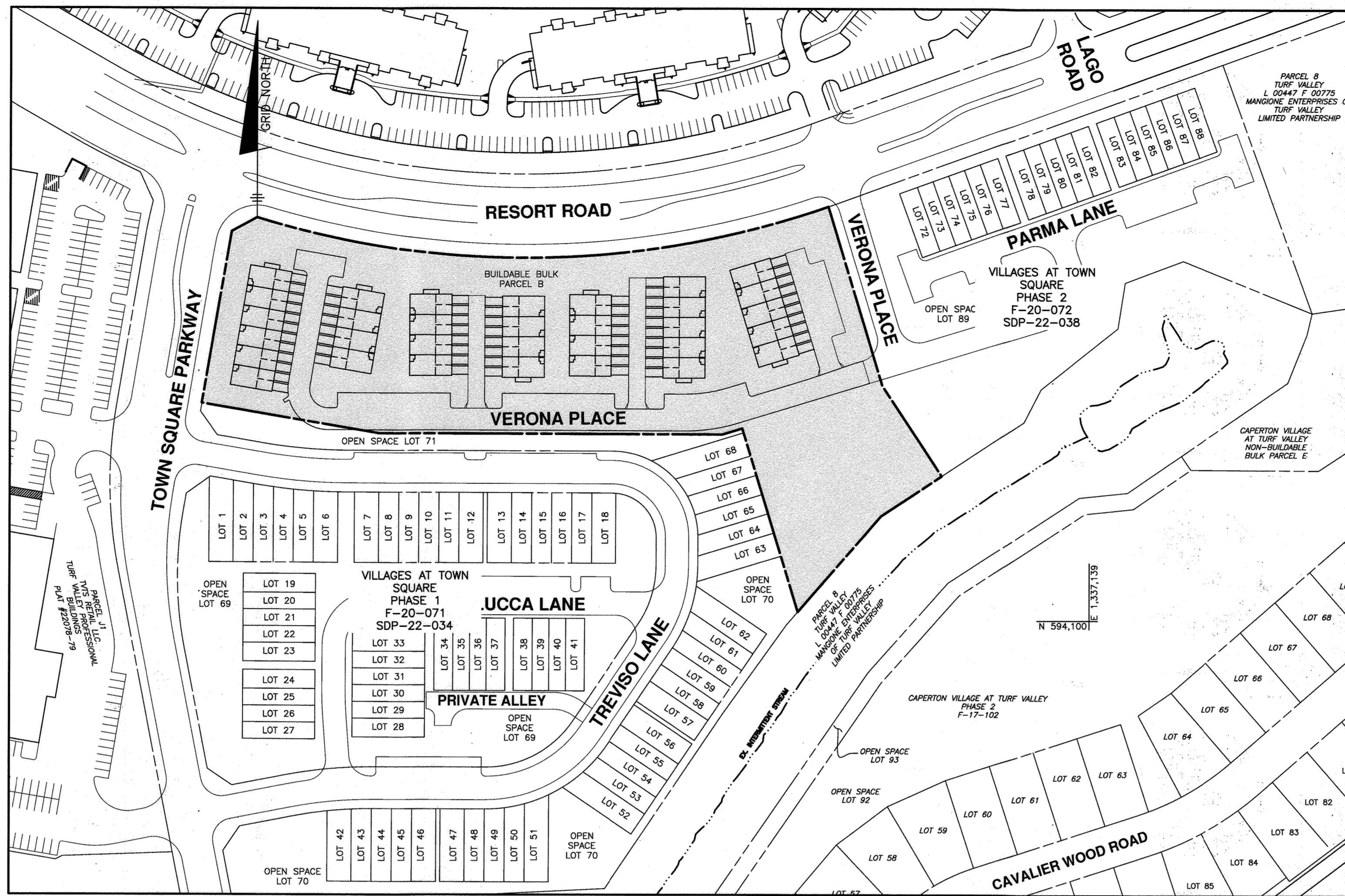


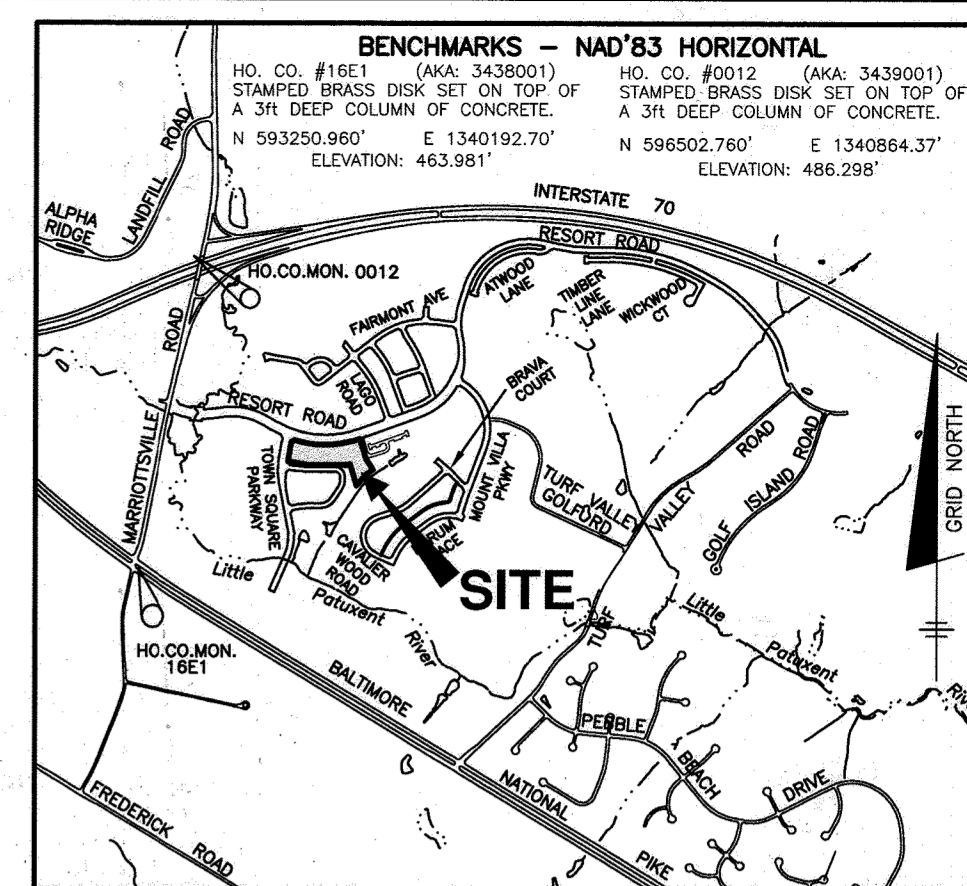
GENERAL NOTES

- 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...



LEGEND OF SYMBOLS

- LIMIT OF SUBMISSION
- - - EXIST. CONTOURS
--- 464 --- PROP. CONTOURS
\* \* \* EXIST. LIGHT POLES
\* \* \* PROP. LIGHT POLES
--- EXIST. SEWER
--- XX' BRL --- BUILDING RESTRICTION LINE
--- SLAB=000.00 MCE=200.00 --- SLAB ELEVATION MINIMUM CELLAR ELEVATION



VICINITY MAP SCALE: 1" = 2000' ADC MAP: 19 GRID: D4

SHEET INDEX table with columns SHEET and TITLE. Rows include COVER SHEET, BUILDING PLAN, LAYOUT PLAN, ROAD PROFILES AND DETAILS, GRADING PLAN, STORM DRAIN DRAINAGE AREA MAP, STORM DRAIN PROFILES, SEWER PROFILES AND DETAILS, STORMWATER MANAGEMENT DETAILS, STORMWATER MANAGEMENT DRAINAGE AREA MAP, LANDSCAPE PLAN, SEDIMENT & EROSION CONTROL PLAN, SEDIMENT & EROSION CONTROL NOTES AND DETAILS, RETAINING WALL PLANS, 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
G.) TOTAL NUMBER OF UNITS ALLOWED AS SHOWN ON FINAL PLAT(S) N/A
H.) TOTAL NUMBER OF UNITS PROPOSED 64

ESD STORMWATER MANAGEMENT SUMMARY TABLE with columns PHASE, MDE, Type, No., DA (sf), % Imp, Rv, Pe required, Required, Provided, % DA?, ESDv (cf), Pe Provided, REv, Ownership.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signature of Philip M. Thompson, Chief, Development Engineering Division, dated 5/2/2023.

STORMWATER MANAGEMENT INFORMATION CHART table with columns Lot/Parcel Number, Facility Name & Number, Practice Type (Quantity), Public Private, HOA Maintains, Misc.

APPROVED PLANNING BOARD OF HOWARD COUNTY. DATE MARCH 2, 2023.



LIMIT OF SUBMISSION. NOTE: ALL ADJACENT PROPERTIES SHOWN ARE ZONED PGCC-2.

ADDRESS CHART table with columns UNIT/LOT, ADDRESS, UNIT/LOT, ADDRESS. Lists addresses for various buildings and utility sheds.

Table listing buildings and utility sheds with columns for building number, unit/lot, address, and utility shed.

BULK REGULATIONS: (per 3RD AMENDMENT TO THE TURF VALLEY, MULTI-USE SUBDISTRICT FDP)

- PERMITTED USES: ALL USES AS PER TURF VALLEY PGCC DISTRICT, MULTI-USE SUBDISTRICT FINAL DEVELOPMENT PLAN, THIRD AMENDMENT, PLATS 21029-21031.
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.

PERMIT INFORMATION CHART

Table with columns SUBDIVISION NAME, SECTION/AREA, LOT/PARCEL #, PLAT No., GRID No., ZONE, TAX MAP NO., ELECTION DISTRICT, CENSUS TRACT.

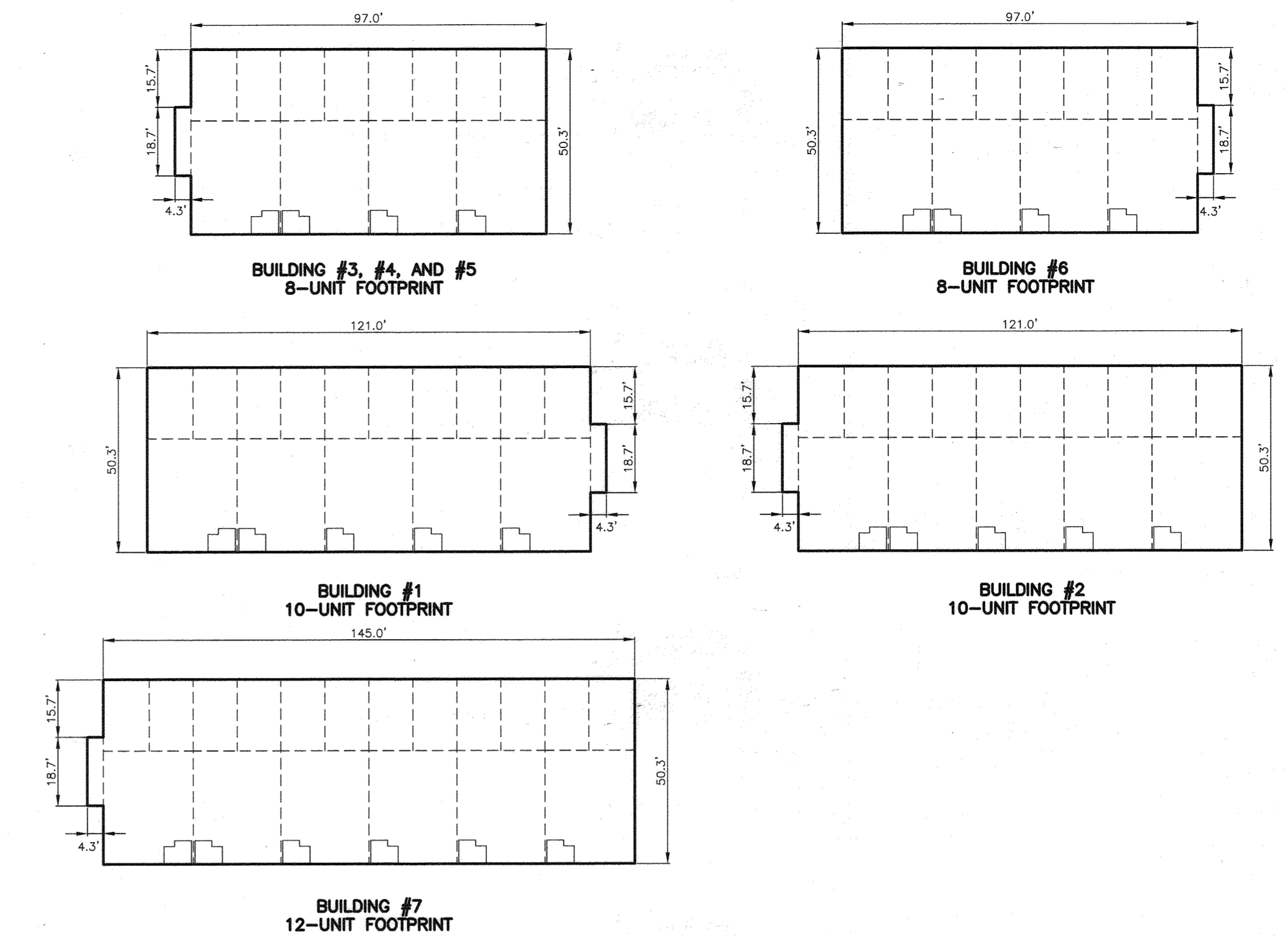
BENCHMARK ENGINEERING, INC. logo and contact information. Includes professional engineer seal for Christopher M. Pappas.

OWNER: MANIQUE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP. 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093.
RESIDENTIAL APARTMENT BUILDINGS VILLAGES AT TOWN SQUARE Phase 3 Bulk Parcel 'B'.
BUILDER: NVR 9720 PATENT WOODS DRIVE COLUMSIA, MARYLAND 21046 703-956-4080.
DATE: MARCH 16, 2023. SHEET 1 OF 20.



TYPICAL ELEVATION VIEW FOR 12-UNIT BUILDING  
SCALE: 1/8" = 1'-0"

MATISSE LOWER UNITS  
PICASSO UPPER UNITS



1 inch = 30 ft.

**Valiant™ LED**  
Series AVPL2 (with XL option for Utility)

**PRODUCT OVERVIEW**

**Features:**

- Colonial LED fixture, replaces HID models up to 150W HPS for street and area lighting applications
- Superior T11 LED performance packages deliver just the right amount of light for any given application up to 11,800 lumens
- Available in color temperature choices of 2700K, 3000K, 4000K, and 5000K
- Four full beam light distribution options provide design flexibility, available in Type II, Type III, Type IV, and Type V
- Die-cast aluminum housing with choice of acrylic or polycarbonate panel reflectors, engineered for quality life-long performance
- Die-cast aluminum hood features a trigger latch (T1) option and captive thumb screws for fast, easy electrical and optical chamber access
- Standard black finish is standard; other finishes are smooth / gloss.
- Housing is snap pole mounted and designed for use with a 2" tall by 2-3/8" to 2" diameter lumen, and secured by three set screws.
- Rated L70, LED life greater than 100,000 hours at 25°C
- Complies with all applicable ANSI C136 standards
- Suitable for up to 40° ambient
- Surge protection device (standard) exceeds ANSI/IEEE C82.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Enhanced (10kV/10kA), 20kV Option exceeds ANSI/IEEE C82.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Enhanced (20kV/10kA)
- Equipped with LED electronic 0-10V dimmable driver

**Applications:**

- Streetscapes
- Walkways
- Parks

**Dimensions:**

**Effective Protected Area (EPA)**  
The EPA for this fixture is 12.2 ft. x 12.2 ft. (at 100 ft. height) with a 100 ft. x 100 ft. (at 100 ft. height) beam spread.

**AEL**

PROCUREMENT COORDINATOR, PURCHASING & MATERIALS MANAGEMENT DEPARTMENT

LOC: 21-790  
MATERIAL: 21-790  
UM: [ ]  
REVISION: [ ]

ABBREVIATED DESCRIPTION: Pole, Fiberglass 14' Mounting Hoop 18' OAL (BLACK)

COMPLETE DESCRIPTION: Pole, Fiberglass (BLACK) 18' overall length, direct embedded tapered, smooth finish fiberglass reinforced plastic with 14' mounting height and 4' embedment. Handhole must be 3" x 9" installed 5' 6" centered from butt of pole. Must have two cable entry holes 2 1/2" x 2" installed 2' centered from butt of pole and be at 90 degrees and 270 degrees from handhole outlet. Termination must be 3" dia. and 5" minimum exposed length. Pole must be protected by a light duty plastic sleeve, then wrapped in corrugated or foam or foam-chip by a 30# heavy duty UV protected sleeve.

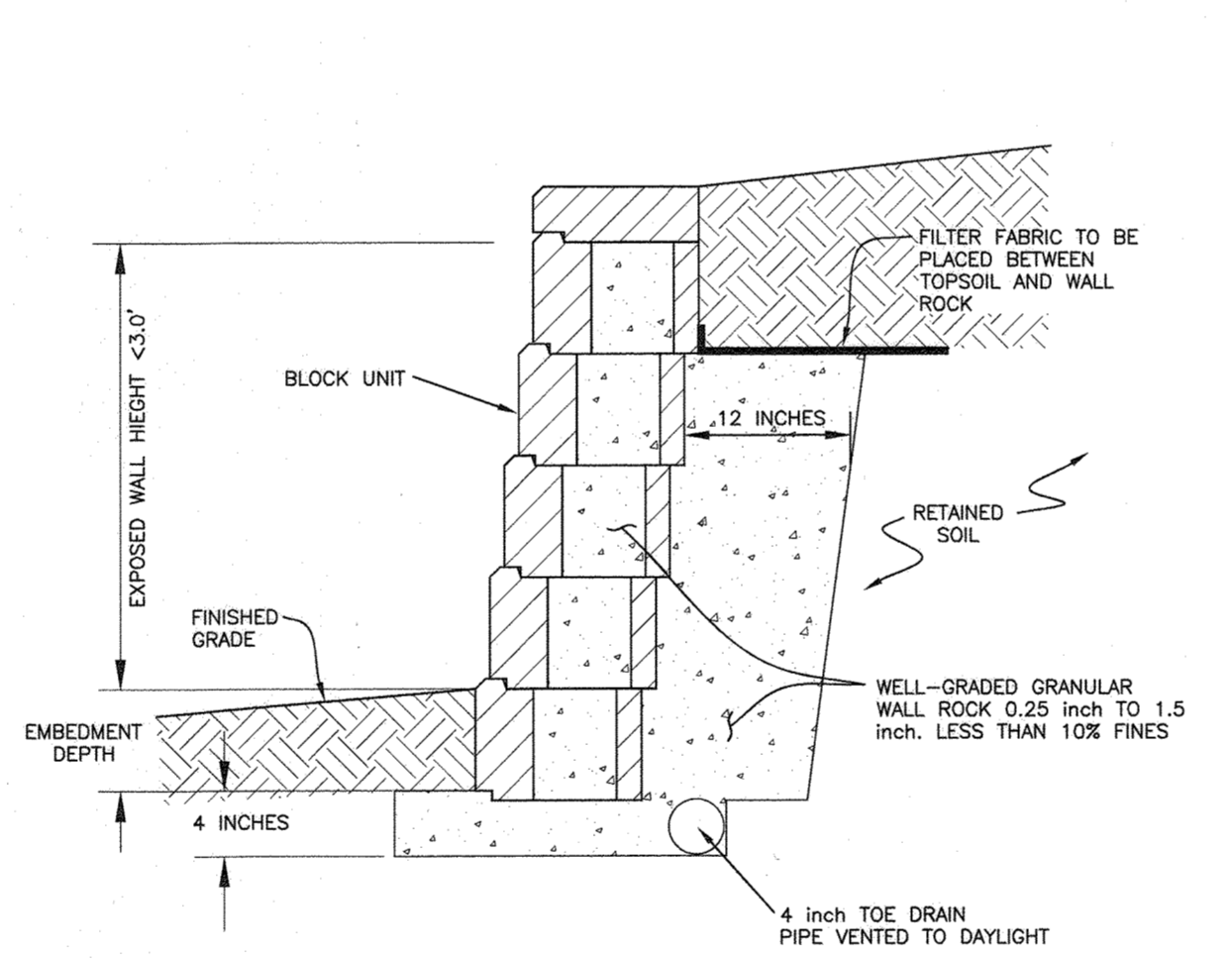
QUANTITY TO ORDER: 9  
MATERIAL QUANTITY: [ ]  
HAZARDOUS MATERIAL: No  
HAZARDOUS MATERIAL: No  
HAZARDOUS MATERIAL: No  
HAZARDOUS MATERIAL: No

REVISION: 10/24/23

APPROVED: [Signature]

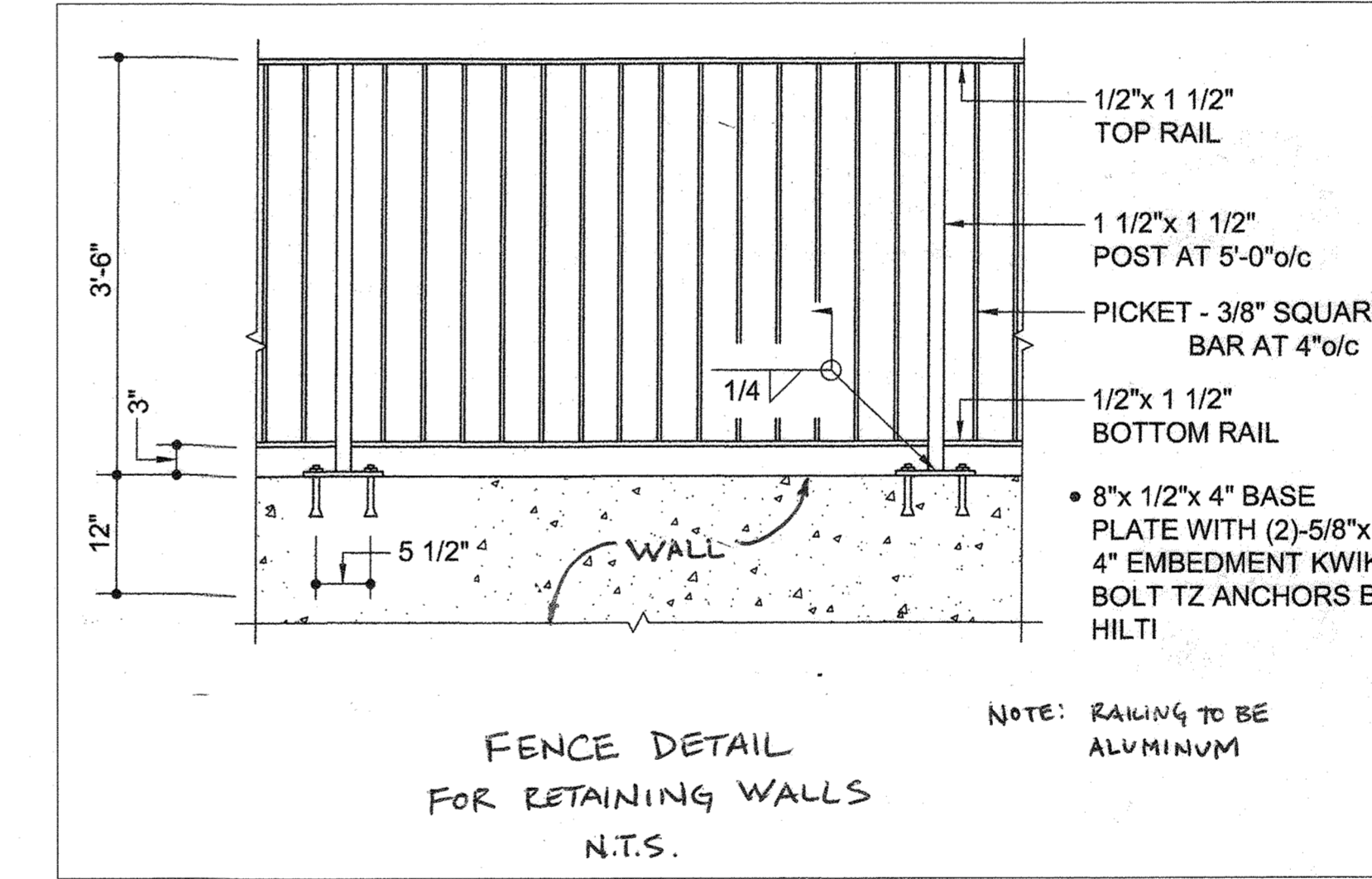
AVPL2 VALIANT WITH R3  
DISTRIBUTION, CLEAR ACRYLIC  
(PRISMATIC) OPTIC

QUANTITY: 9



TYPICAL RETAINING WALL #2  
(LESS THAN 3')  
NOT TO SCALE

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



FENCE DETAIL  
FOR RETAINING WALLS  
N.T.S.

NO.	DATE	REVISION
1	10/9/2023	REVISE THE BUILDING ELEVATION VIEW

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD • SUITE 140 • ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-0105 (F) 410-465-6844  
WWW.BE-CIVILENGINEERING.COM

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22350, expiring on 10/9/23.

**RESIDENTIAL APARTMENT BUILDINGS  
VILLAGES AT TOWN SQUARE**  
Phase 3  
Bulk Parcel 'B'  
(previously recorded as Plat No. 26011-26013)

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

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

REVISED  
BUILDING PLAN  
AND DETAIL SHEET

DATE: OCTOBER 9, 2023  
SCALE: AS SHOWN

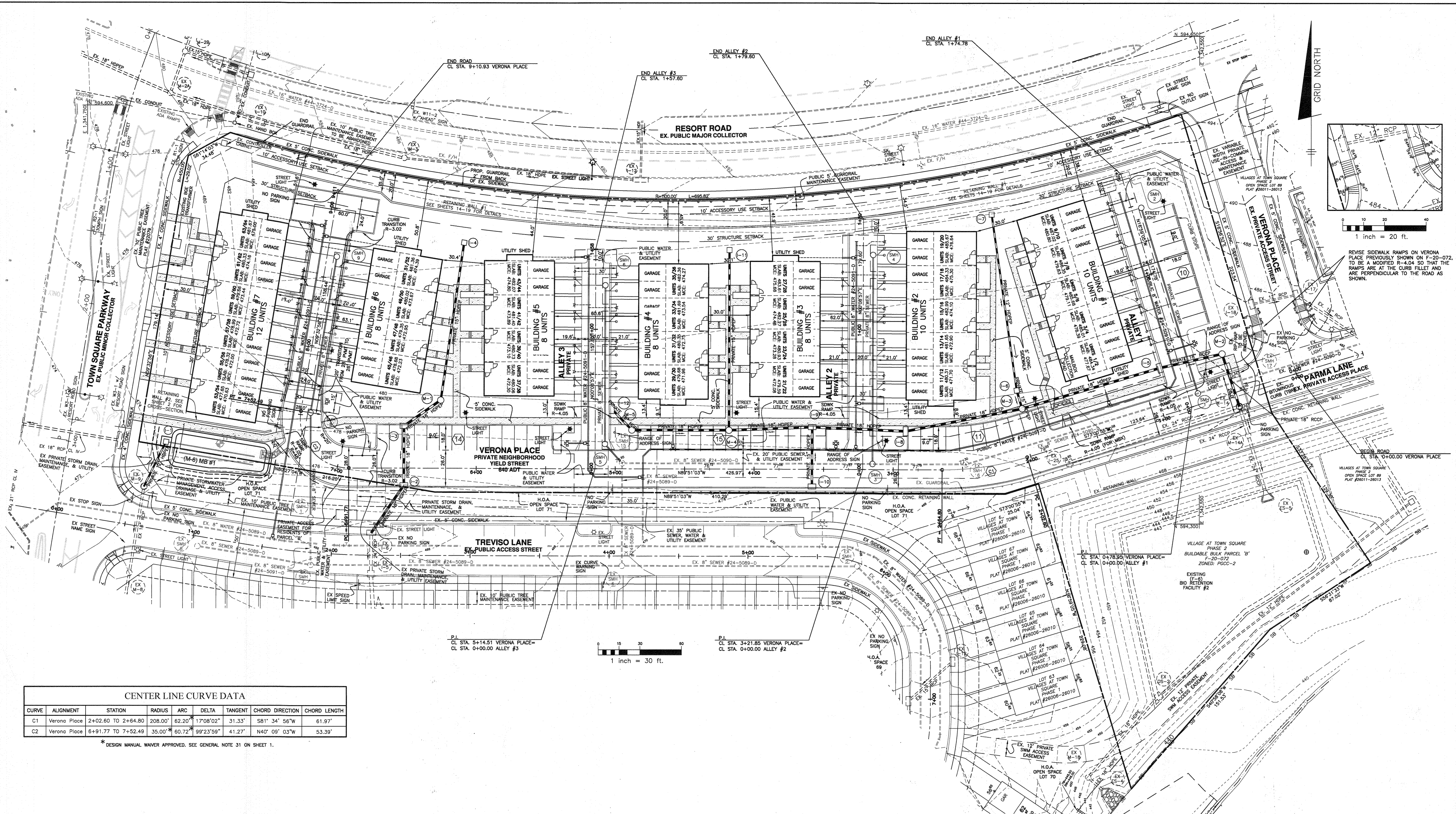
BEI PROJECT NO. 3124  
SHEET 2 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 10/24/23  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 11/2/23  
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 11/2/23  
DIRECTOR



**CENTER LINE CURVE DATA**

CURVE	ALIGNMENT	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	Verona Place	2+02.60 TO 2+64.80	208.00'	62.20'	17°08'02"	31.33'	S81° 34' 56"W	61.97'
C2	Verona Place	6+91.77 TO 7+52.49	35.00'	60.72'	99°23'59"	41.27'	N40° 09' 03"W	53.39'

\* DESIGN MANUAL W/AVR APPROVED. SEE GENERAL NOTE 31 ON SHEET 1.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by:  
Philip M. Thompson  
5/2/2023  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DocuSigned by:  
5/3/2023  
CHIEF, DIVISION OF LAND DEVELOPMENT

DocuSigned by:  
5/4/2023  
DIRECTOR

NO.	DATE	REVISION
1	10/9/2023	REVISE VERONA PLACE ROAD WIDTH TO 24 FEET FROM STA. 7+52.49 TO END

**BENCHMARK ENGINEERING, INC.**  
3300 N. RIDGE ROAD SUITE 140 & ELLICOTT CITY, MARYLAND 21043  
(P) 410-485-6105 (F) 410-485-6644  
WWW.BE-ENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 22390, EXPIRES: 6-30-2023.

03.27.2023

**RESIDENTIAL APARTMENT BUILDINGS**  
**VILLAGES AT TOWN SQUARE**  
Phase 3  
Bulk Parcel 'B'  
(previously recorded as Plat No. 26011-26013)

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

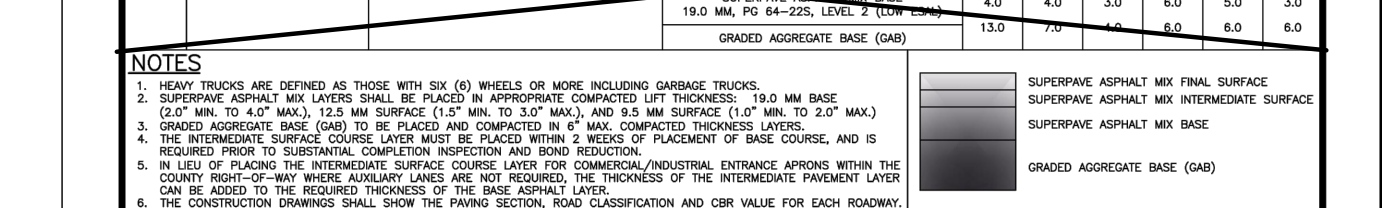
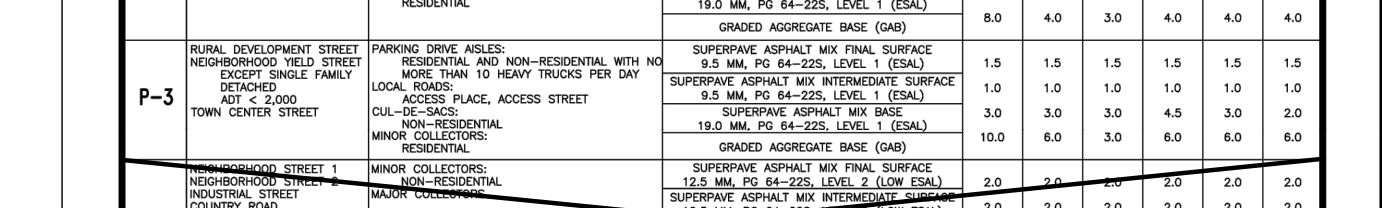
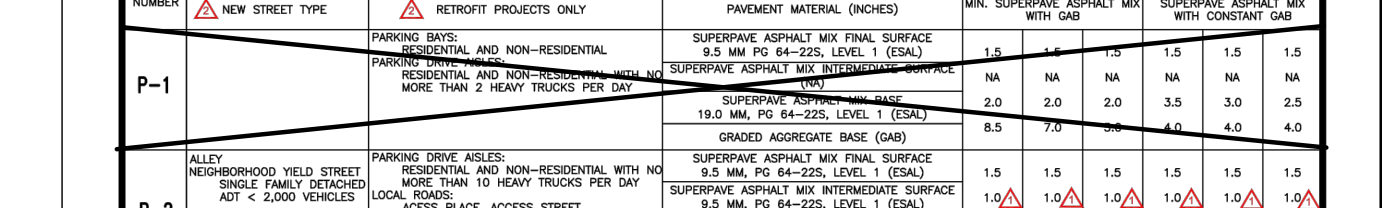
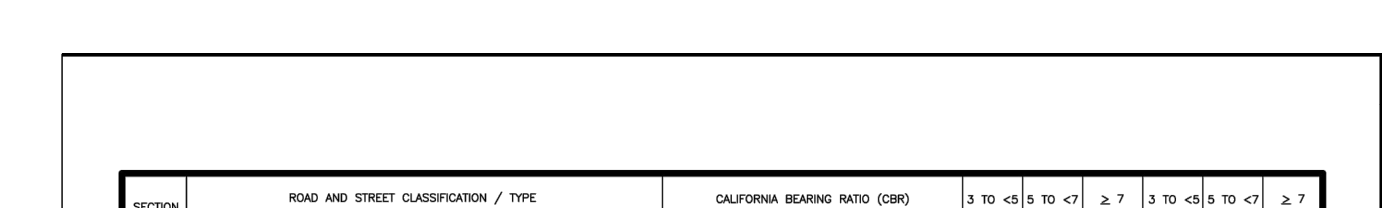
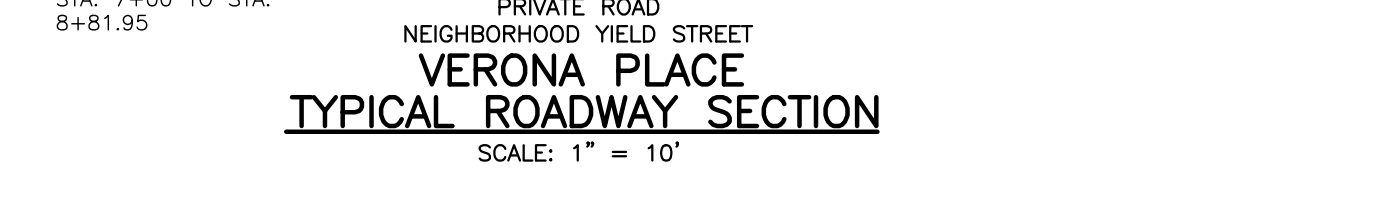
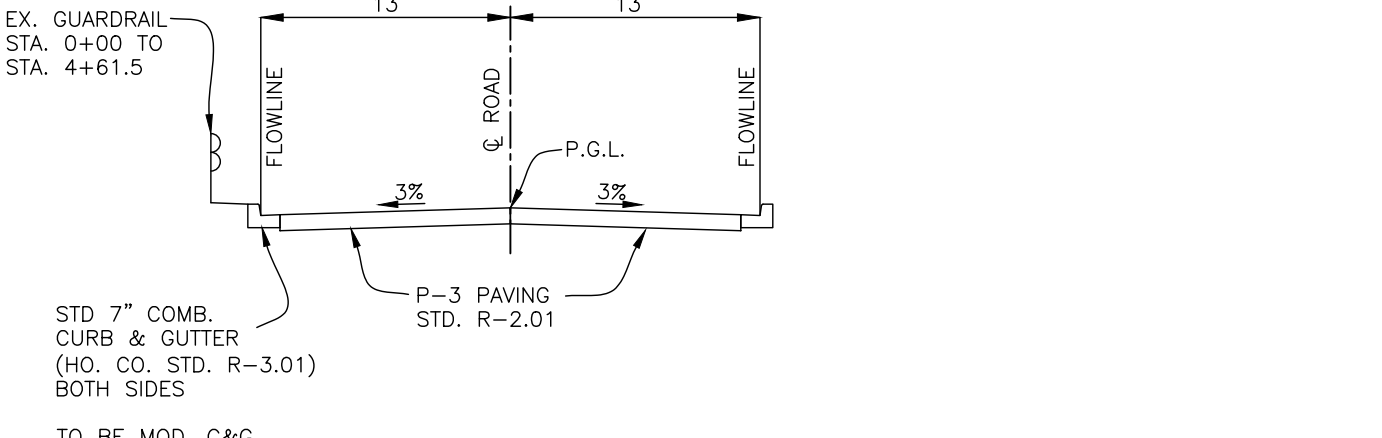
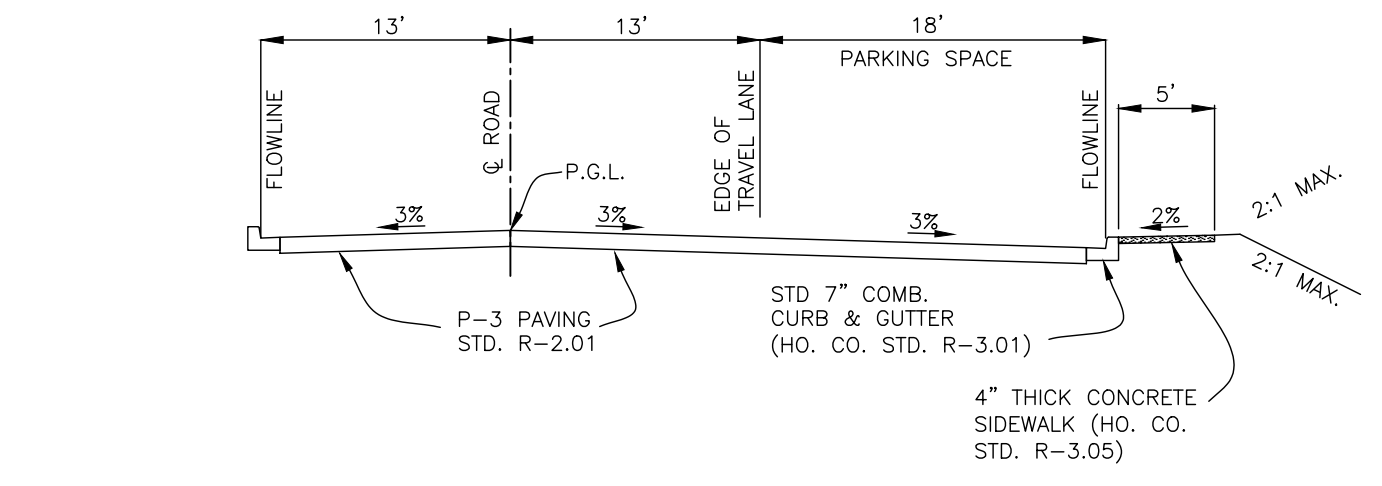
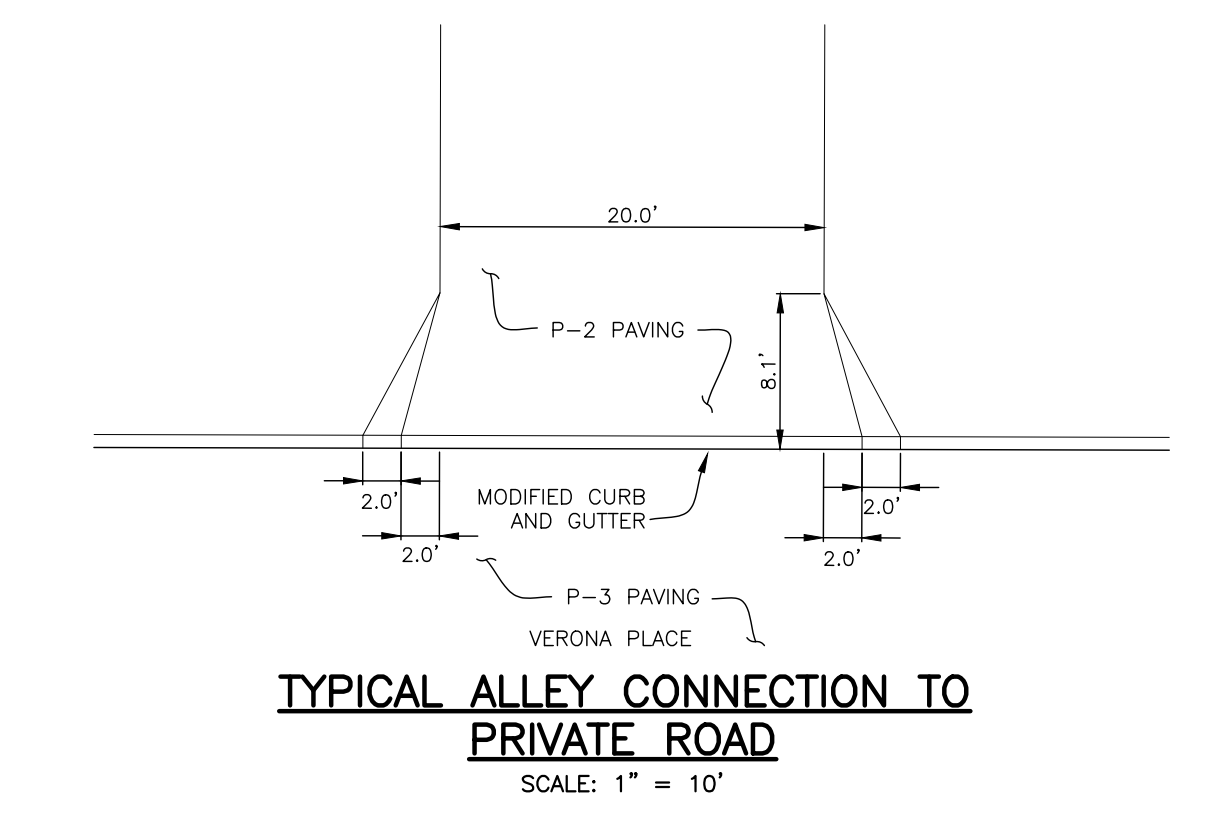
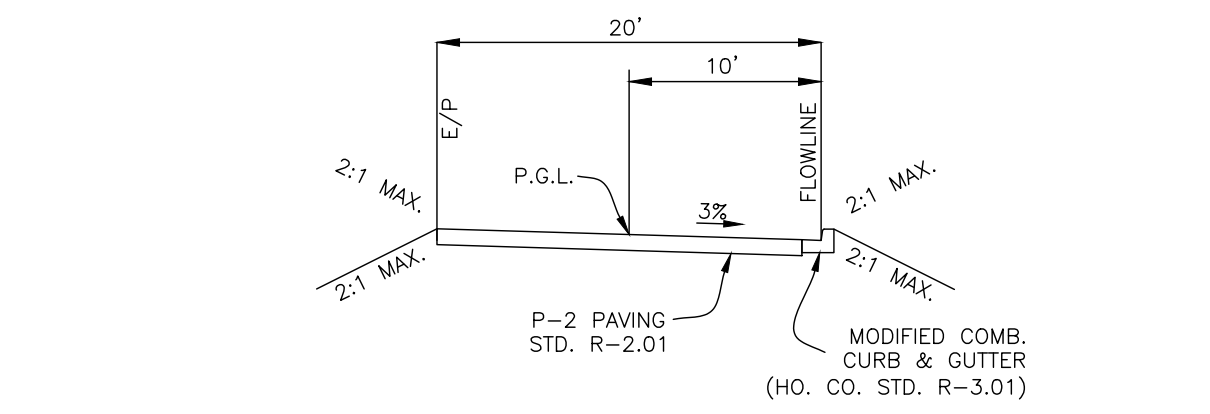
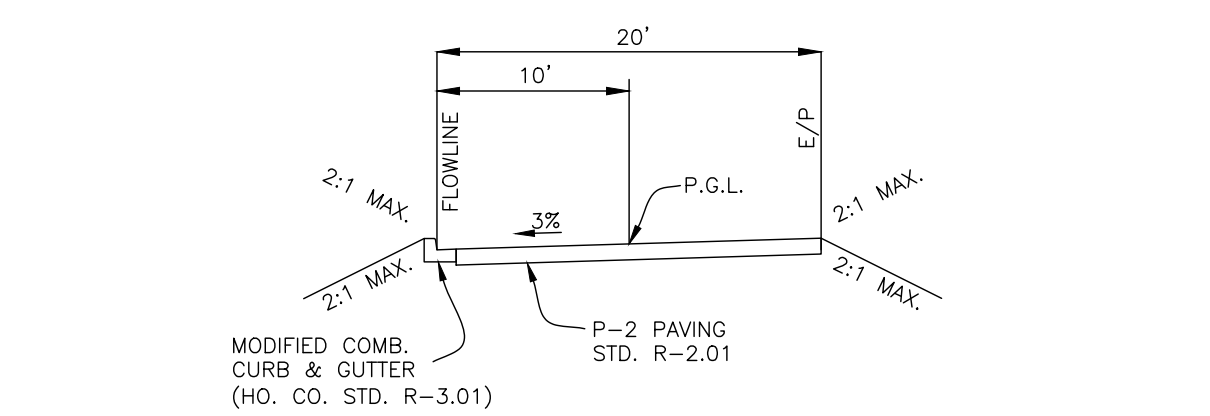
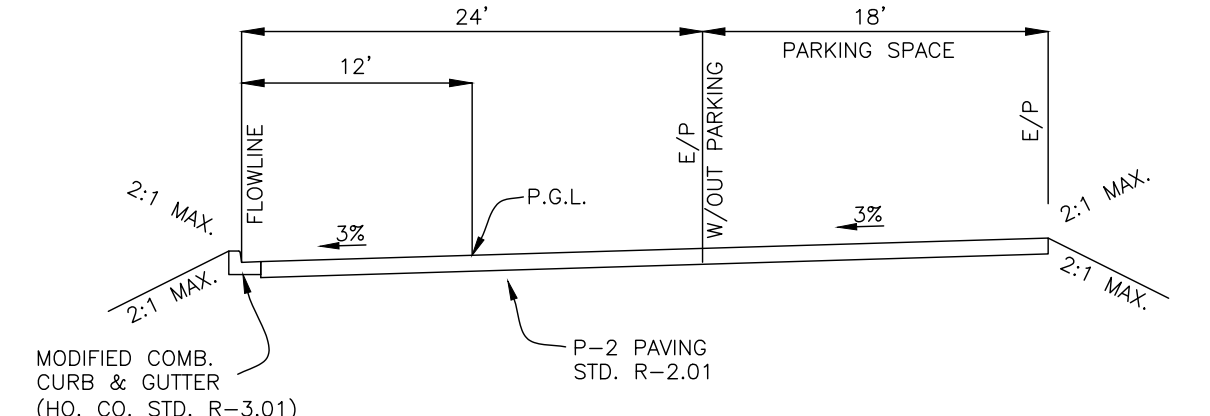
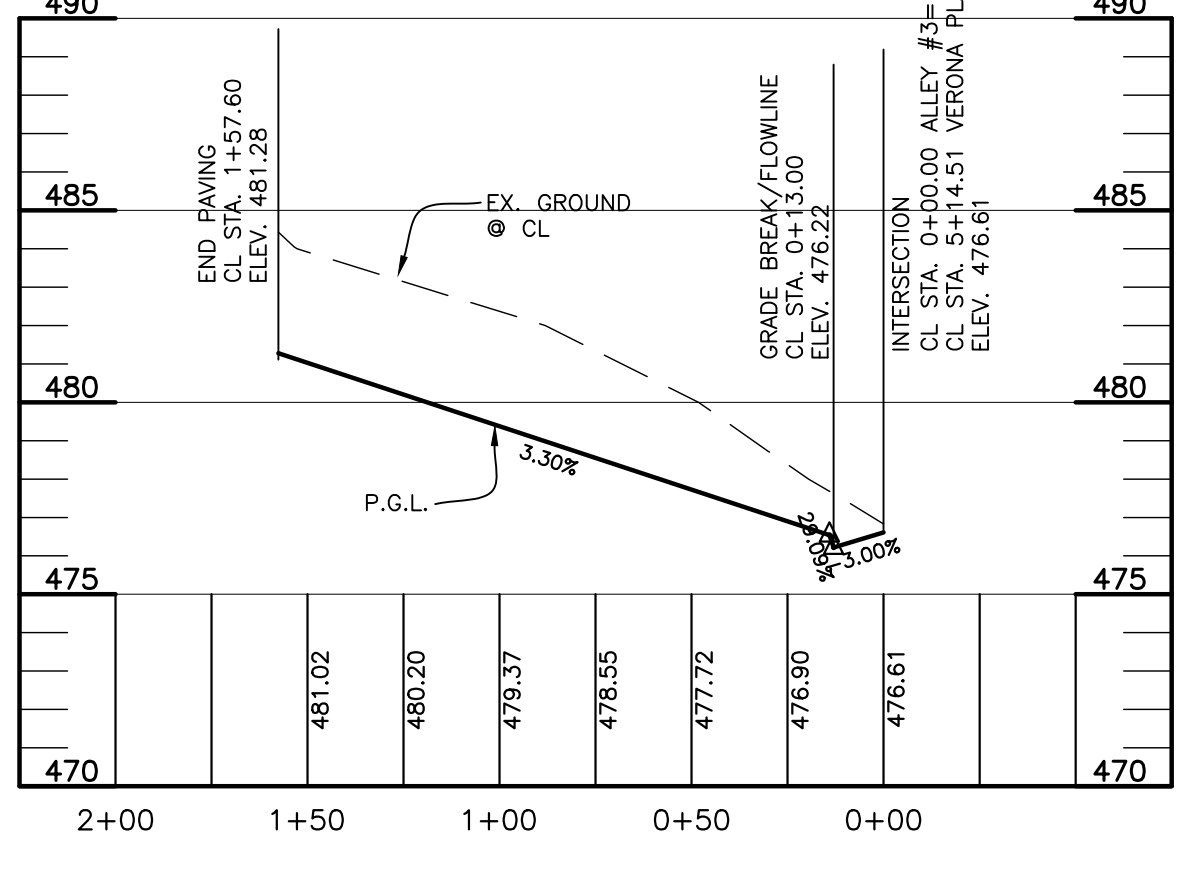
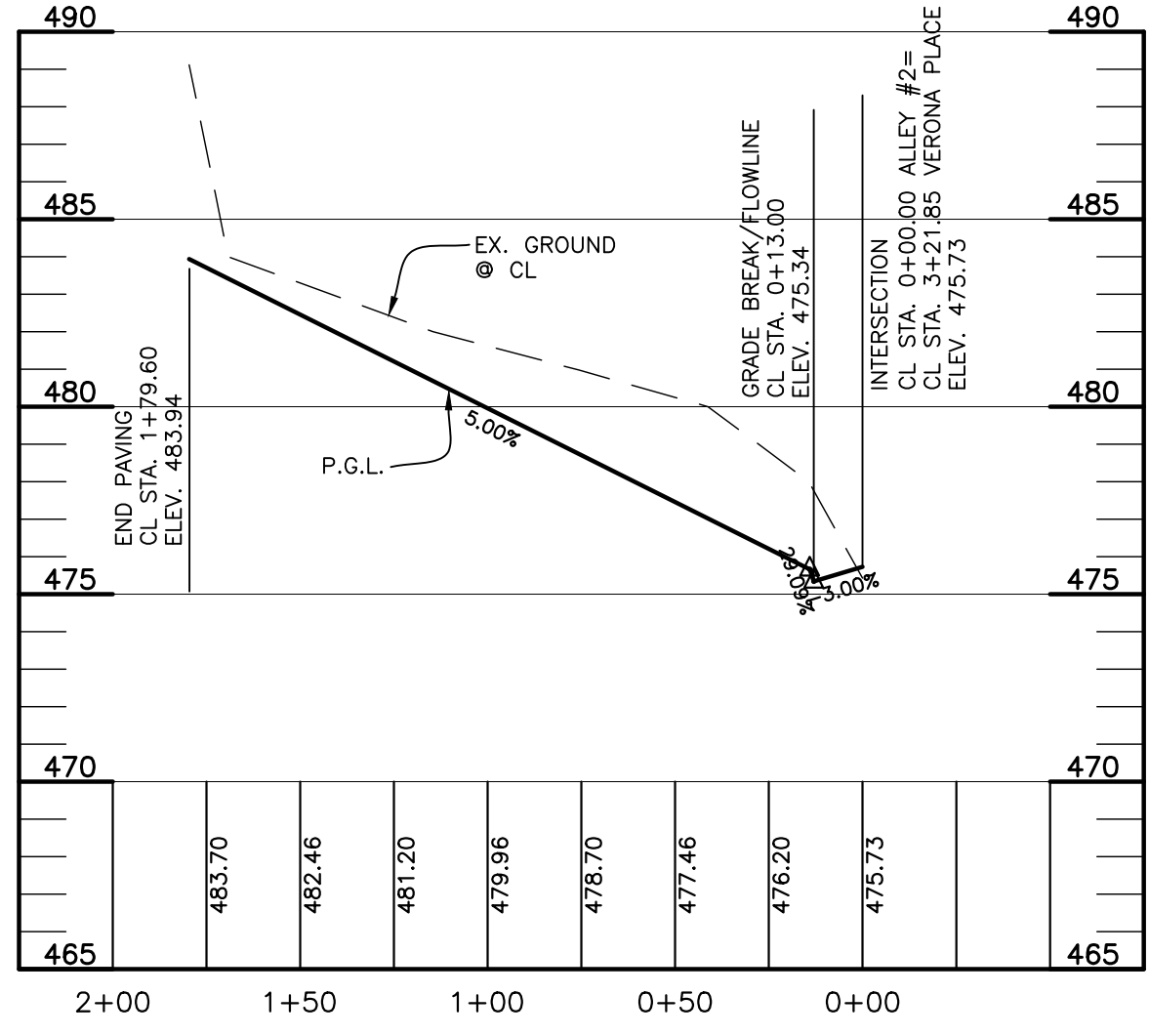
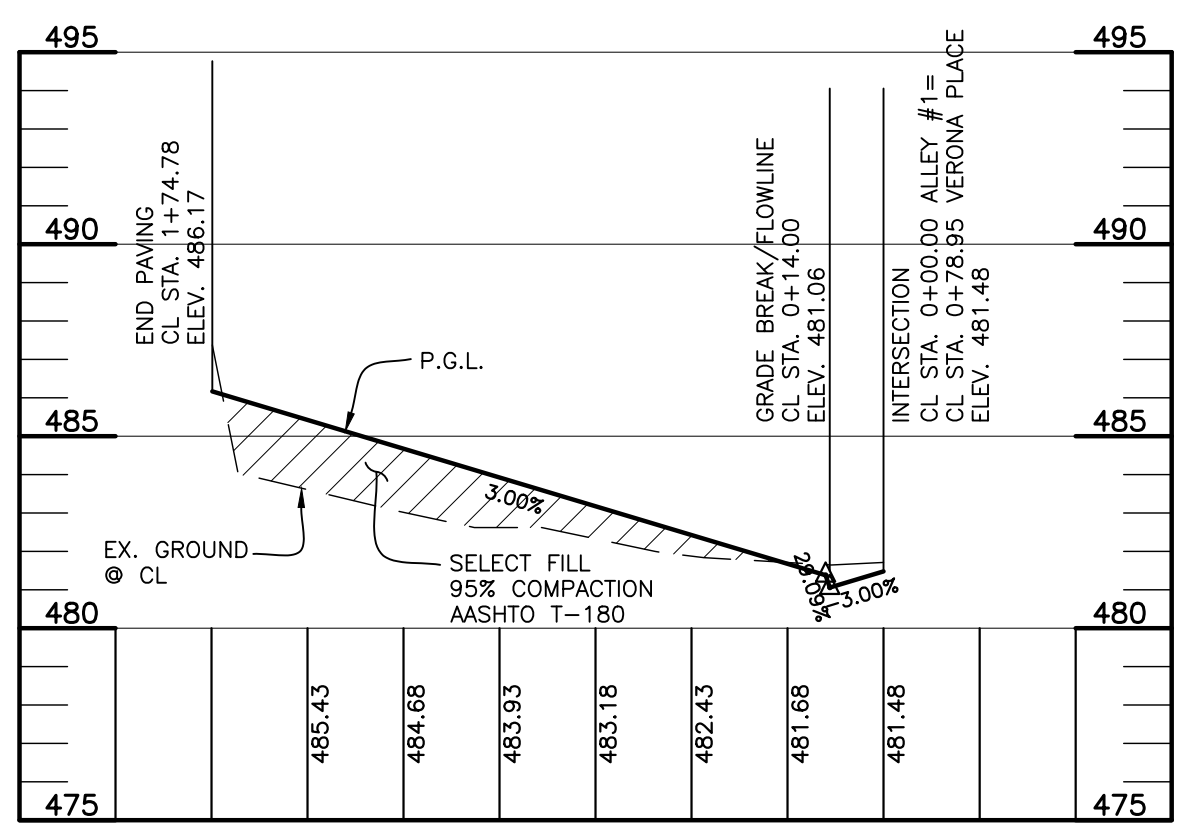
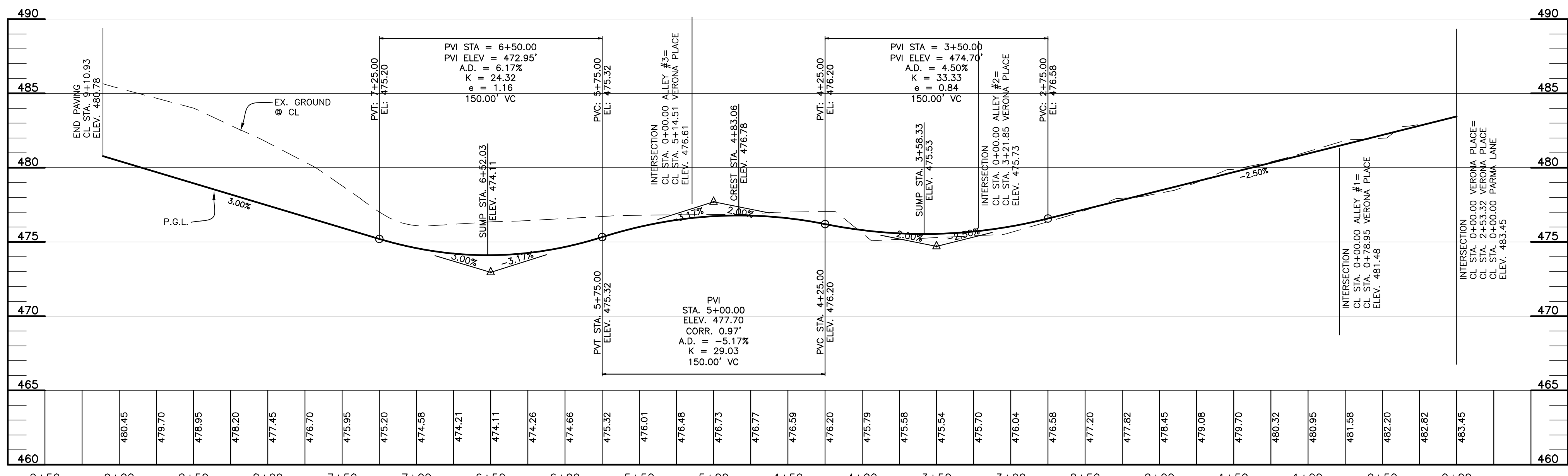
BUILDER:  
NVR  
9720 PATENT WOODS DRIVE  
COLUMBIA, MARYLAND 21046  
703-956-0804

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

**SITE DEVELOPMENT LAYOUT PLAN**

DATE: MARCH 16, 2023    BEI PROJECT NO. 3124  
SCALE: AS SHOWN    SHEET 3 OF 20

DESIGN: DBT    DRAFT: DBT



SECTION	ROAD AND STREET CLASSIFICATION / TYPE	CALIFORNIA BEARING (C.B.)	1 TO 10 TO 4"	2"	3 TO 10 TO 4"	2"	3 TO 10 TO 4"	2"
P-1	NEW STREET TYPE	RESIDENTIAL	1.5	1.5	1.5	1.5	1.5	1.5
P-2	RESIDENTIAL DRIVE ALLEY	RESIDENTIAL AND NON-RESIDENTIAL	1.5	1.5	1.5	1.5	1.5	1.5
P-3	NEIGHBORHOOD YIELD STREET	RESIDENTIAL AND NON-RESIDENTIAL	1.0	1.0	1.0	1.0	1.0	1.0
P-4	INDUSTRIAL STREET	INDUSTRIAL AND NON-RESIDENTIAL	2.0	2.0	2.0	2.0	2.0	2.0

**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**

Chief, Development Engineering Division: Philip M. Thompson, 5/2/2023

Chief, Division of Land Development: [Signature], 5/3/2023

Director: [Signature], 5/4/2023

**SECTION A-A**  
RAMP PERPENDICULAR TO CURB

Howard County, Maryland  
Department of Public Works  
SPECIAL RAMP Layout & Grading Perpendicular to Curb  
R-4.05

**SECTION B-B**  
TEE TURN-AROUND

Howard County, Maryland  
Department of Public Works  
TEE TURN-AROUND Permanent (C100 A07)  
R-5.05

**SECTION C-C**  
GOOD END SHOULDER

Howard County, Maryland  
Department of Public Works  
GOOD END SHOULDER Type B  
R-5.10

**SECTION D-D**  
CURB AND GUTTER

Howard County, Maryland  
Department of Public Works  
CURB AND GUTTER 7" & Modified  
R-3.01

**SECTION E-E**  
MODIFIED CURB AND GUTTER

Howard County, Maryland  
Department of Public Works  
CURB AND GUTTER 7" & Modified Nose Down  
R-3.02

**BENCHMARK ENGINEERING, INC.**  
3300 N. RIDGE ROAD & SUITE 140 & ELICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-6644  
www.bci-civilengineering.com

Professional Certification, I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 22390, Expiration Date: 6-30-2023.

03.27.2023

**RESIDENTIAL APARTMENT BUILDINGS VILLAGES AT TOWN SQUARE**  
Phase 3 Bulk Parcel 'B' (previously recorded as Plat No. 26011-26013)

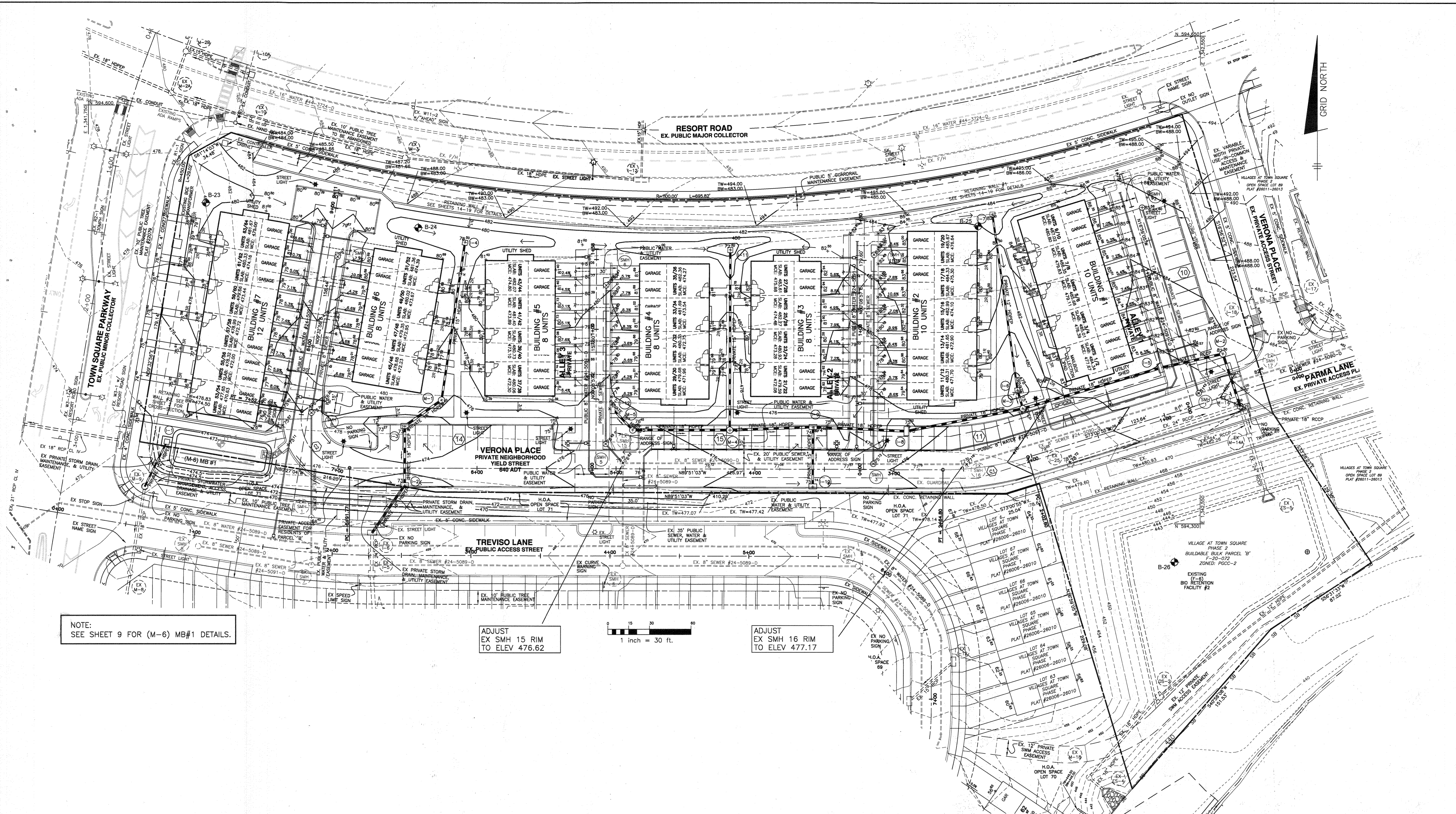
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

BUILDER: N/R  
9720 PATENT WOODS DRIVE COLUMBIA, MARYLAND 21046 703-956-4080

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

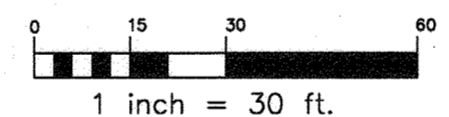
**ROAD PROFILES AND DETAIL SHEET**

DATE: MARCH 16, 2023  
SCALE: AS SHOWN  
BEI PROJECT NO. 3124  
SHEET 4 OF 20



NOTE:  
SEE SHEET 9 FOR (M-6) MB#1 DETAILS.

ADJUST  
EX SMH 15 RIM  
TO ELEV 476.62

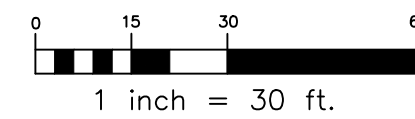
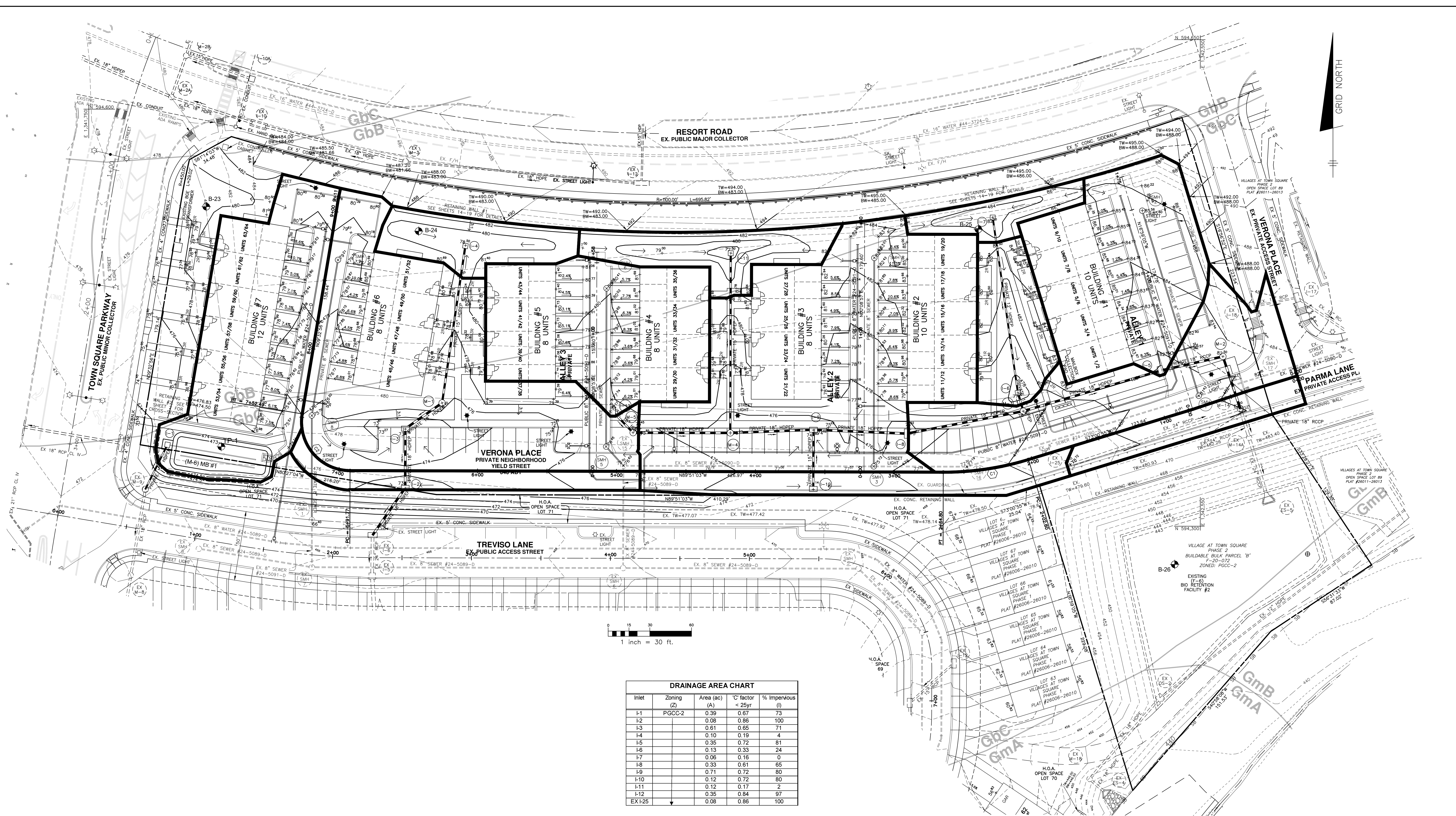


ADJUST  
EX SMH 16 RIM  
TO ELEV 477.17

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
DocuSigned by: <b>Philip M. Thompson</b>	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	DATE

1 19/9/2023		REVISE VERONA PLACE ROAD WIDTH TO 24 FEET FROM STA. 7+52.49 TO E+0
NO.	DATE	REVISION
<b>BENCHMARK</b> <b>ENGINEERING, INC.</b> 3300 N. RIDGE ROAD & SUITE 140 A ELICOTT CITY, MARYLAND 21043 (P) 410-485-6105 (F) 410-485-6644 WWW.BEI-CIVILENGINEERING.COM		
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 22390, EXPIRES: 03/31/2025, Date: 6-30-2023.		

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400		RESIDENTIAL APARTMENT BUILDINGS <b>VILLAGES AT TOWN SQUARE</b> Phase 3 Bulk Parcel 'B' (previously recorded as Plat No. 26011-26013)	
BUILDER: NVR 9720 PATUXENT WOODS DRIVE COLUMBIA, MARYLAND 21046 703-956-0880		TAX MAP: 16 - GRID: 19 - PARCEL: 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND	
<b>SITE DEVELOPMENT GRADING PLAN</b>			
DESIGN: DBT	DRAFT: DBT	DATE: MARCH 16, 2023	BEI PROJECT NO. 3124
		SCALE: AS SHOWN	SHEET 5 OF 20



DRAINAGE AREA CHART				
Inlet	Zoning (Z)	Area (ac)	C <sup>i</sup> factor	% Impervious
I-1	PGCC-2	0.59	< 25yr	0
I-2		0.08	0.67	73
I-3		0.61	0.65	71
I-4		0.10	0.19	4
I-5		0.35	0.72	81
I-6		0.13	0.33	24
I-7		0.06	0.16	0
I-8		0.33	0.61	65
I-9		0.71	0.72	80
I-10		0.12	0.72	80
I-11		0.12	0.17	2
I-12		0.35	0.84	97
EX I-25		0.08	0.86	100

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
Documented by: <i>Philip M. Thompson</i>	5/2/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
Documented by:	5/3/2023
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
Documented by:	5/4/2023
DIRECTOR	DATE

NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
 3300 N. RIDGE ROAD & SUITE 140 • ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-8105 (F) 410-465-6644  
 WWW.BE-CVLENGINEERING.COM

Professional Certification, I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 22390, Expiration Date: 6-30-2023.

**STATE OF MARYLAND**  
 PROFESSIONAL ENGINEER  
 22390  
 03.27.2023

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

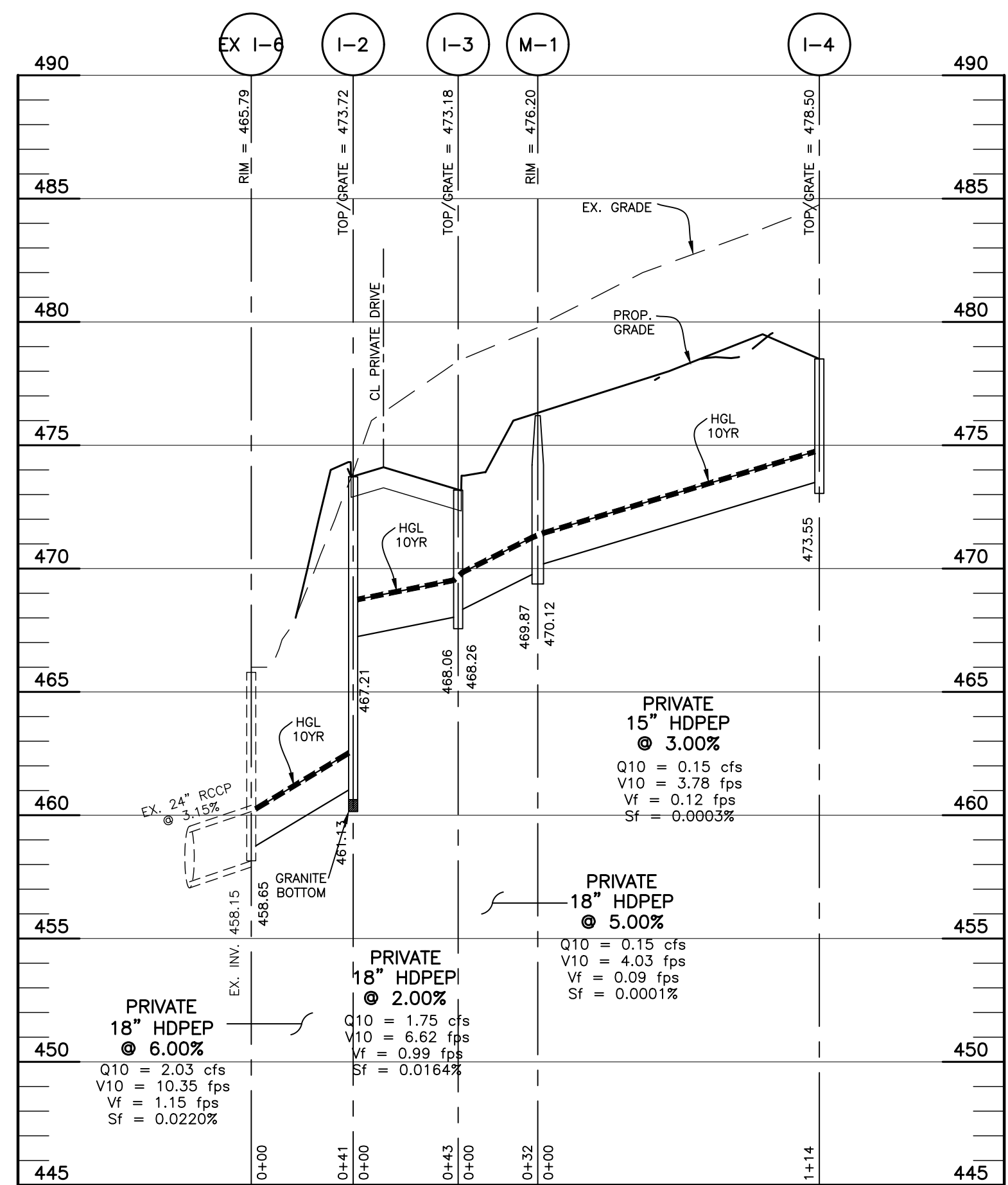
BUILDER:  
 N/R  
 9720 PATUXENT WOODS DRIVE  
 COLUMBIA, MARYLAND 21046  
 703-956-4080

RESIDENTIAL APARTMENT BUILDINGS  
**VILLAGES AT TOWN SQUARE**  
 Phase 3  
 Bulk Parcel 'B'  
 (previously recorded as Plat No. 26011-26013)

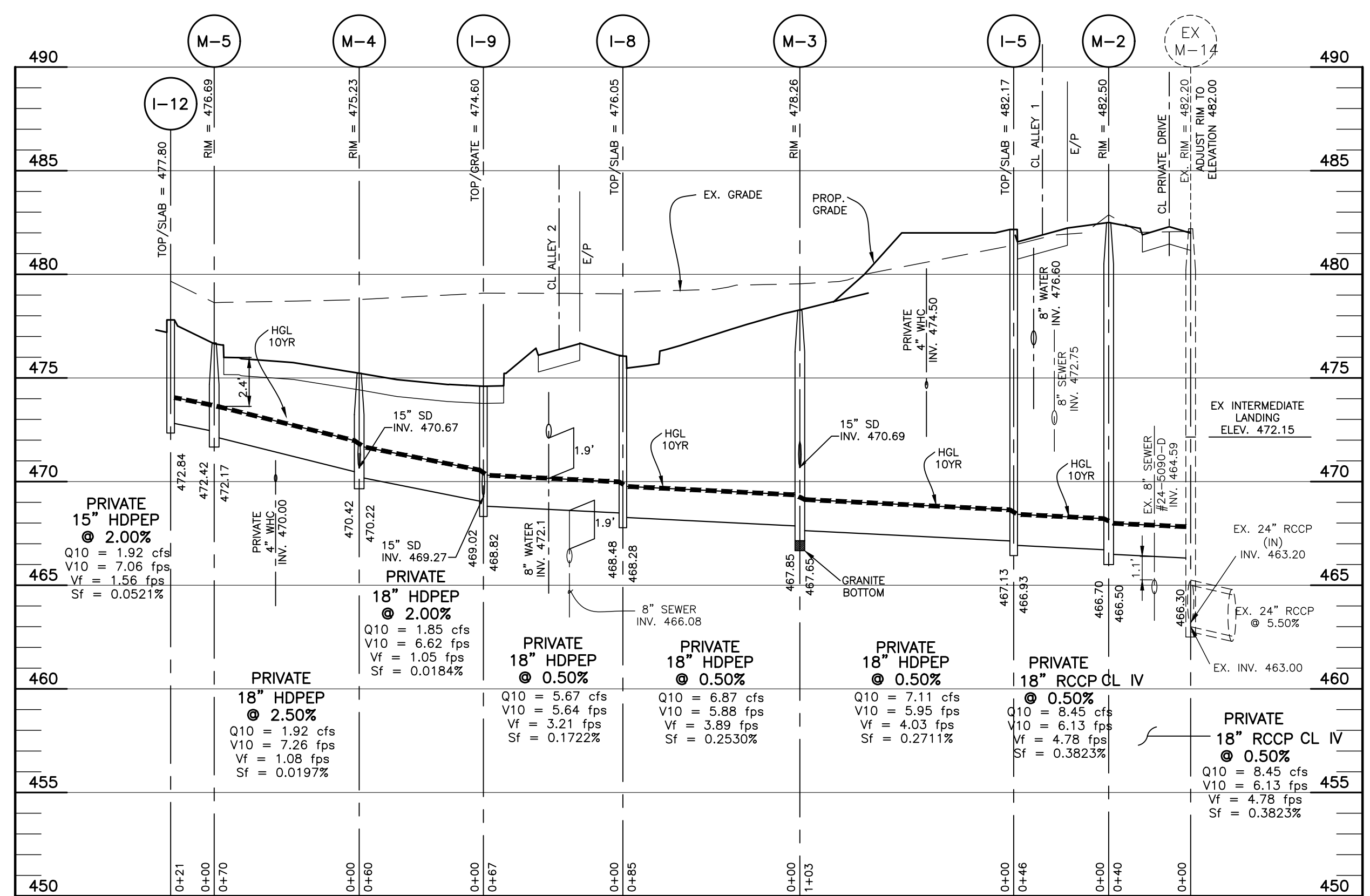
TAX MAP: 16 - GRID: 19 - PARCEL: 8  
 ZONED: PGCC-2  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**STORM DRAIN DRAINAGE AREA MAP**

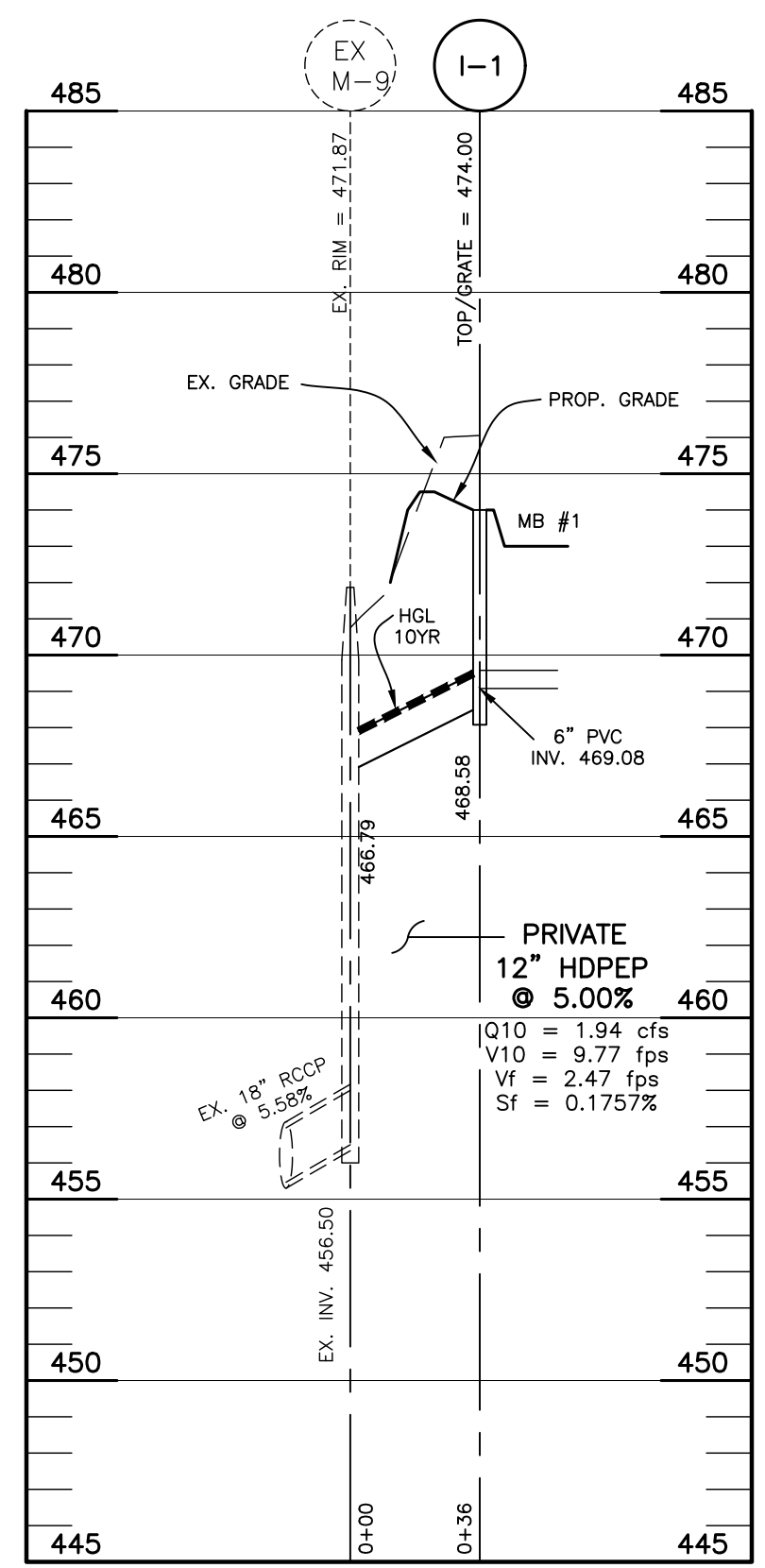
DATE: MARCH 16, 2023    BEI PROJECT NO. 3124  
 SCALE: AS SHOWN    SHEET 6 OF 20



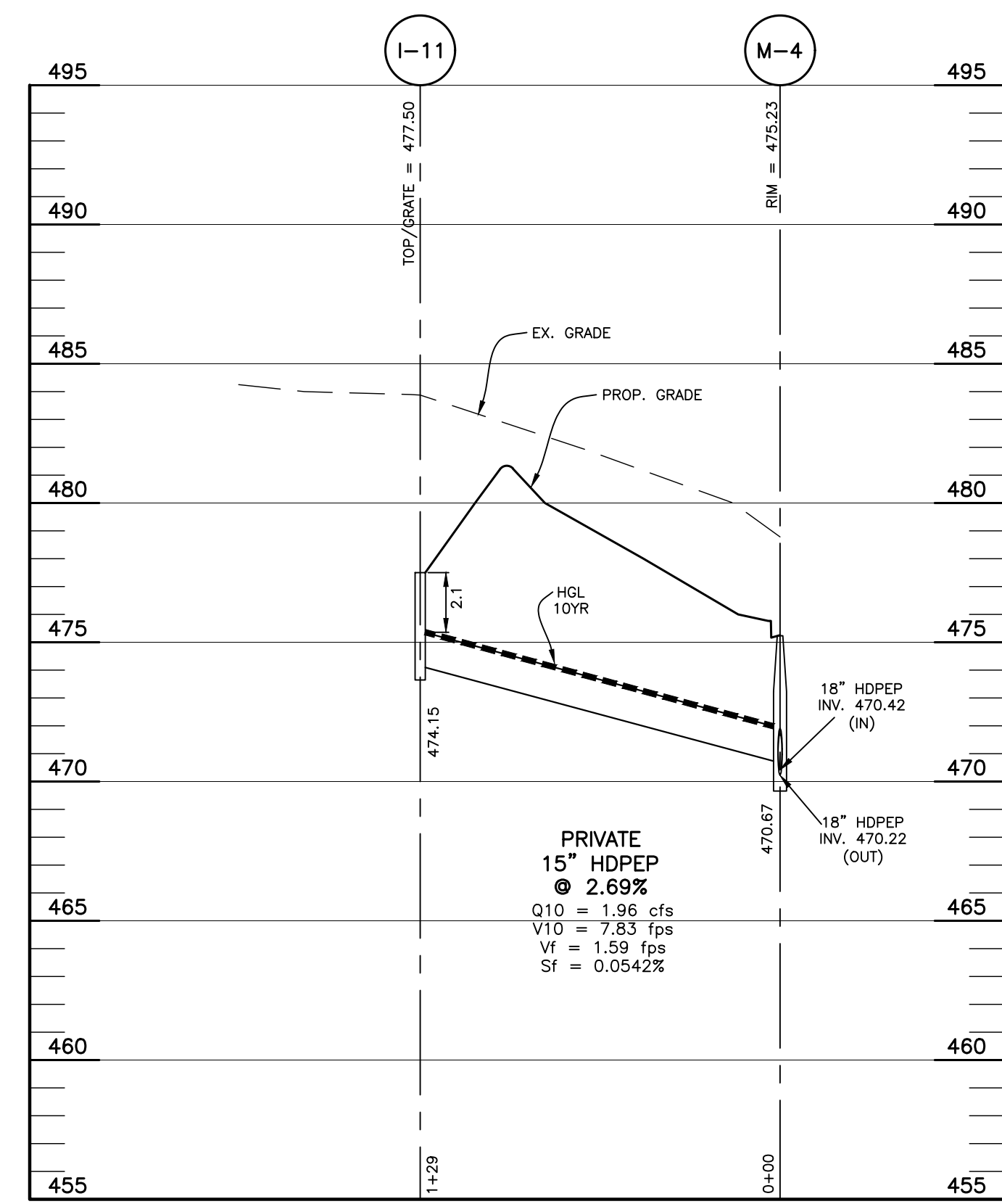
SD EX I-6 to I-4



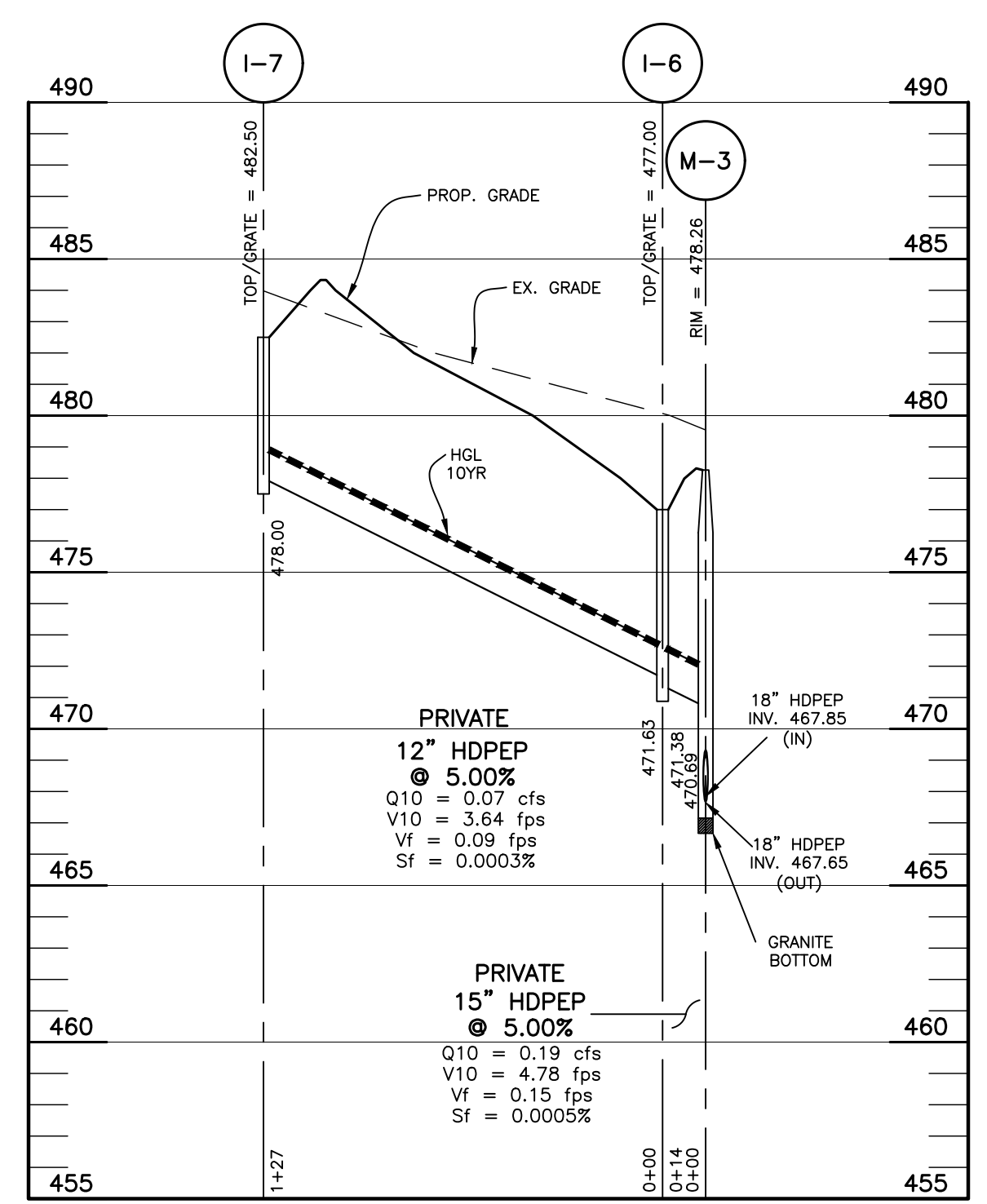
SD EX M-14 to I-13



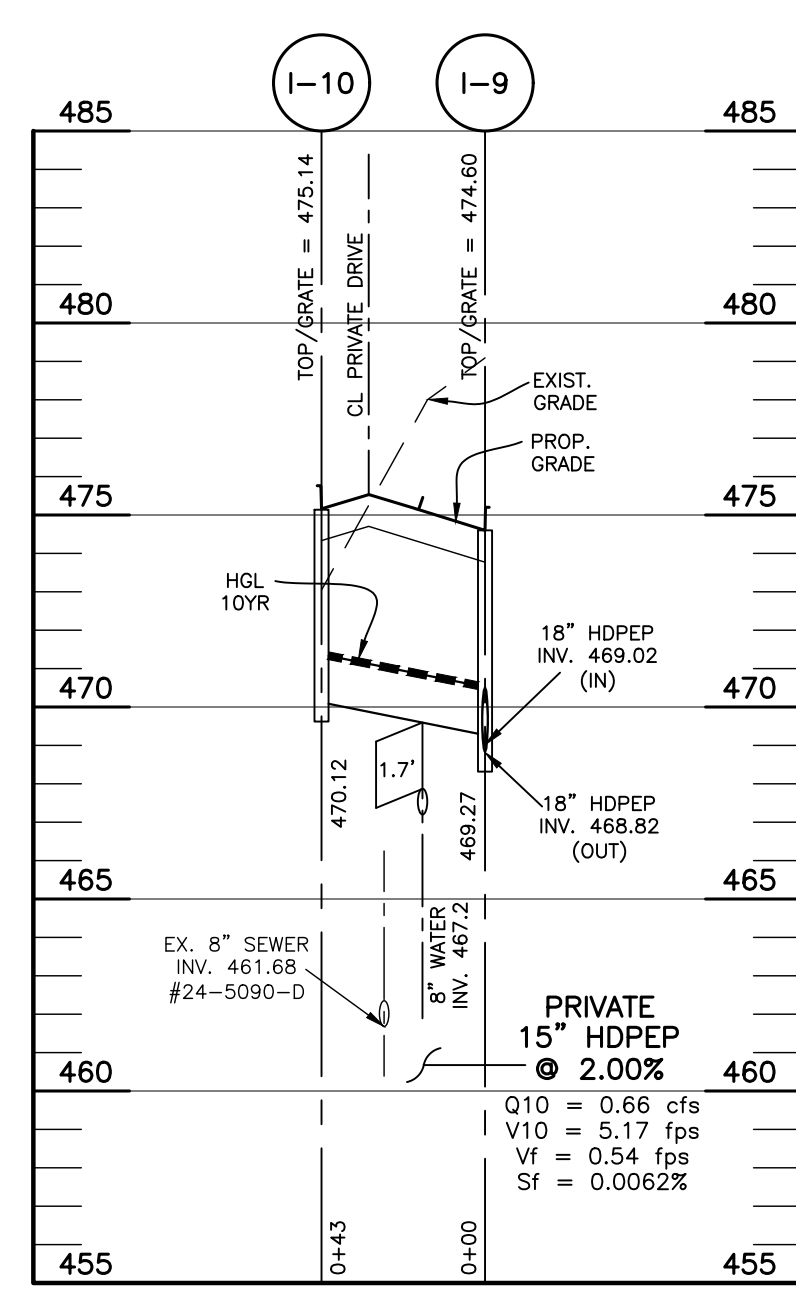
SD EX M-9 to I-1



SD M-4 to I-12



SD M-3 to I-7



SD I-9 to I-10

STRUCTURE TABLE							
NUMBER	TYPE	STD. DETAIL	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	OWNERSHIP
EX M-9	4' DIA		594326.58 1341790.71	466.79(12")		471.87	PRIVATE
EX M-14	4' DIA		594384.57 1342578.78	466.30(18")		482.00	PRIVATE
EX I-6	A-5		594293.56 1341954.30	458.65(18")		465.79	PRIVATE
I-1*	S	D-4.24	594358.58 1341806.61		468.58(12")	474.00	PRIVATE
I-2	DOUBLE WR	D-4.31	594327.59 1341977.78	467.21(18")	461.13(18")	473.72	PRIVATE
I-3	DOUBLE WR	D-4.31	594370.17 1341977.89	468.26(18")	468.06(18")	473.18	PRIVATE
I-4	S	D-4.24	594501.66 1342021.06		473.55(15")	478.50	PRIVATE
I-5	A-5	D-4.02	594411.96 1342521.59	467.13(18")	466.93(18")	482.17	PRIVATE
I-6	S	D-4.24	594395.92 1342418.76		471.63(12")	477.00	PRIVATE
I-7	S	D-4.24	594522.03 1342400.62		478.00(12")	482.50	PRIVATE
I-8	A-5	D-4.02	594366.60 1342338.81	468.48(18")	468.28(18")	476.05	PRIVATE
I-9	DOUBLE WR	D-4.31	594369.40 1342271.59	469.02(18")	469.27(15")	474.60	PRIVATE
I-10	DOUBLE WR	D-4.31	594326.82 1342271.48		470.12(15")	475.14	PRIVATE
I-11	S	D-4.24	594496.37 134212.05		474.15(15")	477.50	PRIVATE
I-12	A-5	D-4.02	594382.49 1342127.25		472.84(15")	477.80	PRIVATE
M-1	4' DIA	G-5.12	594388.69 1342004.31	470.12(15")		476.20	PRIVATE
M-2	4' DIA	G-5.12	594422.10 1342566.29	466.70(18")	466.50(18")	482.50	PRIVATE
M-3	4' DIA	G-5.12	594382.75 1342422.66	467.85(18")	470.69(15")	478.26	PRIVATE
M-4	4' DIA	G-5.12	594367.10 1342211.71	470.42(18")	470.67(15")	475.23	PRIVATE
M-5	4' DIA	G-5.12	594367.29 1342141.77	472.42(15")	472.17(18")	476.69	PRIVATE

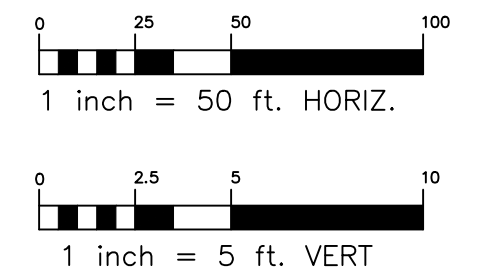
\* STORMWATER MANAGEMENT STRUCTURE

STORM DRAIN PIPE SCHEDULE			
SIZE	TYPE	LENGTH (LF)	MAINTENANCE
12"	HDPEP	127	PRIVATE
15"	HDPEP	321	PRIVATE
18"	HDPEP	501	PRIVATE
18"	RCCP CL IV	86	PRIVATE

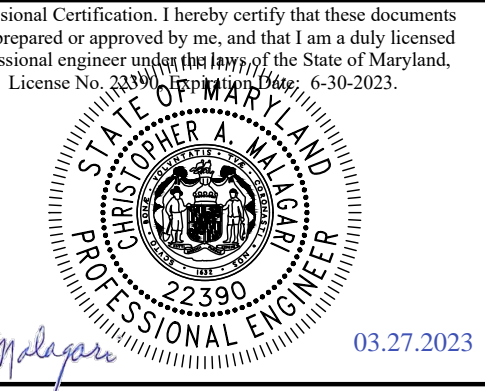
STORMWATER MANAGEMENT PIPE SCHEDULE			
SIZE	TYPE	LENGTH (LF)	MAINTENANCE
12"	HDPEP	36	PRIVATE

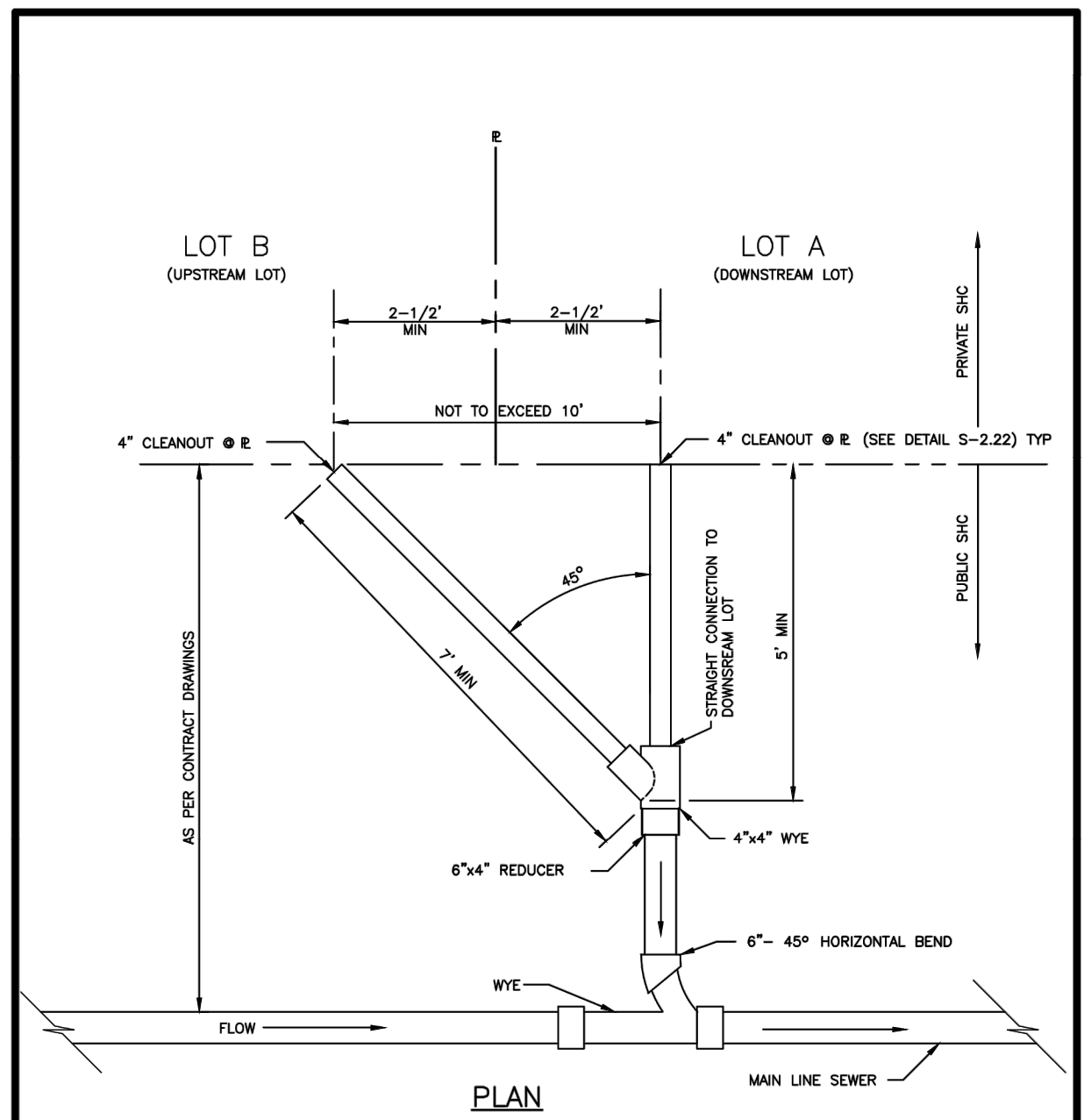
All HDPE pipes shall have smooth interior. No interior corrugations.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Documented by: *Philip M. Thompson* 5/2/2023  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 Documented by: 5/3/2023  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 Documented by: 5/4/2023  
 DIRECTOR



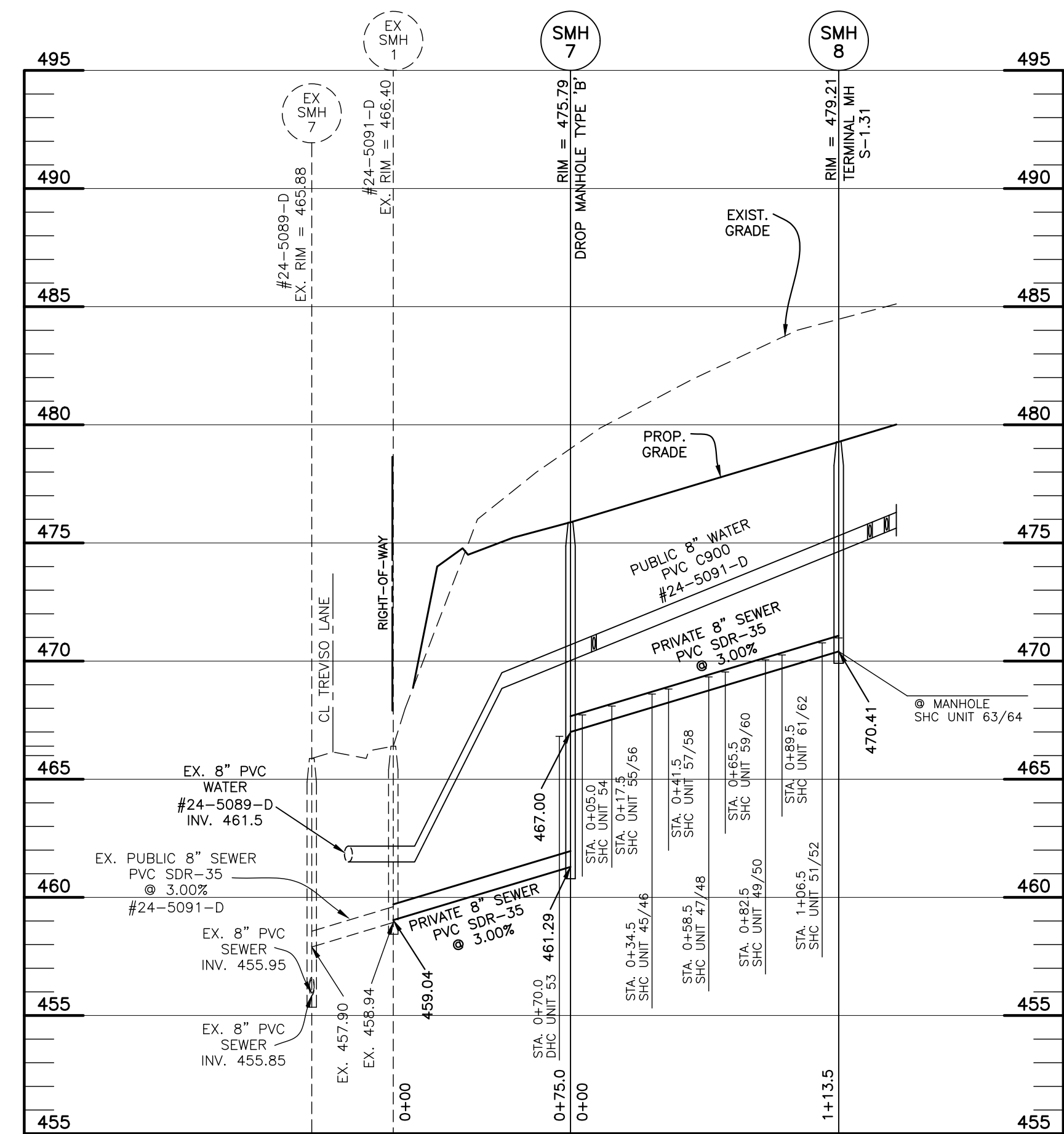
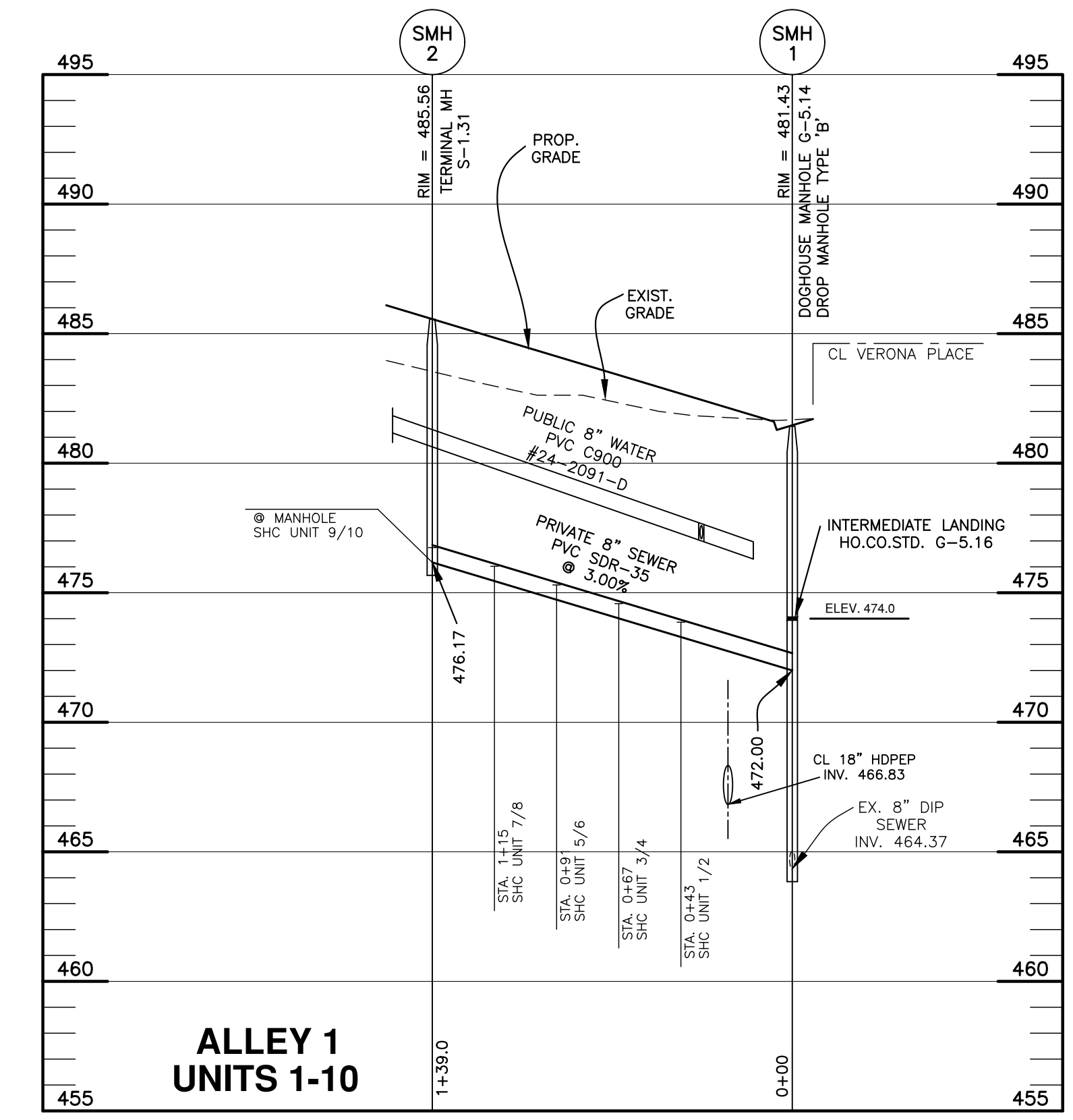
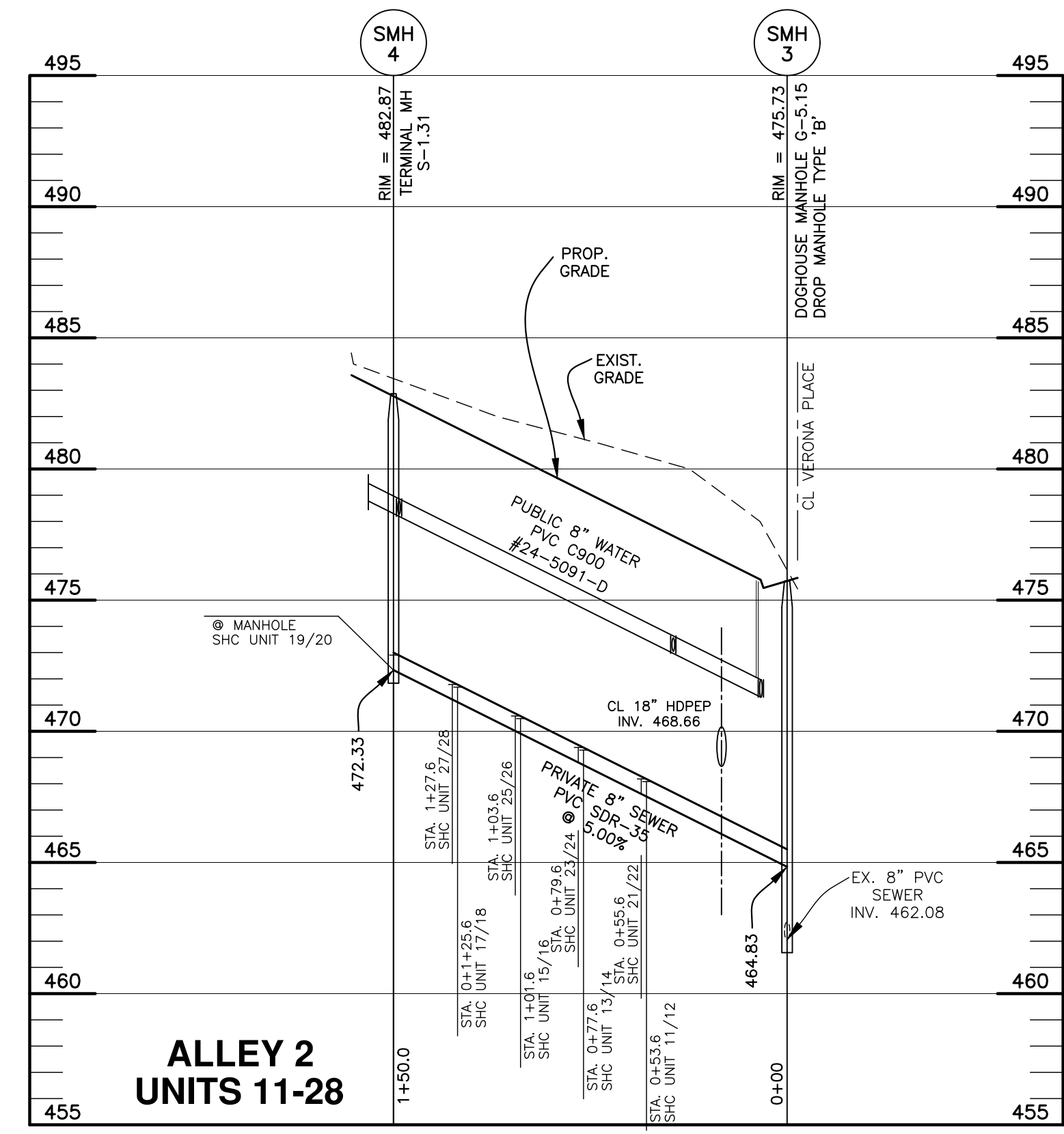
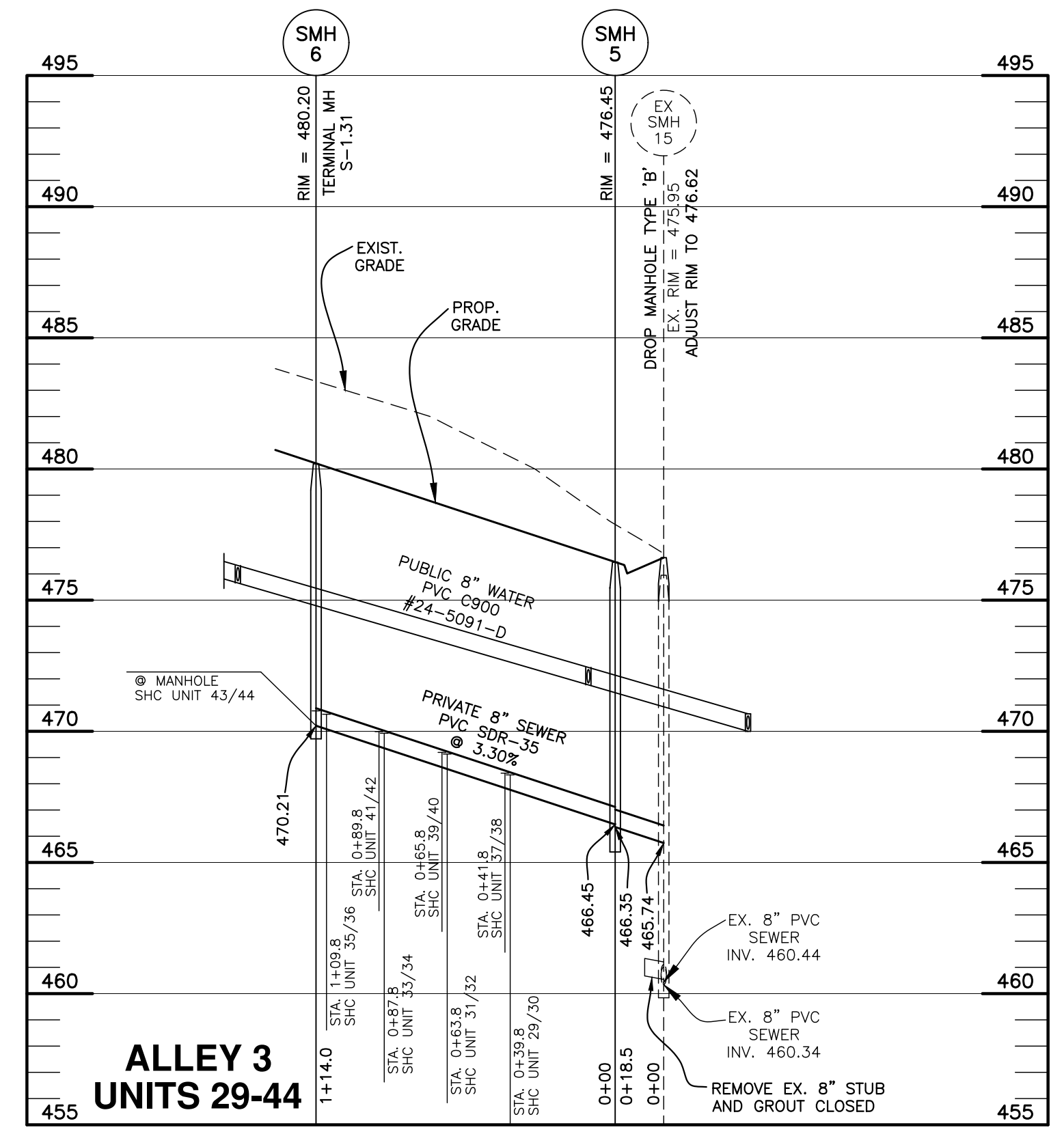
NO.		DATE		REVISION	
<p align="center"><b>BENCHMARK</b>                  ENGINEERS &amp; LAND SURVEYORS &amp; PLANNERS  <b>ENGINEERING, INC.</b>                  3300 N. RIDGE ROAD SUITE 140 • ELLICOTT CITY, MARYLAND 21043                  (P) 410-465-6105 (F) 410-465-6644                  WWW.BEI-CVLENGINEERING.COM</p>					
<p align="center">RESIDENTIAL APARTMENT BUILDINGS  <b>VILLAGES AT TOWN SQUARE</b>                  Phase 3                  Bulk Parcel 'B'                  (previously recorded as Plat No. 26011-26013)</p>					
<p>OWNER:                  MANGIONE ENTERPRISES OF                  TURF VALLEY, LIMITED PARTNERSHIP                  1205 YORK ROAD, PENTHOUSE                  LUTHERVILLE, MARYLAND 21093                  410-825-8400</p>					
<p>BUILDER:                  N/R                  9720 PATUXENT WOODS DRIVE                  COLUMBIA, MARYLAND 21046                  703-956-4080</p>					
<p align="center"><b>STORM DRAIN PROFILES</b></p>					
DATE: MARCH 16, 2023		BEI PROJECT NO. 3124		DESIGN: DBT	
SCALE: AS SHOWN		SHEET 7 OF 20		DRAFT: DBT	





**NOTES:**  
1. SEE DETAIL S-2.11 FOR STANDARD SEWER HOUSE CONNECTION.

Revised 5/20/2017	Howard County, Maryland Department of Public Works	SEWER HOUSE CONNECTION Twin	Detail S-2.14
Approved 5/17/2007	Approved: <i>Thomas R. Swartz</i> Chief, Bureau of Engineering		



Unit Number	Invert @ main	DHC?	DHC standpipe length/height	Invert @ R/W or esmt line	Minimum Cellar Elevation	Slab
1/2	475.37	NO		475.81	477.67	484.34
3/4	474.00	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	466.88	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'

SMH Number	Location (NAD '83)	Invert In	Invert Out	Rim Elevation	Howard County Standard Details
1	N 594393.79 E 1342548.93	472.00	-	EXIST. 464.37	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	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 1341929.56	-	-	470.41	479.21 S-1.31

Note: Location and rim elevation for manholes is at the center of the manhole lid.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

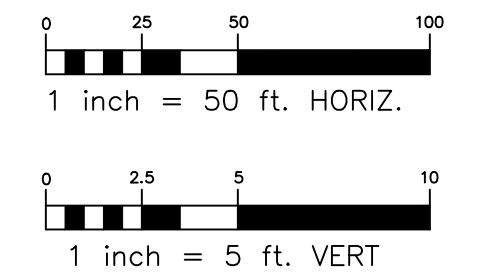
DocuSigned by:  
*Philip M. Thompson* 5/2/2023  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DocuSigned by:  
DATE 5/3/2023

DocuSigned by:  
DATE

DocuSigned by:  
*[Signature]* 5/4/2023

DocuSigned by:  
DATE



NO.	DATE	REVISION

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS  
**ENGINEERING, INC.**  
3300 N. RIDGE ROAD SUITE 140 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BEI-CVLENGINEERING.COM

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22253, expiring 06/30/2023.

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

BUILDER: N/R  
9720 PATUXENT WOODS DRIVE COLUMBIA, MARYLAND 21046  
703-956-4080

RESIDENTIAL APARTMENT BUILDINGS  
**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

**PRIVATE SEWER PROFILES**

DATE: MARCH 16, 2023 BEI PROJECT NO. 3124  
DESIGN: DBT DRAFT: DBT SCALE: AS SHOWN SHEET 8 OF 20



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

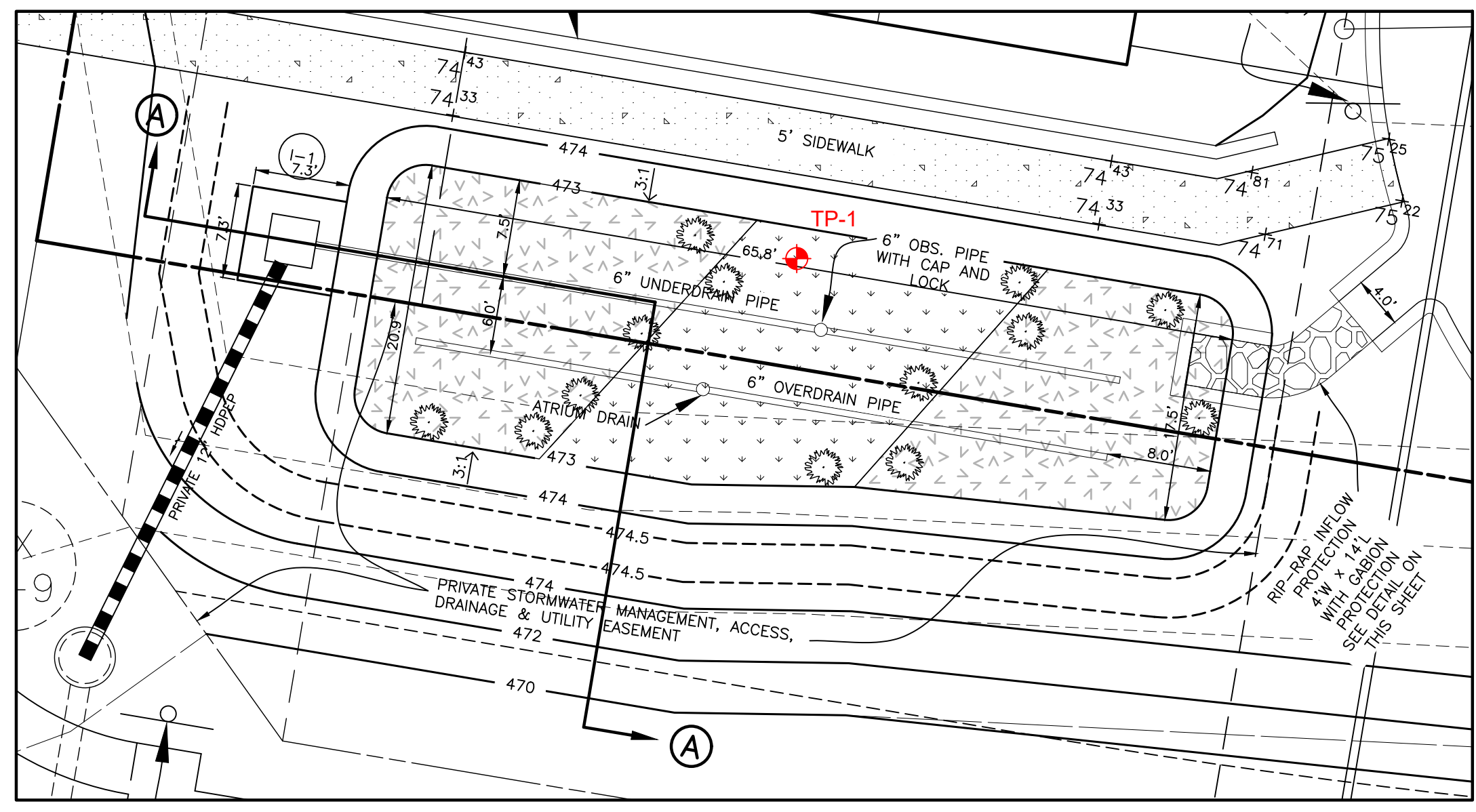
Table B.4.1 Materials Specifications for Micro-Bioretenation, Rain Gardens & Landscape Infiltration-

Table with 4 columns: Material, Specification, Size, and Notes. Rows include Plantings, Planting soil, Organic content, Mulch, Curtain drain, Geotextile, Gravel, Underdrain piping, Poured in place concrete, and Sand.

B.4.7 Supp. 1

(M-6) Micro Bio-Retention Landscaping Chart. Table with 5 columns: Plant Name, Common Name, Type, Size, and Quantity. Lists Comus Amomum, Echinacea Purpurea, and Juncus Effusus.

LANDSCAPE LEGEND. Table with 2 columns: SYMBOL and NAME. Lists SILKY DOGWOOD, PURPLE CONEFLOWER, and COMMON RUSH.



1 inch = 10 ft.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND PRIVATELY MAINTAINED MICRO-BIORETENTION (M-6)

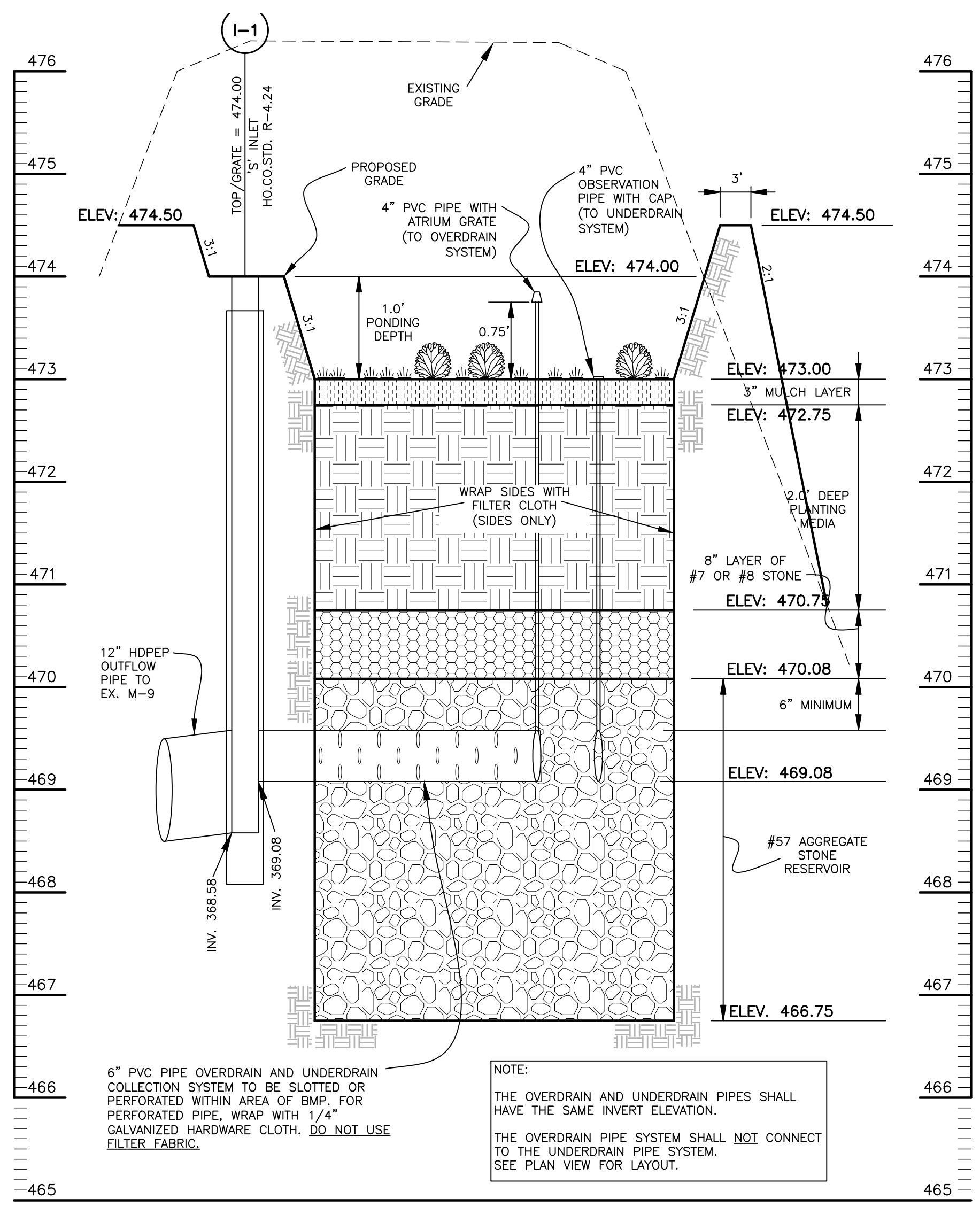
Routine Maintenance (By HOA):

- 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 as needed.
5. Keep annual maintenance logs/records for County inspection.

Non-Routine Maintenance (By HOA):

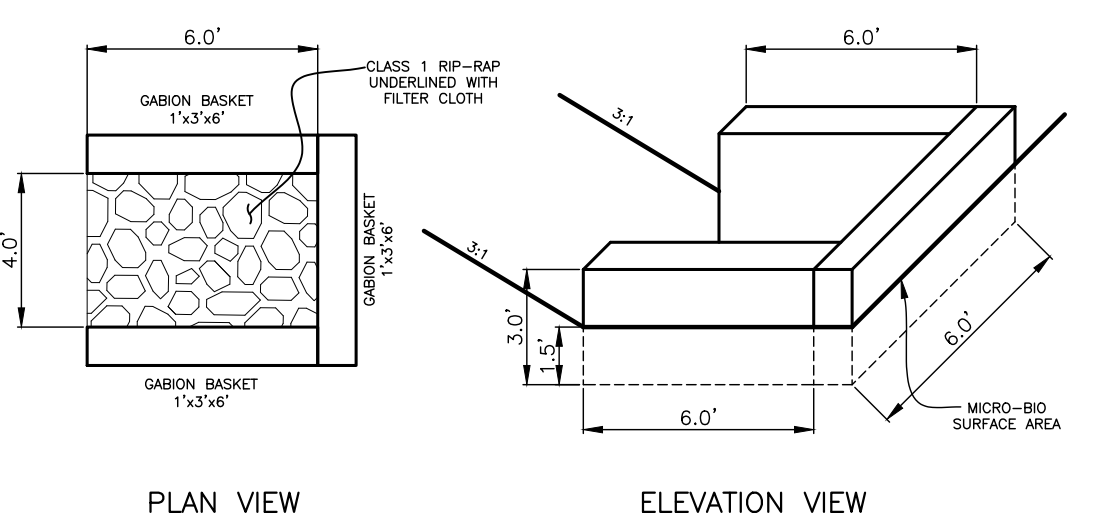
- 1. HOA shall be responsible for the drain pipes and outfall structures. The components shall be inspected during routine maintenance operations.

FIELD TEST PIT LOG. Table with columns for SOIL DESCRIPTION and REMARKS. Includes boring details: BORING NO.: TP-1, DRILLER: JFC Inc., START DATE: 11/29/2022, PROJECT NAME: Villages at Town Square Phase 3, COMPLETION DATE: 11/29/2022.



(M-6) MICRO BIO-RETENTION #1 CROSS SECTION A-A

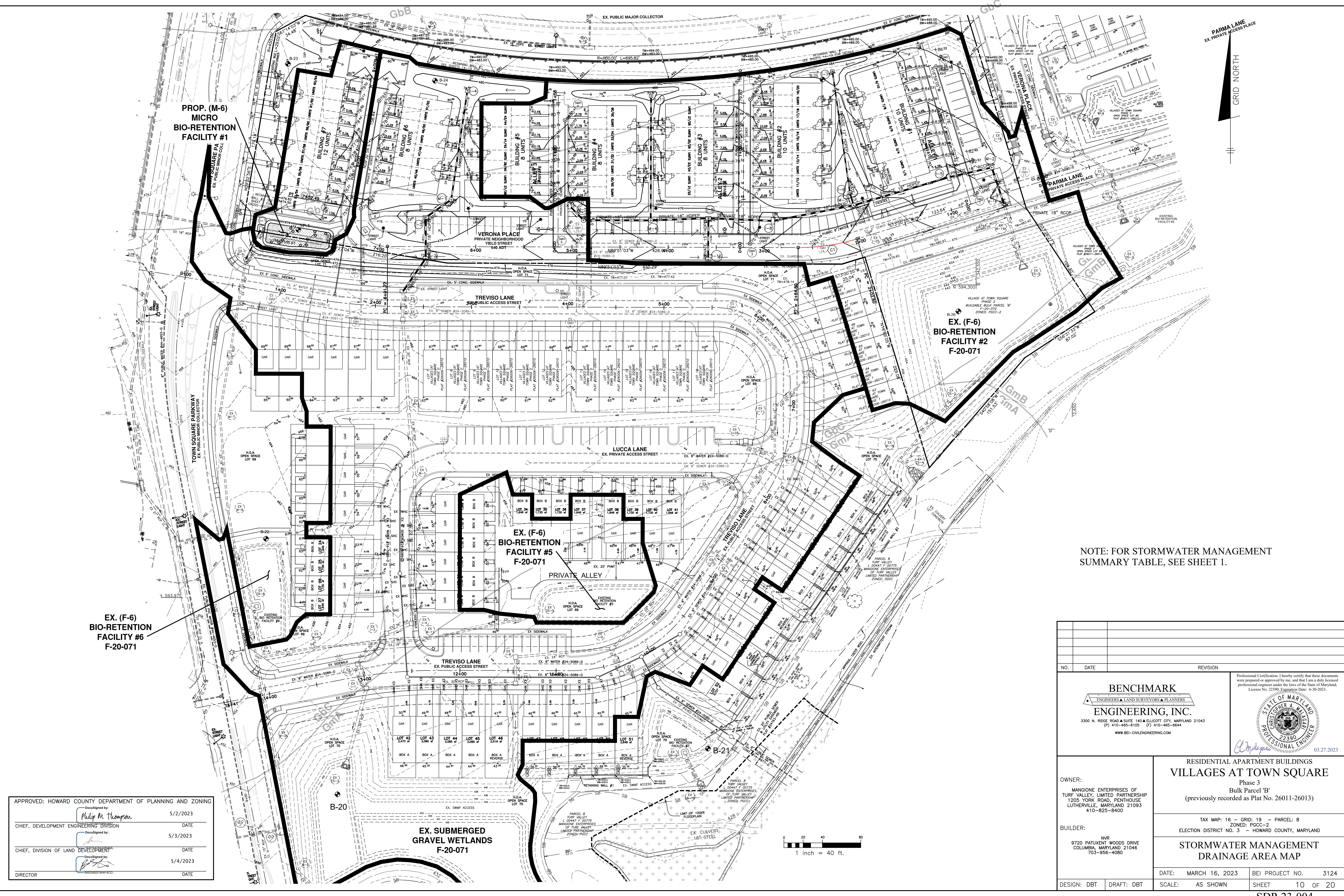
1 inch = 10 ft.



RIP-RAP WITH GABION BASKETS INFLOW DETAIL. SCALE: 1" = 5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Philip M. Thompson (5/2/2023), and other officials.

Professional Engineer stamp for BENCHMARK ENGINEERING, INC. and project details for VILLAGES AT TOWN SQUARE Residential Apartment Buildings, Phase 3, Bulk Parcel 'B'. Includes owner, builder, and design information.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by: *Philip M. Thompson* 5/2/2023  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DocuSigned by: *[Signature]* 5/3/2023  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

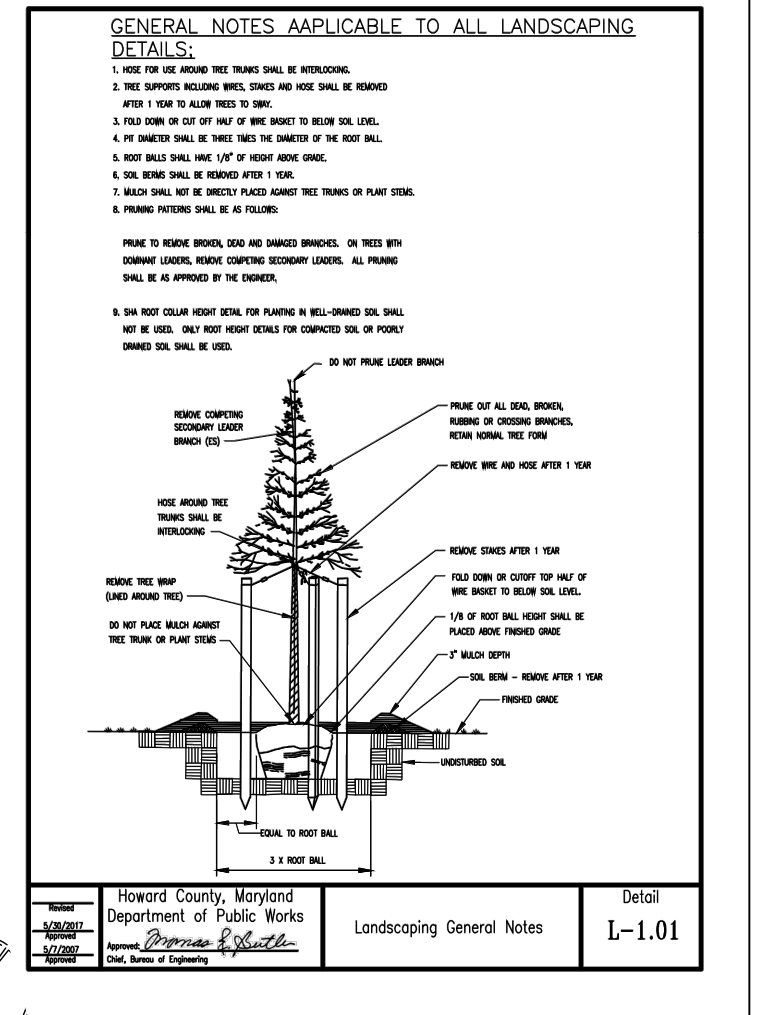
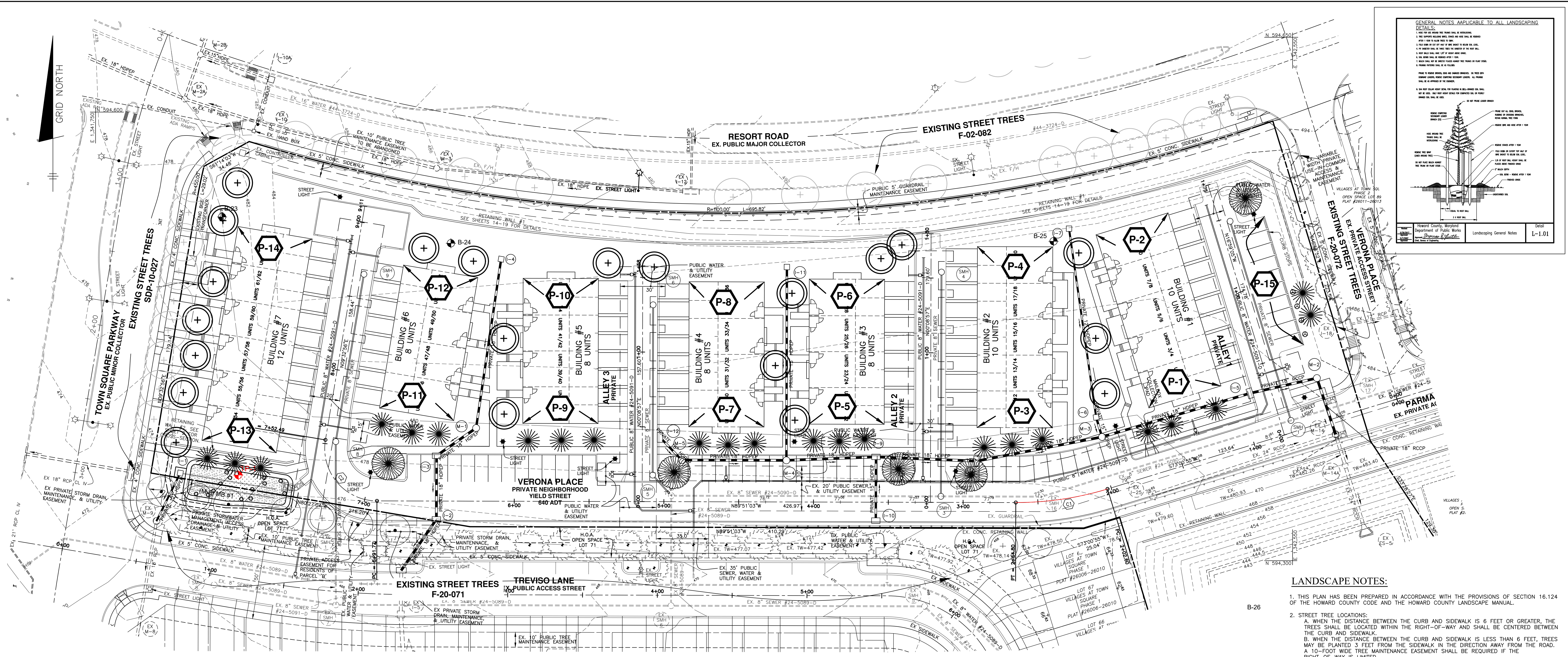
DocuSigned by: *[Signature]* 5/4/2023  
 DIRECTOR DATE

NOTE: FOR STORMWATER MANAGEMENT SUMMARY TABLE, SEE SHEET 1.

NO.	DATE	REVISION

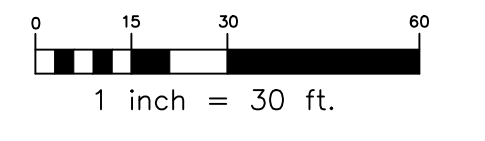
  

<b>BENCHMARK</b> ENGINEERS • LAND SURVEYORS • PLANNERS <b>ENGINEERING, INC.</b> 3300 N. RIDGE ROAD • SUITE 140 • ELICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CVLENGINEERING.COM		
Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.		
RESIDENTIAL APARTMENT BUILDINGS <b>VILLAGES AT TOWN SQUARE</b> Phase 3 Bulk Parcel 'B' (previously recorded as Plat No. 26011-26013)		
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400		TAX MAP: 16 - GRID: 19 - PARCEL: 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
BUILDER: NVR 9720 PATENT WOODS DRIVE COLUMBIA, MARYLAND 21046 703-956-4080		<b>STORMWATER MANAGEMENT DRAINAGE AREA MAP</b>
DATE: MARCH 16, 2023 SCALE: AS SHOWN		BEI PROJECT NO. 3124 SHEET 10 OF 20
DESIGN: DBT	DRAFT: DBT	



**LANDSCAPE NOTES:**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- STREET TREE LOCATIONS:**
  - WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS 6 FEET OR GREATER, THE TREES SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY AND SHALL BE CENTERED BETWEEN THE CURB AND SIDEWALK.
  - WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS LESS THAN 6 FEET, TREES MAY BE PLANTED 3 FEET FROM THE SIDEWALK IN THE DIRECTION AWAY FROM THE ROAD. A 10-FOOT WIDE TREE MAINTENANCE EASEMENT SHALL BE REQUIRED IF THE RIGHT-OF-WAY IS LIMITED.
  - TREES SHALL BE PLANTED 6 FEET BEHIND CURB WHEN THERE ARE NO SIDEWALKS.
  - TREES TO BE PLANTED MINIMUM 30 FEET FROM SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB. TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A STORM DRAIN INLET, OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- BCE ZONES: TREE HEIGHTS AT MATURITY SHALL BE LIMITED TO 25 FEET MAXIMUM WITHIN THE "GREEN ZONE", TREE HEIGHTS AT MATURITY SHALL BE LIMITED TO 40 FEET MAXIMUM WITHIN THE "YELLOW ZONE". IF TREES ARE TO BE PLANTED ON BERMS THE TREE HEIGHTS SHALL BE REDUCED BY THE HEIGHT OF THE BERM AS MEASURED ABOVE THE MEAN GROUND ELEVATION OF THE UTILITY POLE LINE.
- ON THE APPROACH SIDE OF A STOP SIGN, NO STREET TREE CAN BE PLANTED WITHIN 30 FEET OF THE STOP SIGN. A MINIMUM OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- FINANCIAL SURETY IN THE AMOUNT OF \$3,570.00 FOR THE REQUIRED 8 SHADE TREES, 7 EVERGREEN TREES, AND 4 SHRUBS SHALL BE POSTED AS PART OF THE GRADING PERMIT.



**Schedule B**  
**Parking Lot Internal Landscaping**

Number of Parking Spaces	51
Number of Trees Required (1:10 spaces)	5
Number of Trees Provided	5
Shade Trees	
Other Trees (2:1 substitution)	

**Schedule C**  
**Residential Development Internal Landscaping**

Category	SFA	APT
Number of Dwelling Unit	0	64
Number of Trees Required (1:10 SFA; 1:3 DU Apts)	0	21
Number of Trees Provided		
Shade Trees	NA	21
Other Trees (2:1 substitution)		

**Schedule A**  
**Perimeter Landscape Edge**

Category	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12	P-13	P-14	P-15	Totals
Linear Feet of Road Frontage or Perimeter	50	50	50	50	50	50	50	50	50	50	50	50	50	50	90	
Credit for Existing Vegetation (Yes, No, Linear Feet) (Describe below if needed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Credit for Wall, Fence, or Berm (Yes, No, Linear Feet) (Describe below if needed)	0	50	0	50	0	50	0	50	0	50	0	50	0	50	47	
Linear Feet of Planting	50	0	50	0	50	0	50	0	50	0	50	0	50	0	43	
Number of Plants Required																
Shade Trees	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	8
Evergreen Trees	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	7
Other Trees (2:1 substitute)																
Shrubs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Number of Plant Provided																
Shade Trees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Evergreen Trees	3	0	3	0	3	0	3	0	3	0	3	0	13	0	2	33
Other Trees (2:1 substitute)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrubs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4

**LANDSCAPE PLANTING LIST**

SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	33	CUPRESSOCYPARIS LEYLANDI (Leyland Cypress)	5' - 6' ht.	PERIMETER EVERGREEN TREES TO BE PROVIDED BY THE BUILDER
	21	QUERCUS PALUSTRIS (Pin Oak)	2.5" - 3" cal.	SHADE TREES TO BE SATISFY RESIDENTIAL INTERNAL OBLIGATION TO BE PROVIDED BY THE BUILDER
	5	PRUNUS SARGENTII (Sargent Cherry)	2.5" - 3" cal.	SHADE TREES TO SATISFY INTERNAL PARKING OBLIGATION TO BE PROVIDED BY THE BUILDER
	4	DENSIFORMUS YEW (Anglo-Japanese Yew)	24"-30" B&B SPACE 6' APART	EVERGREEN SHRUBS TO BE PLANTED ALONG PARKING SPACES TO BE PROVIDED BY THE BUILDER

**BUILDER'S CERTIFICATE**

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

*Louis Mangione* 2023-03-24  
LOUIS MANGIONE DATE

**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**

Disapproved by: *Philip M. Thompson* 5/2/2023  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Disapproved by: \_\_\_\_\_ 5/3/2023  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Disapproved by: \_\_\_\_\_ 5/4/2023  
DIRECTOR DATE

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

3300 N. RIDGE ROAD SUITE 140 • ELICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-6644  
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 22390. Expiration Date: 6-30-2023.

*[Signature]* 03.27.2023

**RESIDENTIAL APARTMENT BUILDINGS**  
**VILLAGES AT TOWN SQUARE**  
Phase 3  
Bulk Parcel 'B'  
(previously recorded as Plat No. 26011-26013)

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

BUILDER:  
N/R  
9720 PATENT WOODS DRIVE COLUMBIA, MARYLAND 21046  
703-956-4080

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

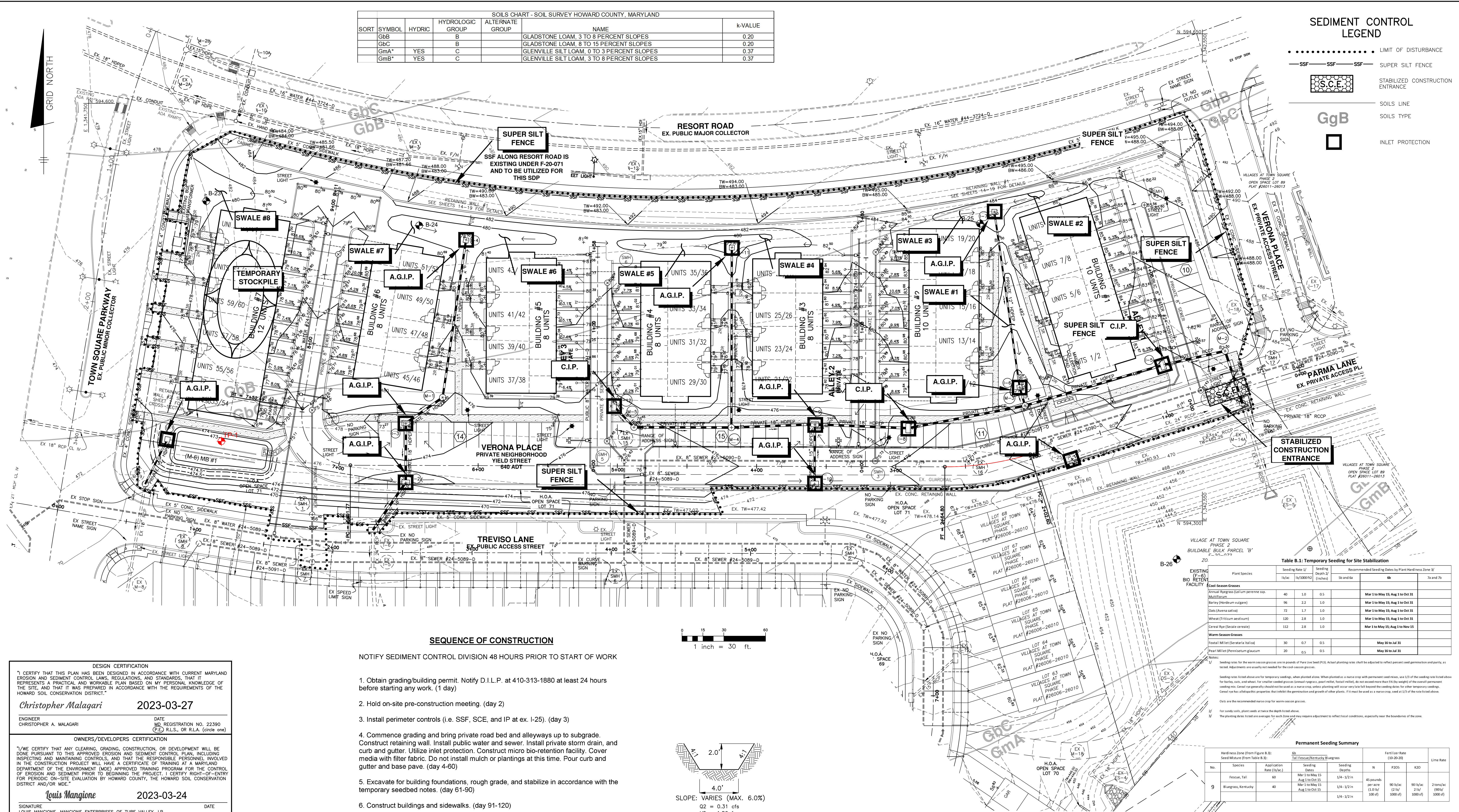
**LANDSCAPE PLAN**

DATE: MARCH 16, 2023 BEI PROJECT NO. 3124  
SCALE: AS SHOWN SHEET 11 OF 20

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND						
SOIL	SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GbB			B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.20
GbC			B		GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmA*	YES	C	C		GLENVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES	0.37
GmB*	YES	C	C		GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37

### SEDIMENT CONTROL LEGEND

- ..... LIMIT OF DISTURBANCE
- SSF SUPER SILT FENCE
- S.C.E. STABILIZED CONSTRUCTION ENTRANCE
- SOILS LINE
- SOILS TYPE
- INLET PROTECTION



### SEQUENCE OF CONSTRUCTION

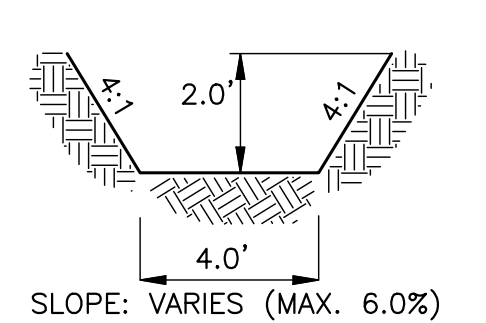
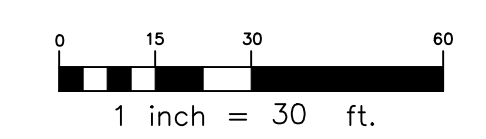
NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF WORK

1. Obtain grading/building permit. Notify D.I.L.P. at 410-313-1880 at least 24 hours before starting any work. (1 day)
2. Hold on-site pre-construction meeting. (day 2)
3. Install perimeter controls (i.e. SSF, SCE, and IP at ex. 1-25). (day 3)
4. Commence grading and bring private road bed and alleyways up to subgrade. Construct retaining wall. Install public water and sewer. Install private storm drain, and curb and gutter. Utilize inlet protection. Construct micro bio-retention facility. Cover media with filter fabric. Do not install mulch or plantings at this time. Pour curb and gutter and base pave. (day 4-60)
5. Excavate for building foundations, rough grade, and stabilize in accordance with the temporary seedbed notes. (day 61-90)
6. Construct buildings and sidewalks. (day 91-120)
7. Once building construction is complete, and newly graded areas have been stabilized, remove filter fabric cover from micro bio-retentions and install mulch and plantings. Final pave. Install perimeter landscaping. (day 121-131)
8. Upon approval from the Howard County Sediment Control Inspector, remove all sediment control devices and stabilize any remaining disturbed areas in accordance with the permanent seedbed notes. (day 132-140)

Note: Following initial soil disturbance or any re-disturbances, permanent or temporary stabilization shall be completed within:

- A. 3 calendar days for all perimeter sediment control structures, dikes, swales and all slopes greater than 3:1.
- B. 7 calendar days for all other disturbed areas.

During grading and after each rainfall, contractor will inspect and provide necessary maintenance to the sediment control measures of this plan.



SWALE #1 - SECTION  
NOT TO SCALE

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/ (lb/ac)	Seeding Rate 2/ (lb/1000sq ft)	Seeding Depth 2/ (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/	
				5a and 6a	7a and 7b
<b>Cool Season Grasses</b>					
Annual Ryegrass (Lolium perenne ssp. multiflorum)	40	1.0	0.5	Mar 1 to May 15, Aug 1 to Oct 31	
Barley (Hordeum vulgare)	96	2.2	1.0	Mar 1 to May 15, Aug 1 to Oct 31	
Oats (Avena sativa)	72	1.7	1.0	Mar 1 to May 15, Aug 1 to Oct 31	
Wheat (Triticum aestivum)	120	2.8	1.0	Mar 1 to May 15, Aug 1 to Oct 31	
Corn Rye (Secale cereale)	112	2.8	1.0	Mar 1 to May 15, Aug 1 to Nov 15	
<b>Warm Season Grasses</b>					
Foxtail Millet (Setaria italica)	30	0.7	0.5	May 16 to Jul 31	
Pearl Millet (Pennisetum glaucum)	20	0.5	0.5	May 16 to Jul 31	

Notes:  
1/ Seeding rates for the warm season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as seed adjustments are usually not needed for the cool season grasses.  
2/ Seeding rates listed above are for temporary seeding; when planned as a nurse crop with permanent seed mix, use 1/2 of the seeding rate listed above for barley, oats, and wheat. For smaller seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 1/2 the weight of the overall permanent seedling mix. Corn rye generally should not be used as a nurse crop, unless planting will occur very late (fall) beyond the seeding dates for other temporary seedings. Great care in site specific preparation that includes the germination and growth of other grasses. It must be used as a nurse crop, used at 1/2 the rate listed above.  
3/ Use the recommended nurse crop for warm season grasses.  
4/ For sandy soils, plant seeds at twice the depth listed above.  
5/ The planting dates listed are suggested for each time and may require adjustment to reflect local conditions, especially near the boundaries of the zones.

Permanent Seeding Summary							
No.	Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depth (inches)	Fertilizer Rate (lb/100-200)		Lime Rate
					N	P205 K20	
9	Fescue, Tall	60	Mar 1 to May 15 Aug 1 to Oct 15	1/4 - 1/2 in	45 lbs/acre (1.0 lb/1000 sq ft)	90 lb/acre (2 lb/1000 sq ft)	2 tons/acre (9000 lb/1000 sq ft)
	Bluegrass, Kentucky	40	Mar 1 to May 15 Aug 1 to Oct 15	1/4 - 1/2 in	45 lbs/acre (1.0 lb/1000 sq ft)	90 lb/acre (2 lb/1000 sq ft)	2 tons/acre (9000 lb/1000 sq ft)

**DESIGN CERTIFICATION**  
I CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

**Christopher Malagari** 2023-03-27  
ENGINEER  
LOUIS MANGIONE, MANGIONE ENTERPRISES OF TURF VALLEY, LP

**OWNERS/DEVELOPERS CERTIFICATION**  
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

**Louis Mangione** 2023-03-24  
SIGNATURE  
LOUIS MANGIONE, MANGIONE ENTERPRISES OF TURF VALLEY, LP

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

**Alexander Bratchie** 5/4/2023  
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

**Philip M. Thompson** 5/2/2023  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**5/3/2023**  
CHIEF, DIVISION OF LAND DEVELOPMENT

**5/4/2023**  
DIRECTOR

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY.

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
3300 N. RIDGE ROAD & SUITE 140 • ELICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-6644  
WWW.BE1-ENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 22390. Expiration Date: 6-30-2023.

**Christopher Malagari** 03.27.2023

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

**BUILDER:**  
NVR  
9720 PATENT WOODS DRIVE  
COLUMBIA, MARYLAND 21046  
703-956-4080

**RESIDENTIAL APARTMENT BUILDINGS**  
VILLAGES AT TOWN SQUARE  
Phase 3  
Bulk Parcel 'B'  
(previously recorded as Plat No. 26011-26013)

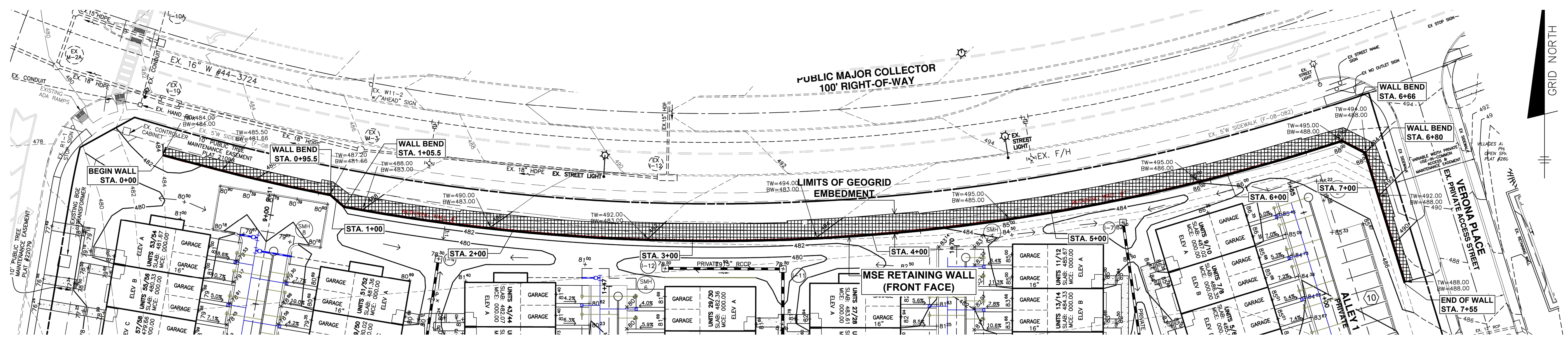
TAX MAP: 16 -- GRID: 19 -- PARCEL: 8  
ZONED: PGCC-2  
ELECTION DISTRICT NO. 3 -- HOWARD COUNTY, MARYLAND

**SEDIMENT AND EROSION CONTROL PLAN**

DATE: MARCH 16, 2023 BEI PROJECT NO. 3124  
SCALE: AS SHOWN SHEET 12 OF 20

DESIGN: DBT DRAFT: DBT



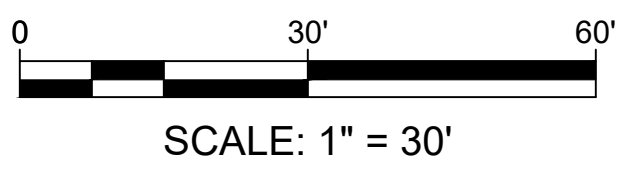


**WALL LOCATION PLAN**  
1" = 30'

- NOTES**
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.

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

APPROVED:	DocuSigned by: <i>Philip M. Thompson</i>	5/2/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
DIRECTOR		DATE



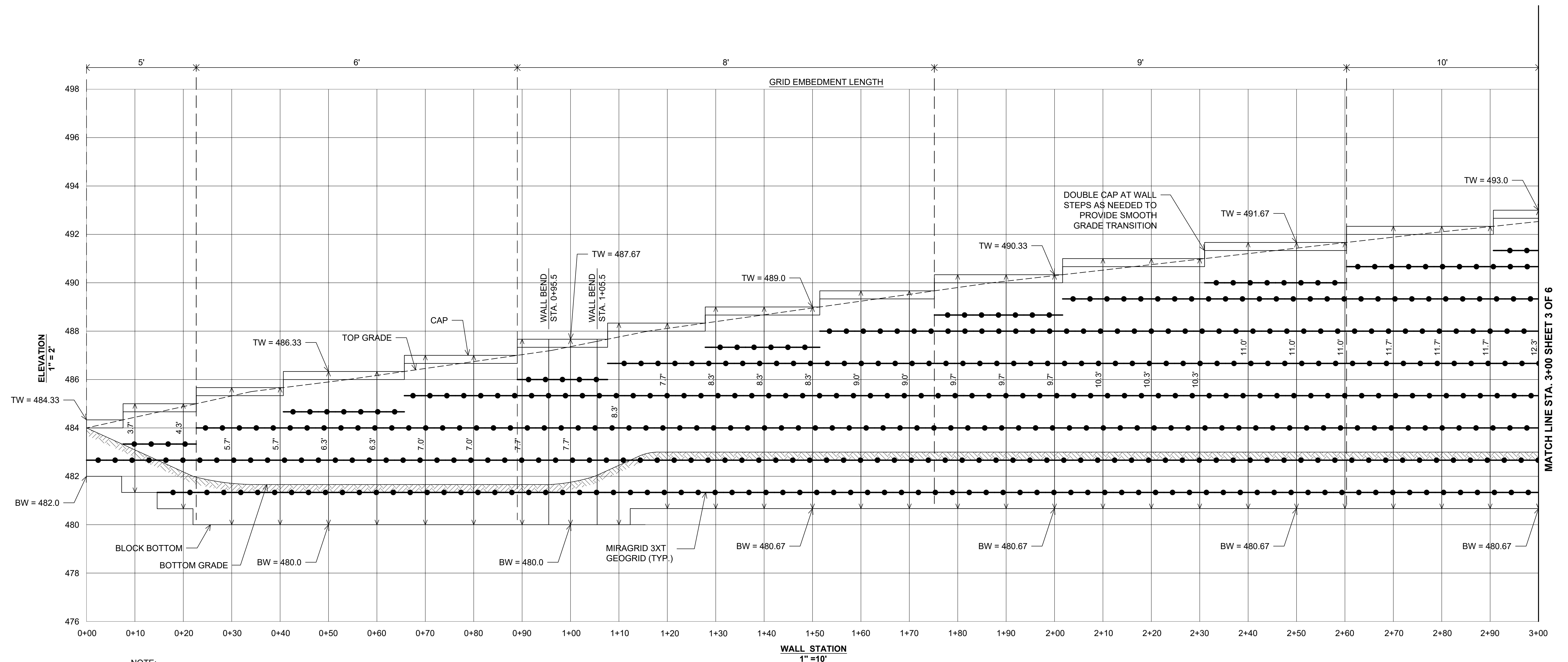
**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 14808  
EXPIRATION DATE: 02/27/24



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

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

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			22462A	HM
			SCALE:	1" = 30'
			DATE:	8/15/2022
			DRAWN BY:	HM/JRE
			APPROVED BY:	HM



MATCH LINE STA. 3+00 SHEET 3 OF 6

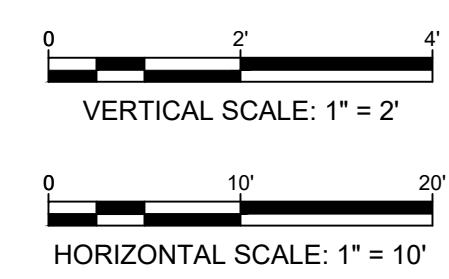
NOTE:  
FIELD CONFIRM REQUIRED FINISHED  
TOP AND BOTTOM GRADES AND  
ADJUST WALL BLOCK ACCORDINGLY.

**Timothy Hill** Digitally signed  
by Timothy Hill  
Date: 2023.03.28  
11:59:06 -04'00'

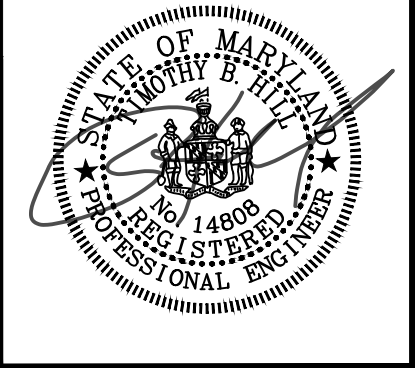
APPROVED:

DocuSigned by:  
*Philip M. Thompson* 5/2/2023  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 5/3/2023

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 5/4/2023  
DIRECTOR DATE



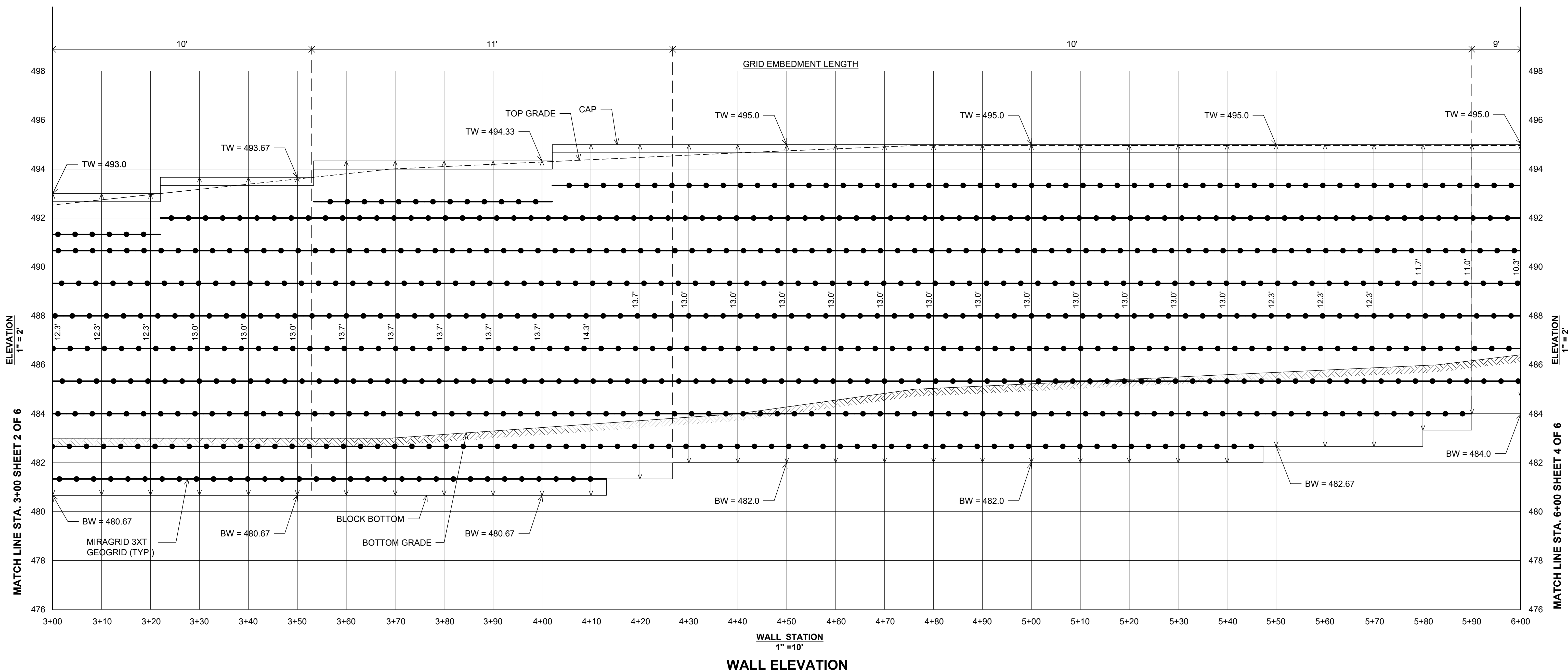
PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS  
WERE PREPARED OR APPROVED BY ME,  
AND THAT I AM A DULY LICENSED  
PROFESSIONAL ENGINEER UNDER THE  
LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 14808  
EXPIRATION DATE: 02/27/24



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

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			22462A	HM
			SCALE: AS SHOWN	DRAWN BY: HM/JRE
			DATE: 8/15/2022	APPROVED BY: HM



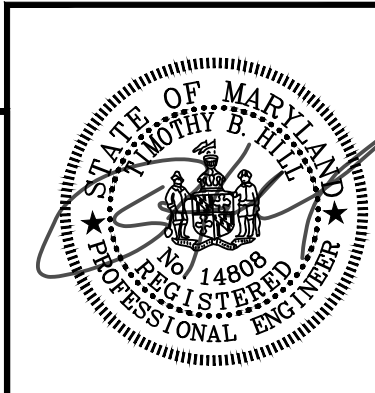
**Timothy Hill** Digitally signed by Timothy Hill  
 Date: 2023.03.28 11:55:55 -04'00'

APPROVED:  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DIRECTOR

DocuSigned by:  
 Philip M. Thompson  
 5/2/2023  
 DATE  
 DATE  
 DATE

VERTICAL SCALE: 1" = 2'  
 HORIZONTAL SCALE: 1" = 10'

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



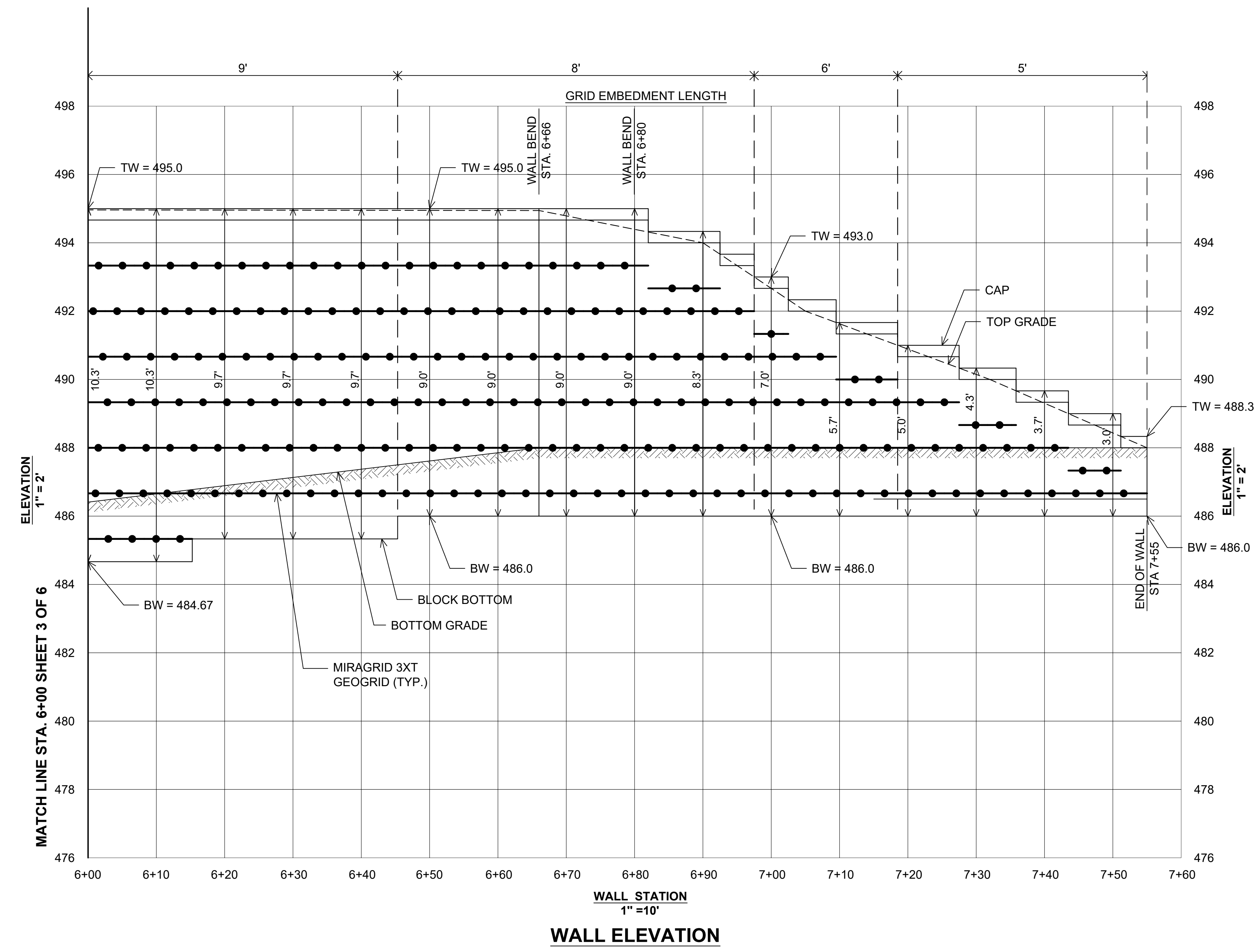
**HILLIS-CARNES ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

**RETAINING WALL ELEVATION - STA. 3+00 TO 6+00  
 VILLAGES AT TOWN SQUARE  
 HOWARD COUNTY, MARYLAND**

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER: 22462A	DESIGNED BY: HM
			SCALE: AS SHOWN	DRAWN BY: HM/JRE
			DATE: 8/15/2022	APPROVED BY: HM

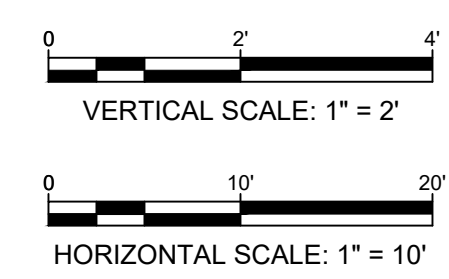
**16 of 20**  
 SHEET





**Timothy Hill** Digitally signed by Timothy Hill  
 Date: 2023.03.28 11:56:25 -04'00'

APPROVED:	DocuSigned by: <i>Philip M. Thompson</i>	5/2/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE 5/3/2023
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE 5/4/2023
DIRECTOR		DATE



**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.



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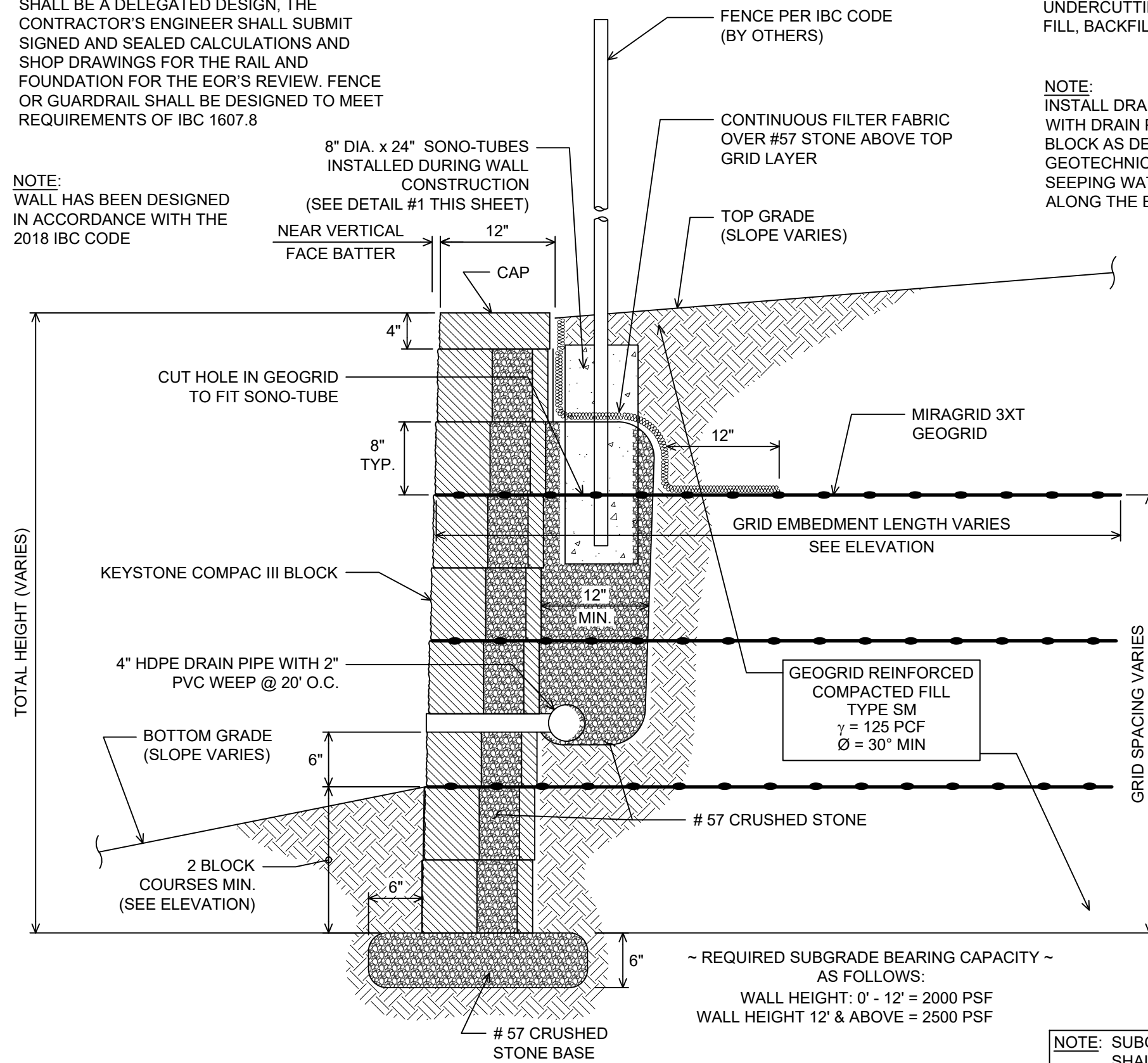
**RETAINING WALL ELEVATION - STA. 6+00 TO 7+55**  
**VILLAGES AT TOWN SQUARE**  
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			22462A	HM
			SCALE: AS SHOWN	DRAWN BY: HM/JRE
			DATE: 8/15/2022	APPROVED BY: HM

FENCE / GUARDRAIL NOTES:

- FENCE / GUARDRAIL SHALL BE A MIN. 42" ABOVE TOP GRADE AND SHALL NOT ALLOW PASSAGE OF A 4" DIA. SPHERE
- THE FENCE SHALL NOT HAVE AN ORNAMENTAL PATTERN THAT WOULD PROVIDE A LADDER EFFECT
- FENCE / GUARDRAIL AND RAIL FOUNDATION SHALL BE A DELICATED DESIGN. THE CONTRACTOR'S ENGINEER SHALL SUBMIT 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

NOTE: WALL HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2018 IBC CODE



TYPICAL WALL SECTION N.T.S.

NOTES:

- NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
- RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIV.) CERTIFIED SOILS TECHNICIAN.
- ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
- THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY AN EXPERIENCE SOILS TECHNICIAN UNDER THE DIRECTION OF A PROFESSIONAL GEOTECHNICAL ENGINEER. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
- 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 CONSTRUCTION.
- WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
- WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD CO. RIGHT-OF-WAY OR EASEMENT.

SPECIFICATIONS SEGMENTAL CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 DESCRIPTION

- 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.
- 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 DRAWINGS.
- 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

- CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 SEGMENTAL CONCRETE RETAINING WALL UNITS

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:  
FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.  
FACE FINISH - HARD SPLIT IN ANGULAR TRI-PLANE OR STRAIGHT FACE CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT IN VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.

EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 20 FEET UNDER DIFFUSED LIGHTING.

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

- 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 STATES) FOR STANDARD WEIGHT AGGREGATES;

DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE ± 1/8" 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.]

INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL FORCE; AT 2 PSI NORMAL FORCE.

[GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM.]

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS:

VERTICAL SETBACK = 1/8" PER COURSE (NEAR VERTICAL) OR 1/4" 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 INCH.

2.02 SHEAR AND REINFORCEMENT PIN CONNECTORS

- SHEAR AND REINFORCEMENT PIN CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC 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 MINIMUM.
- 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

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

2.04 UNIT DRAINAGE FILL

- UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE.

2.05 REINFORCED BACKFILL

- REINFORCED BACKFILL SHALL BE TYPE SM, FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIEVE SIZE	PERCENT PASSING
1 1/2 INCH	100
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) <15 AND LIQUID LIMIT <40, PER ASTM D4318.

- 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.

- 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

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

2.07 DRAINAGE PIPE

- THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D1248.

2.08 GEOTEXTILE FILTER FABRIC

- 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.

- 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

- 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.

- LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.
- COMPACT TO MINIMUM 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY PER ASTM D698.

3.03 SEGMENTAL UNIT INSTALLATION

- 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.

- 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.

- INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

- 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.

- 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

- GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

- GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.

- 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 CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID

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

- 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 ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

- 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.

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

- 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 OPTIMUM.

- ONLY LIGHTWEIGHT HAND-OPERATED COMPACTATION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE BACK OF THE SEGMENTAL CONCRETE UNIT.

- 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.

- RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND TURNING SHALL BE AVOIDED.

- AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SHOULDER 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

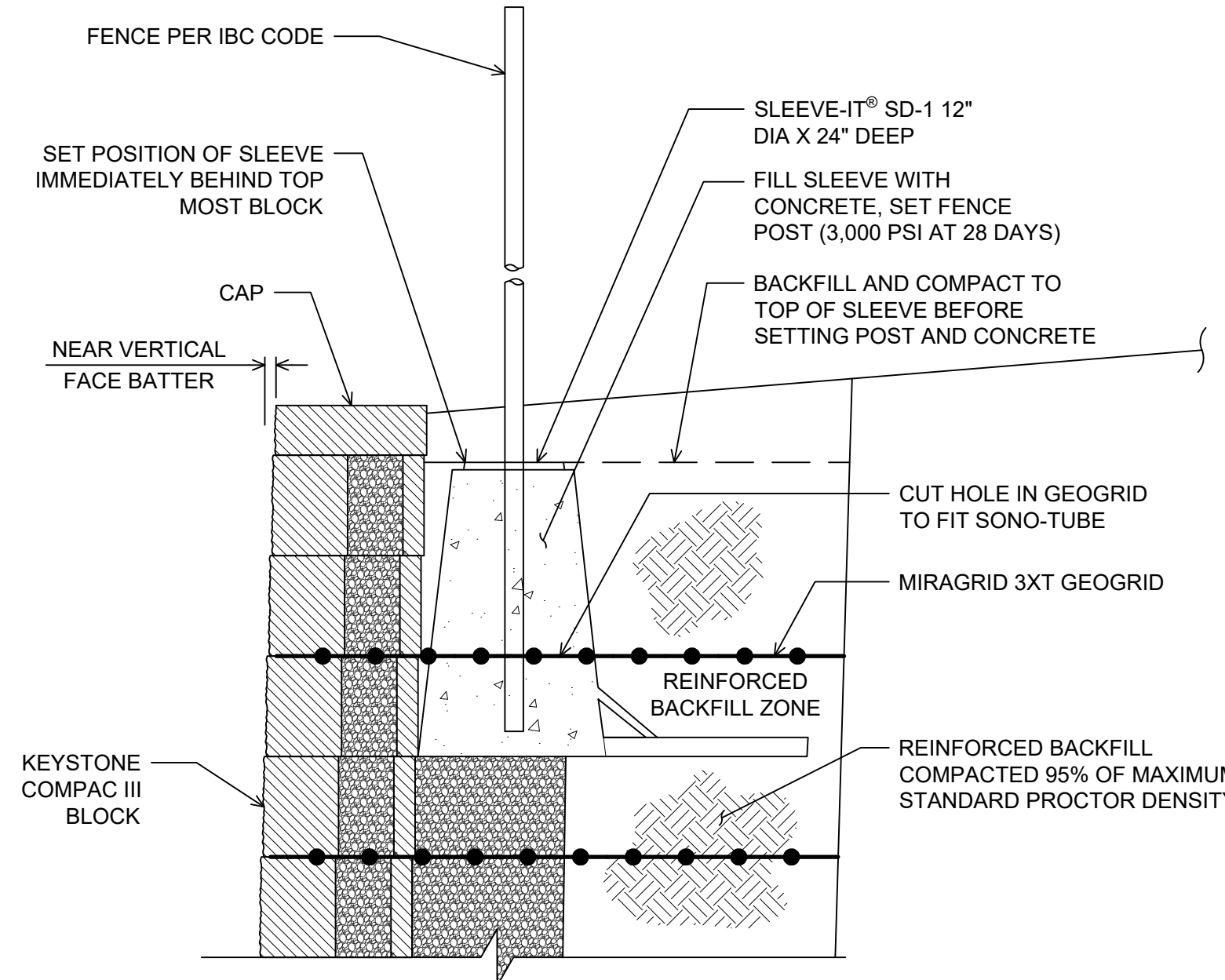
- PRIOR TO PLACEMENT OF CAP UNITS, THE UPPER SURFACE OF THE TOP COURSE WALL UNITS SHALL BE CLEANED OF SOIL AND ANY OTHER MATERIAL.

- CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER EXTERIOR CONSTRUCTION ADHESIVE RECOMMENDED BY THE MANUFACTURER.

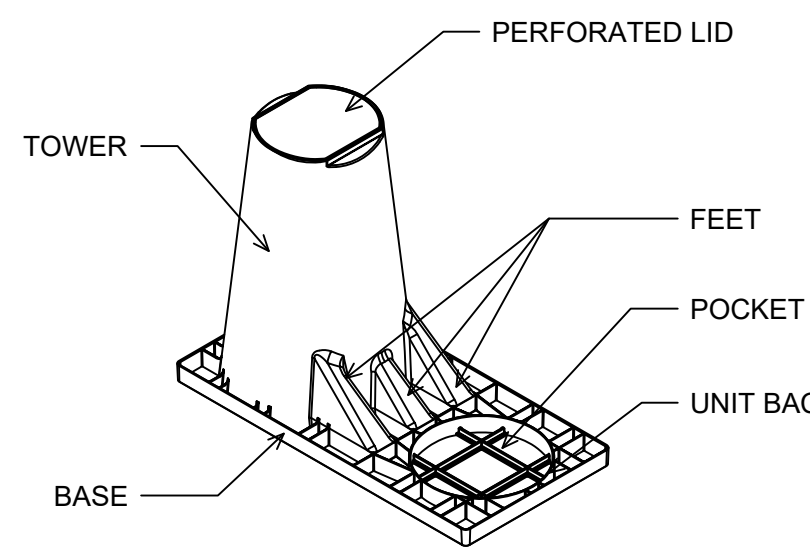
3.07 FIELD QUALITY CONTROL

- THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.

- 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.



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



SLEEVE-IT SD-1 ISOMETRIC VIEW

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

NOTE: SEE TYPICAL WALL SECTION FOR FULL WALL SECTION DETAILS

APPROVED:	DocuSigned by: Philip M. Thompson	5/2/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION		5/3/2023
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
DIRECTOR		5/4/2023
		DATE

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

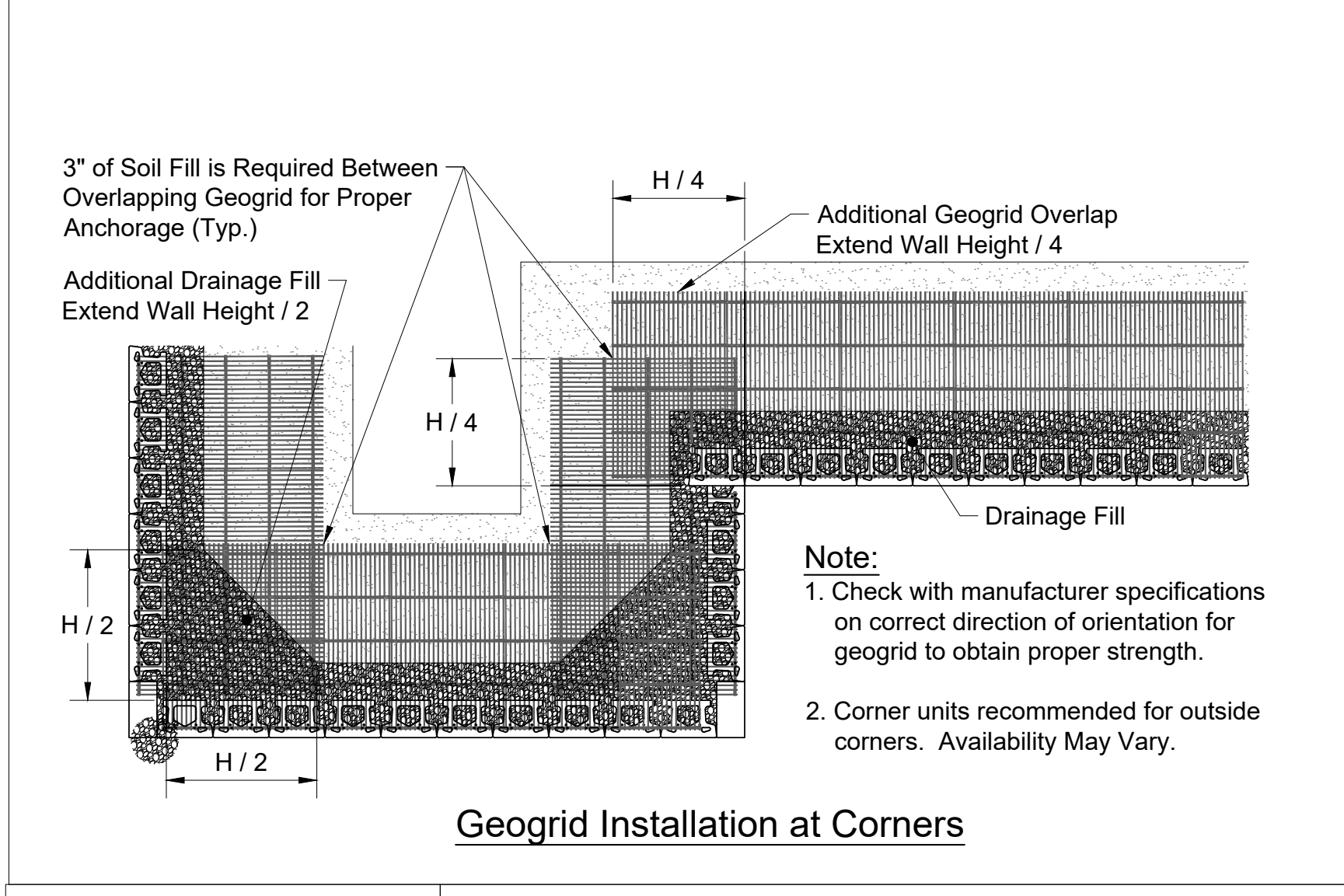
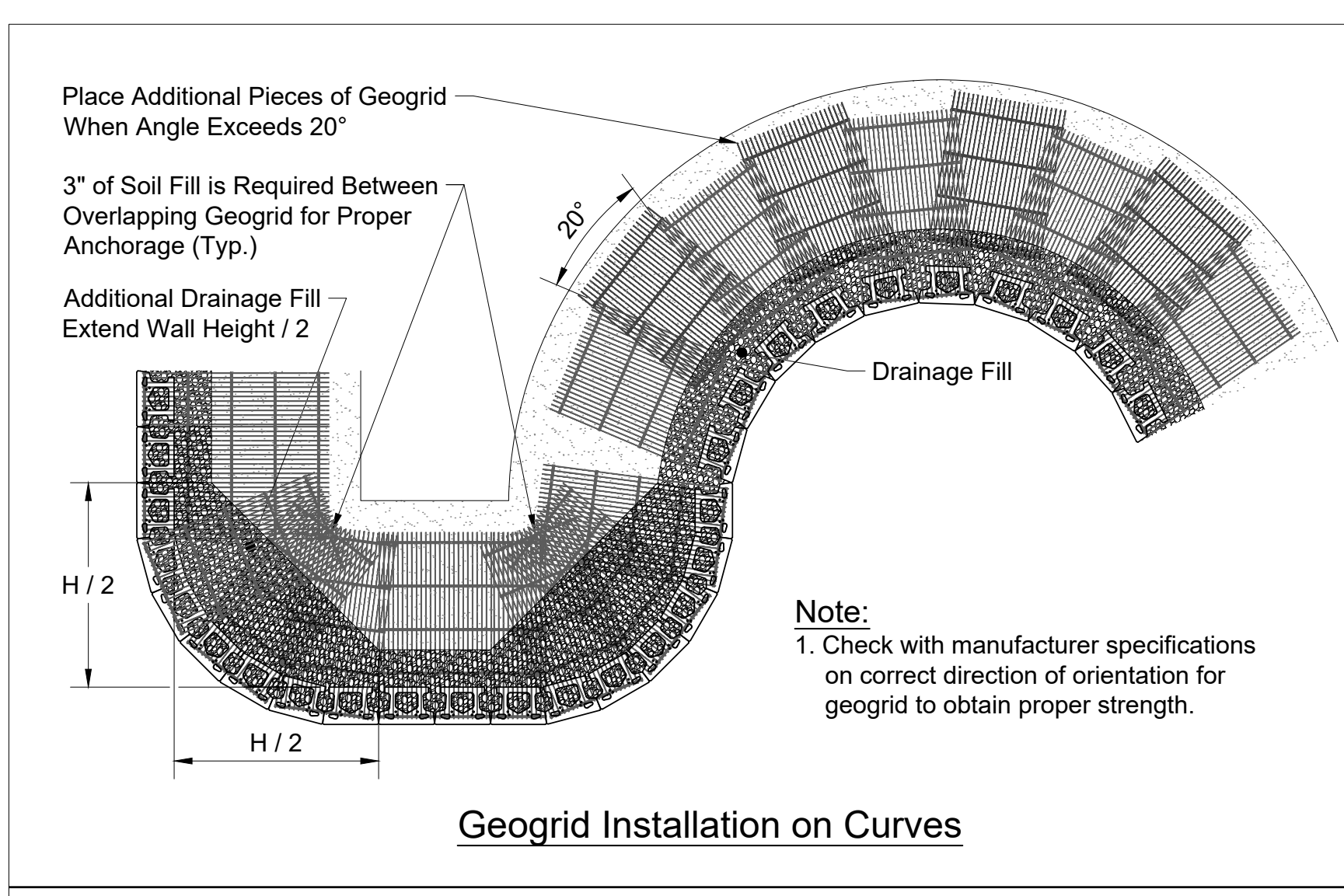
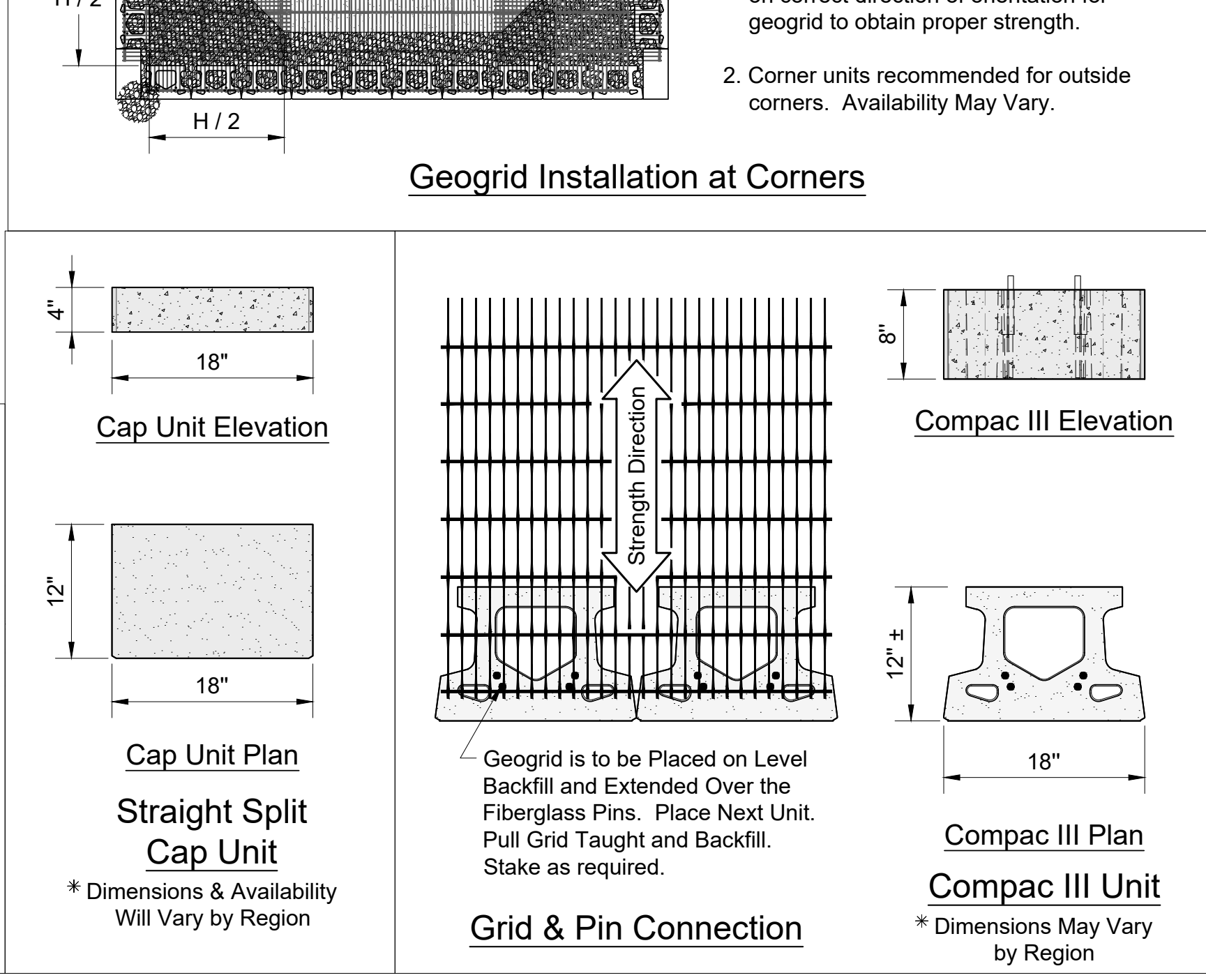
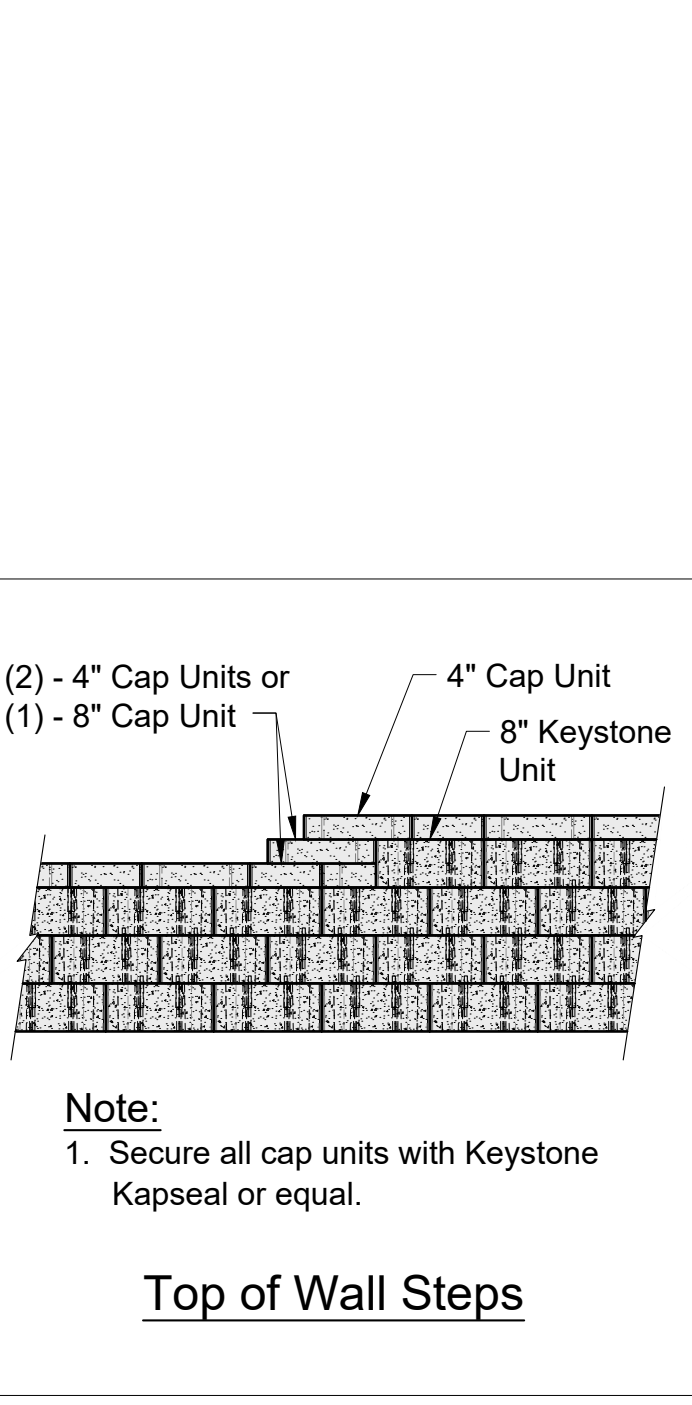
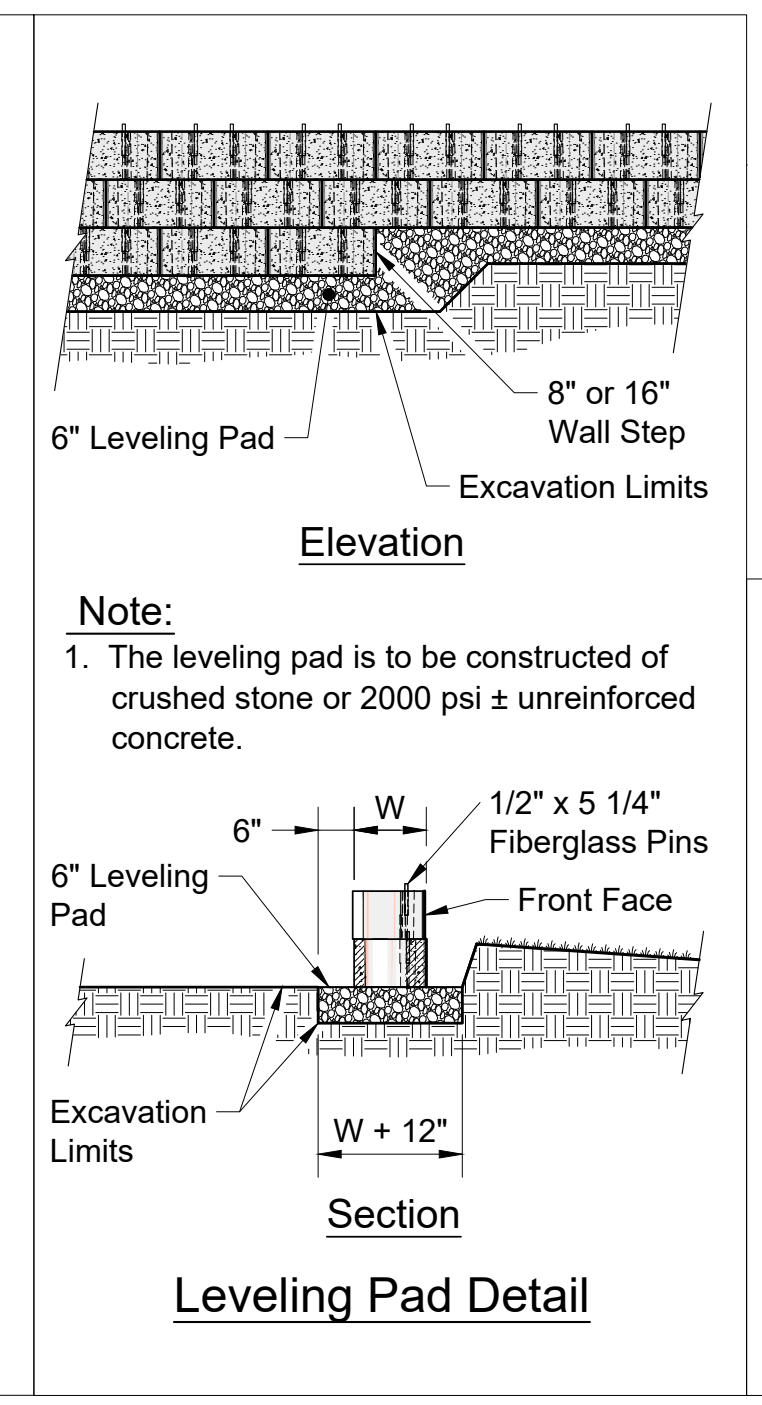
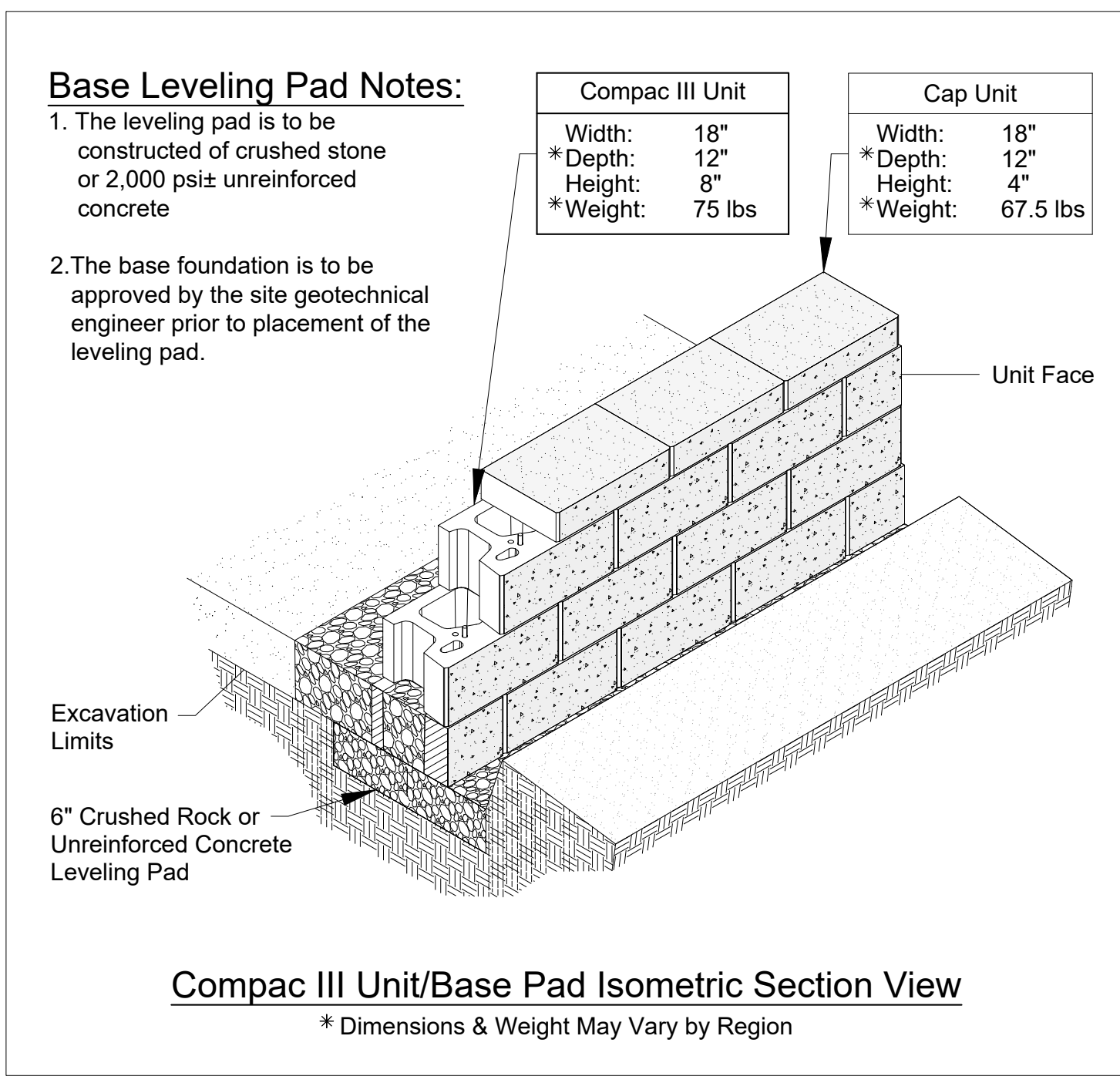


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Date: 2023.03.28 11:59:46 -04'00'

**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 SECTION AND SPECIFICATIONS  
VILLAGES AT TOWN SQUARE  
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			22462A	HM
			SCALE: AS SHOWN	DRAWN BY: HM/JRE
			DATE: 8/15/2022	APPROVED BY: HM



**COMPAC III UNIT - STRAIGHT FACE DETAILS**

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

APPROVED:	DocuSigned by: <i>Philip M. Thompson</i>	5/2/2023
CHIEF, DEVELOPMENT ENGINEERING DIVISION		5/3/2023
CHIEF, DIVISION OF LAND DEVELOPMENT		5/4/2023
DIRECTOR		

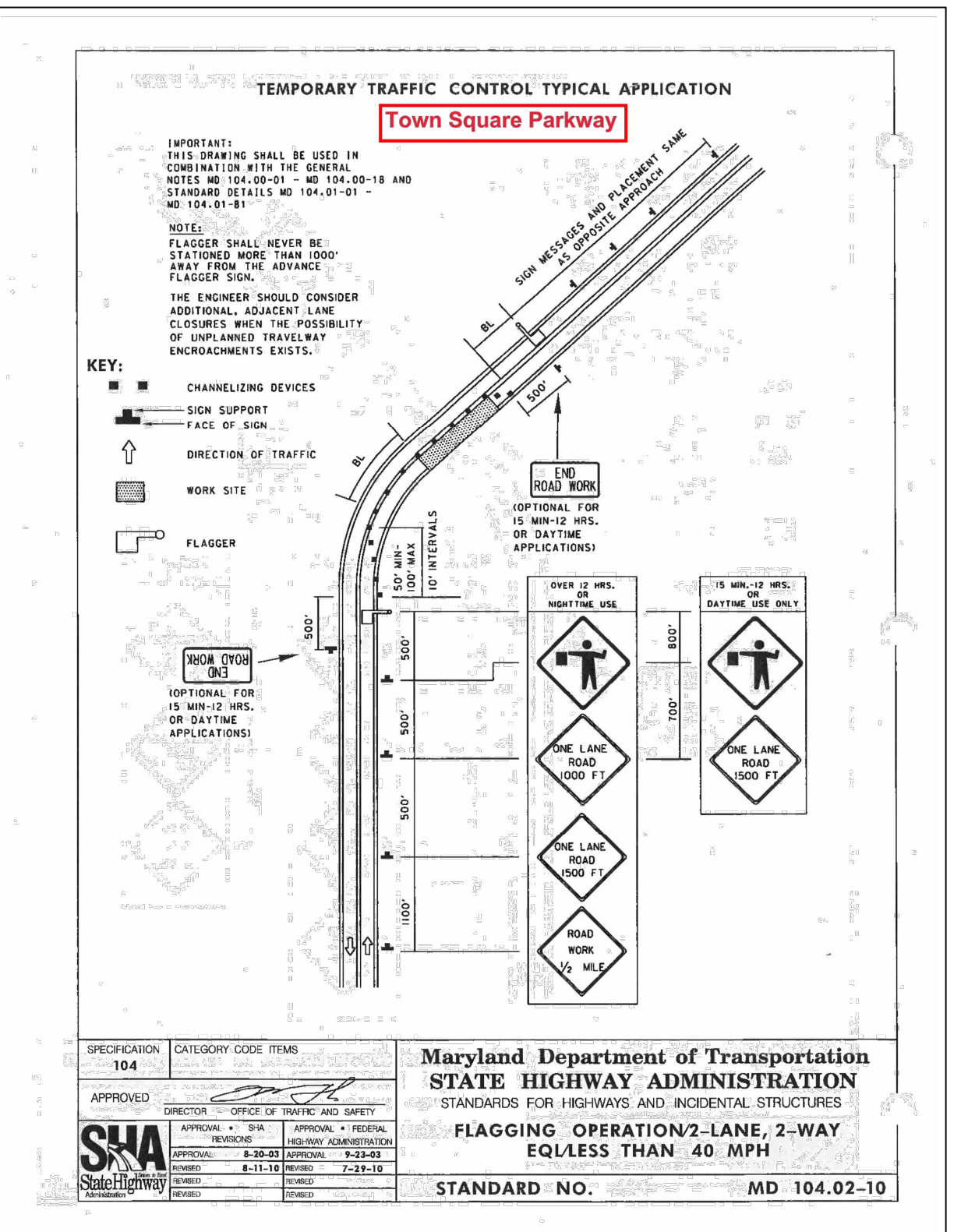
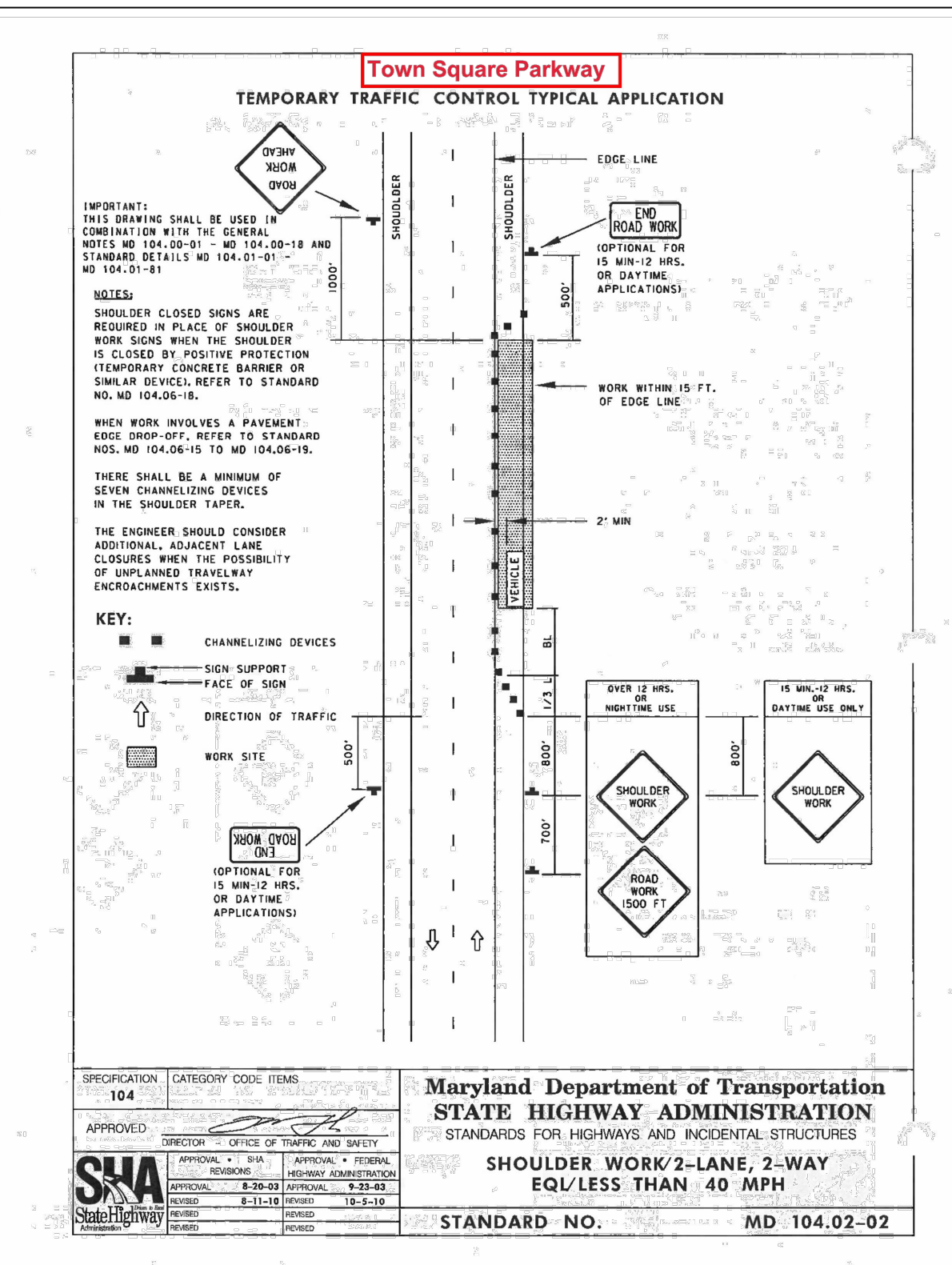
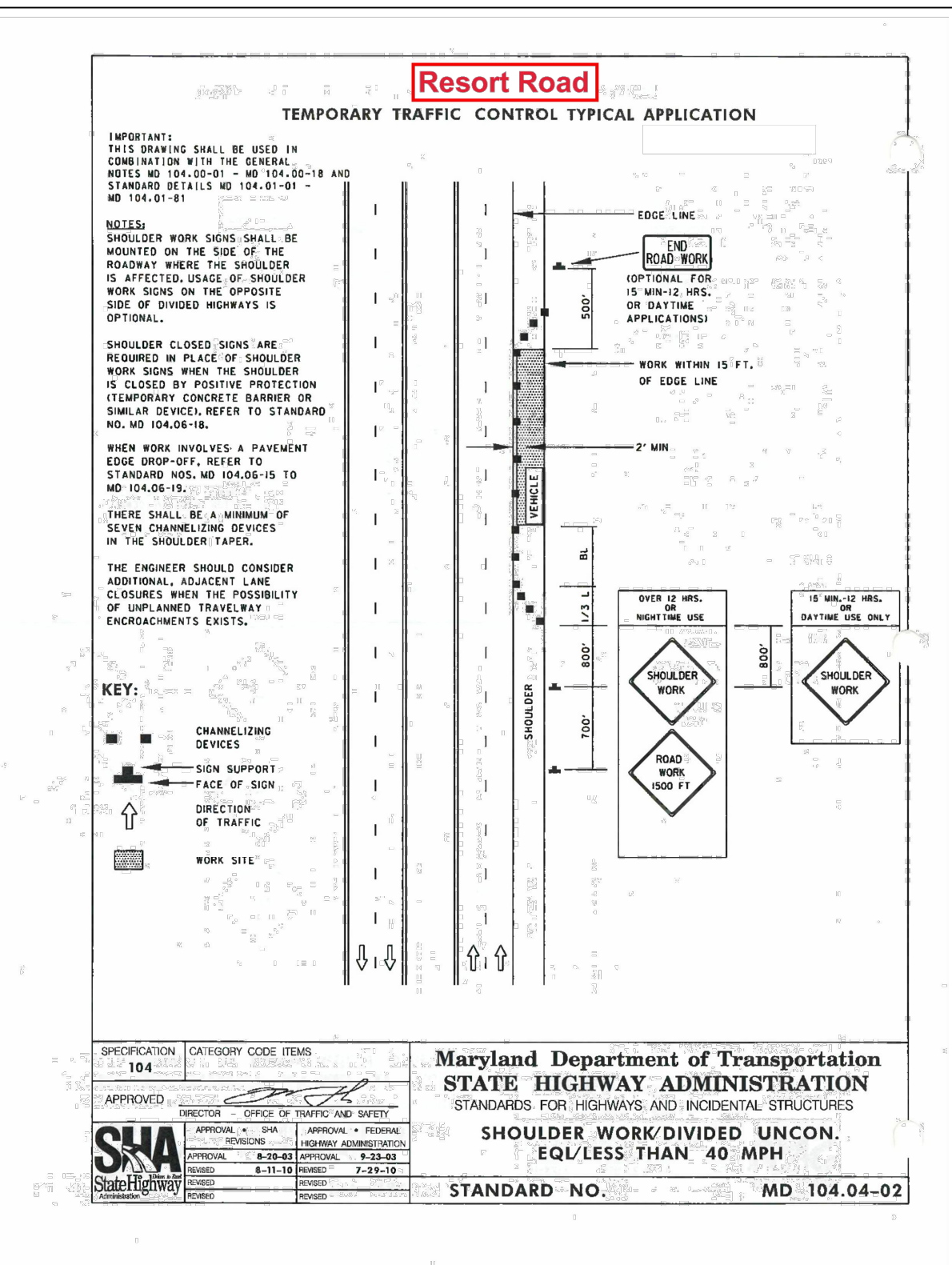
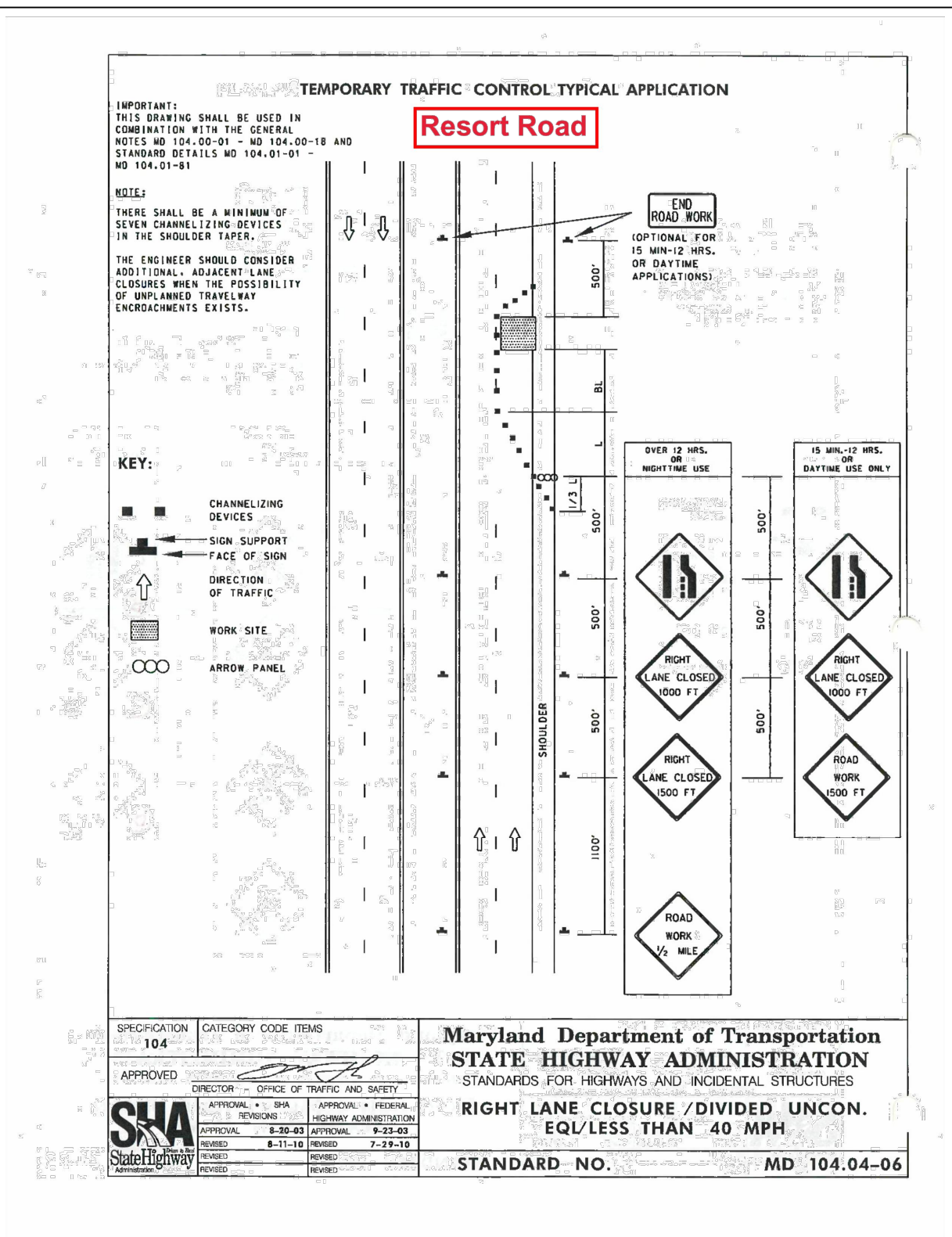
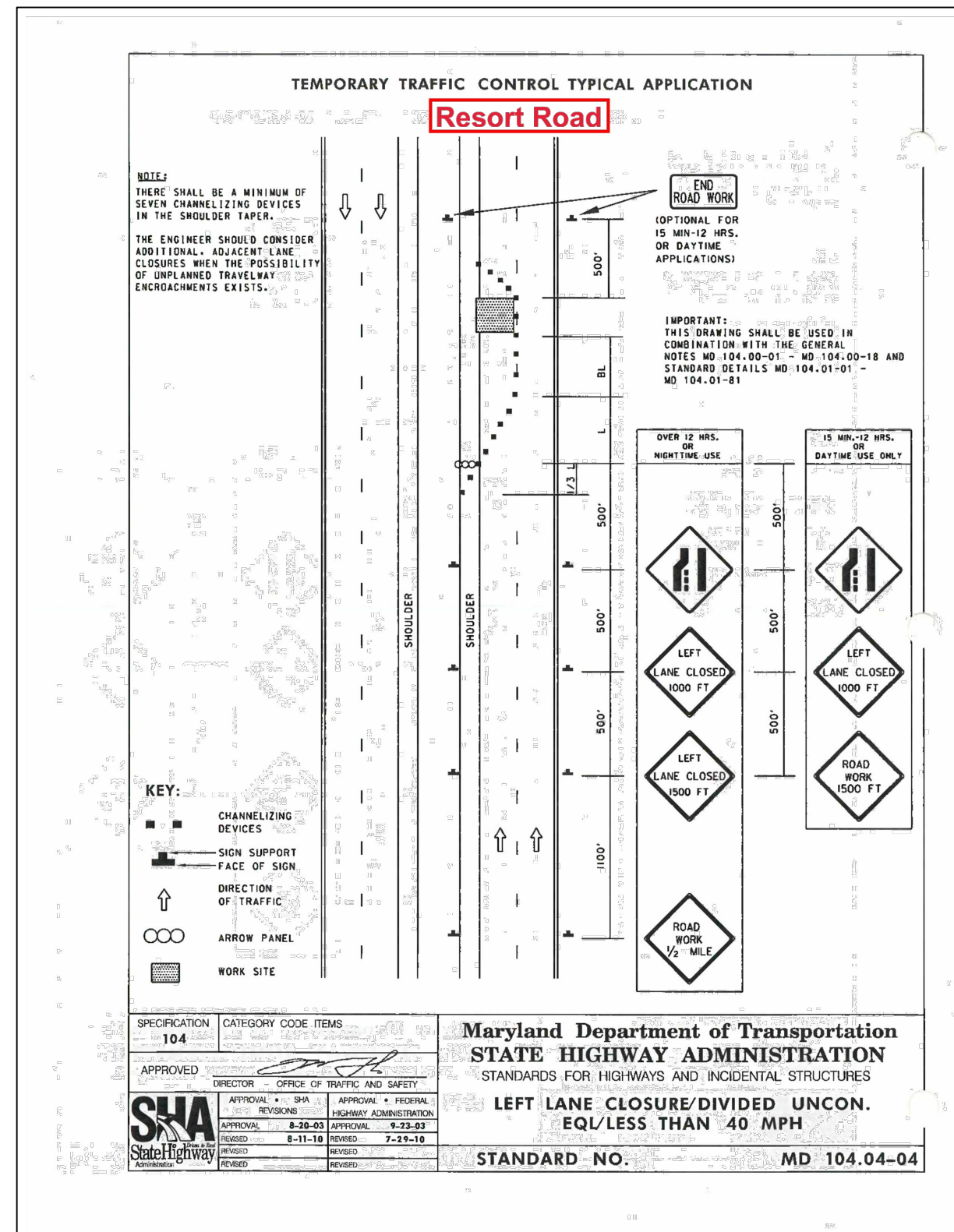
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Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

**RETAINING WALL CONSTRUCTION DETAILS  
VILLAGES AT TOWN SQUARE  
HOWARD COUNTY, MARYLAND**

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



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Designed by: Philip M. Thompson DATE: 5/2/2023  
EC210600565422

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
Designed by: DATE: 5/3/2023

CHIEF, DIVISION OF LAND DEVELOPMENT  
Designed by: DATE: 5/4/2023

DIRECTOR DATE:

NO.	DATE	REVISION

**BENCHMARK**  
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.BE-CVLENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 2020-10742-EXP 6-30-2023.

*C. M. Thompson* 03.27.2023

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

**RESIDENTIAL APARTMENT BUILDINGS**  
**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

**TRAFFIC CONTROL DETAILS**

BUILDER: N/R  
9720 PATUXENT WOODS DRIVE  
COLUMBIA, MARYLAND 21046  
703-956-4080

DATE: MARCH 16, 2023 BEI PROJECT NO. 3124  
SCALE: AS SHOWN SHEET 20 OF 20