

GENERAL NOTES

- 1.) THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCES OR DESIGN MANUAL WAIVERS HAVE BEEN APPROVED.
- 2.) THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE ZONING REGULATIONS EFFECTIVE OCTOBER 6, 2013, AND THE TURF VALLEY MULTI-USE SUBDISTRICT FOP 3RD AMENDMENT PER SECTION 12614(H) OF THE ZONING REGULATIONS, PLANNING BOARD APPROVAL OF THIS SITE DEVELOPMENT PLAN IS REQUIRED.
- 3.) THE SUBJECT PROPERTY IS ZONED PGCC-2 PER THE 10-6-2013 COMPREHENSIVE ZONING PLAN.
- 4.) TRACT BOUNDARY IS BASED ON RECORD PLAT NO. 23185-23188.
- 5.) THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 16E1 AND 0012 WERE USED FOR THIS PROJECT.
- 6.) THE EXISTING TOPOGRAPHY IS BASED ON AERIAL TOPOGRAPHIC SURVEY PERFORMED BY WINGS AERIAL MAPPING CO., FLOWN ON OR ABOUT JANUARY, 2006.
- 7.) THE EXISTING UTILITIES SHOWN ARE BASED ON AERIAL SURVEY, CONTRACT DRAWINGS, AND FIELD SURVEY.
- 8.) THIS PROJECT IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- 9.) WATER IS PUBLIC. THE CONTRACT NUMBER IS 44-5152-D.
- 10.) SEWER IS PUBLIC. THE CONTRACT NUMBER IS SDP-21-001.
- 11.) PER THE TURF VALLEY FINAL DEVELOPMENT PLAN, MULTI-USE SUBDISTRICT, THIRD AMENDMENT, THIS SITE DEVELOPMENT PLAN IS SUBJECT TO PLANNING BOARD APPROVAL. THE PLANNING BOARD APPROVED THIS SITE DEVELOPMENT PLAN ON JULY 22, 2021.
- 12.) THERE ARE NO WETLANDS, STREAMS, THEIR REQUIRED BUFFERS, OR 100-YEAR FLOODPLAIN LOCATED ON THIS SITE. NO GRADING, REMOVAL OF VEGETATION OR TREES, PAVING, AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF THE 25% OR GREATER STEEP SLOPES THAT ARE AT LEAST 20,000 S.F. OF CONTIGUOUS AREA UNLESS AN ALTERNATIVE COMPLIANCE IS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
- 13.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES OR HISTORIC STRUCTURES LOCATED ON THESE LOTS.
- 14.) A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT SINCE THE SITE LIMITS ARE NOT LOCATED WITHIN THE CRITERIA LISTED IN SECTION 5.2.F.2 OF DESIGN MANUAL VOLUME II.
- 15.) THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP ON JANUARY 7, 2005 AND UPDATED ON AUGUST 11, 2006 AND WAS APPROVED UNDER THE 4TH AMENDED COMPREHENSIVE SKETCH PLAN, S-86-013. A LETTER DATED AUGUST 20, 2020 PROVIDED BY THE TRAFFIC GROUP, CONFIRMS THAT THIS PROJECT IS STILL IN CONFORMANCE WITH THAT REPORT. AN ADDITIONAL LETTER DATED DECEMBER 30, 2020 PROVIDED BY THE TRAFFIC GROUP CONFIRMS THAT THE IMPROVEMENTS TO MARRIOTTVILLE ROAD ARE NOT NEEDED AS A RESULT OF THIS DEVELOPMENT. THE SUPPLEMENTAL LETTER WAS APPROVED WITH THE APPROVAL OF THIS SITE DEVELOPMENT PLAN.
- 16.) THE GEOTECHNICAL REPORTS WERE PREPARED BY HILLIS-CARNESE ENGINEERING ASSOCIATES ON MARCH 13, 2014 AND APRIL 9, 2020. THE BORING LOGS ARE INCLUDED WITHIN THIS SDP PLAN SET.
- 17.) THE STORMWATER MANAGEMENT REPORT WAS PREPARED BY BENCHMARK ENGINEERING, INC. THE STORMWATER MANAGEMENT FOR THIS PROJECT COMPLIES WITH "MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT ACT OF 2007" AND THE "HOWARD COUNTY DESIGN MANUAL VOLUME I, CHAPTER 5". STORMWATER MANAGEMENT IS PROVIDED BY (M-6) MICRO BIO-RETENTION, (A-2) PERMEABLE PAVEMENT, AND (N-2) DISCONNECTION OF NON-ROOFTOP RUNOFF. ALL PRACTICES ARE PRIVATELY OWNED AND MAINTAINED.
- 18.) THIS PLAN IS EXEMPT FROM THE HOWARD COUNTY FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202(b)(1)(v) OF THE COUNTY CODE AS IT IS A PLANNED UNIT DEVELOPMENT WHICH HAD PRELIMINARY DEVELOPMENT PLAN APPROVAL AND 50% OR MORE OF THE LAND WAS RECORDED AND SUBSTANTIALLY DEVELOPED PRIOR TO DECEMBER 31, 1992.
- 19.) LANDSCAPING IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL AS SHOWN ON THE CERTIFIED LANDSCAPE PLAN WITHIN THIS SITE DEVELOPMENT PLAN SET. FINANCIAL SURETY IN THE AMOUNT OF \$42,800.00 FOR THE REQUIRED 130 SHADE TREES, 20 EVERGREEN TREES, AND 80 SHRUBS SHALL BE PAID AS PART OF THE GRADING PERMIT.
- 20.) ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDER'S EXPENSE.
- 21.) SNOW REMOVAL, TRASH COLLECTION, AND MAINTENANCE OF PARKING BAYS AND DRIVE AISLES SHALL BE PRIVATE.
- 22.) A KNOX BOX SHALL BE PLACED ON THE FRONT OF ALL APARTMENT BUILDINGS NO MORE THAN 6' TO THE RIGHT OF THE MAIN ENTRANCE AT A HEIGHT OF 4'-5". IT SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE SYSTEM). MORE THAN ONE KNOX BOX PER BUILDING MAY BE REQUIRED. THE CONSTRUCTION SUPERINTENDENT SHOULD COORDINATE WITH THE OFFICE OF THE FIRE MARSHAL TO DETERMINE THE NUMBER OF KNOX BOXES REQUIRED AND THE PLACEMENT LOCATIONS.
- 23.) IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, WINDOW SILLIES, 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, OR A 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 REQUIRED DISTANCE BETWEEN BUILDINGS.
- 24.) 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.
- 25.) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 26.) THIS PROJECT IS EXEMPT FROM MIHU REQUIREMENTS SINCE IT IS ZONED PGCC-2.
- 27.) TURF VALLEY VILLAS PARCEL B (F-97-069) AND TURF VALLEY VILLAS PARCEL E (F-97-158) CONTRIBUTES 231 UNITS/LOTS WHICH MET THE SKETCH PLAN MILESTONE DATES OF SECTION II RESIDENTIAL PHASE IIIA, SECTION II RESIDENTIAL ID AND SECTION III RESIDENTIAL ID AND SECTION III RESIDENTIAL II AS SHOWN ON THE PHASING PLAN DATED 8/21/12. THIS PLAN, SDP-21-001, PROPOSES 192 UNITS FOR A REMAINDER OF 39 UNITS. 28 OF THE REMAINING 39 UNITS ARE BEING TRANSFERRED TO THE VILLAGES AT TOWN SQUARE, PHASE 3. THE FINAL 11 UNITS ARE BEING TRANSFERRED TO VILLAGES AT TURF VALLEY, PHASE 2 SECTION 1, LOT 203 (PLAT #22876-87).
- 28.) THIS PLAN COMPLIES WITH SECTION 134.0: - OUTDOOR LIGHTING OF THE HOWARD COUNTY ZONING REGULATIONS.
- 29.) THE FOLLOWING PROVISIONS SHALL APPLY TO A FIRE DEPARTMENT CONNECTION FOR FIRE PROTECTION SYSTEMS: (I) A FIRE DEPARTMENT CONNECTION FOR FIRE PROTECTION SYSTEMS SHALL BE LOCATED: (A) ON THE SIDE OF THE STRUCTURE DISPLAYING THE ADDRESS CLEARLY VISIBLE TO THE RESPONDING UNITS (UNLESS AN ALTERNATE LOCATION IS APPROVED BY THE AFD); (B) WITHIN 100 FT. OF A FIRE HYDRANT; (II) THE APPROPRIATE SIGN SHALL BE MOUNTED ON THE BUILDING'S WALL BETWEEN 8 AND 12 FEET ABOVE THE FIRE DEPARTMENT CONNECTION; (III) A FREE-STANDING FIRE DEPARTMENT CONNECTION SHALL HAVE THE SIGN MOUNTED ON A POLE DIRECTLY BEHIND THE CONNECTION APPROXIMATELY 6 FEET HIGH; (IV) SIGNS SHALL HAVE A WHITE REFLECTIVE BACKGROUND WITH A RED REFLECTIVE BORDER, RED REFLECTIVE LETTERS AND A RED REFLECTIVE ARROW. THE BORDER SHALL HAVE A 3/8" STROKE. THE LETTERS SHALL BE 6" HIGH WITH A 1" STROKE. THE ARROW SHALL HAVE A STROKE NOTE LESS THAN 2". THE OVERALL SIGN MEASUREMENTS SHALL BE 12" BY 18"; (V) ANY OBSTRUCTION OR CONDITION THAT DETERS OR HINDERS ACCESS TO A FDC IS PROHIBITED. A MINIMUM CLEAR SPACE OF 15 FEET (7.5 FEET ON ALL SIDES) SHALL BE MAINTAINED.
- 30.) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- 31.) 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 PLACEMENT OF ANY ASPHALT.
- 32.) STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (DECEMBER, 2017) 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.
- 33.) 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 EACH POST.
- 34.) ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

BOUNDARY COORDINATES		
POINT #	NORTHING	EASTING
101	594744.2399	1343891.9957
102	594771.3563	1343914.6194
103	594742.0198	1344082.2284
104	594694.6894	1344193.5098
105	594320.2619	1344382.4510
106	594136.4664	1344338.6423
107	593803.6342	1344187.1561
108	593569.3411	1344104.9466
109	593595.8076	1344041.5404
110	593409.6921	1343952.8547
111	593460.5116	1343841.1986
112	593790.1264	1343628.4902
113	593823.9868	1343612.8031
115	593927.4586	1343644.1747
116	594054.3446	1343687.4109
117	594498.2184	1343855.7233

**BULK REGULATIONS:**  
(per 3rd AMENDMENT TO THE TURF VALLEY, MULTI-USE SUBDISTRICT FOP RECORDED AS PLAT NO. 21029-21031)

PERMITTED USES : ALL USES AS PER ABOVE MENTIONED FDP  
PROPOSED USE : SINGLE FAMILY ATTACHED (SFA)  
SINGLE FAMILY DETACHED (SFD)  
APARTMENTS (APT)

PERMITTED HEIGHT : APARTMENTS - 80 FEET  
OTHER - 15 FEET  
ACCESSORY STRUCTURES - 15 FEET

MAXIMUM UNITS PER STRUCTURE:  
APTS LESS THAN 40' IN HEIGHT: 24 UNITS  
APT 40' OR OVER IN HEIGHT: 120 UNITS

MAXIMUM BUILDING LENGTH (RESIDENTIAL): 120 FEET  
HOWEVER, THE PLANNING BOARD MAY APPROVE A GREATER LENGTH, UP TO A MAXIMUM OF 300 FEET, BASED UPON DETERMINATION THAT THE DESIGN OF THE BUILDING WILL MITIGATE THE VISUAL IMPACT OF THE INCREASED LENGTH.

MINIMUM SETBACK REQUIREMENTS: EXCEPT THAT STRUCTURES MAY BE CONSTRUCTED AT ANY LOCATION WITHIN SUCH SETBACK IF SUCH CONSTRUCTION IS IN ACCORDANCE WITH A SITE DEVELOPMENT PLAN.

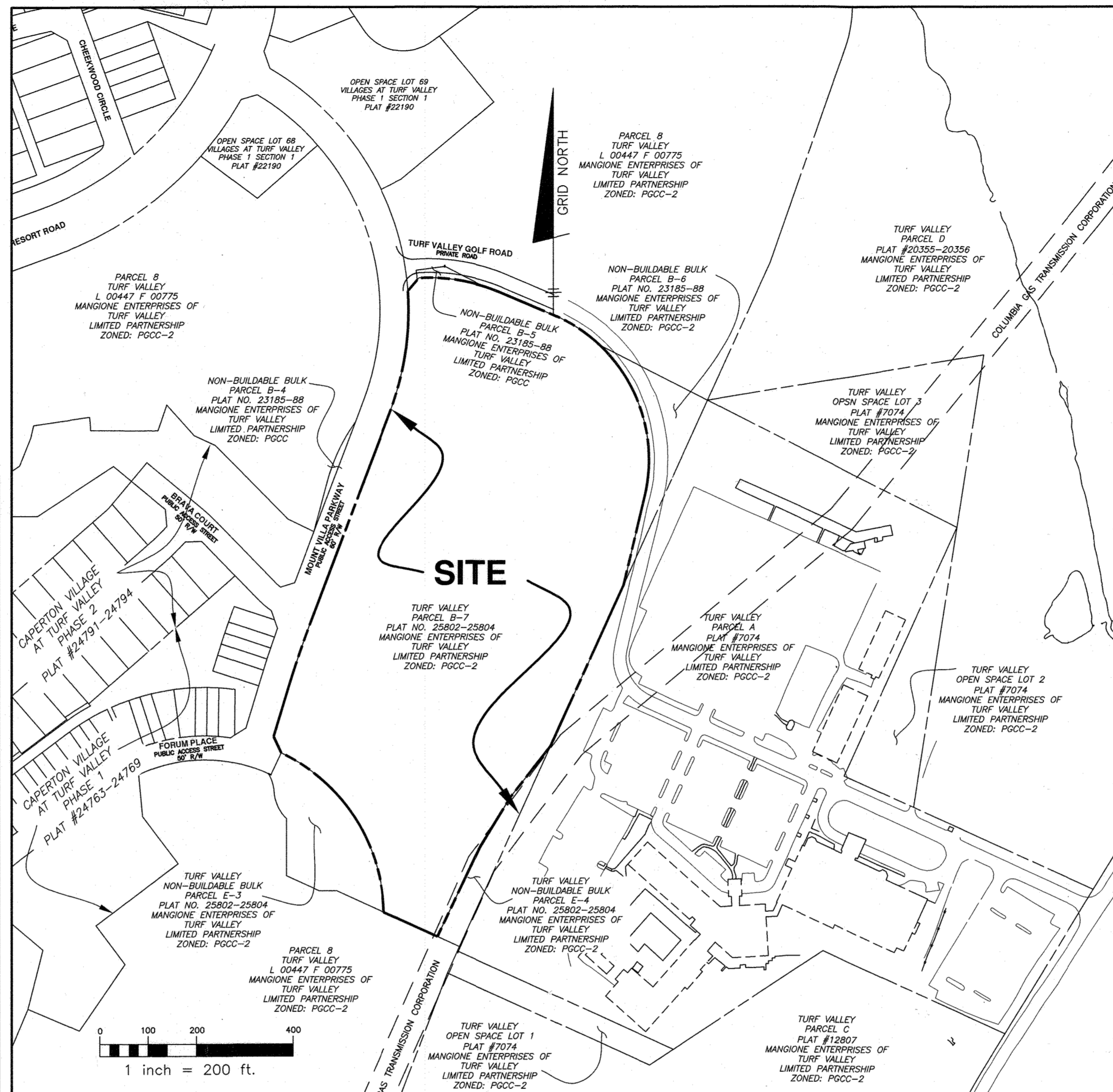
FROM ARTERIAL ROADS:  
RESIDENTIAL STRUCTURES 50 FEET  
ACCESSORY USES 30 FEET  
PARKING 25 FEET

FROM COLLECTOR ROADS AND LOCAL STREETS:  
RESIDENTIAL STRUCTURES 30 FEET FROM A 60' ROW  
RESIDENTIAL STRUCTURES 20 FEET FROM A 50' ROW  
ACCESSORY USES 10 FEET

FROM NON-PGCC ADJACENT PROPERTIES:  
RESIDENTIAL DISTRICTS 75 FEET  
ALL OTHER DISTRICTS 30 FEET

FROM LOT LINES WITH PGCC MULTI-USE SUBDISTRICT:  
RESIDENTIAL REAR 20 FEET

MINIMUM DISTANCE BETWEEN ATTACHED DWELLING UNITS AND APTS:  
FACE TO FACE 30 FEET  
FACE TO SIDE/REAR TO SIDE 30 FEET  
SIDE TO SIDE 15 FEET  
REAR TO REAR 60 FEET  
REAR TO FACE 100 FEET



CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	DELTA	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	1970.00'	134.08'	3°53'58"	67.06'	S18°48'59"W	134.05'
C2	580.00'	250.63'	24°45'30"	127.30'	N08°23'13"E	248.68'
C3	375.00'	171.65'	26°13'35"	87.36'	N80°04'20"W	170.16'
C4	325.00'	455.86'	80°21'56"	274.48'	N26°46'34"W	419.40'
C5	372.00'	413.21'	63°38'33"	230.84'	N32°50'07"W	392.29'

SHEET INDEX	
SHEET	TITLE
1	SITE DEVELOPMENT PLAN COVER SHEET
2	EXISTING CONDITIONS PLAN
3-4	SUBDIVISION LAYOUT PLAN
5-6	GRADING PLAN
7	GRADING PLAN (ADA COMPLIANCE PLAN)
8-13	STORMWATER MANAGEMENT DETAILS
14	STORMWATER MANAGEMENT DETAILS PERVIOUS PAVEMENT
15	SWM DRAINAGE AREA MAP
16-18	STORM DRAIN PROFILES AND DETAILS
19	STORM DRAIN DRAINAGE AREA MAP
20	WATER AND SEWER PROFILES
21-22	LANDSCAPE PLAN
23-26	SEDIMENT AND EROSION CONTROL PLANS
27	DETAIL SHEET
28-29	SOIL BORING LOGS
30	MOUNT VILLA PARKWAY - STRIPING, TRAFFIC CONTROL, AND STREET LIGHTING PLAN
31	ARCHITECTURE FOOTPRINT AND ELEVATION
32	LIGHTING PHOTOMETRIC PLAN

ADDRESS CHART	
BUILDING	STREET ADDRESS
1	2961 MOUNT VILLA PARKWAY
2	2991 MOUNT VILLA PARKWAY
3	2981 MOUNT VILLA PARKWAY
4	2971 MOUNT VILLA PARKWAY
5	2760 TURF VALLEY GOLF ROAD
SALES/FITNESS	2951 MOUNT VILLA PARKWAY

PARKING TABULATION CHART					
Building	unit	Zoning Section	Parking Requirement	# of spaces req.	ADA spaces req.
1	40	133.0.D.2.b	2.3 spaces per unit	92	4 c
2	40	133.0.D.2.b	2.3 spaces per unit	92	4 c
3	40	133.0.D.2.b	2.3 spaces per unit	92	4 c
4	40	133.0.D.2.b	2.3 spaces per unit	92	4 c
5	32	133.0.D.2.b	2.3 spaces per unit	74	3 c
SALES/FITNESS	3,934 sf	133.0.D.6.h	10.0 spaces per 1,000sf	40	2 c
<b>Total Required:</b>				<b>482</b>	<b>21</b>
<b>Total Provided:</b>				<b>484</b>	<b>21</b>

STORMWATER MANAGEMENT SUMMARY TABLE													
Practice	DA	Imp Area (sf)	Imp %	Rv	Pe Required	Total ESDv Required	75% ESDv ponding Required	25% ESDv (cf) below Provided	Total ESDv Provided	Pe Provided	REv (cf) Required	REv (cf) Provided	Ownership
(M-6) Micro Bio-Retention #1	19,466	18,648	96%	0.91	1.0	1480	1110	1373	370	370	1743	1.2	Private
(M-6) Micro Bio-Retention #2	20,152	17,707	88%	0.84	1.0	1412	1059	1335	353	353	1687	1.2	Private
(M-6) Micro Bio-Retention #3	12,330	7,479	61%	0.60	1.0	612	459	467	153	153	620	1.0	Private
(M-6) Micro Bio-Retention #4	8,520	7,156	84%	0.81	1.8	1030	772	866	257	257	1123	2.0	Private
(M-6) Micro Bio-Retention #5	19,219	15,618	81%	0.78	1.8	2253	1689	1732	563	563	2295	1.8	Private
(M-6) Micro Bio-Retention #6	15,563	15,563	100%	0.95	1.8	2218	1663	1681	554	554	2235	1.8	Private
(M-6) Micro Bio-Retention #7	13,481	10,395	77%	0.74	1.8	1504	1128	1301	376	376	1677	2.0	Private
(M-6) Micro Bio-Retention #8	15,563	15,563	100%	0.95	1.8	2218	1663	1681	554	554	2235	1.8	Private
(M-6) Micro Bio-Retention #9	10,882	8,893	82%	0.79	1.8	1282	962	1011	321	321	1331	1.9	Private
(M-6) Micro Bio-Retention #10	17,110	15,661	92%	0.87	1.8	2243	1682	1677	561	561	2238	1.8	Private
(M-6) Micro Bio-Retention #11	15,164	9,085	60%	0.59	1.8	1340	1005	1018	335	335	1353	1.8	Private
(M-6) Micro Bio-Retention #12	18,217	13,472	74%	0.72	1.8	1955	1467	1589	489	489	2078	1.9	Private
(M-6) Micro Bio-Retention #13	22,944	17,924	80%	0.77	1.8	2588	1941	1908	647	647	2585	1.8	Private
(A-2) Permeable Pavement #1	7,798	7,100	91%	0.87	1.8	1017					1137	2.0	Private
(A-2) Permeable Pavement #2	8,486	7,723	91%	0.87	1.8	1106					1215	2.0	Private
(A-2) Permeable Pavement #3	8,486	7,723	91%	0.87	1.8	1106					1215	2.0	Private
(A-2) Permeable Pavement #4	8,738	8,300	95%	0.90	1.8	1186					1458	2.2	Private
(A-2) Permeable Pavement #5	6,104	6,104	100%	0.95	1.8	870					1166	2.4	Private
(A-2) Permeable Pavement #6	6,132	6,132	100%	0.95	1.8	874					972	2.0	Private
(A-2) Permeable Pavement #7	6,132	6,132	100%	0.95	1.8	874					972	2.0	Private
(A-2) Permeable Pavement #8	5,400	5,400	100%	0.95	1.8	770					972	2.3	Private
(N-2) DNRR #1	5,475	2,738		1.0	228						228		Private
<b>Totals</b>						<b>30166</b>			<b>32586</b>		<b>5236</b>		<b>5534</b>

Note: MB #1, and #2 discharge to existing P-3 pond constructed under SDP-13-038. The drainage area to this pond included the drainage area to these MB's. These practices only need to treat a Pe of 1.0 since CPV is provided within the P-3 pond.

STORMWATER MANAGEMENT INFORMATION CHART						
Lot/Parcel Number	Facility Name & Number	Practice Type (Quantity)	Public	Private	HOA Maintains	Misc.
B-7	(M-6) Micro Bio-Retention	13		Y	Y	
B-7	(A-2) Permeable Pavement	8		Y	Y	
B-7	(N-2) Disconnection of Non-Rooftop Runoff	1		Y	Y	

PERMIT INFORMATION CHART					
SUBDIVISION NAME:	SECTION/AREA:	LOT/PARCEL #	TAX MAP NO.	ELECTION DISTRICT	CENSUS TRACT
VILLA APARTMENTS AT TURF VALLEY	N/A	PARCEL B-7			
PLAT No.	GRID No.	ZONE	TAX MAP NO.	ELECTION DISTRICT	CENSUS TRACT
25802-25804	19	PGCC-2	16	2	602201

- a. Based on 891 sf of sales area + 1,715 sf of fitness area + 1,328 sf of community area  
b. Parking provided via:  
Surface parking spaces 341  
Bldg 1 garage 30  
Bldg 2 garage 30  
Bldg 3 garage 30  
Bldg 4 garage 30  
Bldg 5 garage 23
- c. ADA spaces provided via surface parking lot in front of each building and in garage level parking.  
ADA spaces required based on Table 208.2 Parking Spaces of the "2010 ADA Standards for Accessible Design"  
Per the Maryland Accessibility Code, Section 07.B.3.a, 1 in every 4 spaces, but not less than 1, shall be van accessible

NO.	DATE	REVISION
1	1.17.2023	UPDATE PARKING CALCS AND SQUARE FOOTAGES BASED ON NEW SALES/FITNESS BLDG FOOTPRINT

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (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. 13-017114-0001, exp. 6-30-2023.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
DATE: 2/2/23  
DATE: 2/14/23

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE: JULY 22, 2021

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

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

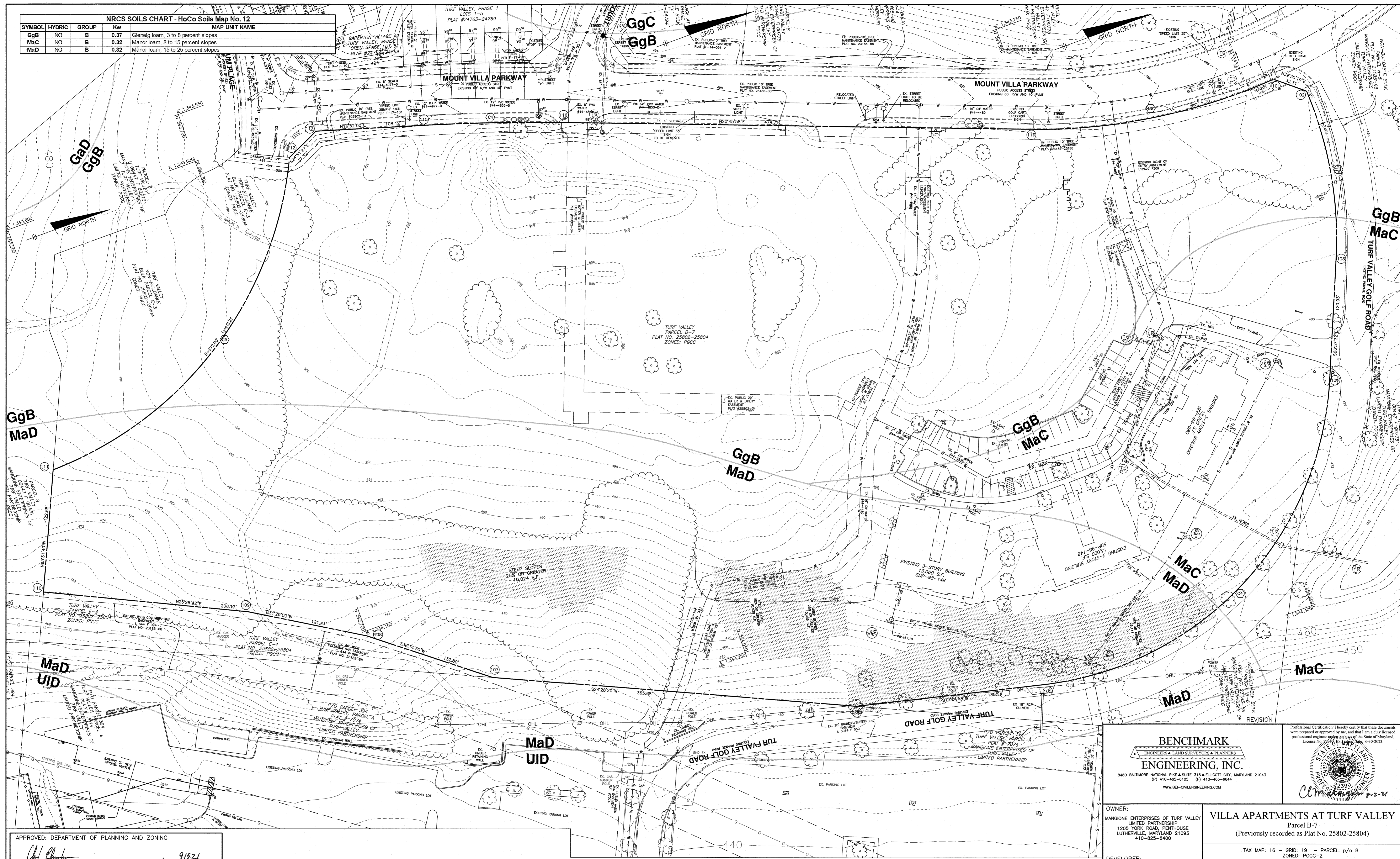
VILLA APARTMENTS AT TURF VALLEY Parcel B-7 (Previously recorded as Plat No. 25802-25804)

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

SITE DEVELOPMENT PLAN COVER SHEET  
DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
SCALE: AS SHOWN SHEET 1 OF 32

DESIGN: DBT DRAFT: DBT

NRCS SOILS CHART - HoCo Soils Map No. 12			
SYMBOL	HYDRIC	GROUP	MAP UNIT NAME
GgB	NO	B	0.37 Glenelg loam, 3 to 8 percent slopes
MaC	NO	B	0.32 Manor loam, 8 to 15 percent slopes
MaD	NO	B	0.32 Manor loam, 15 to 25 percent slopes

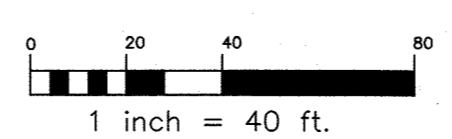


APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 9/15/21  
 DATE

Chief, Division of Land Development  
 9/20/21  
 DATE

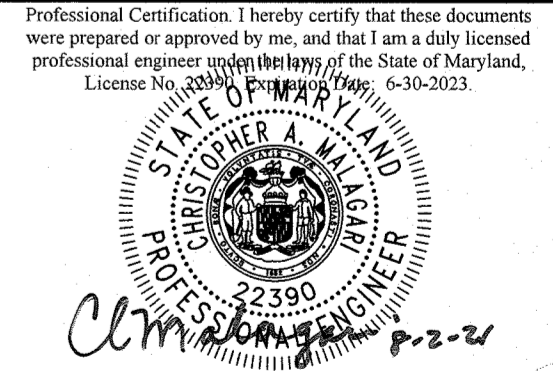
Director  
 9-21-21  
 DATE

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021



NO.	DATE

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-8105 (F) 410-465-8644  
 WWW.BE-CHALLENGEENGINEERING.COM



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

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

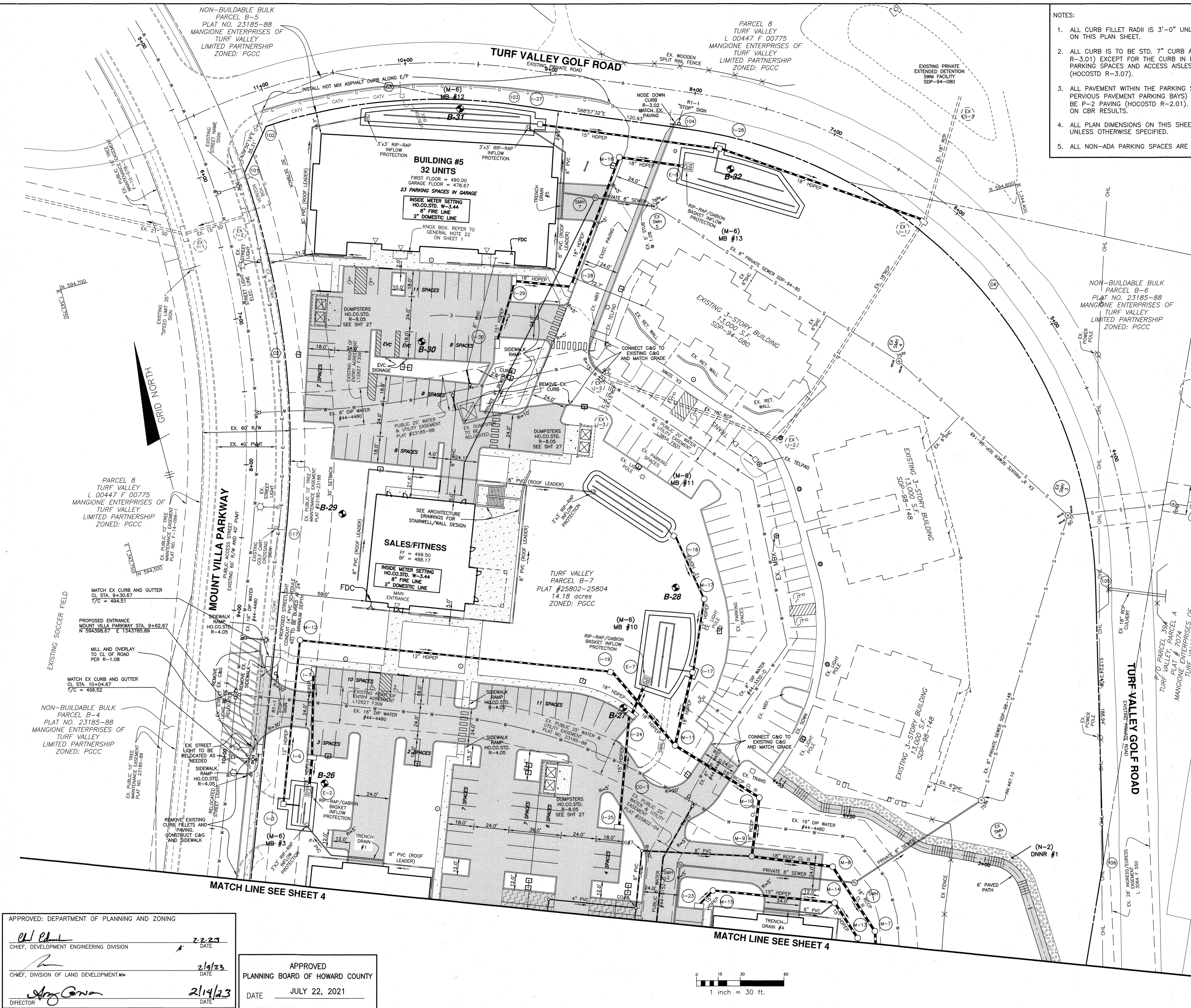
DEVELOPER:  
 MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

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

**EXISTING CONDITIONS PLAN**

DESIGN: DBT  
 DRAFT: DBT

DATE: AUGUST 2, 2021  
 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN  
 SHEET 2 OF 32



- NOTES:
1. ALL CURB FILLET RADII IS 3'-0" UNLESS SPECIFIED OTHERWISE ON THIS PLAN SHEET.
  2. ALL CURB IS TO BE STD. 7" CURB AND GUTTER (HOCOSTD R-3.01) EXCEPT FOR THE CURB IN FRONT OF THE ADA PARKING SPACES AND ACCESS AISLES WHICH IS A FLUSH CURB (HOCOSTD R-3.07).
  3. ALL PAVEMENT WITHIN THE PARKING SPACES (EXCEPT FOR PERVIOUS PAVEMENT PARKING BAYS) AND DRIVE AISLES IS TO BE P-2 PAVING (HOCOSTD R-2.01). THICKNESS TO BE BASED ON CBR RESULTS.
  4. ALL PLAN DIMENSIONS ON THIS SHEET ARE TO FACE OF CURB UNLESS OTHERWISE SPECIFIED.
  5. ALL NON-ADA PARKING SPACES ARE TO BE 9' x 18'.

**LEGEND OF SYMBOLS**

- EXISTING CONTOURS AERIAL JAN. 2006
- EXISTING SLOPES 25% OR GREATER
- OHL EX. OVERHEAD POWER LINES
- G G EX. U/G GAS LINE
- E E EX. U/G ELECTRIC LINE
- CATV EX. U/G CABLE TV LINE
- W W EXISTING WATER
- S S EXISTING SEWER
- NRCS SOILS DELINEATION LINE
- NRCS SOILS TYPE
- MaC EXISTING TREELINE
- PROJECT BOUNDARY
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- PROPOSED ROOF LEADER MANIFOLD PIPE
- PERVIOUS PAVEMENT
- PROPOSED DISCONNECTION OF NON-ROOFTOP RUNOFF
- PROPOSED P-2 PAVEMENT
- PROPOSED SIDEWALK/CONCRETE
- DRAINAGE AREA LINE
- AREA THAT DRAINS TO EXISTING P-3 POND CONSTRUCTED UNDER SDP-13-083, M-6 PRACTICES WITHIN THIS AREA ARE DESIGNED TO ONLY TREAT A P<sub>e</sub> OF 1.0
- AREA OF SITE NOT INCLUDED IN SITE P<sub>e</sub> CALCULATION (EXISTING DEVELOPMENT)
- MB #5 SWM DRAINAGE AREA DESIGNATION
- B-XX SOIL TEST BORING LOCATION
- EVC ELECTRIC VEHICLE CHARGING PARKING SPACES
- PROPOSED SITE LIGHTING

APPROVED: DEPARTMENT OF PLANNING AND ZONING

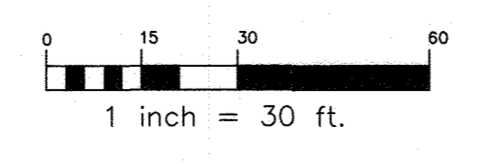
*[Signature]* 2.2.23  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 2/9/23  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 2/14/23  
DIRECTOR DATE

APPROVED  
PLANNING BOARD OF HOWARD COUNTY

DATE JULY 22, 2021



1	1.17.2023	REVISE SALES/FITNESS BUILDING FOOTPRINT	REVISION
NO.	DATE		

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
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 registered in the State of Maryland, License No. 22390, EXPIRES 6/30/2023.

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

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

**VILLA APARTMENTS AT TURF VALLEY**  
Parcel B-7  
(Previously recorded as Plat No. 25802-25804)

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

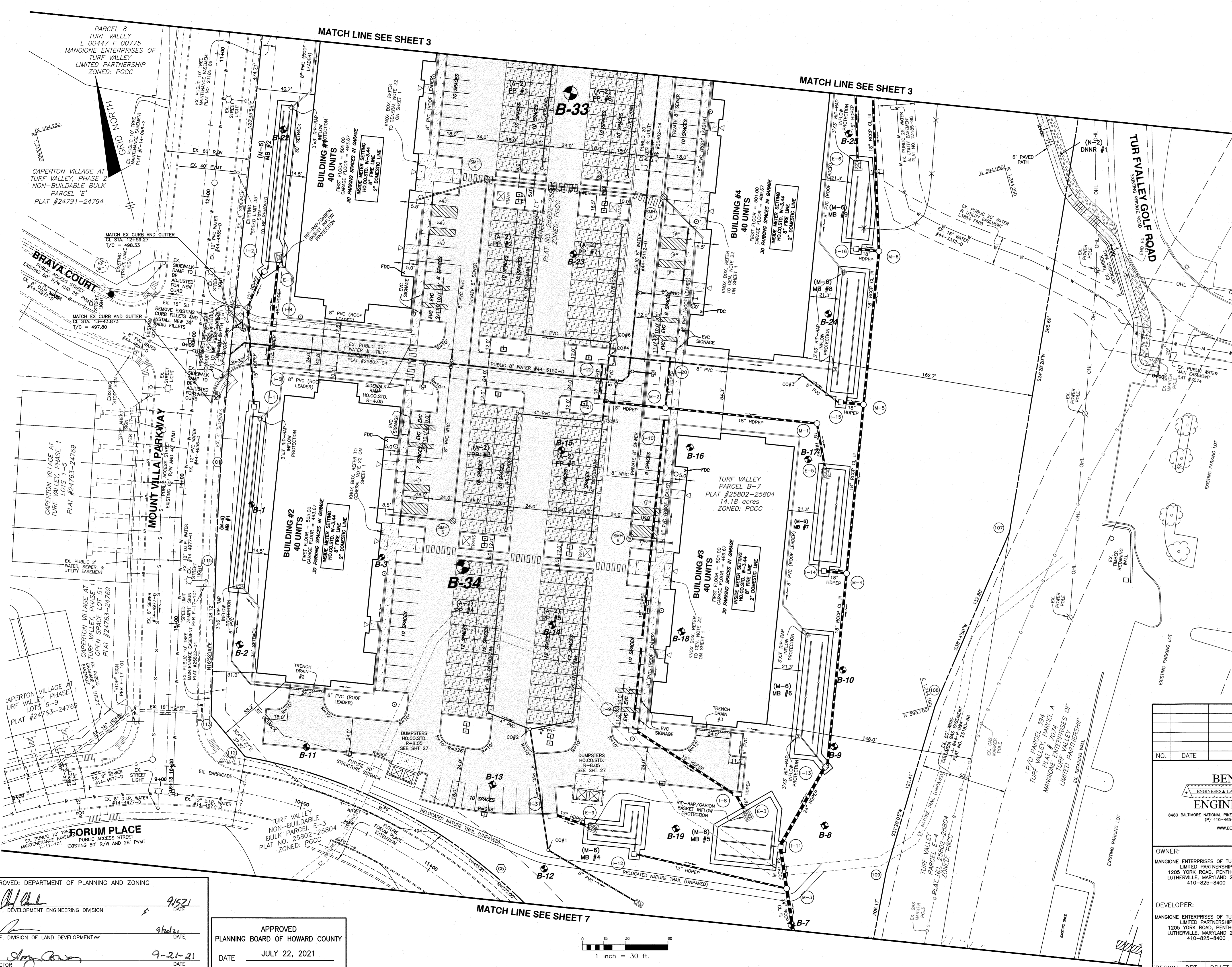
**SITE DEVELOPMENT LAYOUT PLAN**

DATE: AUGUST 2, 2021  
SCALE: AS SHOWN

BEI PROJECT NO. 2957  
SHEET 3 OF 32

DESIGN: DBT DRAFT: DBT

- NOTES:
1. ALL CURB FILLET RADII IS 3'-0" UNLESS SPECIFIED OTHERWISE ON THIS PLAN SHEET.
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  4. ALL PLAN DIMENSIONS ON THIS SHEET ARE TO FACE OF CURB UNLESS OTHERWISE SPECIFIED.
  5. ALL NON-ADA PARKING SPACES ARE TO BE 9' x 18'.



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9/22/21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 9/22/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 9-21-21  
 DIRECTOR

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021

NO.	DATE	REVISION

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the State of Maryland, License No. 20319, Exp. 12/31/2023.

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE A SUITE 315 • ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-8109 (F) 410-465-8844  
 WWW.BE-CVLENGINEERING.COM

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

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

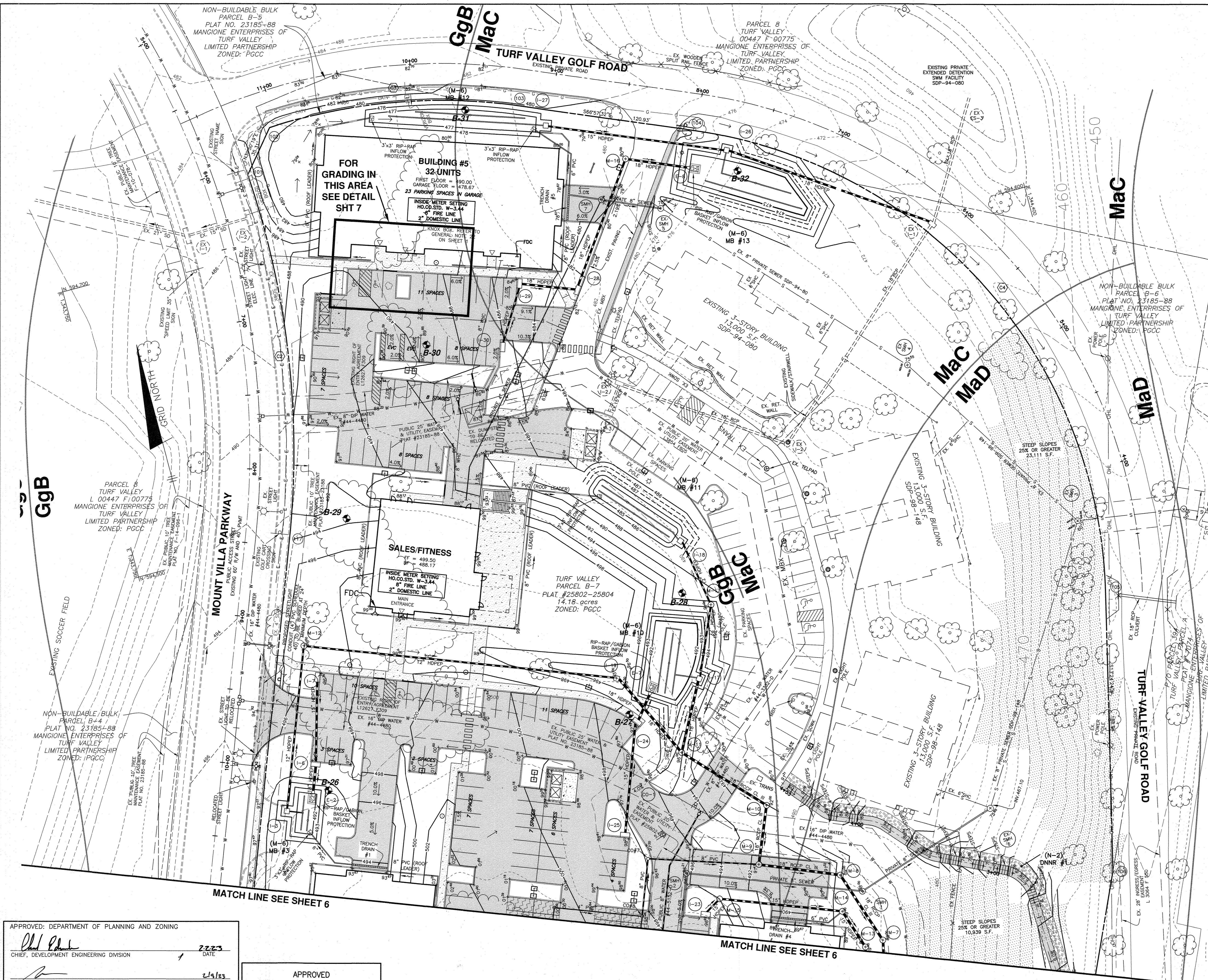
**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

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

**SITE DEVELOPMENT LAYOUT PLAN**

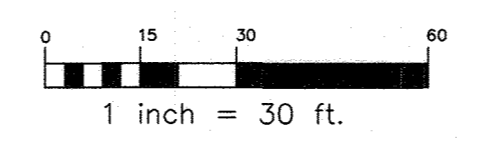
DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN SHEET 4 OF 32

NOTES:  
 1. ALL SPOT GRADES WITHIN THE PARKING AREA ARE TOP OF PAVEMENT OR FLOWLINE.

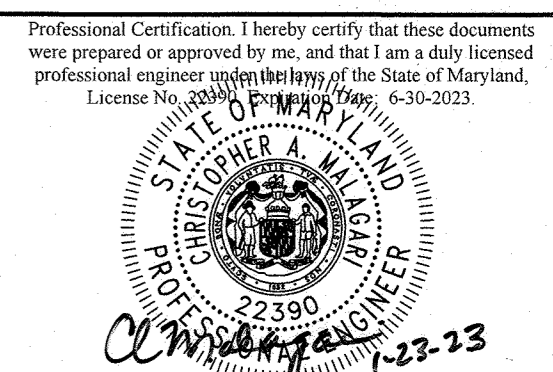


APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 2/22/21  
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 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 2/14/21  
 DIRECTOR

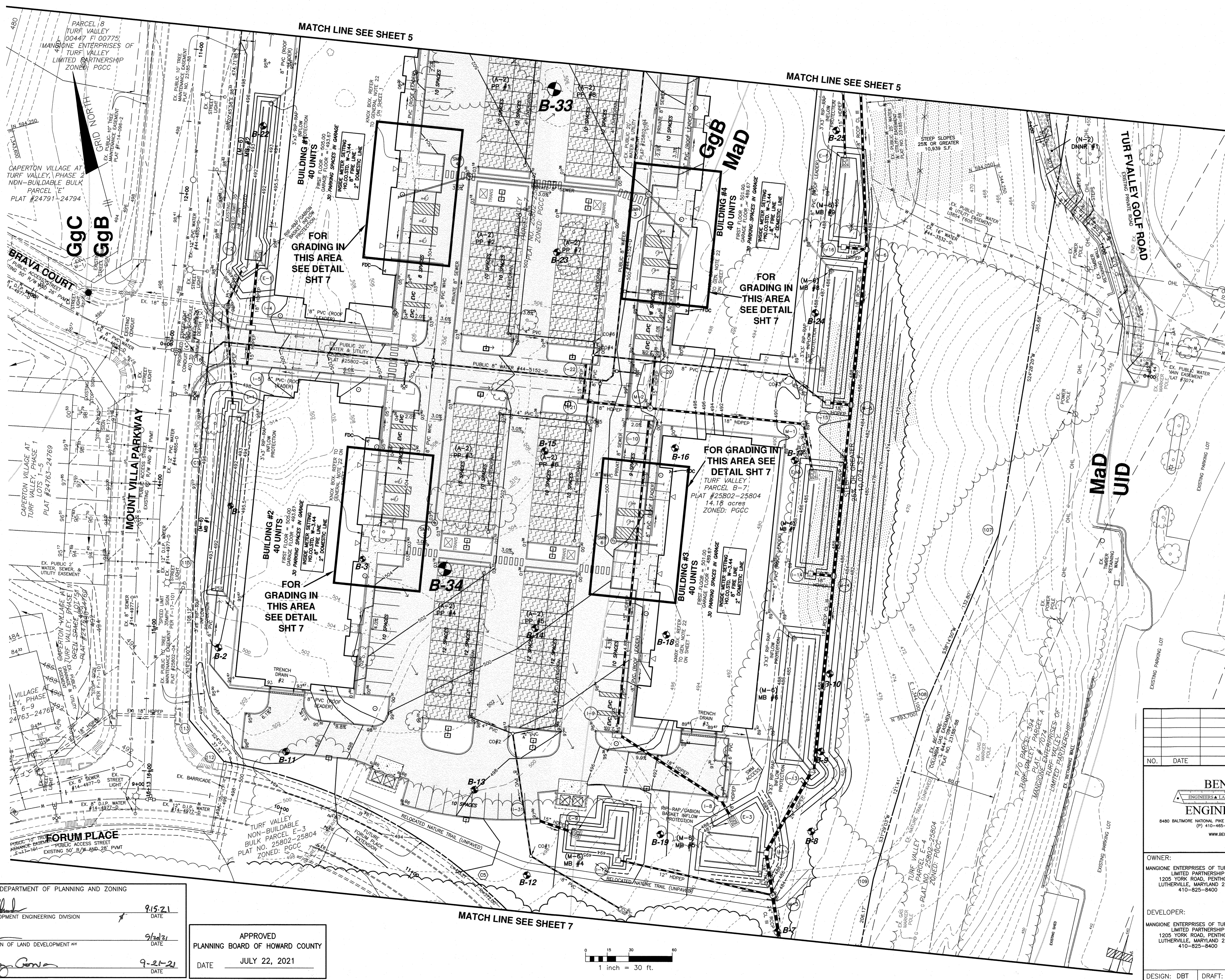
APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021



1		1.17.2023	REVISE SALES/FITNESS BLDG FOOTPRINT
NO.	DATE		REVISION
<b>BENCHMARK</b> ENGINEERS • LAND SURVEYORS • PLANNERS <b>ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6844 WWW.BE-CIVILENGINEERING.COM			
OWNER:		<b>VILLA APARTMENTS AT TURF VALLEY</b> Parcel B-7 (Previously recorded as Plat No. 25802-25804)	
DEVELOPER:		TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND	
GRADING PLAN			
DESIGN:	DBT	DRAFT:	DBT
DATE:	AUGUST 2, 2021	BEI PROJECT NO.:	2957
SCALE:	AS SHOWN	SHEET:	5 OF 32



NOTES:  
 1. ALL SPOT GRADES WITHIN THE PARKING AREA ARE TOP OF PAVEMENT OR FLOWLINE.



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9/15/21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 9/22/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 9-21-21  
 DIRECTOR DATE

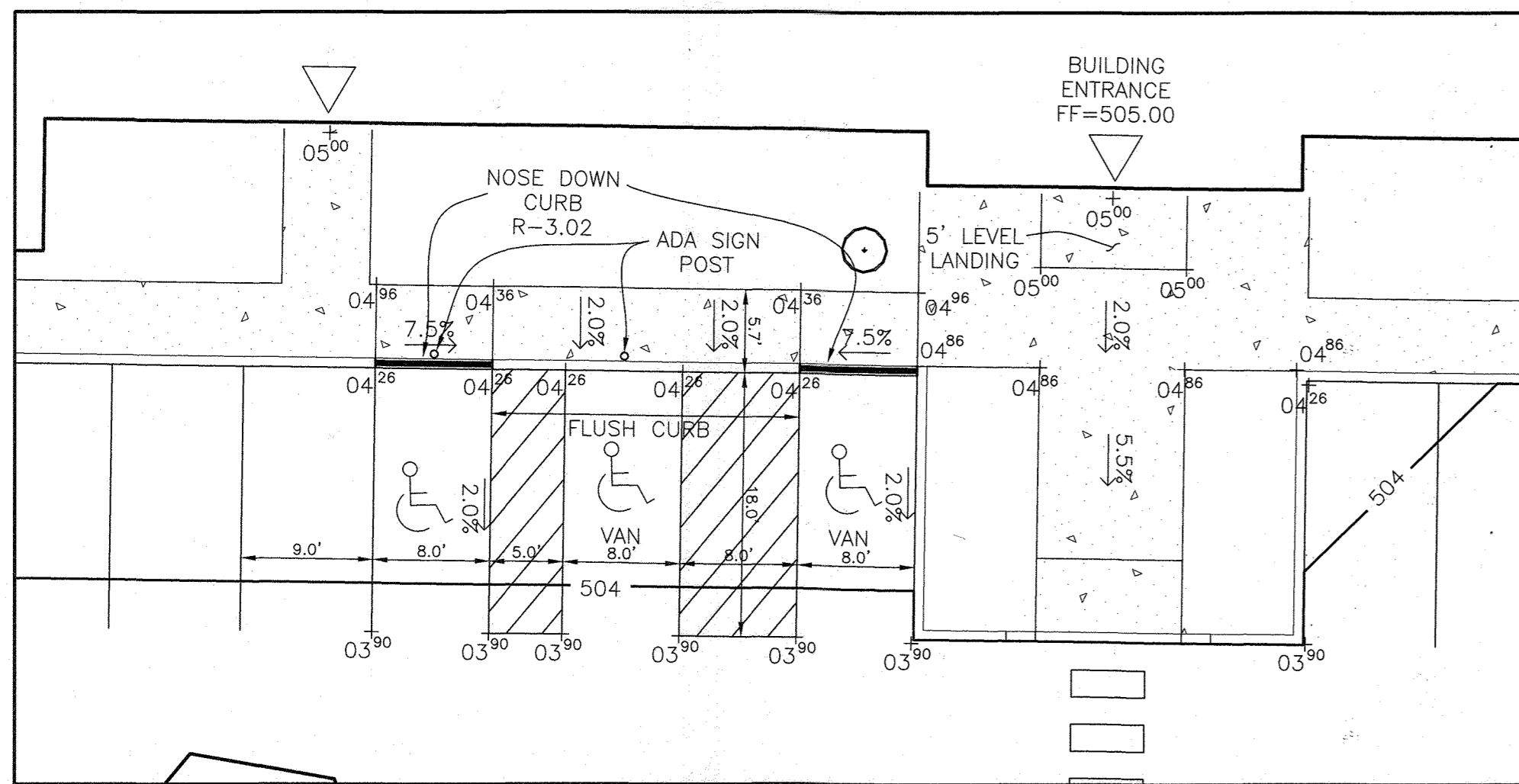
APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021

NO.	DATE	REVISION

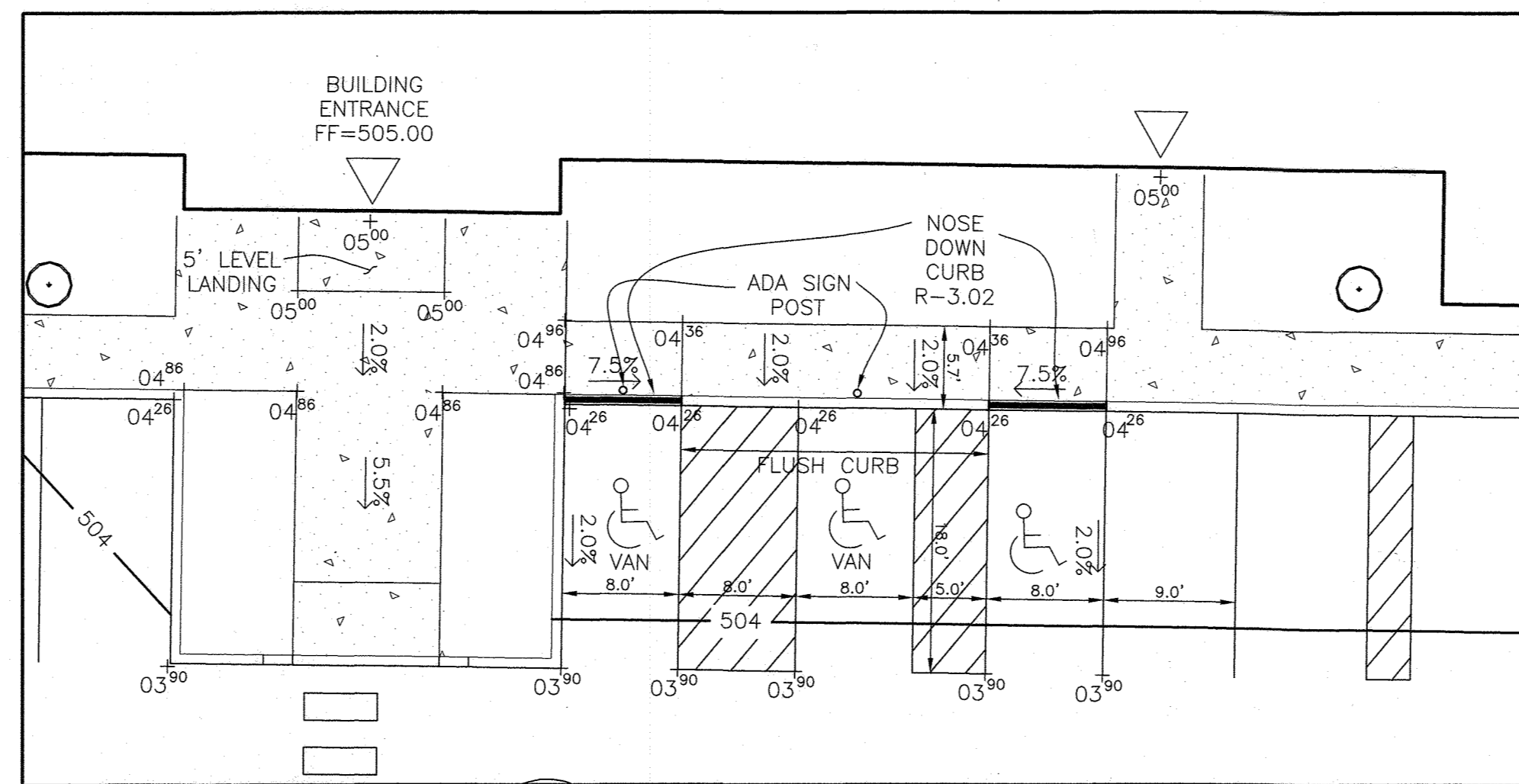
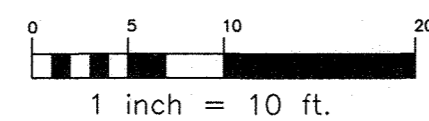
**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-1108 (F) 410-465-6844  
 WWW.BEI-CIVILENGINEERING.COM

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer upon the laws of the State of Maryland, License No. 00396, P.E. (Mechanical) 6-16-2023.

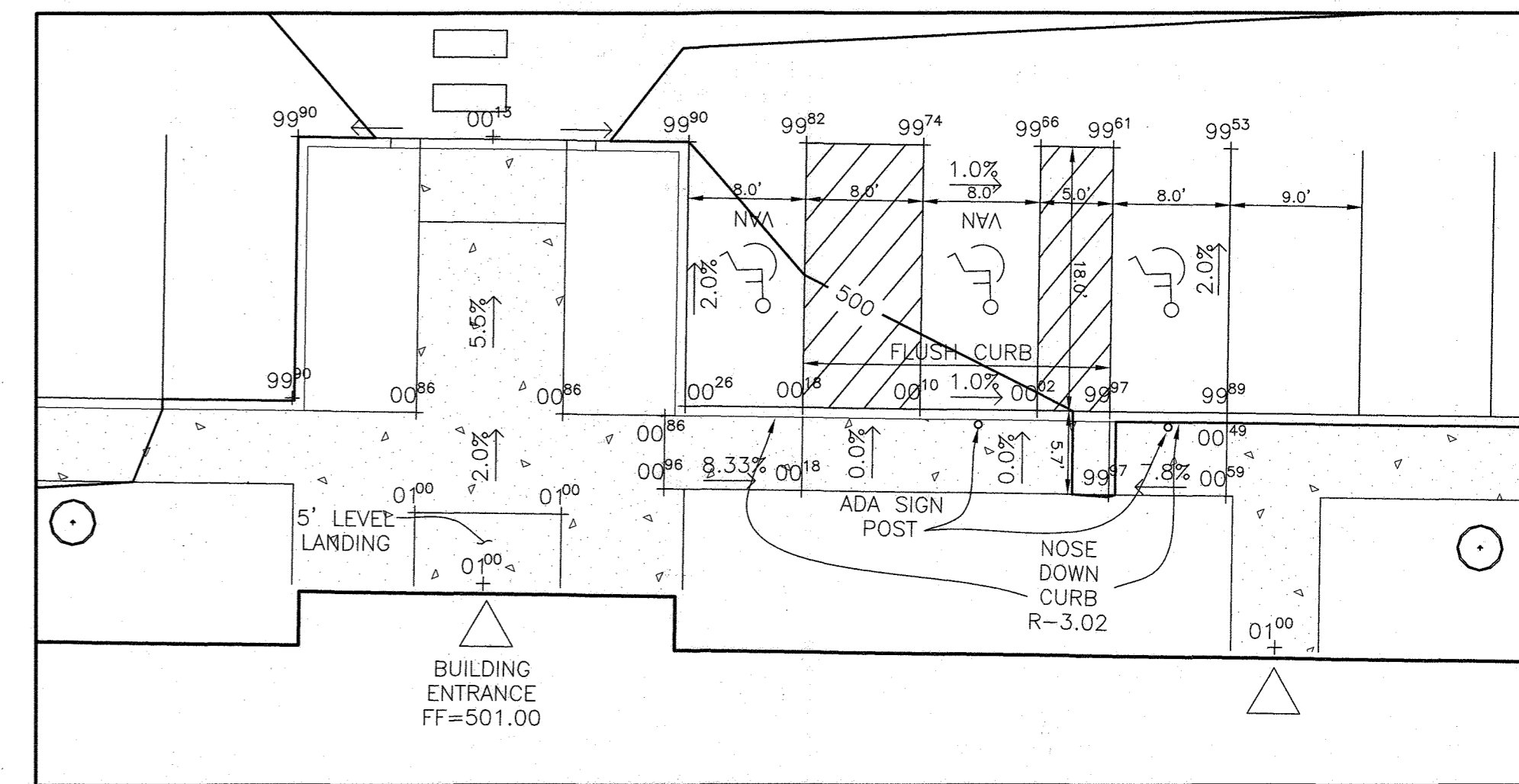
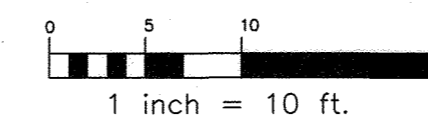
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<b>VILLA APARTMENTS AT TURF VALLEY</b> Parcel B-7 (Previously recorded as Plat No. 25802-25804)
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
<b>GRADING PLAN</b>	
DATE: AUGUST 2, 2021 SCALE: AS SHOWN	BEI PROJECT NO. 2957 SHEET 6 OF 32



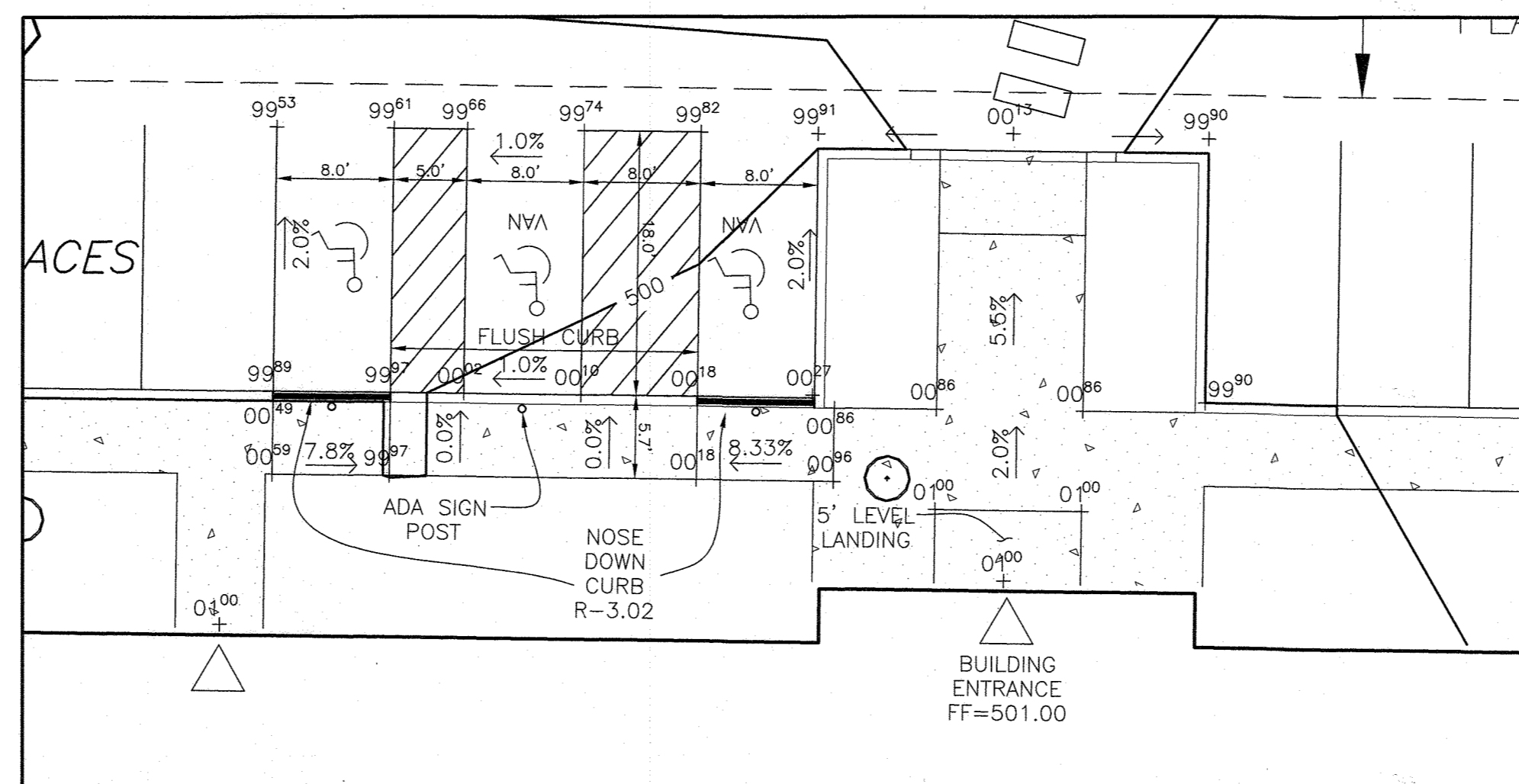
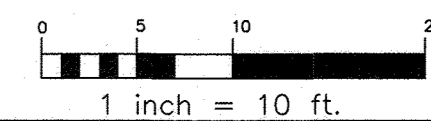
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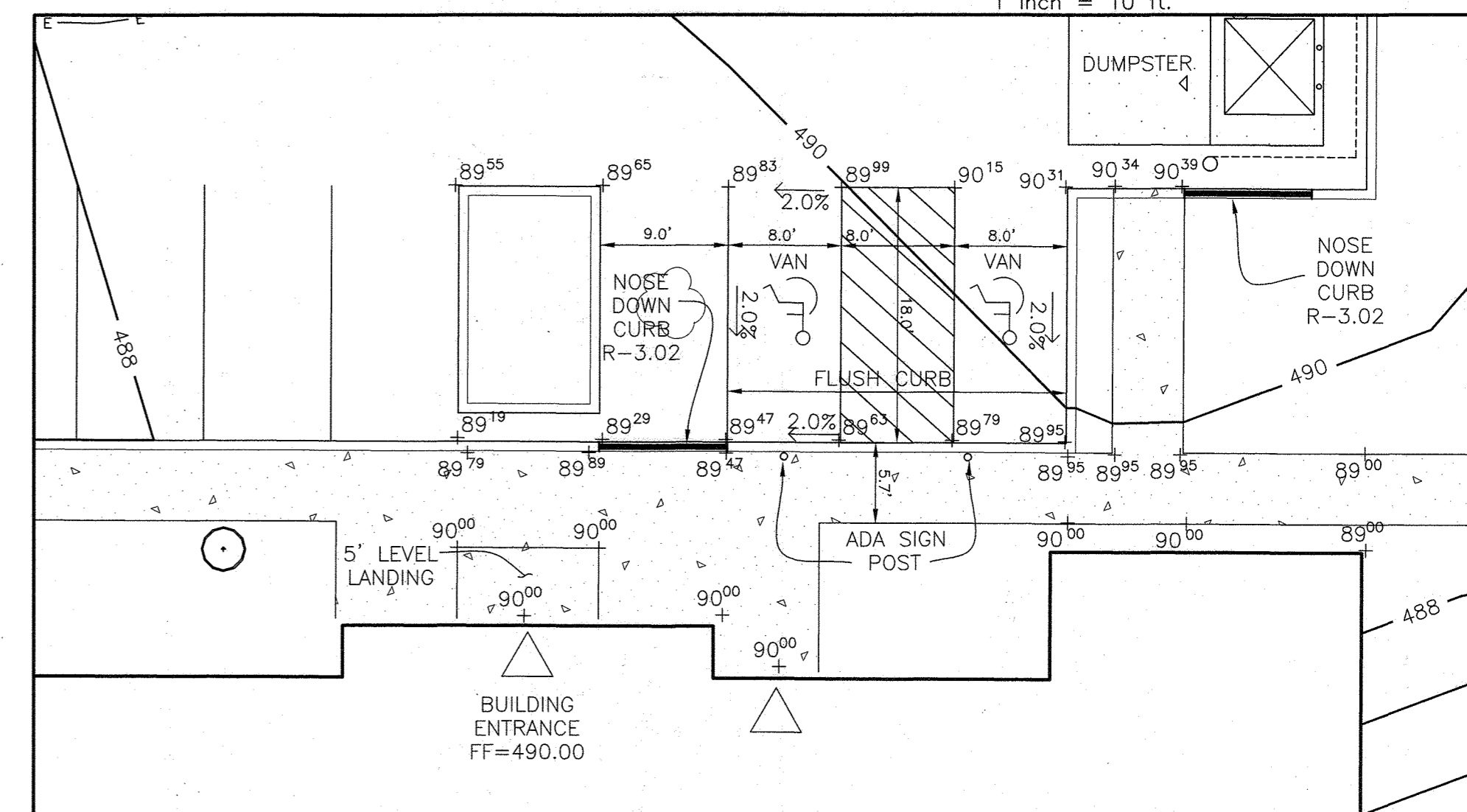
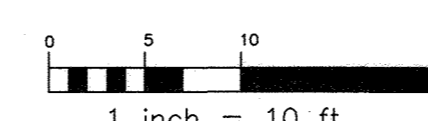
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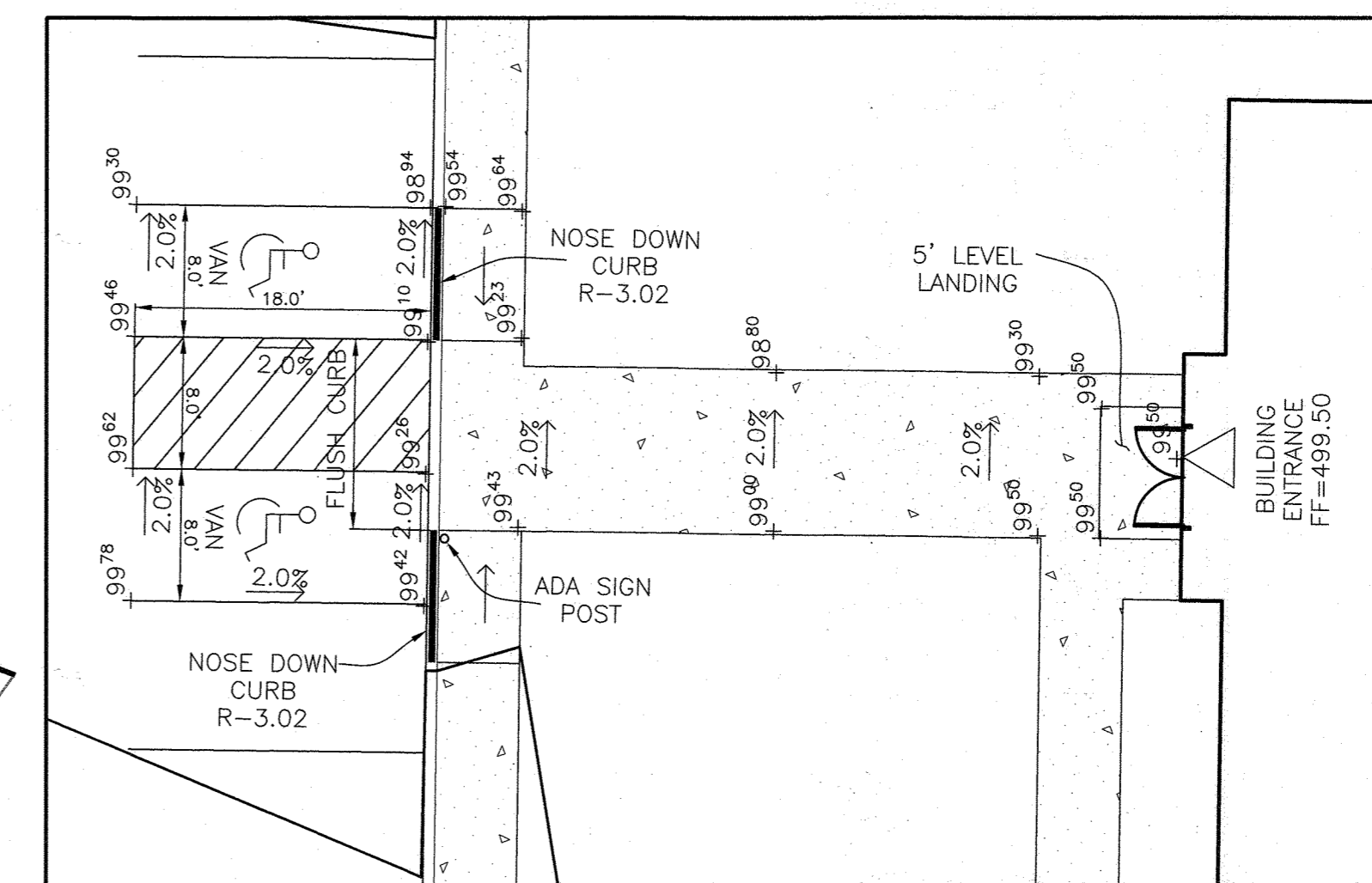
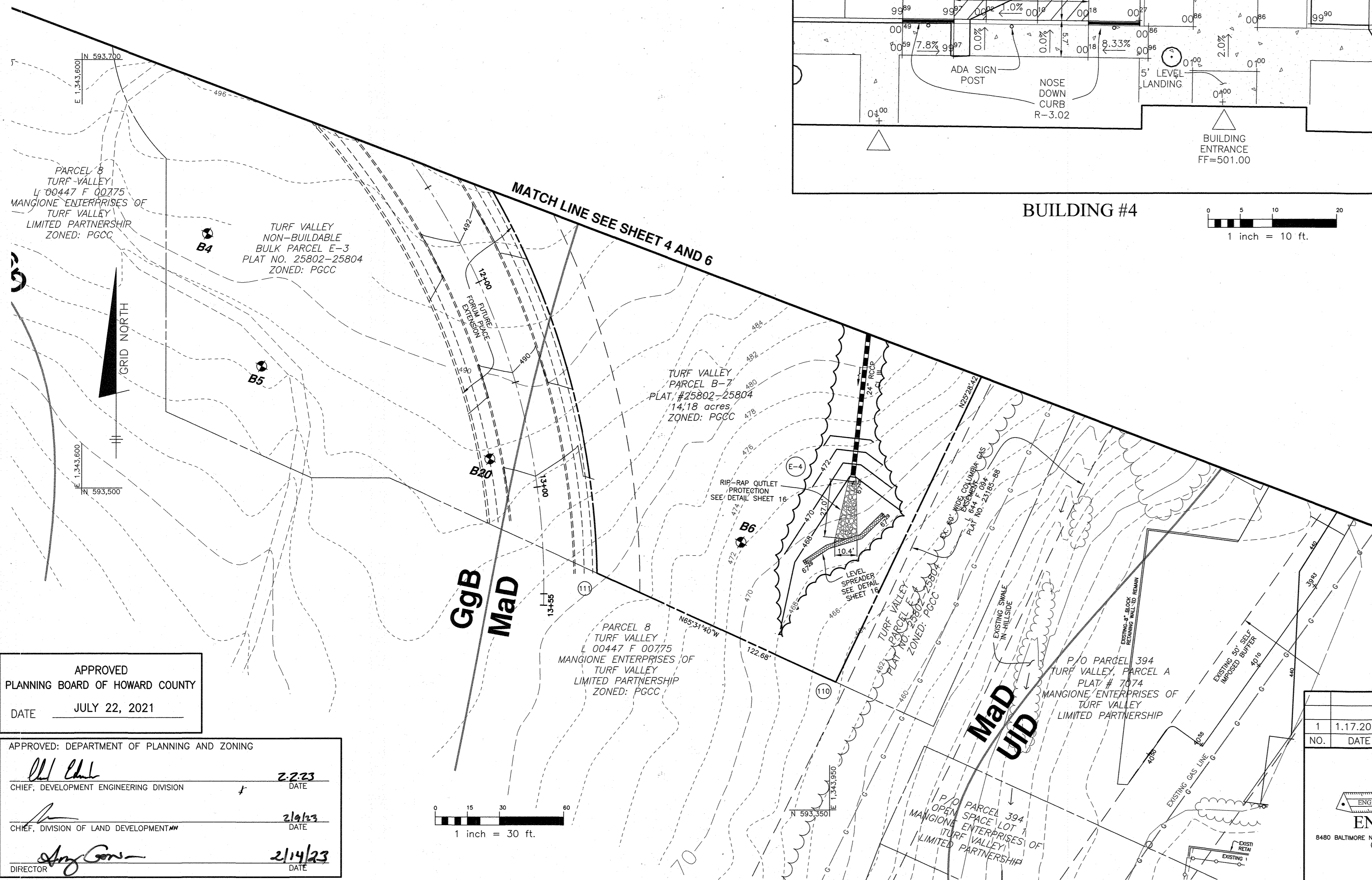
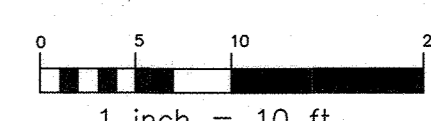
BUILDING #3



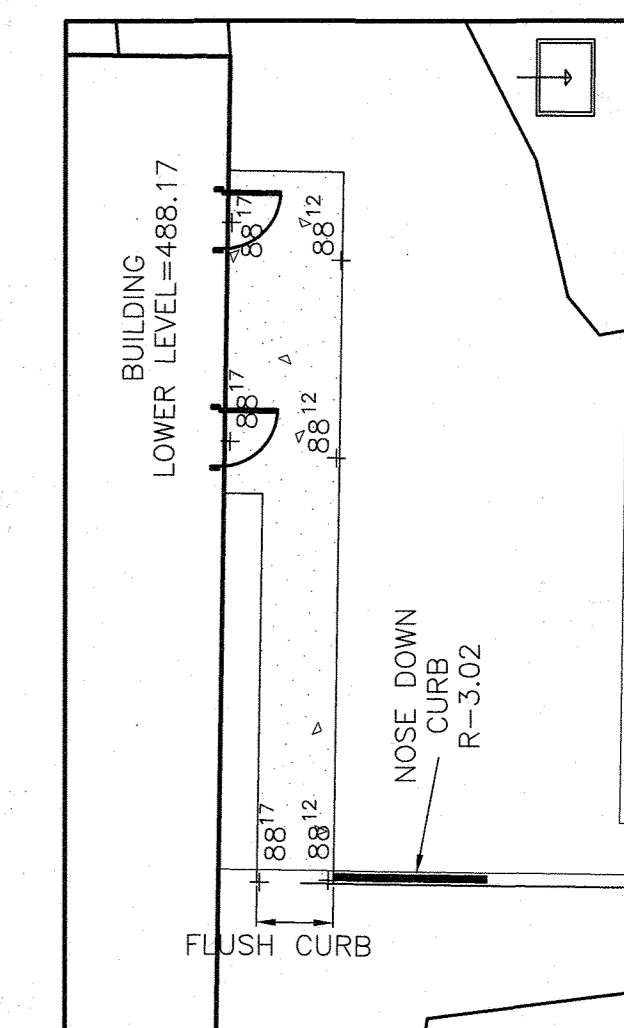
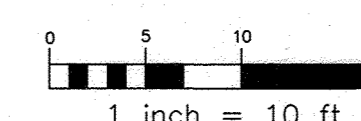
BUILDING #4



BUILDING #5



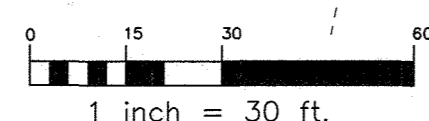
SALES/FITNESS



SALES/FITNESS LOWER LEVEL REAR

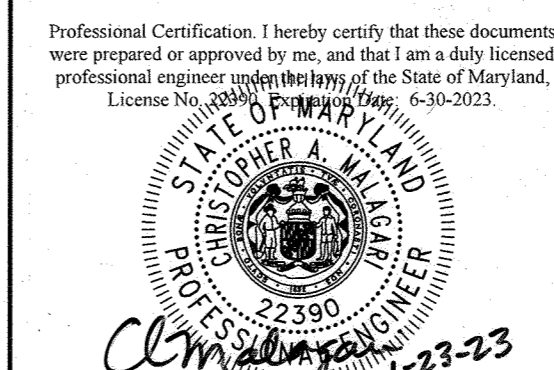
APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE JULY 22, 2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 2/23 DATE  
 [Signature] 2/14/23 DATE  
 [Signature] 2/14/23 DATE



NO.	DATE	REVISION
1	1.17.2023	UPDATE ADA ACCESS FOR SALES/FITNESS BLDG FOOTPRINT

**BENCHMARK ENGINEERING, INC.**  
 840 BALTIMORE NATIONAL PIKE SUITE 315 ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 WWW.BE-CVLENGINEERING.COM



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

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

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

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

**GRADING PLAN (ADA COMPLIANCE PLAN)**

DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN SHEET 7 OF 32

**CONSTRUCTION SPECIFICATIONS**

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

**1. Material Specifications:**

The allowable materials to be used in these practices are detailed in Table B.4.1.

**2. Filtering Media or Planting Soil:**

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretenion practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05. The planting soil shall be tested and shall meet the following criteria:

Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)  
 Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).  
 Clay Content - Media shall have a clay content of less than 5%.  
 pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textual analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

**3. Compaction:**

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

**4. Plant Material:**

Recommended plant material for micro-bioretenion practices can be found in Appendix A, Section A.2.3.

**5. Plant Installation:**

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers, de-fats, or a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

**6. Underdrains:**

Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
- Perforations - If perforated pipe is used, perforations should be 3/4" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 or 4x4) galvanized hardware cloth.
- Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
- The main collector pipe shall be at a minimum 0.5% slope.
- A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
- A 4" layer of pea gravel (1/4" to 3/8" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

**7. Miscellaneous:**

These practices may not be constructed until all contributing drainage area has been stabilized.

**OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)**

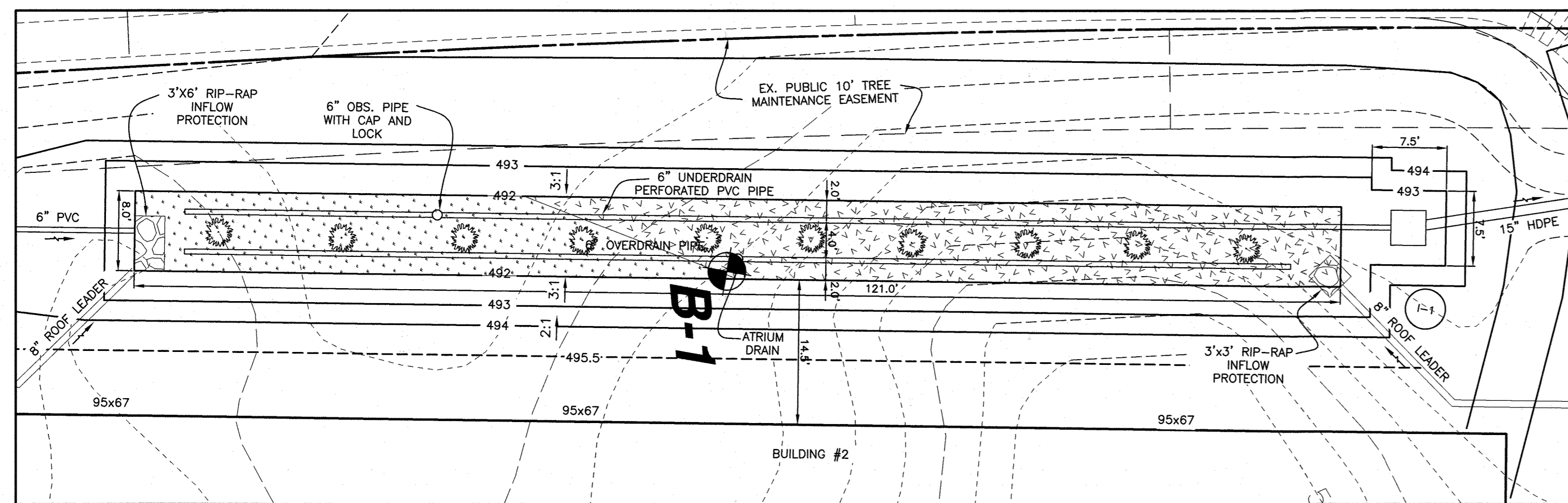
- The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.
- The Owner shall perform a plant inspection in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.
- The Owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed the new layer is applied.
- The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

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

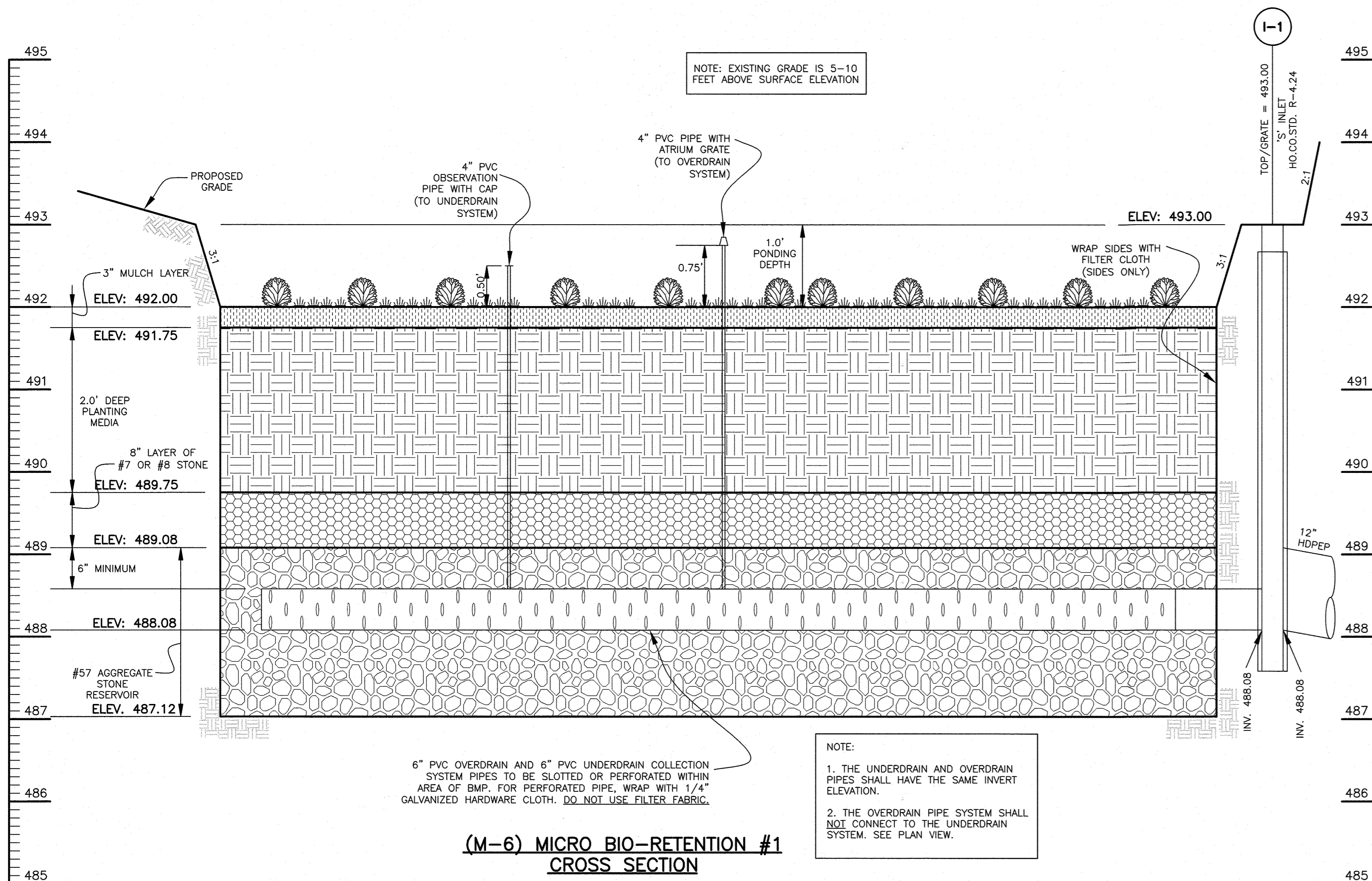
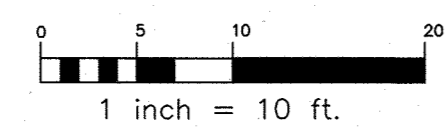
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic 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 (1.8" 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 pipe; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3, f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.8R-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 carbide or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

B.4.7

Supp. 1



**(M-6) MICRO BIO-RETENTION #1**



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

SYMBOL	NAME
	SILKY DOGWOOD
	PURPLE CONEFLOWER
	COMMON RUSH

**(M-6) Micro Bio-Retention Landscaping Chart**

PLANT NAME	COMMON NAME	Surface Area TYPE	SIZE	QUANTITY							
				MB #1	MB #2	MB #3	MB #4	MB #5	MB #6	MB #7	
Cornus Amomum	Silky Dogwood	deciduous shrub	18-24" ht. #3 CAN	968	921	330	652	1481	1360	1040	
Echinacea Purpurea	Purple Coneflower	perennial	2 gal. container	10	9	3	7	15	14	10	
Juncus Effusus	Common Rush	perennial	1 qt.	97	92	33	65	148	136	104	
				484	461	165	326	741	680	520	

**(M-6) Micro Bio-Retention Landscaping Chart**

PLANT NAME	COMMON NAME	Surface Area TYPE	SIZE	QUANTITY						
				MB #8	MB #9	MB #10	MB #11	MB #12	MB #13	
Cornus Amomum	Silky Dogwood	deciduous shrub	18-24" ht. #3 CAN	1360	788	1432	780	1207	1624	
Echinacea Purpurea	Purple Coneflower	perennial	2 gal. container	14	8	14	8	12	16	
Juncus Effusus	Common Rush	perennial	1 qt.	136	79	143	78	121	162	
				680	394	716	390	604	812	

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

DIRECTOR

DATE: 9-15-21

DATE: 9/20/21

DATE: 9-21-21

APPROVED

PLANNING BOARD OF HOWARD COUNTY

DATE: JULY 22, 2021

NO. DATE REVISION

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 authority of the State of Maryland, License No. 20091.

**BENCHMARK ENGINEERS, INC.**

8480 BALTIMORE NATIONAL PIKE & SUITE 215 • ELICOTT CITY, MARYLAND 21043

WWW.BE-CIVILENGINEERING.COM

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP

**VILLA APARTMENTS AT TURF VALLEY**

Parcel B-7 (Previously recorded as Plat No. 25802-25804)

TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8

ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT DETAILS**

DATE: AUGUST 2, 2021

DESIGN: DBT

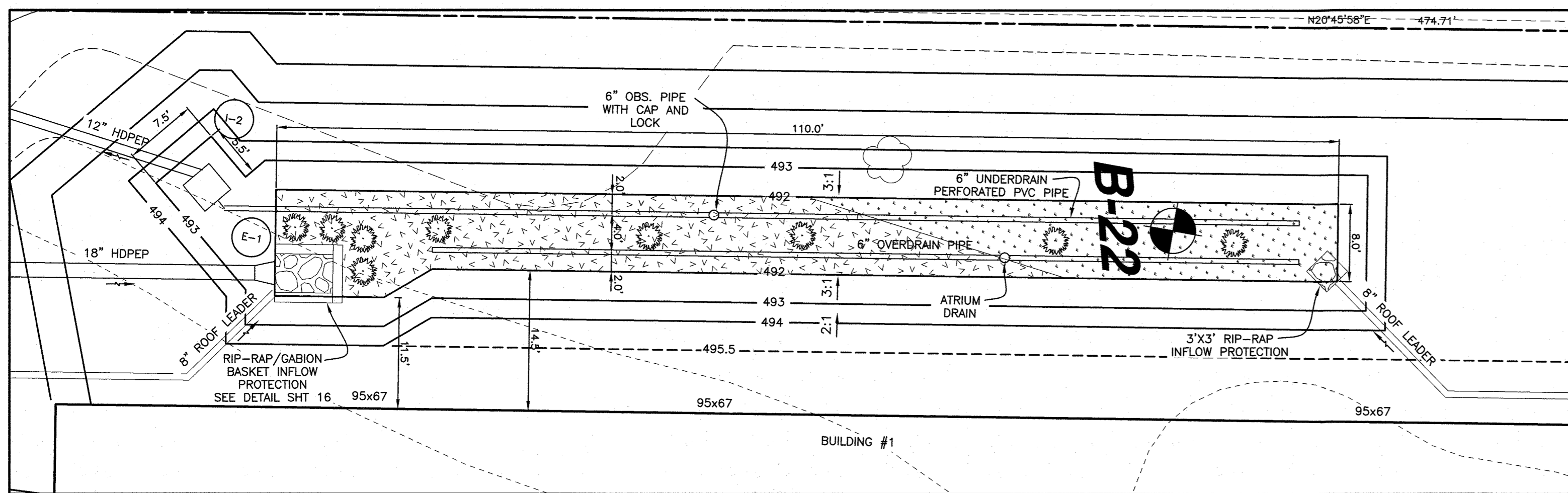
DRAFT: DBT

SCALE: AS SHOWN

BEI PROJECT NO. 2957

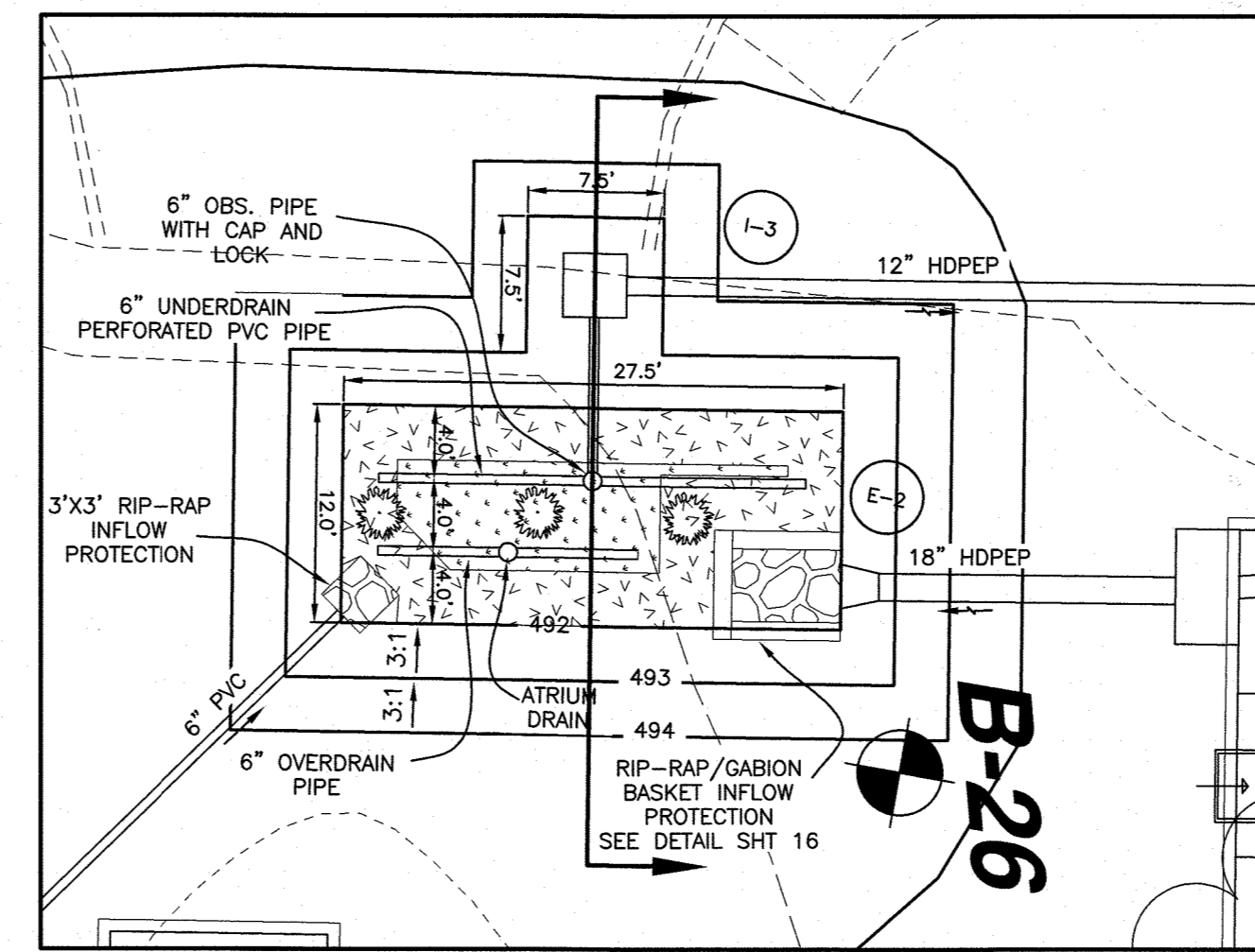
SHEET 8 OF 32





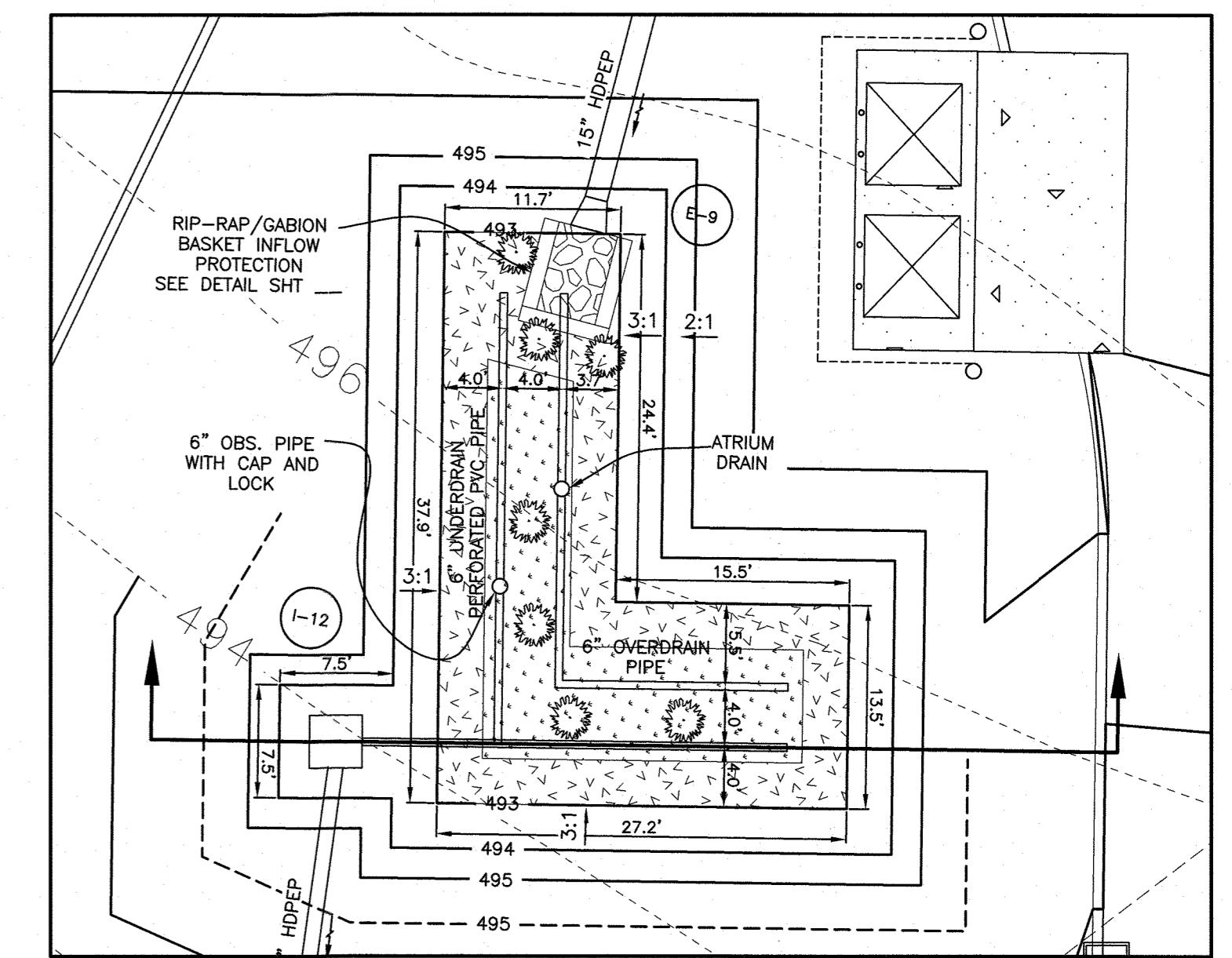
(M-6) MICRO BIO-RETENTION #2

1 inch = 10 ft.



(M-6) MICRO BIO-RETENTION #3

1 inch = 10 ft.

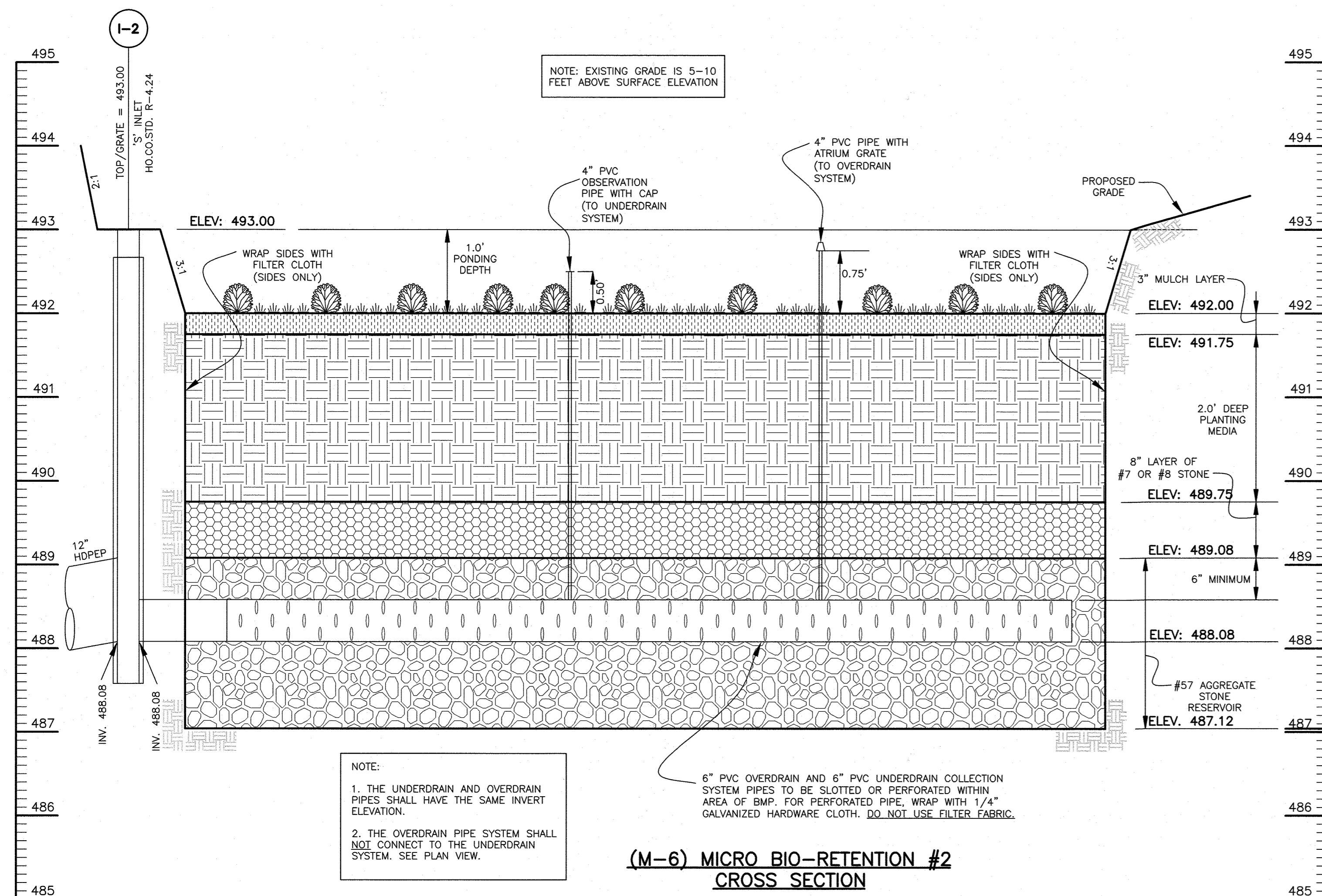


(M-6) MICRO BIO-RETENTION #4

1 inch = 10 ft.

SEE SHEET 8 FOR PLANTING LIST, SPECIES, AND QUANTITIES

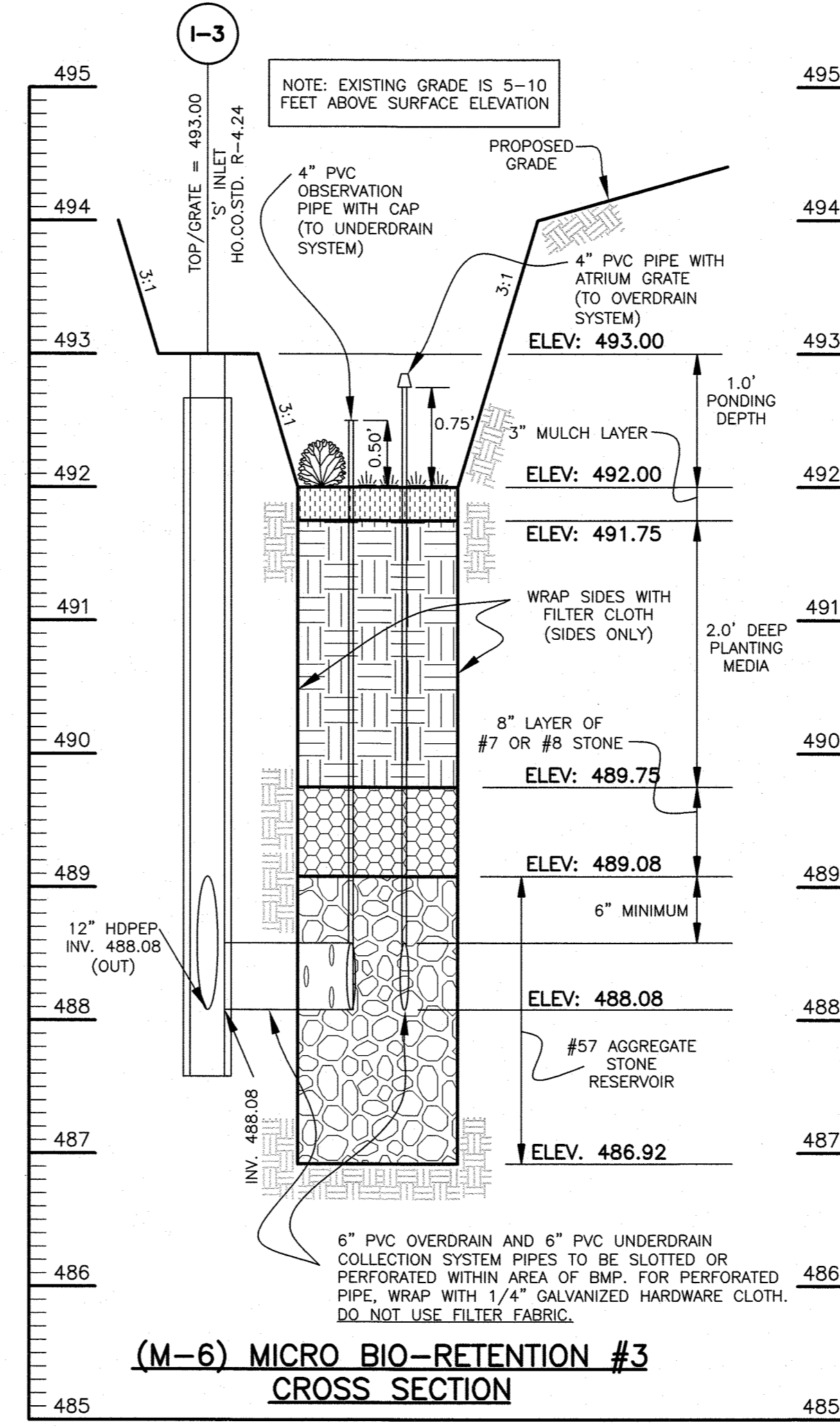
PLANTING SHOWN ARE SCHEMATIC. ACTUAL LOCATION OF ALL INDIVIDUAL PLANTINGS TO BE DETERMINED BY THE CONTRACTOR DURING INSTALLATION.



(M-6) MICRO BIO-RETENTION #2 CROSS SECTION

NOTE:  
1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.  
2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

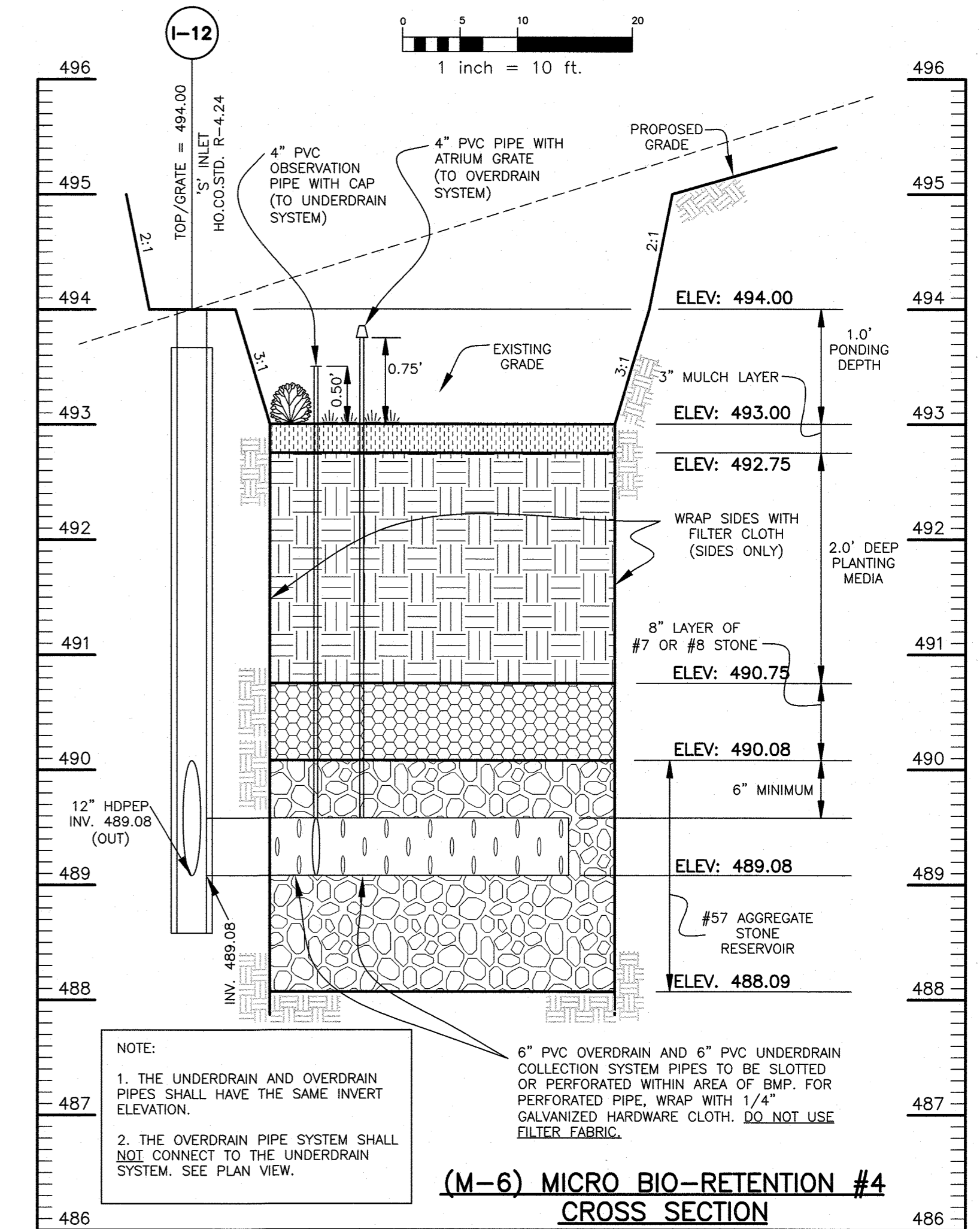
6" PVC OVERDRAIN AND 6" PVC UNDERDRAIN COLLECTION SYSTEM PIPES TO BE SLOTTED OR PERFORATED WITHIN AREA OF BMP. FOR PERFORATED PIPE, WRAP WITH 1/4" GALVANIZED HARDWARE CLOTH. DO NOT USE FILTER FABRIC.



(M-6) MICRO BIO-RETENTION #3 CROSS SECTION

NOTE: EXISTING GRADE IS 5-10 FEET ABOVE SURFACE ELEVATION

6" PVC OVERDRAIN AND 6" PVC UNDERDRAIN COLLECTION SYSTEM PIPES TO BE SLOTTED OR PERFORATED WITHIN AREA OF BMP. FOR PERFORATED PIPE, WRAP WITH 1/4" GALVANIZED HARDWARE CLOTH. DO NOT USE FILTER FABRIC.



(M-6) MICRO BIO-RETENTION #4 CROSS SECTION

NOTE:  
1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.  
2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

6" PVC OVERDRAIN AND 6" PVC UNDERDRAIN COLLECTION SYSTEM PIPES TO BE SLOTTED OR PERFORATED WITHIN AREA OF BMP. FOR PERFORATED PIPE, WRAP WITH 1/4" GALVANIZED HARDWARE CLOTH. DO NOT USE FILTER FABRIC.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 9-15-21

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 9-21-21

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]*  
 DIRECTOR  
 DATE: 9-21-21

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE: JULY 22, 2021

NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-0108 (F) 410-465-6644  
 WWW.BE-CIVILENGINEERS.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer upon the laws of the State of Maryland, License No. 200199, 6-30-2023.

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

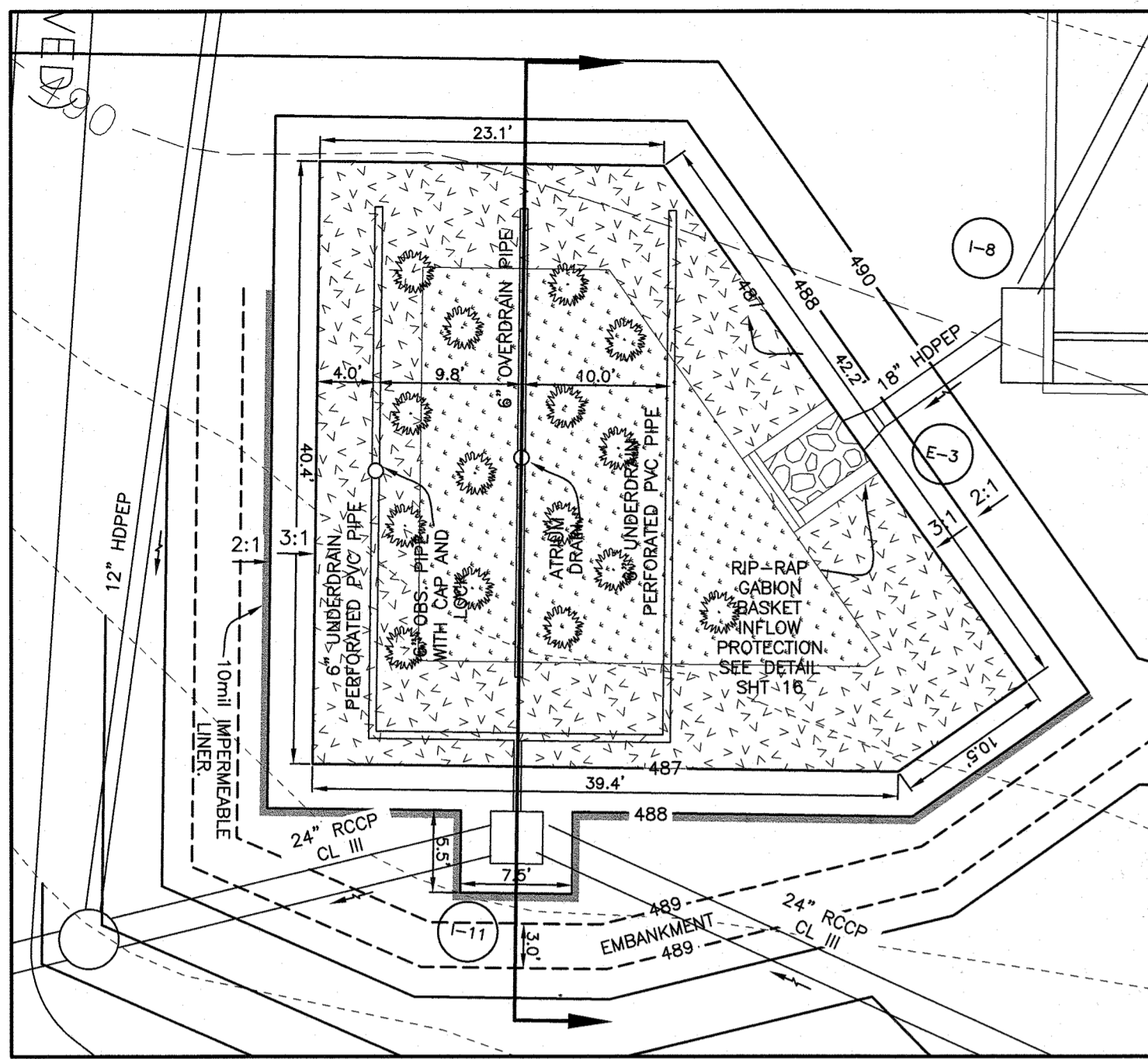
DEVELOPER:  
 MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

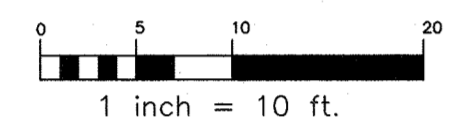
TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8  
 ZONED: PGCC-2  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT DETAILS**

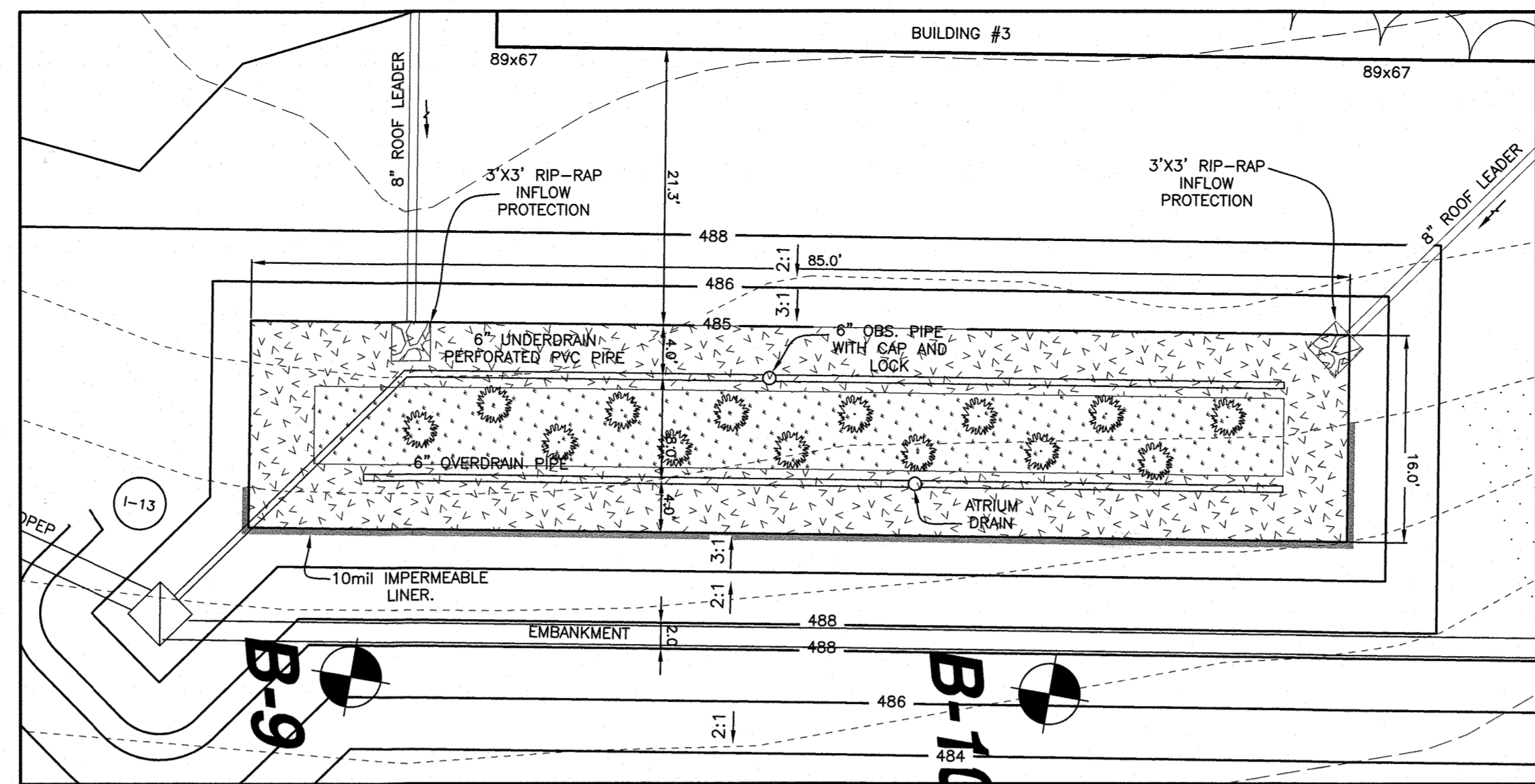
DATE: AUGUST 2, 2021    BEI PROJECT NO. 2957  
 SCALE: AS SHOWN    SHEET 9 OF 32



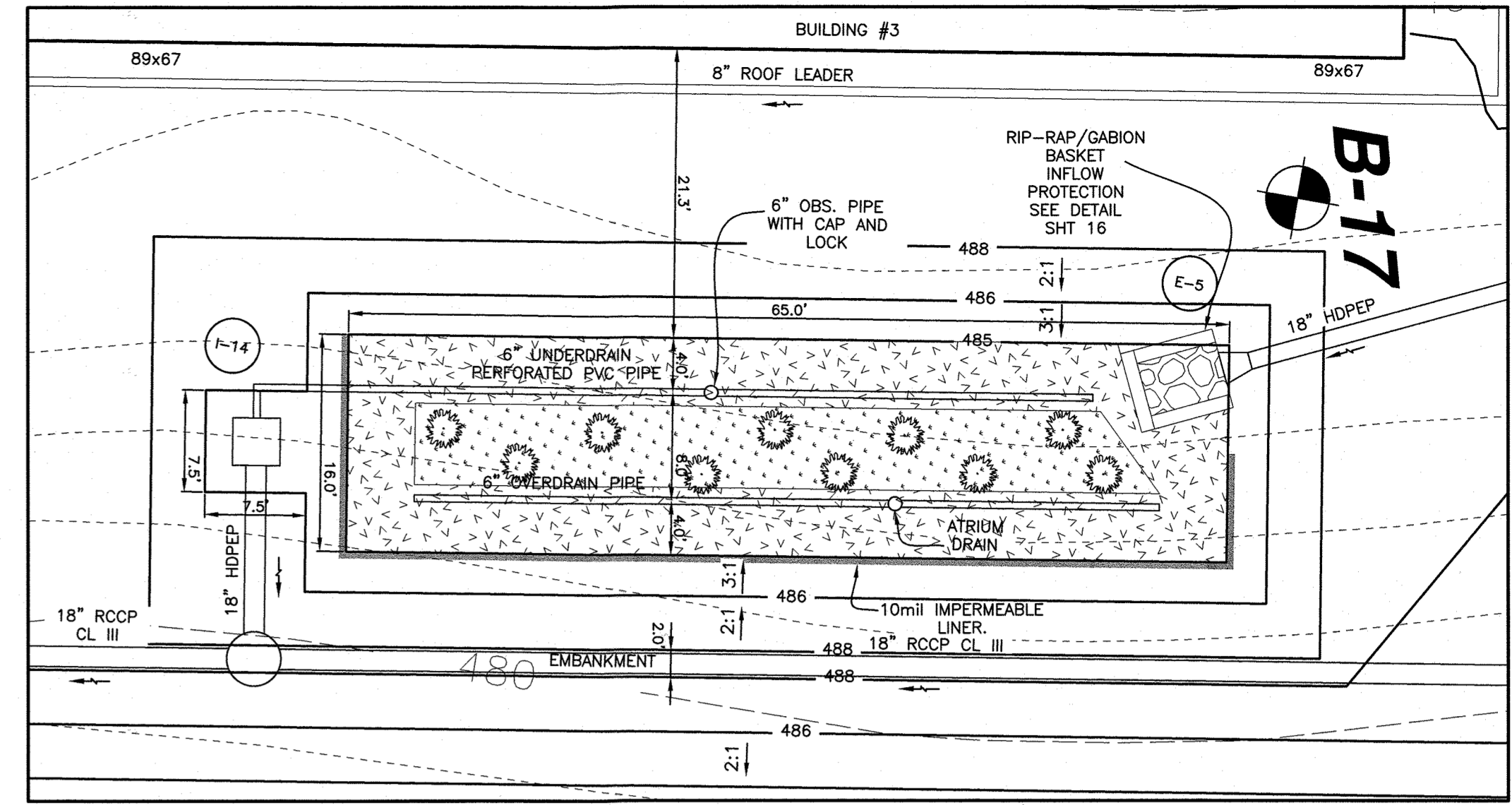
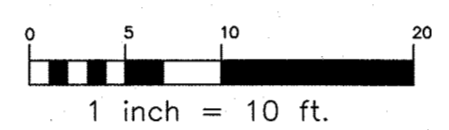
(M-6) MICRO BIO-RETENTION #5



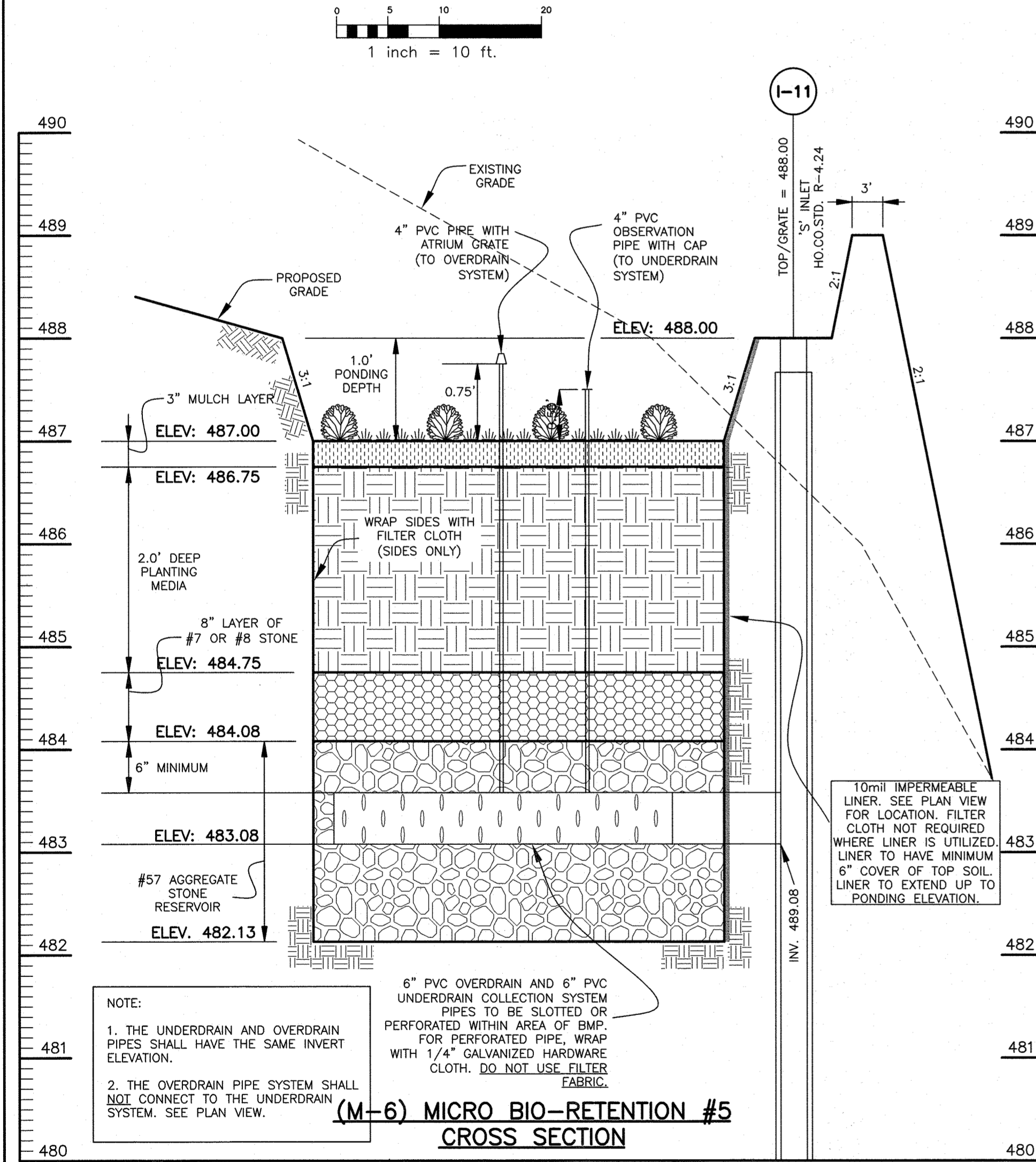
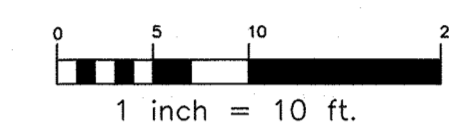
SEE SHEET 8 FOR PLANTING LIST, SPECIES, AND QUANTITIES.  
PLANTING SHOWN ARE SCHEMATIC. ACTUAL LOCATION OF ALL INDIVIDUAL PLANTINGS TO BE DETERMINED BY THE CONTRACTOR DURING INSTALLATION.



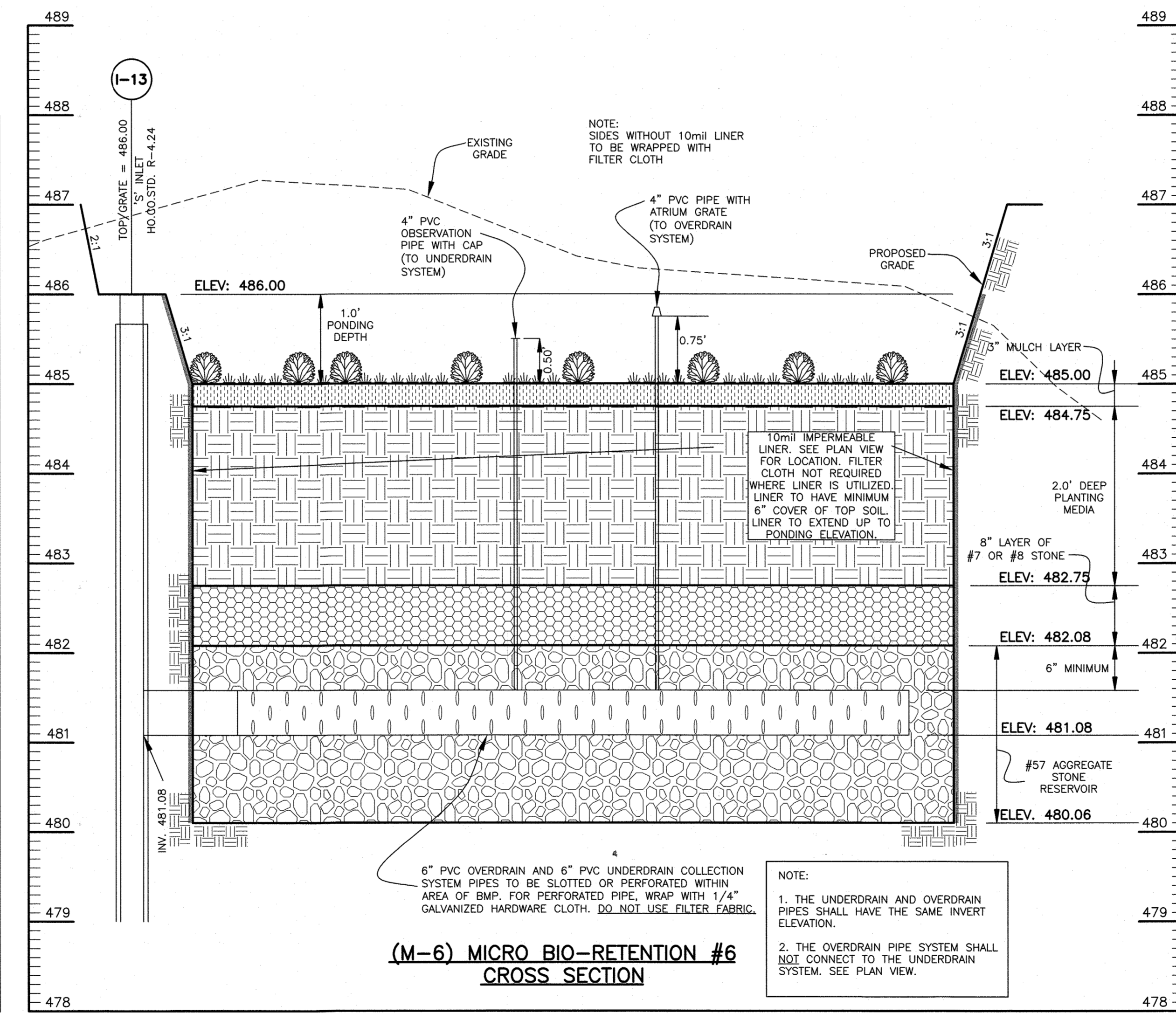
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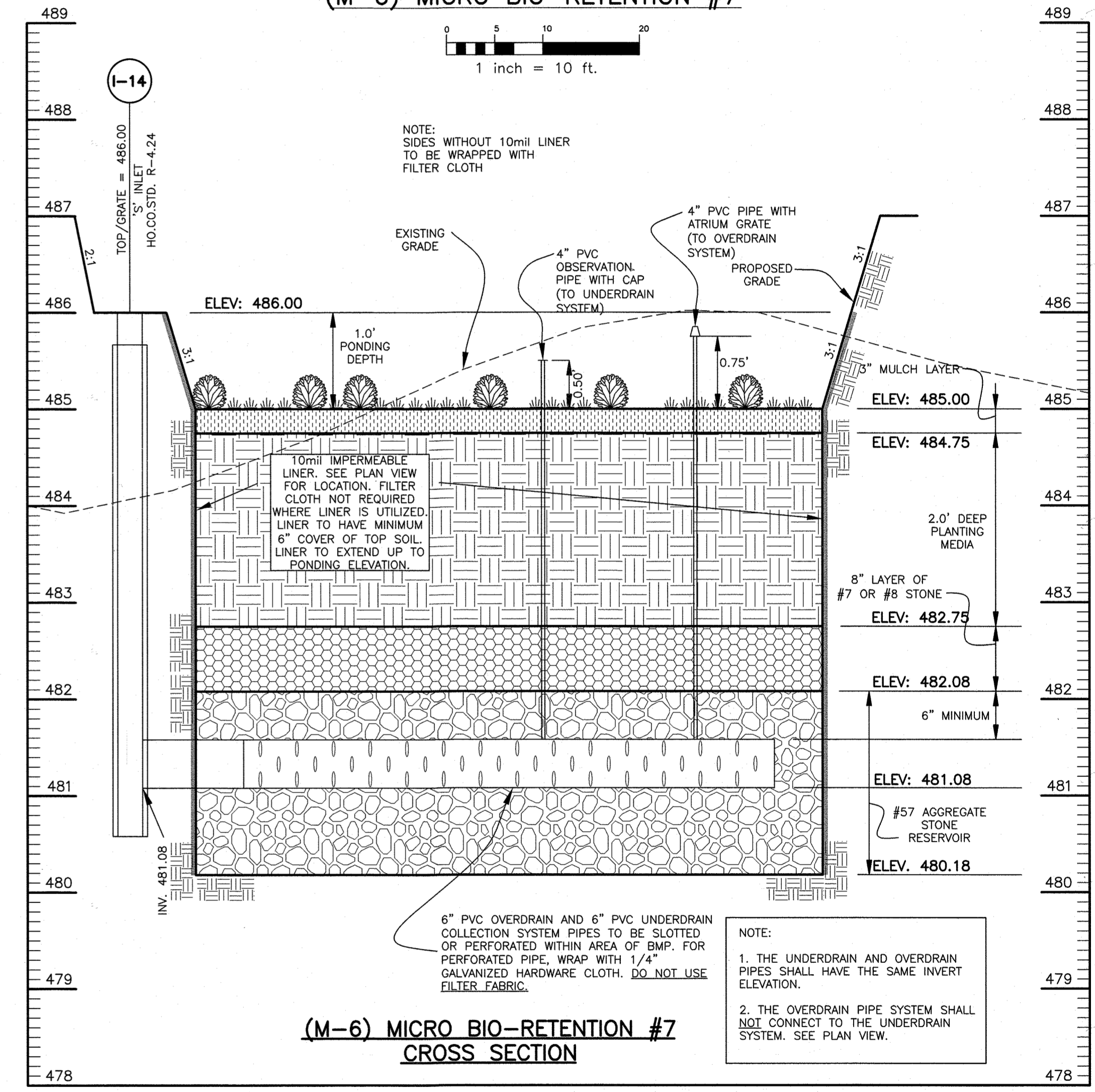
(M-6) MICRO BIO-RETENTION #7



(M-6) MICRO BIO-RETENTION #5 CROSS SECTION



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



(M-6) MICRO BIO-RETENTION #7 CROSS SECTION

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE: JULY 22, 2021

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

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

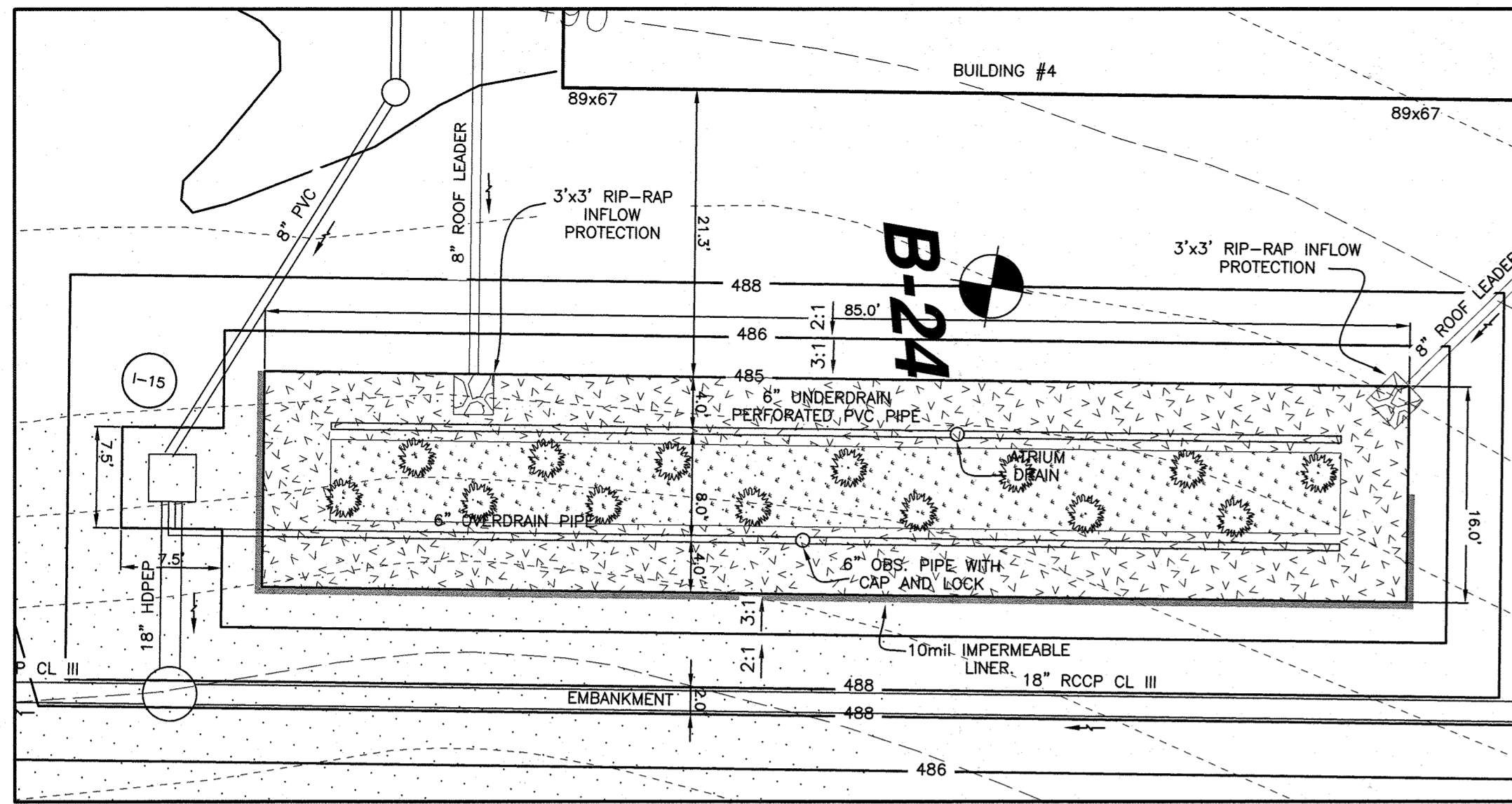
TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8  
 ZONED: PGCC-2  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT DETAILS**

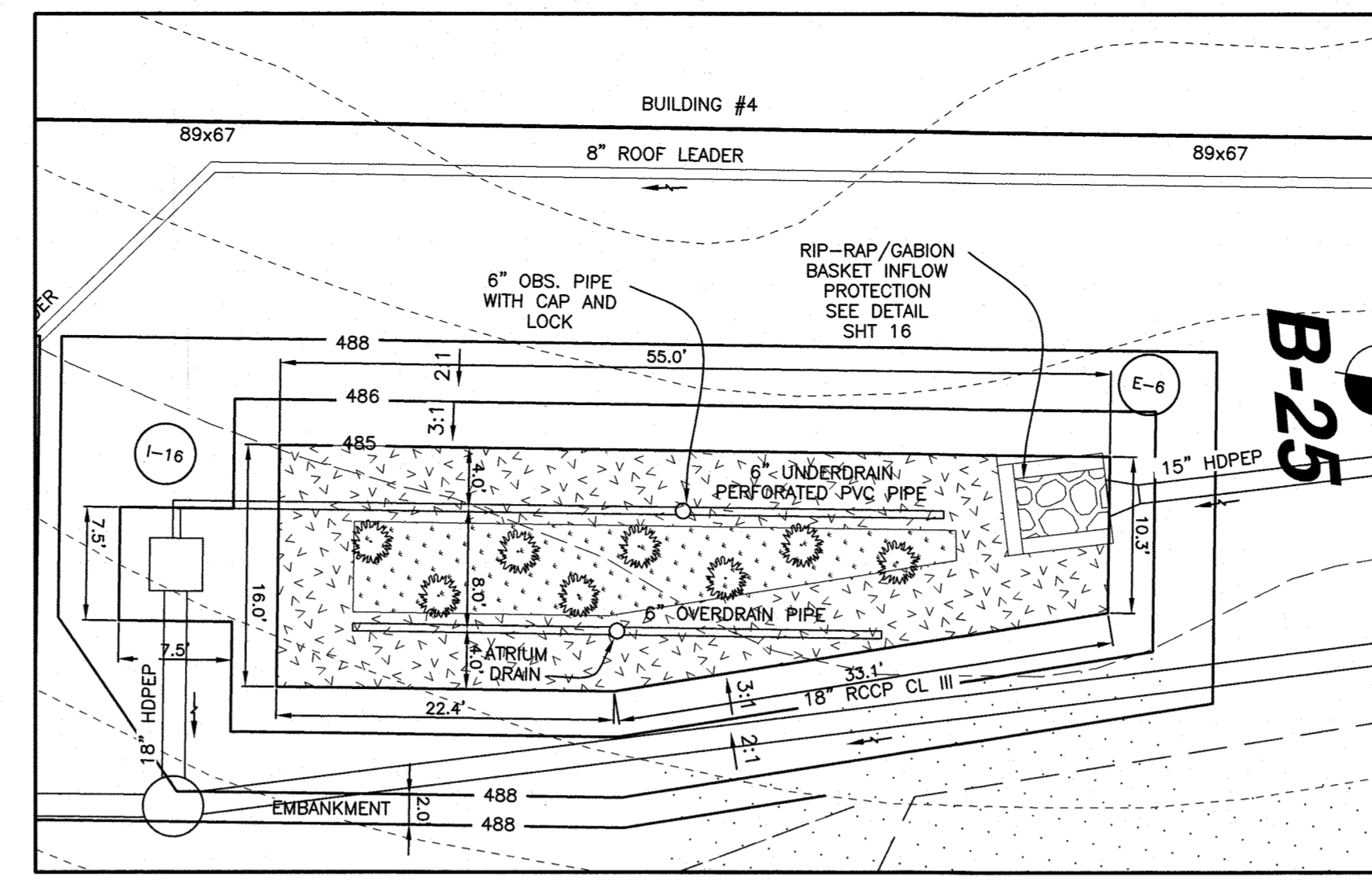
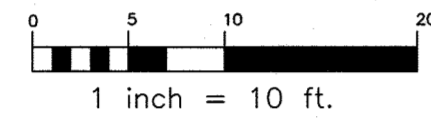
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP  
 DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP

DATE: AUGUST 2, 2021  
 SCALE: AS SHOWN  
 SHEET: 10 OF 32

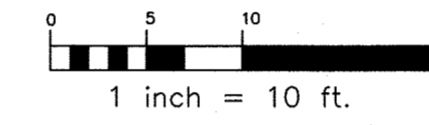
NO.	DATE	REVISION



(M-6) MICRO BIO-RETENTION #8

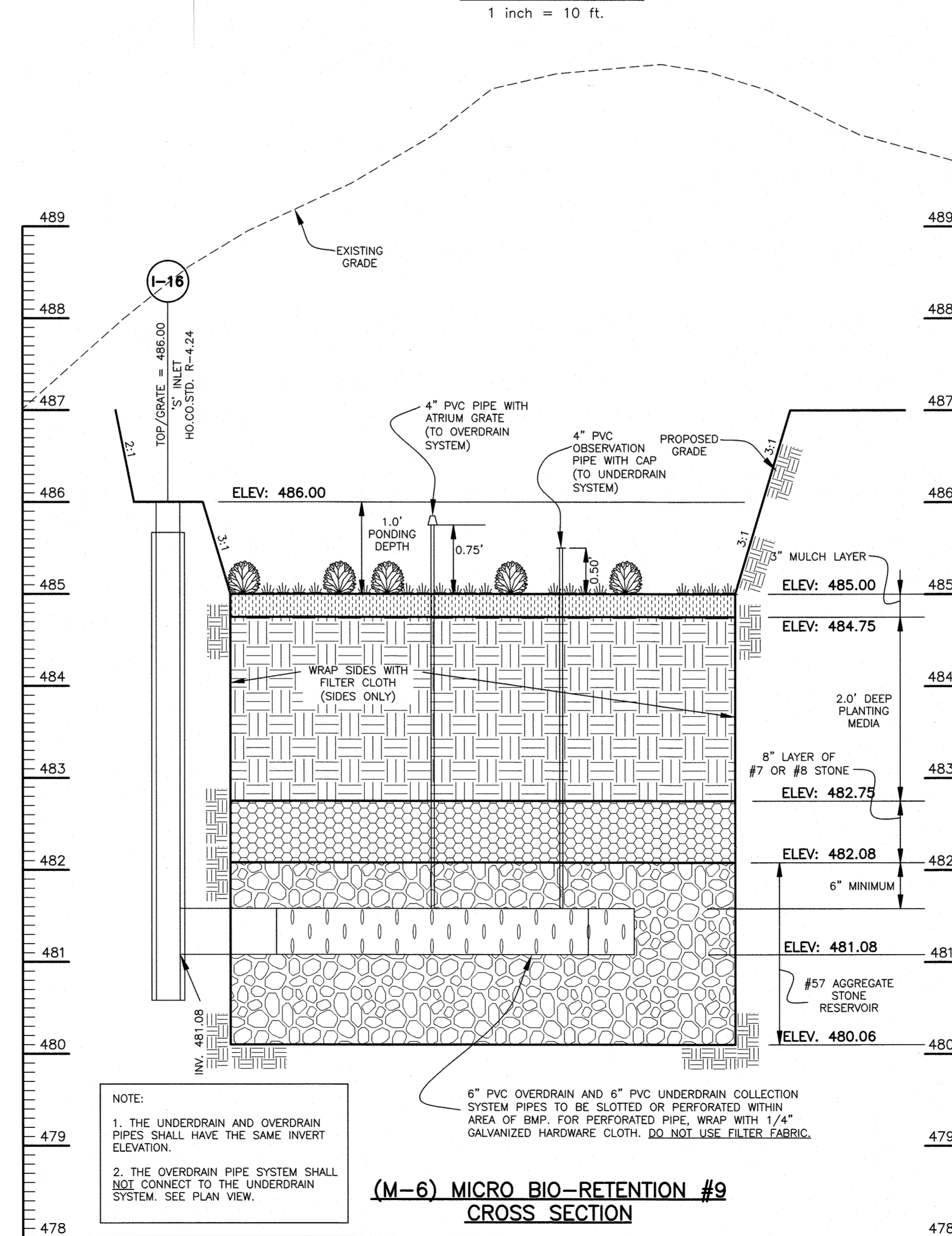
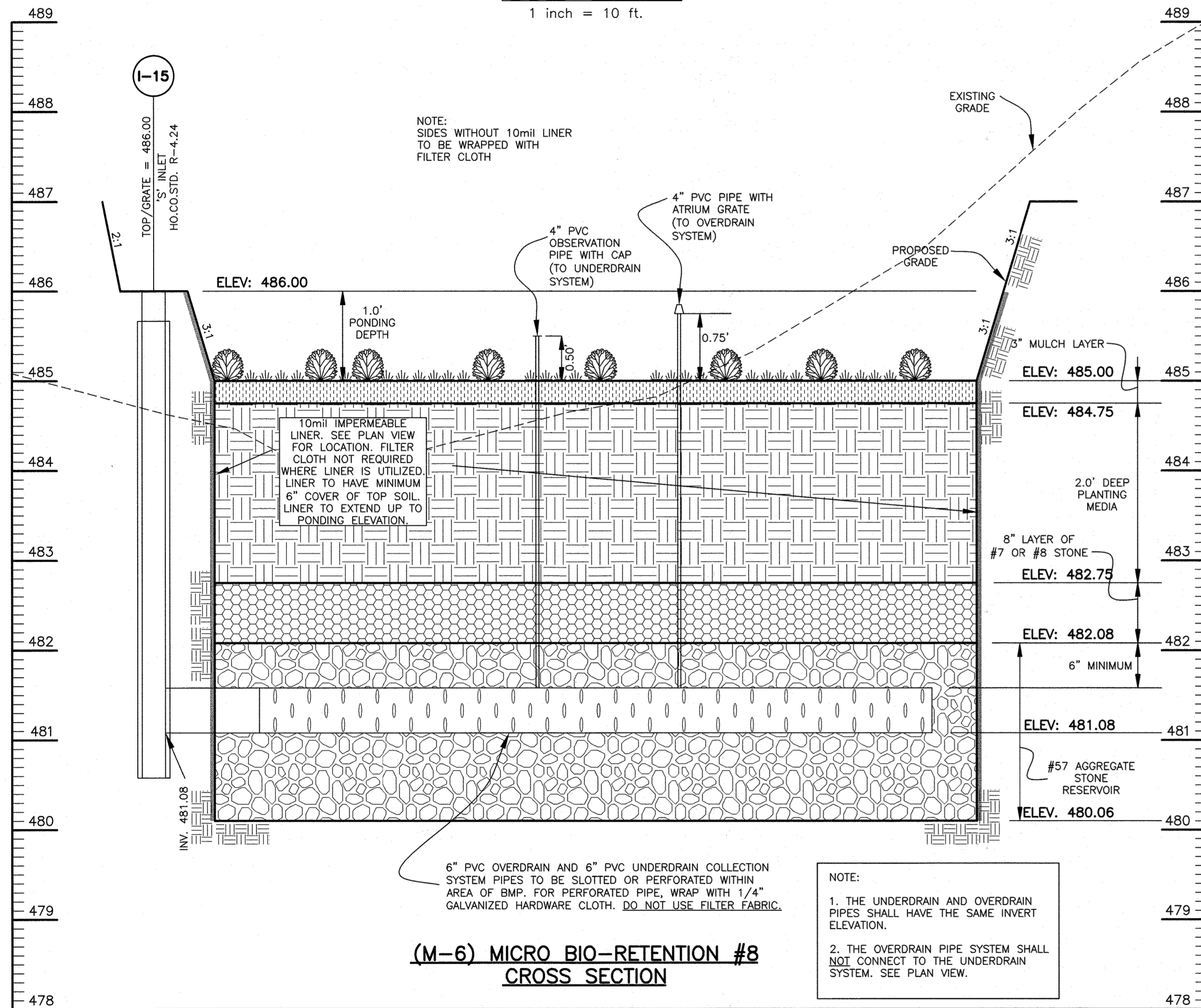


(M-6) MICRO BIO-RETENTION #9



SEE SHEET 8 FOR PLANTING LIST, SPECIES, AND QUANTITIES

PLANTING SHOWN ARE SCHEMATIC. ACTUAL LOCATION OF ALL INDIVIDUAL PLANTINGS TO BE DETERMINED BY THE CONTRACTOR DURING INSTALLATION.



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 9-15-21

CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 9-21-21

DIRECTOR  
 DATE: 9-21-21

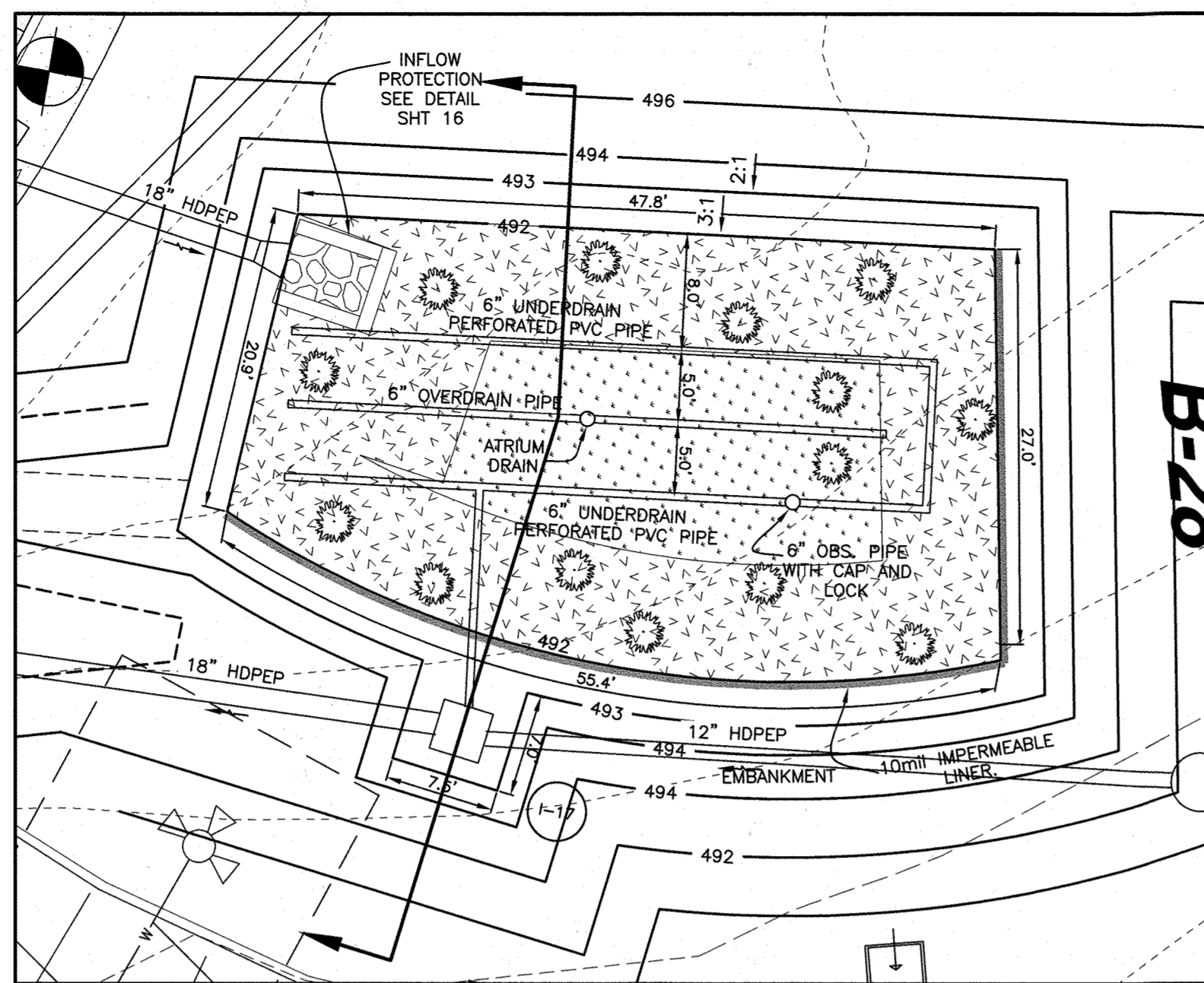
APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE: JULY 22, 2021

NO.	DATE	REVISION

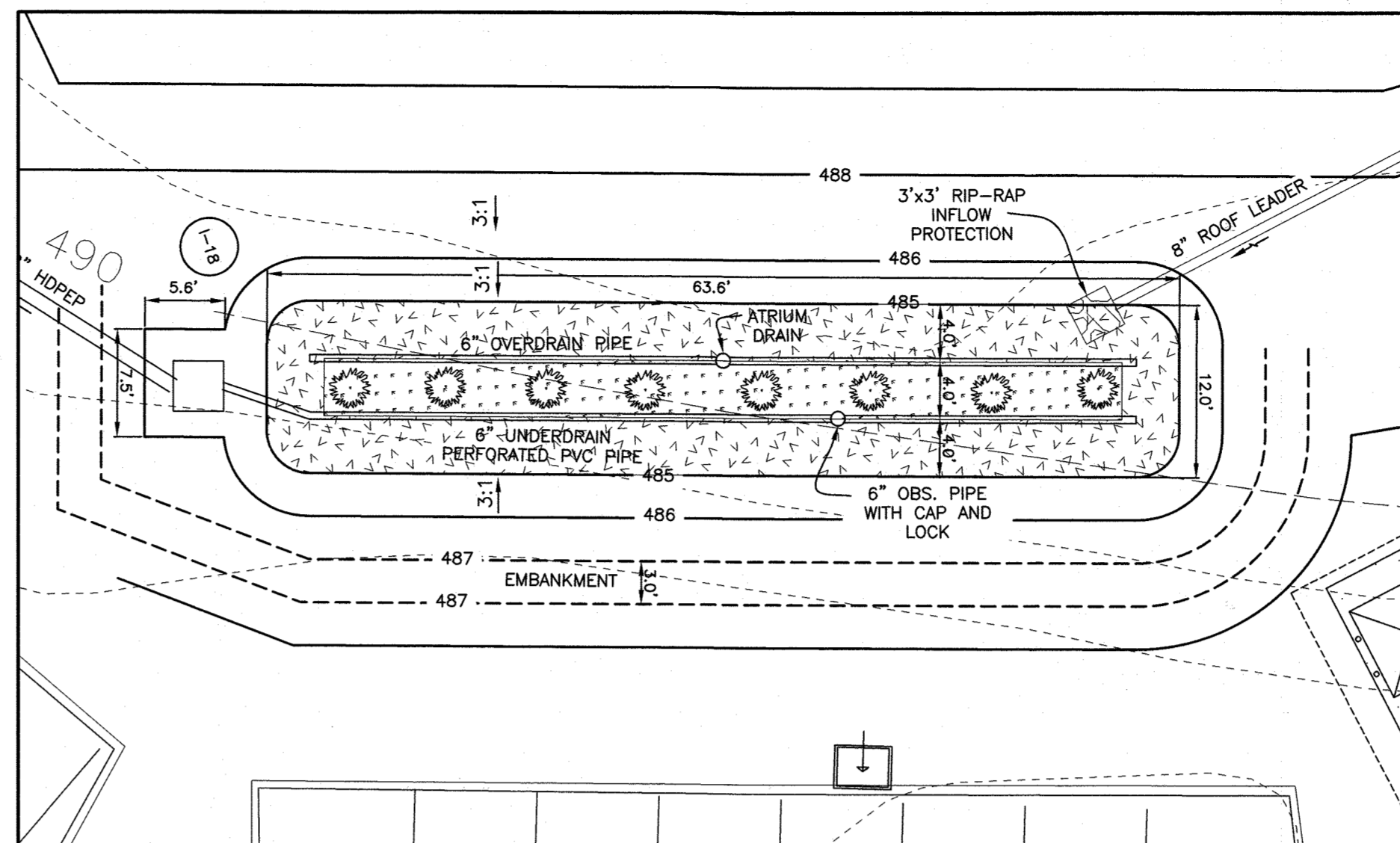
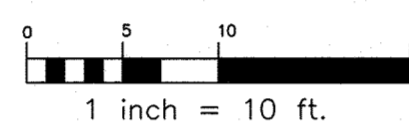
**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 3154 ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 WWW.BE-CIVILENGINEERING.COM

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. 22390

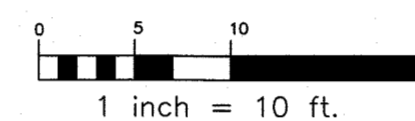
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<b>VILLA APARTMENTS AT TURF VALLEY</b> Parcel B-7 (Previously recorded as Plat No. 25802-25804)
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
<b>STORMWATER MANAGEMENT DETAILS</b>	
DATE: AUGUST 2, 2021 SCALE: AS SHOWN	BEI PROJECT NO. 2957 SHEET 11 OF 32



**(M-6) MICRO BIO-RETENTION #10**

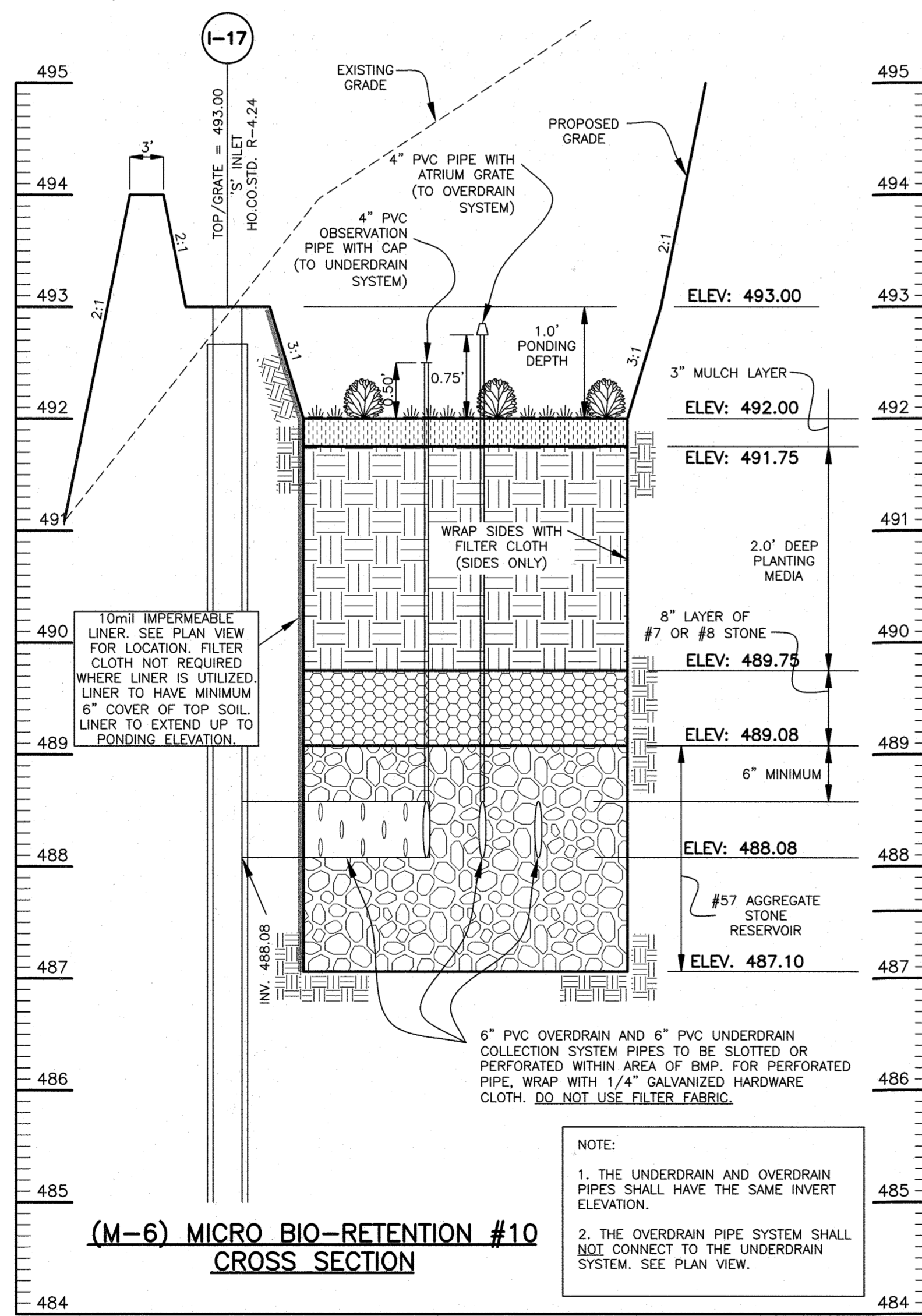


**(M-6) MICRO BIO-RETENTION #11**



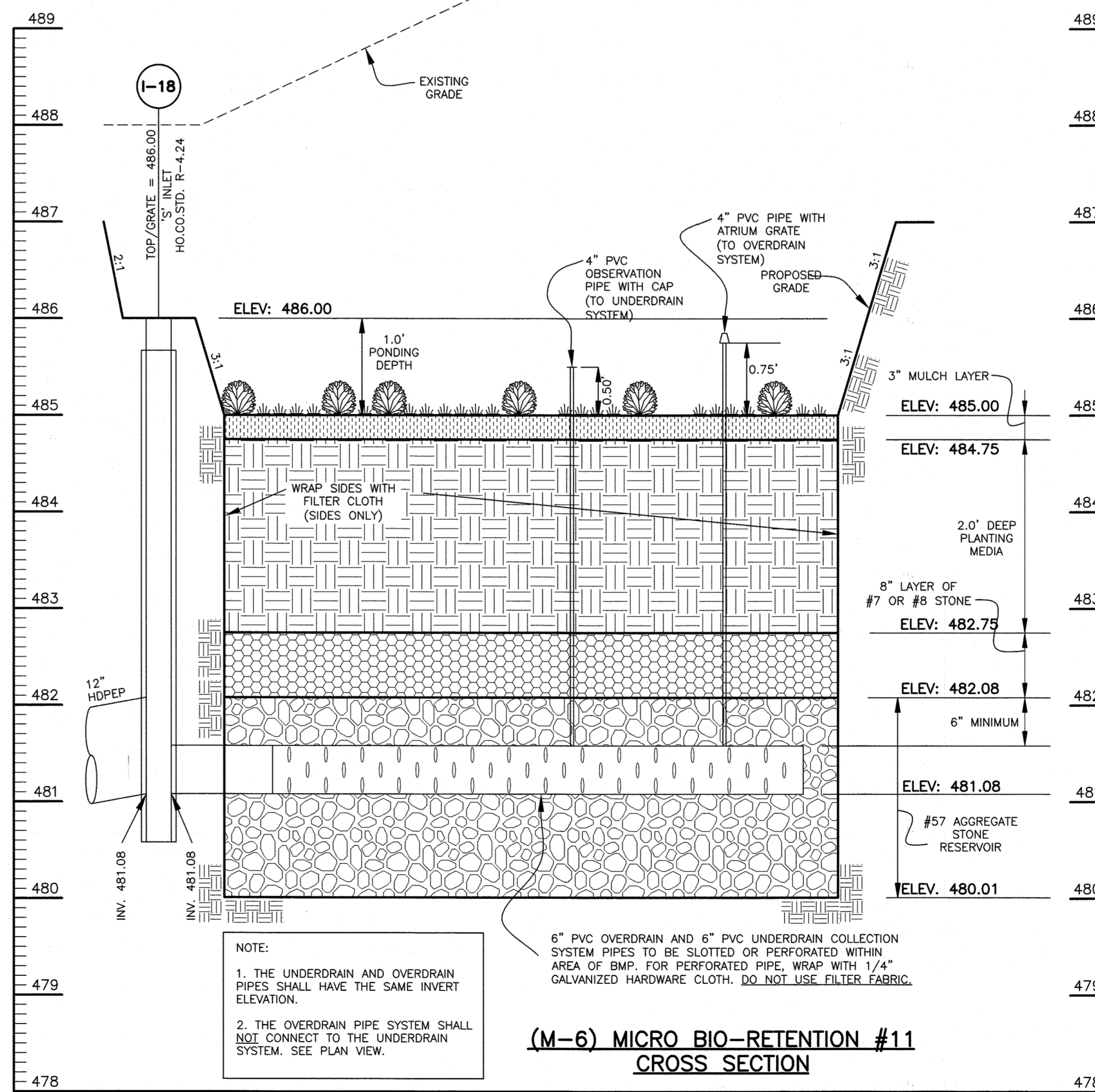
SEE SHEET 8 FOR PLANTING LIST, SPECIES, AND QUANTITIES

PLANTING SHOWN ARE SCHEMATIC. ACTUAL LOCATION OF ALL INDIVIDUAL PLANTINGS TO BE DETERMINED BY THE CONTRACTOR DURING INSTALLATION.



**(M-6) MICRO BIO-RETENTION #10 CROSS SECTION**

NOTE:  
 1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.  
 2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.



**(M-6) MICRO BIO-RETENTION #11 CROSS SECTION**

NOTE:  
 1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.  
 2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9/15/21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
 [Signature] 9/21/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 [Signature] 9-21-21  
 DIRECTOR DATE

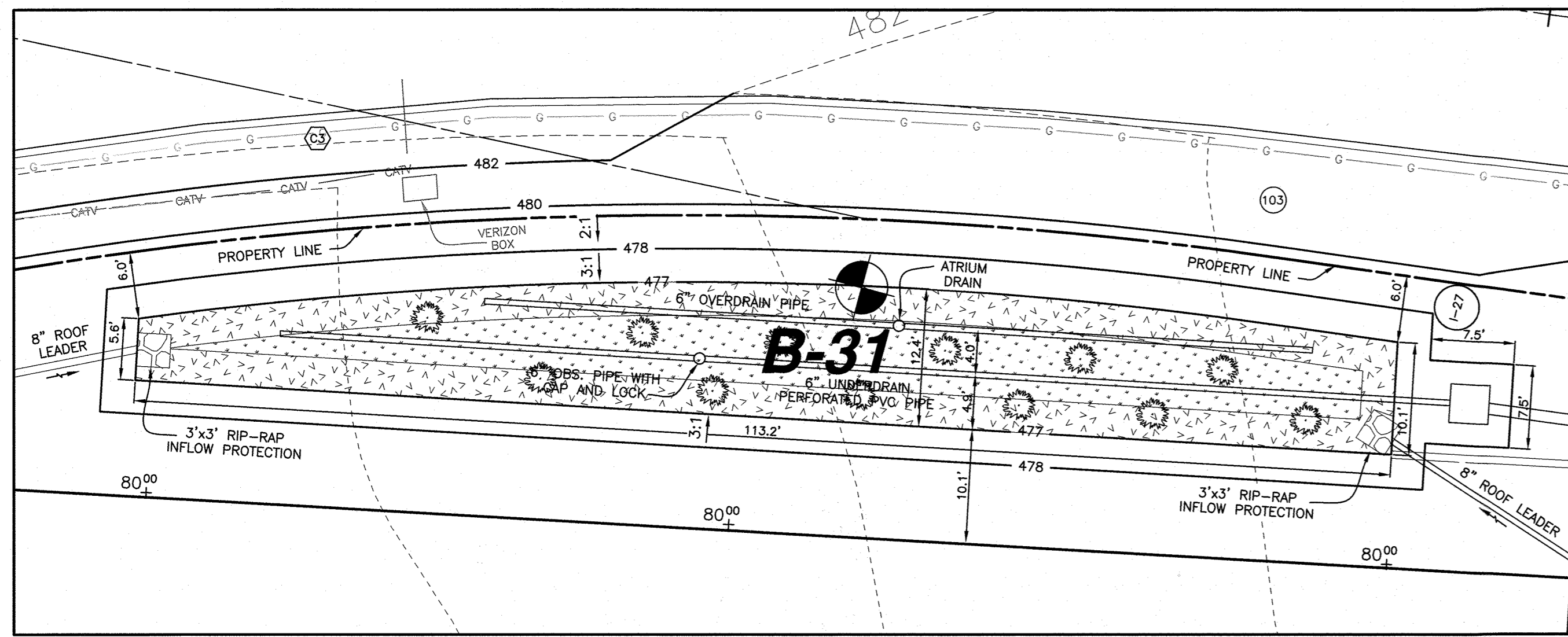
APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021

NO.	DATE	REVISION

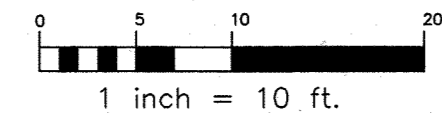
**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 315-A ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 WWW.BEI-CVLENGINEERING.COM

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.

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<b>VILLA APARTMENTS AT TURF VALLEY</b> Parcel B-7 (Previously recorded as Plat No. 25802-25804)
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
<b>STORMWATER MANAGEMENT DETAILS</b>	
DATE: AUGUST 2, 2021 DESIGN: DBT	BEI PROJECT NO. 2957 DRAFT: DBT SCALE: AS SHOWN SHEET 12 OF 32

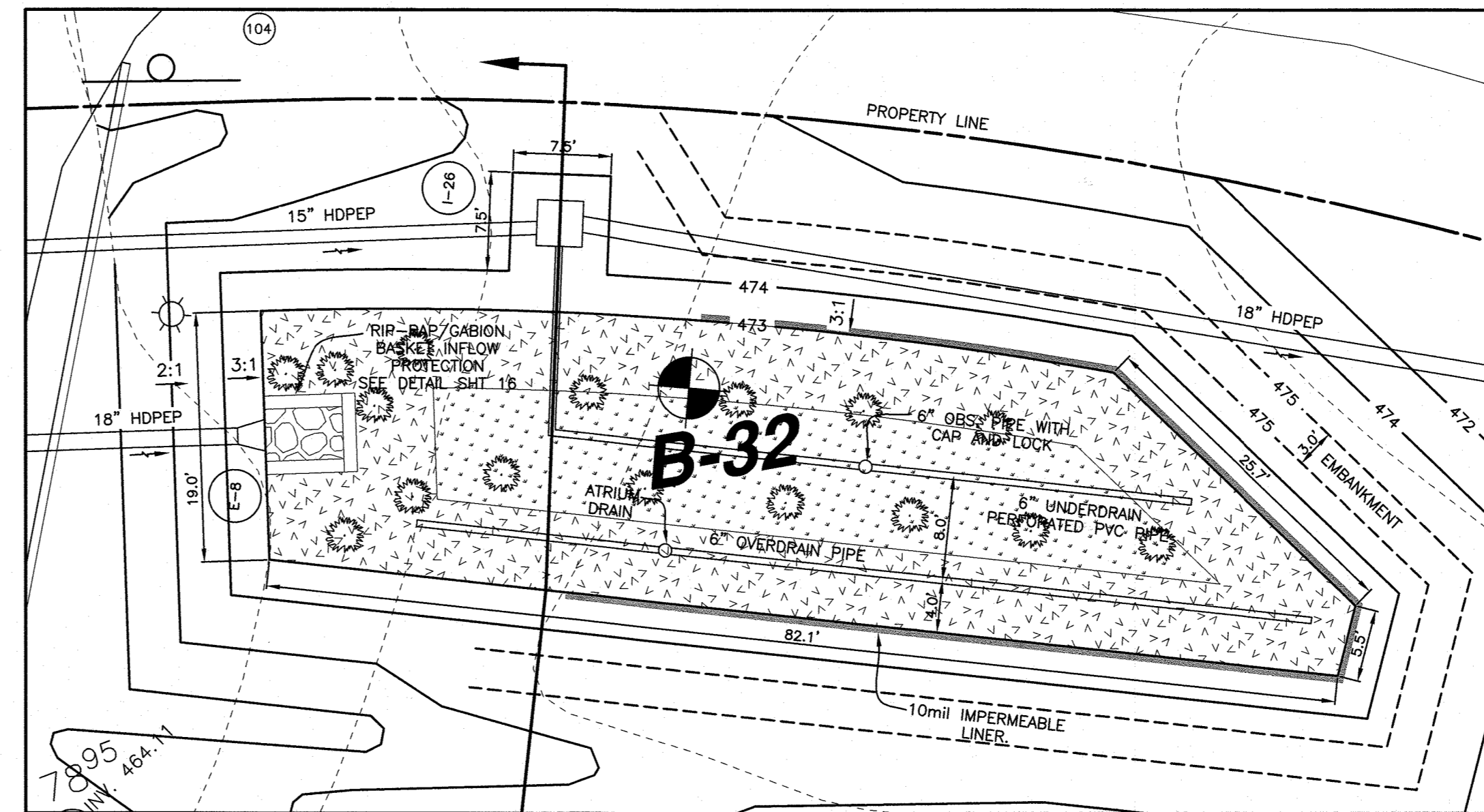


(M-6) MICRO BIO-RETENTION #12

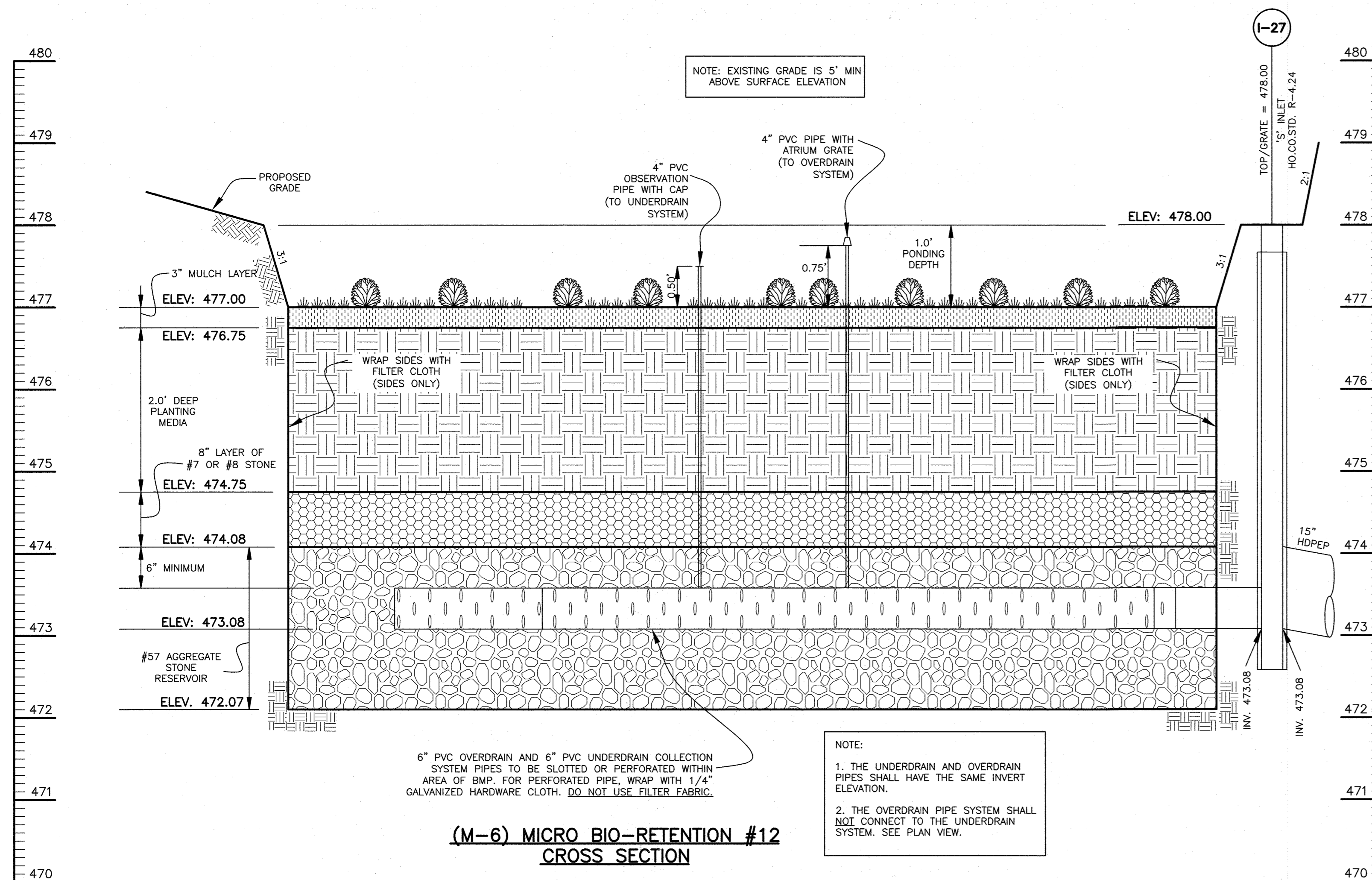
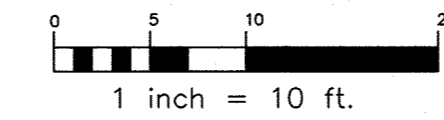


SEE SHEET 8 FOR PLANTING LIST, SPECIES, AND QUANTITIES

PLANTING SHOWN ARE SCHEMATIC. ACTUAL LOCATION OF ALL INDIVIDUAL PLANTINGS TO BE DETERMINED BY THE CONTRACTOR DURING INSTALLATION.



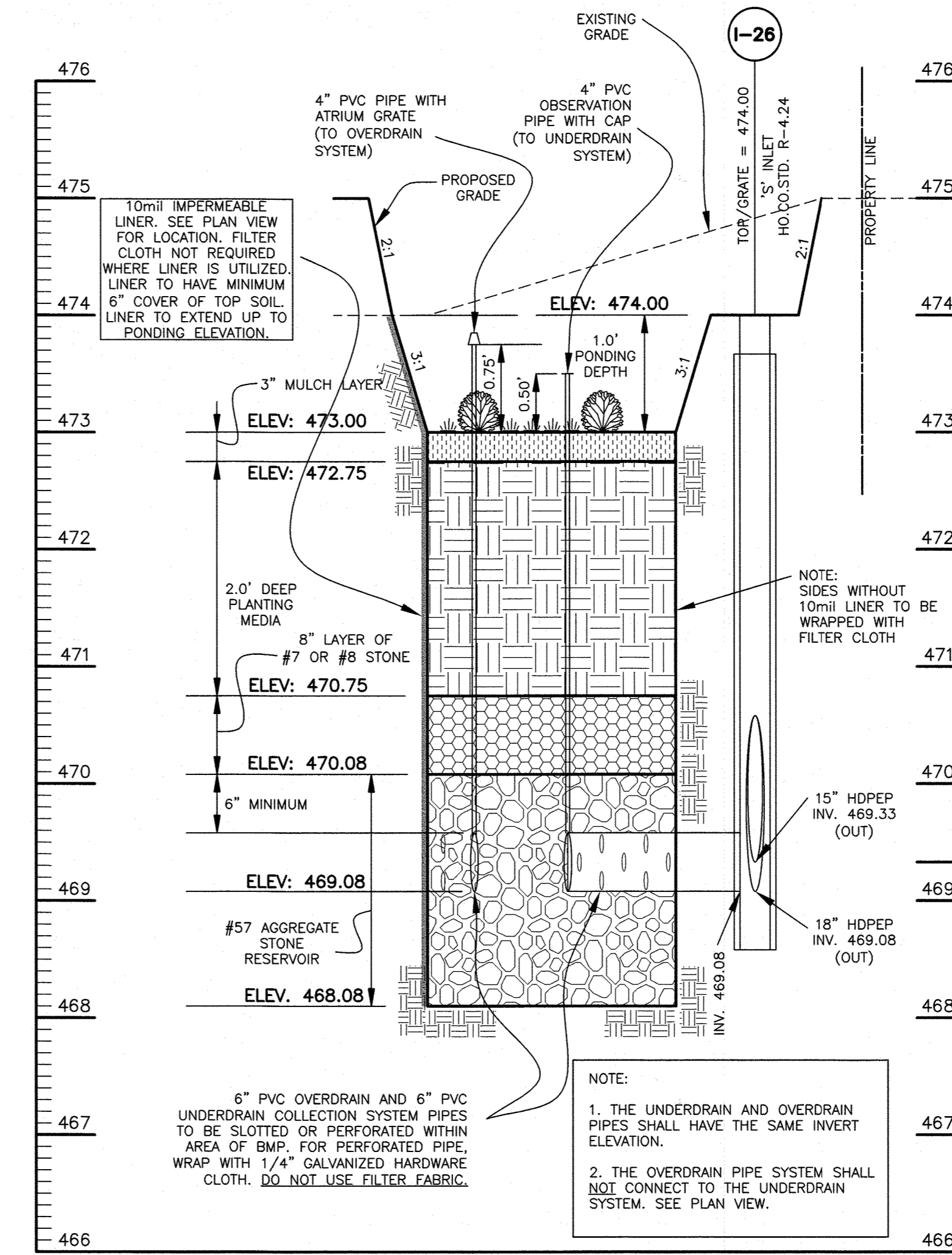
(M-6) MICRO BIO-RETENTION #13



(M-6) MICRO BIO-RETENTION #12  
CROSS SECTION

NOTE: 6" PVC OVERDRAIN AND 6" PVC UNDERDRAIN COLLECTION SYSTEM PIPES TO BE SLOTTED OR PERFORATED WITHIN AREA OF BMP. FOR PERFORATED PIPE, WRAP WITH 1/4" GALVANIZED HARDWARE CLOTH. DO NOT USE FILTER FABRIC.

NOTE:  
1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.  
2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.



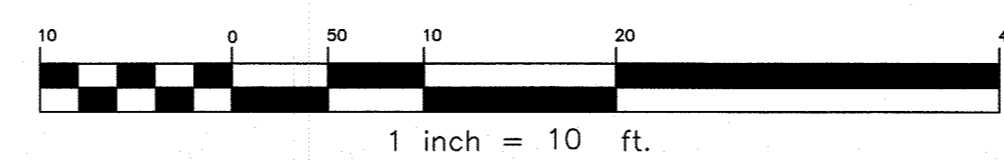
(M-6) MICRO BIO-RETENTION #13  
CROSS SECTION

NOTE: 6" PVC OVERDRAIN AND 6" PVC UNDERDRAIN COLLECTION SYSTEM PIPES TO BE SLOTTED OR PERFORATED WITHIN AREA OF BMP. FOR PERFORATED PIPE, WRAP WITH 1/4" GALVANIZED HARDWARE CLOTH. DO NOT USE FILTER FABRIC.

NOTE:  
1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.  
2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9-15-21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
 [Signature] [Signature]  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 [Signature]  
 DIRECTOR 9-21-21 DATE

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021



NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PINE & SUITE 315-4 ELICOTT 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. 22390

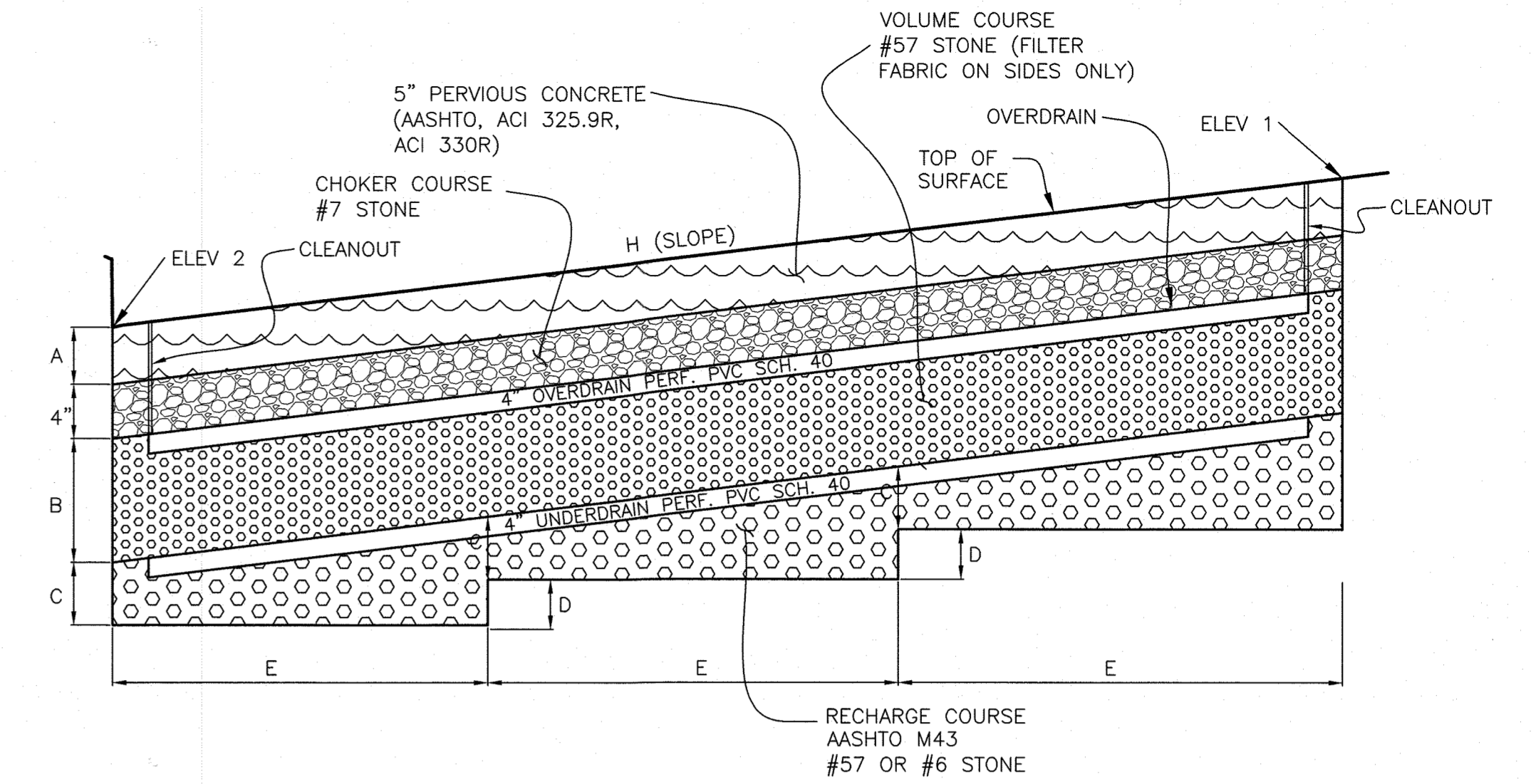
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<b>VILLA APARTMENTS AT TURF VALLEY</b> Parcel B-7 (Previously recorded as Plat No. 25802-25804)
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	TAX MAP: 16 - GRID: 18 - PARCEL: p/o 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
<b>STORMWATER MANAGEMENT DETAILS</b>	
DESIGN: DBT DRAFT: DBT	DATE: AUGUST 2, 2021 SCALE: AS SHOWN SHEET 13 OF 32

PERMEABLE SURFACE DESIGN TABLES

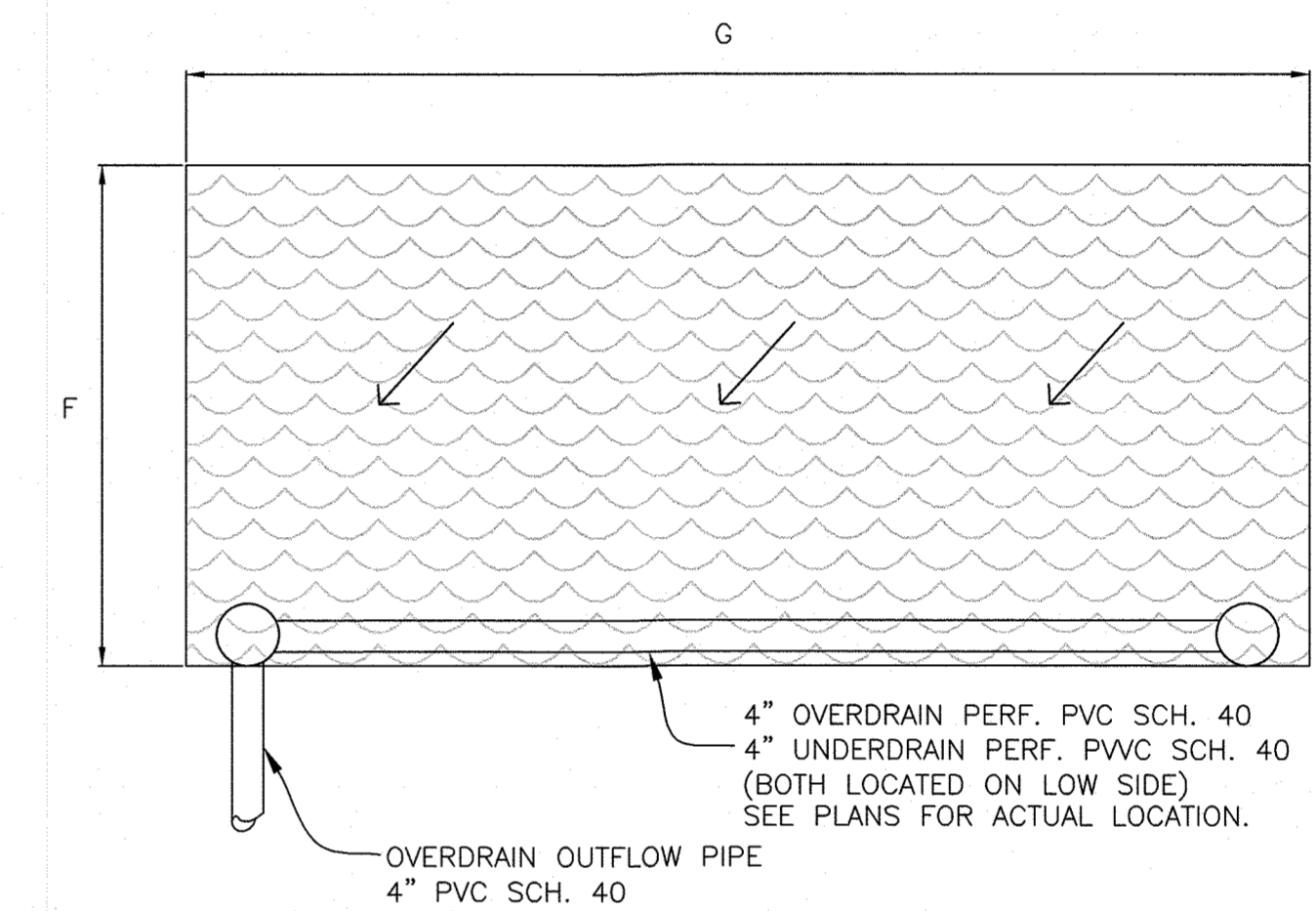
PP-1		PP-2		PP-3		PP-4	
ELEV. 1	503.18	ELEV. 1	503.18	ELEV. 1	503.18	ELEV. 1	503.18
ELEV. 2	500.30	ELEV. 2	502.10	ELEV. 2	502.10	ELEV. 2	498.61
DIMENSIONS		DIMENSIONS		DIMENSIONS		DIMENSIONS	
'A'	0.42'	'A'	0.42'	'A'	0.42'	'A'	0.42'
'B'	1.17'	'B'	1.25'	'B'	1.25'	'B'	1.25'
'C'	0.33'	'C'	0.33'	'C'	0.33'	'C'	0.33'
'D'	0.58'	'D'	0.54'	'D'	0.58'	'D'	0.91'
'E'	19.4'	'E'	18.0'	'E'	18.0'	'E'	22.6'
'F'	36'	'F'	36'	'F'	36'	'F'	36'
'G'	90'	'G'	90'	'G'	90'	'G'	108'
'H'	3.0%	'H'	3.0%	'H'	3.0%	'H'	4.0%

PP-5		PP-6		PP-7		PP-8	
ELEV. 1	501.38	ELEV. 1	501.18	ELEV. 1	501.18	ELEV. 1	501.38
ELEV. 2	497.41	ELEV. 2	500.30	ELEV. 2	500.30	ELEV. 2	498.00
DIMENSIONS		DIMENSIONS		DIMENSIONS		DIMENSIONS	
'A'	0.42'	'A'	0.42'	'A'	0.42'	'A'	0.42'
'B'	1.00'	'B'	1.00'	'B'	1.00'	'B'	1.00'
'C'	0.33'	'C'	0.33'	'C'	0.33'	'C'	0.33'
'D'	0.99'	'D'	0.44'	'D'	0.44'	'D'	0.68'
'E'	28.25'	'E'	18.0'	'E'	18.0'	'E'	19.4'
'F'	108'	'F'	36'	'F'	36'	'F'	36'
'G'	36'	'G'	90'	'G'	90'	'G'	90'
'H'	3.5%	'H'	2.4%	'H'	2.4%	'H'	3.5%



TYPICAL PROFILE



NOTE: DO NOT OUTFALL OVERDRAINS INTO ANY MICRO-BIOTRETIN FACILITY

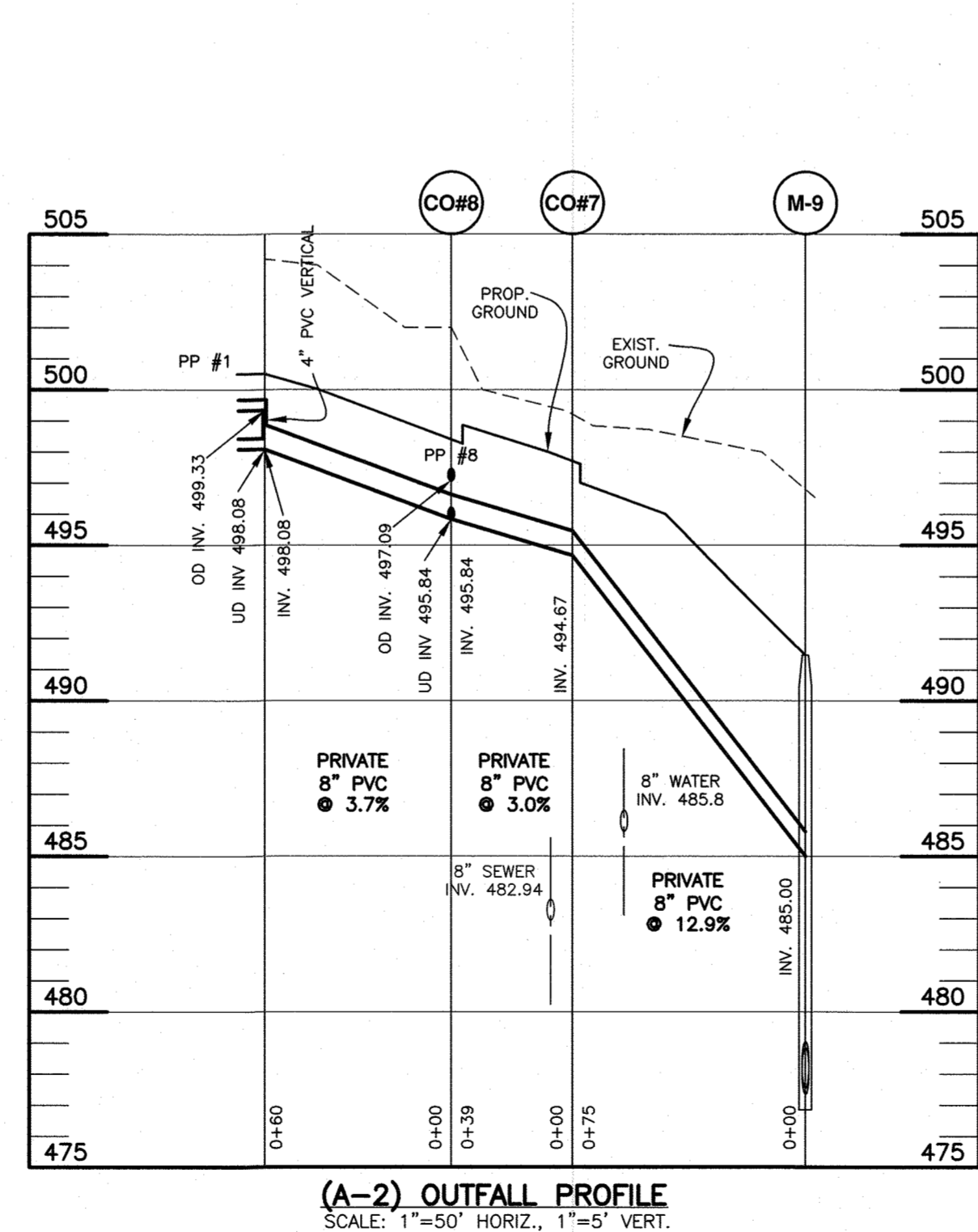
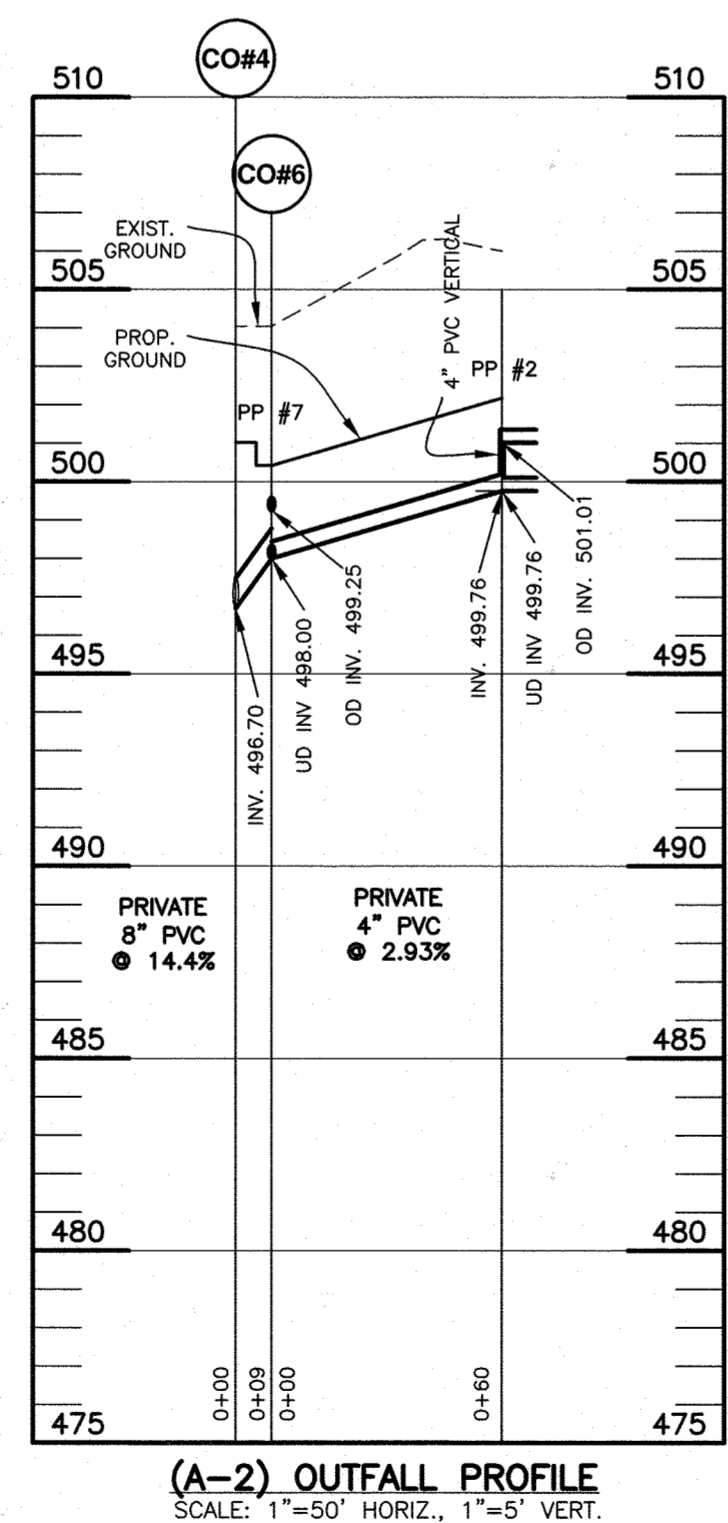
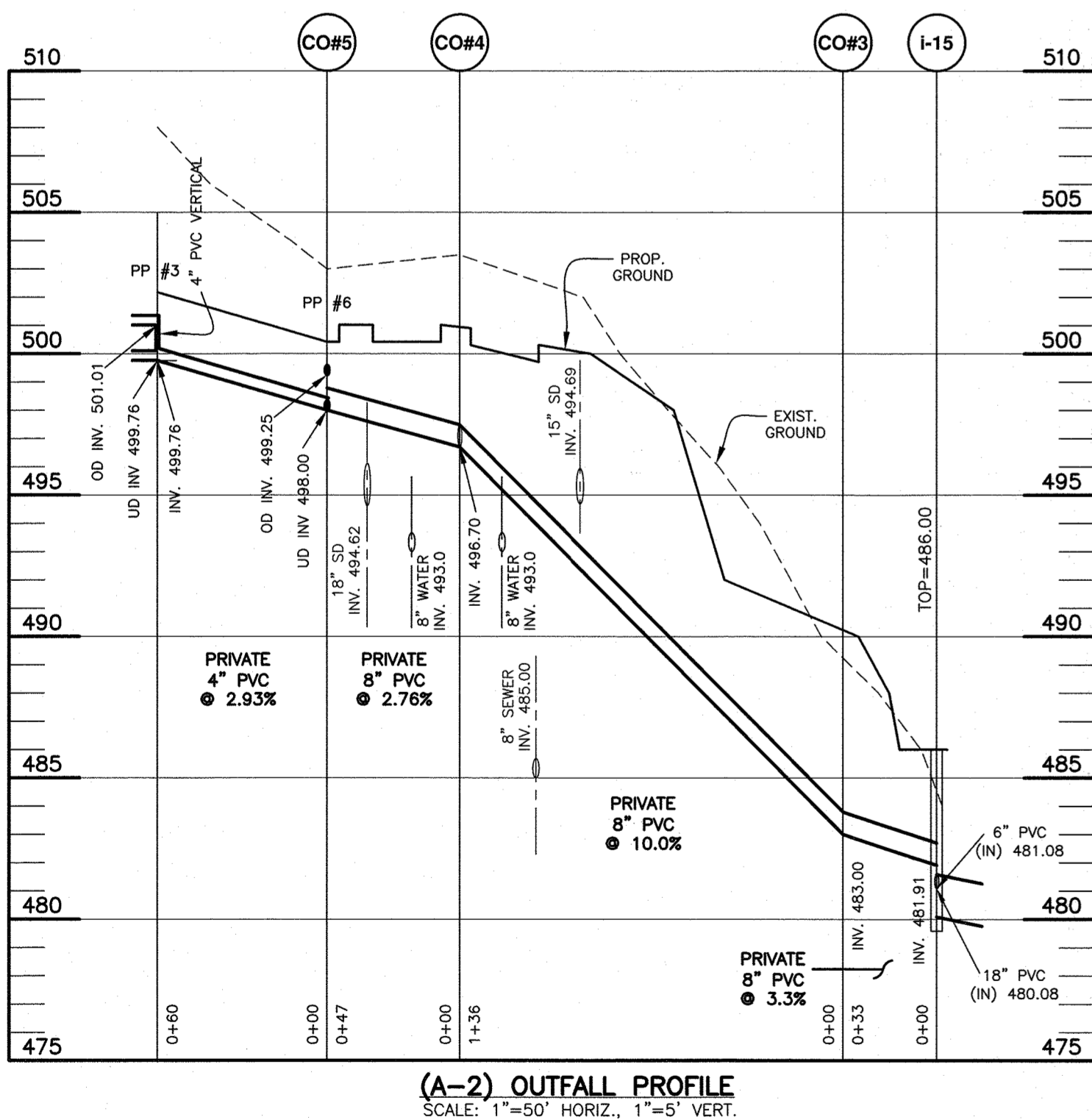
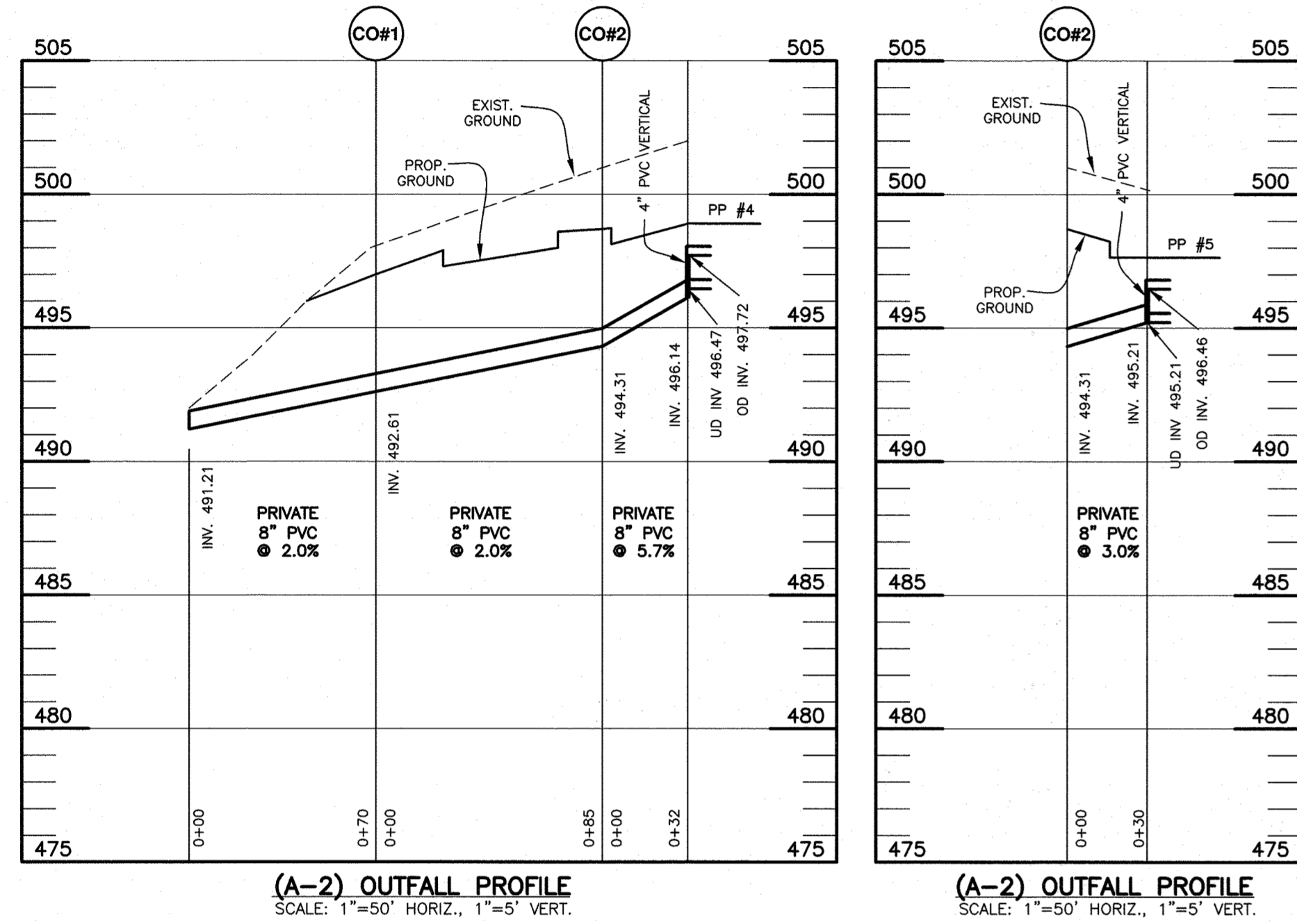
TYPICAL PLAN VIEW

TYPICAL PERMEABLE SURFACE (A-2) BMP DETAILS

NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR PERMEABLE PAVEMENT (A-2)

- Pavement surfaces should be swept and vacuumed (if porous concrete) to reduce sediment accumulations and ensure continued porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Washing or compressed air units should not be used to perform surface cleaning.
- Drainage pipes, inlets, stone edge drains and other structures within or drainage to the subbase should be cleaned out at regular intervals.
- Deicers should be used in moderation. Deicers should be non-toxic and be applied either as calcium magnesium acetate or as pretreated salt. Snow plowing should be done carefully with blades set on-inch above the surface. Plowed snow piles and snowmelt should not be directed to permeable pavement.



CONSTRUCTION AND INSPECTION SPECIFICATIONS FOR ALTERNATIVE SURFACES (A-2 PERMEABLE PAVING)

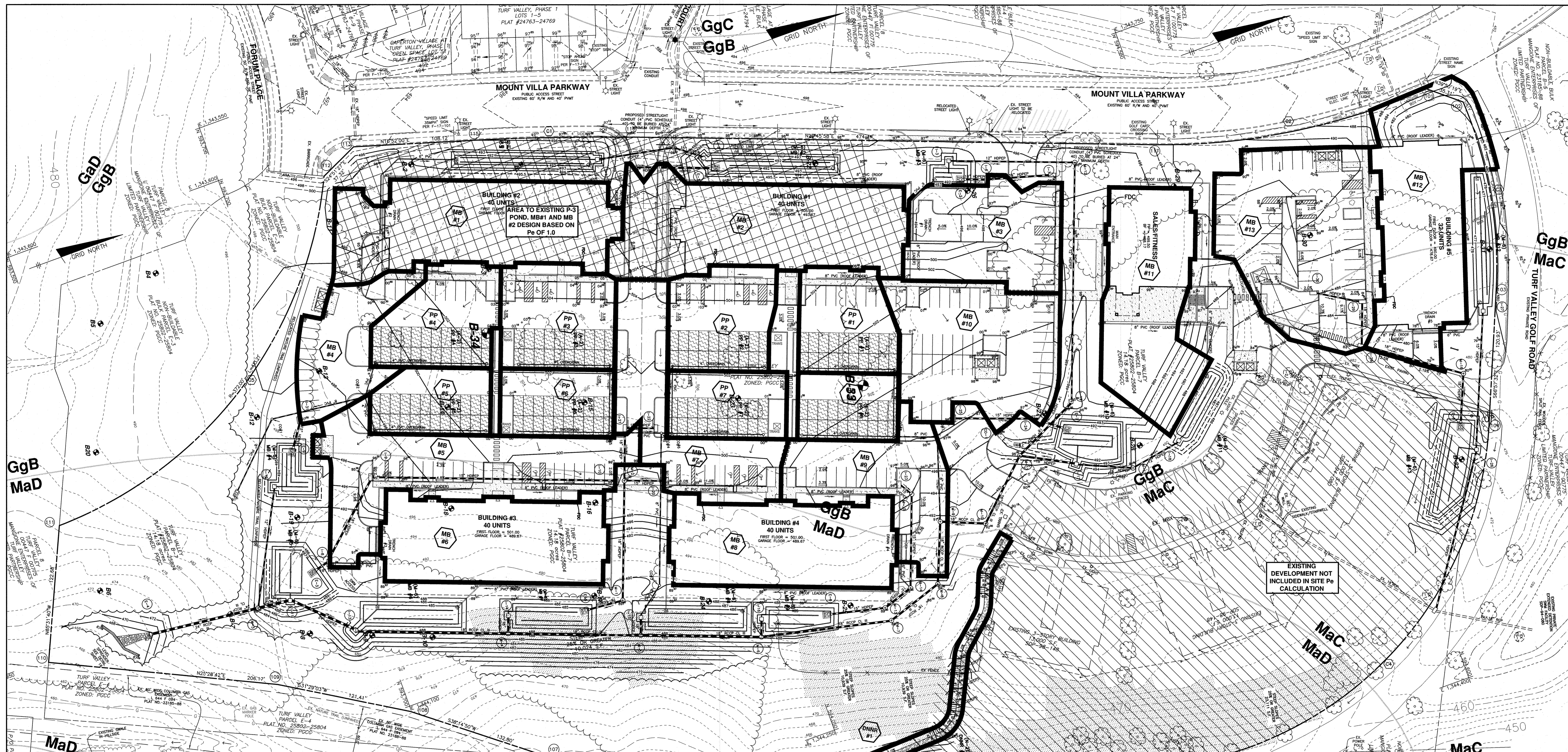
- Erosion and Sediment Control:** Final grading for installation shall not take place until the surrounding site is stabilized. If this cannot be accomplished, runoff from disturbed areas shall be diverted around proposed pavement locations.
- Soil Compaction:** Sub soils shall not be compacted. Construction should be performed with lightweight, wide tracked equipment to minimize compaction. Excavated materials should be placed in a contained area.
- Distribution Systems:** Overdrain, underdrain, and distribution pipes shall be checked to ensure that both the material and perforations meet specifications (see Appendix B.4). The upstream ends of pipes should be capped prior to installation. All underdrain or distribution pipes used should be installed flat along the bed bottom.
- Subbase Installation:** Subbase aggregate shall be clean, washed, and free of fines. The subbase shall be placed in lifts and lightly rolled according to the specifications (see Appendix B.4).
- Inspection:** Regular inspections shall be made during the following stages of construction:
  - During excavation to subgrade.
  - During placement and backfill of any drainage or distribution system(s).
  - During placement of the subbase material.
  - During placement of the surface material.
  - Upon completion of final grading and establishment of permanent stabilization.

NOTE: CONTRACTOR SHALL AVOID HEAVY EQUIPMENT AND WATER RUN-ON IN THE AREA OF THE PROPOSED PERVIOUS PAVEMENT. CONTRACTOR SHOULD CONSIDER LAYING A TEMPORARY BASE PAVEMENT OVER THE AREA WHERE PERVIOUS PAVEMENT IS TO BE INSTALLED AND THEN REMOVE BASE PAVEMENT WHEN THE PERVIOUS PAVEMENT SECTION IS TO BE INSTALLED.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9/5/21 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 9/20/21 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 9-21-21 DATE  
 DIRECTOR

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021

NO. DATE REVISION		
<p><b>BENCHMARK</b>                  ENGINEERS &amp; PLANNERS, INC.                  8480 BALTIMORE NATIONAL PIKE &amp; SUITE 315 • ELICOTT CITY, MARYLAND 21043                  (P) 410-465-8109 (F) 410-465-8944                  WWW.BEI-CVLENGINEERING.COM</p>		
OWNER:	VILLA APARTMENTS AT TURF VALLEY Parcel B-7 (Previously recorded as Plat No. 25802-25804)	
DEVELOPER:	MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	
DESIGN:	DBT	DRAFT: DBT
DATE:	AUGUST 2, 2021	BEI PROJECT NO. 2957
SCALE:	AS SHOWN	SHEET 14 OF 32



APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 9/21/21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 9/21/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

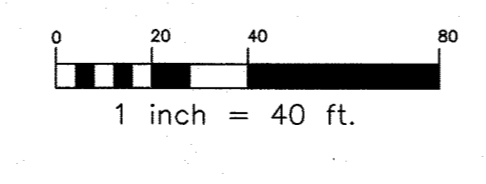
*[Signature]* 9-21-21  
 DIRECTOR DATE

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY

DATE JULY 22, 2021

SWM Drainage Info		
	DA (acres)	% Imp
MB #1	0.45	96%
MB #2	0.46	88%
MB #3	0.28	61%
MB #4	0.20	84%
MB #5	0.44	81%
MB #6	0.36	100%
MB #7	0.31	77%
MB #8	0.36	100%
MB #9	0.25	82%
MB #10	0.39	92%
MB #11	0.35	60%
MB #12	0.42	74%
MB #13	0.52	80%
PP #1	0.18	91%
PP #2	0.19	91%
PP #3	0.19	91%
PP #4	0.20	95%
PP #5	0.14	100%
PP #6	0.14	100%
PP #7	0.14	100%
PP #8	0.12	100%
DNNR #1	0.13	50%

SEE SHEET 1 FOR STORMWATER MANAGEMENT SUMMARY TABLE



NO.	DATE

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-8108 (F) 410-465-6844  
 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. 00018

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

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

**DESIGN:** DBT **DRAFT:** DBT

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

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

**STORMWATER MANAGEMENT ESD TO THE MEP DRAINAGE AREA MAP**

DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN SHEET 15 OF 32

SDP-21-001

STORM DRAIN STRUCTURE SCHEDULE								
STRUCTURE	TYPE	HO.CO. STD. DETAIL	LOCATION	INVERT IN	INVERT OUT	TOP ELEVATION	MAINTENANCE	
INLETS								
I-1	S	D-4.24	N 594025.22 E 1343697.98	488.08 (6")	488.08 (15")	493.00	PRIVATE	
I-2	S	D-4.24	N 594114.78 E 1343729.65	488.08 (6")	488.08 (15")	493.00	PRIVATE	
I-3	S	D-4.24	N 594320.61 E 1343806.48	488.08 (6")	488.08 (12")	493.00	PRIVATE	
I-4	A-5 (2.5' width)	D-4.02	N 594073.15 E 1343723.24	494.92 (15")	494.67 (18")	499.32	PRIVATE	
I-5	A-5 (2.5' width)	D-4.02	N 594050.67 E 1343714.81	-	495.47 (15")	499.32	PRIVATE	
I-6	A-5 (2.5' width)	D-4.02	N 594348.27 E 1343834.20	492.35 (15")	492.10 (18")	496.64	PRIVATE	
I-7	A-5 (2.5' width)	D-4.02	N 594400.31 E 1343857.27	-	493.34 (15")	496.94	PRIVATE	
I-8	A-5 (3.0' width)	D-4.02	N 593677.40 E 1343955.55	487.45 (18")	487.25 (18")	491.64	PRIVATE	
I-9	A-5 (3.0' width)	D-4.02	N 593788.89 E 1343896.34	489.40 (15")	489.15 (18")	496.54	PRIVATE	
I-10	A-5 (2.5' width)	D-4.02	N 593941.48 E 1343973.16	-	493.80 (15")	496.95	PRIVATE	
I-11	S	D-4.24	N 593632.03 E 1343974.77	468.91 (24")	483.08 (6")	468.71 (24")	PRIVATE	
I-12	S	D-4.24	N 593653.57 E 1343874.21	489.08 (6")	489.08 (12")	494.00	PRIVATE	
I-13	S	D-4.24	N 593677.90 E 1344016.63	470.05 (18")	481.08 (6")	469.55 (24")	PRIVATE	
I-14	S	D-4.24	N 593810.59 E 1344054.20	471.64 (18")	481.08 (6")	471.44 (18")	PRIVATE	
I-15	S	D-4.24	N 593921.72 E 1344096.30	473.03 (18")	481.08 (6")	472.83 (18")	PRIVATE	
I-16	S	D-4.24	N 594022.66 E 1344134.57	474.31 (18")	481.08 (6")	474.11 (18")	PRIVATE	
I-17	S	D-4.24	N 594335.12 E 1344100.38	480.14 (12")	482.08 (6")	479.54 (18")	PRIVATE	
I-18	S	D-4.24	N 594428.61 E 1344112.11	-	481.08 (6")	486.00	PRIVATE	
I-19	S	D-4.24	N 594349.92 E 1344046.21	482.35 (12")	-	481.85 (18")	PRIVATE	
I-20	DOUBLE WR	D-4.31	N 593984.88 E 1343969.62	-	494.85 (15")	499.35	PRIVATE	
I-21	A-5 (2.5' width)	D-4.02	N 593967.96 E 1343932.94	494.99 (15")	-	494.74 (18")	PRIVATE	
I-22	A-5 (2.5' width)	D-4.02	N 593990.40 E 1343941.45	-	495.54 (15")	500.64	PRIVATE	
I-23	A-5 (2.5' width)	D-4.02	N 594178.05 E 1344062.87	-	493.42 (15")	497.52	PRIVATE	
I-24	A-5 (2.5' width)	D-4.02	N 594316.84 E 1344050.57	492.36 (15")	-	482.11 (18")	PRIVATE	
I-25	A-5 (2.5' width)	D-4.02	N 594244.20 E 1344023.78	-	494.36 (15")	498.87	PRIVATE	
I-26	S	D-4.24	N 594676.36 E 1344210.82	469.33 (12")	469.08 (18")	474.00	PRIVATE	
I-27	S	D-4.24	N 594724.45 E 1344098.38	-	473.08 (6")	478.00	PRIVATE	
I-28	A-5 (2.5' width)	D-4.02	N 594510.05 E 1344069.98	478.41 (18")	-	482.18	PRIVATE	
I-29	A-5 (2.5' width)	D-4.02	N 594428.14 E 1344049.79	481.24 (15")	-	485.47	PRIVATE	
I-30	A-5 (2.5' width)	D-4.02	N 594587.50 E 1344027.55	-	483.00 (15")	486.85	PRIVATE	
I-31	A-5 (2.5' width)	D-4.02	N 593696.34 E 1343826.28	-	493.52 (15")	497.60	PRIVATE	
CO-1	4' curb opening	N/A	N 594278.67 E 1344048.35	-	-	TC=497.60	PRIVATE	

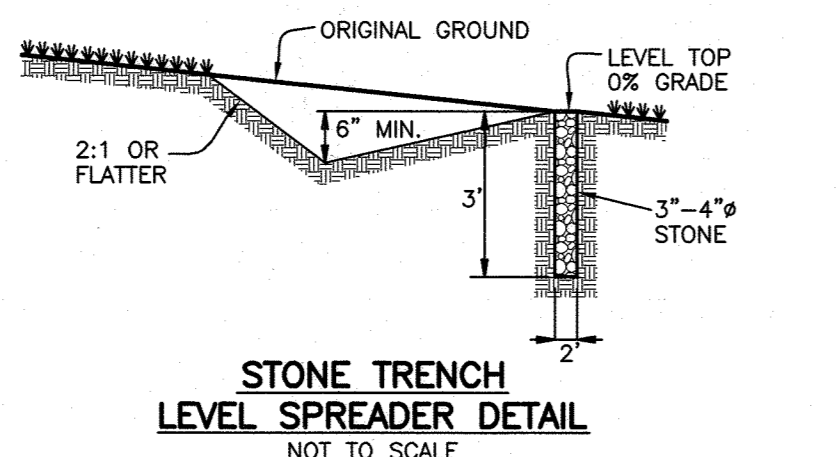
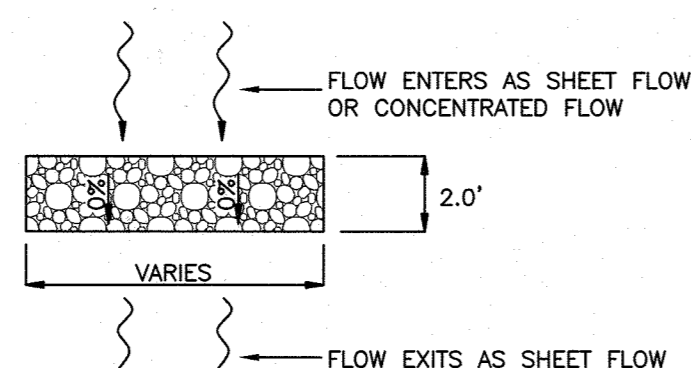
MANHOLES								
MANHOLE	DIAMETER	HO.CO. STD. DETAIL	LOCATION	INVERT IN	INVERT OUT	TOP ELEVATION	MAINTENANCE	
M-1	4' Diameter Pre-Cast	G-5.12	N 593911.74 E 1344076.27	485.36 (18")	485.16 (18")	489.00	PRIVATE	
M-2	4' Diameter Pre-Cast	G-5.12	N 593949.66 E 1343976.26	493.39 (18")	493.64 (15")	499.00	PRIVATE	
M-3	4' Diameter Pre-Cast	G-5.12	N 593602.72 E 1343971.34	468.42 (24")	480.00 (12")	468.00	PRIVATE	
M-4	4' Diameter Pre-Cast	G-5.12	N 593805.02 E 1344069.16	471.62 (18")	479.76 (18")	471.42 (18")	PRIVATE	
M-5	4' Diameter Pre-Cast	G-5.12	N 593916.05 E 1344111.26	473.01 (18")	479.76 (18")	488.00	PRIVATE	
M-6	4' Diameter Pre-Cast	G-5.12	N 594016.98 E 1344149.53	474.29 (18")	479.76 (18")	474.09 (18")	PRIVATE	
M-7	4' Diameter Pre-Cast	G-5.12	N 594131.66 E 1344175.37	475.67 (18")	-	475.47 (18")	PRIVATE	
M-8	4' Diameter Pre-Cast	G-5.12	N 594181.80 E 1344158.87	476.78 (18")	-	476.58 (18")	PRIVATE	
M-9	4' Diameter Pre-Cast	G-5.12	N 594202.98 E 1344107.20	477.54 (18")	485.00 (8")	491.47	PRIVATE	
M-10	4' Diameter Pre-Cast	G-5.12	N 594240.54 E 1344122.59	478.15 (18")	-	477.95 (18")	PRIVATE	
M-11	4' Diameter Pre-Cast	G-5.12	N 594289.90 E 1344075.95	479.03 (18")	479.03 (18")	496.00	PRIVATE	
M-12	4' Diameter Pre-Cast	G-5.12	N 594426.02 E 1343846.45	485.76 (12")	-	485.56 (12")	PRIVATE	
M-13	4' Diameter Pre-Cast	G-5.12	N 594130.22 E 1344162.81	485.45 (15")	-	485.25 (15")	PRIVATE	
M-14	4' Diameter Pre-Cast	G-5.12	N 594157.63 E 1344153.84	485.80 (15")	486.55 (6")	489.00	PRIVATE	
M-15	4' Diameter Pre-Cast	G-5.12	N 594187.37 E 1344075.41	492.72 (15")	-	486.22 (15")	PRIVATE	
M-16	4' Diameter Pre-Cast	G-5.12	N 594688.52 E 1344142.86	474.08 (18")	-	473.88 (18")	PRIVATE	
M-17	4' Diameter Pre-Cast	G-5.12	N 594381.49 E 1344121.01	480.83 (12")	-	491.00	PRIVATE	

END SECTIONS								
END SECTION	DIAMETER	HO.CO. STD. DETAIL	LOCATION	INVERT IN	INVERT OUT	TOP ELEVATION	MAINTENANCE	
E-1	18" HDPEP see detail	N/A	N 594118.36 E 1343740.38	N/A	N/A	492.00	PRIVATE	
E-2	18" HDPEP see detail	N/A	N 594327.67 E 1343826.64	N/A	N/A	492.00	PRIVATE	
E-3	18" HDPEP see detail	N/A	N 593662.52 E 1343957.24	N/A	N/A	487.00	PRIVATE	
E-4	24" Conc. End Section	D-5.51	N 593803.31 E 1343960.45	N/A	N/A	467.22	PRIVATE	
E-5	18" HDPEP see detail	N/A	N 593879.57 E 1344073.57	N/A	N/A	485.00	PRIVATE	
E-6	15" HDPEP see detail	N/A	N 594082.17 E 1344151.50	N/A	N/A	485.00	PRIVATE	
E-7	18" HDPEP see detail	N/A	N 594334.85 E 1344066.04	N/A	N/A	492.00	PRIVATE	
E-8	18" HDPEP see detail	N/A	N 594671.22 E 1344183.53	N/A	N/A	473.00	PRIVATE	
E-9	15" HDPEP see detail	N/A	N 593880.93 E 1343848.05	N/A	N/A	493.00	PRIVATE	

STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE.  
 STRUCTURE LOCATION FOR TYPE 'A-S' INLETS IS AT THE FRONT CENTER OF THE INLET.  
 STRUCTURE LOCATION FOR TYPE 'S' AND 'WR' INLETS IS AT THE CENTER OF THE GRATE.  
 STRUCTURE LOCATION FOR ENDSECTION IS AT THE MIDPOINT OF THE END OF THE END SECTION.  
 PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.

STORM DRAIN PIPE SCHEDULE			
SIZE	TYPE	LENGTH (LF)	MAINTENANCE
12"	HDPEP	752	PRIVATE
15"	HDPEP	695	PRIVATE
18"	HDPEP	966	PRIVATE
18"	RCCP CL III	699	PRIVATE
24"	RCCP CL III	193	PRIVATE

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



ADS, Inc. Drainage Handbook Specifications • 1-36

ADS FLARED END SECTION SPECIFICATION

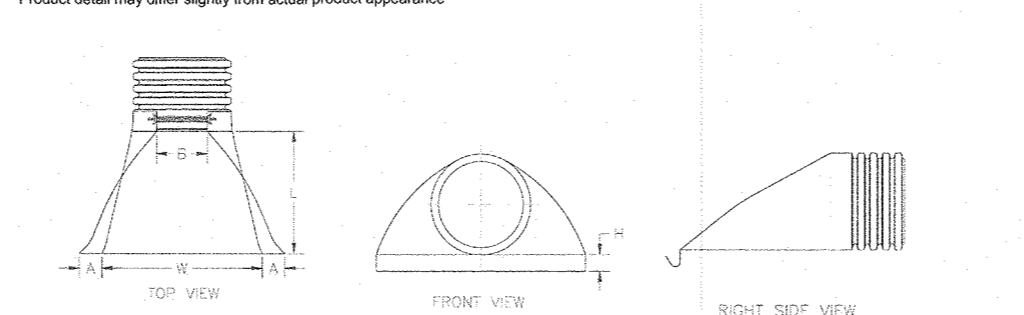
Scope: This specification describes 12-, through 36-inch (300 to 900mm) ADS Flared End Sections for use in culvert and drainage outlet applications.

Requirements: The ADS Flared End Section shall be high density polyethylene meeting ASTM D3350 minimum cell classification 213320C; contact manufacturer for additional cell classification information. When provided, the metal threaded fastening rod shall be stainless steel.

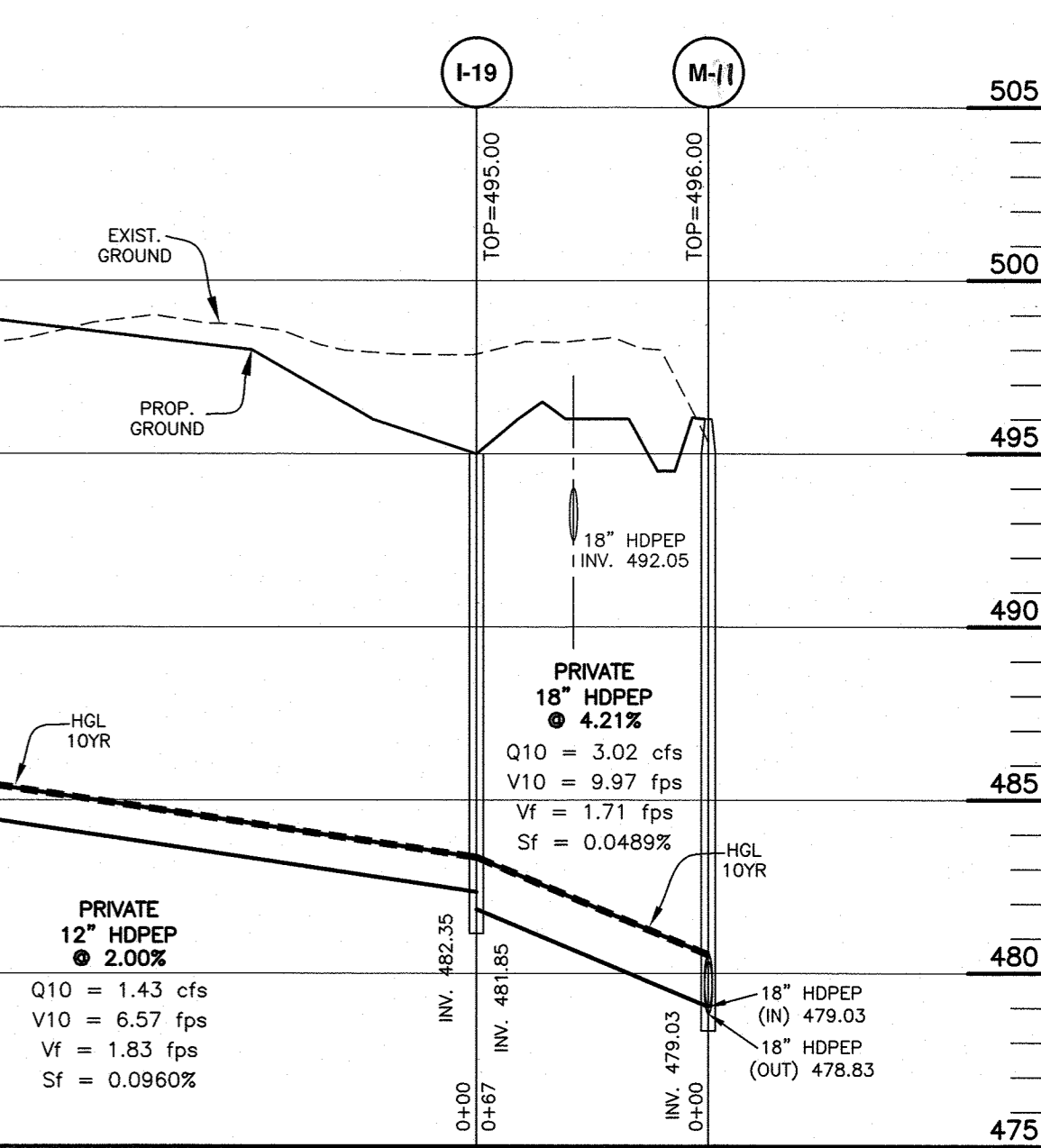
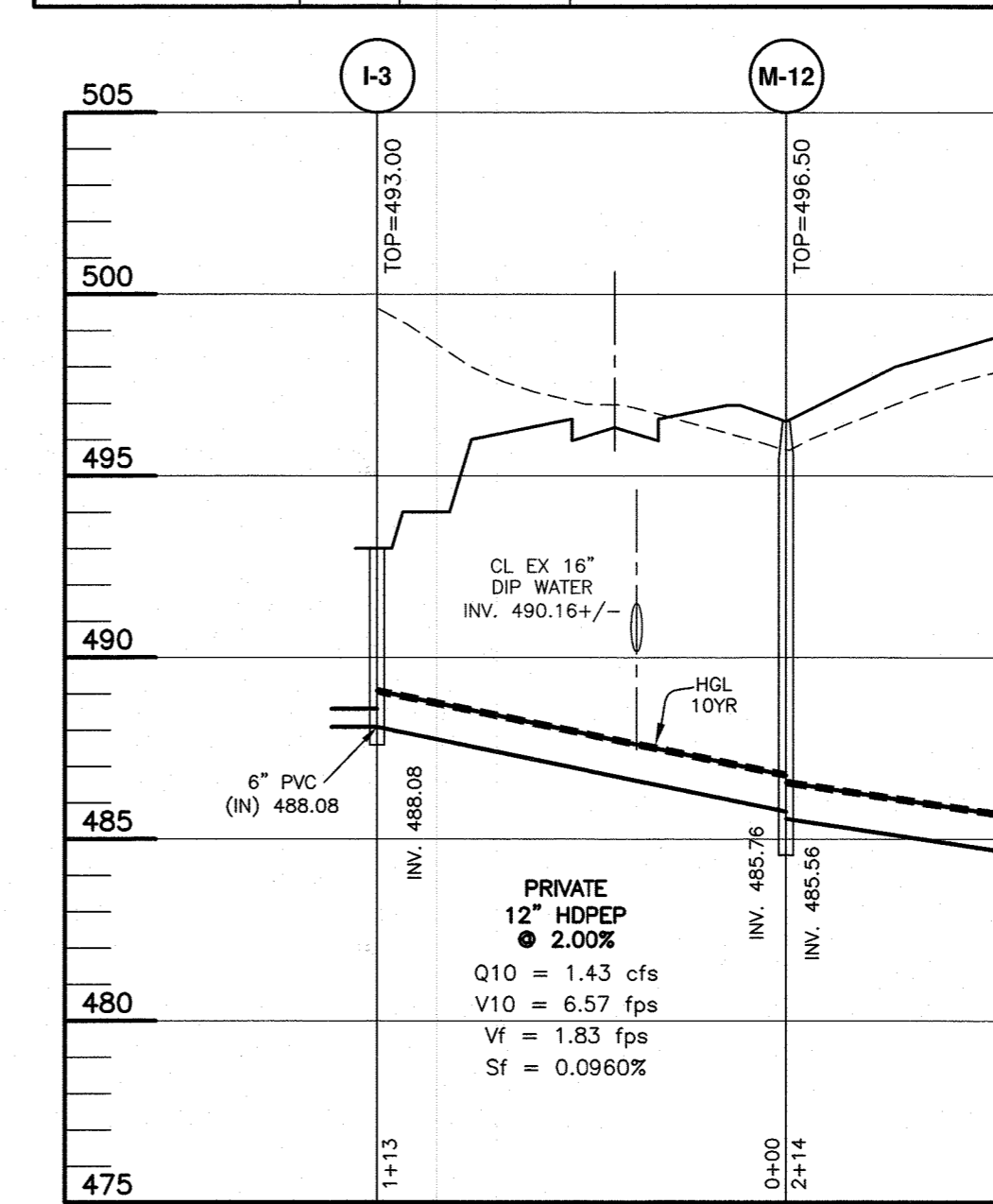
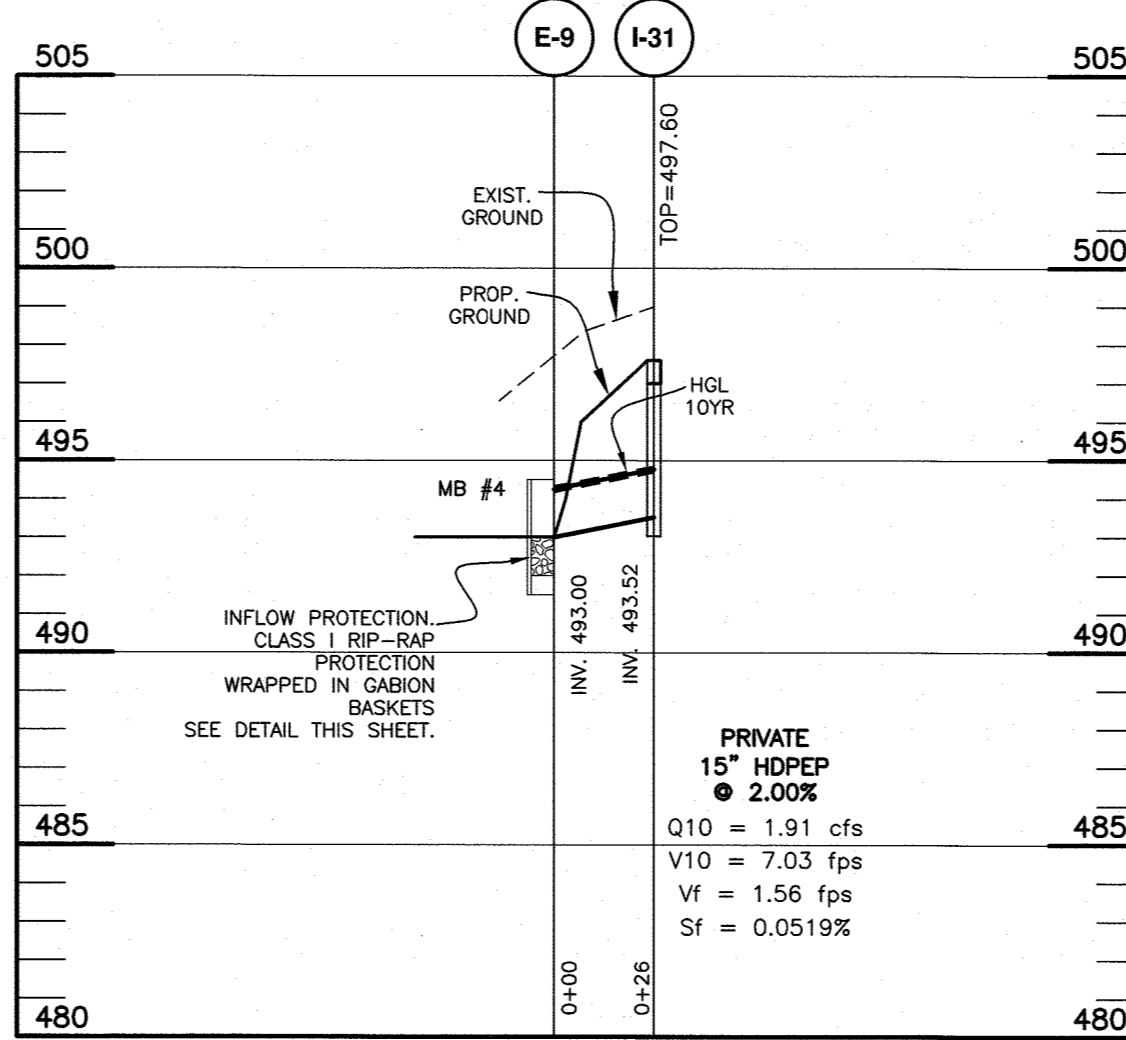
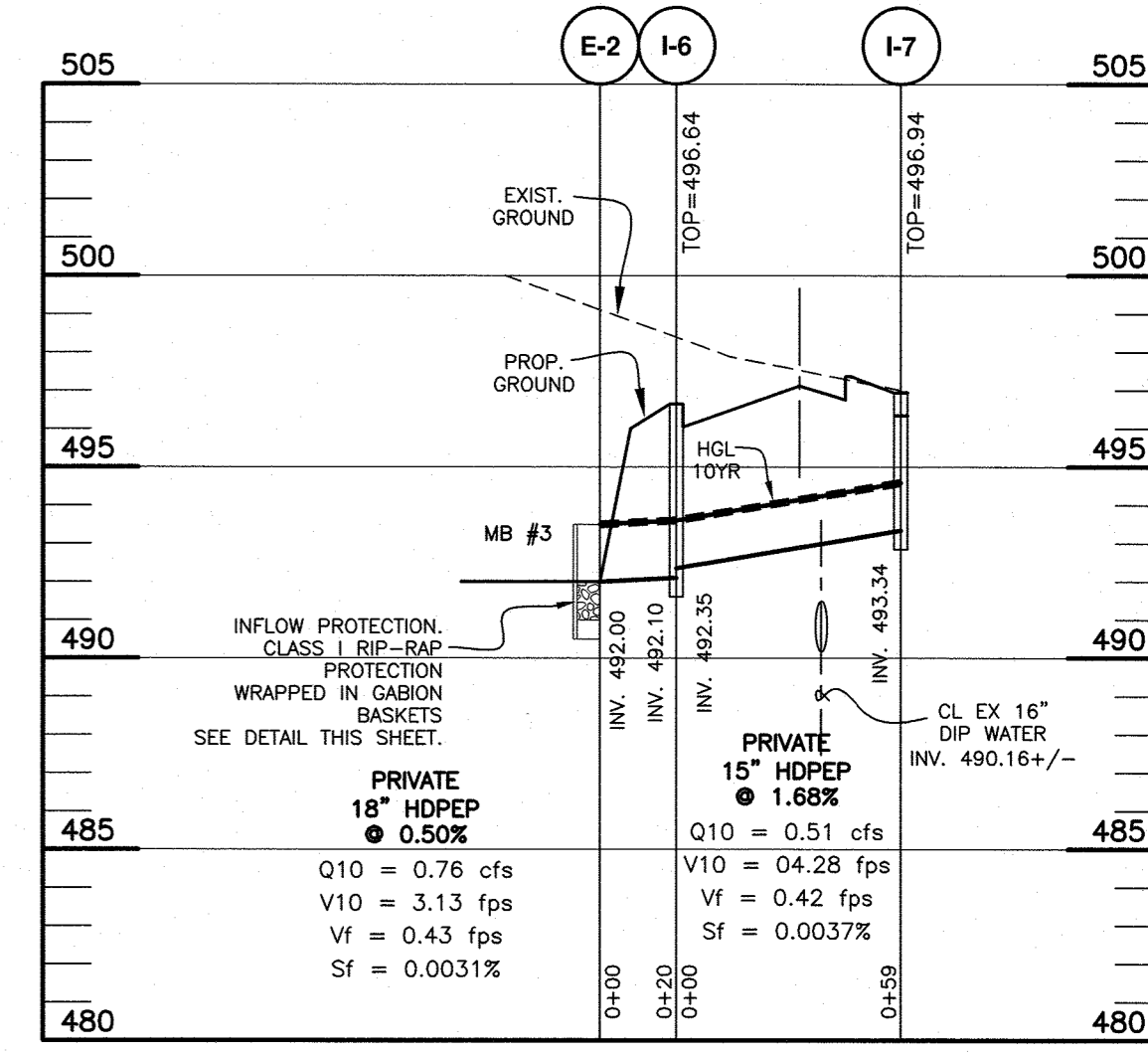
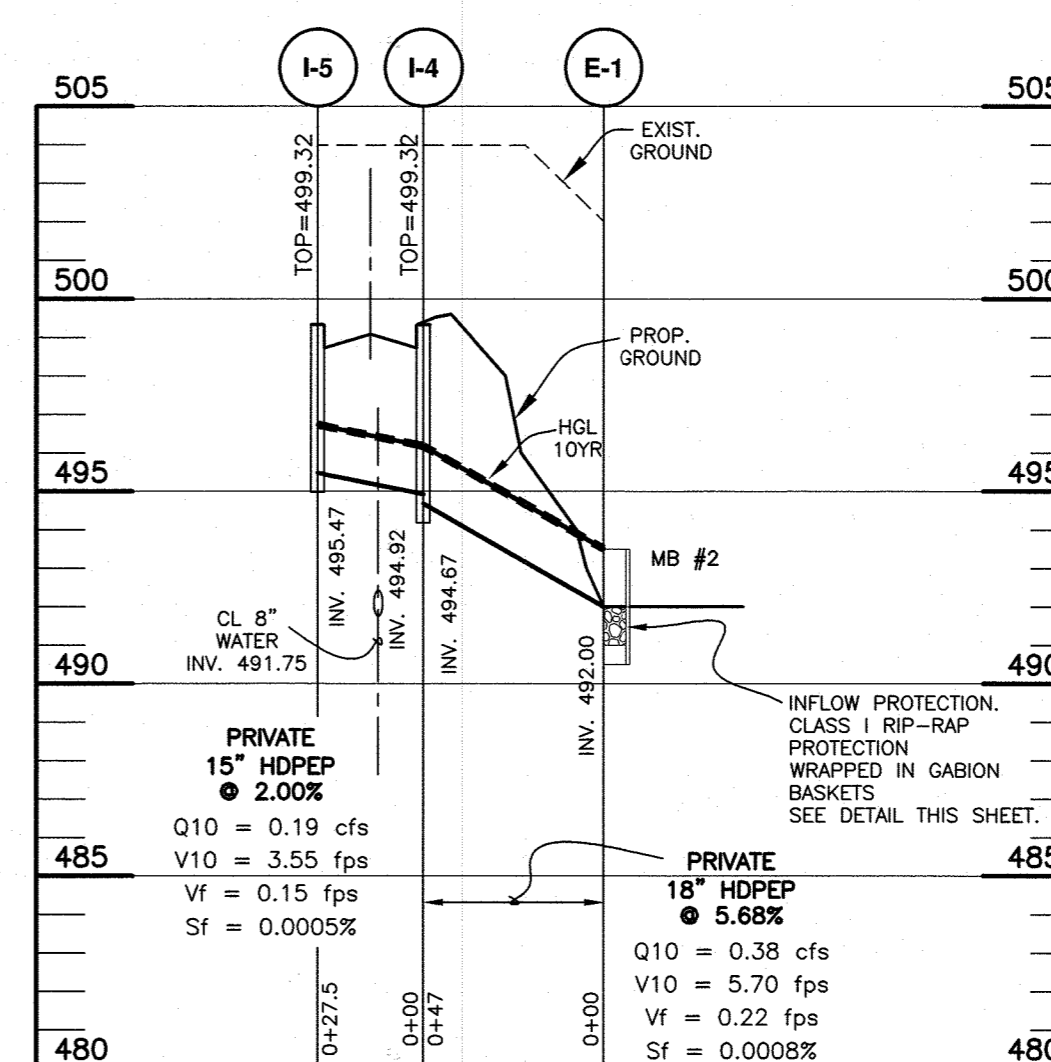
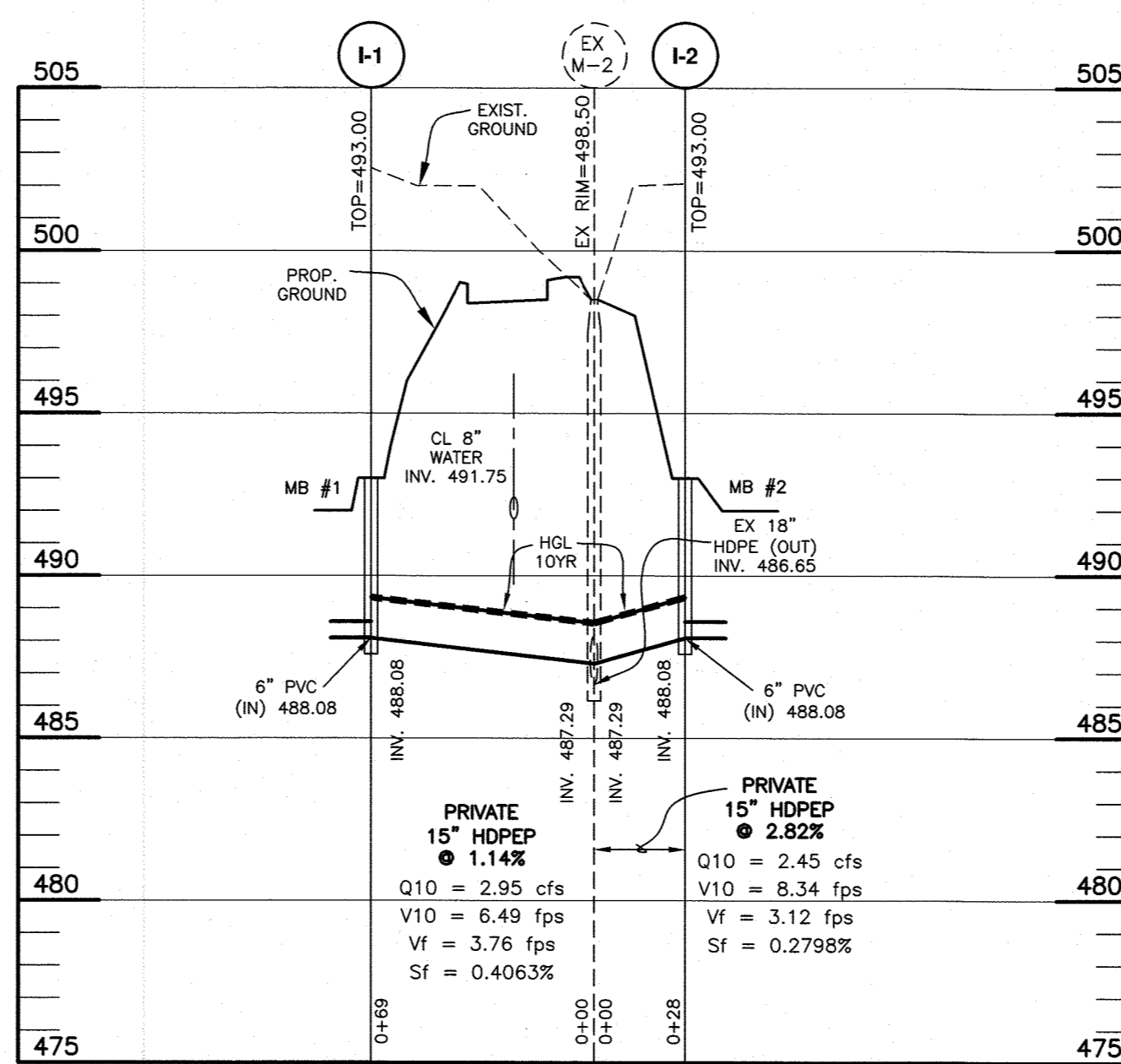
Installation: Installation shall be in accordance with ADS installation instructions and with those issued by state or local authorities. Contact your local ADS representative or visit [www.ads-usa.com](http://www.ads-usa.com) for the latest installation instructions.

PIPE DIAMETER, in (mm)						
Diameter	12	15	18	24	30	36
A	6.5	6.6	7.4	7.5	7.6	7.5
B (min)	16.5	16.6	17.4	17.5	17.6	17.5
C (min)	25.4	25.4	26.1	26.2	26.2	26.2
H	6.5	6.5	6.5	6.5	6.5	6.5
L	16.5	16.5	16.5	16.5	16.5	16.5
W	29.1	29.1	30.0	30.0	30.0	30.0
W	73.7	73.7	76.2	76.2	76.2	76.2

Product detail may differ slightly from actual product appearance.



© ADS, Inc., January 2019

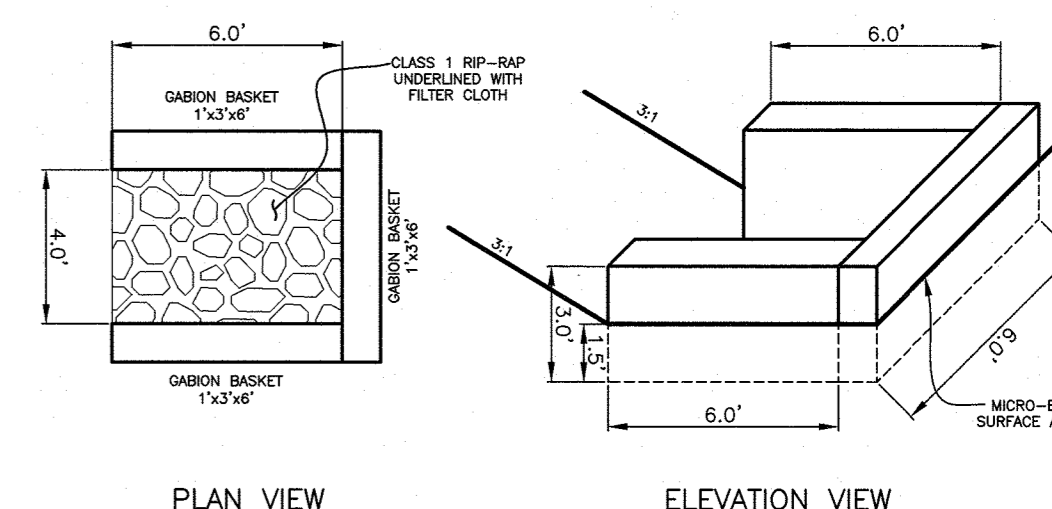


STORM DRAIN PROFILE  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

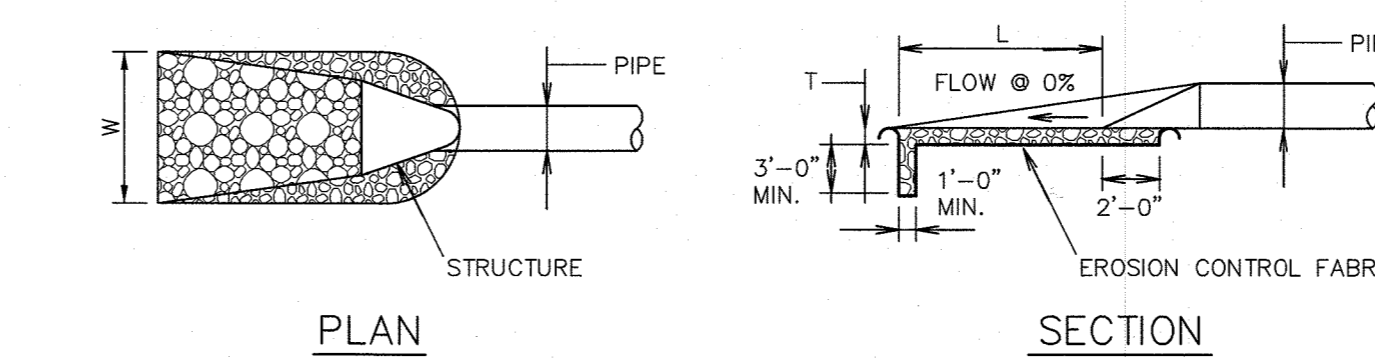
STORM DRAIN PROFILE  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

CONSTRUCTION SPECIFICATIONS

- THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
- GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
- STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
- THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.



PLAN VIEW  
ELEVATION VIEW  
RIP-RAP WITH GABION BASKETS INFLOW DETAIL  
SCALE: 1" = 5'



PLAN  
SECTION  
OUTLET PROTECTION DETAIL  
NOT TO SCALE

STRUCTURE	Q <sub>2</sub> fps	V <sub>2</sub> fps	d <sub>2</sub> (ft)	Q <sub>10</sub> fps	V <sub>10</sub> fps	d <sub>10</sub> (ft)	d50	LENGTH(L)	WIDTH(W)	THICK.(T)	SHA CLASS
E-1											
E-2											
E-3											
E-4	18.85	6.00	1.11	20.57	10.04	1.24	9.5"	26'	10.4'	19"	I
E-5											
E-6											
E-7											
E-8											
E-9											

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DIRECTOR

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE: JULY 22, 2021

NO.	DATE	REVISION

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer on the rolls of the State of Maryland, License No. 20019.

**BENCHMARK ENGINEERS, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-4100 (F) 410-465-6644  
 WWW.BE-CVLENGINEERING.COM

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

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

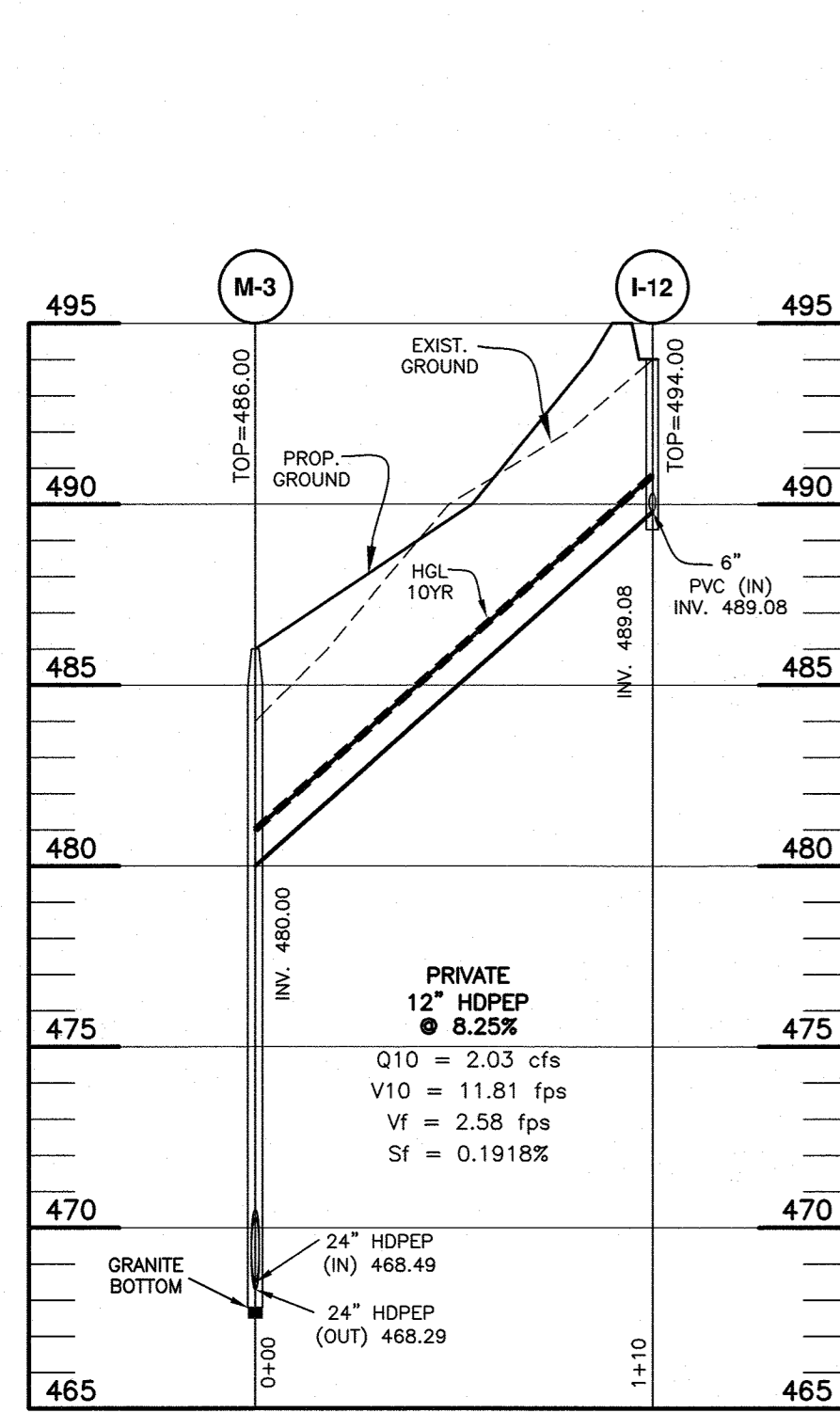
VILLA APARTMENTS AT TURF VALLEY  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

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 ZONED: PCCO-2  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

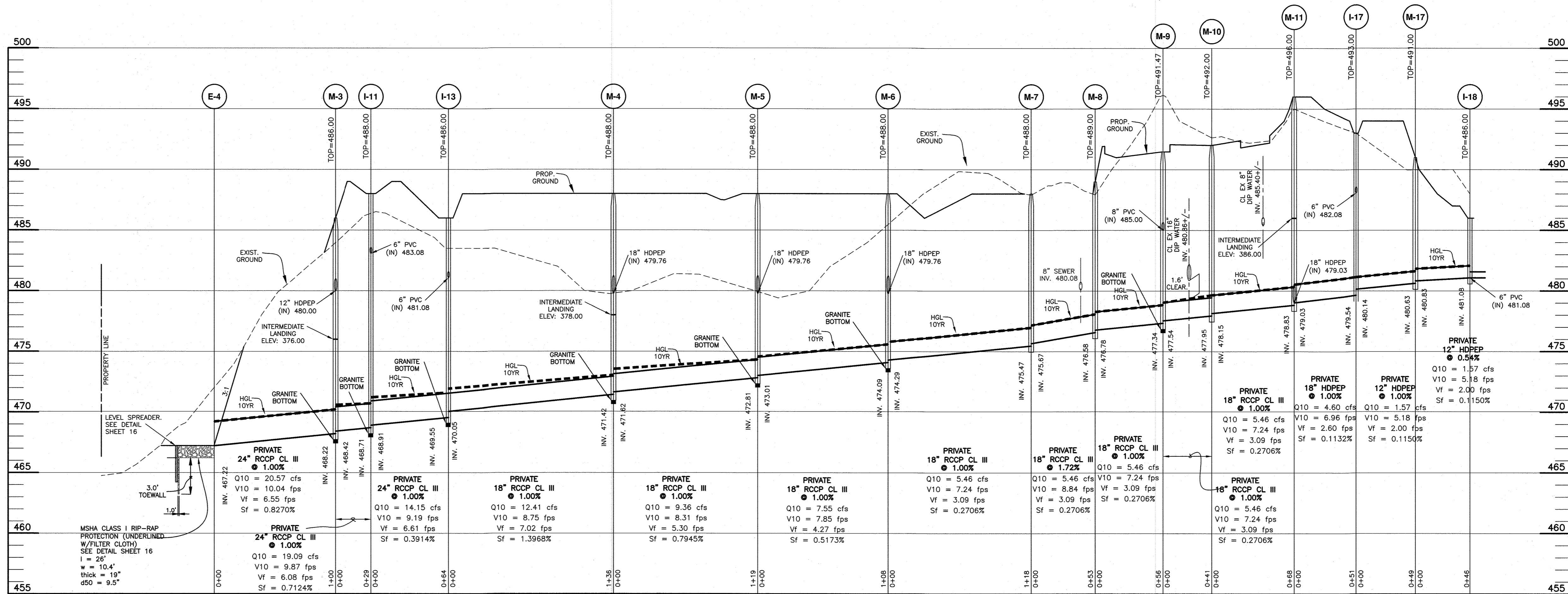
STORM DRAIN PROFILES

DATE: AUGUST 2, 2021  
 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN  
 SHEET 16 OF 32

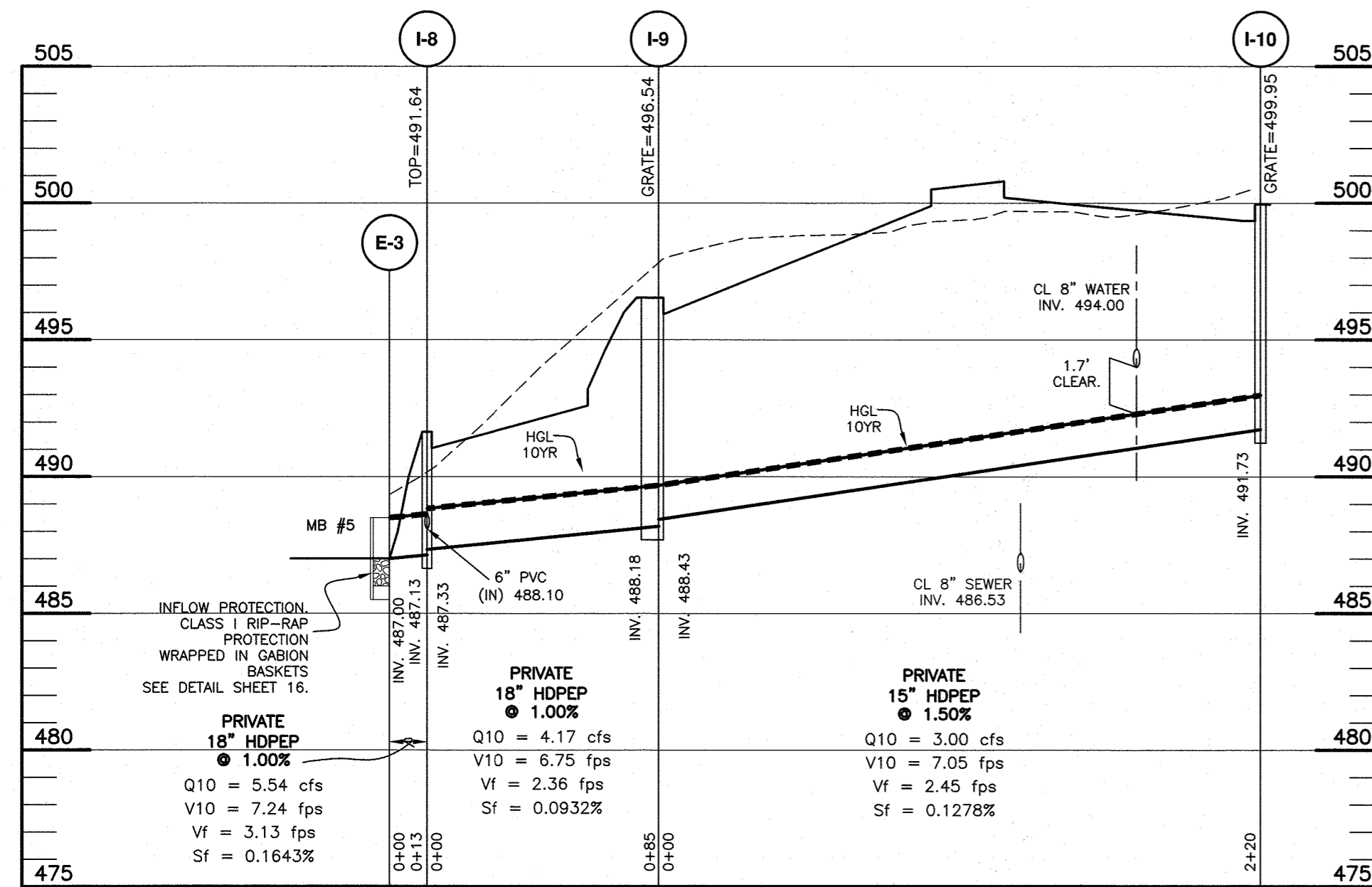




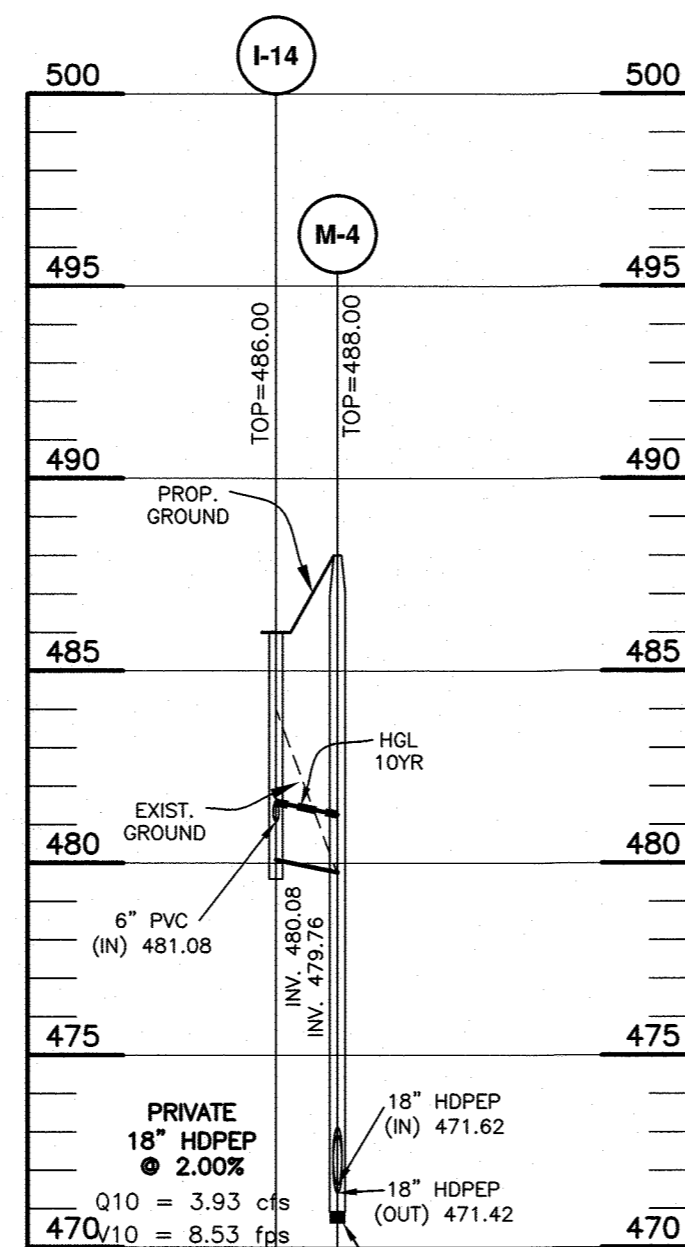
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SCALE: 1"=50' HORIZ., 1"=5' VERT.



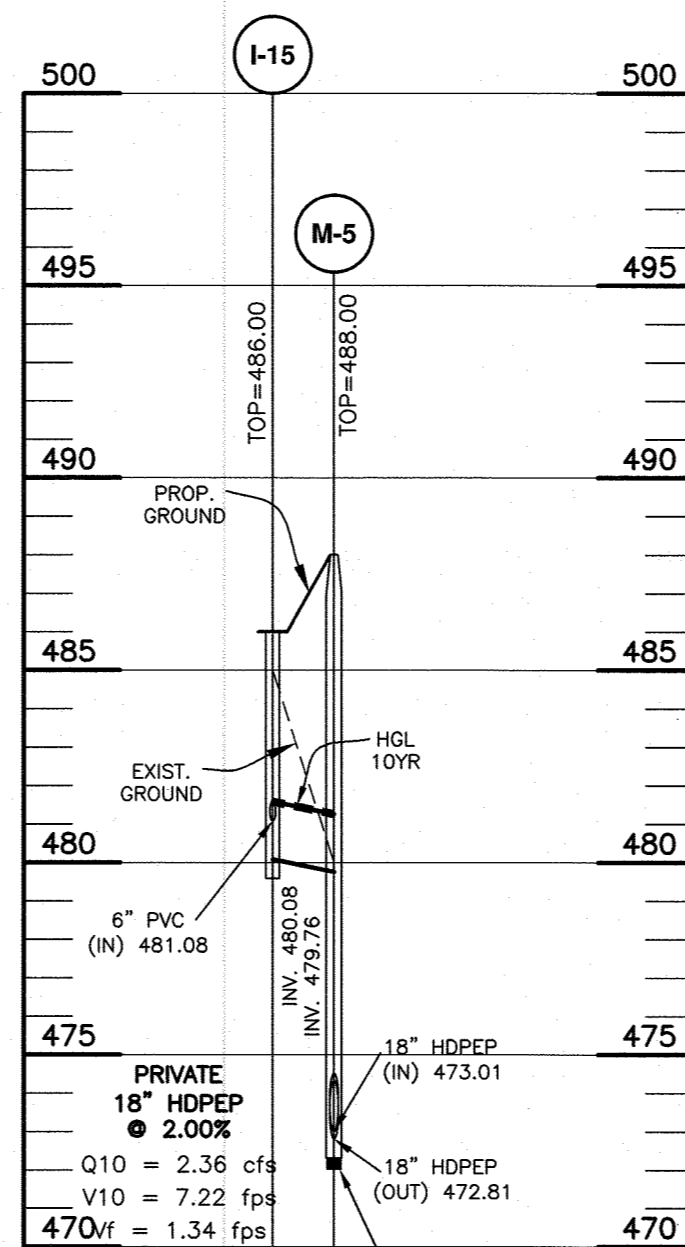
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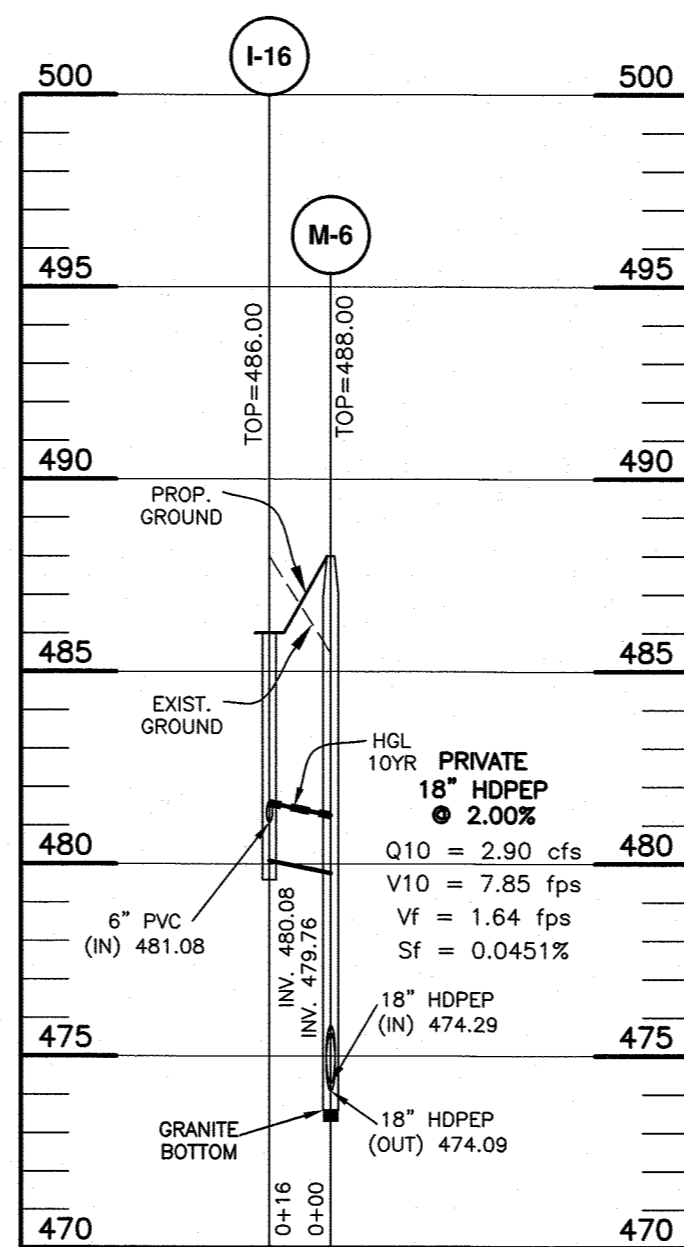
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SCALE: 1"=50' HORIZ., 1"=5' VERT.



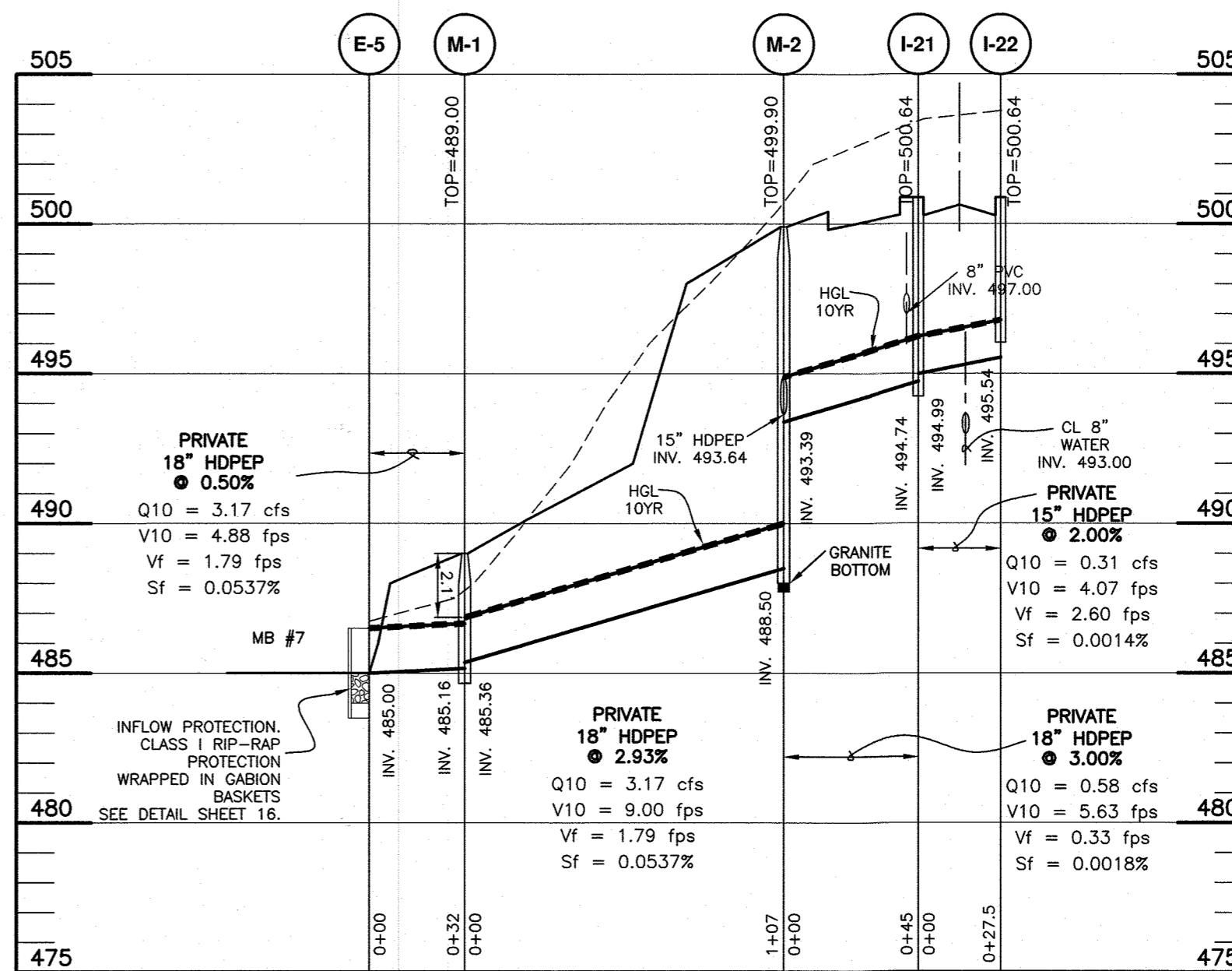
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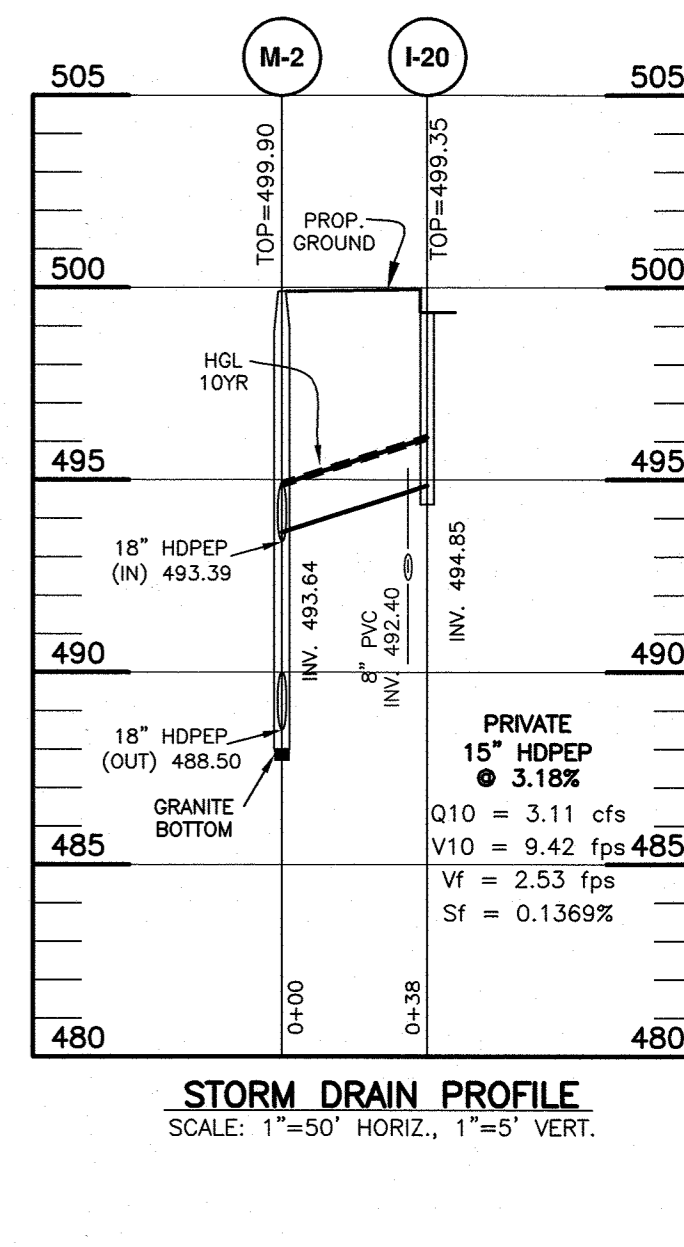
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SCALE: 1"=50' HORIZ., 1"=5' VERT.



**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.



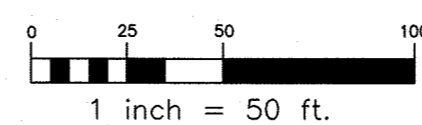
**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.



**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 9/15/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 9/16/21  
 DIRECTOR  
 DATE: 9-21-21

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE: JULY 22, 2021



NO.	DATE	REVISION

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 authority of the State of Maryland, License No. 22350.

**BENCHMARK ENGINEERS & PLANNERS, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 215 A ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-9108 (F) 410-465-6544  
 WWW.BEI-CIVILENGINEERING.COM

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

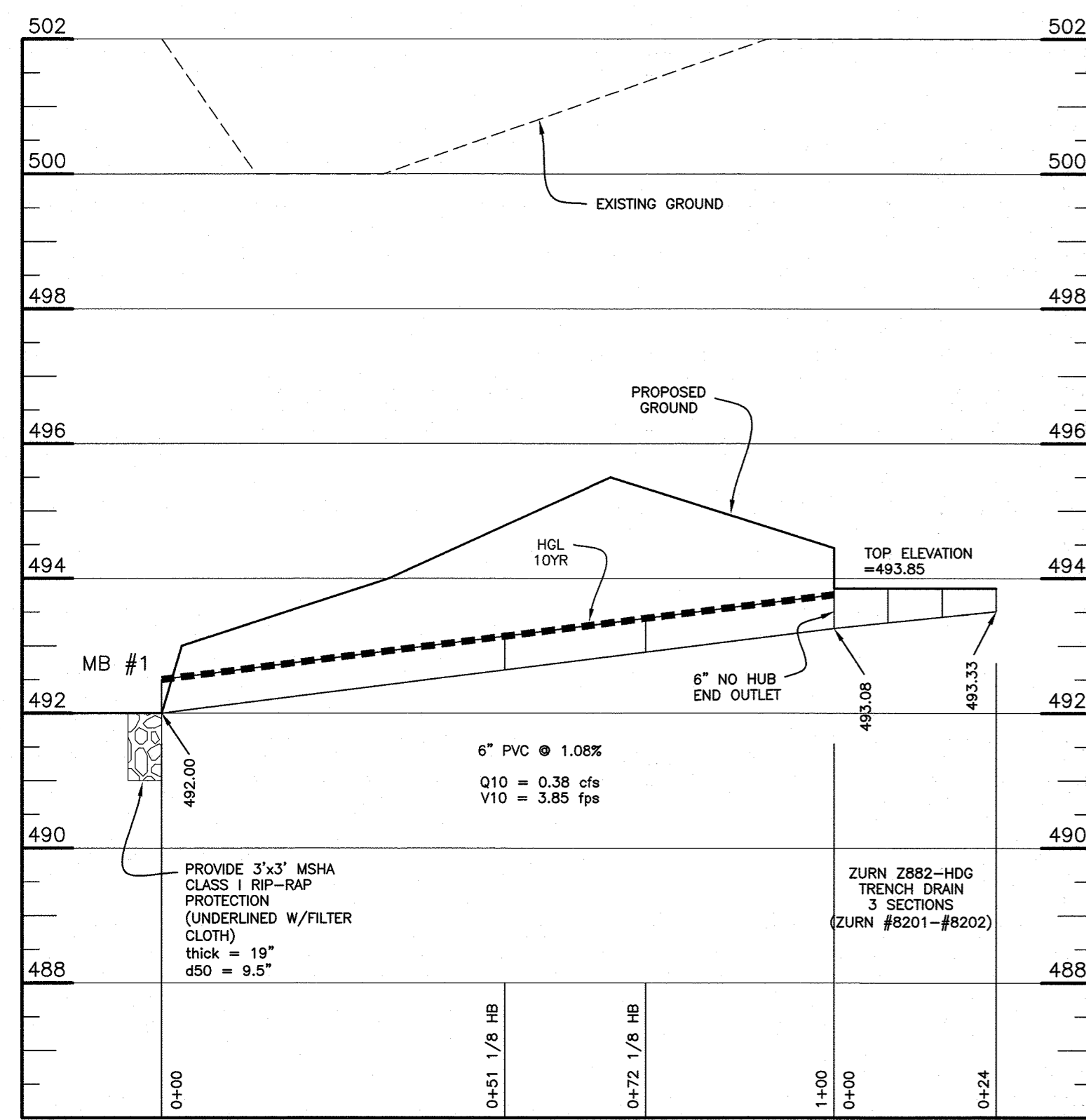
DEVELOPER:  
 MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP  
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**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

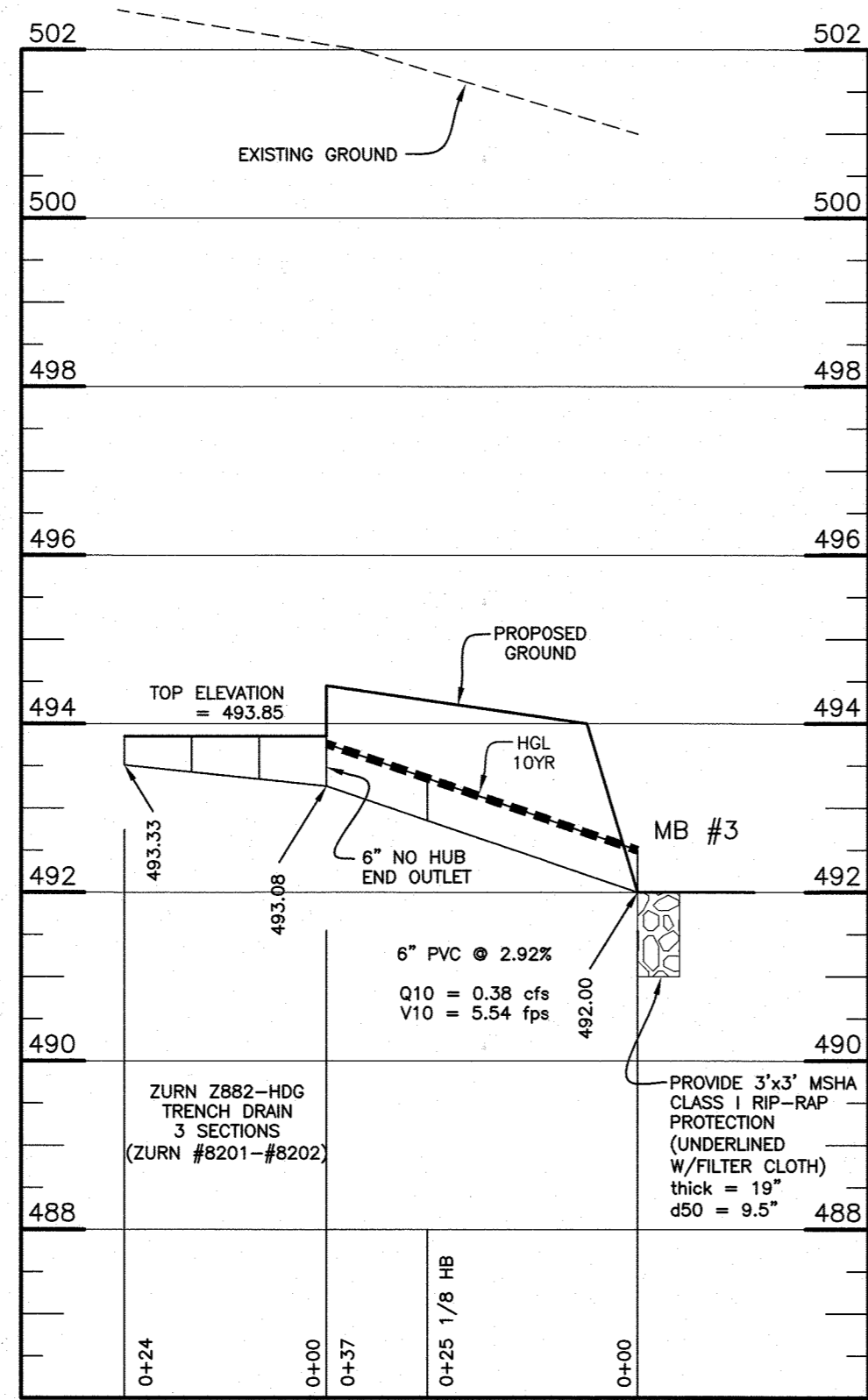
TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**STORM DRAIN PROFILES**

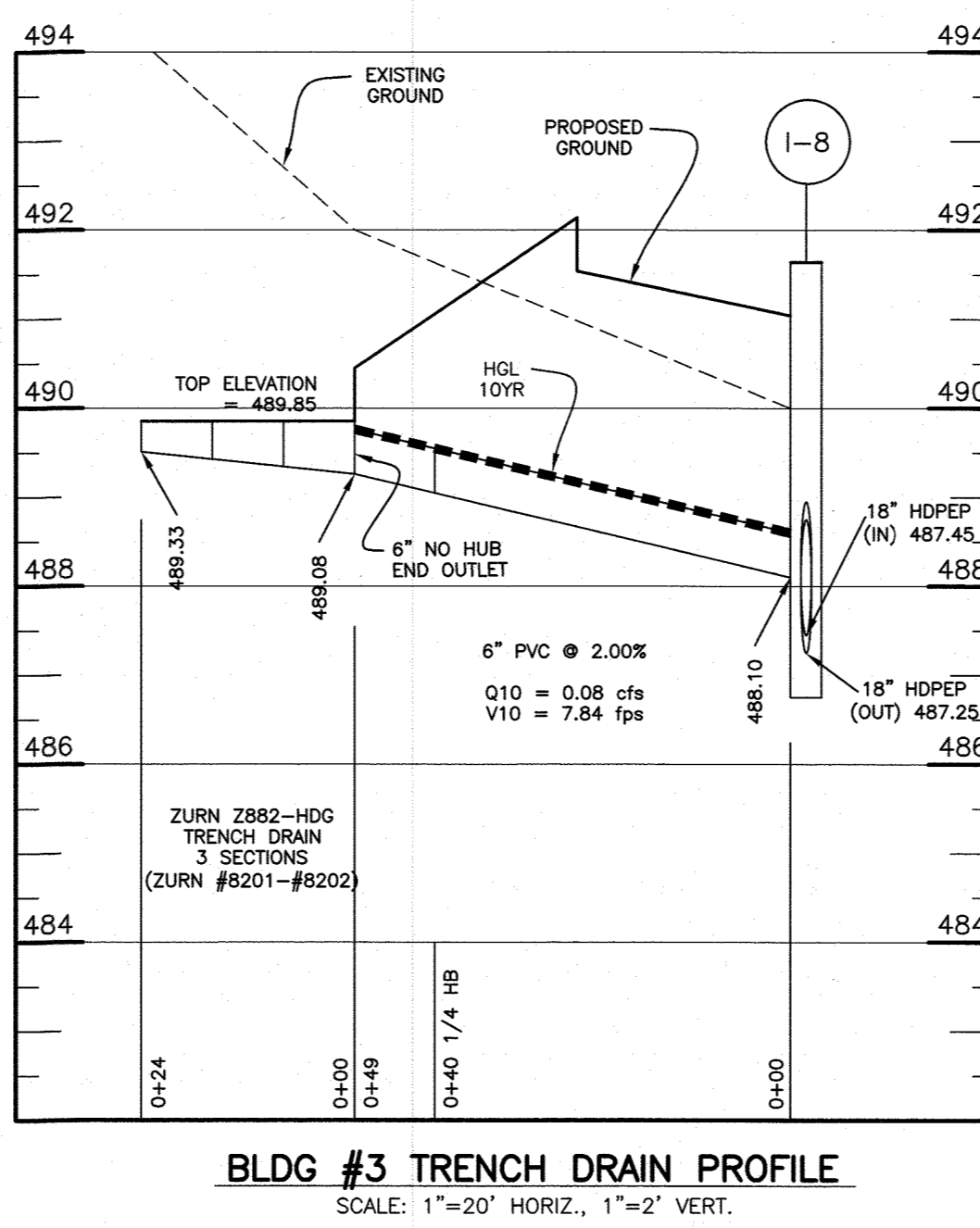
DATE: AUGUST 2, 2021  
 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN  
 SHEET 17 OF 32



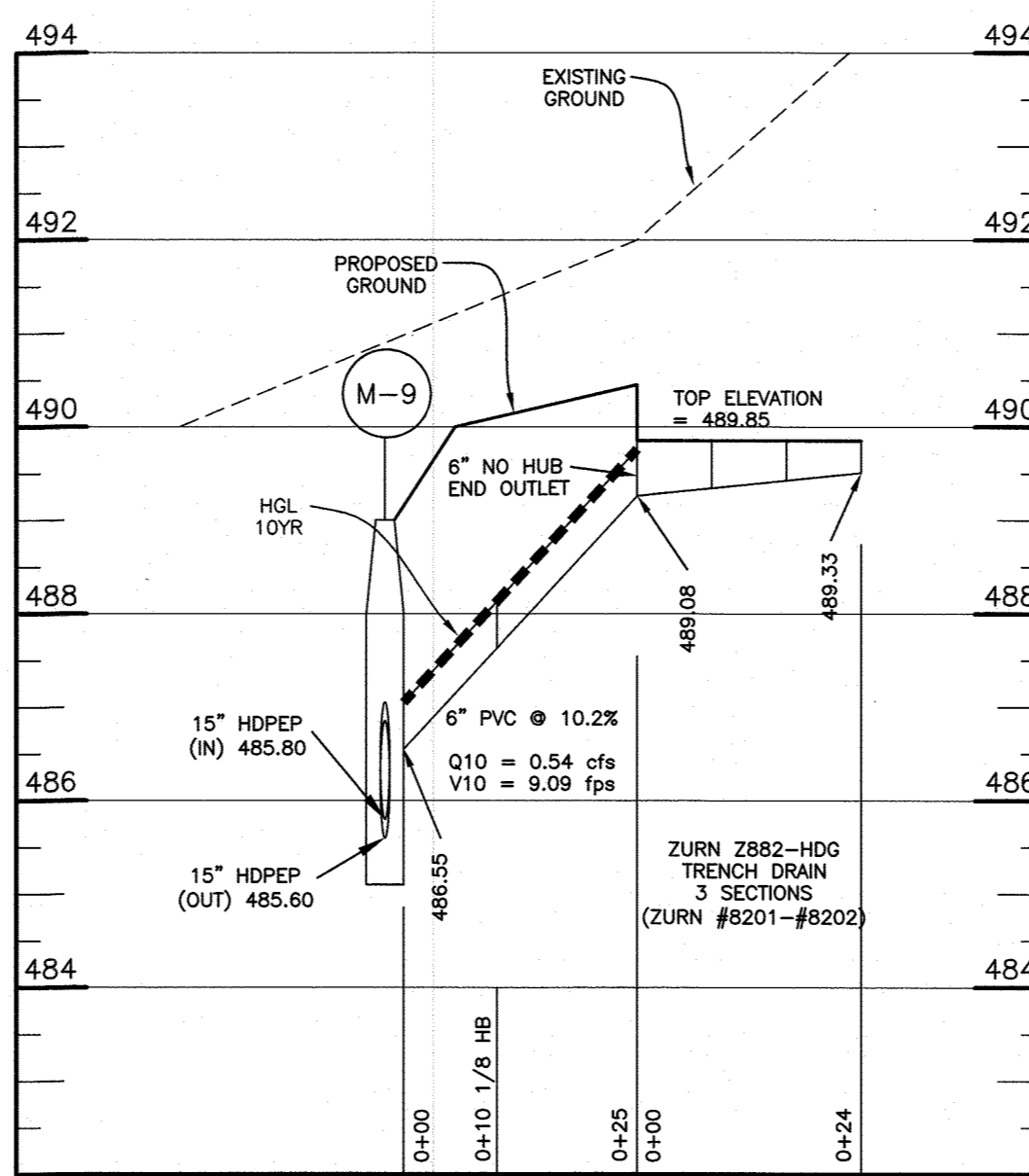
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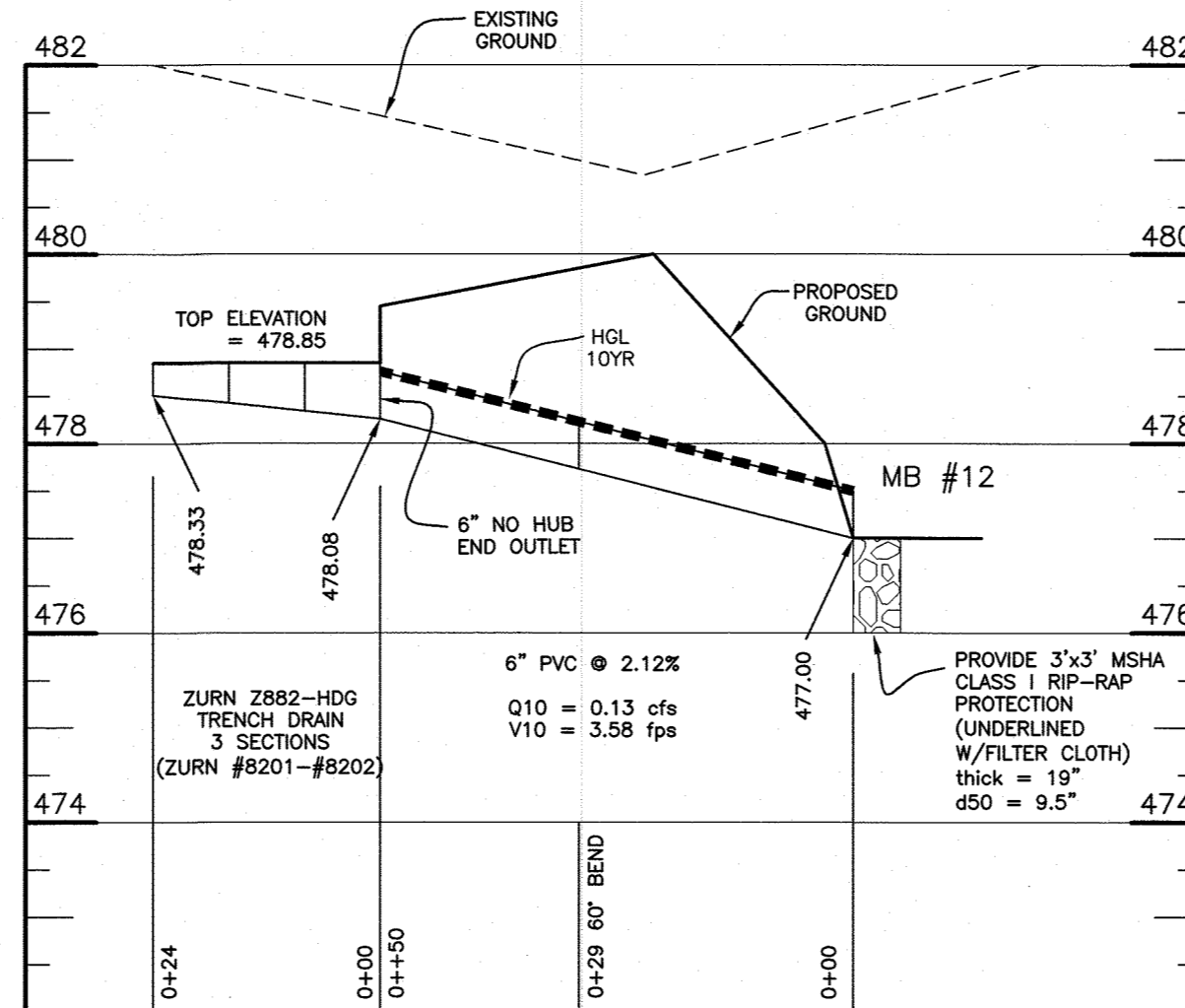
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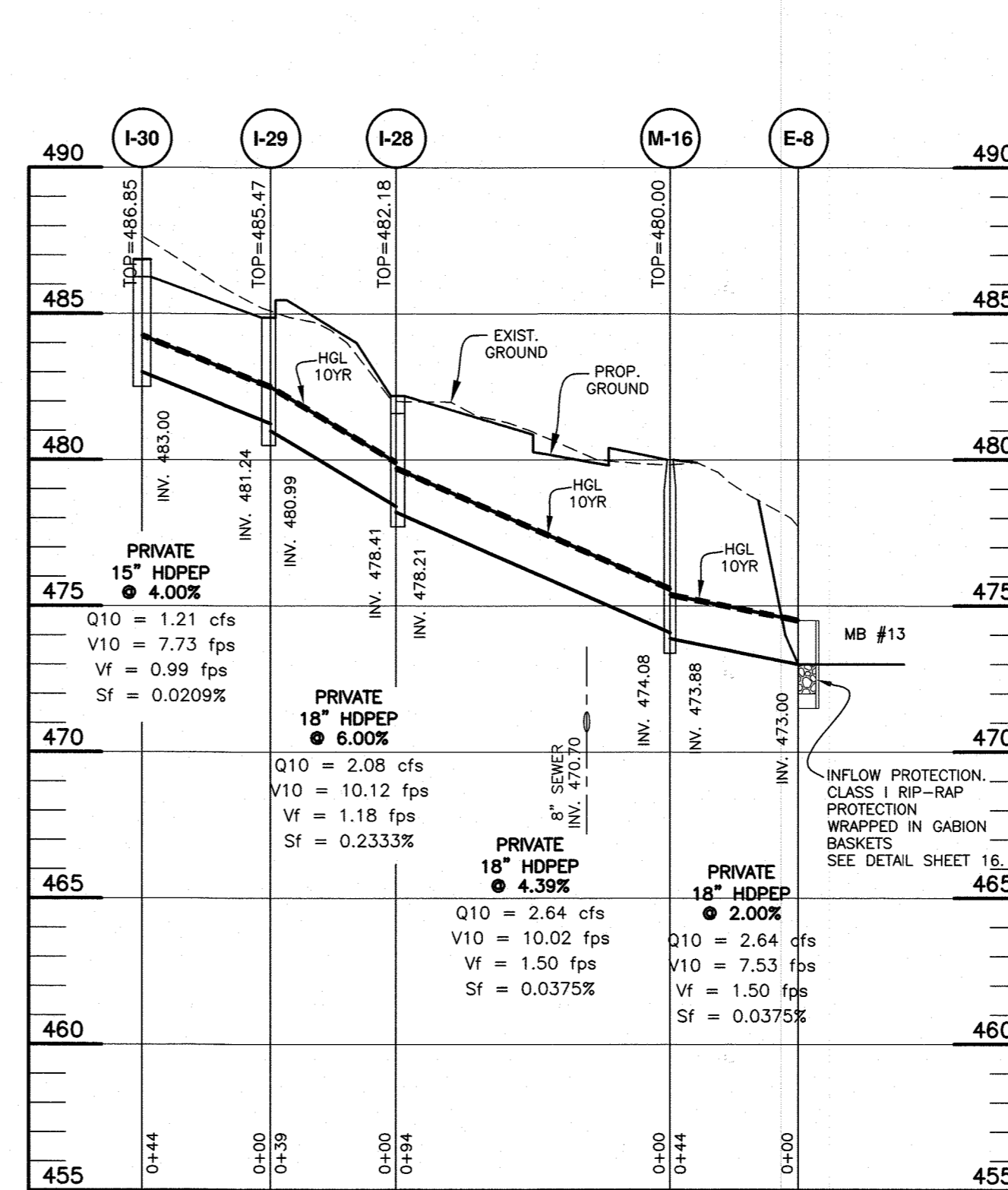
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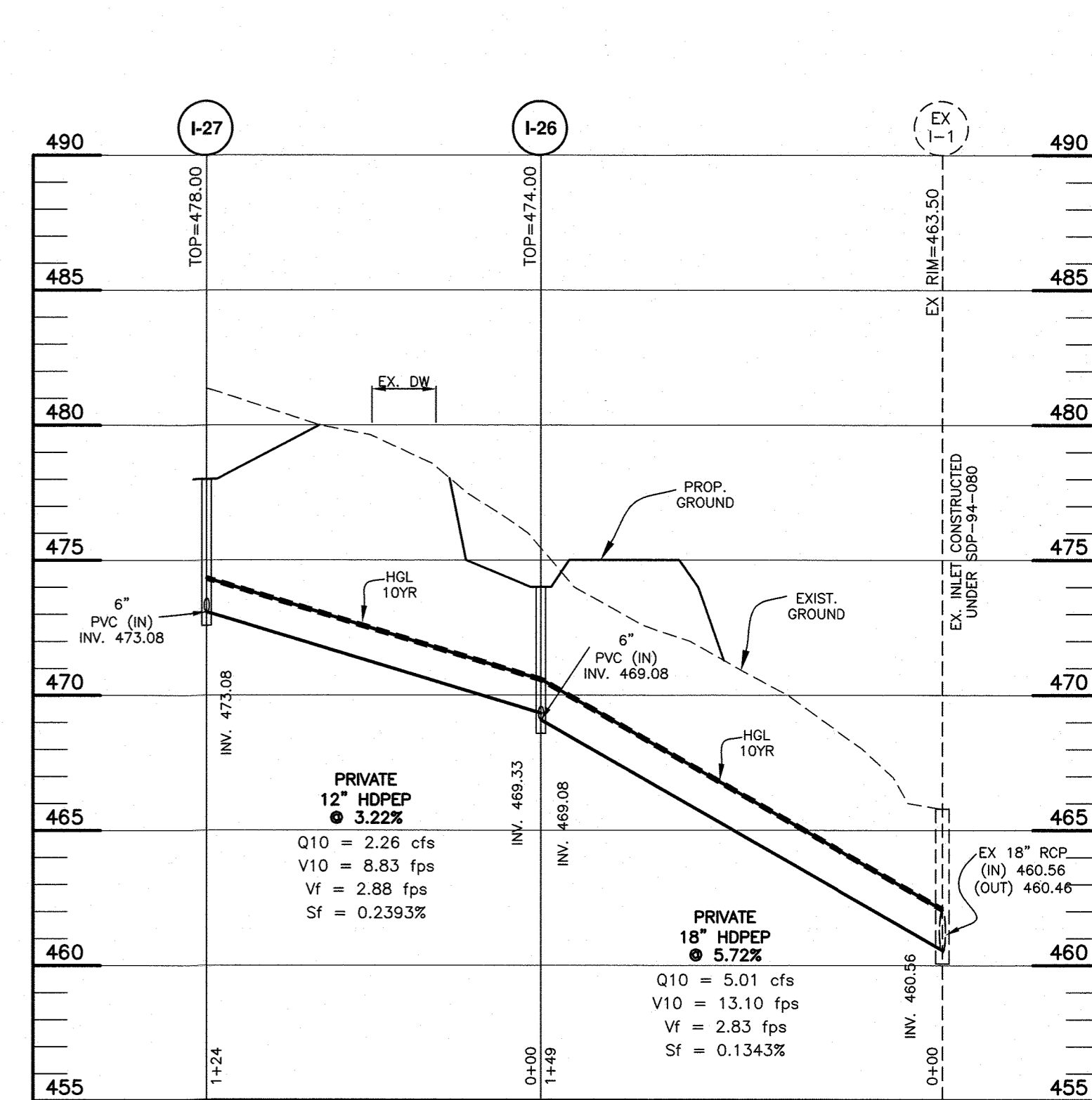
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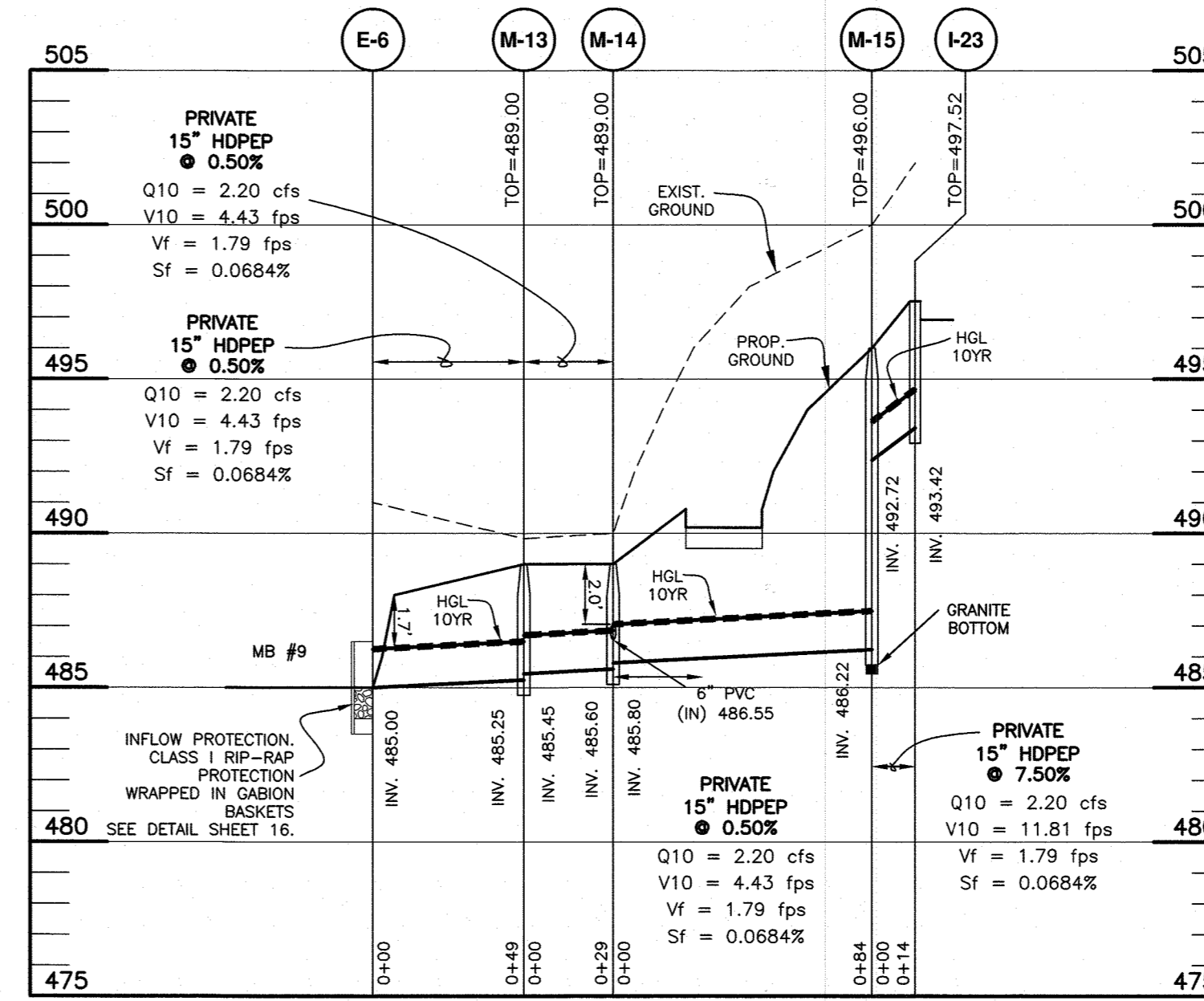
**BLDG #5 TRENCH DRAIN PROFILE**  
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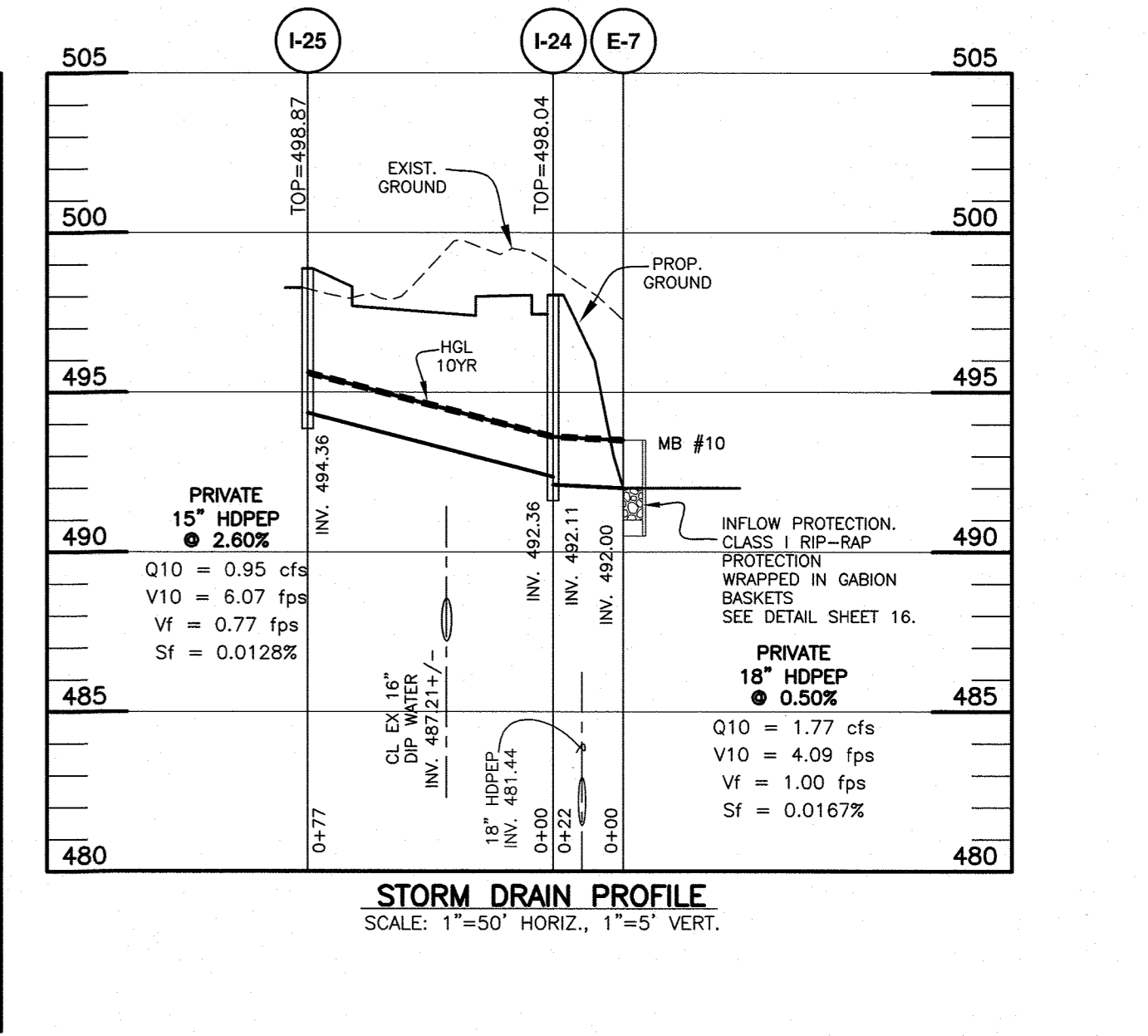
**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.



**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

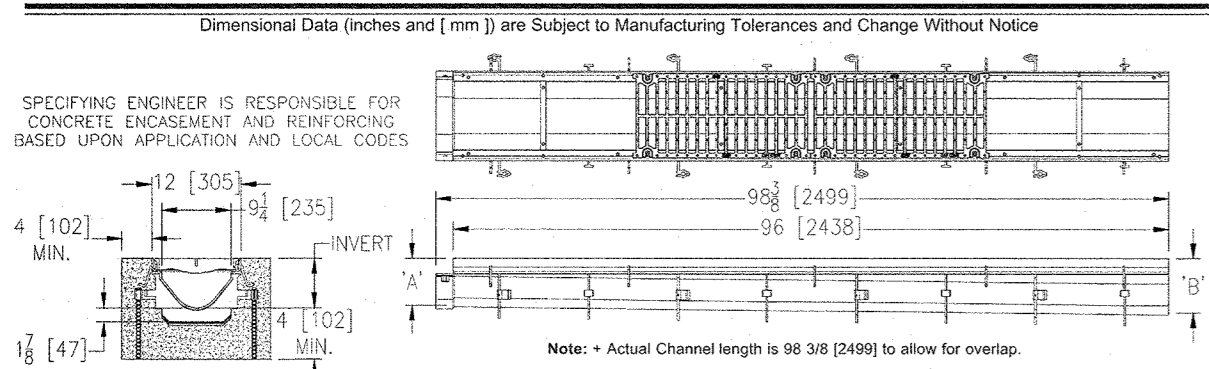


**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.



**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

**ZURN Z882-HDG**  
12 [305] WIDE REVEAL TRENCH DRAIN SYSTEM WITH GALVANIZED STEEL FRAME



**ENGINEERING SPECIFICATION:** Zurn Z882-HDG Channels shall be 96 [2438] long, 12 [305] wide reveal and have a 8-1/4 [235] throat. Modular channel sections shall be made of 0% water absorbent High Density Polyethylene (HDPE). Shall have a positive mechanical connection between channel sections that will not separate during the installation and shall mechanically lock into the concrete surround every 12 [305]. Channels shall weigh less than 5.05 lbs. (2.29kg) per linear foot, have a smooth, 3 [76] radius self cleaning bottom with a Manning's coefficient of 0.009 and 1/4% or neutral 0% built in slope. Channels shall have all grades locked down. Shall have roller clips standard to secure trench in the final location. Shall be provided with the standard GDC grate that locks down to the frame. Zurn 12 [305] wide reveal Galvanized Ductile Iron Slotted Grate. Ductile iron conforms to ASTM specification A536-04. Grates 80-50-06. Galvanized Ductile Iron grate is rated class C per the DIN EN1433 top load classifications. Supplied in 24 [608] nominal lengths with 13/16 [21] wide slots, and 1-1/2 [38] bearing depth. Grate has an open area of 57.50 sq. in. per ft. [121708 sq. mm per meter]. The 1/4 [6] thick Galvanized Carbon Steel Frame Assembly conforms to ASTM specification A36 and Galvanizing conforms to A514 specification A123 with 10 - 4 [102] long concrete anchors per 96 [2438]. Grate lockdown bars are integral to the frame. All welds must be performed by a certified welder per ASTM standard AWS D1.1. Frames shall be produced in the USA.

**PREFIX OPTIONS (Check/specify appropriate options)**

Trench No.	Shallow In.	Deep In.	(0.51)	(0.61)	(0.91)	(0.91)
X 2801	6.25 [159]	7.25 [184]	1.241	557	35	
X 2802	7.25 [184]	8.25 [210]	1.725	774	49	
X 2803	8.25 [210]	9.25 [235]	2.209	999	93	
8200N	9.25 [235]	9.25 [235]				
X 2804	9.25 [235]	10.25 [260]	2.745	1262	78	
8205	10.25 [260]	11.25 [285]	3.271	1488	93	
8206	11.25 [285]	12.25 [311]	3.808	1709	108	
8208N	12.25 [311]	12.25 [311]				
8207	12.25 [311]	13.25 [337]	4.347	1951	123	
8208	13.25 [337]	14.25 [362]	4.893	2196	139	
8209	14.25 [362]	15.25 [387]	5.443	2443	155	
8209N	15.25 [387]	15.25 [387]				
X 2810	15.25 [387]	16.25 [413]	5.996	2691	170	
8211	16.25 [413]	17.25 [438]	6.551	2940	186	
8212	17.25 [438]	18.25 [464]	7.106	3189	202	

**Miscellaneous Options (cont.)**

- GFA Galvanized Frame Assembly
- JC Joint Connector
- SW Sillwall Extensions - 11 [278] High
- SW2 Double Sillwall Extensions - 22 [559] High
- VP Vandal-Proof Lockdown

**MADE IN THE U.S.A.**

- ADA-USA Made Americans with Disabilities Act Requirements - Class C
- IBG Galvanized Steel Bar Grate - Class D
- DGEUSA Ductile Iron Slotted Grate - Class C
- DGEUSA Ductile Iron Slotted Grate - Class E
- FD Fabricated Galvanized Steel Slotted Grate - Class A
- GADAUSA Galvanized Ductile ADA Slotted Grate - Class C
- GDCUSA Galvanized Ductile ADA Slotted Grate - Class C
- GDEUSA Galvanized Ductile Slotted Grate - Class E
- FG Fiberglass Grate - Class A
- PG Perforated Galvanized Steel Grate - Class A
- RPG Reinforced Galvanized Slotted Grate - Class B
- RPG Reinforced Galvanized Perforated Grate - Class B

**Miscellaneous Options**

- DB Bottom Dome Strainer

REV. C DATE: 7/15/11 C.N. NO. 121593  
DWG. NO. 301769 PRODUCT NO. Z882-HDG

ZURN INDUSTRIES, LLC • SPECIFICATION DRAINAGE OPERATION • 1801 Pittsburgh Ave. • Erie, PA 16514  
Phone: 814-835-0921 • Fax: 814-836-7929 • Home Web: www.zurn.com  
In Canada: ZURN INDUSTRIES LIMITED • 3544 Nishnaw Drive • Mississauga, Ontario L4V1L2 • Phone: 905-405-8272 Fax: 905-405-1292

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DIRECTOR

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE: JULY 22, 2021

**BENCHMARK ENGINEERS, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
8480 BALTIMORE NATIONAL PIKE A SUITE 315 • ELICOTT CITY, MARYLAND 21043  
(P) 410-465-4100 (F) 410-465-4644  
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. 20019 (P) Exp. 6-30-2023.

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

VILLA APARTMENTS AT TURF VALLEY  
Parcel B-7  
(Previously recorded as Plat No. 25802-25804)

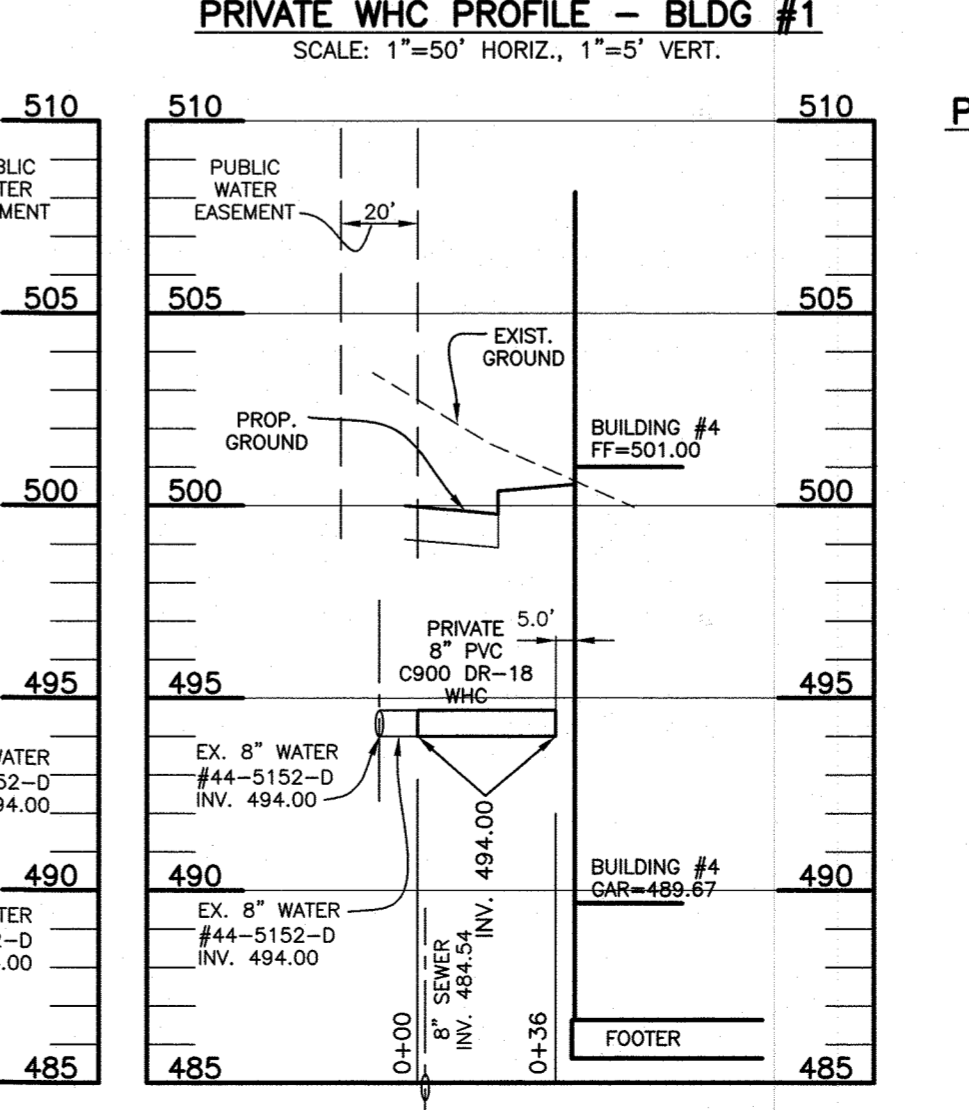
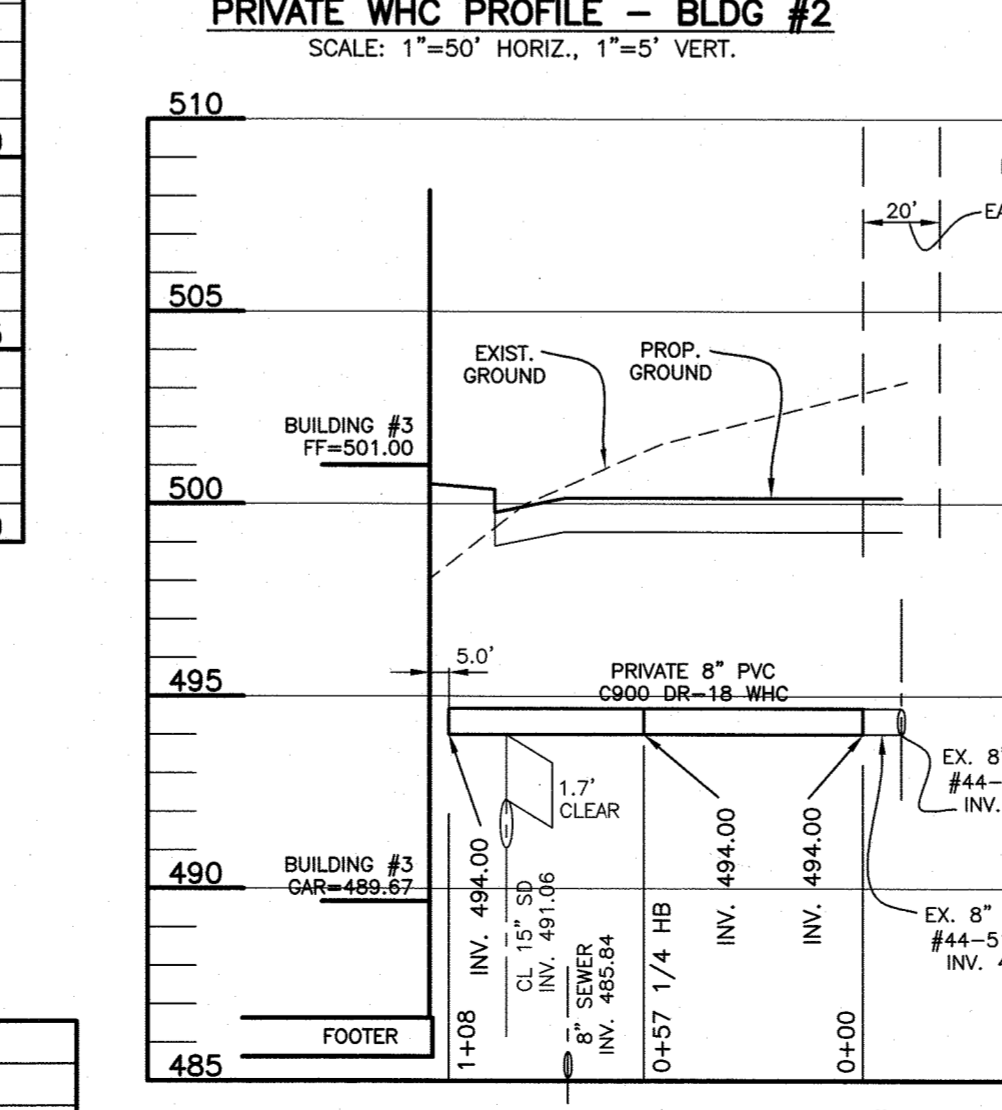
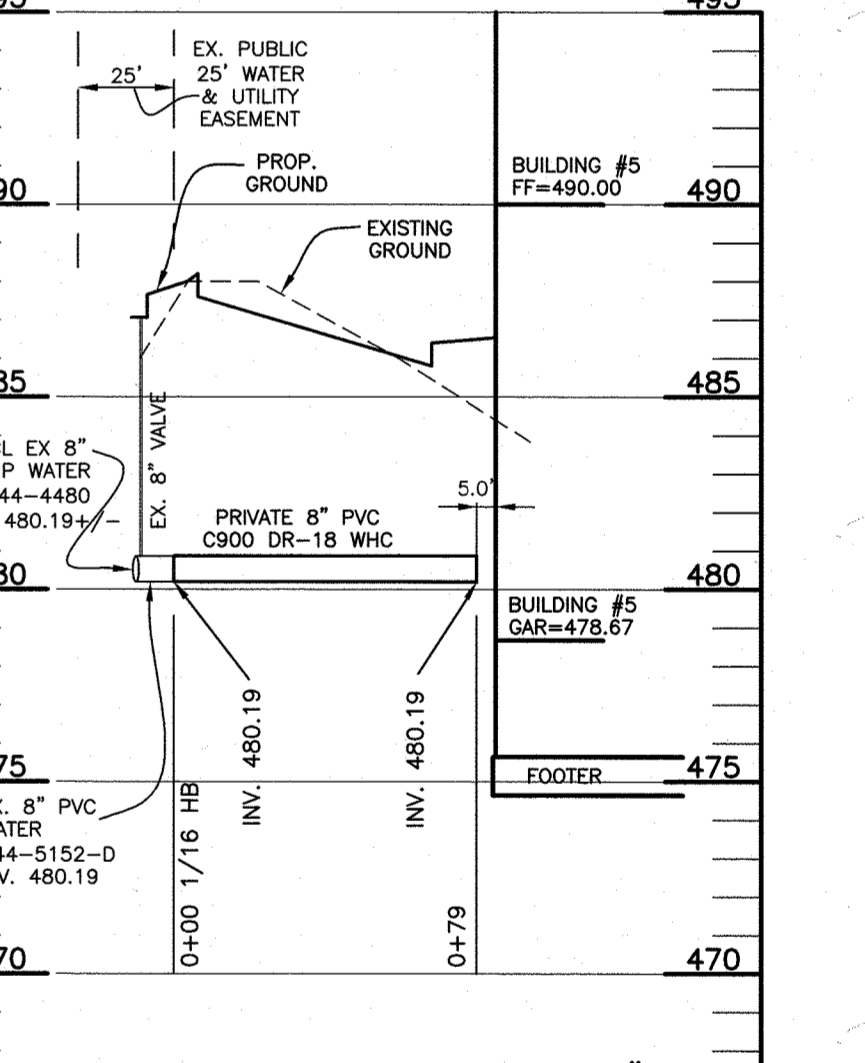
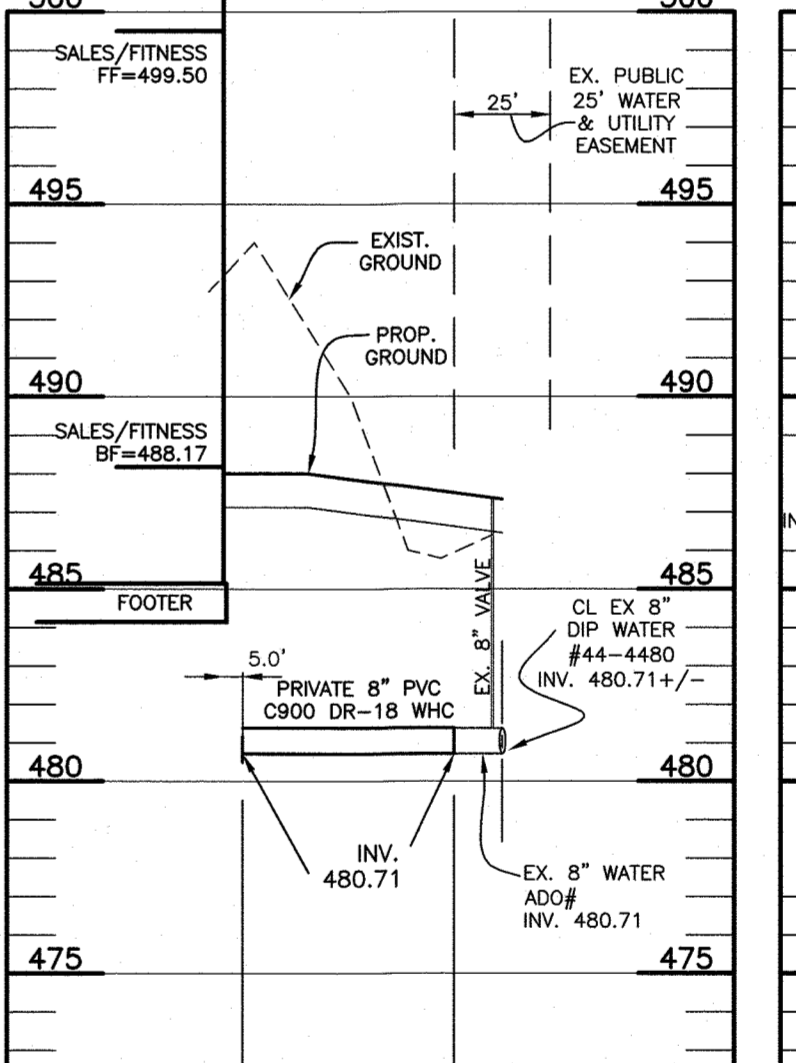
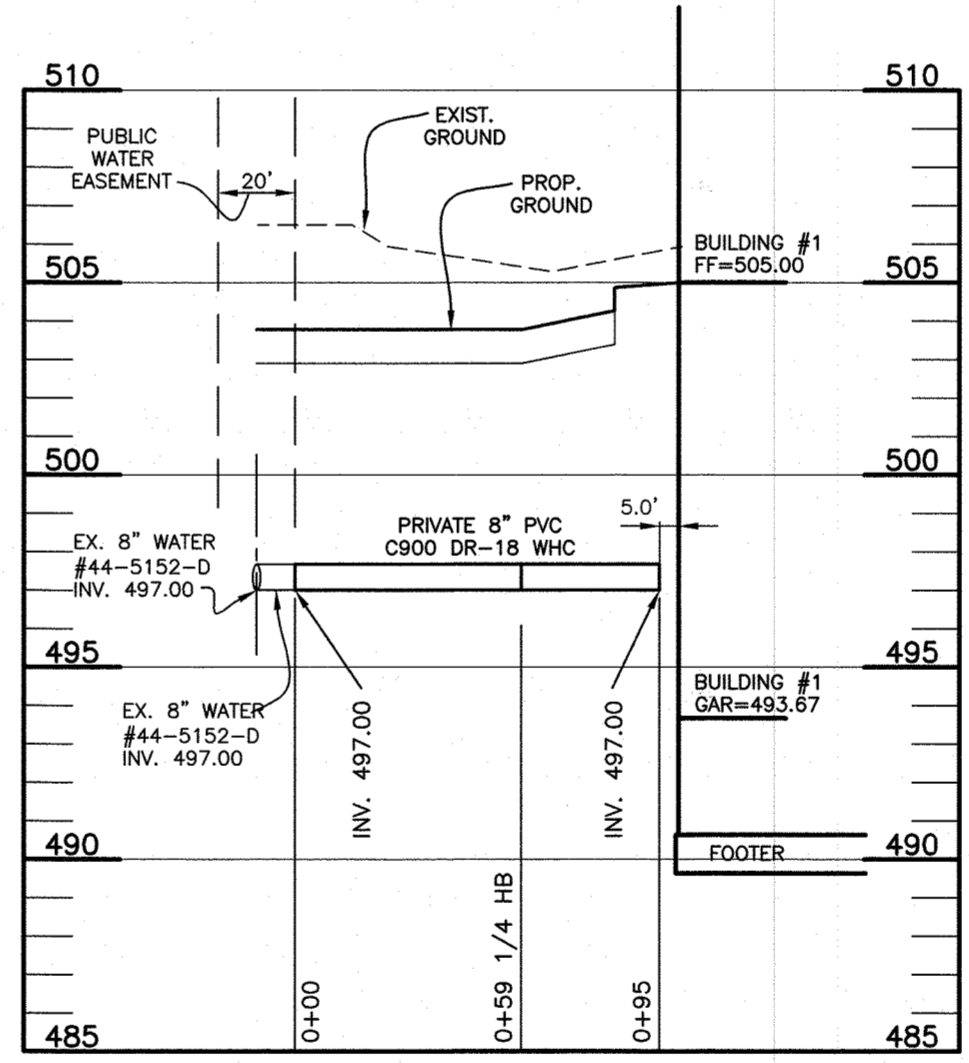
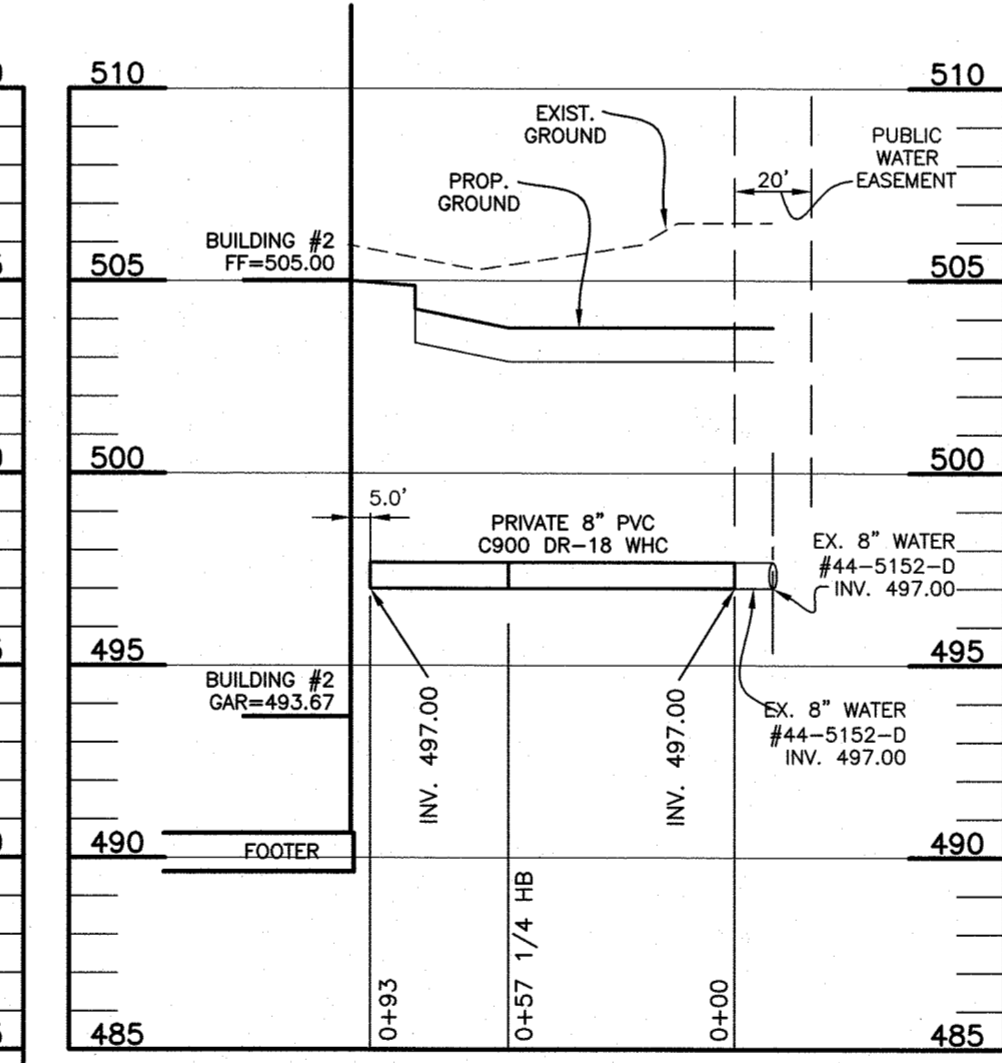
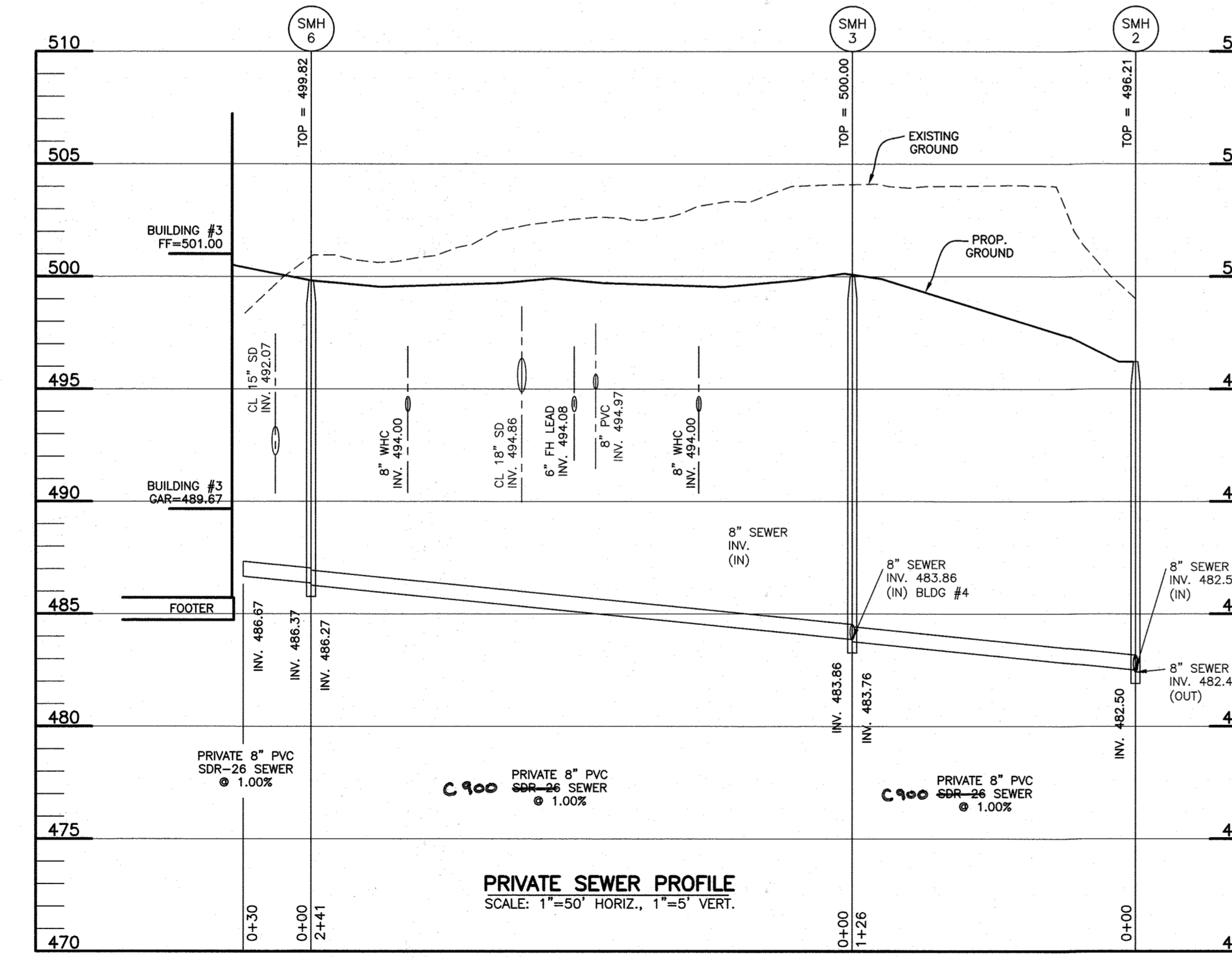
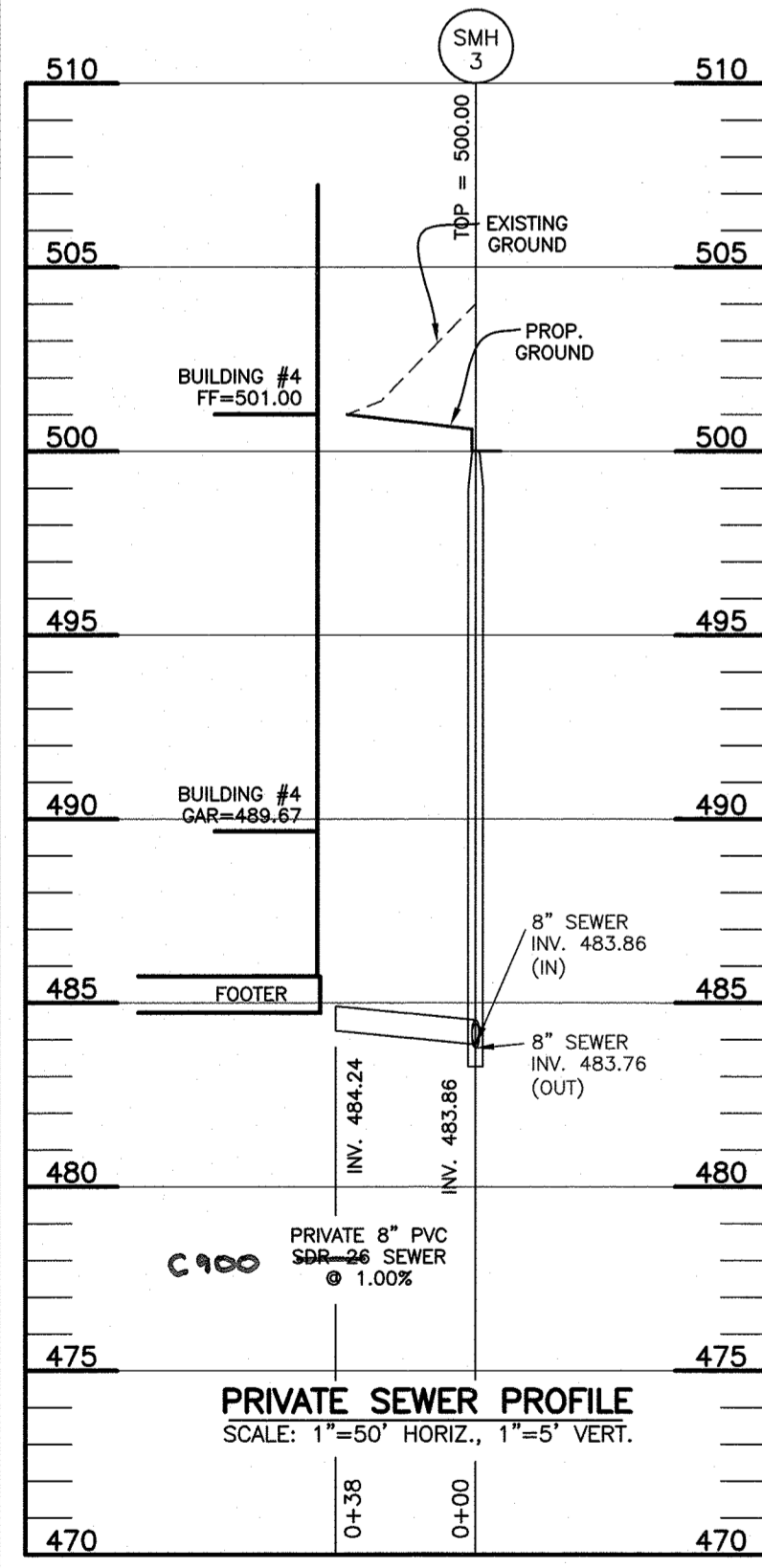
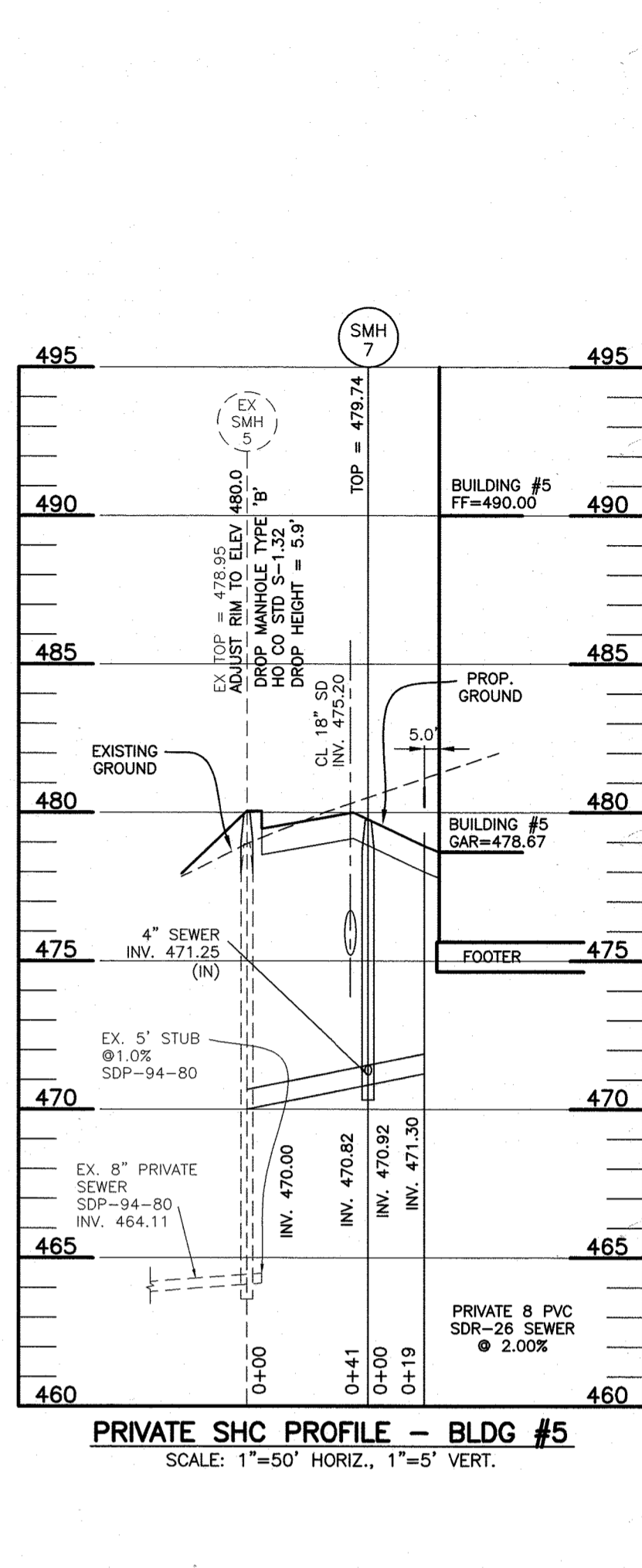
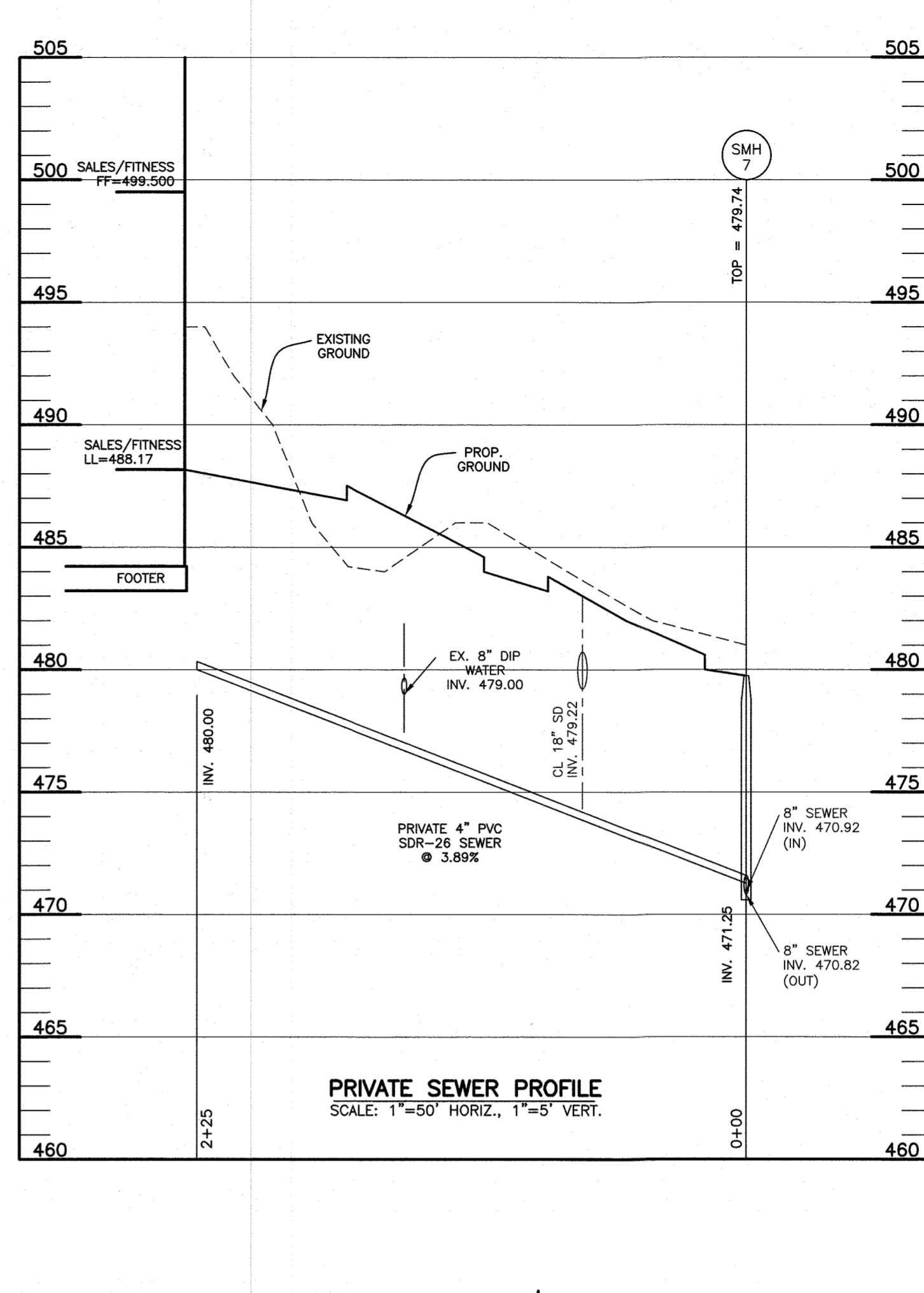
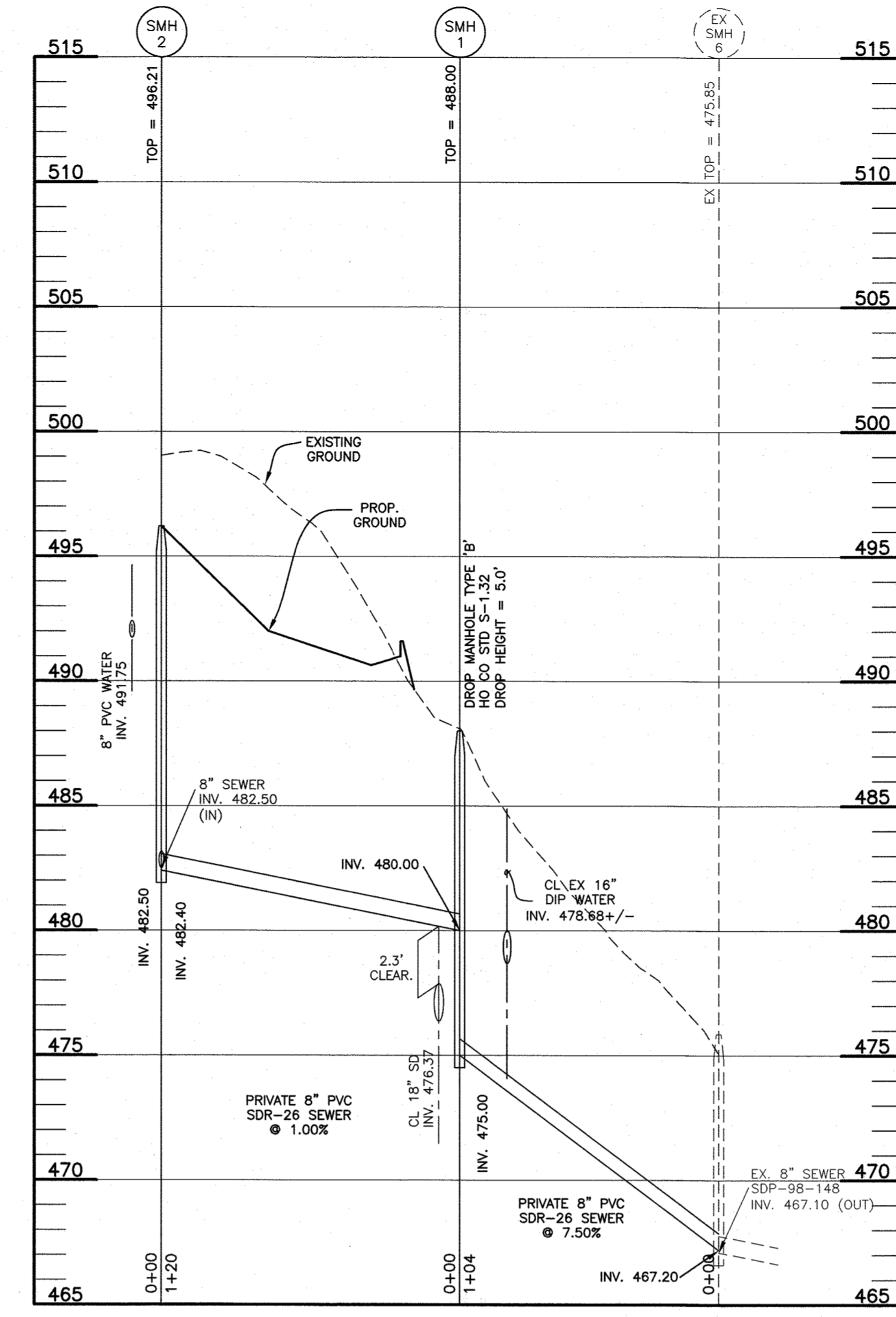
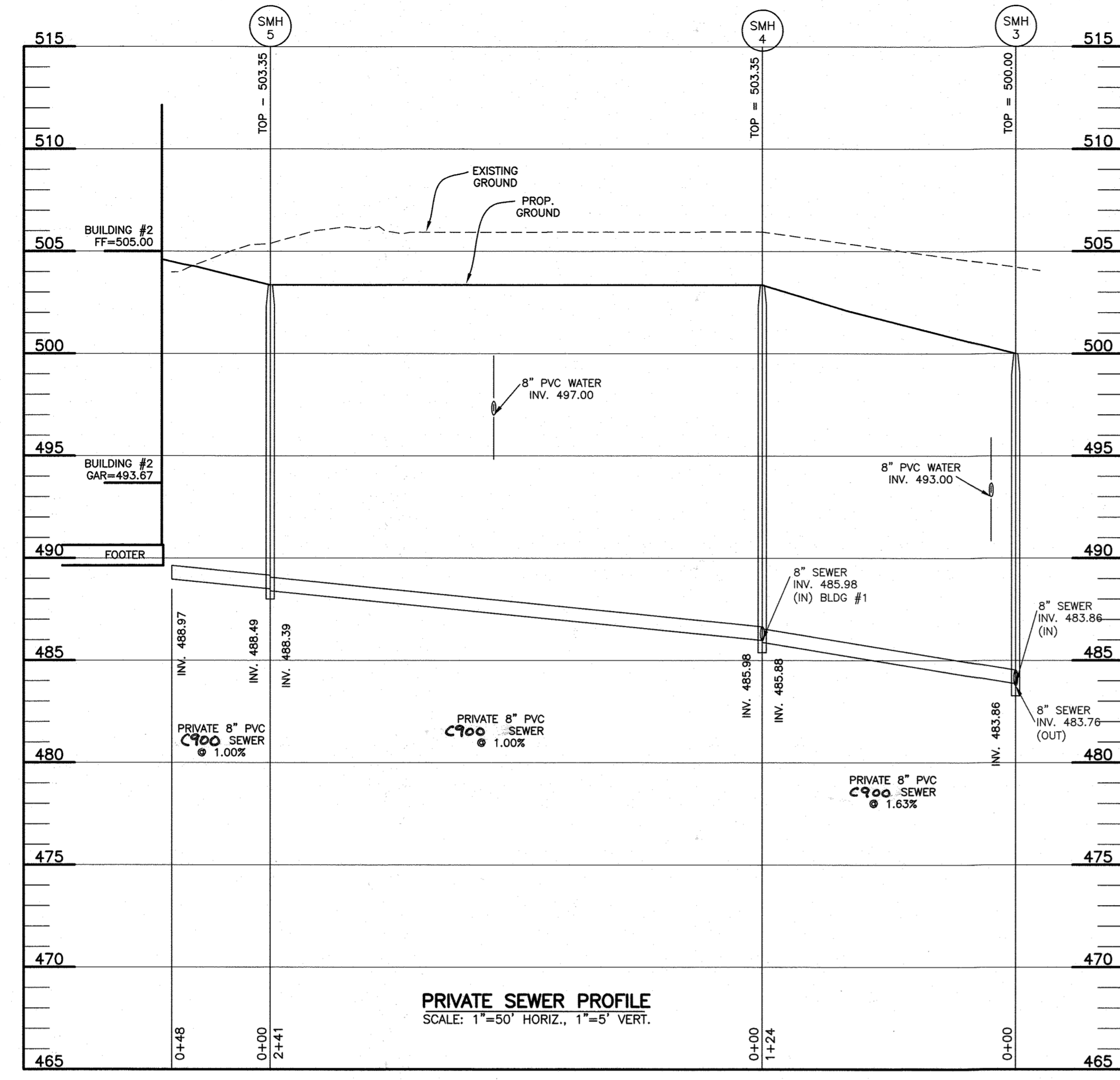
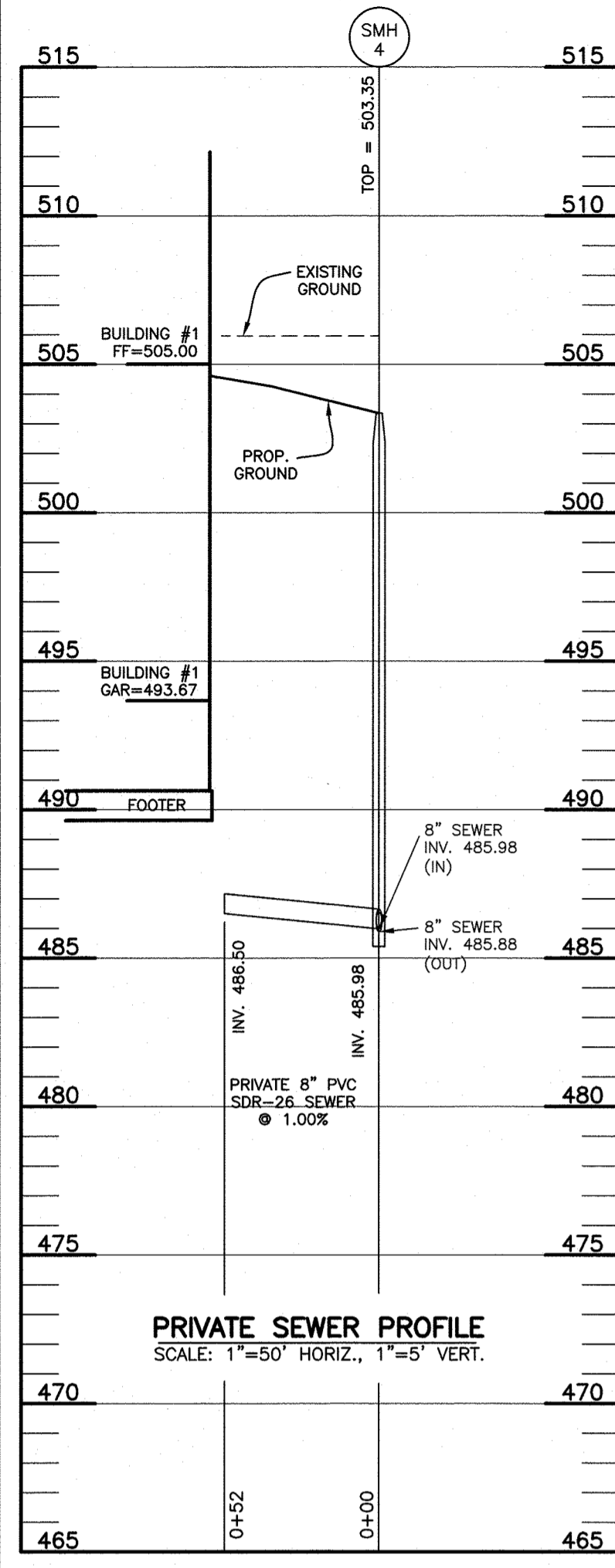
TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8  
ZONED: PCC-2  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

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

STORM DRAIN PROFILES

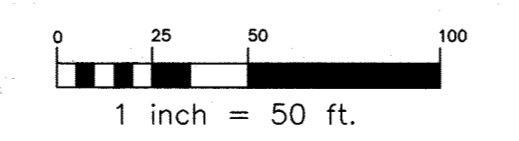
DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
SCALE: AS SHOWN SHEET 18 OF 32





APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9-15-21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] [Signature]  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 9-21-21  
 DIRECTOR

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021



NO.	DATE	REVISION

**BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS**  
 ENGINEERING, INC.  
 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-8109 (F) 410-465-8644  
 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 authority of the State of Maryland. License No. 20015

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

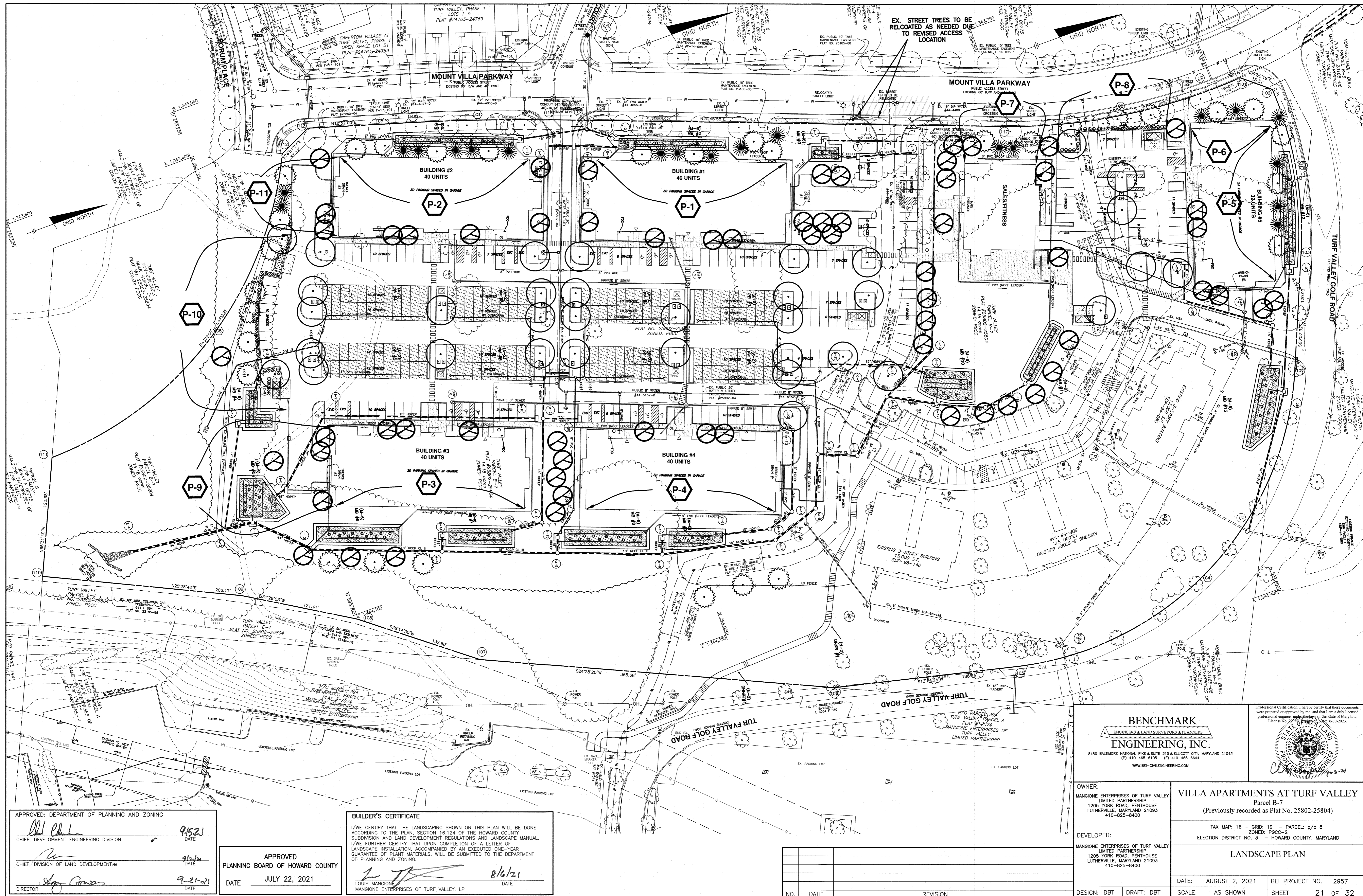
TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8  
 ZONED: PCCC-2  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**WATER AND SEWER PROFILES**

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

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

DATE: AUGUST 2, 2021  
 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN  
 SHEET 20 OF 32



APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 9/15/21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE

*[Signature]* 9/21/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE

*[Signature]* 9-21-21  
 DIRECTOR  
 DATE

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY

DATE JULY 22, 2021

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.

*[Signature]* 8/6/21  
 LOUIS MANGIONE  
 MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 DATE

NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 215 • ELICOTT CITY, MARYLAND 21043  
 (P) 410-465-8108 (F) 410-465-8844  
 WWW.BE-CIVILENGINEERING.COM

Professional Certification I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 20078, (Exp. 12/31/2023).

*[Signature]* 9-21-21

OWNER:  
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 1205 YORK ROAD, PENTHOUSE  
 LUTHERVILLE, MARYLAND 21093  
 410-825-8400

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 1205 YORK ROAD, PENTHOUSE  
 LUTHERVILLE, MARYLAND 21093  
 410-825-8400

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**LANDSCAPE PLAN**

DATE: AUGUST 2, 2021    BEI PROJECT NO. 2957  
 SCALE: AS SHOWN    SHEET 21 OF 32

SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING		
	SFA	APTS
NUMBER OF DWELLING UNITS	0	192
NUMBER OF TREES REQUIRED (1:1 DU SFA; 1:3 DU APTS)	N/A	64
NUMBER OF TREES PROVIDED		
SHADE TREES	N/A	64
OTHER (2:1 RATIO)	N/A	0

RESIDENTIAL DEVELOPMENT PARKING LOT LANDSCAPING	
NUMBER OF PARKING SPACES*	347
REQUIREMENT	LARGE (2.5" cal) 1:10 SPACES
NUMBER OF TREES REQUIRED	35
NUMBER OF TREES PROVIDED	35

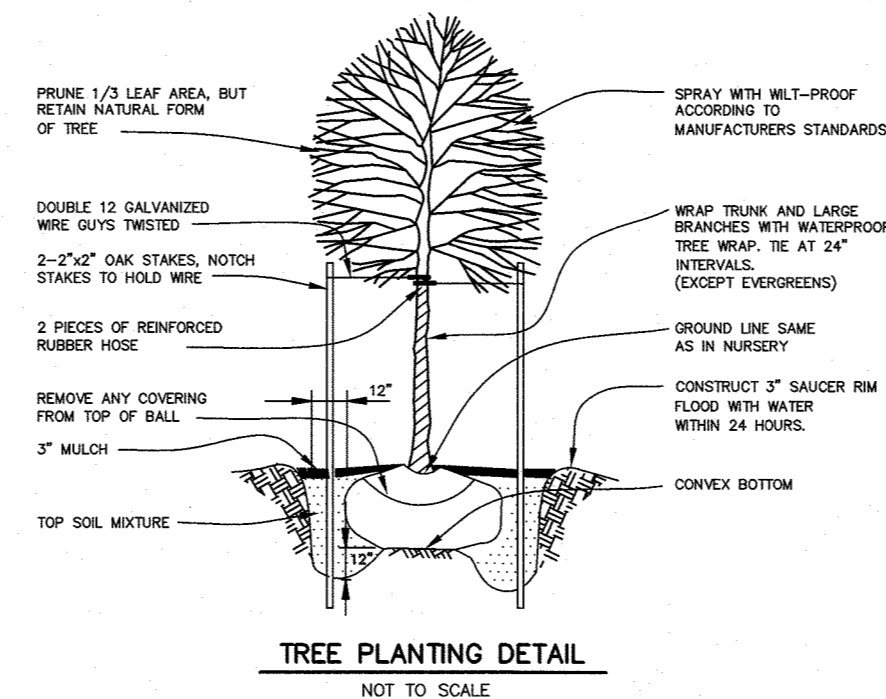
\*SURFACE PARKING SPACES ONLY. GARAGE LEVEL SPACES NOT INCLUDED.

SCHEDULE A PERIMETER LANDSCAPE EDGE												
CATEGORY	APT TO ROAD (P-1)	APT TO ROAD (P-2)	APT ADJ PROP (P-3)	APT ADJ PROP (P-4)	APT TO ROAD (P-5)	APT TO ROAD (P-6)	BLDG TO ROAD (P-7)	PARKING TO ROAD (P-8)	APT TO ROAD (P-9)	PARKING TO ROAD (P-10)	APT TO ROAD (P-11)	TOTALS
LANDSCAPE TYPE	B 1:50 shade 1:40 evergreen	B 1:50 shade 1:40 evergreen	A 1:60 shade	A 1:60 shade	B 1:50 shade 1:40 evergreen	B 1:50 shade 1:40 evergreen	B 1:50 shade 1:40 evergreen	E 1:40 shade 1:4 shrubs	B 1:50 shade 1:40 evergreen	E 1:40 shade 1:4 shrubs	E 1:50 shade 1:40 evergreen	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	195'	195'	195'	195'	159'	82'	74'	122'	82'	198'	82'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	YES 82'	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED												
SHADE TREES	4	4	3	3	3	2	2	3	0	5	2	31
EVERGREEN TREES	5	5	0	0	4	2	2	0	0	0	2	20
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0	0	0	0	0	0	0	0	0
SHRUBS	0	0	0	0	0	0	0	30	0	50	0	80
NUMBER OF PLANTS PROVIDED												
SHADE TREES	4	4	3	3	3	2	2	3	0	5	2	31
EVERGREEN TREES	5	5	0	0	4	2	2	0	0	0	2	20
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0	0	0	0	0	0	0	0	0
SHRUBS (10:1 SUBSTITUTE)	0	0	0	0	0	0	0	30	0	50	0	80

LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	64	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2.5" - 3" cal.	SHADE TREES FOR RESIDENTIAL INTERNAL LANDSCAPING TO BE PROVIDED BY THE BUILDER.
	35	ACER RUBRUM 'RED SUBSET' (Red Sunset Red Maple)	2.5" - 3" cal.	PARKING LOT SHADE TREES TO BE PROVIDED BY THE BUILDER.
	20	THUJA PLICATA GIANT ARBORVITAE 'GREEN GIANT'	5' - 6' ht.	EVERGREEN TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE BUILDER.
	31	CLADRASIS KENTUKEA LUTEA (Yellowwood)	2.5" - 3" cal.	SHADE TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE BUILDER.
	80	TAXUS X MEDIA DENSIFORMIS (Densiformis Yew)	24"-30" B&B	SHRUBS ALONG PERIMETER EDGES TO BE PROVIDED BY THE BUILDER.
				EXISTING STREET TREES PER F-14-096 AND F-17-101
				EXISTING INDIVIDUAL TREES

**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.
  - A MINIMUM OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT OR SIGN AND ANY STREET TREE.
  - ON THE APPROACH SIDE OF A STOP SIGN, NO STREET TREE CAN BE PLANTED WITHIN 30 FEET OF THE STOP SIGN.
- 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.
- FINANCIAL SURETY IN THE AMOUNT OF \$42,800.00 FOR THE REQUIRED 130 SHADE TREES, 20 EVERGREEN TREES, AND 80 SHRUBS SHALL BE PAID AS PART OF THE GRADING PERMIT.



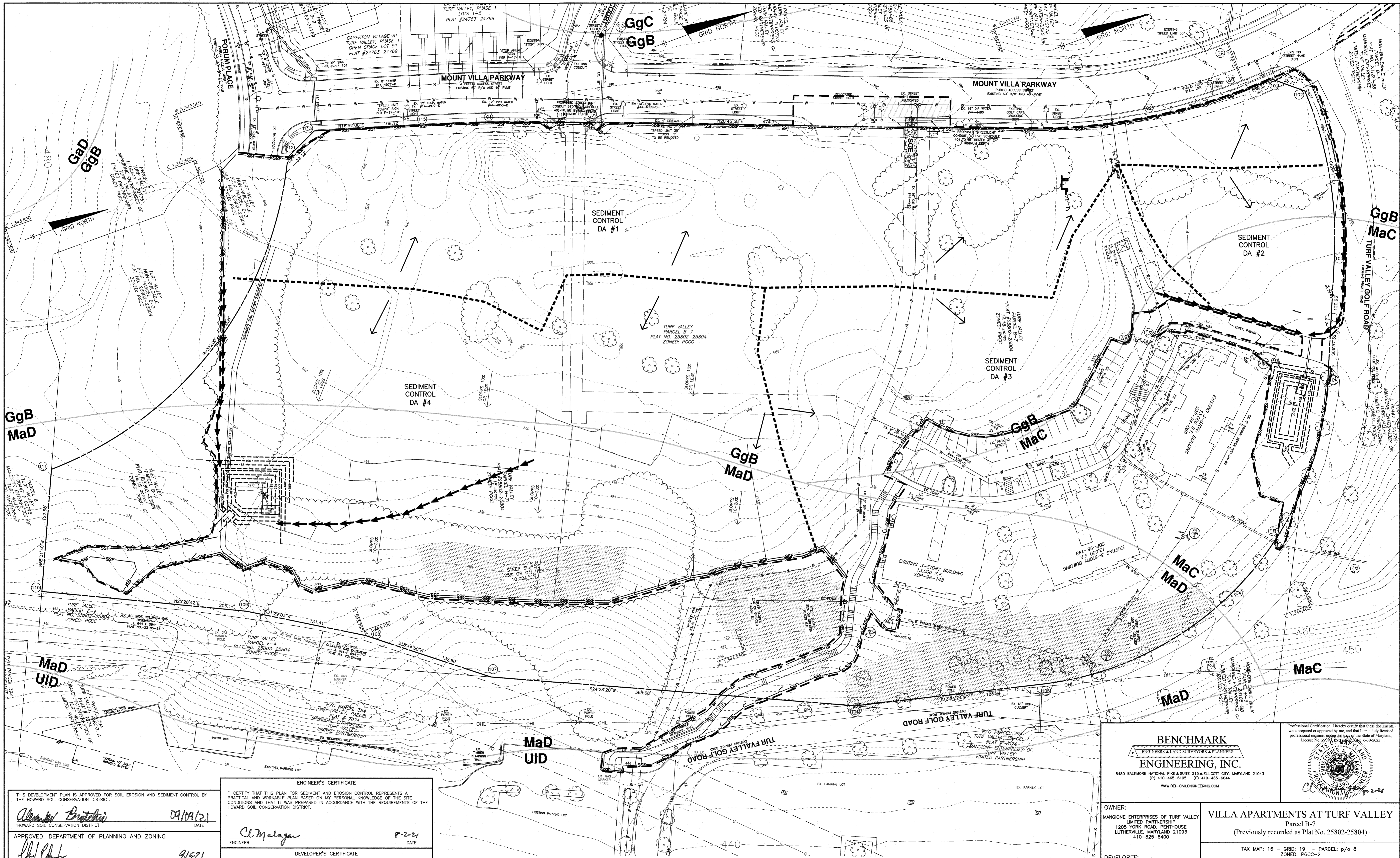
**BUILDER'S CERTIFICATE**  
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.  
 [Signature] 8/6/21 DATE  
 LOUIS MANGIONE  
 MANGIONE ENTERPRISES OF TURF VALLEY, LP

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9/15/21 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 9/22/21 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 9-21-21 DATE  
 DIRECTOR

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021

NOTE: FOR STORMWATER MANAGEMENT MICRO BIO-RETENTION PLANTINGS SEE SHEET 8

<p>Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer upon the laws of the State of Maryland. License No. 22530, P.E. CIVIL ENGINEERING, 6-30-2023.</p>	
<p><b>BENCHMARK ENGINEERING, INC.</b>        ENGINEERS &amp; LAND SURVEYORS &amp; PLANNERS        8480 BALTIMORE NATIONAL PIKE &amp; SUITE 315 A ELLCOFT CITY, MARYLAND 21043        (P) 410-465-8105 (F) 410-465-8944        WWW.BE-CIVILENGINEERING.COM</p>	
<p>OWNER:          MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP          1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093          410-825-8400</p>	<p>VILLA APARTMENTS AT TURF VALLEY          Parcel B-7          (Previously recorded as Plat No. 25802-25804)</p>
<p>DEVELOPER:          MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP          1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093          410-825-8400</p>	<p>TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8          ZONED: PGCC-2          ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND</p>
<p>LANDSCAPE PLAN</p>	
<p>DESIGN: DBT          DRAFT: DBT</p>	<p>DATE: AUGUST 2, 2021          SCALE: AS SHOWN          BEI PROJECT NO. 2957          SHEET 22 OF 32</p>



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

*Alexander Butcher* 09/09/21  
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 9/15/21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 9/20/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND DATE

*[Signature]* 9-20-21  
 DIRECTOR DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

*[Signature]* 8-2-21  
 ENGINEER DATE

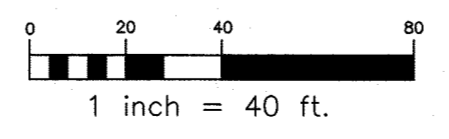
DEVELOPER'S CERTIFICATE

"I, WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

*[Signature]* 8/16/21  
 DEVELOPER DATE

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY

DATE JULY 22, 2021



NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELICOTT CITY, MARYLAND 21043  
 (P) 410-466-6100 (F) 410-466-6844  
 WWW.BR-CIVILENGINEERING.COM

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

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

**VILLA APARTMENTS AT TURF VALLEY**  
 Parcel B-7  
 (Previously recorded as Plat No. 25802-25804)

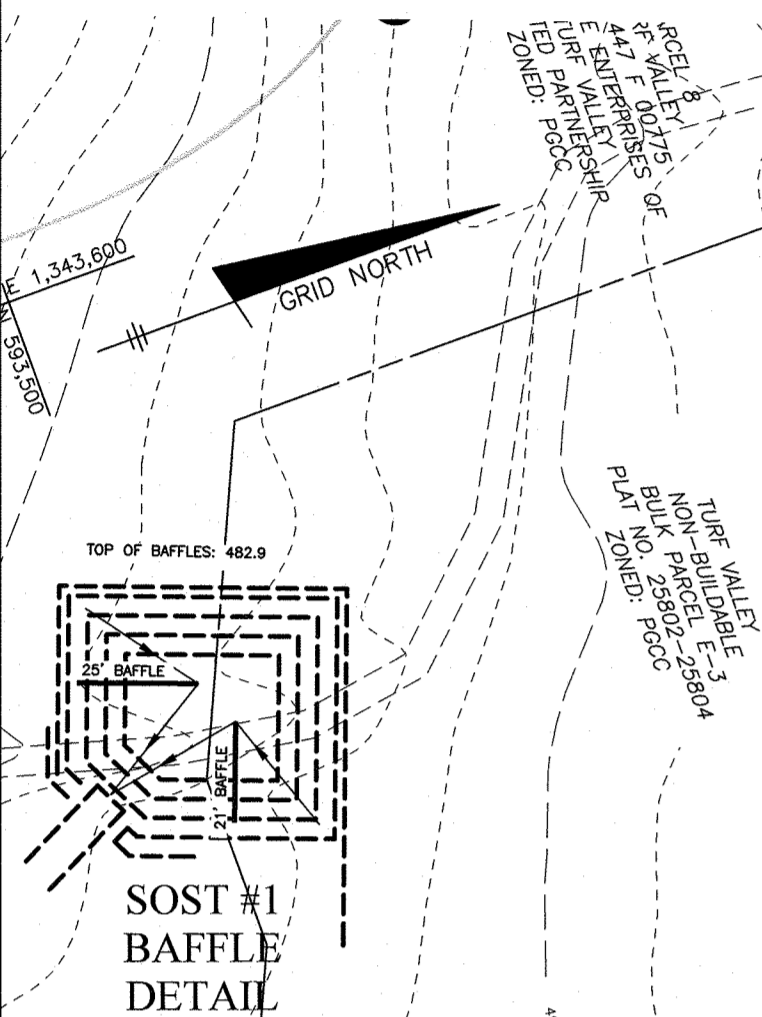
TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8  
 ZONED: PGCC-2  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**SEDIMENT AND EROSION CONTROL PLAN**  
 EXISTING CONDITION

DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
 SCALE: AS SHOWN SHEET 23 OF 32

**SOST #1**

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 1	1	ACRES
DRAINAGE AREA - INITIAL	1.8	ACRES
DRAINAGE AREA - INTERM	1.9	ACRES
DRAINAGE AREA - FINAL	1.9	ACRES
TOTAL STORAGE REQUIRED	6,840	CF
TOTAL STORAGE PROVIDED	7,500	CF
WET STORAGE REQUIRED	3,420	CF
WET STORAGE PROVIDED	3,420	CF
DRY STORAGE REQUIRED	3,420	CF
DRY STORAGE PROVIDED	4,080	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	481.80	FT
TRAP BOTTOM ELEVATION	479.00	FT
TRAP BOTTOM DIMENSIONS	SEE PLAN VIEW	FT x FT
WEIR LENGTH	7.6	FT
WEIR CREST (DRY STORAGE) ELEVATION	484.00	FT
CLEANOUT ELEVATION	480.75	FT
TOP OF EMBANKMENT ELEVATION	485.00	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	24'	FT
OUTLET PROTECTION - DEPTH	19"	IN



APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Alexander Brattini* 09/09/21  
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Chief, Development Engineering Division* 9/15/21  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Chief, Division of Land Development* 9/21/21  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Director* 9-21-21  
DIRECTOR

**ENGINEER'S CERTIFICATE**

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

*Al Malaga* 8-2-21  
ENGINEER

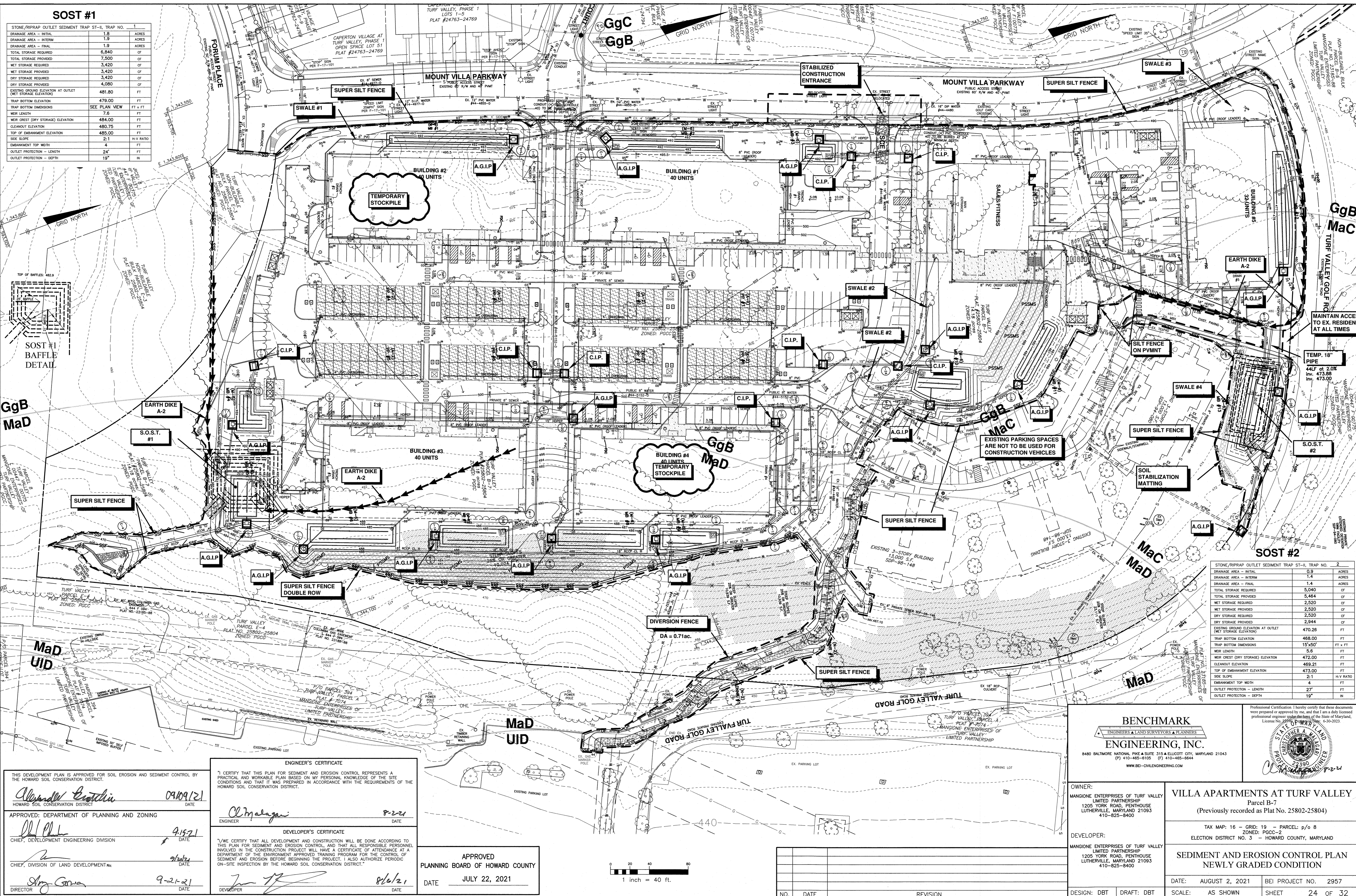
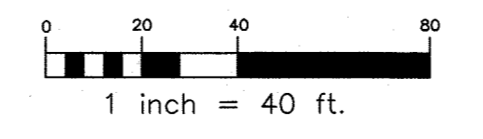
**DEVELOPER'S CERTIFICATE**

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

*Joe [Signature]* 8/6/21  
DEVELOPER

APPROVED  
PLANNING BOARD OF HOWARD COUNTY

DATE: JULY 22, 2021



**STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 2**

DRAINAGE AREA - INITIAL	0.9	ACRES
DRAINAGE AREA - INTERM	1.4	ACRES
DRAINAGE AREA - FINAL	1.4	ACRES
TOTAL STORAGE REQUIRED	5,040	CF
TOTAL STORAGE PROVIDED	5,464	CF
WET STORAGE REQUIRED	2,520	CF
WET STORAGE PROVIDED	2,520	CF
DRY STORAGE REQUIRED	2,520	CF
DRY STORAGE PROVIDED	2,944	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	470.26	FT
TRAP BOTTOM ELEVATION	468.00	FT
TRAP BOTTOM DIMENSIONS	15'x50'	FT x FT
WEIR LENGTH	5.6	FT
WEIR CREST (DRY STORAGE) ELEVATION	472.00	FT
CLEANOUT ELEVATION	469.21	FT
TOP OF EMBANKMENT ELEVATION	473.00	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	27'	FT
OUTLET PROTECTION - DEPTH	19"	IN

**BENCHMARK ENGINEERS & PLANNERS**  
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELICOTT CITY, MARYLAND 21043  
(P) 410-465-6100 (F) 410-465-6644  
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**OWNER:**  
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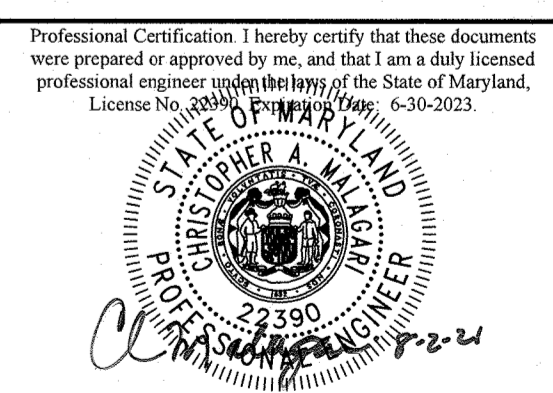
**DEVELOPER:**  
MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

**VILLA APARTMENTS AT TURF VALLEY**  
Parcel B-7  
(Previously recorded as Plat No. 25802-25804)

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

**SEDIMENT AND EROSION CONTROL PLAN**  
NEWLY GRADED CONDITION

DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
SCALE: AS SHOWN SHEET 24 OF 32





**HOWARD SOIL CONSERVATION DISTRICT (HSCD)  
STANDARD SEDIMENT CONTROL NOTES**

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future L.O.D and 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 before proceeding with any other earth disturbance or grading.
  - c. Prior to the start of another phase of construction or opening of another grading area under active grading.
  - d. Prior to the removal or modification of sediment control practices.

**B-4 STANDARDS AND SPECIFICATIONS**

**FOR VEGETATIVE STABILIZATION**  
Definition: The process of preparing the soils to sustain adequate vegetative stabilization.  
Purpose: To provide a suitable soil medium for vegetative growth.  
Criteria: Conditions Where Practice Applies

Using vegetation as cover to protect exposed soil from erosion.  
To promote the establishment of vegetation on exposed soil.  
On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental 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, thereby 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 rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. 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 present within the root zone.  
Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

- Incremental Stabilization - Cut Slopes**
1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
  2. In an area less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
  3. In an area less than 40 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**

**FOR INCREMENTAL STABILIZATION**  
Definition: Establishment of vegetative cover on cut and fill slopes.  
Purpose: To provide timely vegetative cover on cut and fill slopes as work progresses.  
Criteria: 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 slopes as the work progresses.
2. In an area less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. In an area less than 40 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.

**Incremental Stabilization - Fill Slopes**

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed 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.1).

**Incremental Stabilization - Topsoiling**

1. 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.
  - b. 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.
  - c. The original soil to be vegetated contains material toxic to plant growth.
  - d. The soil is so acidic that treatment with limestone is not feasible.
2. Areas having slopes steeper than 2:1 require special consideration and design.
3. 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 approved 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 1 1/2 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.
  - c. 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.
4. Topsoil Application
  - a. Erosion and sediment control practices must be maintained when applying topsoil.
  - b. 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.
  - c. Topsoil must not be placed if the topsoil or subsoil is 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.

**ENGINEER'S CERTIFICATE**

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Cl. Malagan* 8-2-21  
ENGINEER DATE

**DEVELOPER'S CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A SEMINAR CONDUCTED BY THE HOWARD SOIL CONSERVATION DISTRICT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Wendy Butcher* 8/6/21  
DEVELOPER DATE

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

*Wendy Butcher* 09/09/21  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Chief Development Engineering Division* 9/15/21  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Steve Gomez* 9-21-21  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Steve Gomez* DIRECTOR

**B-4-2 STANDARDS AND SPECIFICATIONS**

**FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS**  
Definition: The process of preparing the soils to sustain adequate vegetative stabilization.  
Purpose: To provide a suitable soil medium for vegetative growth.  
Criteria: Conditions Where Practice Applies

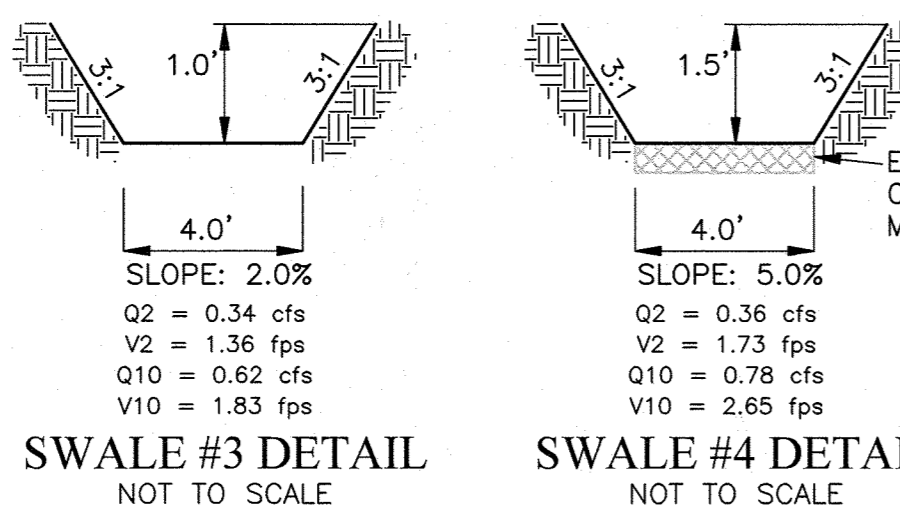
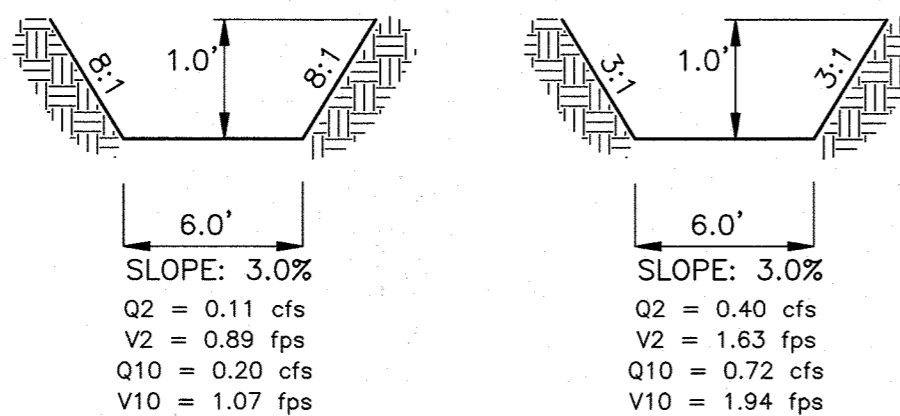
Where vegetative stabilization is to be established.

1. Temporary Stabilization
  - a. 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 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.
  - b. Apply fertilizer and lime as prescribed on the plans.
  - c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
  - a. 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 content 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 loess will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
    - iv. Soil contains 1.5 percent minimum organic matter by weight.
  - b. Soil content sufficient pore space to permit adequate root penetration.
  - c. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
  - d. 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.
  - e. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
  - f. 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.

1. Topsoiling 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 gradation.
2. Topsoil salvaged from an existing site may be 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 USDA-NRCS.
3. 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.
  - b. 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.
  - c. The original soil to be vegetated contains material toxic to plant growth.
  - d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. 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 approved 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 1 1/2 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.
  - c. 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.
6. Topsoil Application
  - a. Erosion and sediment control practices must be maintained when applying topsoil.
  - b. 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.
  - c. Topsoil must not be placed if the topsoil or subsoil is 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.

1. Topsoiling 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 gradation.
2. Topsoil salvaged from an existing site may be 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 USDA-NRCS.
3. 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.
  - b. 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.
  - c. The original soil to be vegetated contains material toxic to plant growth.
  - d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. 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 approved 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 1 1/2 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.
  - c. 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.
6. Topsoil Application
  - a. Erosion and sediment control practices must be maintained when applying topsoil.
  - b. 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.
  - c. Topsoil must not be placed if the topsoil or subsoil is 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.

1. Topsoiling 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 gradation.
2. Topsoil salvaged from an existing site may be 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 USDA-NRCS.
3. 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.
  - b. 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.
  - c. The original soil to be vegetated contains material toxic to plant growth.
  - d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. 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 approved 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 1 1/2 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.
  - c. 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.
6. Topsoil Application
  - a. Erosion and sediment control practices must be maintained when applying topsoil.
  - b. 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.
  - c. Topsoil must not be placed if the topsoil or subsoil is 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.



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

**FOR SEEDING AND MULCHING**  
Definition: The application of seed and mulch to establish vegetative cover.  
Purpose: To protect disturbed soils from erosion during and at the end of construction.  
Criteria: Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

1. Specifications
  - 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 seeding 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 rate 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 effective.
  - 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 phytotoxic materials.
2. Application
  - 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.
  - b. Drill or Outdragger/Seeder: Mechanized seeders that apply and cover seed with soil. Outdragger 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 planting.
  - 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 (phosphorus), 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 consuming at any one time. Do not use burnt or hydrated lime when hydroseeding.
    - iii. Mix seed and fertilizer on site and seed immediately and without interruption. When hydroseeding do not incorporate seed into the soil.

1. Mulch Materials (in order of preference)
  - 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. Note: Use only sterile straw mulch in areas where one species of grass is desired.
  - b. Wood Cellulose Fiber Mulch (WCFFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
    - i. WCFFM 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 material.
    - ii. WCFFM, including dye, must contain no germination or growth inhibiting factors.
    - iii. WCFFM 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 batter-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. WCFFM material must not contain elements or compounds at concentration levels that will be phytotoxic.
    - v. WCFFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter of 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.

1. General Specifications
  - a. Class of turfgrass must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
  - b. Sod must be machine cut at a uniform soil thickness of 1/4 inch, plus or minus 1/8 inch, at the time of cutting. Measurement for thickness must include top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
  - 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.
2. 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.
3. Sod Maintenance
  - a. In the absence of adequate rainfall, water daily during the first week or as necessary to maintain moist soil to a depth of 4 inches. Water sod during pre-wetting only.
  - b. After the first week, sod watering is required as necessary to maintain moist soil to a depth of 4 inches. Water sod during pre-wetting only.
  - c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass in the initial cutting or subsequent cuttings. Maintain a grass height of at least otherwise specified.

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  - c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass in the initial cutting or subsequent cuttings. Maintain a grass height of at least otherwise specified.

**Permanent Seeding Summary**

Hardiness Zone (from Figure B.3):	Seeds (lb/acre)	Fertilizer Rate (lb/acre)	Lime Rate
9	40	200	2000

**Table B.1: Temporary Seeding for Site Stabilization**

Plant Species	Seeding Rate 1/ (lb/acre)	Seeding Depth (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/	
			5a and 6a	7a and 7b
<b>Cool-Season Grasses</b>				
Annual Ryegrass (Lolium perenne sp.)	40	1.0	Mar 1 to May 15; Aug 1 to Oct 31	
Multiflorus	40	1.0	Mar 1 to May 15; Aug 1 to Oct 31	
Barley (Hordeum vulgare)	96	2.2	Mar 1 to May 15; Aug 1 to Oct 31	
Oats (Avena sativa)	72	1.0	Mar 1 to May 15; Aug 1 to Oct 31	
Wheat (Triticum aestivum)	120	2.8	Mar 1 to May 15; Aug 1 to Oct 31	
Cereal Rye (Secale cereale)	112	2.8	Mar 1 to May 15; Aug 1 to Nov 15	
<b>Warm-Season Grasses</b>				
Forral Millet (Spergularia Italica)	30	0.7	May 16 to Jul 31	
Pearl Millet (Pennisetum glaucum)	20	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 actual seed germination and purity, as noted. Adjustments are usually not needed for the cool-season grasses.
- 2/ For sandy soils, plant seeds at twice the depth listed above.
- 3/ The planting dates listed are averages for each zone and may require adjustment to reflect local conditions, especially near the boundaries of the zones.

**B-4-4 STANDARDS AND SPECIFICATIONS**

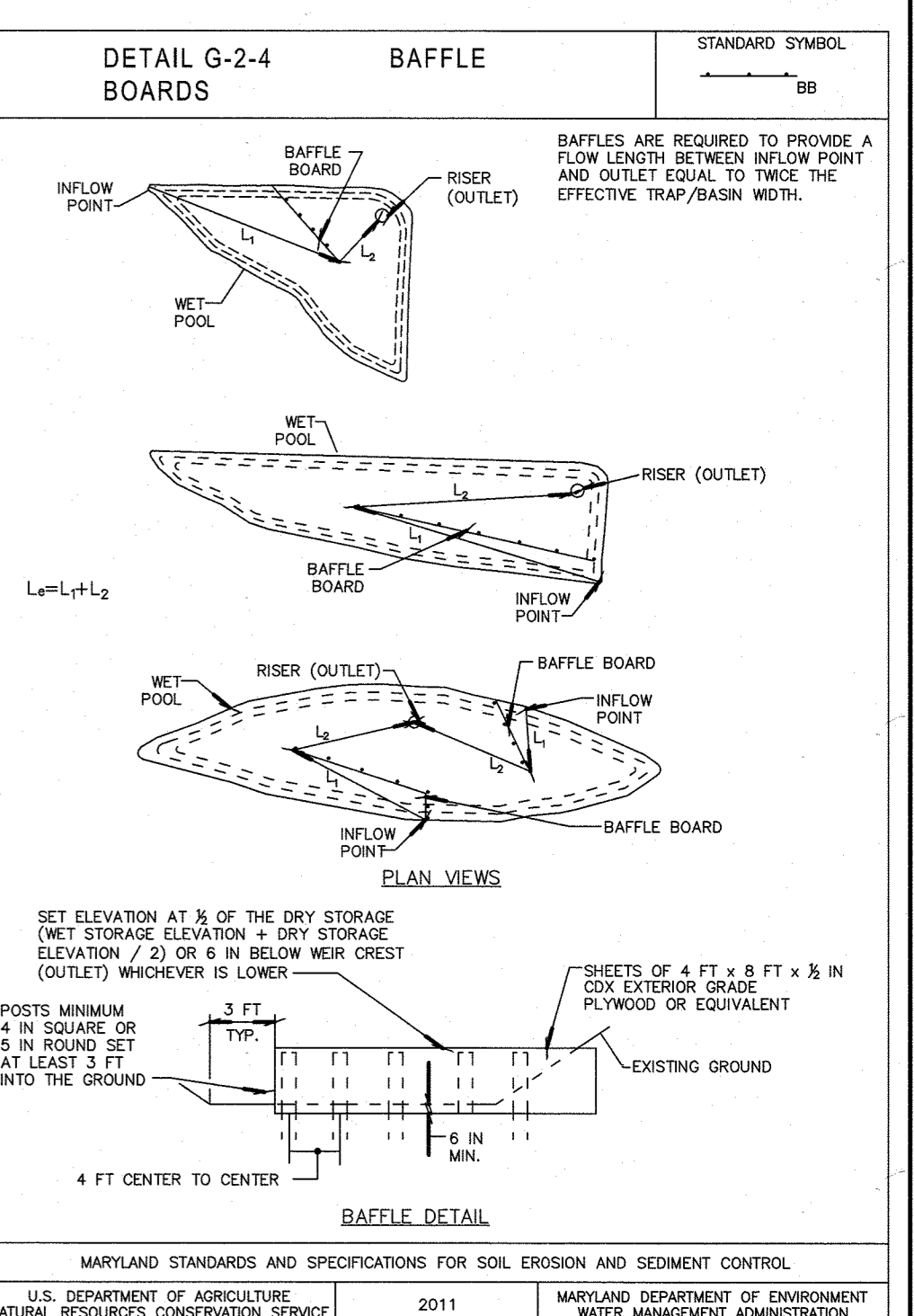
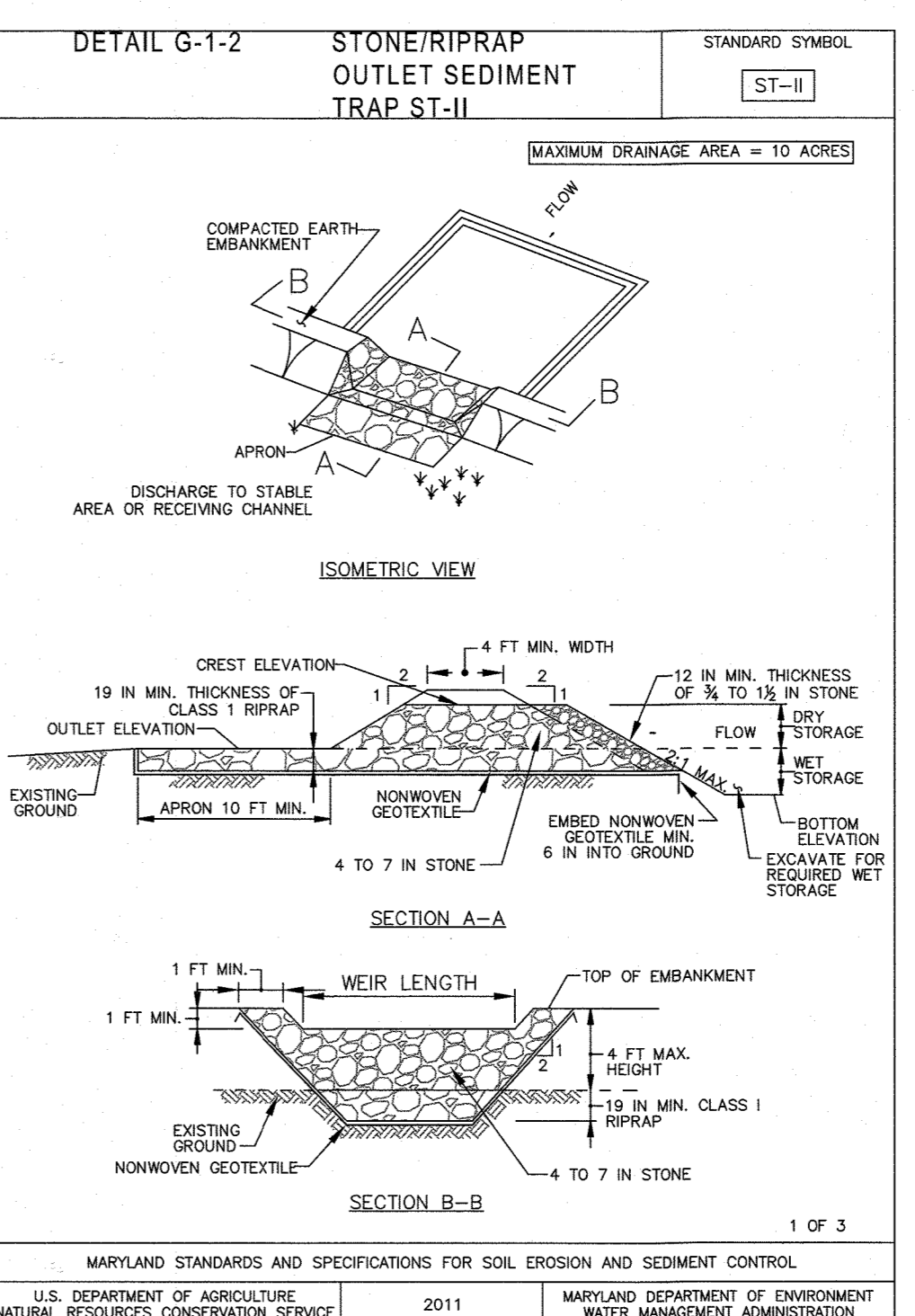
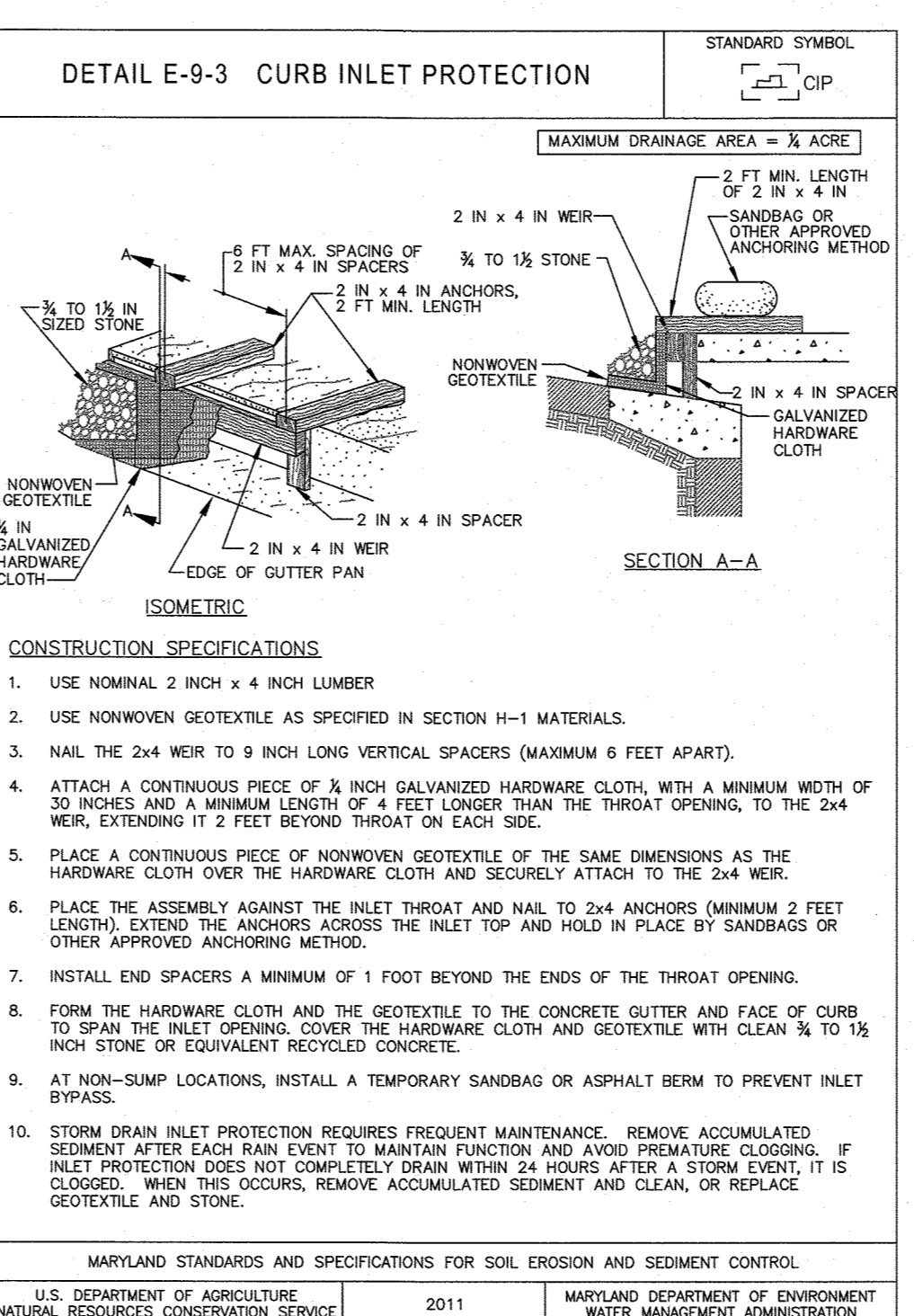
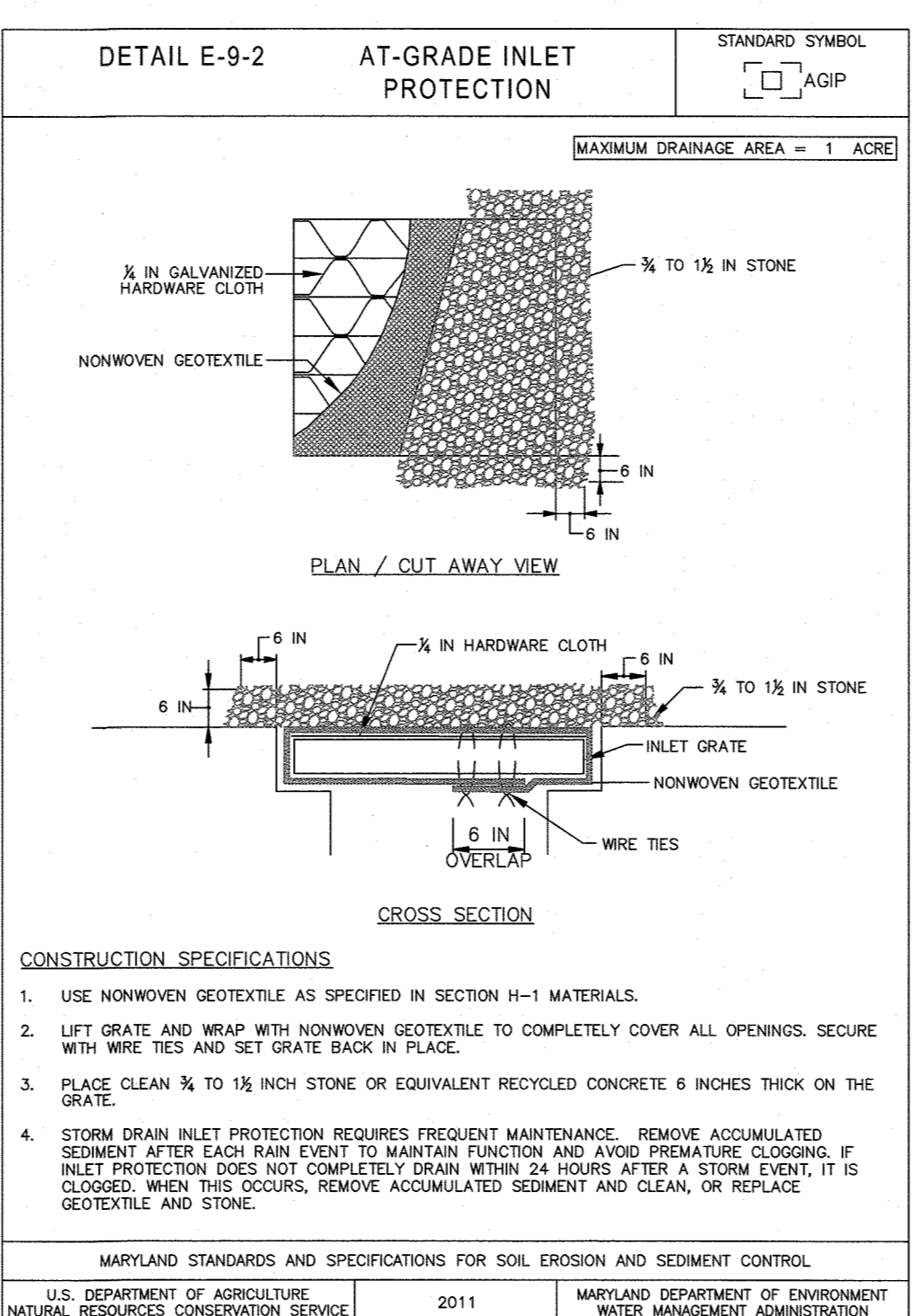
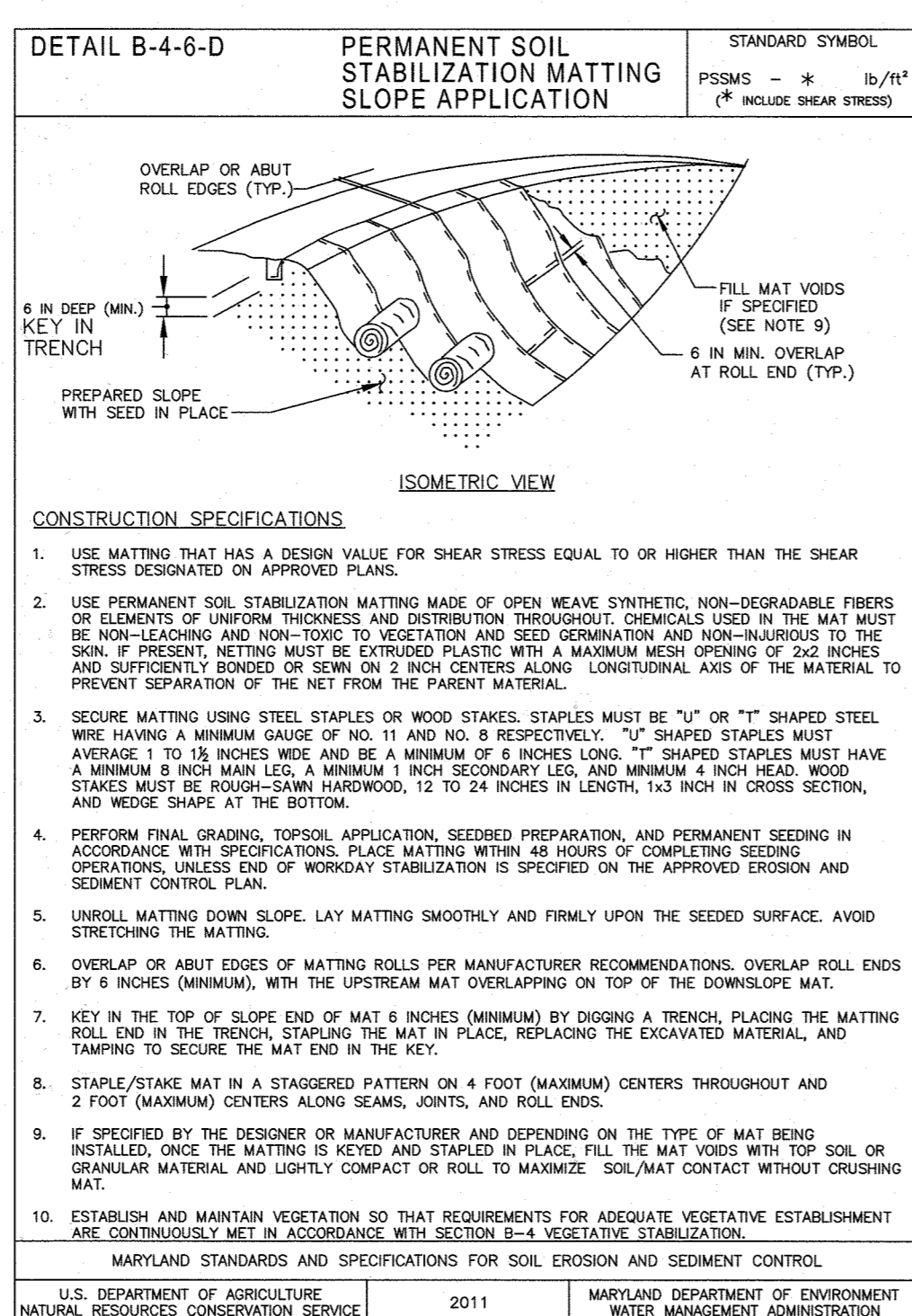
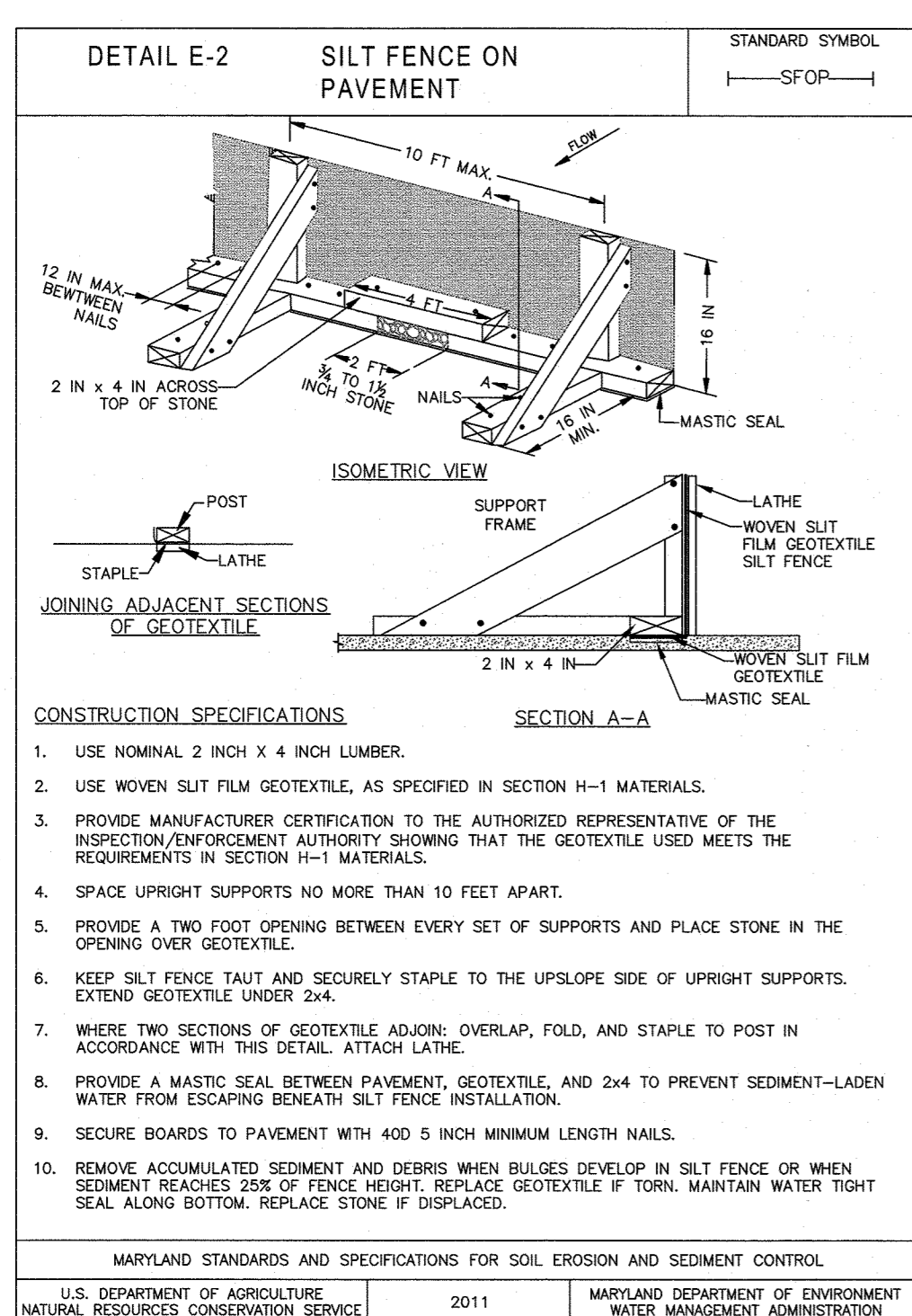
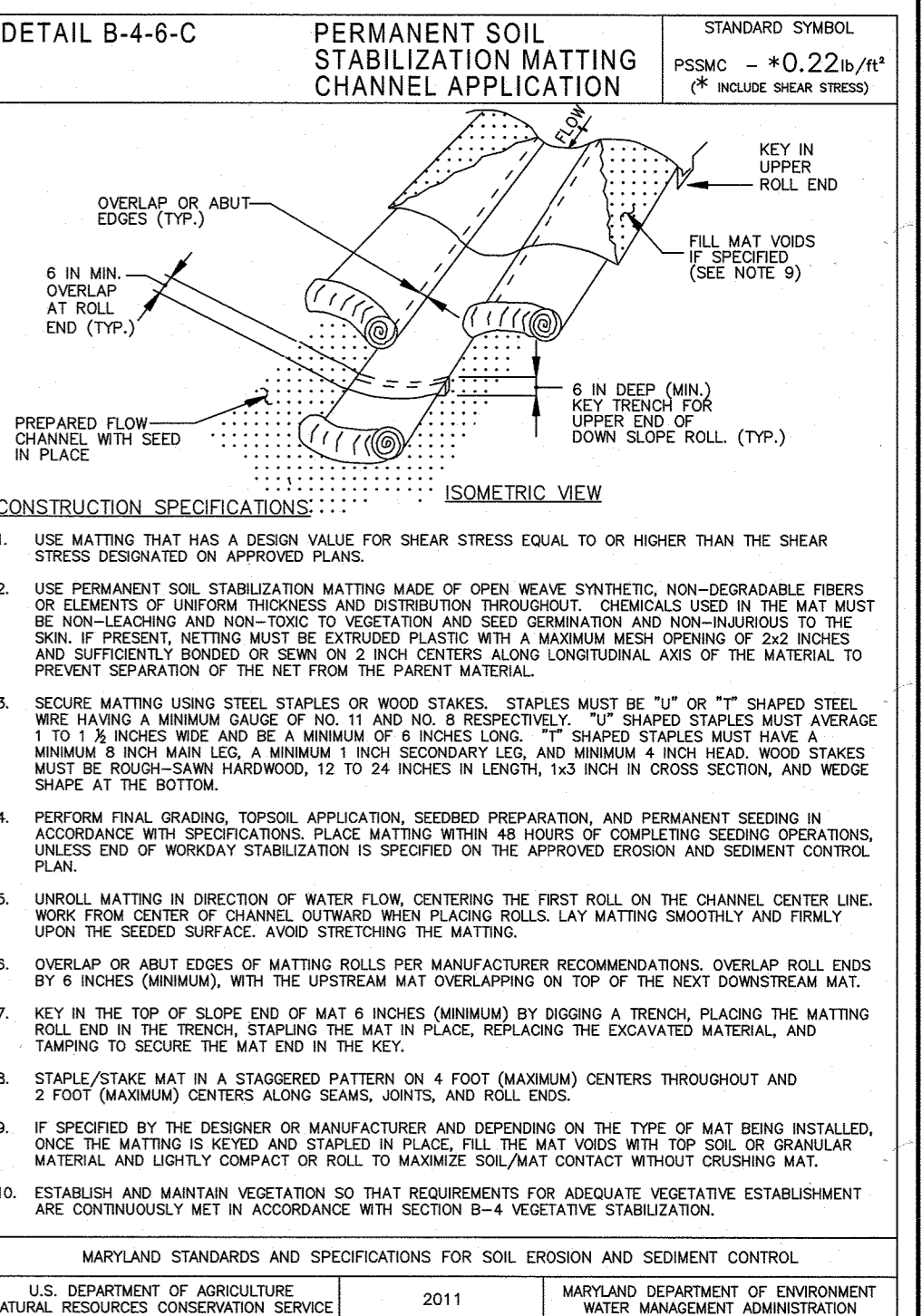
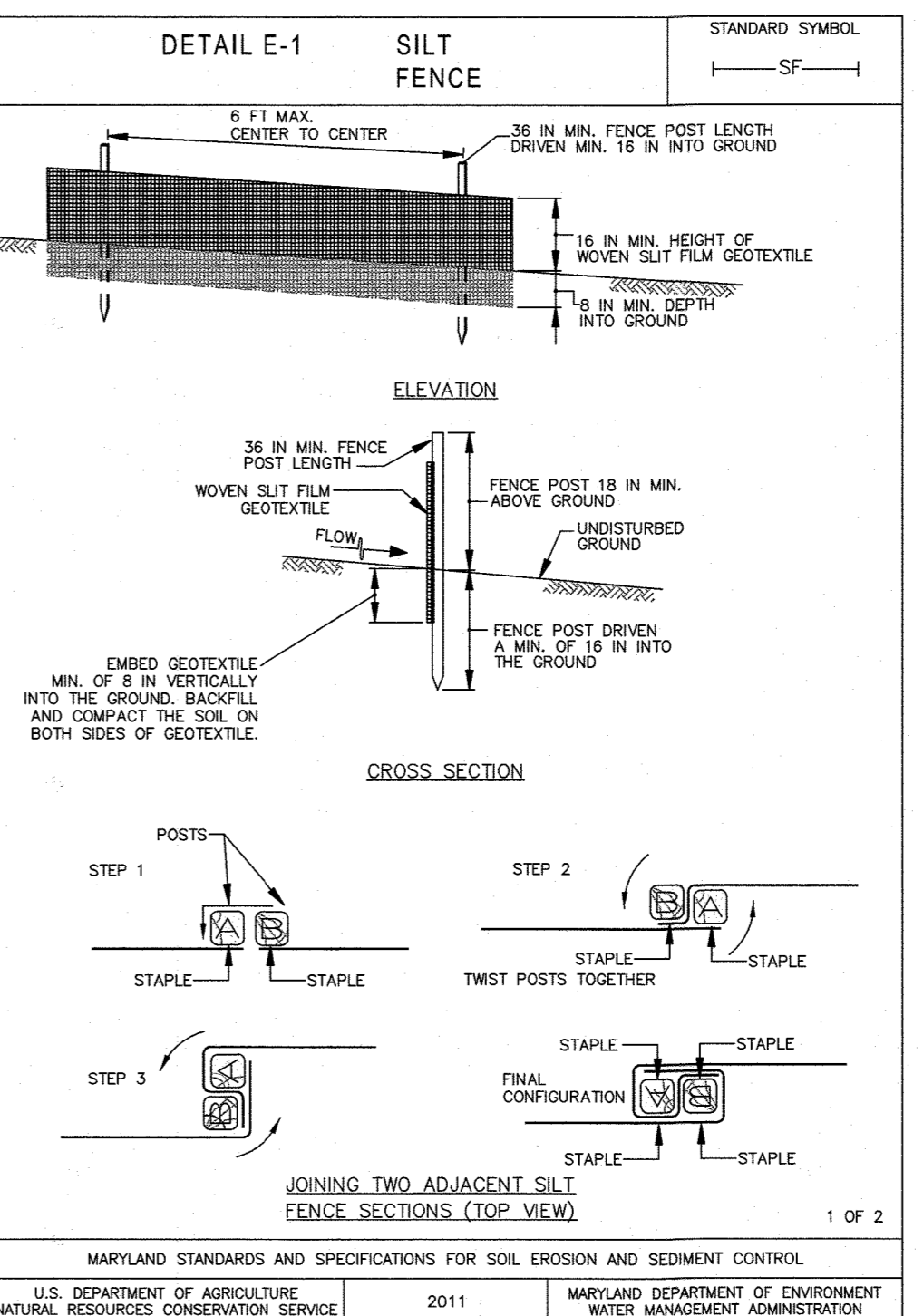
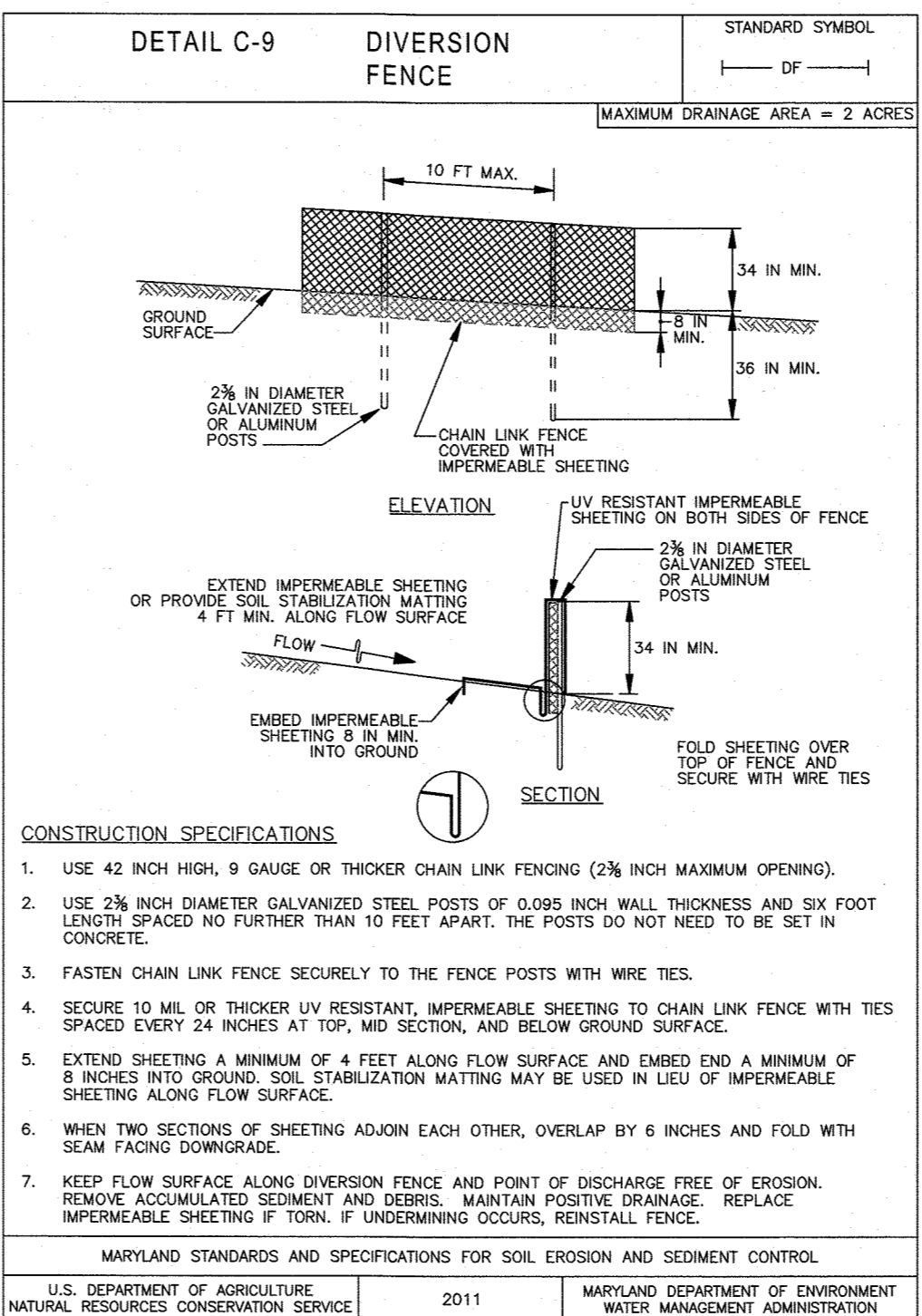
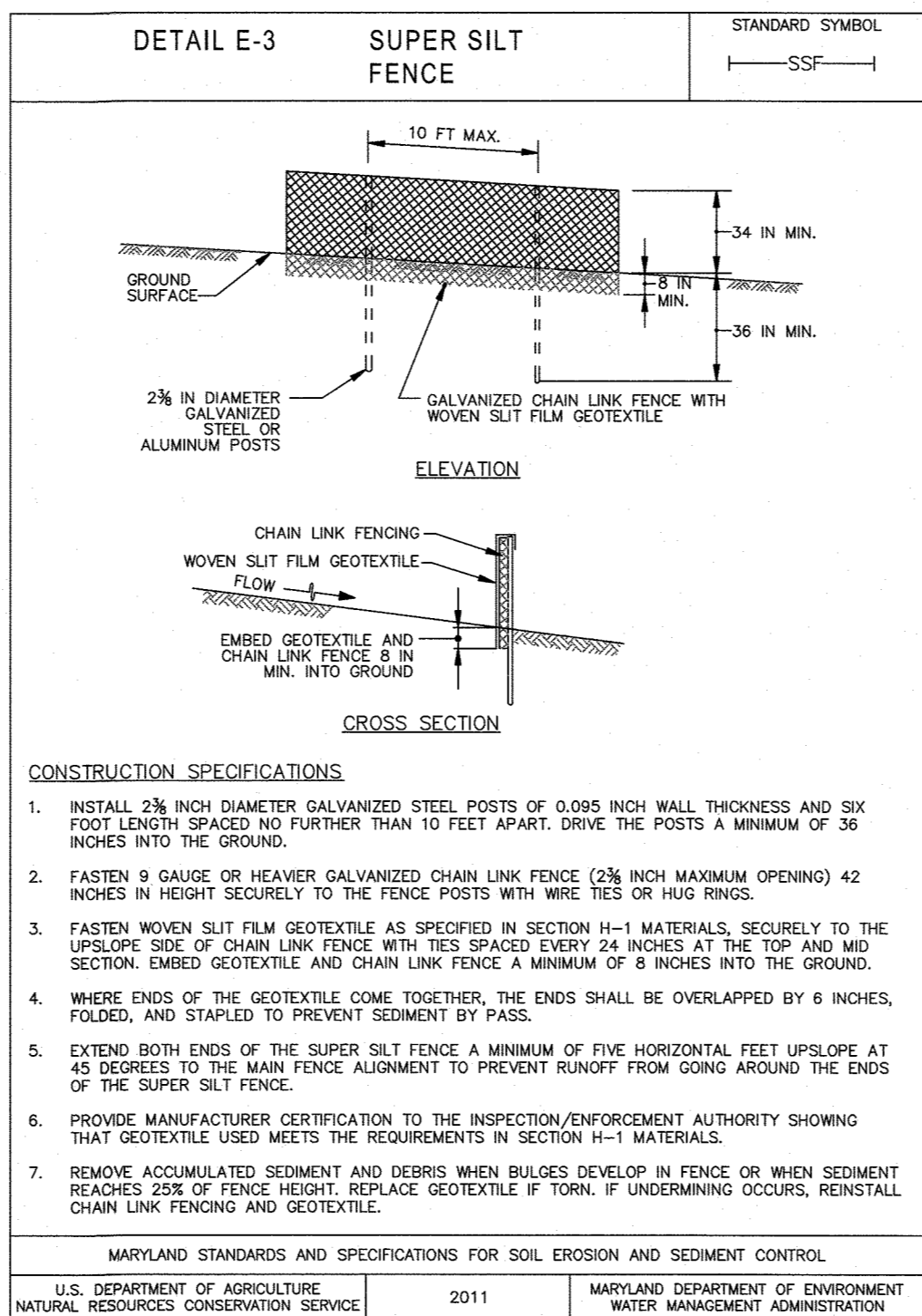
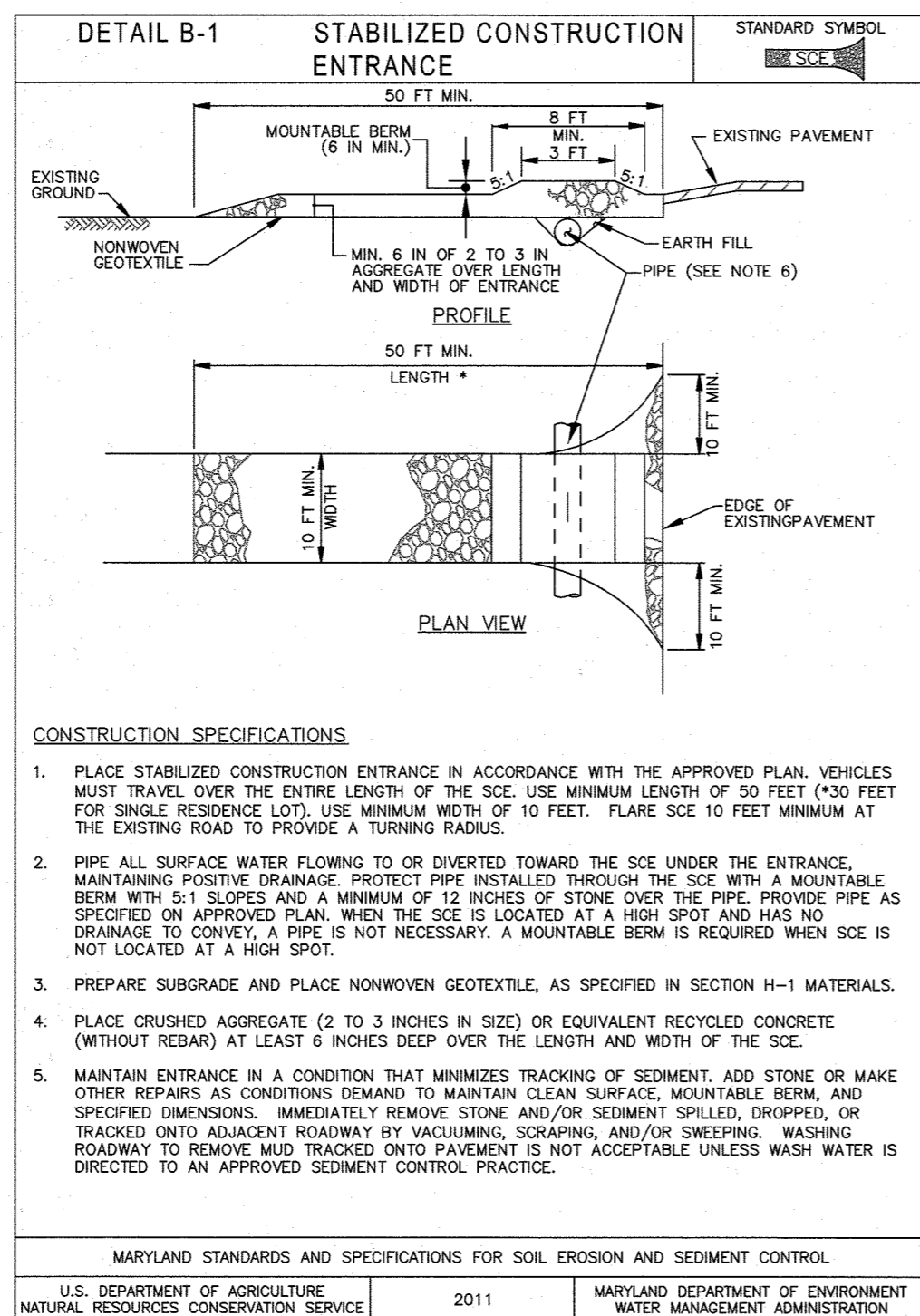
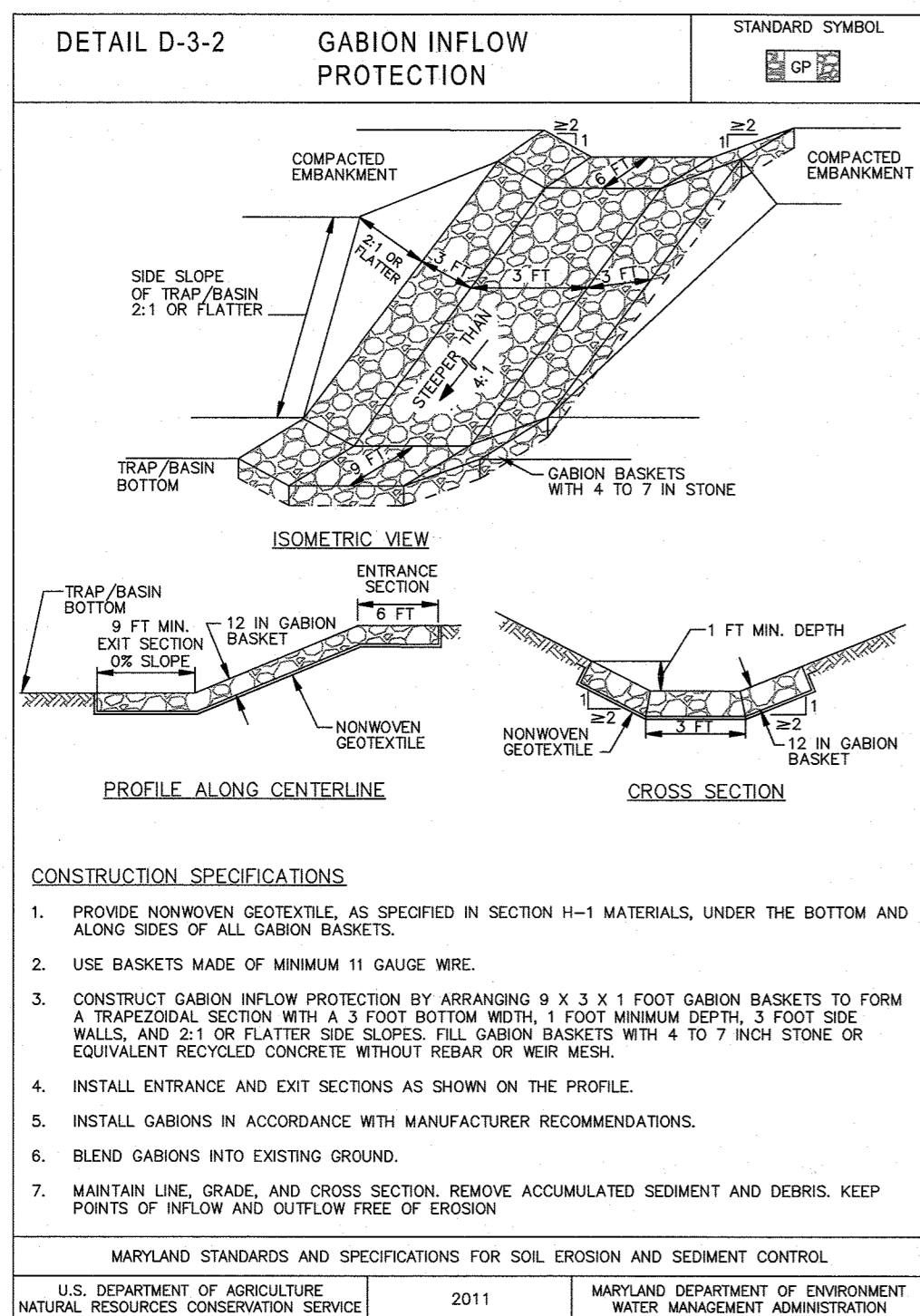
**FOR PERMANENT STABILIZATION**  
Definition: To stabilize disturbed soils with permanent vegetation.  
Purpose: To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.  
Criteria: Conditions Where Practice Applies

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

1. 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 Guide, Section 342 - Critical Area Planting.
  - c. For sites having disturbed areas over 5 acres, use and show the rates recommended by the 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. 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 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 mixture by weight.
  - c. 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/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.
  - d. 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.
  - e. Kentucky Bluegrass/Fine Fescue: Shade Mixture. For use in areas with shade in Bluegrass lawns. 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 1/2 to 3 pounds per 1000 square feet.

1. 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.
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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. 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 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 mixture by weight.
  - c. 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/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.
  - d. 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.
  - e. Kentucky Bluegrass/Fine Fescue: Shade Mixture. For use in areas with shade in Bluegrass lawns. 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 1/2 to 3 pounds per 1000 square feet.

1. 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 Guide, Section 342 - Critical Area Planting.
  - c. For sites having disturbed areas over 5 acres, use and show the rates recommended by the 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. 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 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 mixture by weight.
  - c. Kentucky Bluegrass/Per



**ENGINEER'S CERTIFICATE**

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Cl. Malagan* 8-2-21  
ENGINEER DATE

**DEVELOPER'S CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John T. [Signature]* 8/6/21  
DEVELOPER DATE

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

*Alvin [Signature]* 09/09/21  
HOWARD SOIL CONSERVATION DISTRICT DATE

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

*[Signature]* 9/15/21  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 9/21/21  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 9-21-21  
DIRECTOR DATE

**APPROVED**  
PLANNING BOARD OF HOWARD COUNTY  
DATE JULY 22, 2021

**BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS**  
ENGINEERING, INC.  
8480 BALTIMORE NATIONAL PIKE # SUITE 215 A ELICOTT CITY, MARYLAND 21043  
(P) 410-465-8108 (F) 410-465-8644  
WWW.BE-ENGINEERING.COM

**VILLA APARTMENTS AT TURF VALLEY**  
Parcel B-7  
(Previously recorded as Plat No. 25802-25804)

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

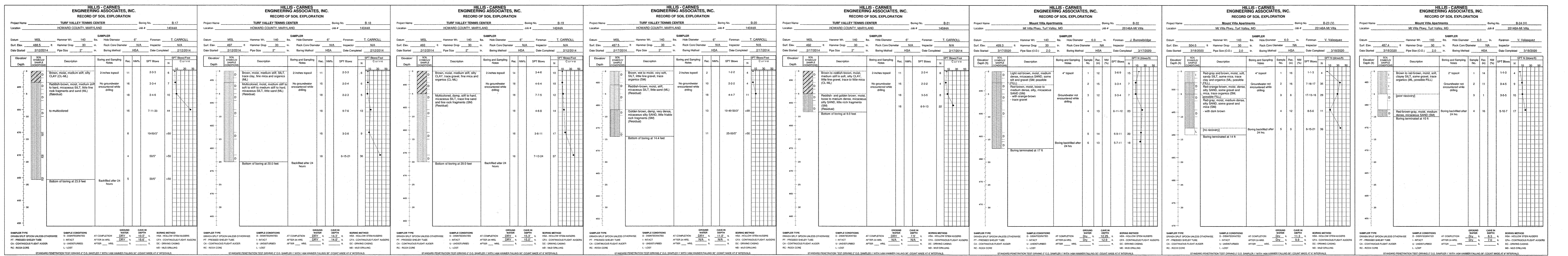
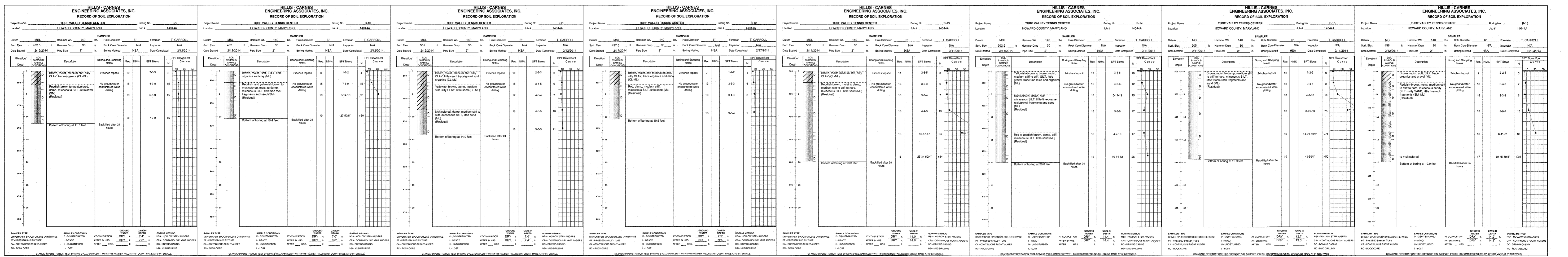
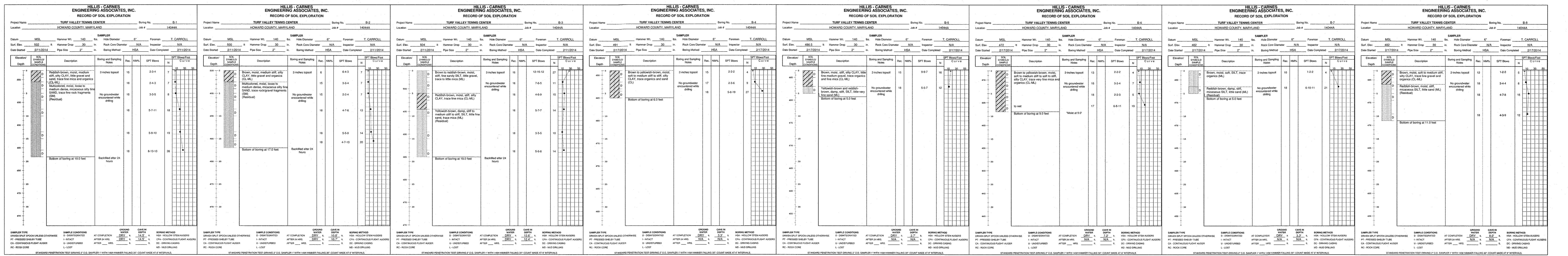
**SEDIMENT AND EROSION CONTROL PLAN**

DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
SCALE: AS SHOWN SHEET 26 OF 32

DESIGN: DBT DRAFT: DBT

SDP-21-001





APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 9/15/21  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*[Signature]* 9/16/21  
CHIEF, DIVISION OF LAND DEVELOPMENT

*[Signature]* 9-21-21  
DIRECTOR

APPROVED  
PLANNING BOARD OF HOWARD COUNTY

DATE JULY 22, 2021

Professional Certification I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer with the State of Maryland, License No. 2008-0023.

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
840 BALTIMORE NATIONAL PIKE SUITE 315 A ELICOTT CITY, MARYLAND 21043  
(P) 410-465-4100 (F) 410-465-4644  
WWW.BE-ONLINEENGINEERING.COM

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

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

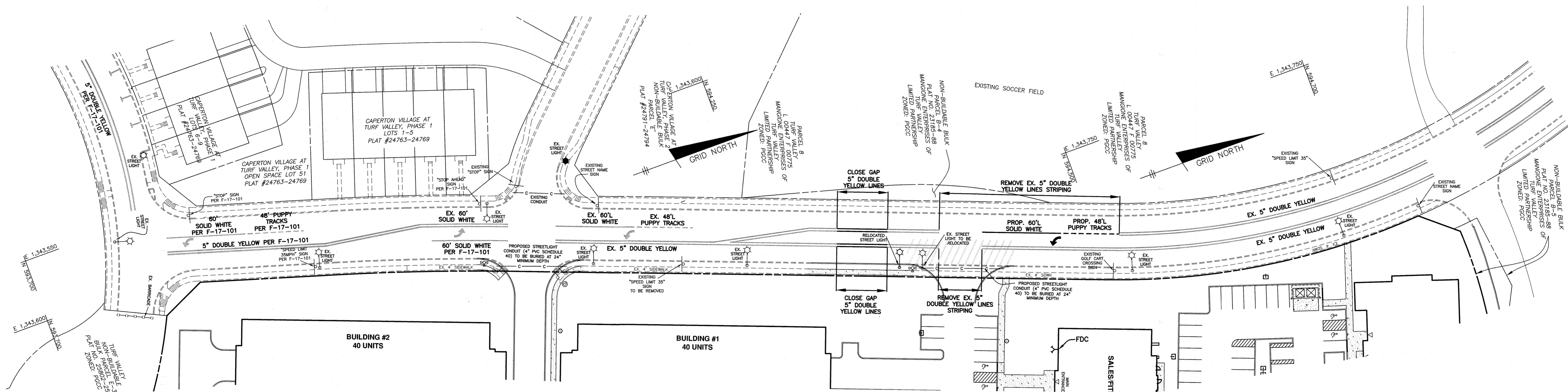
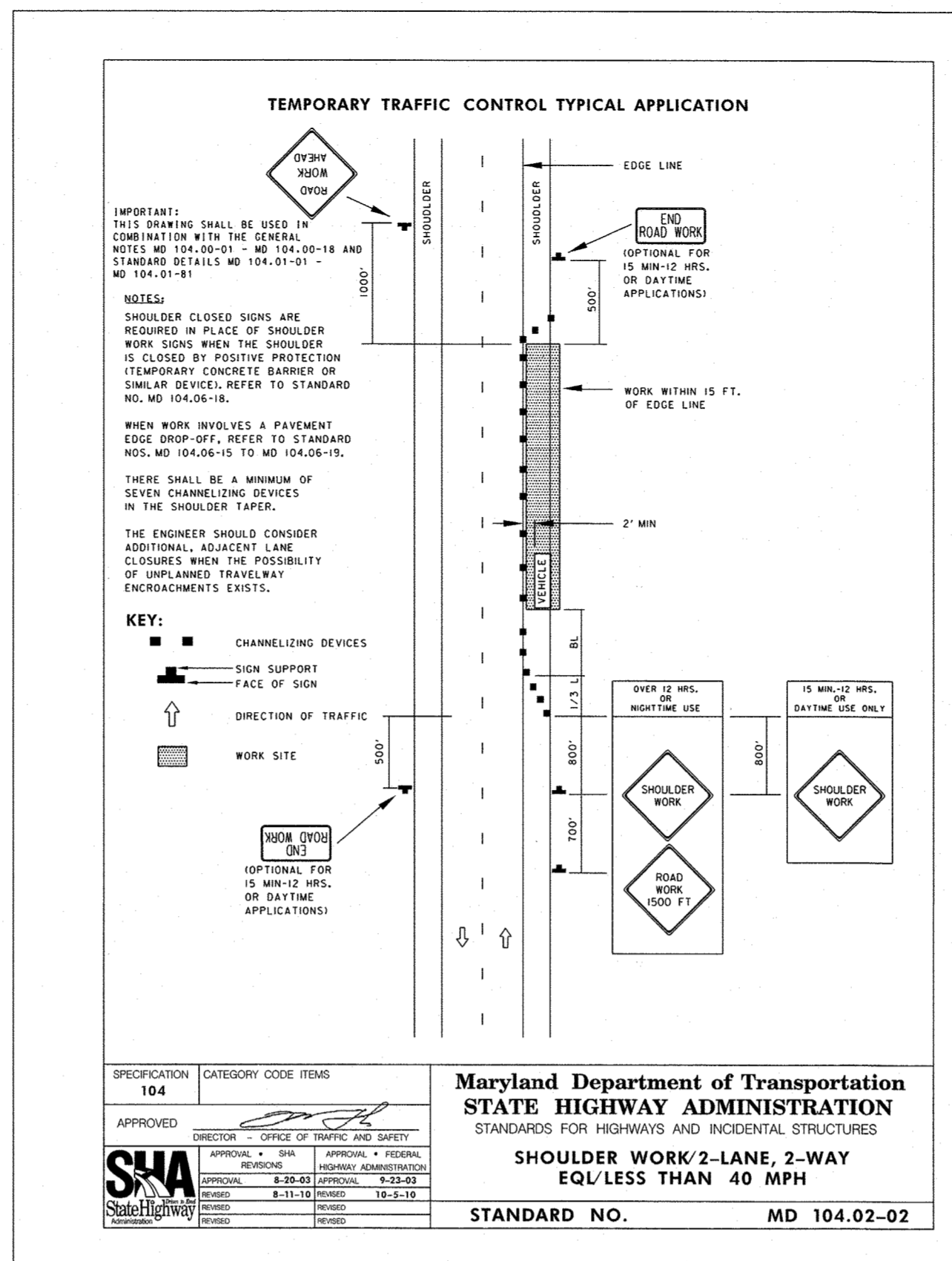
VILLA APARTMENTS AT TURF VALLEY  
Parcel B-7  
(Previously recorded as Plat No. 25802-25804)

TAX MAP: 16 - GRID: 19 - PARCEL: p/0 8  
ZONED: POC-2  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

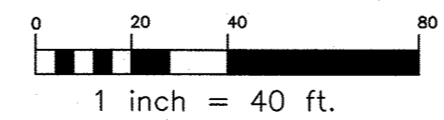
SOIL BORING LOGS

DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957  
SCALE: AS SHOWN SHEET 28 OF 32





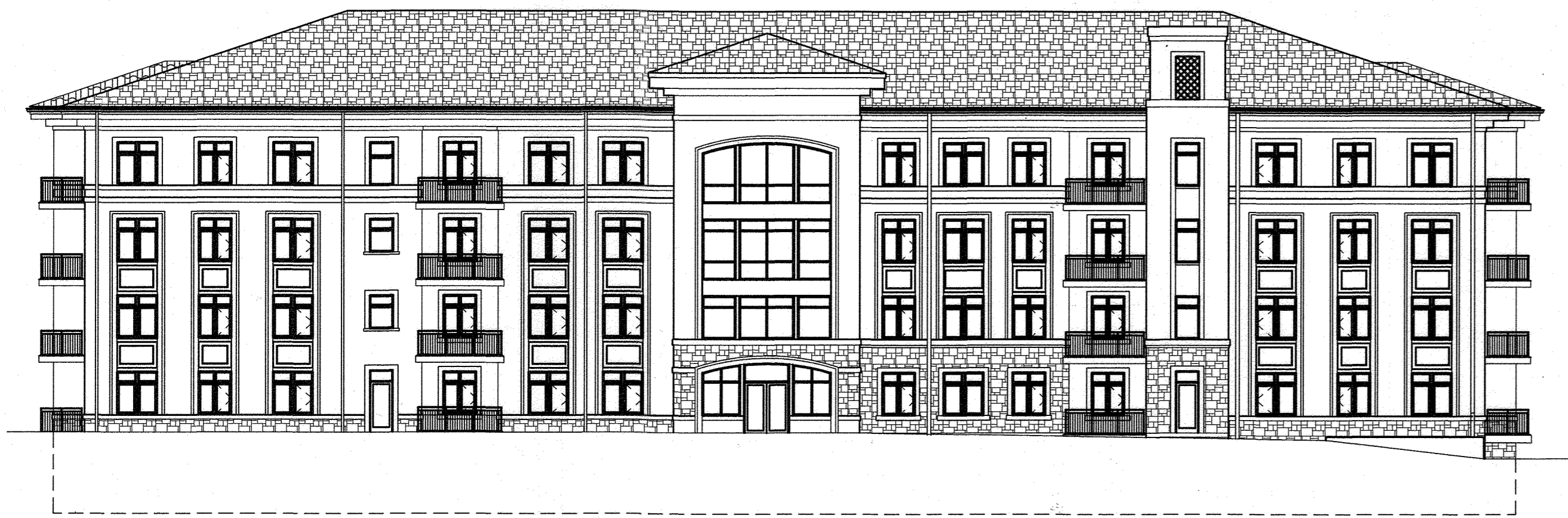
1. ALL NEW PAVEMENT MARKINGS PROPOSED UNDER THIS SDP ARE TO BE THERMOPLASTIC.
2. PRIOR TO INSTALLATION, ALL NEW PAVEMENT MARKINGS ARE TO BE REVIEWED AND APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430).



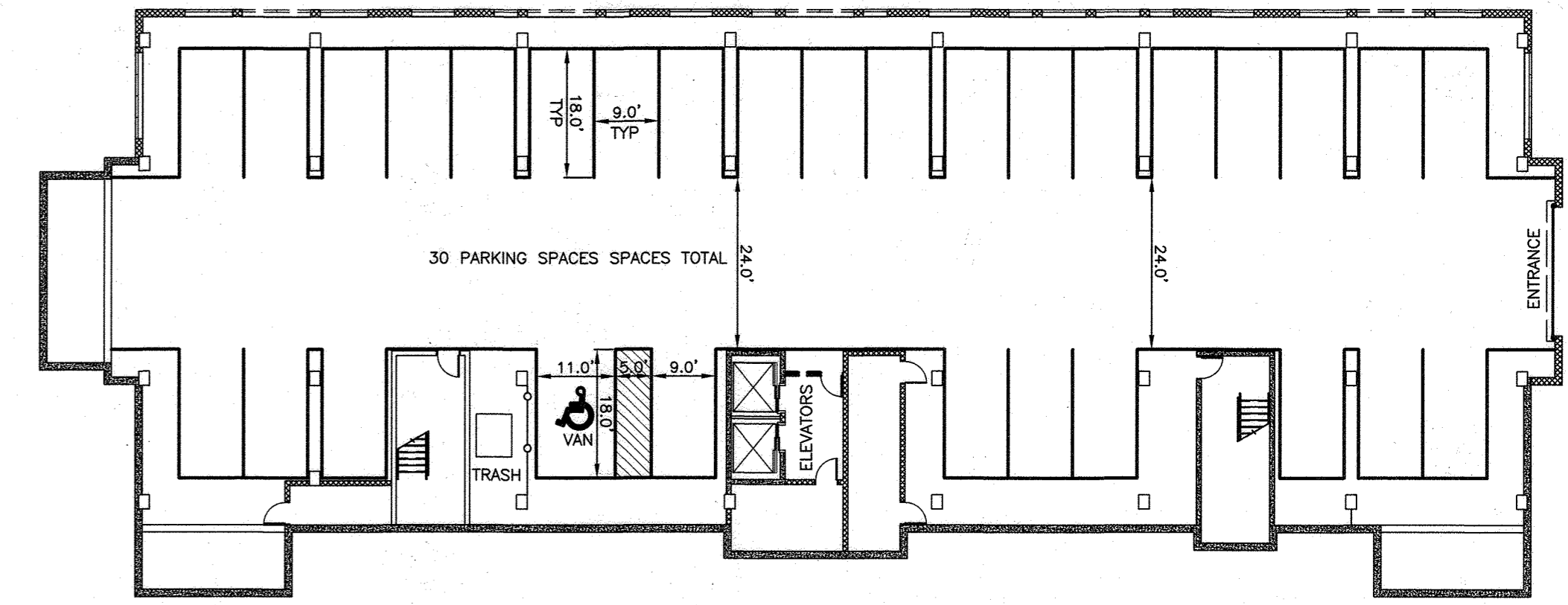
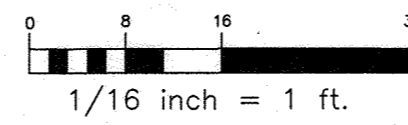
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9.15.21 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 9/22/21 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 9-22-21 DATE  
 DIRECTOR

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE JULY 22, 2021

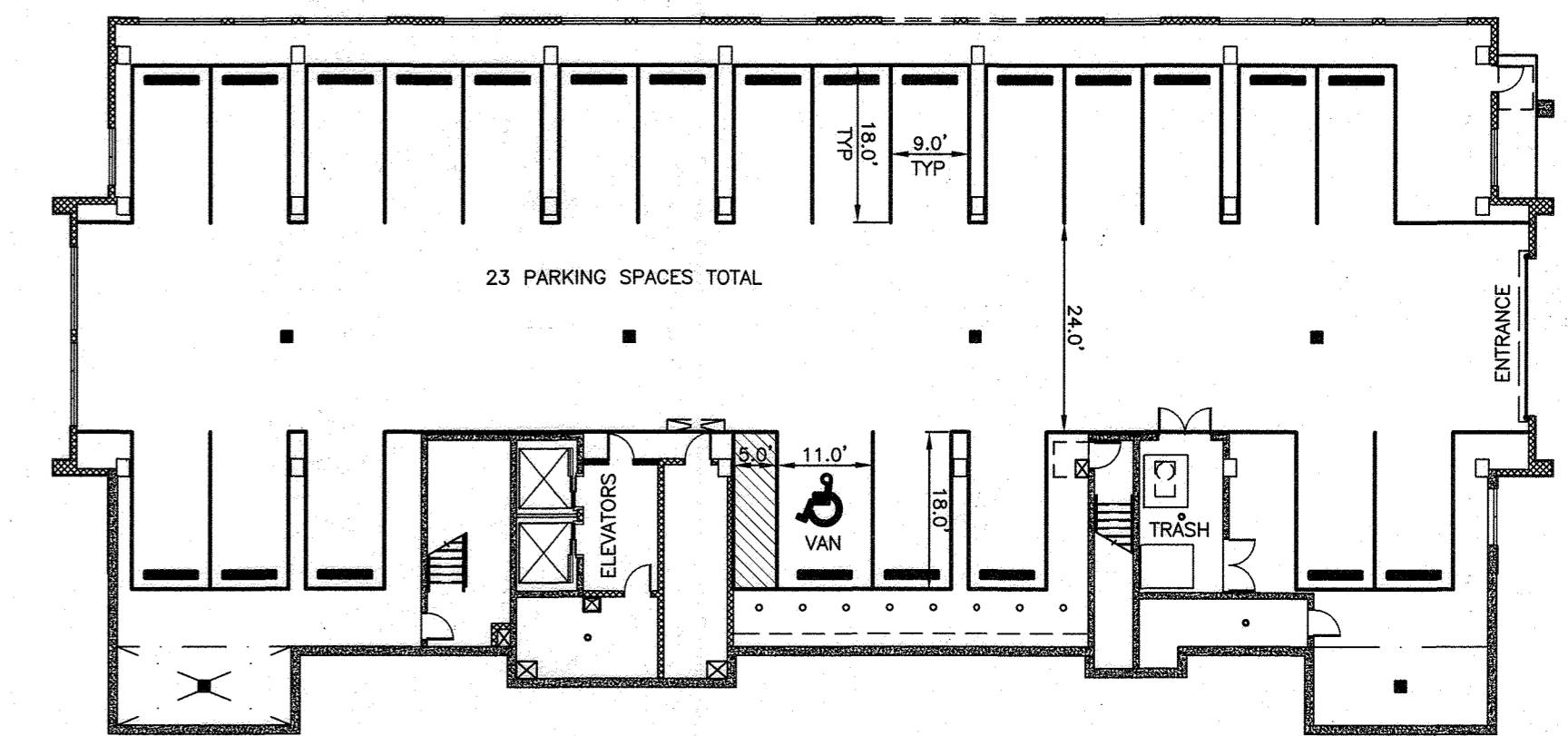
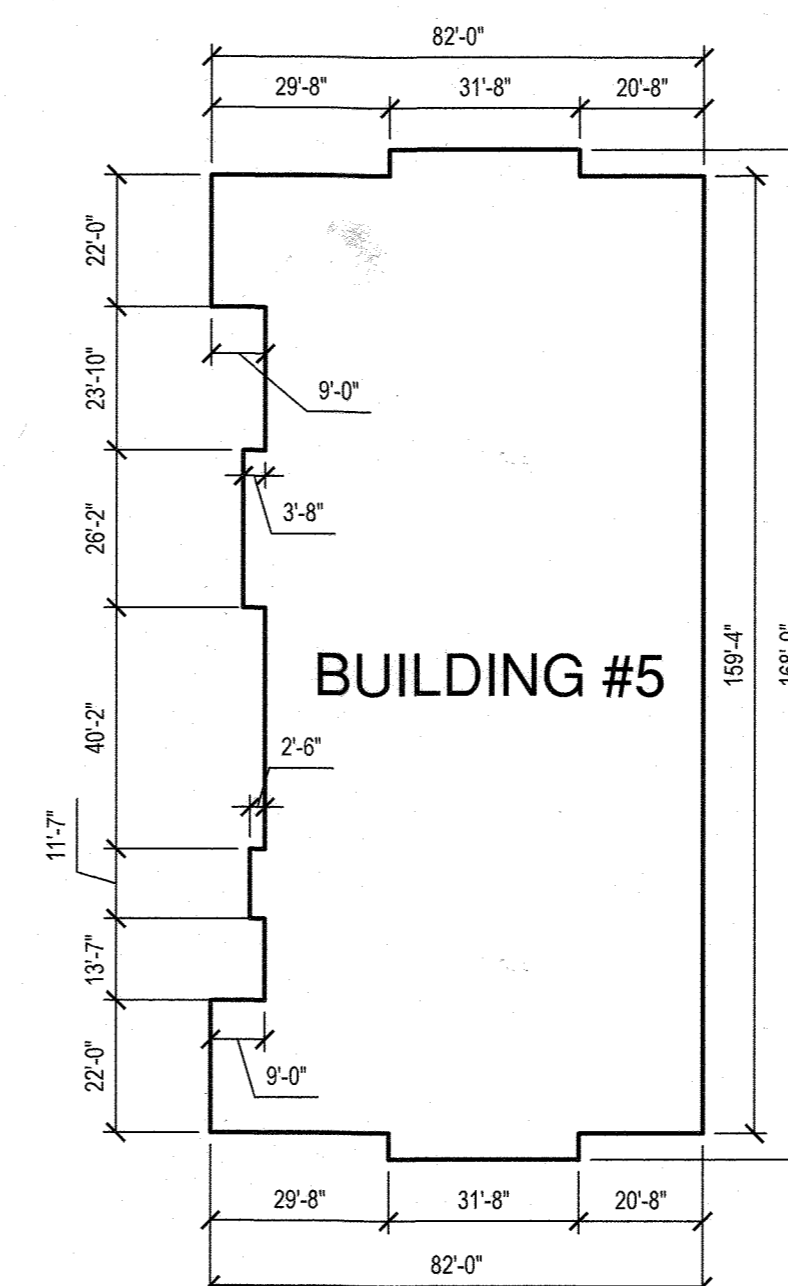
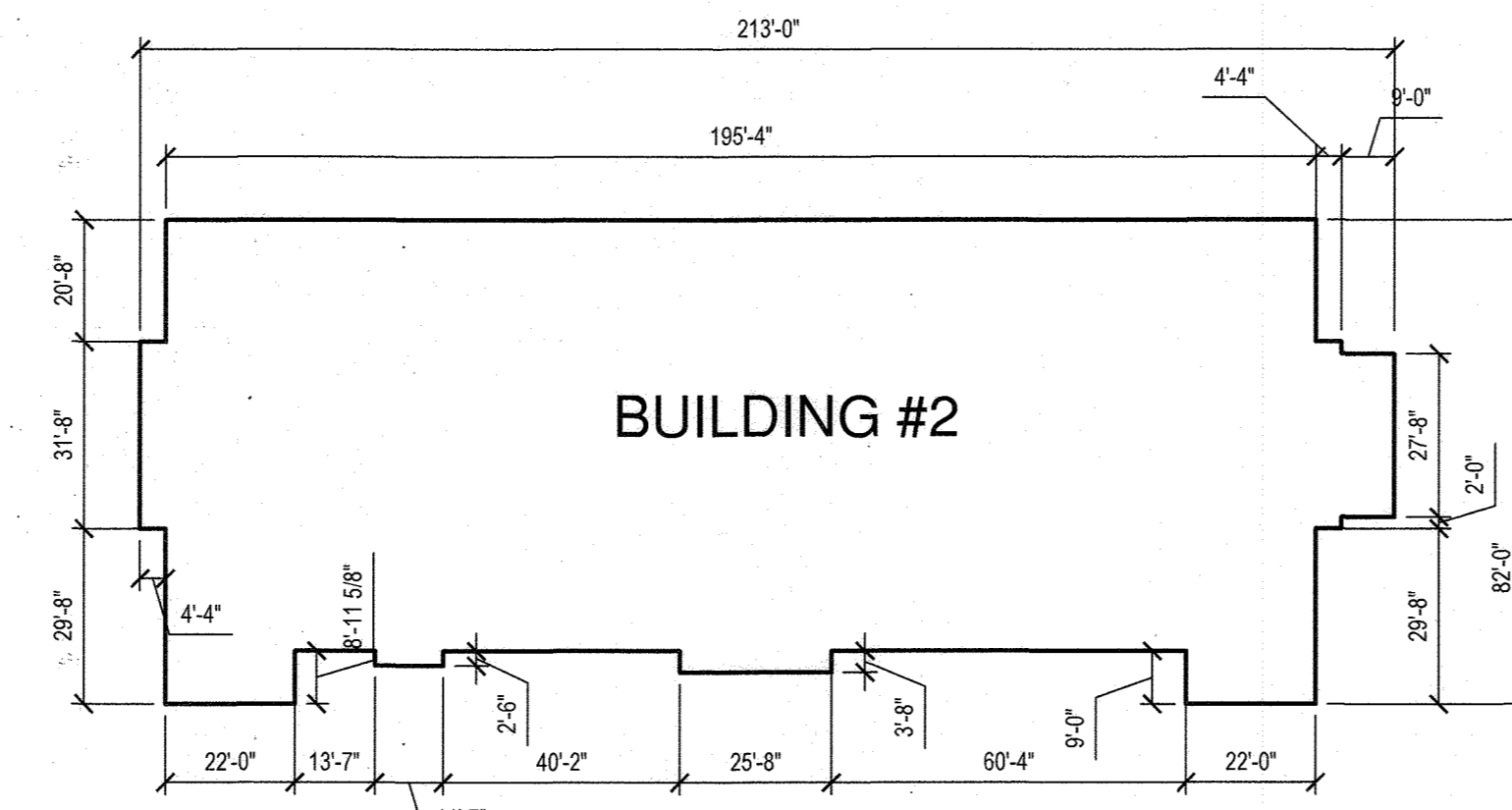
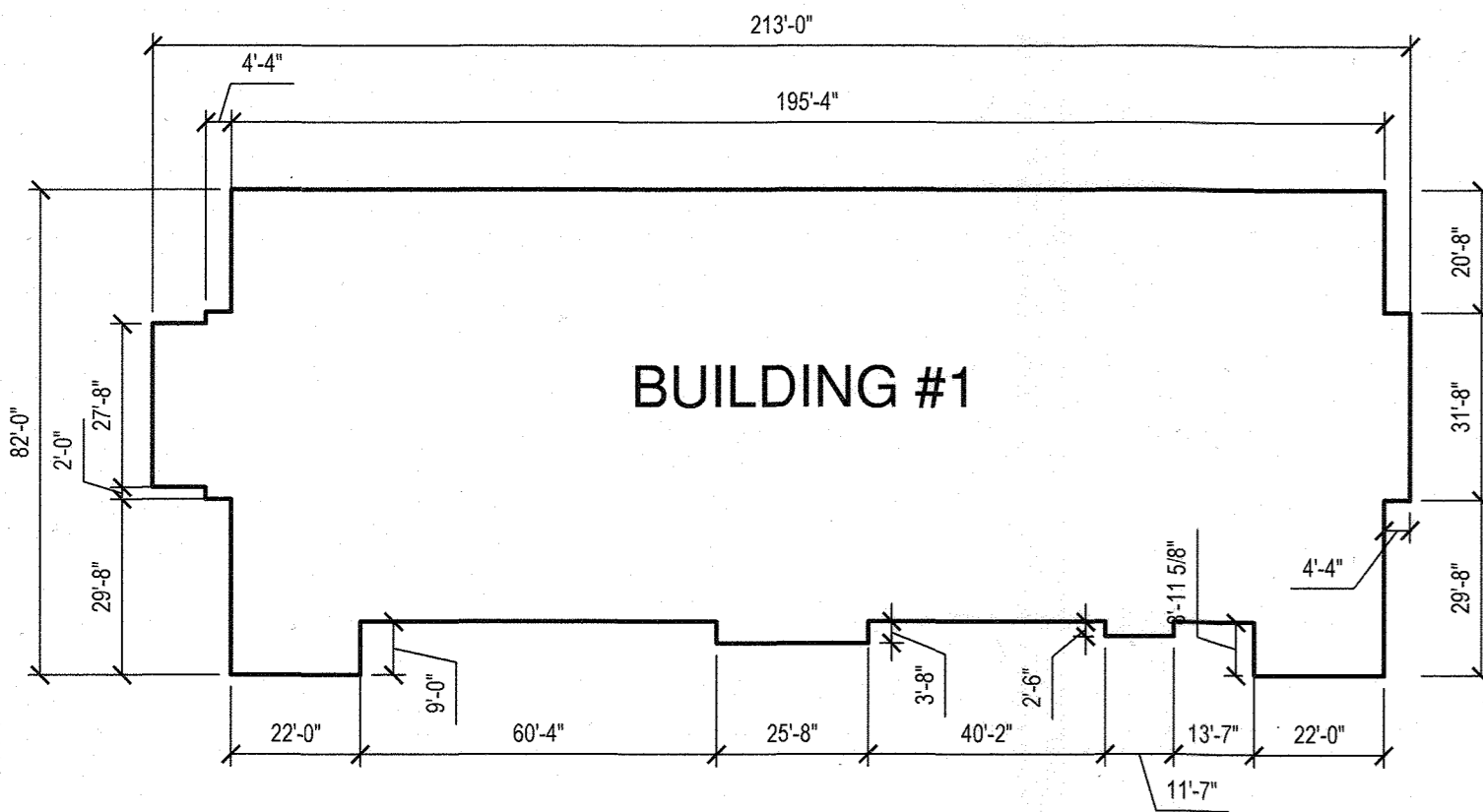
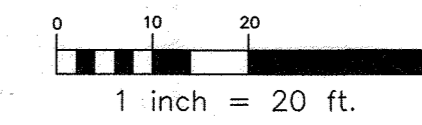
<b>BENCHMARK</b> ENGINEERS & LAND SURVEYORS & PLANNERS <b>ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE & SUITE 215 • ELICOTT CITY, MARYLAND 21043 (P) 410-465-8108 (F) 410-465-6644 WWW.BE-CVLENGINEERING.COM		
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<b>VILLA APARTMENTS AT TURF VALLEY</b> Parcel B-7 (Previously recorded as Plat No. 25802-25804) TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8 ZONED: PCCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND	
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	<b>MOUNT VILLA PARKWAY</b> STRIPING, TRAFFIC CONTROL, AND STREET LIGHTING PLAN DATE: AUGUST 2, 2021 BEI PROJECT NO. 2957 SCALE: AS SHOWN SHEET 30 OF 32	
DESIGN: DBT	DRAFT: DBT	NO. DATE REVISION



APARTMENT BUILDING ELEVATIONS (TYPICAL)

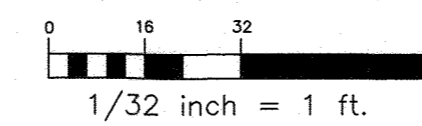
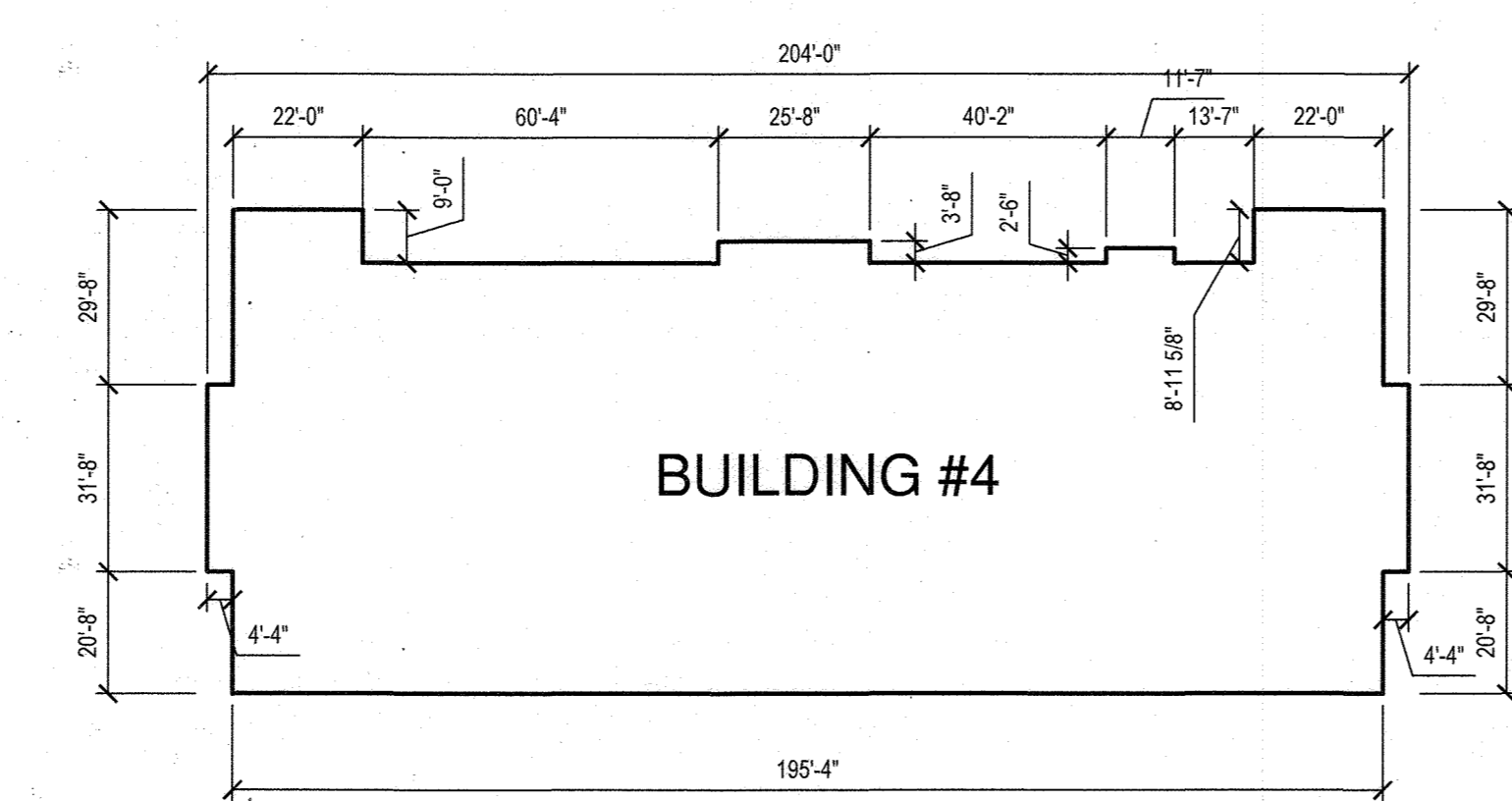
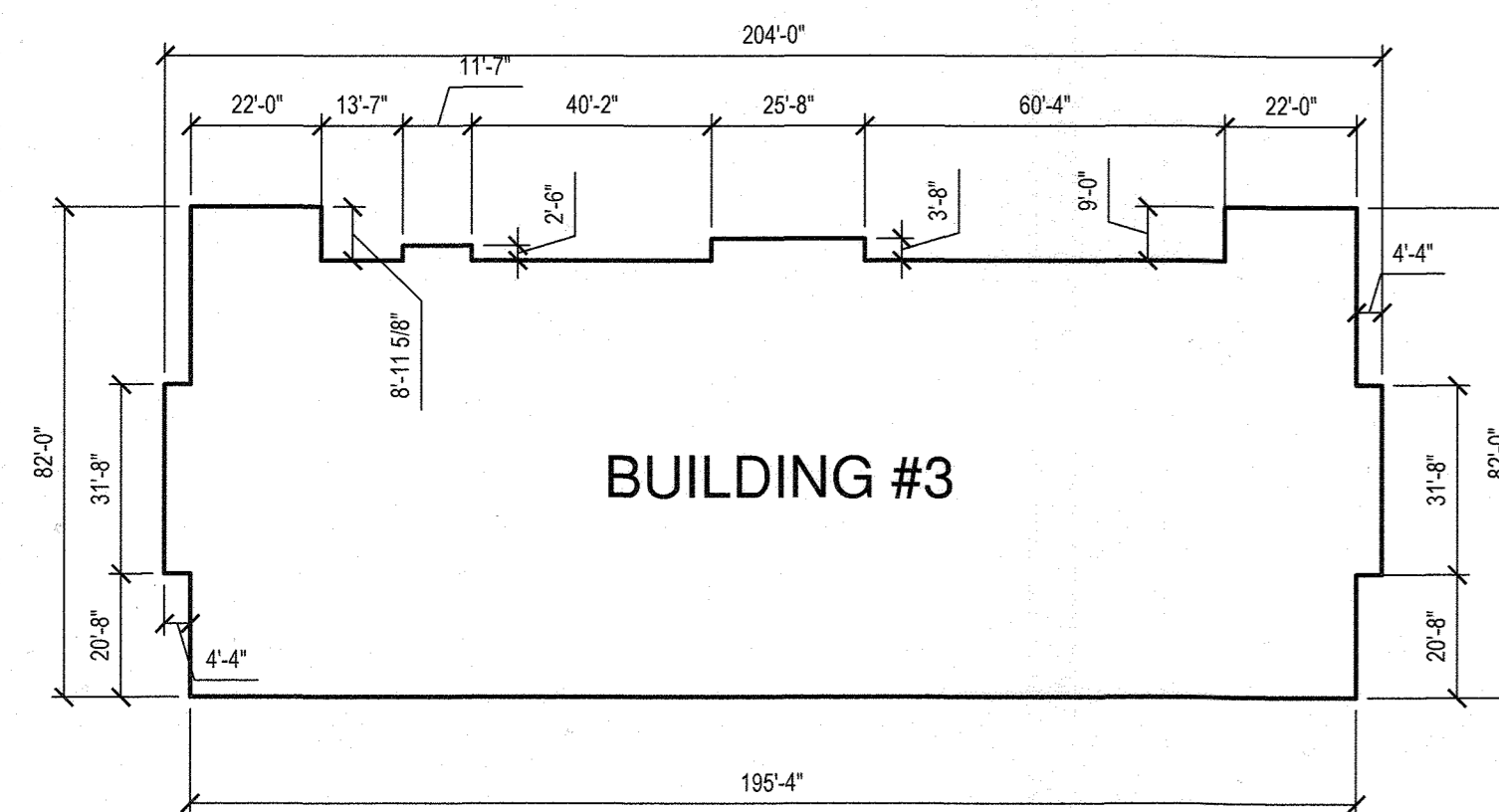
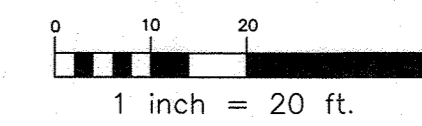


NOTE: ENTIRE GARAGE LEVEL WILL NOT HAVE ANY SLOPES EXCEEDING 1% IN ANY DIRECTION  
GARAGE LAYOUT - BLDGS: 1-4

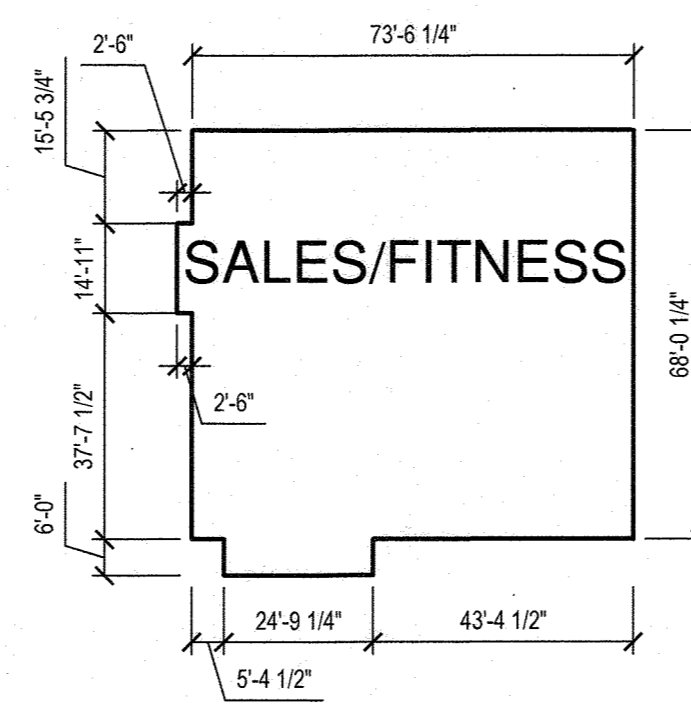
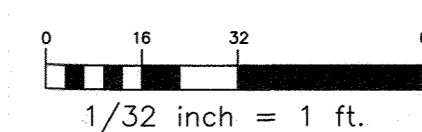


NOTE: ENTIRE GARAGE LEVEL WILL NOT HAVE ANY SLOPES EXCEEDING 1% IN ANY DIRECTION

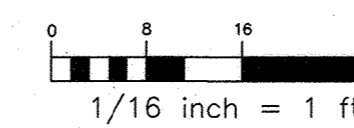
GARAGE LAYOUT - BLDG 5



APARTMENT BUILDING FOOTPRINTS



SALES/FITNESS ELEVATIONS



NO.	DATE	REVISION
1	1.17.2023	REVISE SALES/FITNESS BLDG FOOTPRINT AND ELEVATIONS

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLETT CITY, MARYLAND 21043  
 (P) 410-465-6105 (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 registered in the State of Maryland, License No. 22350.

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	VILLA APARTMENTS AT TURF VALLEY Parcel B-7 (Previously recorded as Plat No. 25802-25804)
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
ARCHITECTURAL FOOTPRINTS AND ELEVATIONS	
DATE: AUGUST 2, 2021	BEI PROJECT NO. 2957
DESIGN: DBT	DRAFT: DBT
SCALE: AS SHOWN	SHEET 31 OF 32

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 2/23  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 2/14/23  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 2/14/23  
DIRECTOR DATE

APPROVED  
PLANNING BOARD OF HOWARD COUNTY

DATE JULY 22, 2021



VILLA APARTMENTS | TURF VALLEY LIGHTING DESIGN

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARKING_Planar	Illuminance	Fc	2.47	9.2	0.5	4.94	18.40

Luminaire Schedule

Symbol	Qty	Label	Arrangement	LLF	Description	[MANUFAC]
⊙	23	LSO-M_T2_15L_3K_PTS	SINGLE	0.900	Lusso Medium Post-Top	Visionaire Lighting L L C
⊕	14	VSX-II_T2_15L_3K_1	SINGLE	0.900	VSX-II Array	Visionaire Lighting LLC
⊕	5	VSX-II_T5LS_15L_3K	SINGLE	0.900	VSX-II Array	Visionaire Lighting LLC
⊕ ⊕	11	VSX-II_T4_15L_3K	BACK-BACK	0.900	VSX-II Array	Visionaire Lighting LLC

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 9-15-21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 APPROVED: PLANNING BOARD OF HOWARD COUNTY  
*[Signature]* 9/21/21  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 APPROVED: DIRECTOR  
*[Signature]* 9-21-21  
 DATE

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE

NO.	DATE	REVISION
<p>OWNER:          MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP          1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093          410-825-8400</p>		
<p>DEVELOPER:          MANGIONE ENTERPRISES OF TURF VALLEY LIMITED PARTNERSHIP          1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093          410-825-8400</p>		
<p>VILLA APARTMENTS AT TURF VALLEY          PARCEL 6-7</p>		
<p>TAX MAP: 16 - GRID: 19 - PARCEL: p/o 8          ZONED: PGCC-2          ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND</p>		
<p>SITE DEVELOPMENT SITE          LIGHTING PHOTOMETRIC PLAN</p>		
DATE:	August 2, 2021	BEI PROJECT NO. 2957
DESIGN:	MH	DRAFT: CJ
SCALE:	AS SHOWN	SHEET 32 OF 32

