ENGINEER. TESTING

BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.

THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF

COURSES MIN.

(SEE ELEVATION)

PVC WEEP @ 20' O.C

EFFECT 3. FENCE / GUARDRAIL AND RAIL FOUNDATION SHALL BE A DELEGATED DESIGN, THE - FENCE PER IBC CODE CONTRACTOR'S ENGINEER SHALL SUBMIT (BY OTHERS) SIGNED AND SEALED CALCULATIONS AND SHOP DRAWINGS FOR THE RAIL AND FOUNDATION FOR THE EOR'S REVIEW. FENCE OR GUARDRAIL SHALL BE DESIGNED TO MEET REQUIREMENTS OF IBC 1607.8 CONTINUOUS FILTER FABRIC OVER #57 STONE ABOVE TOP 8" DIA. x 24" SONO-TUBES -GRID LAYER INSTALLED DURING WALL CONSTRUCTION WALL HAS BEEN DESIGNED (SEE DETAIL #1 THIS SHEET) — TOP GRADE IN ACCORDANCE WITH THE NEAR VERTICAL (SLOPE VARIES) 2018 IBC CODE FACE BATTER CAP CUT HOLE IN GEOGRID TO FIT SONO-TUBE **MIRAGRID 3XT** 

# 57 CRUSHED

TYPICAL WALL SECTION

N.T.S.

STONE BASE

SEE GEOTECHNICAL REPORT FOR FOUNDATION SUBGRADE PREPARATION, UNDERCUTTING, STRUCTURAL COMPACTED FILL, BACKFILL, ETC. REQUIREMENTS

**GEOGRID** 

GRID EMBEDMENT LENGTH VARIES

SEE ELEVATION

GEOGRID REINFORCED

COMPACTED FILL

TYPF SM

 $\gamma$  = 125 PCF

 $Ø = 30^{\circ} MIN$ 

~ REQUIRED SUBGRADE BEARING CAPACITY ~

AS FOLLOWS:

WALL HEIGHT: 0' - 12' = 2000 PSF

WALL HEIGHT 12' & ABOVE = 2500 PSF

# 57 CRUSHED STONE

INSTALL DRAIN BOARD BEHIND GEOGRIDS WITH DRAIN PIPE DAYLIGHTING THRU WALL **BLOCK AS DETERMINED NECESSARY BY SITE** GEOTECHNICAL ENGINEER TO INTERCEPT ANY

NOTE: SUBGRADE BEARING CAPACITY

SHALL BE VERIFIED BY A

GEOTECHNICAL ENGINEER

FENCE PER IBC CODE

PRIOR TO WALL CONSTRUCTION.

SEEPING WATER (OR AREAS LIKELY TO SEEP) ALONG THE EXCAVATION FACE.

B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE

# 2.01 SEGMENTAL CONCRETE RETAINING WALL UNITS

A. SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:

FACE FINISH - HARD SPLIT IN ANGULAR TRI-PLANE OR STRAIGHT FACE CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF

BOTH STRAIGHT AND CURVED ALIGNMENTS.

EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS,

DISTANCE OF 20 FEET UNDER DIFFUSED LIGHTING. B. SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE

REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS. C. SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE

FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH ASTM C140 SAMPLING & TESTING CONCRETE MASONRY UNITS.

COMPRESSIVE STRENGTH = 3000 PSI MINIMUM: ABSORPTION = 8% MAXIMUM (6% MAXIMUM IN NORTHERN

DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE  $\pm \frac{1}{16}$ " FROM NOMINAL UNIT HEIGHT. UNIT SIZE - 8" (H) X 18" (W) X 12" (D) MINIMUM FOR COMPAC III UNITS; [UNIT SIZE - 8" (H) X 18" (W) X 18" (D) MINIMUM FOR STANDARD UNITS.]

NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.

D. SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE

# SEGMENTAL CONCRETE BLOCK RETAINING WALL

# **PART 1: GENERAL**

**SPECIFICATIONS** 

# 1.01 DESCRIPTION

- A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A SEGMENTAL RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.
- B. WORK INCLUDES PREPARING FOUNDATION SOIL. FURNISHING AND INSTALLING LEVELING PAD, UNIT FACING SYSTEM, UNIT DRAINAGE FILL AND REINFORCED BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION
- C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS

## 1.02 DELIVERY, STORAGE AND HANDLING

- A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- INCORPORATED INTO THE WORK.

## **PART 2: PRODUCTS**

FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT IN VERTICALLY ADJACENT UNITS, IN

CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A

STATES) FOR STANDARD WEIGHT AGGREGATES;

INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI [GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF

### VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) OR [1"± PER COURSE] PER TYPICAL WALL SECTION; ALIGNMENT AND GRID ATTACHING MECHANISM -FIBERGLASS PINS. TWO PER UNIT MINIMUM: MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE 1/2

# 2.02 SHEAR AND REINFORCEMENT PIN CONNECTORS

- A. SHEAR AND REINFORCEMENT PIN CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS AND GEOSYNTHETIC REINFORCEMENT WITH THE FOLLOWING REQUIREMENTS: FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476: 128,000 PSI MINIMUM: SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475: 6,400 PSI
- B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING

## 2.03 BASE LEVELING PAD MATERIAL

A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE OR CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

# 2.04 UNIT DRAINAGE FILL

A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED

## 2.05 REINFORCED BACKFILL

PROPERTIES SHOWN ON THE PLAN:

NO. 200

A. REINFORCED BACKFILL SHALL BE TYPE SM. FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D422 AND MEET OTHER

SIEVE SIZE	PERCENT PASSING
1 1/2 INCH	100
3/4 INCH	100-75
NO. 40	0-60

PLASTICITY INDEX (PI) <15 AND LIQUID LIMIT <40, PER ASTM

0-35

B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGHLY PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

C. CONTRACTOR SHALL SUBMIT REINFORCED FILL SAMPLE AND LABORATORY TEST RESULTS FOR APPROVAL PRIOR TO THE USE OF ANY REINFORCED BACKFILL MATERIAL

## 2.06 GEOGRID SOIL REINFORCEMENT

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER (PET)

# 2.07 DRAINAGE PIPE

A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM

# 2.08 GEOTEXTILE FILTER FABRIC

A. WHEN REQUIRED, FILTER FABRIC SHALL BE A

## NEEDLE-PUNCHED NONWOVEN FABRIC MEETING REQUIREMENTS OF AASHTO M288.

## PART 3 EXECUTION 3.01 EXCAVATION

- CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE SUBGRADE PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.
- B. RETAINING WALL EXCAVATIONS SHALL BE PERFORMED IN COMPLIANCE WITH MOSH AND OSHA REQUIREMENTS. CARE SHALL BE EXERCISED TO PROPERLY SHORE OR SLOPE BACK EXCAVATIONS TO MAINTAIN STABILITY. IF SLOPE FLATTENING IS NOT ACHIEVABLE, TEMPORARY SUPPORT OF EXCAVATION FOR THE RETAINING WALL CONSTRUCTION SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AND PERFORMED IN ACCORDANCE WITH ANY JURISDICTIONAL SAFETY STANDARDS.

# 3.02 BASE LEVELING PAD

- A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE SEGMENTAL WALL UNIT.
- B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.
- C. COMPACT TO MINIMUM 95% OF STANDARD PROCTOR

MAXIMUM DRY DENSITY PER ASTM D698.

# 3.03 SEGMENTAL UNIT INSTALLATION

- A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.
- B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.
- D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. NOT LESS THAN 1.3 CU. FT. OF DRAINAGE FILL SHALL BE USED FOR EACH SQ. FT. OF WALL FACE, UNLESS NOTED OTHERWISE.
- E. PLACE AND COMPACT REINFORCED BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH BACKFILL.
- MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS. PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT

AND COMPACTION, SHALL NOT EXCEED TWO COURSES.

## 3.04 STRUCTURAL GEOGRID INSTALLATION

- A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT
- B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE
- C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE SEGMENTAL WALL UNIT PINS AND WITHIN 1 INCH OF THE FACE OF THE UNITS. PLACE THE NEXT COURSE OF SEGMENTAL

### SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS GREATER THAN 2 INCHES BETWEEN

## 3.05 REINFORCED BACKFILL PLACEMENT

A. REINFORCED BACKFILL SHALL BE PLACED. SPREAD. AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE TO GEOGRID.

ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

- B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND OPERATED COMPACTION EQUIPMENT IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.
- C. REINFORCED BACKFILL SHALL BE COMPACTED TO MINIMUM 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE -1% TO +3% OF
- D. ONLY LIGHTWEIGHT HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE BACK OF THE SEGMENTAL CONCRETE UNIT.
- E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING OR DISPLACING THE SEGMENTAL CONCRETE UNITS OR GEOGRID.
- F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND TURNING SHALL BE AVOIDED.
- G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

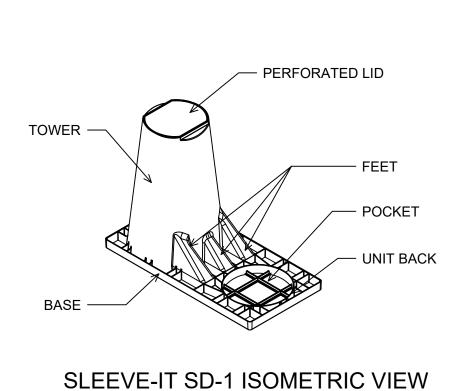
# 3.06 CAP INSTALLATION

- A. PRIOR TO PLACEMENT OF CAP UNITS. THE UPPER SURFACE OF THE TOP COURSE WALL UNITS SHALL BE CLEANED OF SOIL AND ANY OTHER MATERIAL.
- B. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER EXTERIOR CONSTRUCTION ADHESIVE RECOMMENDED BY THE MANUFACTURER.

## 3.07 FIELD QUALITY CONTROL

- A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.
- B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, RETAINED SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.

# SLEEVE-IT® SD-1 12" DIA X 24" DEEP SET POSITION OF SLEEVE -IMMEDIATELY BEHIND TOP — FILL SLEEVE WITH MOST BLOCK CONCRETE, SET FENCE POST (3,000 PSI AT 28 DAYS) BACKFILL AND COMPACT TO TOP OF SLEEVE BEFORE SETTING POST AND CONCRETE **NEAR VERTICAL** FACE BATTER - CUT HOLE IN GEOGRID TO FIT SONO-TUBE MIRAGRID 3XT GEOGRID REINFORCED **BACKFILL ZONE** REINFORCED BACKFILL **COMPACTED 95% OF MAXIMUM COMPAC III** STANDARD PROCTOR DENSITY **BLOCK**



\*SEE SLEEVE-IT® MANUFACTURER, STRATA SYSTEMS PREFERRED SPECIFICATION DOCUMENT FOR APPROPRIATE APPLICATIONS NOT SUITABLE FOR SOLID BOARD PRIVACY FENCES, PRIVACY CLOTH, OR SCREENING.

Timothy Digitally signed by Timothy Hill Date: 2023.03.28 11:59:46 -04'00'

# HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY M AND THAT I AM A DULY LICENSED

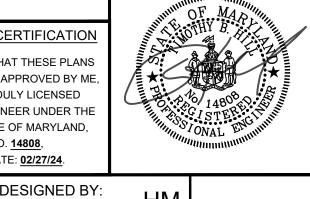
22462A

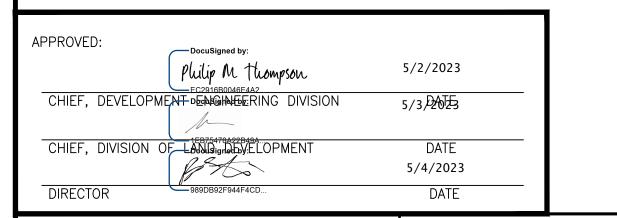
8/15/2022

PROFESSIONAL CERTIFICATION PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14808, EXPIRATION DATE: 02/27/24

DRAWN BY: HM/JRE

APPROVED BY:





EQUIV.) CERTIFIED SOILS TECHNICIAN.

CONSTRUCTION.

CONSTRUCTION.

OR EASEMENT

10975 Guilford Road, Suite A Annapolis Junction, Maryland

Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

FENCE POST DETAIL w/SLEEVE-IT SD-1 N.T.S.

SEE TYPICAL WALL **SECTION FOR FULL** WALL SECTION DETAILS

RETAINING WALL SECTION AND SPECIFICATIONS VILLAGES AT TOWN SQUARE

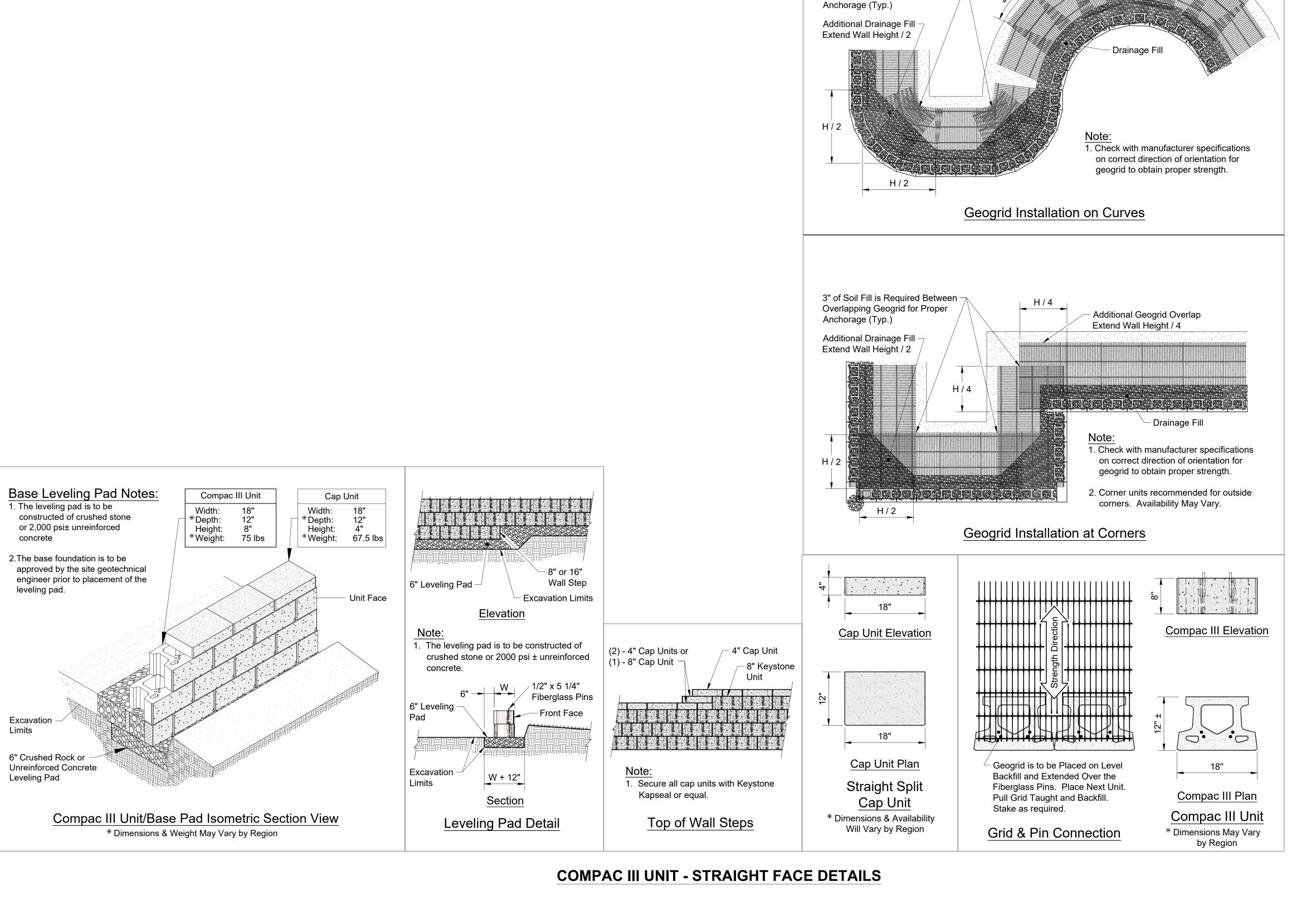
HOWARD COUNTY, MARYLAND

REVISION NO. DESCRIPTION DATE JOB NUMBER: **AS SHOWN** DATE:

\\terra\vol1\AJ Project Files\2022\22462A VTS Resort Road RW\GEOSTRUC Folders\CAD DESIGN DWGS\PRODUCTION\MSE WALL\_RESORT ROAD.dwg

18 of 20

SHEET



Place Additional Pieces of Geogrid

3" of Soil Fill is Required Between -Overlapping Geogrid for Proper

When Angle Exceeds 20°

Timoth Digitally signed by Timothy Hill Date: 2023.03.28
11:57:49 -04'00'

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 14808, EXPIRATION DATE: 02/27/24.



APPROVED:DocuSigned by:		
Philip M thompson	5/2/2023	
CHIEF, DEVELOPMENT TO ANSIGNATE FRING DIVISION	DATE 5/3/2023	
CHIEF, DIVISION OF LAND DEVELOPMENT Docusigned by:	DATE <b>5/4/2023</b>	
DIRECTOR 989DB92F944F4CD	DATE	

HILLIS-CARNES

**ENGINEERING ASSOCIATES** 

10975 Guilford Road, Suite A Annapolis Junction, Maryland Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

RETAINING WALL CONSTRUCTION DETAILS
<b>VILLAGES AT TOWN SQUARE</b>
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	22462A	DESIGNED BY:	НМ	
			SCALE: AS	S SHOWN	DRAWN BY: HI	M/JRE	19 of 20
			DATE:	8/15/2022	APPROVED BY:	НМ	SHEET

