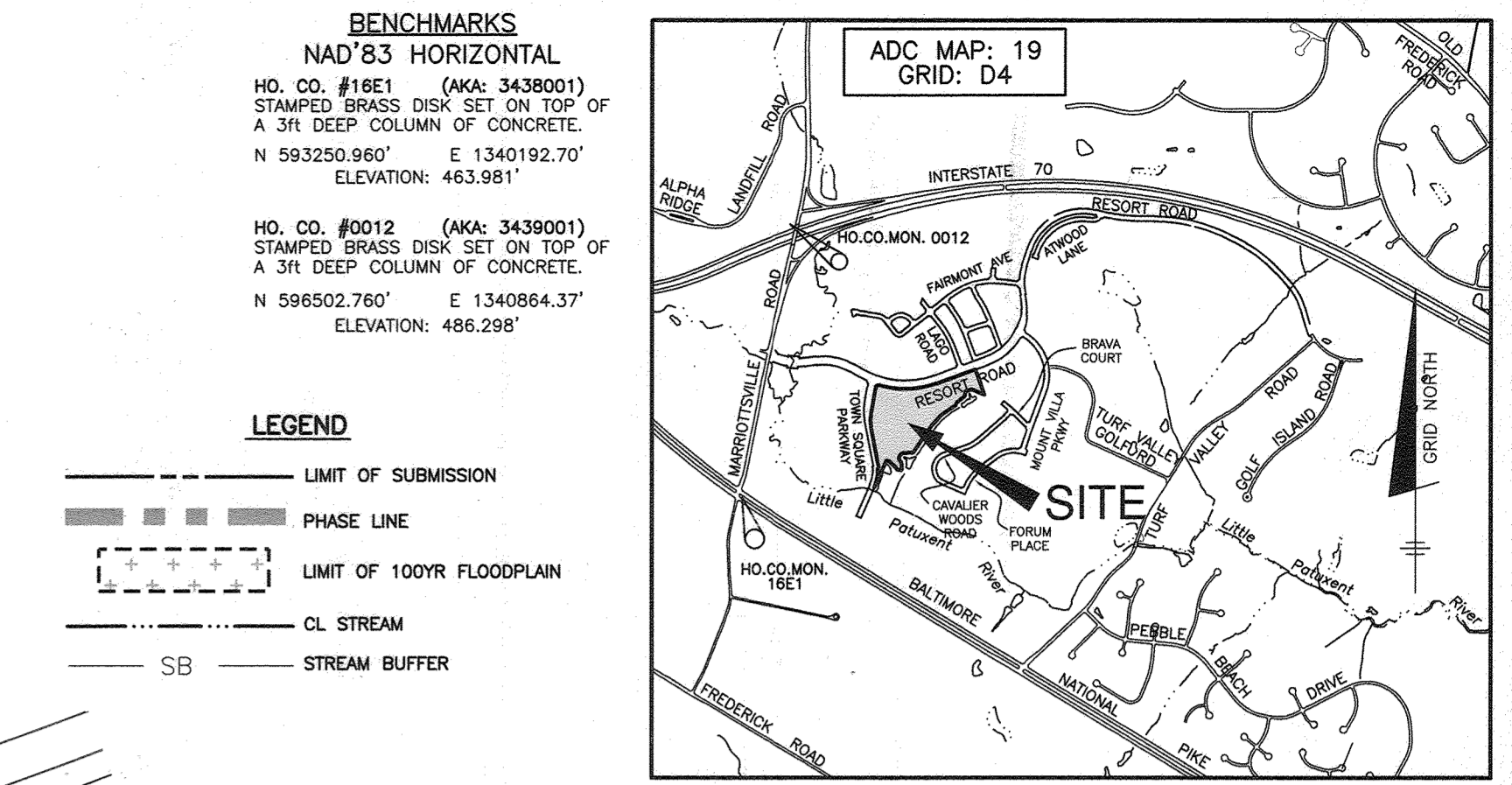
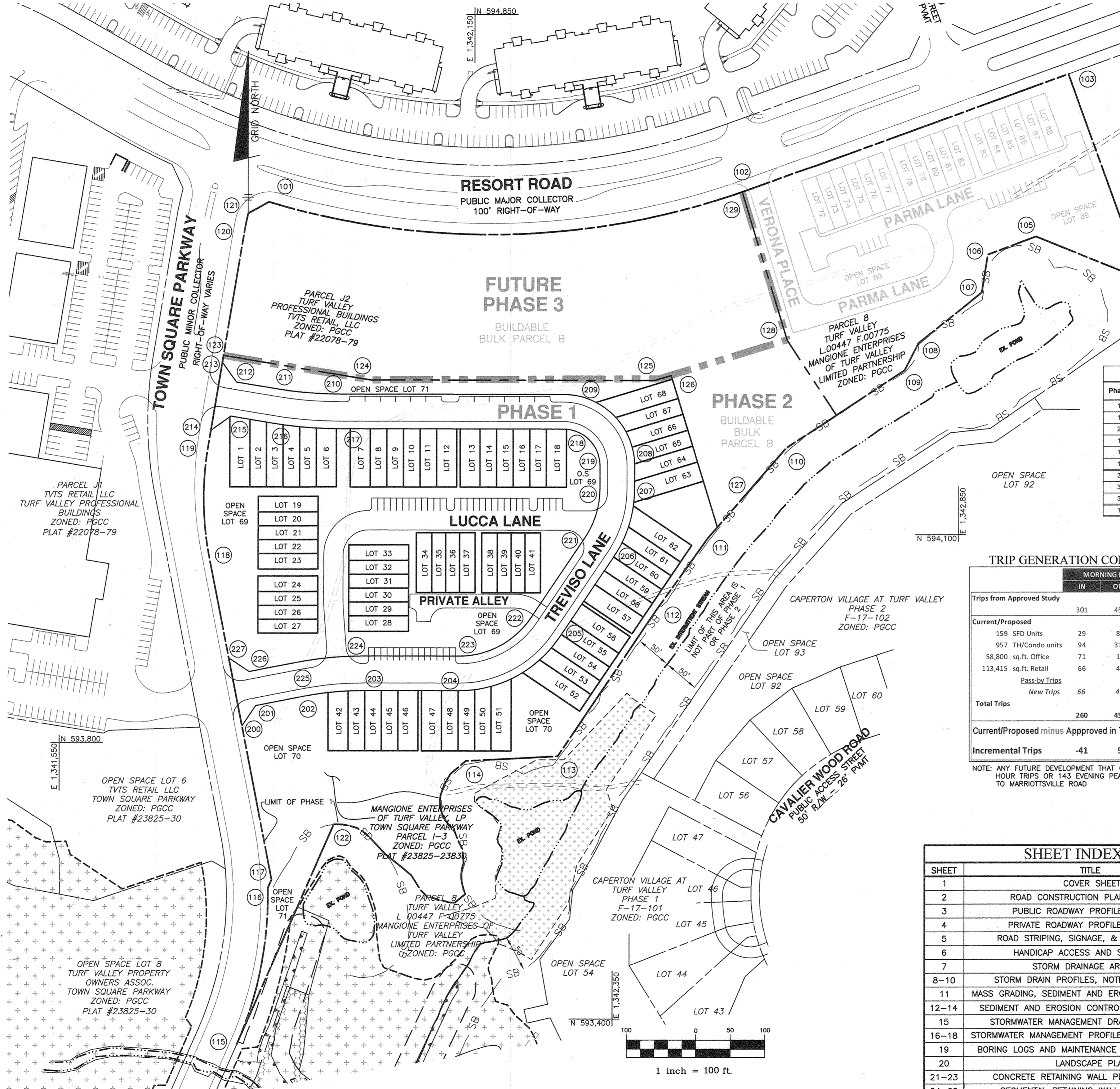


GENERAL NOTES

- 1. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCES HAVE BEEN APPROVED AND NOTED BELOW.
2. THE SUBJECT PROPERTY IS ZONED PGCC PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
3. THIS PROJECT IS SUBJECT TO THE 3RD AMENDED TURF VALLEY MULTI-USE SUB-DISTRICT FINAL DEVELOPMENT PLAN RECORDED AS PLAT NUMBERS 21029-21031 ON MARCH 28, 2010 AND THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NO. 16E1 AND 0012 WERE USED FOR THIS PROJECT.
5. TRACT BOUNDARY IS BASED ON A FIELD SURVEY PERFORMED BY JOHN B. MILDENBERG IN MARCH, 2006.
6. THE EXISTING TOPOGRAPHY SHOWN ON-SITE IS BASED ON AERIAL TOPOGRAPHIC SURVEY PERFORMED BY WINGS AERIAL MAPPING, CO. FLOWN ON OR ABOUT JANUARY, 2006. THE EXISTING TOPOGRAPHY ALONG TOWN SQUARE PARKWAY AND RESORT ROAD IS BASED ON THE RELATED ROAD CONSTRUCTION PLAN (F-02-074) OR SITE DEVELOPMENT PLAN (SDP-10-027).
7. THE EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN TAKEN FROM AERIAL SURVEY, APPROVED CONTRACT DRAWINGS, AND FIELD SURVEYED LOCATIONS. IF NECESSARY, THE CONTRACTOR SHALL ADJUST ANY OR ALL STRUCTURE TOP ELEVATIONS TO MATCH PROPOSED GRADES.
8. THERE ARE NO WETLANDS, STREAMS, OR 100 YEAR-FLOODPLAIN LOCATED ON THIS SITE. THERE IS A SMALL AREA OF STREAM BUFFER BELOW THE SOW-1 SWMF ON OPEN SPACE LOT 71 WHICH WILL REMAIN UNDISTURBED.
9. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES OR NEW STRUCTURES ARE PERMITTED WITH THE STEEP SLOPES 25% OR GREATER THAT ARE MORE THAN 20,000 SF OF CONTIGUOUS EXCEPT AS APPROVED BY WP-18-002. SEE GENERAL NOTE 10.
10. WP-18-002, AN ALTERNATIVE COMPLIANCE TO SECTION 16.116(b)(1)(i) WHICH PROHIBITS GRADING OF STEEP SLOPES THAT ARE 20,000 SF OF CONTIGUOUS AREA; AND SECTION 16.120(d)(4) WHICH REQUIRES THAT SINGLE FAMILY ATTACHED LOTS SHALL HAVE A MINIMUM OF 15 FEET OF FRONTAGE ON A PUBLIC ROAD WAS APPROVED ON 5-5-2017 SUBJECT TO THE FOLLOWING CONDITIONS:
a. STEEP SLOPE IMPACT IS LIMITED TO 35,230 SF.
b. A HOMEOWNERS ASSOCIATION WILL BE CREATED THAT WILL BE THE RESPONSIBLE PARTY FOR THE MAINTENANCE OF THE PRIVATE ROADS AND STORMWATER CONVEYANCE AND MANAGEMENT FACILITIES, WATER AND SEWER SHALL BE PUBLIC AND MAINTAINED FOR EACH UNIT WITHIN THE RECORDED FLOODPLAIN.
11. THE WETLAND LIMITS FOR TURF VALLEY ARE BASED ON A STUDY CONDUCTED BY EXPLORATION RESEARCH, INC. AND VERIFIED BY ECO-SCIENCE PROFESSIONALS, INC. ON MAY 28, 2016. THE LIMITS SHOWN ARE IN ACCORDANCE WITH THOSE SHOWN ON THE 4TH AMENDMENT TO THE TURF VALLEY COMPREHENSIVE SKETCH PLAN (S-86-13, PB 368) APPROVED JULY 28, 2006.
12. THE OFFSITE 100-YEAR FLOODPLAIN LIMITS SHOWN ARE BASED ON A STUDY PREPARED BY BENCHMARK ENGINEERING, INC. UNDER F-15-056 AND APPROVED ON MAY 14, 2015.
13. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERIES, BURIAL GROUNDS OR HISTORIC STRUCTURES LOCATED ON THE SUBJECT PROPERTY.
14. A NOISE STUDY IS NOT REQUIRED FOR THIS DEVELOPMENT AS NONE OF THE PROPOSED LOTS ARE WITHIN 500 FEET OF THE INTERSTATE 70 OR ROUTE 40 RIGHTS-OF-WAY.
15. THE TRAFFIC STUDY WAS PREPARED BY TRAFFIC GROUP ON JANUARY 7, 2009 AND WAS APPROVED UNDER THE 4TH AMENDED COMPREHENSIVE SKETCH PLAN ON APRIL 27, 2009. THE INFORMATION WAS UPDATED WITHIN CONFIRMATION LETTER DATED DECEMBER 30, 2020 AND FURTHER AMENDED BY REVISION LETTER DATED APRIL 9, 2021.
16. WATER & SEWER IS PUBLIC. THE CONTRACT NO. IS 24-5089-D. THIS SITE IS WITHIN THE METROPOLITAN DISTRICT. THE DRAINAGE AREA IS THE LITTLE PATENT.
17. THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND SEWER SERVICE HAS BEEN GRANTED UNDER THESE TERMS AND CONDITIONS. DEVELOPER AGREEMENT NUMBER F-20-071/24-5089-D SHALL BE EXECUTED AND FILED PRIOR TO RECORDING PLAT SIGNATURE/RECORDATION.
18. THE GEO-TECHNICAL REPORT FOR STORMWATER MANAGEMENT AS PREPARED BY BENCHMARK ENGINEERING, INC. IN JULY, 2018.
19. THIS PROJECT IS EXEMPT FROM THE HOWARD COUNTY FOREST CONSERVATION REQUIREMENTS PER SECTION 16.202(d)(1)(ii) OF THE HOWARD COUNTY CODE SINCE IT IS A PLANNED UNIT DEVELOPMENT WHICH HAD PRELIMINARY DEVELOPMENT PLAN APPROVAL AND 50% OR MORE OF THE LAND AS RECORDED AND SUBSTANTIALLY DEVELOPED BEFORE DECEMBER 31, 1992.
20. LANDSCAPING IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL VIA A CERTIFIED LANDSCAPE PLAN AS PART OF THIS PLAN SET. FINANCIAL SURETY FOR THE REQUIRED PERIMETER AND INTERNAL RESIDENTIAL LANDSCAPE OBLIGATIONS SHALL BE POSTED AS PART OF THE GRADING PERMIT UNDER THE FUTURE SITE DEVELOPMENT PLAN. FINANCIAL SURETY FOR THE 101 STREET TREES IN THE AMOUNT OF \$30,300 SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR F-20-071.
21. STORMWATER MANAGEMENT ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN PROVIDED IN ACCORDANCE WITH THE "MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT ACT OF 2007" AND THE "HOWARD COUNTY DESIGN MANUAL VOLUME II, CHAPTER 5" TO THE MAXIMUM EXTENT PRACTICALLY. STORMWATER MANAGEMENT IS PROVIDED BY FIVE (5) (F-6) BIOTENTION PRACTICES, ONE (M-2) SUBMERGED GRAVEL WETLAND. ALL FACILITIES ARE PRIVATELY OWNED AND MAINTAINED.
22. THIS PROJECT IS EXEMPT FROM RECREATIONAL OPEN SPACE REQUIREMENTS SINCE IT IS ZONED PGCC.
23. THIS PROJECT IS EXEMPT FROM THE MODERATE INCOME HOUSING UNIT REQUIREMENT (COUNCIL BILL 35-2013) SINCE IT IS ZONED PGCC.
24. STREET LIGHT PLACEMENT AND TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
25. ON THE APPROACH SIDE OF A STOP SIGN AND ALL OTHER TRAFFIC CONTROL SIGNS, NO STREET TREE CAN BE PLANTED WITHIN 30' OF THE SIGN.
26. A DESIGN MANUAL WAIVER WAS APPROVED ON JULY 13, 2017 TO DESIGN MANUAL VOLUME III, SECTION 2.3.A.1.i WHICH REQUIRES AN ACCESS STREET WITH A DESIGN SPEED OF 30mph TO HAVE A RADIUS OF 350ft AND AN ACCESS PLACE WITH A DESIGN SPEED OF 25mph TO HAVE A RADIUS OF 210ft TO ALLOW A RADIUS OF 100ft AT THE CURVES IN TRIVISO LANE (PRIVATE ROAD), PARMA LANE (PRIVATE ROAD), AND THE CURVE ON VERONA PLACE (PUBLIC ROAD), TO ELIMINATE 2.3.A.1.c WHICH REQUIRES THAT A MINIMUM LENGTH OF HORIZONTAL CURVES BE 100ft IN LENGTH TO ALLOW A REDUCTION OF THE LENGTH BASED ON THE GEOMETRICS OF THE ROADWAY CURVES, AND TO SECTION 2.5.B.9 WHICH REQUIRES THAT AN 85th PERCENTILE SPEED STUDY BE PROVIDED FOR ALL INTERSECTIONS TO ELIMINATE THE SPEED STUDY FOR TOWN SQUARE PARKWAY.
27. APPLICABLE PREVIOUS HOWARD COUNTY FILE REFERENCES: S-86-013, EOP-17-047, S-17-008, WP-18-002, F-12-055, F-15-056, P-18-004, 24-5089-D, 24-5089-D, 24-5081-D, F-20-072, WP-21-051
28. PRIOR TO GRADING PERMIT APPLICATION, THE PROJECT SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 16.129 OF THE HOWARD COUNTY CODE.
29. PUBLIC TRASH PICKUP WILL BE PROVIDED FOR ALL LOTS. LOTS 34-41 IN THE PRIVATE ALLEY FRONT ON LUCCA LANE, TRASH PICK-UP SHALL BE PROVIDED AT LUCCA LANE THROUGH AN AGREEMENT WITH THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENVIRONMENTAL SERVICES. PICK-UP WILL OCCUR ONCE ALL CONSTRUCTION HAS BEEN COMPLETED. A DAMAGE WAIVER HAS BEEN ATTACHED TO THE HOA AGREEMENT FOR THE PUBLIC TRASH SERVICE. TRASH PICKUP FOR PHASE-2 (F-20-072) AND WITHIN THE FUTURE PHASE-3 APARTMENT AREAS SHALL BE PRIVATE.
30. ANY DAMAGE TO THE PUBLIC RIGHT OF WAY, PAVING, OR EXISTING UTILITIES SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
31. THE HOMEOWNERS ASSOCIATION SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE PARKING LOTS & ON-STREET PARKING; INCLUDING PAVEMENT, STRIPING, CURB LITTER PICKUP, SIDEWALKS, AND SNOW REMOVAL.
32. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
AT&T.....1-800-252-1133
BOE (CONTRACTOR SERVICES).....410-637-8713
BOE (EMERGENCY).....410-685-0123
BUREAU OF UTILITIES.....410-313-4900
COLONIA PIPELINE CO.....410-785-1300
MISS UTILITY.....1-800-257-7777
STATE HIGHWAY ADMINISTRATION.....410-331-5533
VERIZON.....1-800-743-0033
33. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
34. PRIVATE RANGE OF ADDRESS SIGNAGE ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
35. TRAFFIC CONTROL DEVICES:
a) THE "STOP" SIGN AND THE STREET NAME SIGN(S) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
b) THE TRAFFIC CONTROL DEVICES LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
c) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)".
d) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED (QUICK PUNCH), SQUARE TUBE POST (1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL PERFORATED SQUARE TUBE SLEEVE (1/2 GAUGE), 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLL CAP SHALL BE MOUNTED ON TOP OF EACH POST.
36. A DESIGN MANUAL WAIVER WAS APPROVED ON FEBRUARY 14, 2019 TO DESIGN MANUAL VOLUME III, SECTIONS 2.3.A.1.a & 2.3.A.1.c TO ALLOW FOR THE MINIMUM HORIZONTAL CURVE RADIUS TO BE REDUCED FOR PARMA LANE (PRIVATE ROAD), LUCCA LANE (PRIVATE ROAD), AND TRIVISO LANE (PUBLIC ROAD) SUBJECT TO THE WIDENING OF THE PAVEMENT AT ALL SUB-STANDARD CURVES TO 28' WITH PARKING RESTRICTIONS ON BOTH SIDES OF THE ROADWAY. IT IS ALSO RECOMMENDED THAT THE ROADWAYS BE WIDENED TO 28' FOR THE ENTIRE LENGTH AS TRANSITION FROM 24' TO 28' FOR THE CURVES APPROACH AND EXIT WHICH IS REQUIRED WHICH MAY IMPACT OFF-STREET PARKING.
37. A DESIGN MANUAL WAIVER WAS APPROVED ON JULY 15, 2019 TO DESIGN MANUAL VOLUME III, SECTIONS 2.3.A.1.a & 2.3.A.1.c TO ALLOW FOR THE MINIMUM HORIZONTAL CURVE RADIUS TO BE REDUCED FOR PARMA LANE (PRIVATE ROAD), LUCCA LANE (PRIVATE ROAD), AND TRIVISO LANE (PUBLIC ROAD) TO 50FT, 50FT, AND 150FT RESPECTIVELY, AND A WAIVER FROM DESIGN MANUAL VOLUME III, SECTIONS 2.5.B TO REDUCE INTERSECTION SPACING FROM 250FT TO 181FT ALONG TRIVISO LANE. APPROVAL IS SUBJECT TO PROVIDING NO PARKING ZONES FOR TRIVISO LANE BETWEEN STA.5+50(RT) TO STA.11+00(RT), AND FOR LUCCA LANE BETWEEN STA.0+00(L) TO STA.1+00(L) & STA.0+00(RT) TO STA.0+65(RT), AND PROVIDING NO PARKING ON TRIVISO LANE BETWEEN TOWN SQUARE PARKWAY & LUCCA LANE (BOTH SIDES).
38. THE ARTICLES OF INCORPORATION FOR THE HOMEOWNERS ASSOCIATION WERE ACCEPTED BY THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION ON 4/27/2021 FILE #5000000499640.
39. ALTERNATIVE COMPLIANCE, WP-21-051 TO REQUEST RELIEF FROM SECTION 16.116(c)(2)(ii) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO DISTURB 3,884 SQUARE FEET OF OFFSITE INTERMITTENT STREAM BUFFER TO GRADE AND CONSTRUCT A 10 FOOT PAVED PATHWAY.
APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
1. COMPLIANCE WITH ALL SRC AGENCY COMMENTS ON THE SUBMITTED FINAL PLANS, F-20-071.
2. THE PROPOSED DISTURBANCES TO THE 50' STREAM BANK BUFFER AND 100-YEAR FLOODPLAIN ARE LIMITED TO THE AREAS SHOWN ON THE APPROVED PLANS FOR CONSTRUCTION OF THE NEW PATHWAY AND REMOVAL OF THE REMNANTS OF THE EXISTING GOLF CART PATHWAY. NO DISTURBANCE SHOULD OCCUR UNTIL THE FINAL PLAN IS SIGNED.
3. THE EXISTING GOLF CART PATHWAY THAT DOES NOT PROVIDE CONNECTION BETWEEN THE NEW PEDESTRIAN PATHWAYS (AS SHOWN ON F-17-102 AND F-20-071) MUST BE REMOVED AND RETURNED TO A NATURAL VEGETATIVE STATE. THE LIMITS OF DISTURBANCE AND REMOVAL MUST BE SHOWN ON F-20-071.
4. THE EXISTING 12" CONCRETE CURB ON PARCEL 6, ADJACENT TO OPEN SPACE LOT 83 (CAPERTON VILLAGE AT TURF VALLEY) AND TO THE REAR OF PROPOSED LOTS 56-63 (THE VILLAGE AT TOWN SQUARE) MUST BE REMOVED AND THE NATURAL STREAM CHANNEL MUST BE RESTORED. THE RESTORATION DETAILS MUST BE SHOWN ON F-20-071.
5. THE APPLICANT SHALL OBTAIN ALL REQUIRED AUTHORIZATIONS AND PERMITS FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND U.S. ARMY CORPS OF ENGINEERS FOR DISTURBANCES WITHIN THE FLOODPLAIN, WETLANDS, STREAMS AND THEIR BUFFERS. REFERENCE THE APPLICABLE MDE OR USACE PERMITS OR TRACKING NUMBERS ON THE FINAL PLAN AND ANY BUILDING OR GRADING PERMITS.
6. ALL GRADING AND DISTURBANCES OUTSIDE OF THE PROPOSED PATHWAY MUST BE STABILIZED AND RETURNED TO PREVIOUS CONDITIONS ONCE CONSTRUCTION IS COMPLETE. DISTURBANCES TO ANY EXISTING VEGETATED AREAS SHOULD BE TO THE MINIMUM NECESSARY TO CONSTRUCT THE NEW PATHWAY AND REMOVE THE EXISTING GOLF CART PATHWAY.
7. ADD THE ALTERNATIVE COMPLIANCE REQUEST NUMBER, PURPOSE, SECTION, DATE, AND CONDITIONS ON ALL SUBSEQUENT PLAN SUBMISSIONS.
WP-21-051 WAS RESCINDED AND BECAME NULL & VOID BY DPZ LETTER DATED 08/26/2021.

FINALS / CONSTRUCTION PLANS
THE VILLAGE AT TOWN SQUARE
PHASE 1: LOTS 1 Thru 68; OPEN SPACE LOTS 69, 70 & 71
and BUILDABLE BULK PARCELS A & B
A SUBDIVISION OF PART OF PARCEL 8 AND A RESUBDIVISION OF PARCEL I-3
PREVIOUSLY RECORDED AS PLAT #23825-30 AND PARCEL J-2 PREVIOUSLY RECORDED AS PLAT #22078-79



VICINITY MAP
SCALE: 1" = 200'

Table with columns: RIGHT-OF-WAY COORDINATES (POINT #, NORTHING, EASTING) and BOUNDARY COORDINATES (POINT #, NORTHING, EASTING). Lists various points and their coordinates.

ROADWAY PARKING RESTRICTION CHART
ROAD LOCATION
LUCCA LANE STA.0+00(L) TO STA.1+00(L); STA.0+00(RT) TO STA.0+65(RT); STA.5+40 TO STA.5+70(BOTH SIDES)
TRIVISO LANE STA.0+35(L) TO STA.2+40(LT); STA.5+50(RT) TO STA.11+00(RT); STA.12+80 TO STA.14+00(BOTH SIDES)

PRIVATE ESD STORMWATER MANAGEMENT INFORMATION
Table with columns: Phase, Lot, Street Address, MDE, Practice, Type, Ownership, Maintenance. Lists stormwater management practices for different lots and phases.

TRIP GENERATION COMPARISON - TURF VALLEY
Table with columns: ROAD, CLASSIFICATION, DESIGN SPEED, RIGHT-OF-WAY, PVMT TYPE. Compares trip generation for different road types.

Site Analysis Data Chart
Table with columns: Metric, Phase 1, Phase 2, (Future) Phase 3. Shows metrics like Gross Area, Net Area, Number of Proposed Units, etc.

Open Space Calculations
Table with columns: Metric, Value. Shows calculations for area of open space required and provided.

Parking Calculations
Table with columns: Metric, Value. Shows calculations for parking required and provided.

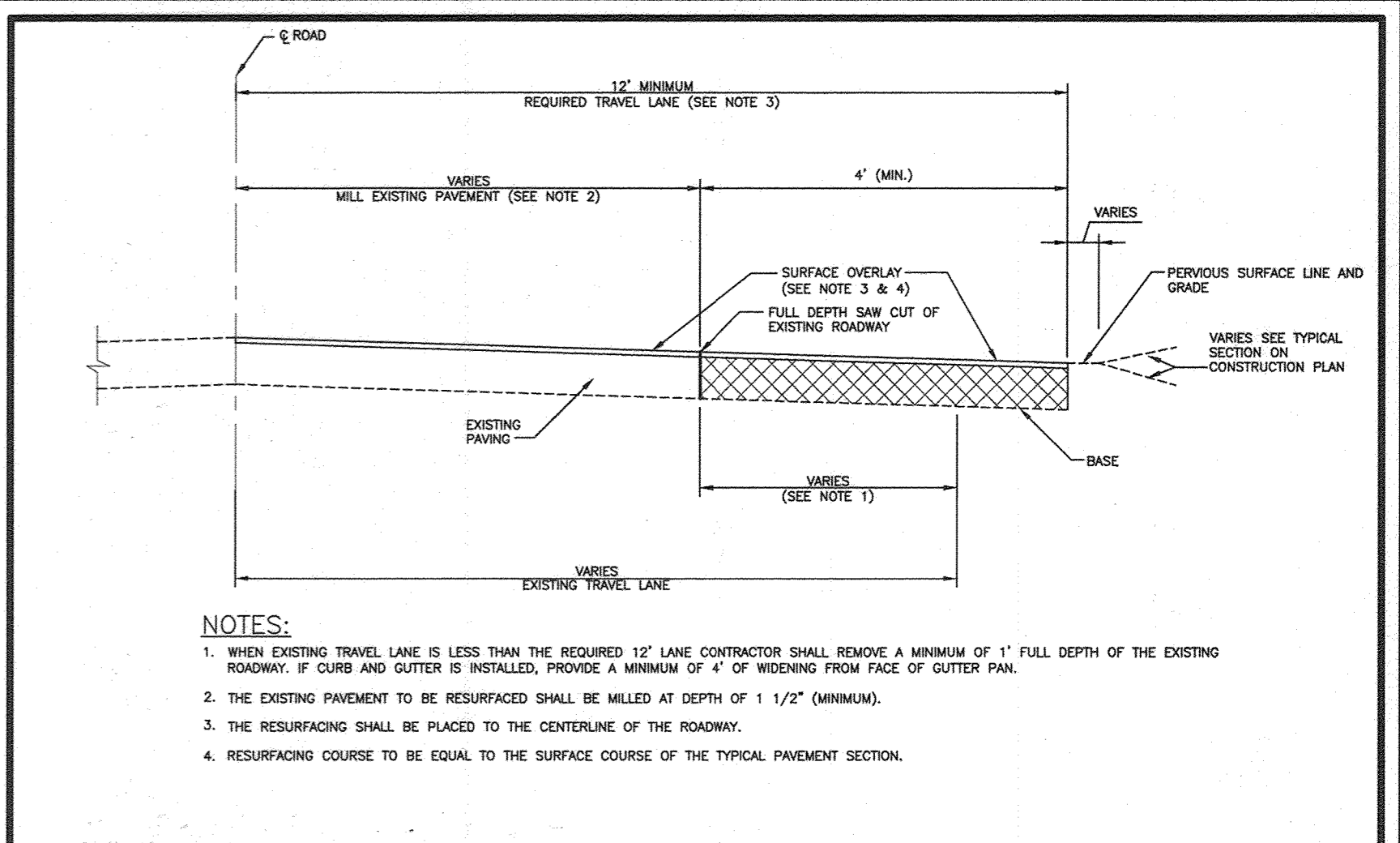
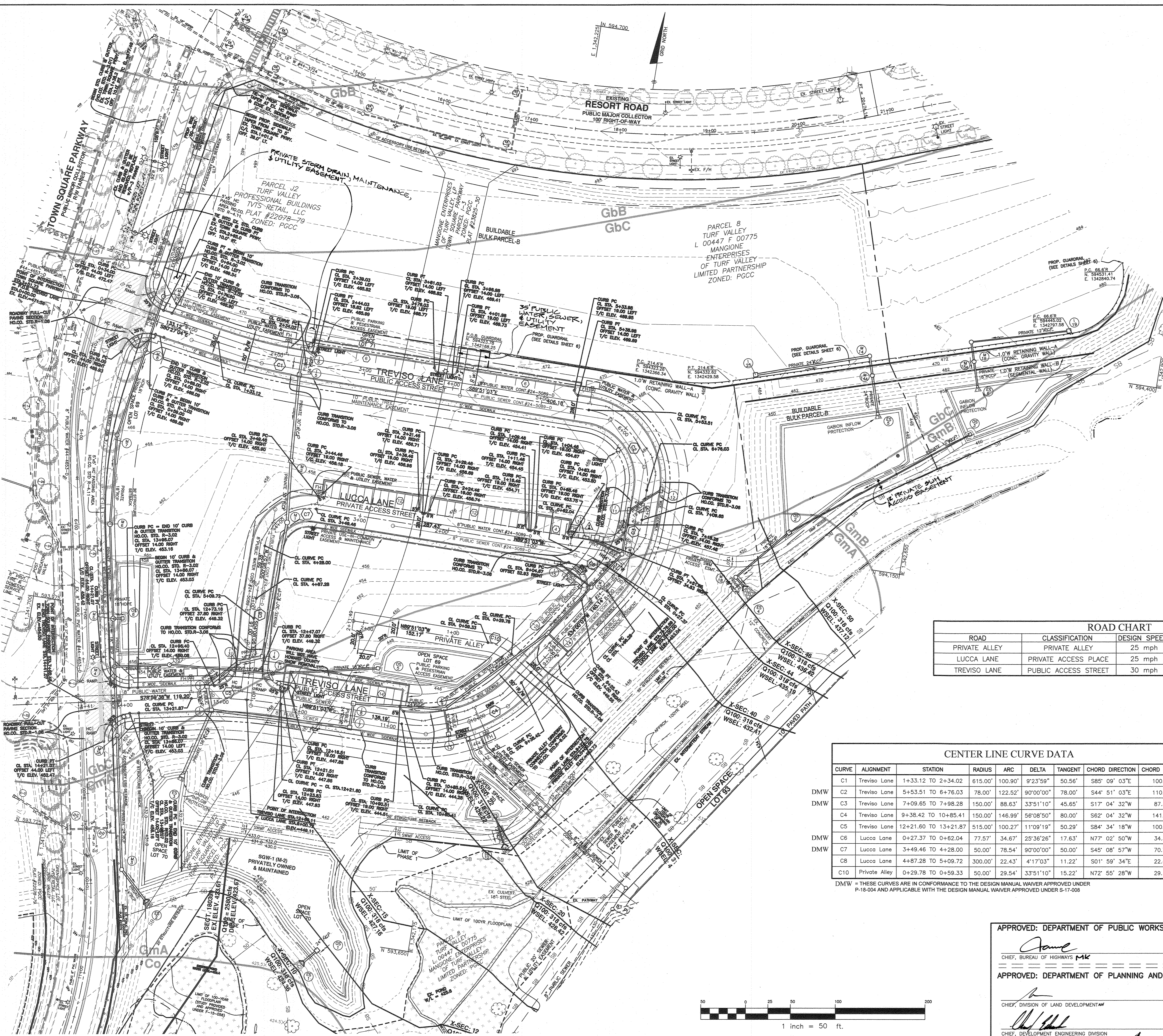
BENCHMARK ENGINEERING, INC. logo and contact information. Includes address: 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELICOTT CITY, MARYLAND 21043.

THE VILLAGE AT TOWN SQUARE
PHASE 1: LOTS 1 Thru 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B
OWNER/DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
DATE: AUGUST, 2021
SHEET 1 OF 26

SHEET INDEX
Table with columns: SHEET, TITLE. Lists sheets 1 through 26 and their corresponding titles like COVER SHEET, ROAD CONSTRUCTION PLAN, etc.

APPROVED: DEPARTMENT OF PUBLIC WORKS
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Includes signatures and dates for approval.

ESD STORMWATER MANAGEMENT SUMMARY TABLE
Table with columns: PHASE, MDE, Practice, Type, No., DA (sf), Imp Area (sf), % Imp, Rv, Pe Required, AT (sf), ESDv (cf), Pe Provided, Rev Required, Rev Provided, Ownership. Summarizes stormwater management data.



NOTES:

1. WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE CONTRACTOR SHALL REMOVE A MINIMUM OF 1" FULL DEPTH OF THE EXISTING ROADWAY. IF CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4" OF WIDENING FROM FACE OF GUTTER PAN.
2. THE EXISTING PAVEMENT SHALL BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" (MINIMUM).
3. THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
4. RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

Howard County, Maryland
Department of Public Works
Existing Roadway
Widening Strip
Detail
R-1.08

NOTE: CONTRACTOR SHALL PROVIDE ROADWAY WIDENING STRIP WITHIN THE FOLLOWING ROADWAY LIMITS: SEE PLAN VIEW

TOWN SQUARE PARKWAY
BEGIN @ STA. 3+08
END @ STA. 3+96
BEGIN @ STA. 7+55
END @ STA. 8+43

LEGEND

- EXISTING CONTOURS
- EXISTING TREE
- EXISTING TREELINE
- SB 50' STREAM BUFFER
- EX. STREAM
- EX. OVERHEAD LINES TO BE REMOVED
- PROJECT BOUNDARY
- PARCEL LINE
- 00' BRL BUILDING RESTRICTION LINE
- PROP. SIDEWALK
- PROP. STORM DRAIN
- PROP. SEWER LINE
- PROP. FIRE HYDRANT
- PROP. STREET LIGHT
- PROP. PAVING
- EX. PUBLIC R/W IMPROVEMENTS TO BE REMOVED
- PROP. 4" FULL-CUT PAVING SECTION
- PROP. PAVING OVERLAY

ROAD CHART

ROAD	CLASSIFICATION	DESIGN SPEED	RIGHT-OF-WAY	PVMT TYPE
PRIVATE ALLEY	PRIVATE ALLEY	25 mph	N/A (OPEN SPACE)	P-2
LUCCA LANE	PRIVATE ACCESS PLACE	25 mph	28' PRIVATE ESMT	P-3
TREVISIO LANE	PUBLIC ACCESS STREET	30 mph	50' PUBLIC	P-3

CENTER LINE CURVE DATA

CURVE	ALIGNMENT	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD DIRECTION	CHORD LENGTH
DMW C1	Treviso Lane	1+33.12 TO 2+34.02	615.00'	100.90'	9°23'59"	50.56'	S85° 09' 03"E	100.78'
DMW C2	Treviso Lane	5+53.51 TO 6+76.03	78.00'	122.52'	90°00'00"	78.00'	S44° 51' 03"E	110.31'
DMW C3	Treviso Lane	7+09.65 TO 7+98.28	150.00'	88.63'	33°51'10"	45.65'	S17° 04' 32"W	87.34'
DMW C4	Treviso Lane	9+38.42 TO 10+85.41	150.00'	146.99'	56°08'50"	80.00'	S62° 04' 32"W	141.18'
DMW C5	Treviso Lane	12+21.60 TO 13+21.87	515.00'	100.27'	11°09'19"	50.29'	S84° 34' 18"W	100.11'
DMW C6	Lucca Lane	0+27.37 TO 0+62.04	77.57'	34.67'	25°36'26"	17.63'	N77° 02' 50"W	34.38'
DMW C7	Lucca Lane	3+49.46 TO 4+28.00	50.00'	78.54'	90°00'00"	50.00'	S45° 08' 57"W	70.71'
DMW C8	Lucca Lane	4+87.28 TO 5+09.72	300.00'	22.43'	4°17'03"	11.22'	S01° 59' 34"E	22.43'
DMW C10	Private Alley	0+29.78 TO 0+59.33	50.00'	29.54'	33°51'10"	15.22'	N72° 55' 28"W	29.11'

DMW = THESE CURVES ARE IN CONFORMANCE TO THE DESIGN MANUAL WAIVER APPROVED UNDER P-18-004 AND APPLICABLE WITH THE DESIGN MANUAL WAIVER APPROVED UNDER S-17-008

2 4/17/2023 REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26
 4/15/23 REVISE THE PLAN TO REMOVE A SECTION OF SIDEWALK BETWEEN THE HANDICAP RAMP AND PARKING STALL AT LUCCA LANE AND TREVISIO LANE

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELIJAH CITY, MARYLAND 21043
 (P) 410-465-5105 (F) 410-465-6544
 WWW.BE-CVLENGINEERING.COM

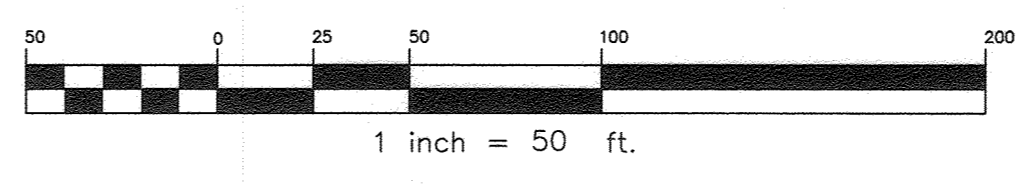
THE VILLAGE AT TOWN SQUARE
 PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71
 and BUILDABLE BULK PARCELS A & B
 A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL L-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL #2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

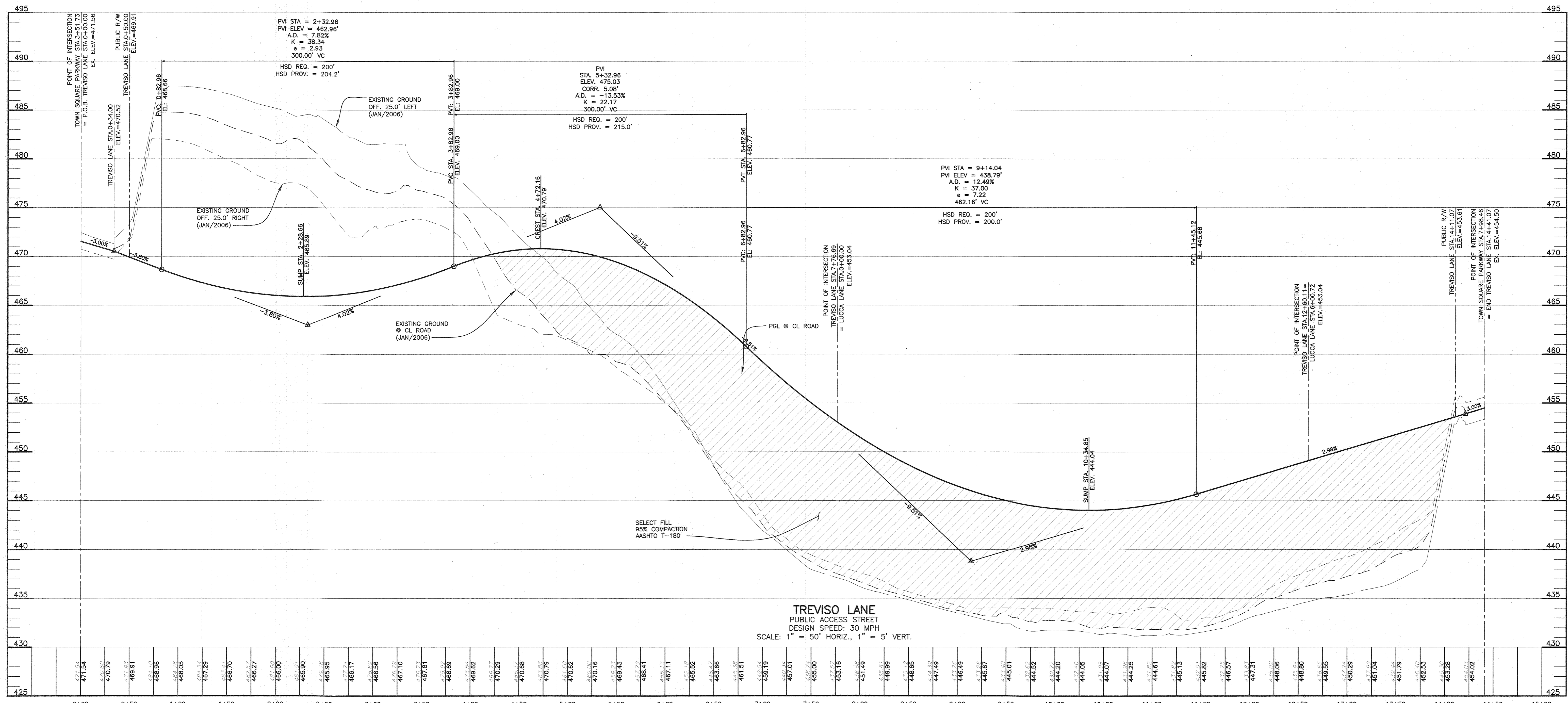
OWNER/DEVELOPER:
 MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DATE: AUGUST, 2021 BEI PROJECT NO. 2899
 SCALE: AS SHOWN SHEET 2 OF 26

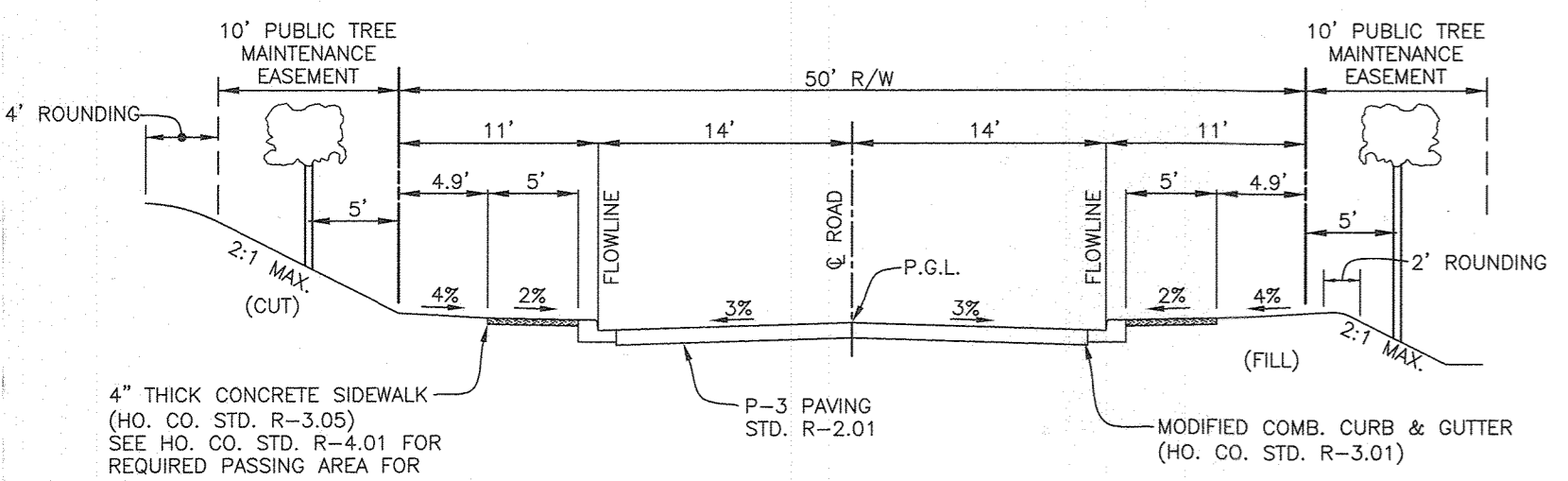
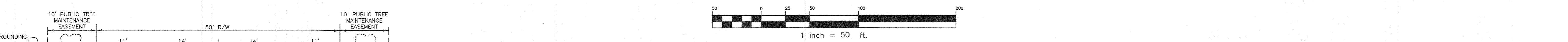
APPROVED: DEPARTMENT OF PUBLIC WORKS
 James
 CHIEF, BUREAU OF HIGHWAYS MK 09/24/2021 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT MW 1/19/22 DATE



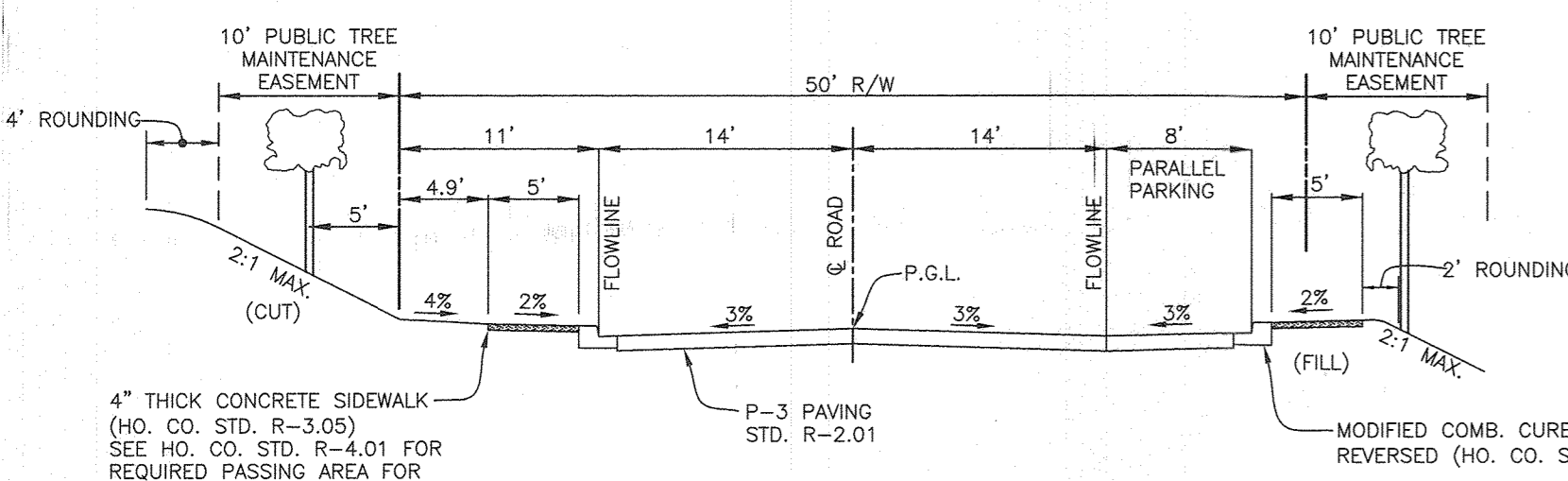


TREVISO LANE
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.



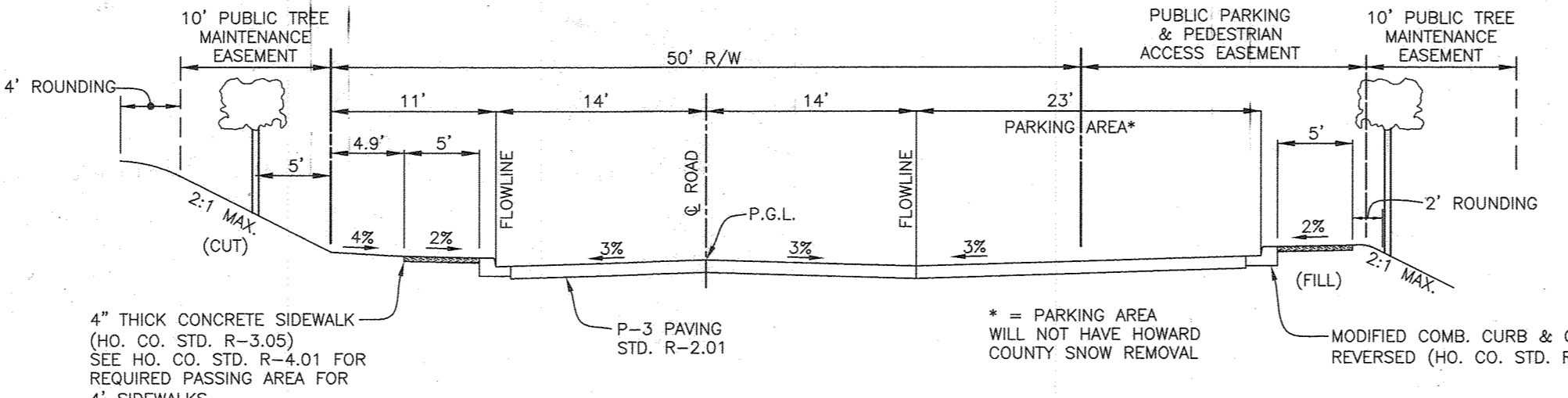
TREVISO LANE
TYPICAL ROADWAY SECTION

PUBLIC ACCESS STREET
P.O.B. STA.0+00.00 TO STA.2+44.03
STA.05+33.98 TO STA.10+90.51
STA.12+21.51 TO END STA.14+41.07
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



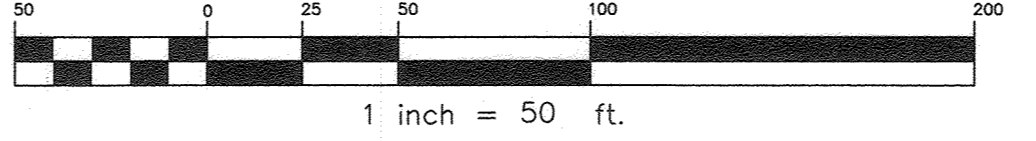
TREVISO LANE
TYPICAL ROADWAY SECTION

PUBLIC ACCESS STREET
STA.10+90.51 TO STA.12+21.51
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



TREVISO LANE
TYPICAL ROADWAY SECTION

PUBLIC ACCESS STREET
STA.2+44.03 TO STA.5+33.98
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



1 inch = 50 ft.

APPROVED: DEPARTMENT OF PUBLIC WORKS
James
CHIEF, BUREAU OF HIGHWAYS MK
DATE: 09/24/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT MM
DATE: 11/19/22

NO.	DATE	REVISION
1	4.27.2023	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

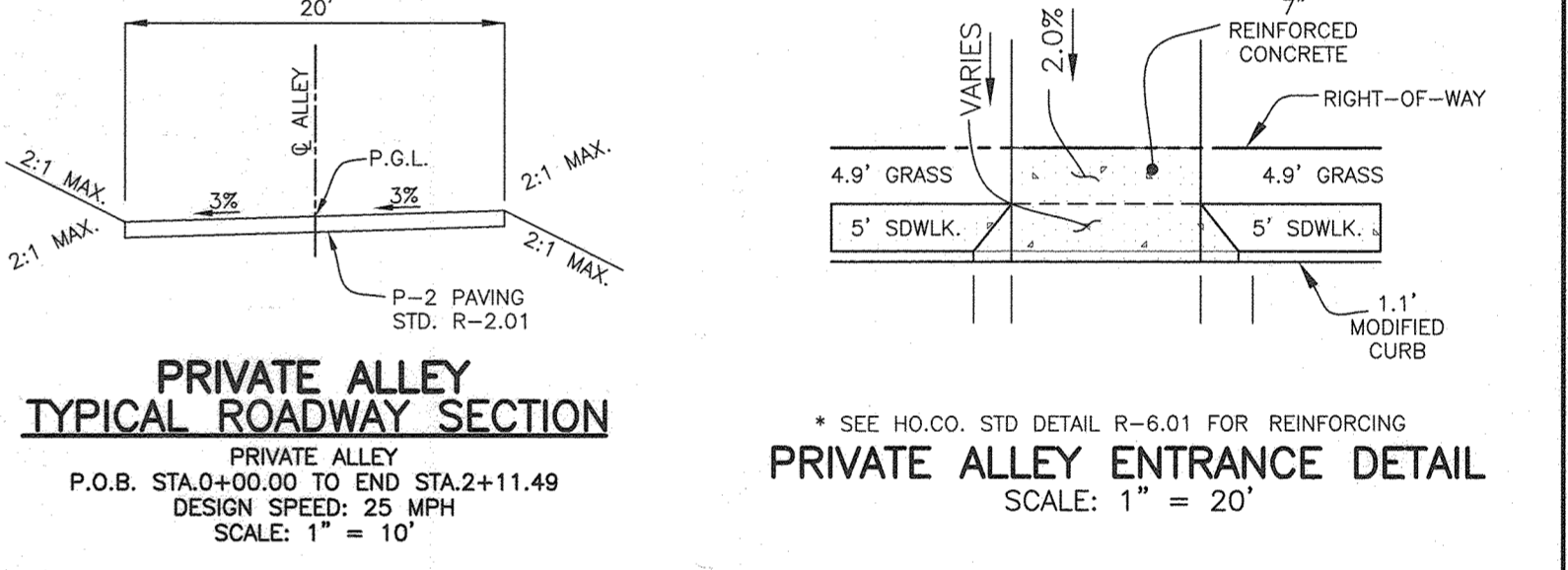
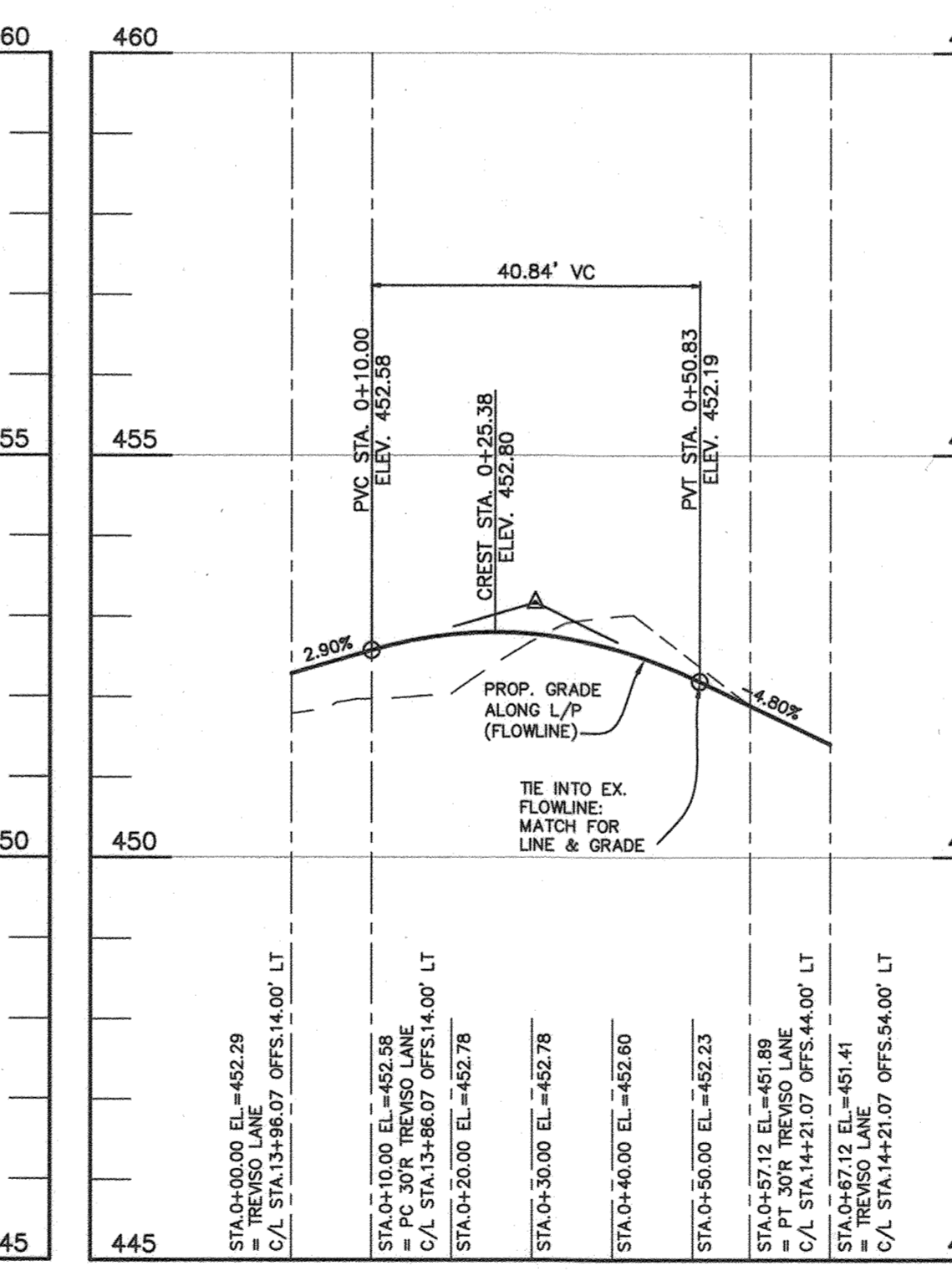
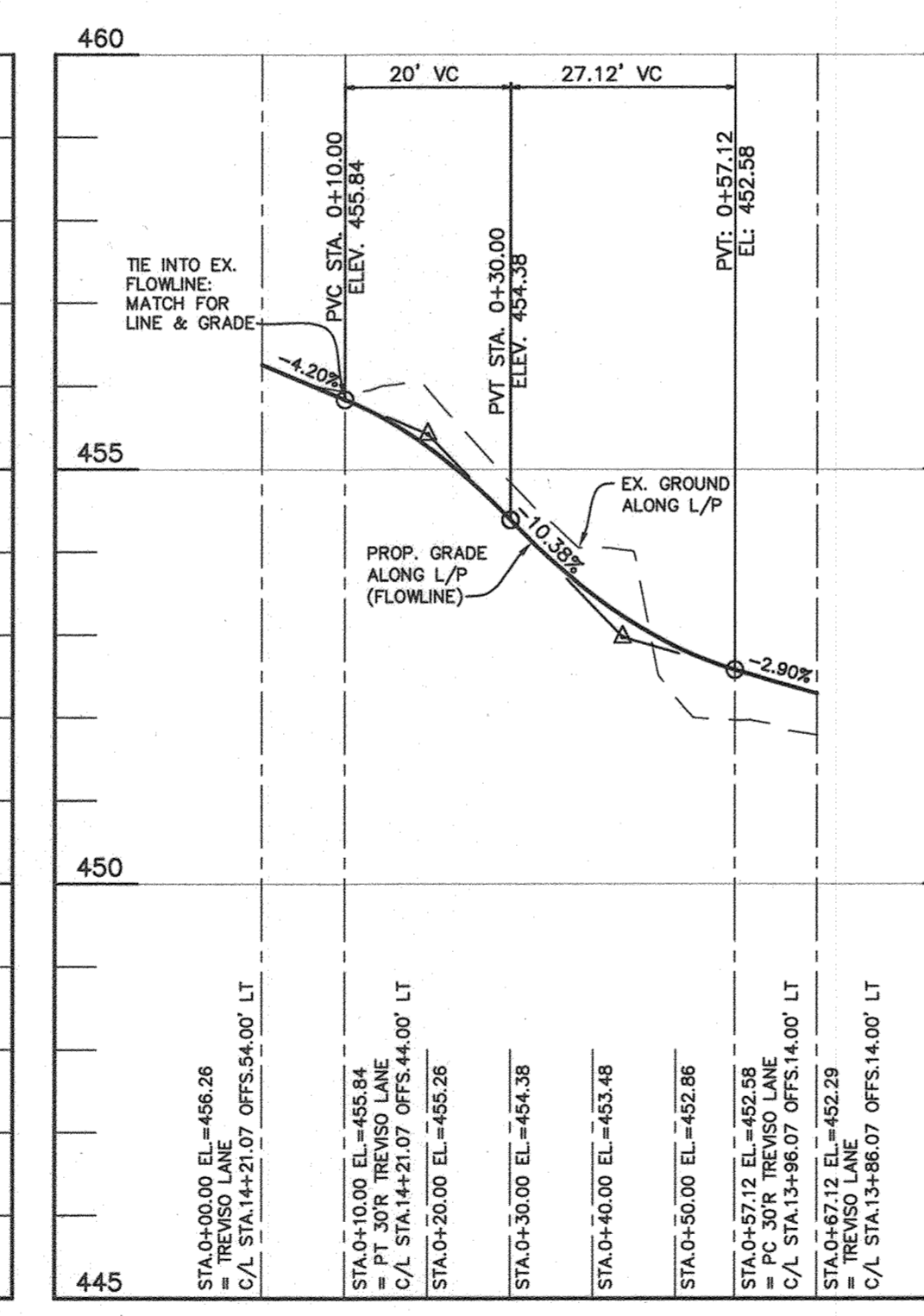
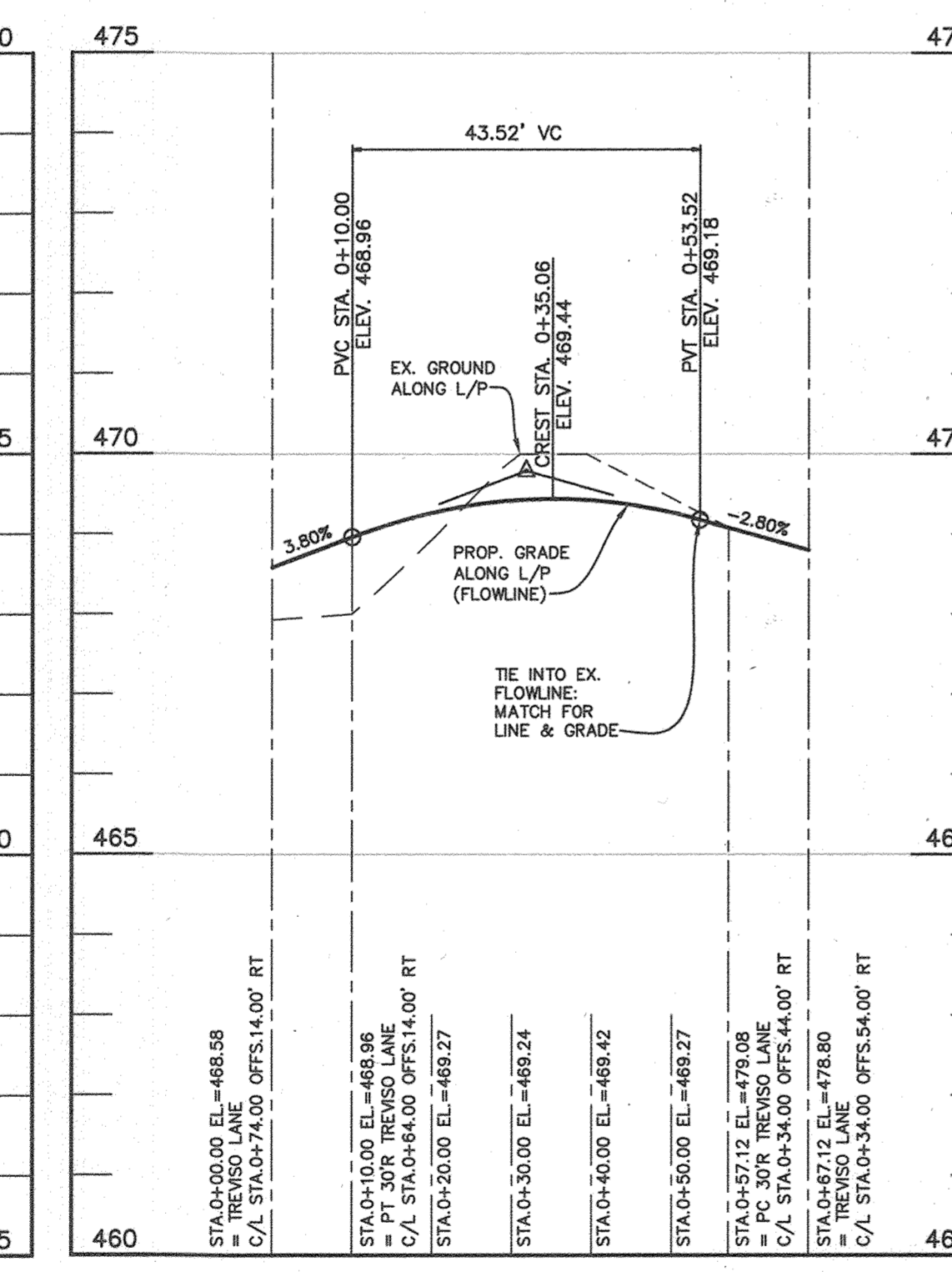
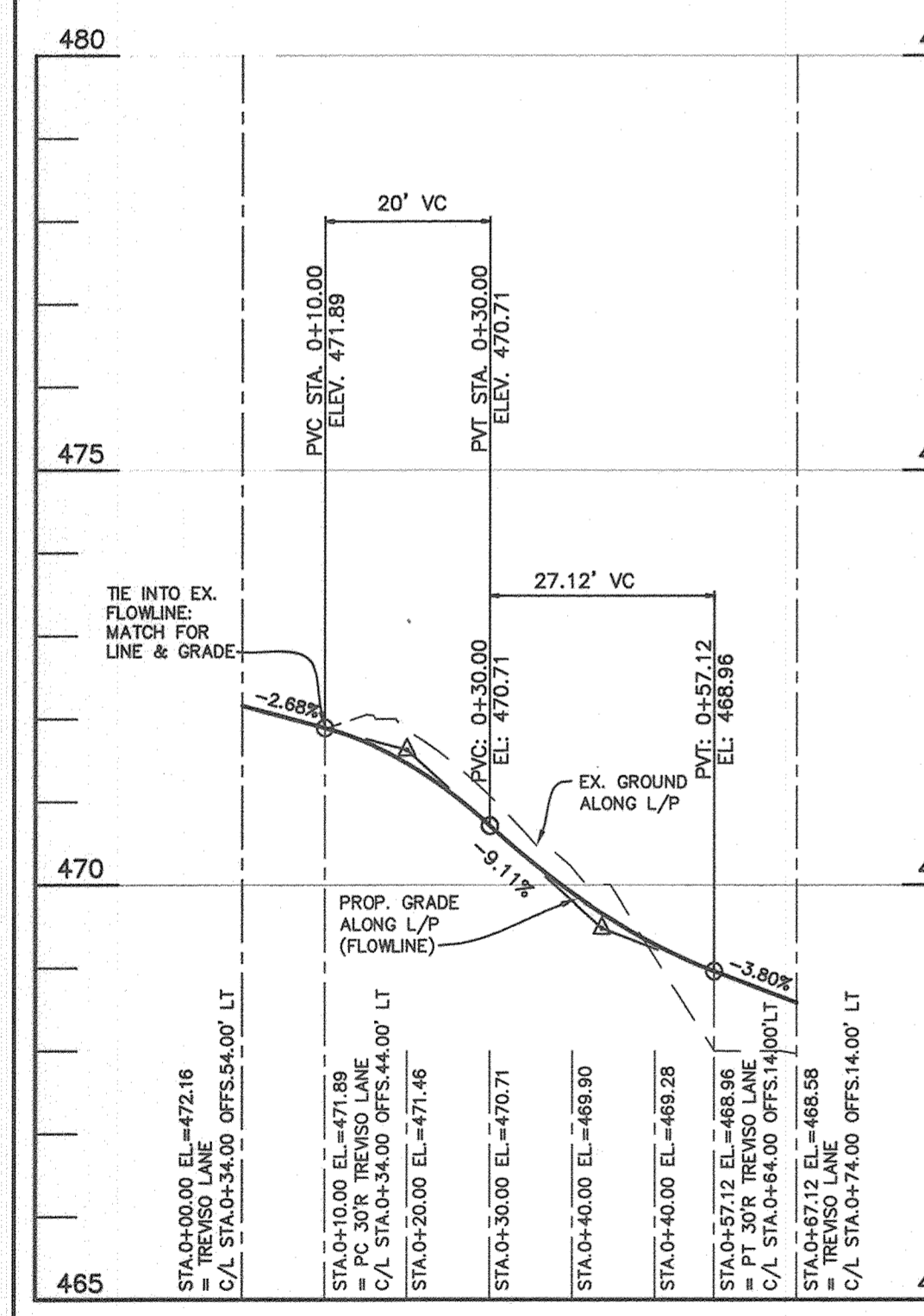
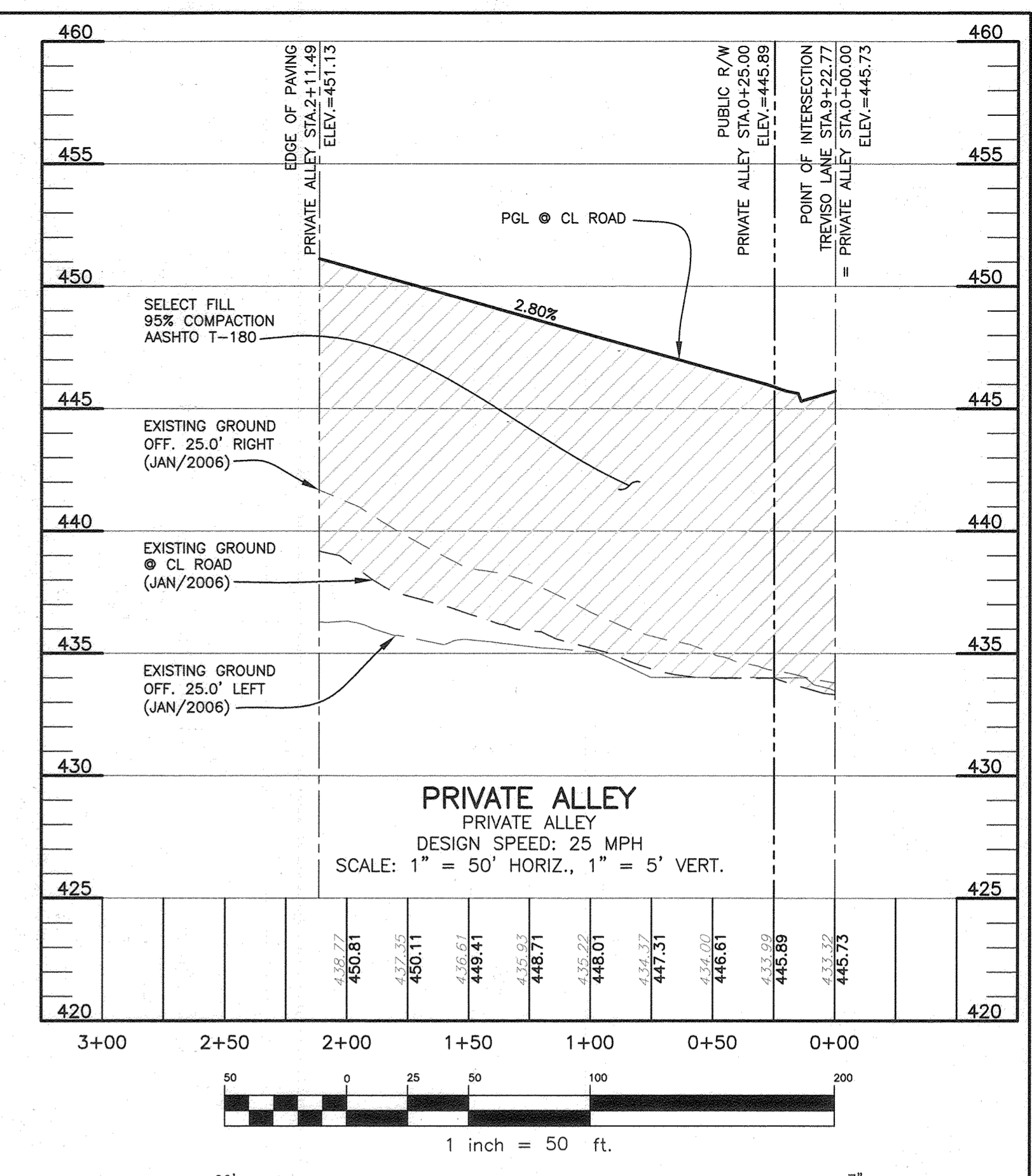
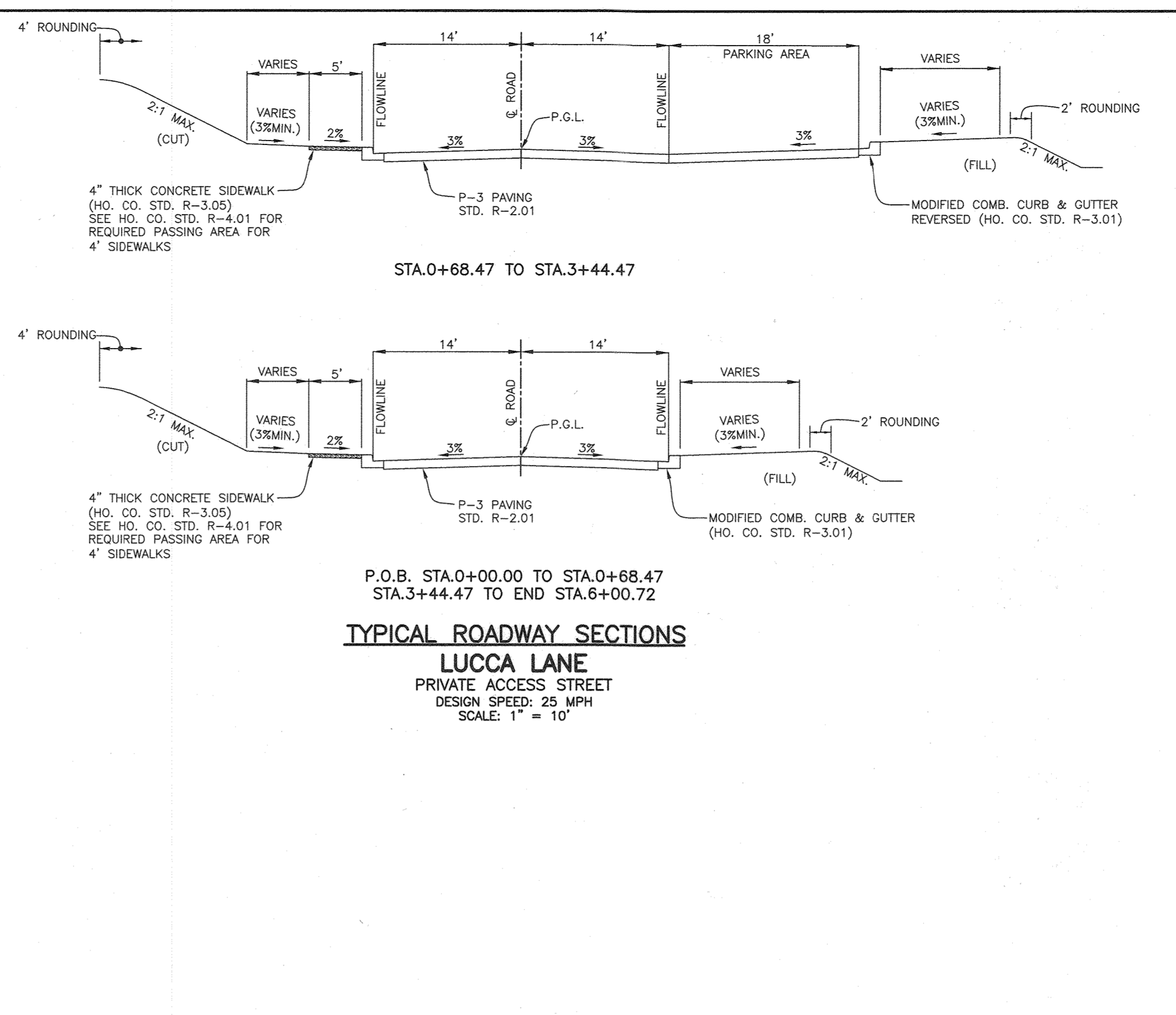
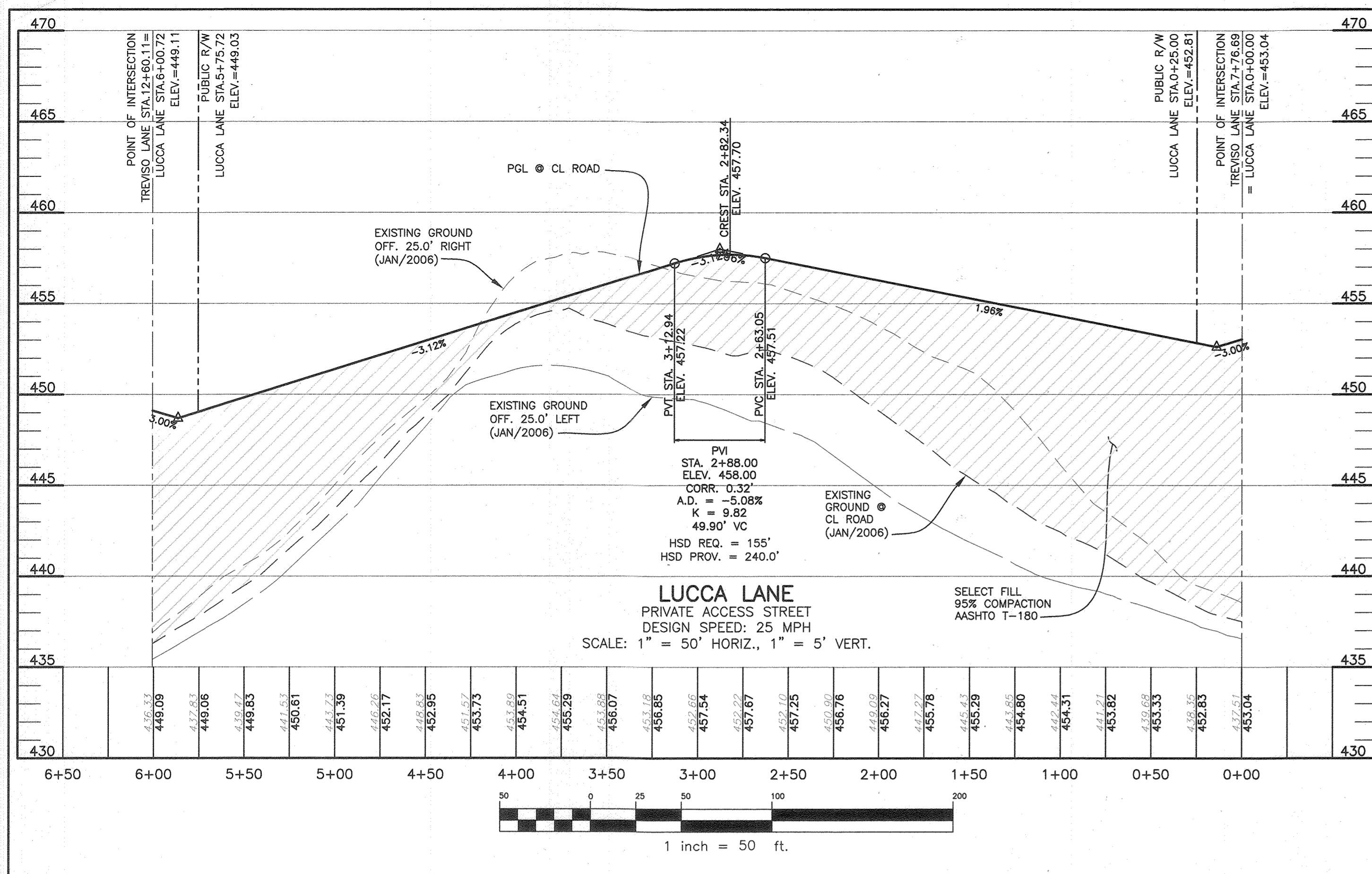
BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELIJAH CITY, MARYLAND 21043
(P) 410-465-8103 (F) 410-465-8844
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. 23390, Expiration Date: 6-30-2023.

DM 9-19-21

OWNER/DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	THE VILLAGE AT TOWN SQUARE PHASE 1: LOTS 1 Thru 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL L-3 PLAT NO. 23825-23830 1-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8 TAX MAP: 16 - GRID: 19 - PARCEL: P0 8 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND ZONED: PGCC
TYTS RETAIL, LLC. 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	PUBLIC ROADWAY PROFILE AND DETAILS
DATE: AUGUST, 2021 SCALE: AS SHOWN	BEI PROJECT NO. 2899 SHEET 3 OF 26



UPPER INTERSECTION - NORTH CORNER
TREVISO LANE & TOWN SQUARE PARKWAY
VERTICAL SCALE: 1" = 2"
HORIZONTAL SCALE: 1" = 20'

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	2.0	2.0	2.0	3.5	2.0	2.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL MINOR COLLECTORS:	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	8.0	3.0	8.0	6.0	6.0

UPPER INTERSECTION - SOUTH CORNER
TREVISO LANE & TOWN SQUARE PARKWAY
VERTICAL SCALE: 1" = 2"
HORIZONTAL SCALE: 1" = 20'

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	2.0	2.0	2.0	3.5	2.0	2.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL MINOR COLLECTORS:	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	8.0	3.0	8.0	6.0	6.0

LOWER INTERSECTION - NORTH CORNER
TREVISO LANE & TOWN SQUARE PARKWAY
VERTICAL SCALE: 1" = 2"
HORIZONTAL SCALE: 1" = 20'

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	2.0	2.0	2.0	3.5	2.0	2.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL MINOR COLLECTORS:	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	8.0	3.0	8.0	6.0	6.0

LOWER INTERSECTION - SOUTH CORNER
TREVISO LANE & TOWN SQUARE PARKWAY
VERTICAL SCALE: 1" = 2"
HORIZONTAL SCALE: 1" = 20'

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	2.0	2.0	2.0	3.5	2.0	2.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS FOR DAY LOCAL ROADS: ACCESS PLAZA, ACCESS STREET CUL-DE-SAC, RESIDENTIAL MINOR COLLECTORS:	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN.	HMA WITH GAB	HMA WITH CONSTANT GAB
		HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	8.0	3.0	8.0	6.0	6.0

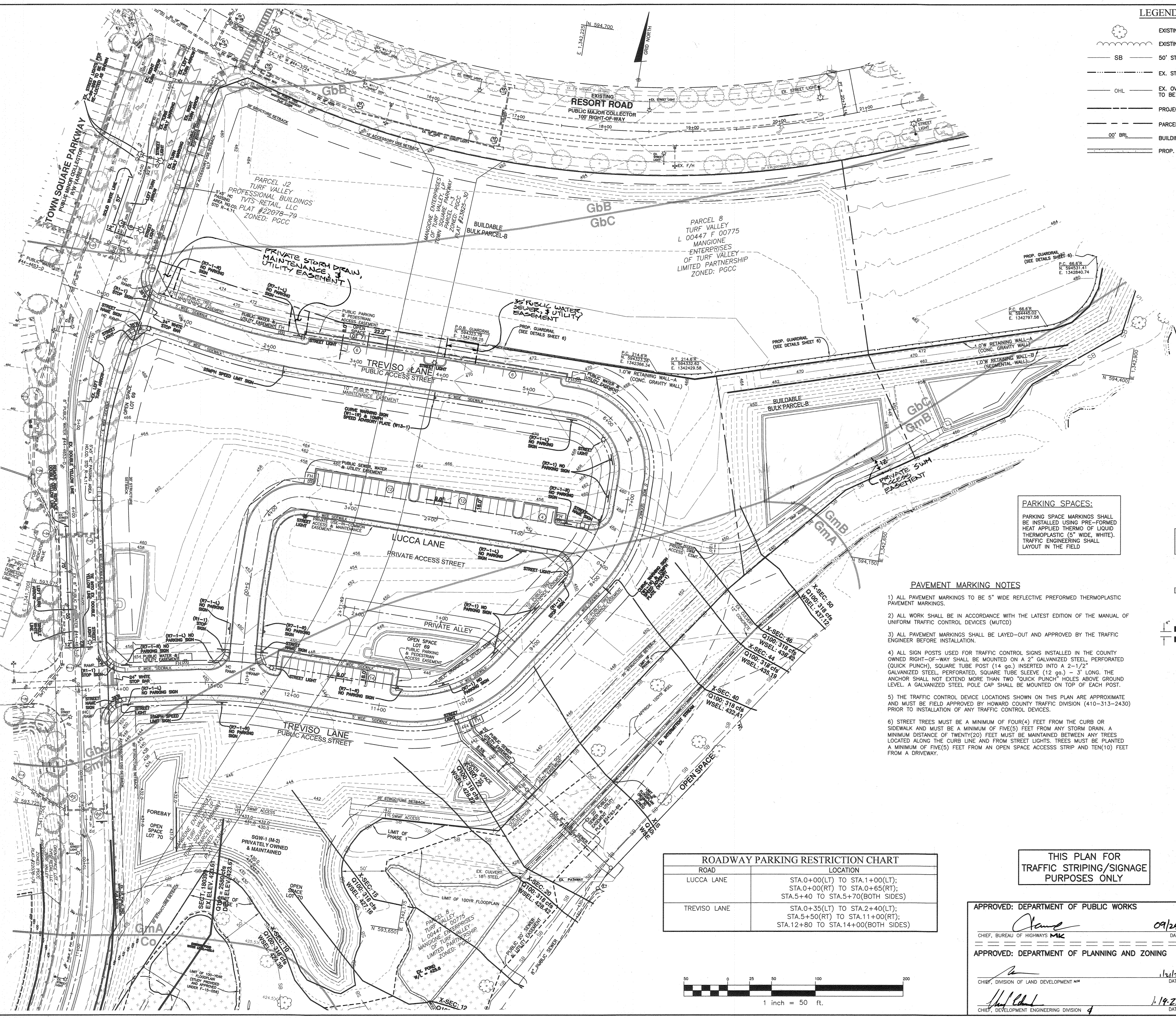
* PAVING SECTION SHALL BE CONFIRMED BY THE GEOTECHNICAL ENGINEER IN THE FIELD BASED ON THE CBR TESTS RESULTS.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 09/24/2021
 CHIEF, BUREAU OF HIGHWAYS MKK
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/19/22
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 1/19/22
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

1 4.27.2023 REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26	
NO.	DATE
REVISION	
<p>BENCHMARK ENGINEERING, INC.</p> <p>8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLICOTT CITY, MARYLAND 21043 (P) 410-468-8105 (F) 410-468-8644 WWW.BE-CIVILENGINEERING.COM</p> <p>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. 23366. Expiration Date: 6-30-2023.</p>	
<p>OWNER/DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400</p> <p>TVTS RETAIL, LLC. 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400</p>	<p>THE VILLAGE AT TOWN SQUARE</p> <p>PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B</p> <p>A RESUBDIVISION OF TOWN SQUARE PARCEL I-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDING PARCEL 1/2 PLAT NO. 22079-22079, AND A SUBDIVISION OF PART OF PARCEL B</p> <p>TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8</p> <p>ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND ZONED: PGCC</p> <p>ROADWAY PROFILES AND DETAILS</p> <p>DATE: AUGUST, 2021 BEI PROJECT NO. 2899</p> <p>SCALE: AS SHOWN SHEET 4 OF 26</p>
DESIGN: MCR	DRAFT: MCR



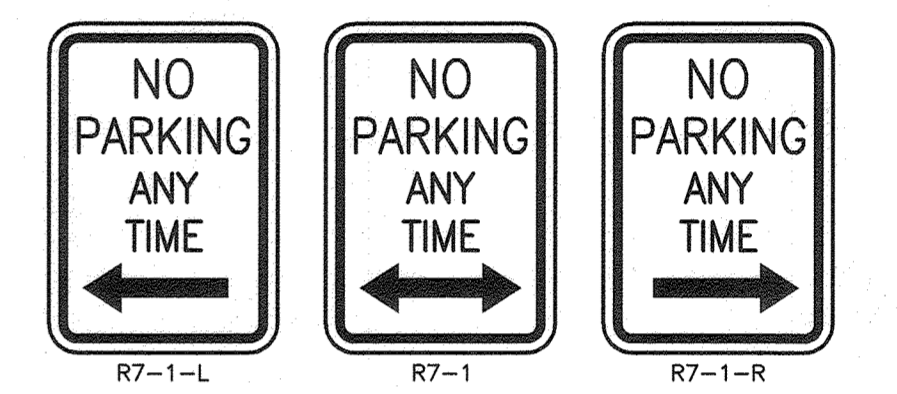
LEGEND

- EXISTING TREE
- EXISTING TREELINE
- 50' STREAM BUFFER
- EX. STREAM
- EX. OVERHEAD LINES TO BE REMOVED
- PROJECT BOUNDARY
- PARCEL LINE
- 00' BRL
- BUILDING RESTRICTION LINE
- PROP. SIDEWALK

PUBLIC STREET LIGHT SCHEDULE		
SYMBOL	LOCATION	DESCRIPTION
	TOWN SQUARE PARKWAY 7+49, LEFT 23.0'	LED-250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
	TOWN SQUARE PARKWAY 2+66, LEFT 6.0'	LED-(2)250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING TWIN 6' ARM
	TOWN SQUARE PARKWAY 1+83, LEFT 2.0'	LED-(2)250 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING TWIN 6' ARM
	TREVISIO LANE: 0+62.0, RIGHT 16.7'	LED-150 COLONIAL POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
	TREVISIO LANE: 3+89.0, LEFT 17.1'	
	TREVISIO LANE: 8+14.8, RIGHT 22.1'	
	TREVISIO LANE: 8+18.0, RIGHT 25.0'	
	TREVISIO LANE: 10+17.0, LEFT 22.1'	
	TREVISIO LANE: 12+27.5, RIGHT 22.6'	
	TREVISIO LANE: 13+97.9, LEFT 17.6'	

PRIVATE STREET LIGHT SCHEDULE		
SYMBOL	LOCATION	DESCRIPTION
	LUCCA LANE: 3+49.5, LEFT 22.1'	LED-100 COLONIAL POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE

SIGN POSTS:
 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 SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

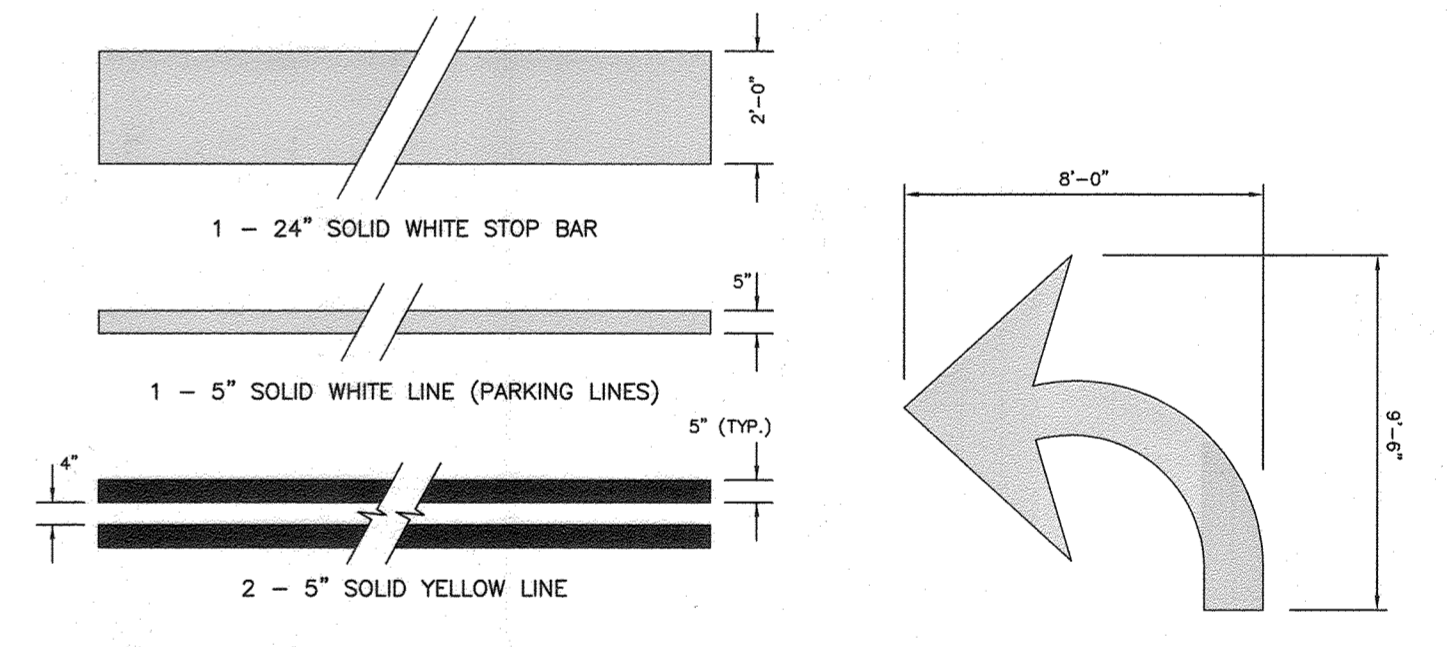


PARKING SIGNAGE DETAILS
 NOT TO SCALE

PARKING SPACES:
 PARKING SPACE MARKINGS SHALL BE INSTALLED USING PRE-FORMED HEAT APPLIED THERMO OF LIQUID THERMOPLASTIC (5" WIDE, WHITE). TRAFFIC ENGINEERING SHALL LAYOUT IN THE FIELD

PAVEMENT MARKING NOTES

- ALL PAVEMENT MARKINGS TO BE 5" WIDE REFLECTIVE PREFORMED THERMOPLASTIC PAVEMENT MARKINGS.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
- ALL PAVEMENT MARKINGS SHALL BE LAYED-OUT AND APPROVED BY THE TRAFFIC ENGINEER BEFORE INSTALLATION.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY OWNED RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED (QUICK PUNCH), SQUARE TUBE POST (14 ga.) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 ga.) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO INSTALLATION OF ANY TRAFFIC CONTROL DEVICES.
- STREET TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN. A MINIMUM DISTANCE OF TWENTY(20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS. TREES MUST BE PLANTED A MINIMUM OF FIVE(5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN(10) FEET FROM A DRIVEWAY.



TRAFFIC STRIPING PAVEMENT LINES
 NOT TO SCALE
 PREFORMED THERMOPLASTIC MATERIAL

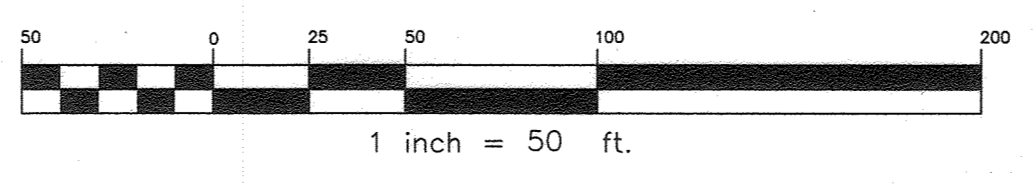
TRAFFIC STRIPING PAVEMENT SYMBOL
 NOT TO SCALE

ROADWAY PARKING RESTRICTION CHART	
ROAD	LOCATION
LUCCA LANE	STA.0+00(LT) TO STA.1+00(LT); STA.0+00(RT) TO STA.0+65(RT); STA.5+40 TO STA.5+70(BOTH SIDES)
TREVISIO LANE	STA.0+35(LT) TO STA.2+40(LT); STA.5+50(RT) TO STA.11+00(RT); STA.12+80 TO STA.14+00(BOTH SIDES)

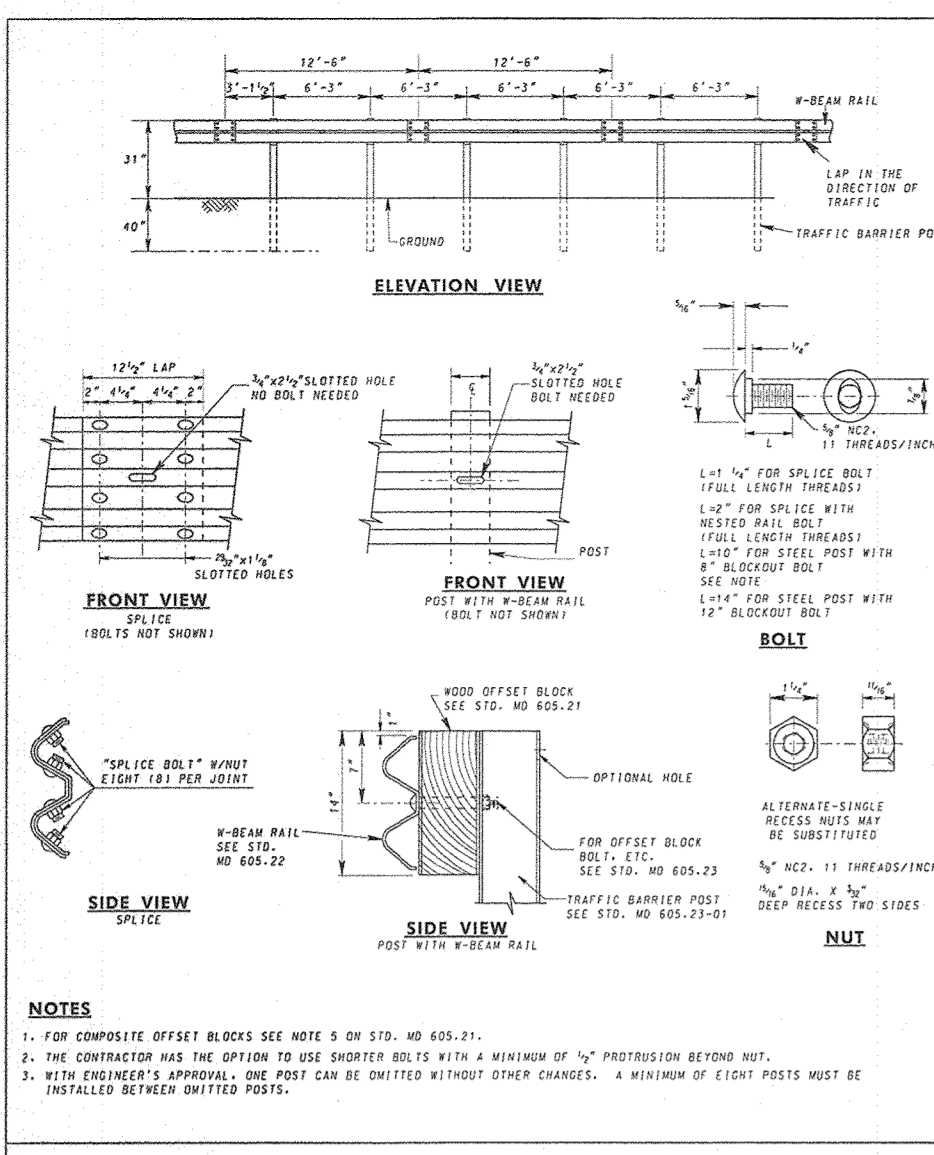
THIS PLAN FOR TRAFFIC STRIPING/SIGNAGE PURPOSES ONLY

APPROVED: DEPARTMENT OF PUBLIC WORKS
James 09/24/2021
 CHIEF, BUREAU OF HIGHWAYS MKK DATE

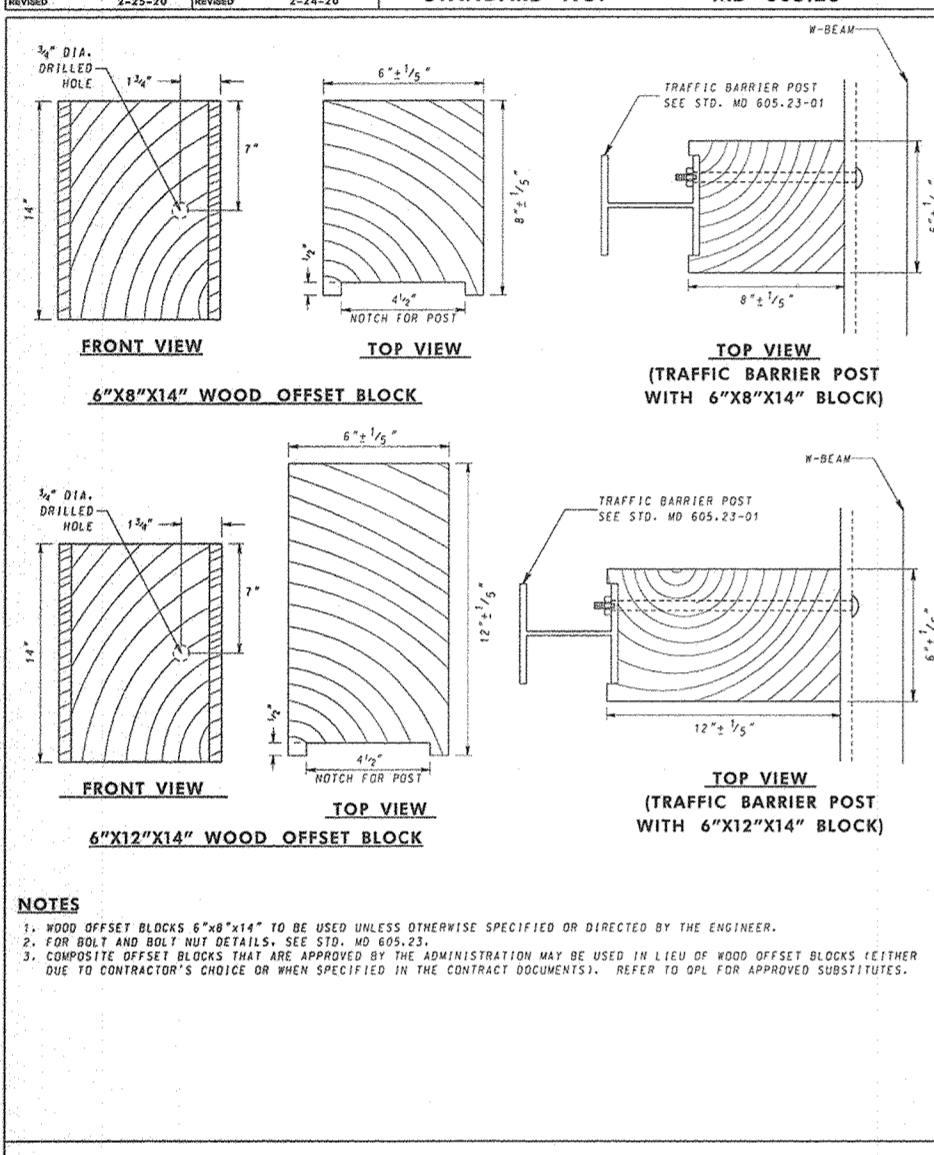
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Ulman 1/19/22
 CHIEF, DIVISION OF LAND DEVELOPMENT MM DATE



NO. 1 DATE 4.27.2023 REVISION REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26	
BENCHMARK ENGINEERING, INC. ENGINEERS & LAND SURVEYORS & PLANNERS 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-8105 (F) 410-465-6944 WWW.BE-CIVILENGINEERING.COM	
OWNER/DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	THE VILLAGE AT TOWN SQUARE PHASE 1: LOTS 1 Thru 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8 TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND ZONED: PGCC
ROAD STRIPING, SIGNAGE, AND LIGHTING PLAN	
DATE: AUGUST, 2021 SCALE: AS SHOWN	BEI PROJECT NO. 2899 SHEET 5 OF 26

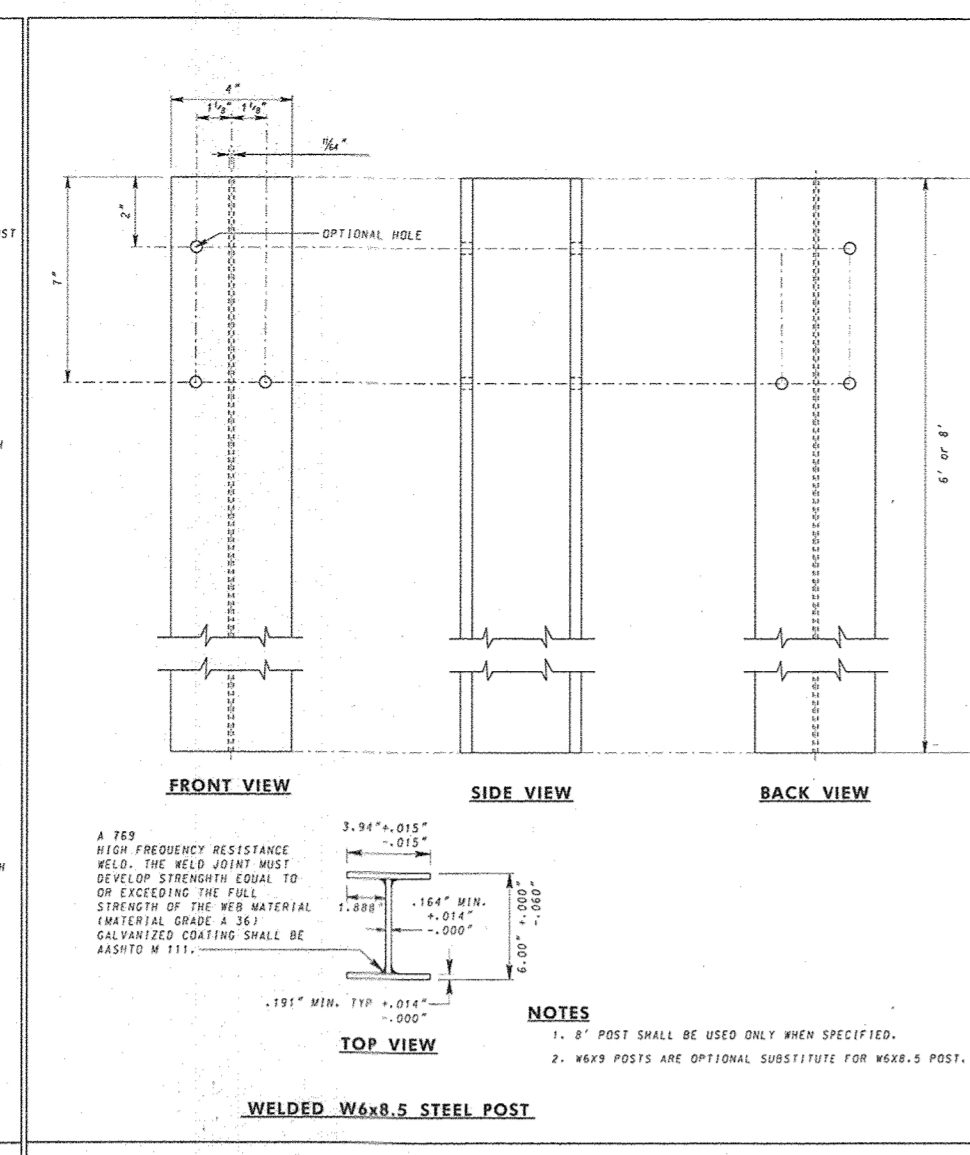


APPROVED	DIRECTOR	OFFICE OF PUBLIC WORKS
APPROVED	APPROVED	APPROVED
REVISION	REVISION	REVISION
REVISION	REVISION	REVISION
REVISION	REVISION	REVISION
REVISION	REVISION	REVISION

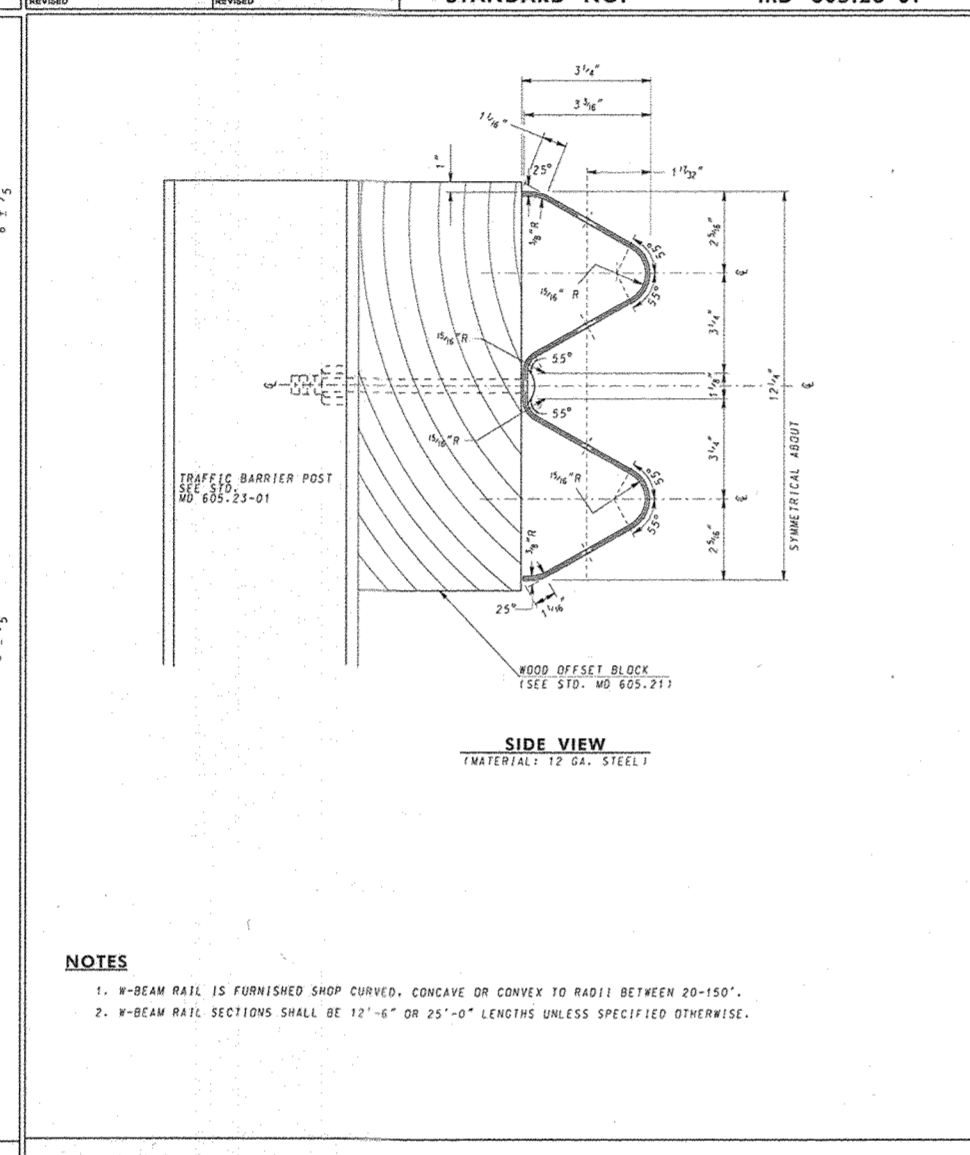


APPROVED	DIRECTOR	OFFICE OF PUBLIC WORKS
APPROVED	APPROVED	APPROVED
REVISION	REVISION	REVISION
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REVISION	REVISION	REVISION
REVISION	REVISION	REVISION

GUARDRAIL DETAILS
NOT TO SCALE

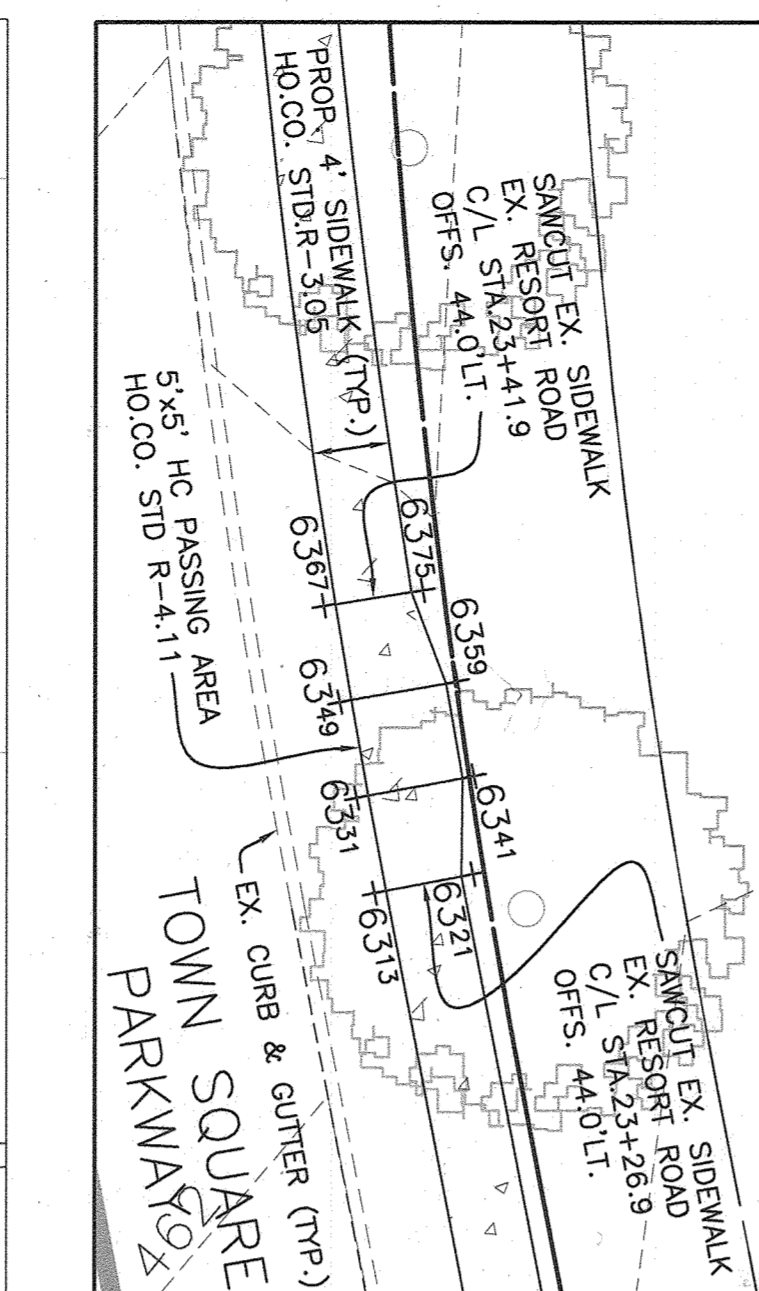


APPROVED	DIRECTOR	OFFICE OF PUBLIC WORKS
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REVISION	REVISION	REVISION
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REVISION	REVISION	REVISION

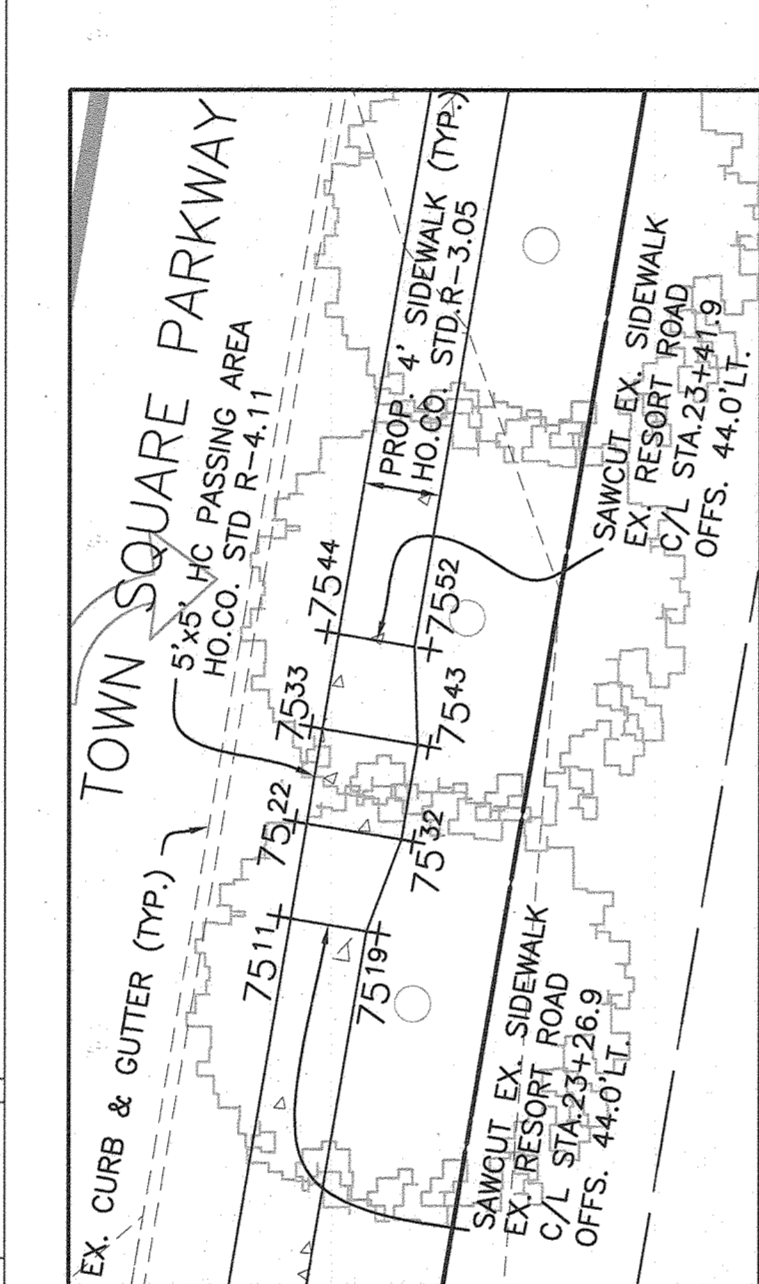


APPROVED	DIRECTOR	OFFICE OF PUBLIC WORKS
APPROVED	APPROVED	APPROVED
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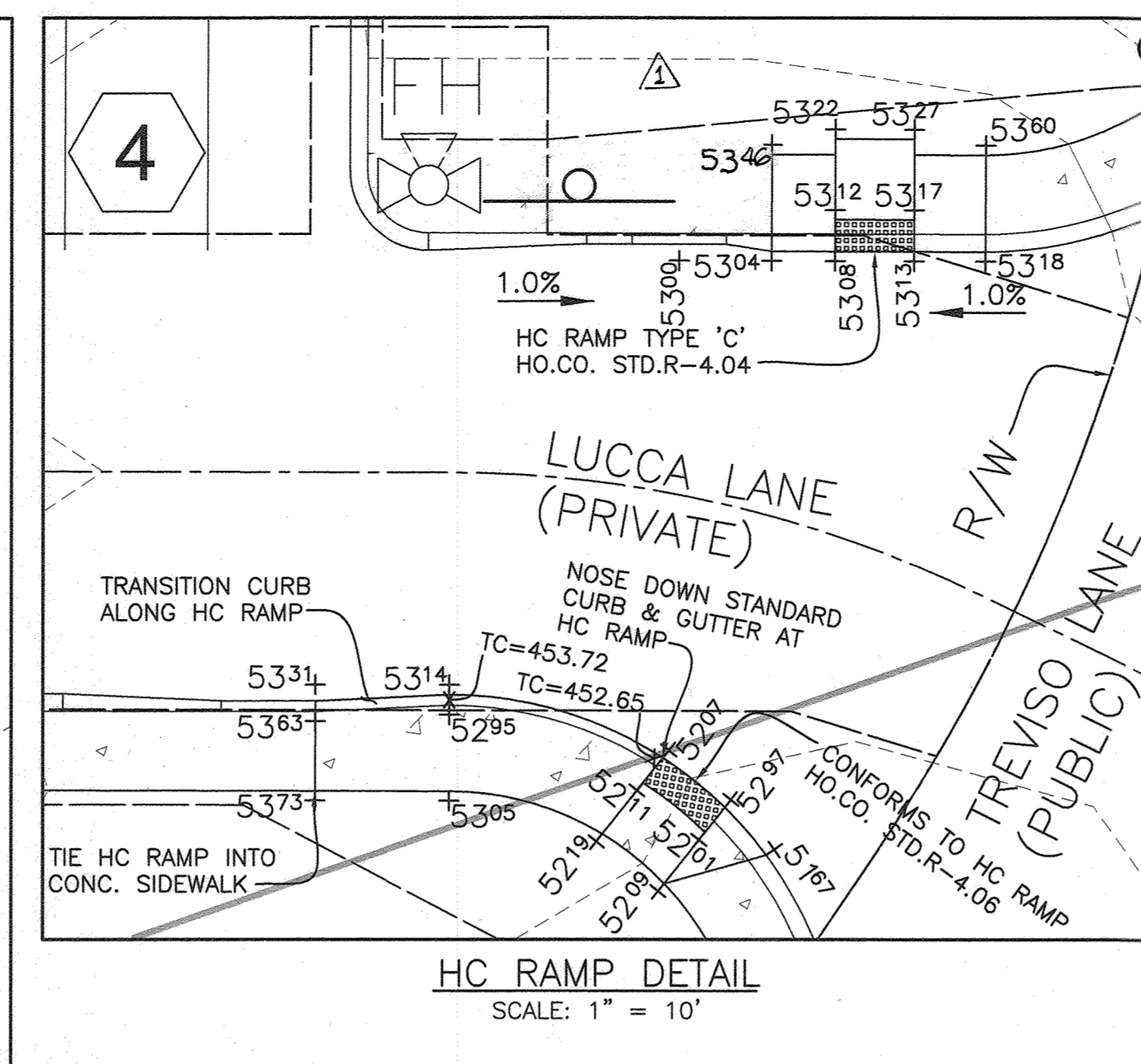
GUARDRAIL DETAILS
NOT TO SCALE



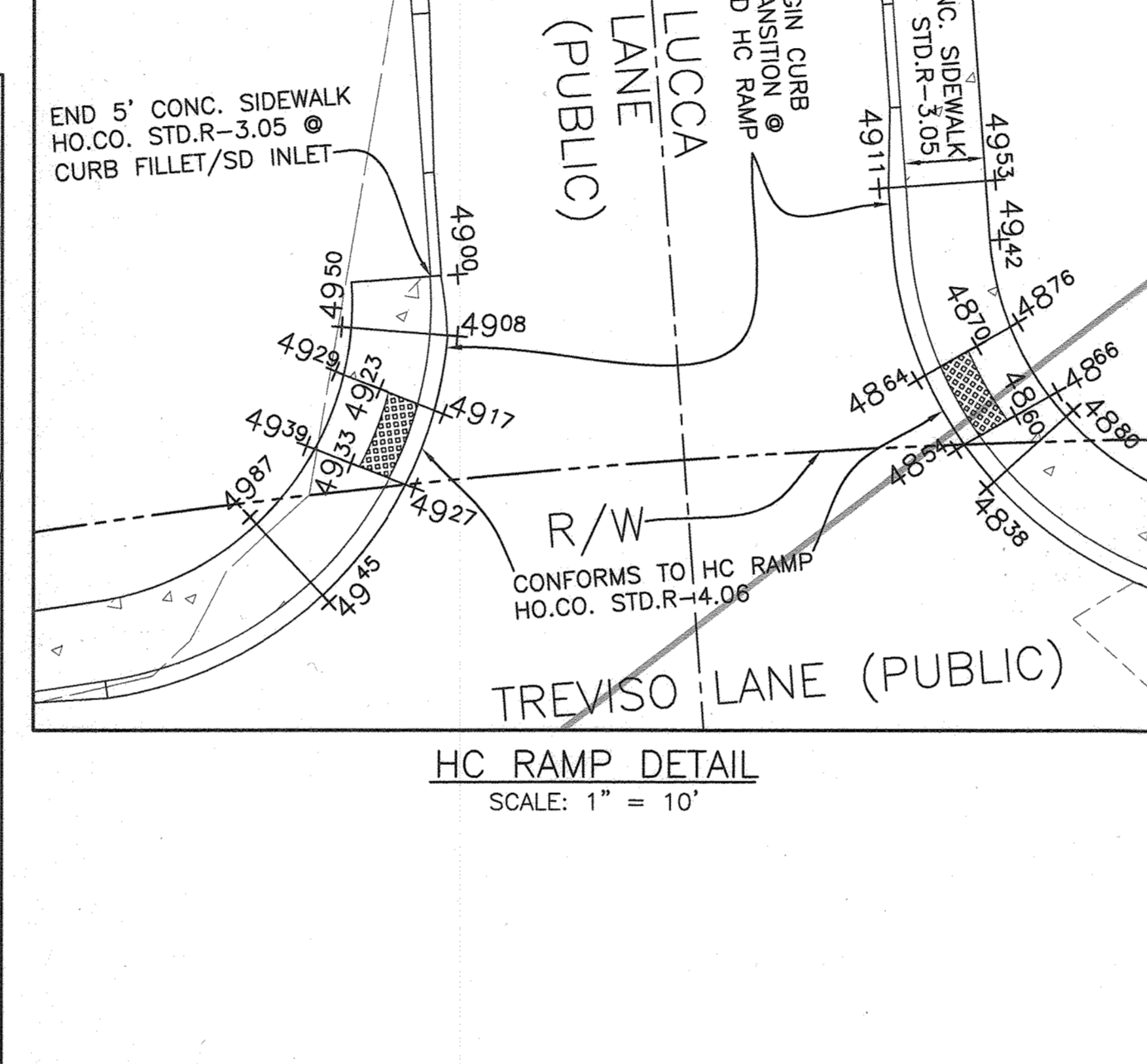
HC PASSING AREA DETAIL
SCALE: 1" = 10'



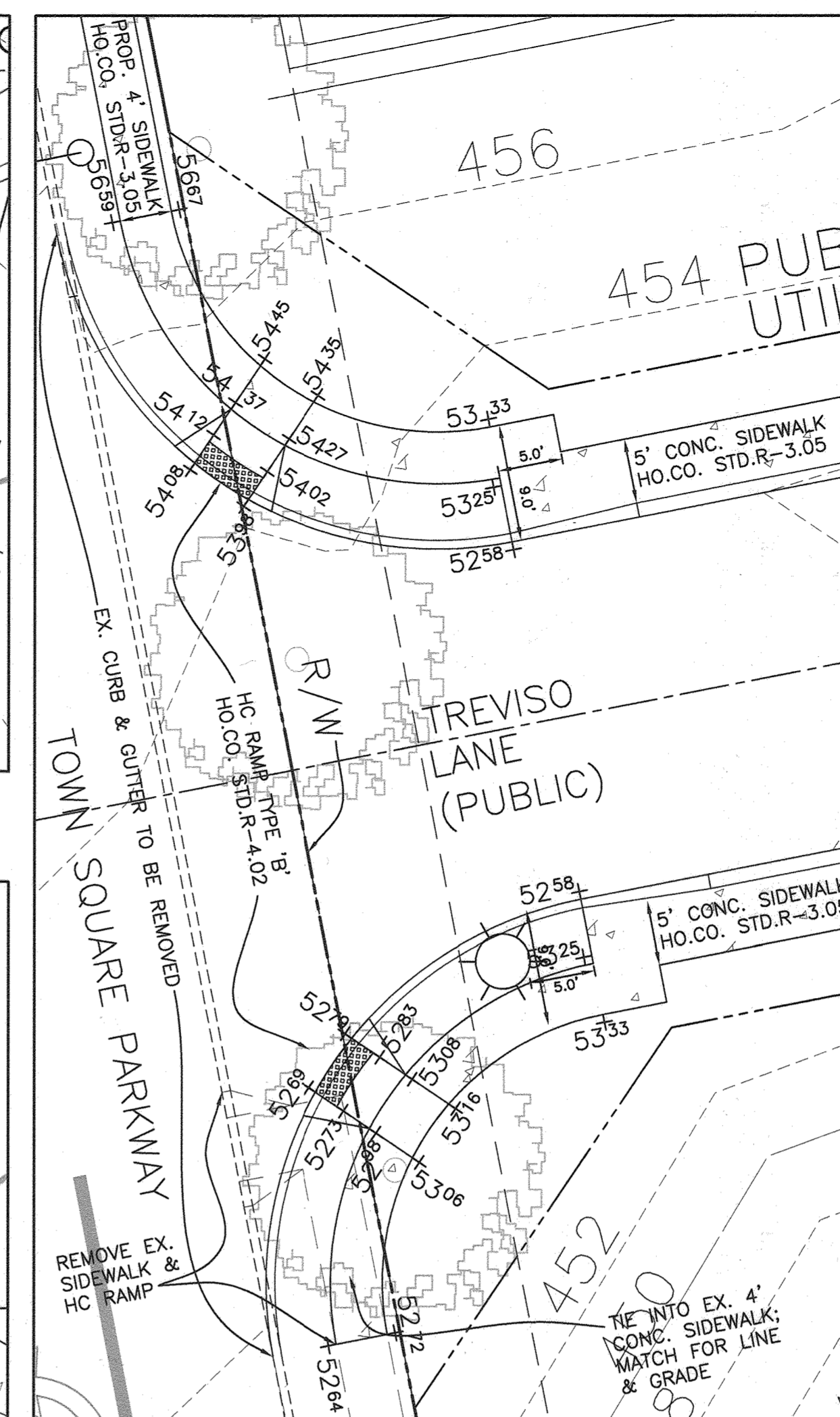
HC PASSING AREA DETAIL
SCALE: 1" = 10'



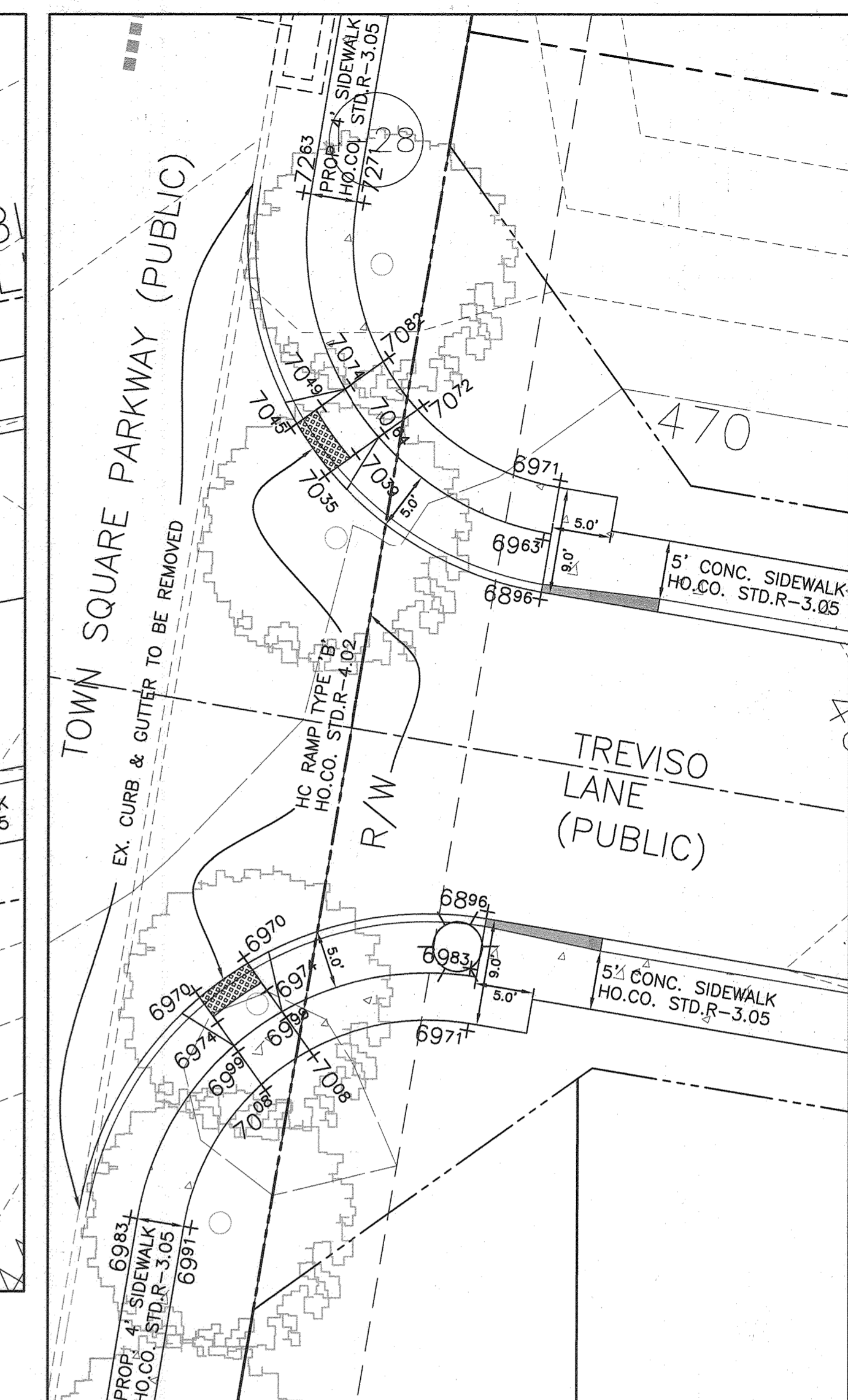
HC RAMP DETAIL
SCALE: 1" = 10'



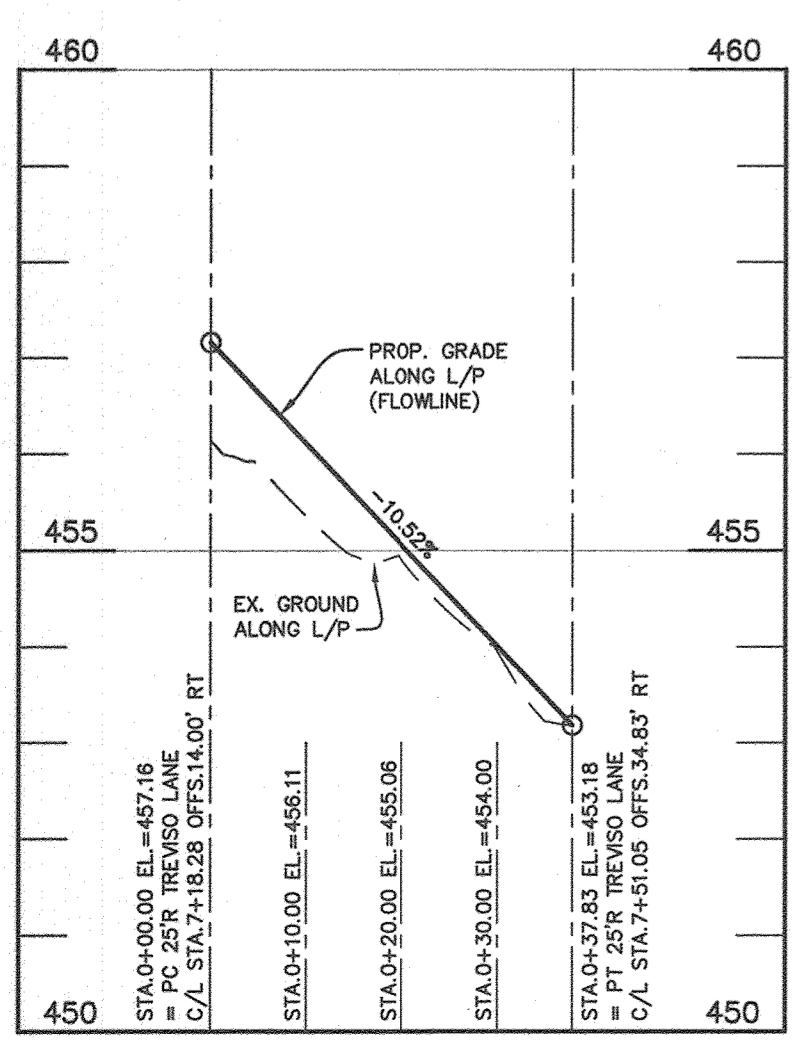
HC RAMP DETAIL
SCALE: 1" = 10'



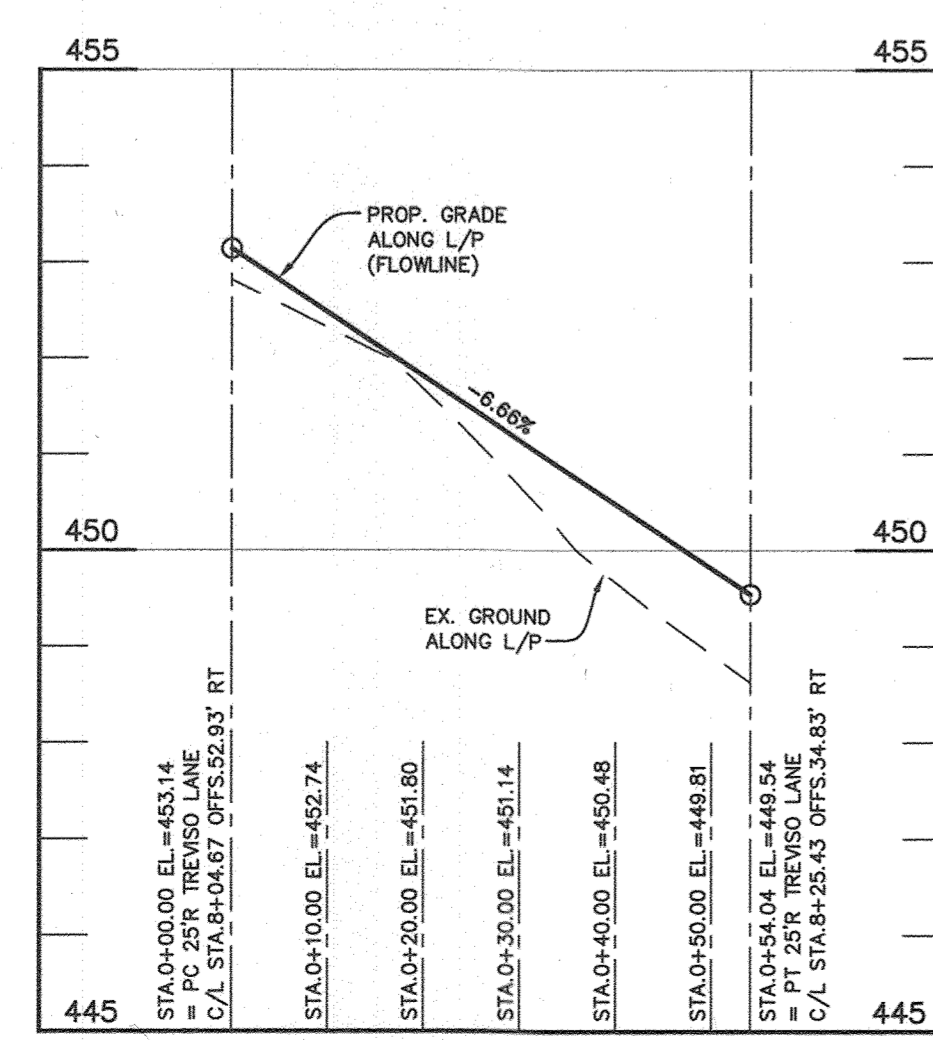
HC RAMP DETAIL
SCALE: 1" = 10'



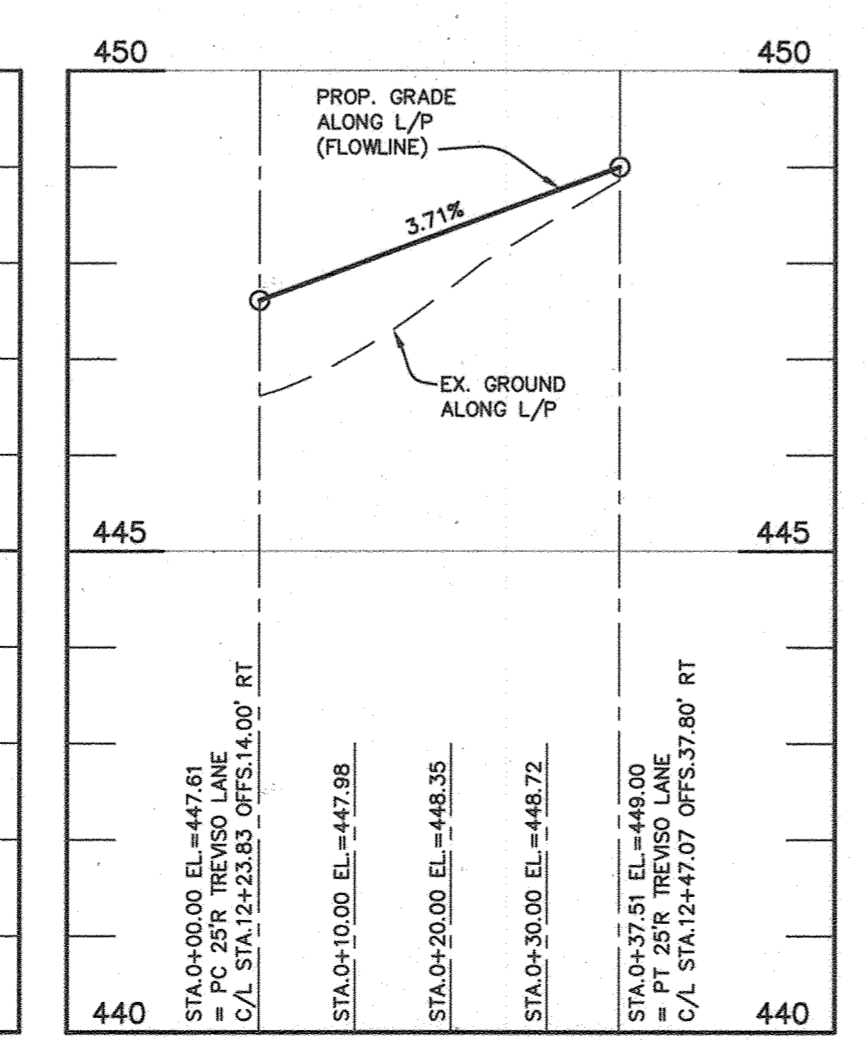
HC RAMP DETAIL
SCALE: 1" = 10'



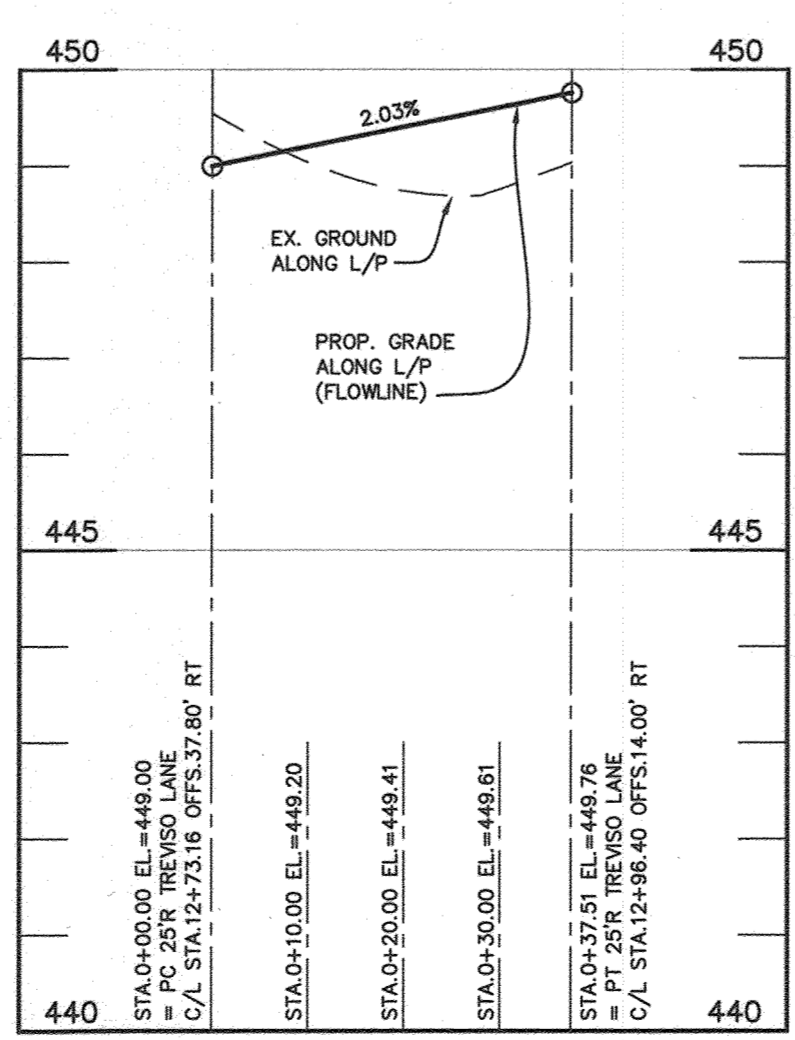
CURB RETURN PROFILE
UPPER INTERSECTION - NORTH CORNER
TREVISIO LANE & LUCCA LANE
VERTICAL SCALE: 1" = 2'
HORIZONTAL SCALE: 1" = 20'



CURB RETURN PROFILE
UPPER INTERSECTION - NORTH CORNER
TREVISIO LANE & LUCCA LANE
VERTICAL SCALE: 1" = 2'
HORIZONTAL SCALE: 1" = 20'



CURB RETURN PROFILE
LOWER INTERSECTION - NORTH CORNER
TREVISIO LANE & LUCCA LANE
VERTICAL SCALE: 1" = 2'
HORIZONTAL SCALE: 1" = 20'



CURB RETURN PROFILE
LOWER INTERSECTION - WEST CORNER
TREVISIO LANE & LUCCA LANE
VERTICAL SCALE: 1" = 2'
HORIZONTAL SCALE: 1" = 20'

APPROVED: DEPARTMENT OF PUBLIC WORKS
James
CHIEF, BUREAU OF HIGHWAYS MK
DATE: 09/28/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
W. J. L.
CHIEF, DIVISION OF LAND DEVELOPMENT WM
DATE: 1/14/22

NO.	DATE	REVISION
2	9/27/2023	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26
1	4/6/23	REVISE THE PLAN TO REMOVE A SECTION OF SIDEWALK BETWEEN THE HANDICAP RAMP AND PARKING STALL AT LUCCA LANE AND TREVISIO LANE.

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8100 (F) 410-465-8644
WWW.BE-CIVILENGINEERING.COM

Al M... 9-19-21

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

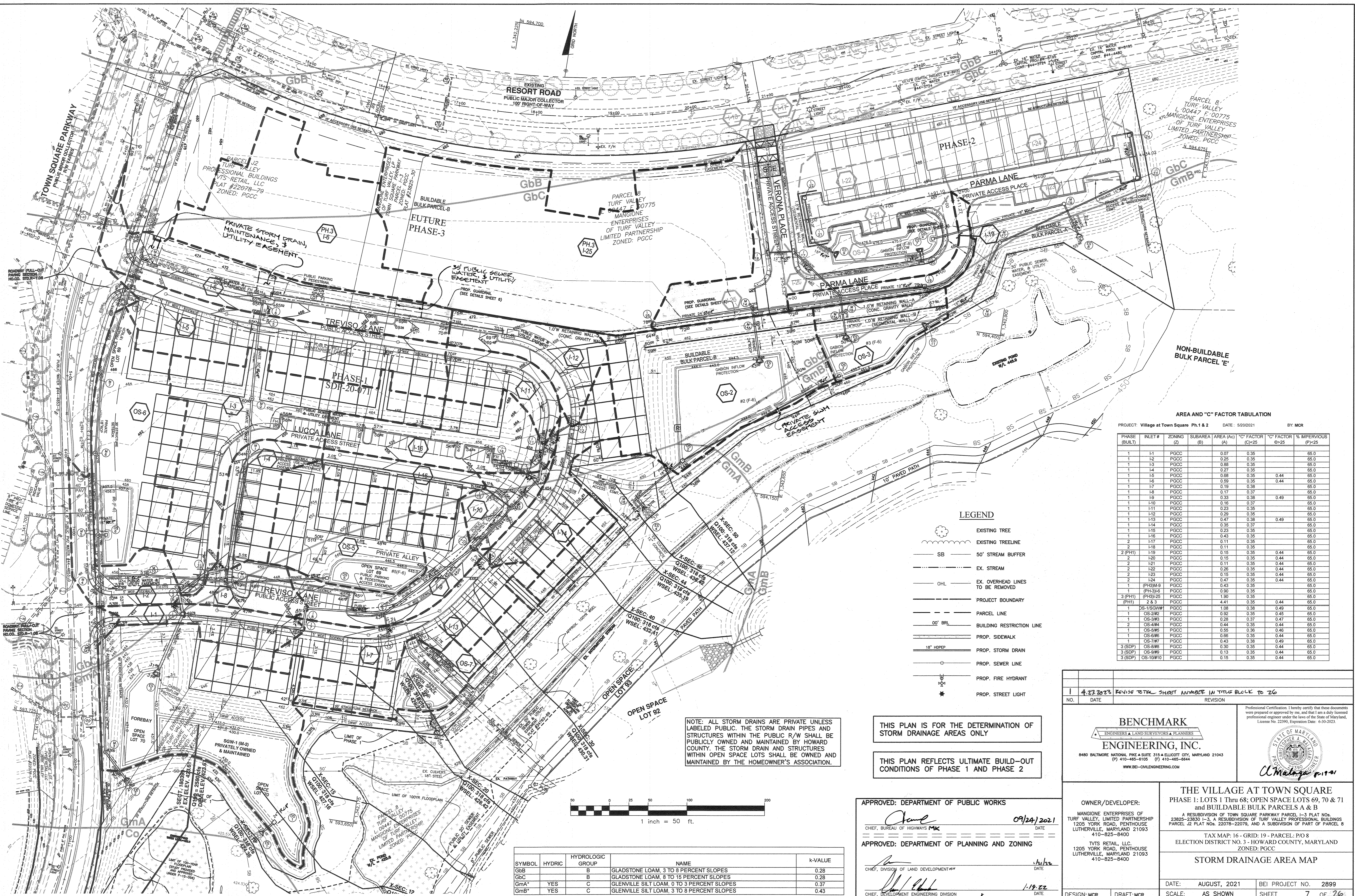
THE VILLAGE AT TOWN SQUARE
PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71 AND BUILDABLE BULK PARCELS A & B
A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

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

HANDICAP ACCESS AND SITE DETAILS

DATE: AUGUST, 2021
SCALE: AS SHOWN

BEI PROJECT NO. 2899
SHEET 6 OF 26



AREA AND "C" FACTOR TABULATION

PROJECT: Village at Town Square Ph 1 & 2 DATE: 5/20/2021 BY: MCR

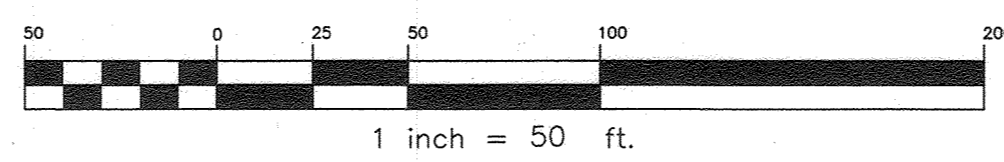
PHASE (BUILT)	INLET #	ZONING (Z)	SUBAREA (B)	AREA (A)	"C" FACTOR (C)-25	"C" FACTOR (C)-25	% IMPERVIOUS (P)-25
1	1-1	PGCC		0.07	0.35		65.0
1	1-2	PGCC		0.25	0.35		65.0
1	1-3	PGCC		0.88	0.35		65.0
1	1-4	PGCC		0.27	0.35		65.0
1	1-5	PGCC		0.68	0.35	0.44	65.0
1	1-6	PGCC		0.59	0.35	0.44	65.0
1	1-7	PGCC		0.19	0.38		65.0
1	1-8	PGCC		0.17	0.37		65.0
1	1-9	PGCC		0.33	0.38		65.0
1	1-10	PGCC		0.16	0.37	0.49	65.0
1	1-11	PGCC		0.23	0.35		65.0
1	1-12	PGCC		0.29	0.35		65.0
1	1-13	PGCC		0.47	0.38	0.49	65.0
1	1-14	PGCC		0.35	0.37		65.0
1	1-15	PGCC		0.23	0.35		65.0
1	1-16	PGCC		0.43	0.35		65.0
2	2-17	PGCC		0.11	0.35		65.0
2	2-18	PGCC		0.11	0.35		65.0
2 (PH1)	2-19	PGCC		0.15	0.35	0.44	65.0
2	2-20	PGCC		0.15	0.35	0.44	65.0
2	2-21	PGCC		0.11	0.35	0.44	65.0
2	2-22	PGCC		0.28	0.35	0.44	65.0
2	2-23	PGCC		0.15	0.35	0.44	65.0
2	2-24	PGCC		0.47	0.35	0.44	65.0
1	(PH3)M-9	PGCC		0.43	0.35		65.0
1	(PH3)M-10	PGCC		0.90	0.35		65.0
3 (PH1)	(PH3)25	PGCC		1.90	0.35		65.0
3 (PH1)	2 & 3	PGCC		4.41	0.35	0.44	65.0
1	OS-1/5/5/5/5	PGCC		1.08	0.38	0.49	65.0
1	OS-2/2	PGCC		0.02	0.35	0.45	65.0
1	OS-3/3	PGCC		0.28	0.37	0.47	65.0
2	OS-4/4	PGCC		0.44	0.35	0.44	65.0
1	OS-5/5	PGCC		0.55	0.38	0.46	65.0
1	OS-6/6	PGCC		0.65	0.35	0.44	65.0
1	OS-7/7	PGCC		0.43	0.38	0.49	65.0
3 (SDP)	OS-8/8	PGCC		0.30	0.35	0.44	65.0
3 (SDP)	OS-9/9	PGCC		0.13	0.35	0.44	65.0
3 (SDP)	OS-10/10	PGCC		0.15	0.35	0.44	65.0

- LEGEND**
- EXISTING TREE
 - EXISTING TREELINE
 - 50' STREAM BUFFER
 - EX. STREAM
 - EX. OVERHEAD LINES TO BE REMOVED
 - PROJECT BOUNDARY
 - PARCEL LINE
 - BUILDING RESTRICTION LINE
 - PROP. SIDEWALK
 - PROP. STORM DRAIN
 - PROP. SEWER LINE
 - PROP. FIRE HYDRANT
 - PROP. STREET LIGHT

NOTE: ALL STORM DRAINS ARE PRIVATE UNLESS LABELED PUBLIC. THE STORM DRAIN PIPES AND STRUCTURES WITHIN THE PUBLIC R/W SHALL BE PUBLICLY OWNED AND MAINTAINED BY HOWARD COUNTY. THE STORM DRAIN AND STRUCTURES WITHIN OPEN SPACE LOTS SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.

THIS PLAN IS FOR THE DETERMINATION OF STORM DRAINAGE AREAS ONLY

THIS PLAN REFLECTS ULTIMATE BUILD-OUT CONDITIONS OF PHASE 1 AND PHASE 2



SYMBOL	HYDRIC	HYDROLOGIC GROUP	NAME	K-VALUE
GbB		B	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.28
GbC		B	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.28
GmA*	YES	C	GLENVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES	0.37
GmB*	YES	C	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.43

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 09/24/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/19/22
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
1	4.27.2023	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

BENCHMARK ENGINEERING, INC.

ENGINEERS & LAND SURVEYORS & PLANNERS

8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLOTT CITY, MARYLAND 21043
 (P) 410-465-1105 (F) 410-465-6844
 WWW.BE-CIVILENGINEERING.COM

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

Cl. Malaga

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

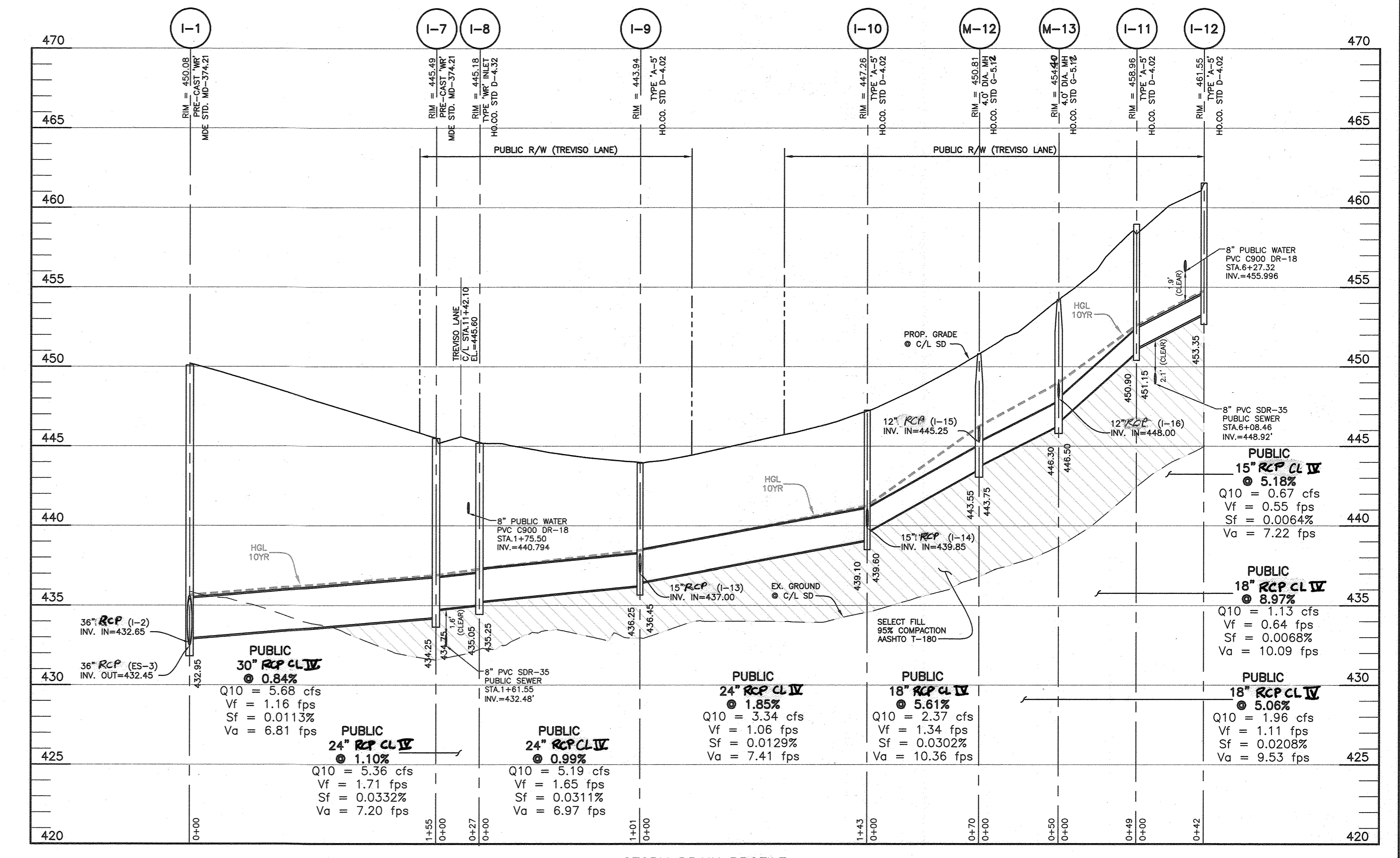
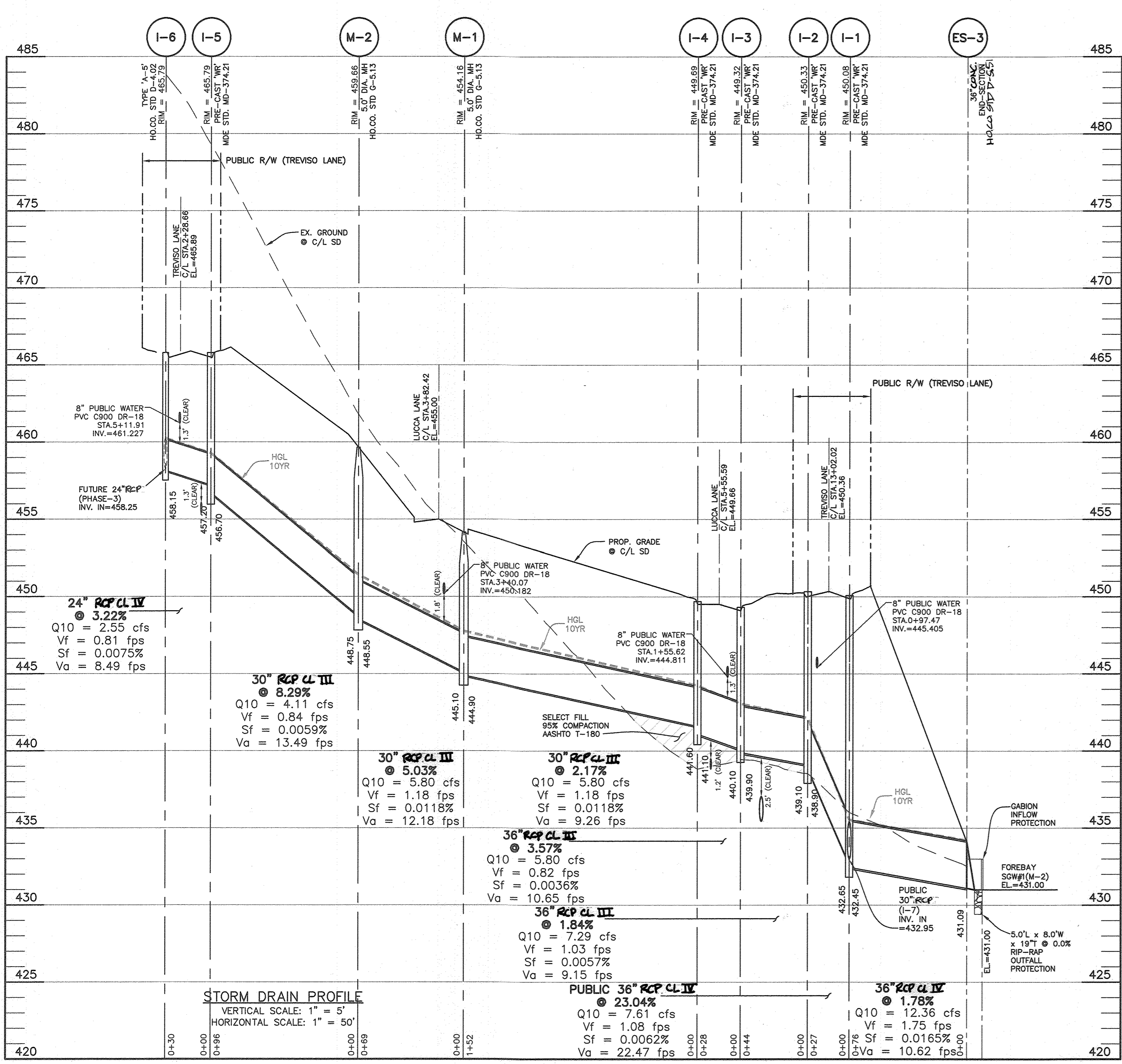
THE VILLAGE AT TOWN SQUARE PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B
 A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3. A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

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

STORM DRAINAGE AREA MAP

DATE: AUGUST, 2021 BEI PROJECT NO. 2899
 SCALE: AS SHOWN SHEET 7 OF 26

DESIGN: MCR DRAFT: MCR

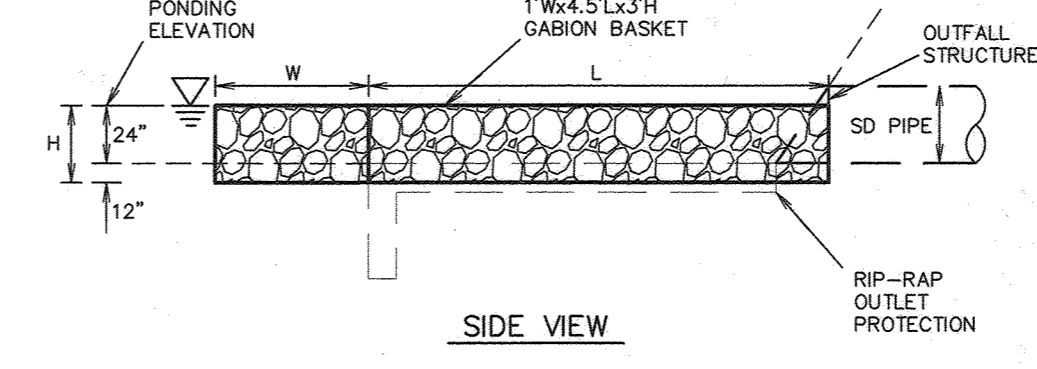
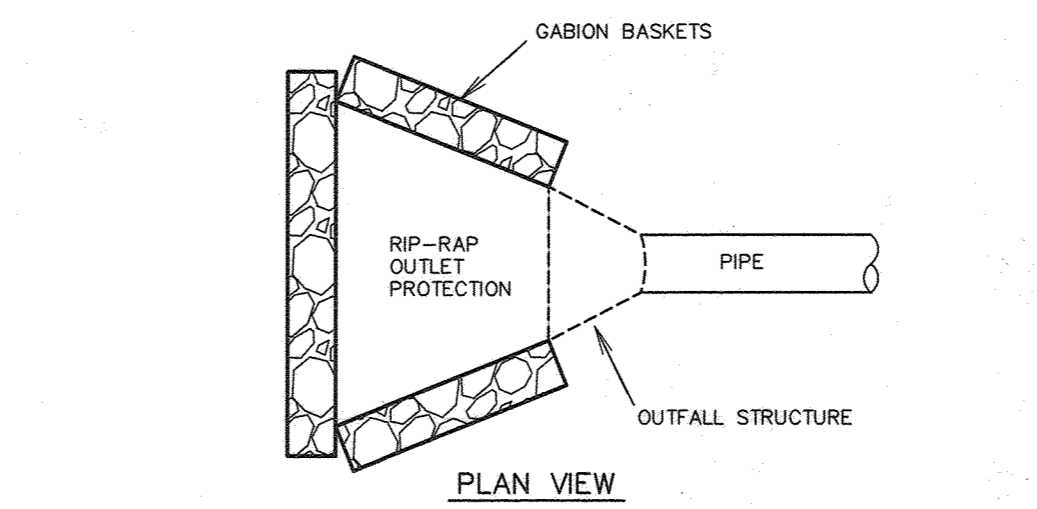


NOTE: ALL RIP-RAP INFLOW PROTECTION INTO THE ESD SWMF ARE 8.0'W x 5.0'L x 19" T BASED ON THE MAX. INFLOW @ ES-3 (SEE SD REPORT)

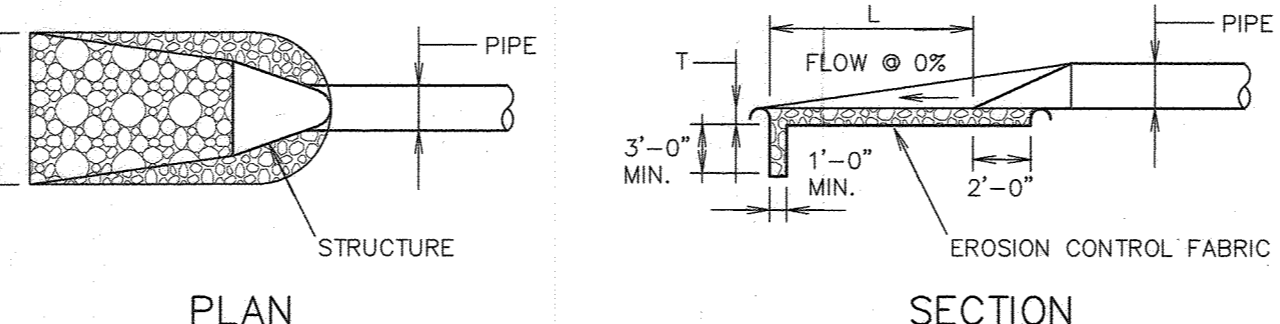
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CONSTRUCTION SPECIFICATIONS

- 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.



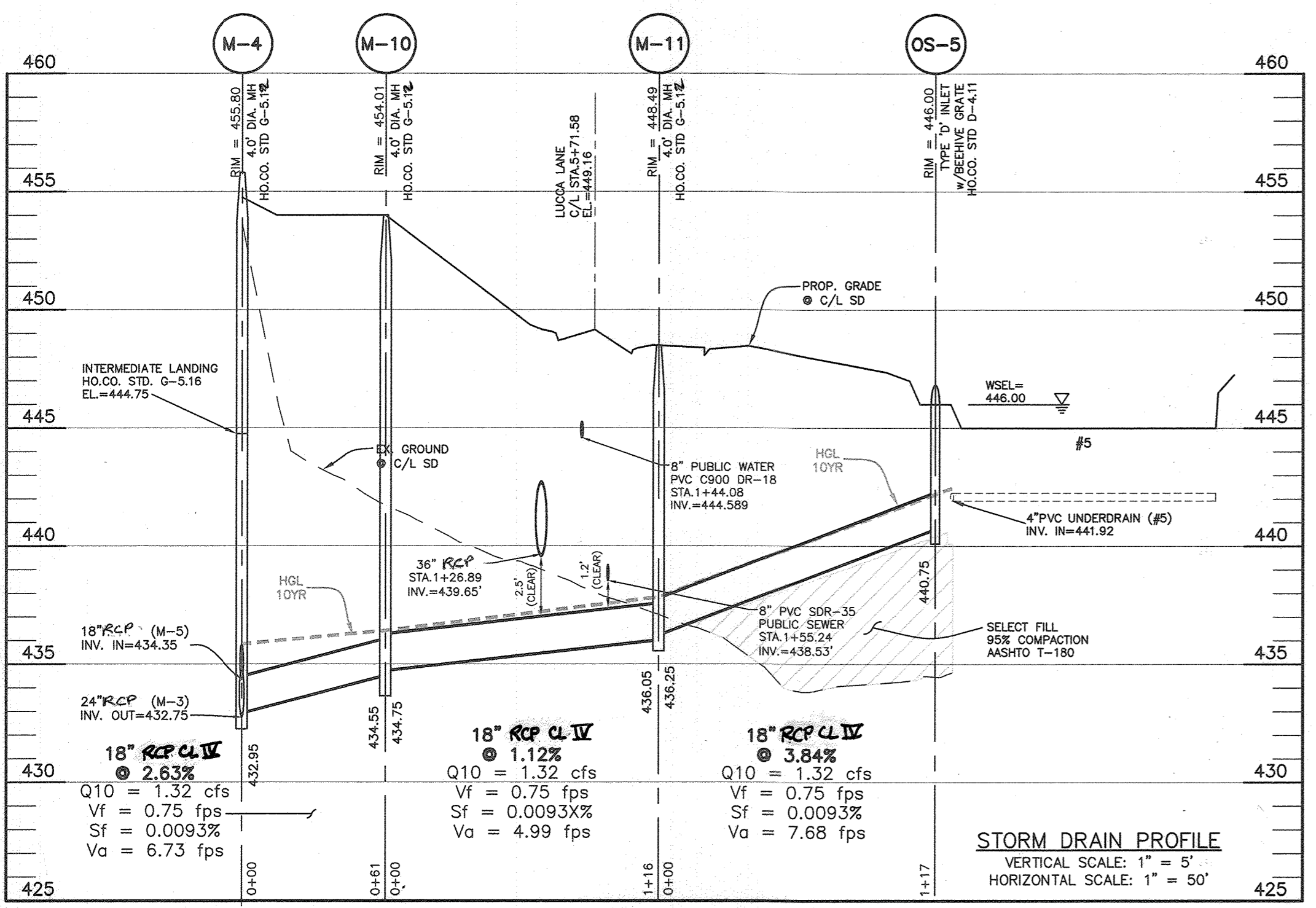
GABION INFLOW PROTECTION
NOT TO SCALE



STRUCTURE	V10 fps	d10 (ft)	d50	LENGTH(L)	WIDTH(W)	THICK.(T)	SHA CLASS
ES-2	2.07	0.20	9.5"	6'	8'	19"	I
*ES-3	2.05	0.72	9.5"	5'	8'	19"	I
*ES-5	2.05	0.19	9.5"	5'	8'	19"	I
*ES-6	2.05	0.19	9.5"	5'	8'	19"	I
*ES-11	2.05	0.19	9.5"	5'	8'	19"	I

* ALL RIP-RAP INFLOW PROTECTION INTO THE ESD SWMF ARE BASED ON THE MAX. INFLOW @ ES-3 (SEE SD REPORT)

OUTLET PROTECTION DETAIL
NOT TO SCALE



APPROVED: DEPARTMENT OF PUBLIC WORKS
James
 CHIEF, BUREAU OF HIGHWAYS MKK
 DATE: 09/24/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
W. J. Kelly
 CHIEF, DIVISION OF LAND DEVELOPMENT MW
 DATE: 10/12/2021

1 4.27.2023 REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLIOTT CITY, MARYLAND 21043
 (P) 410-465-0105 (F) 410-465-6944
 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. 23390, Expiration Date: 6-30-2023.

THE VILLAGE AT TOWN SQUARE
 PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B
 A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL 12 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

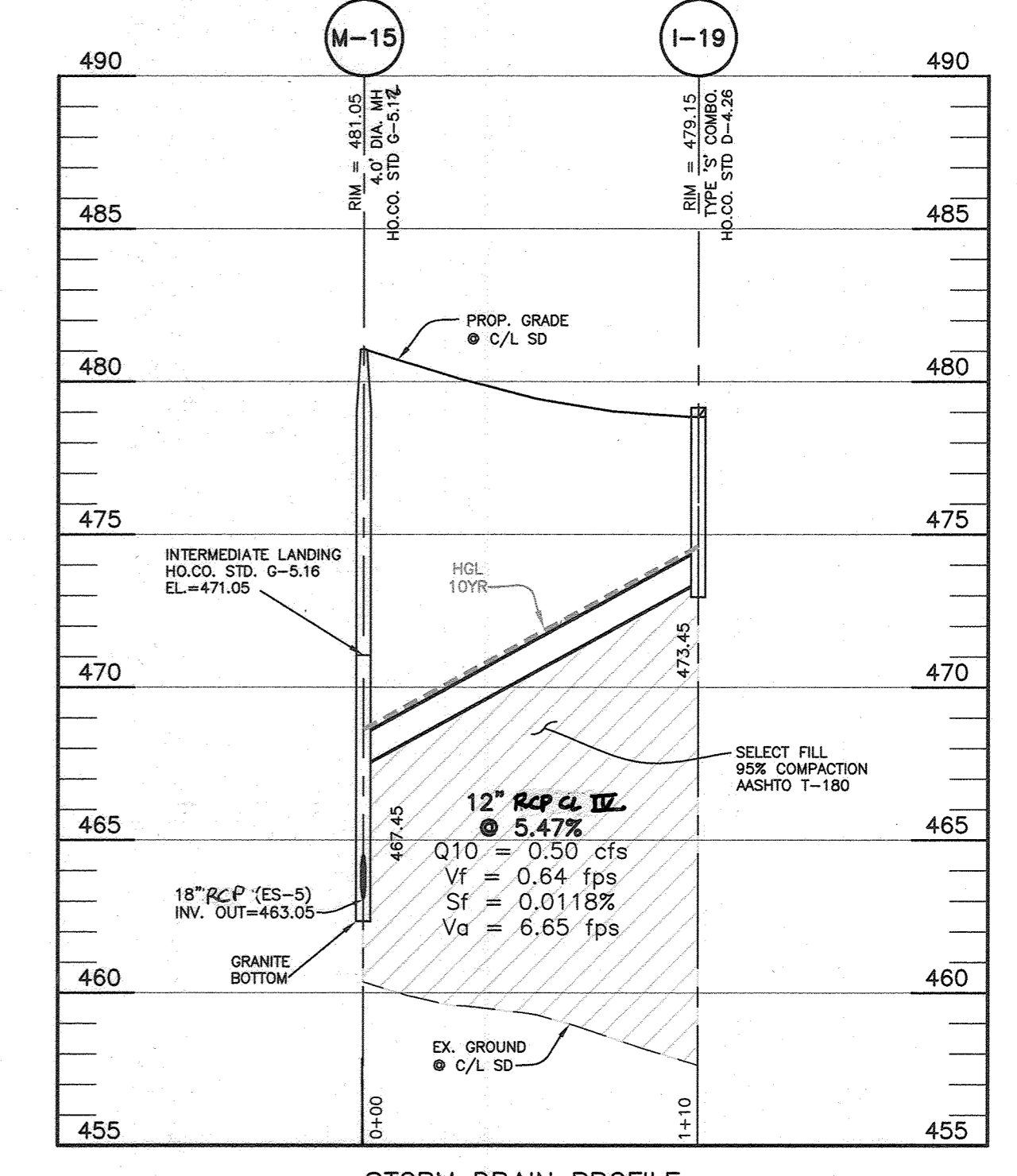
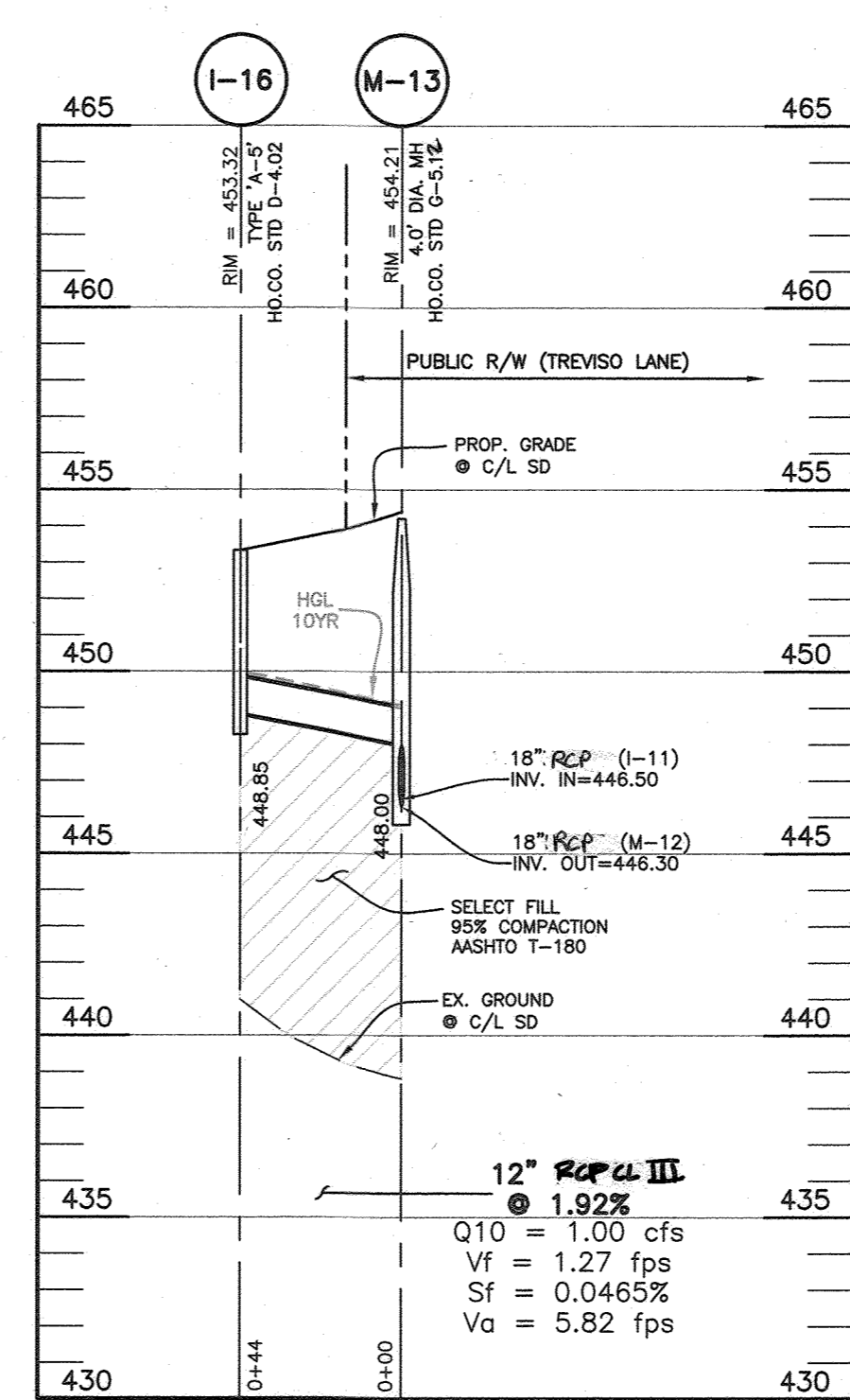
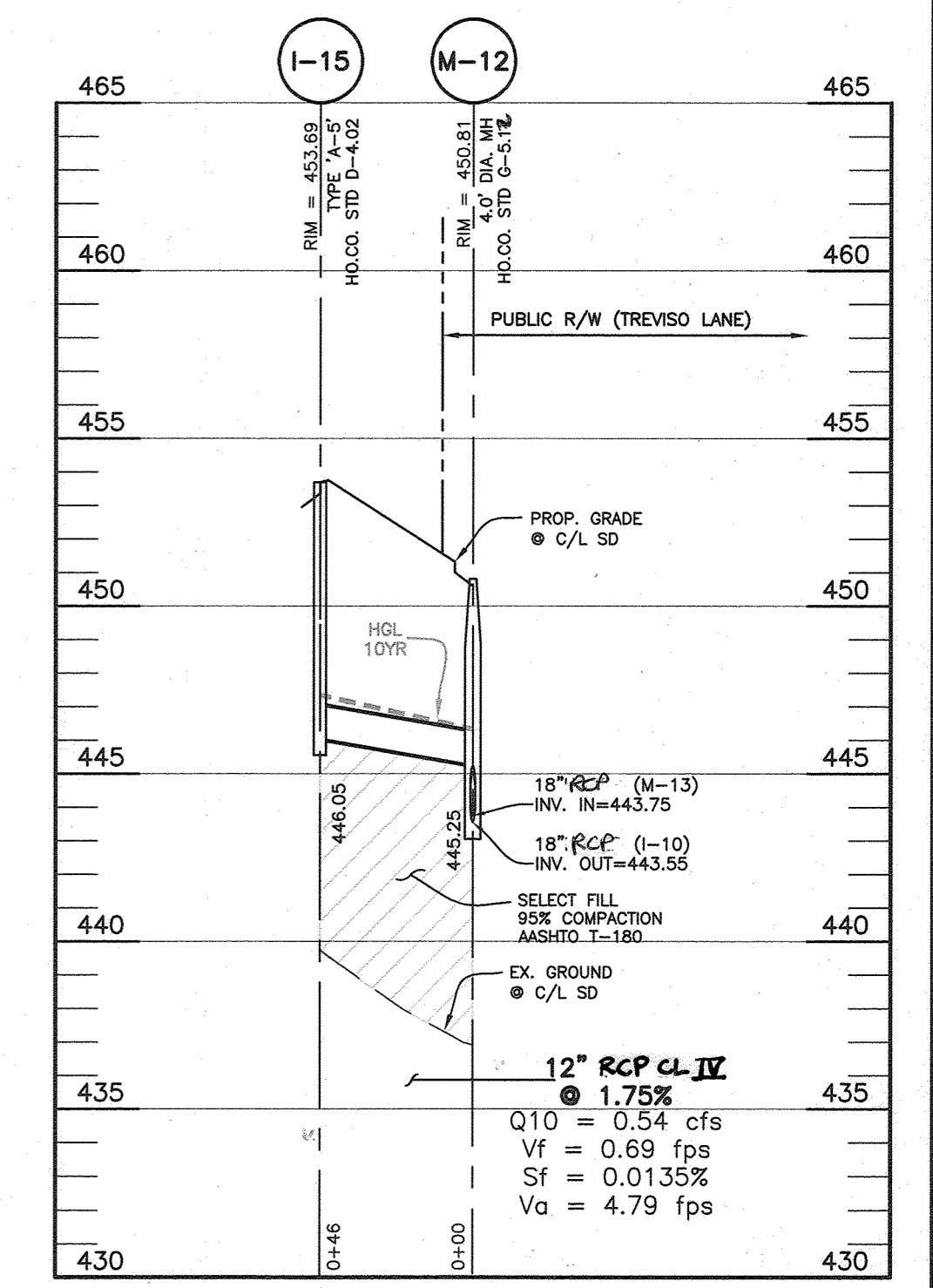
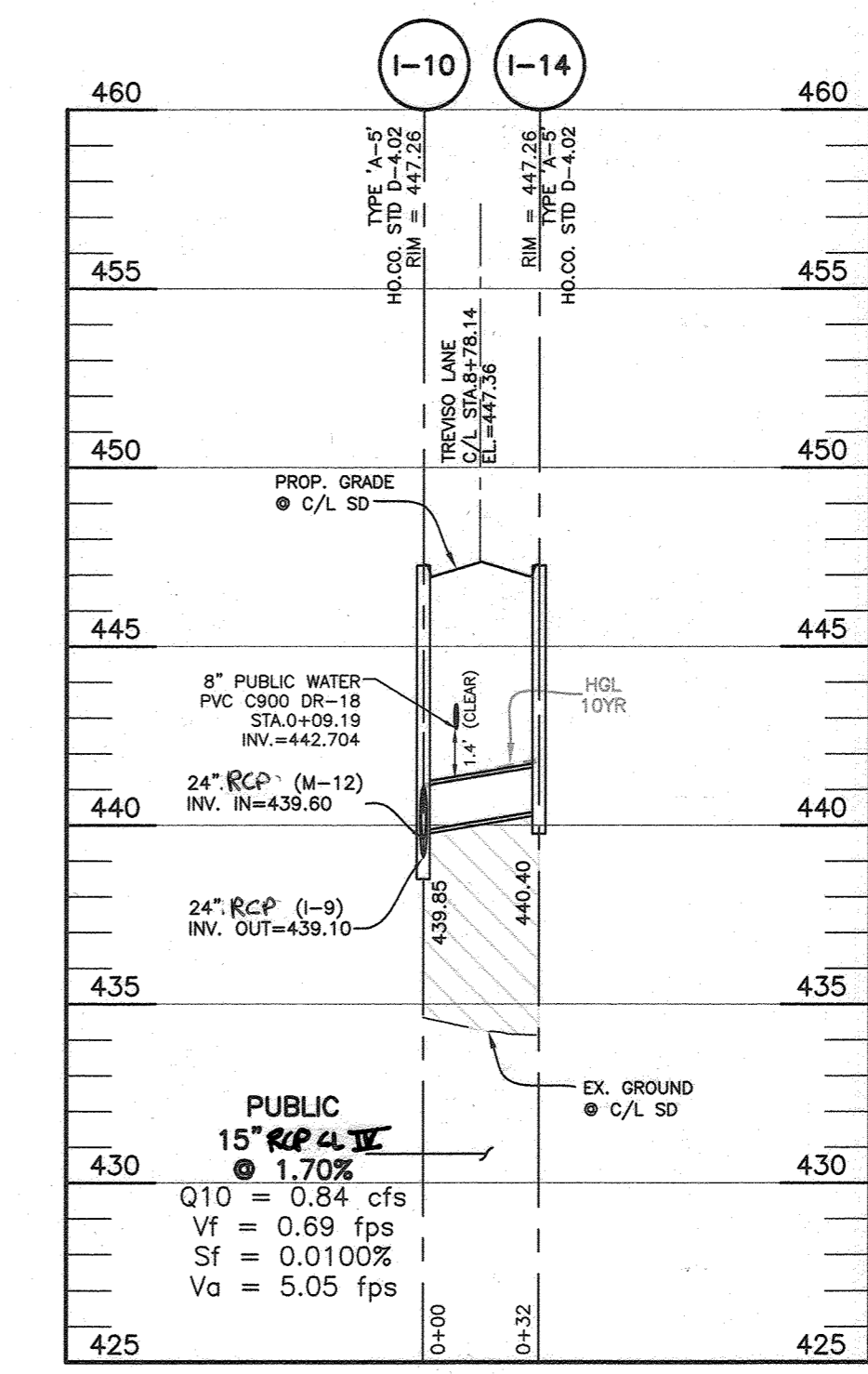
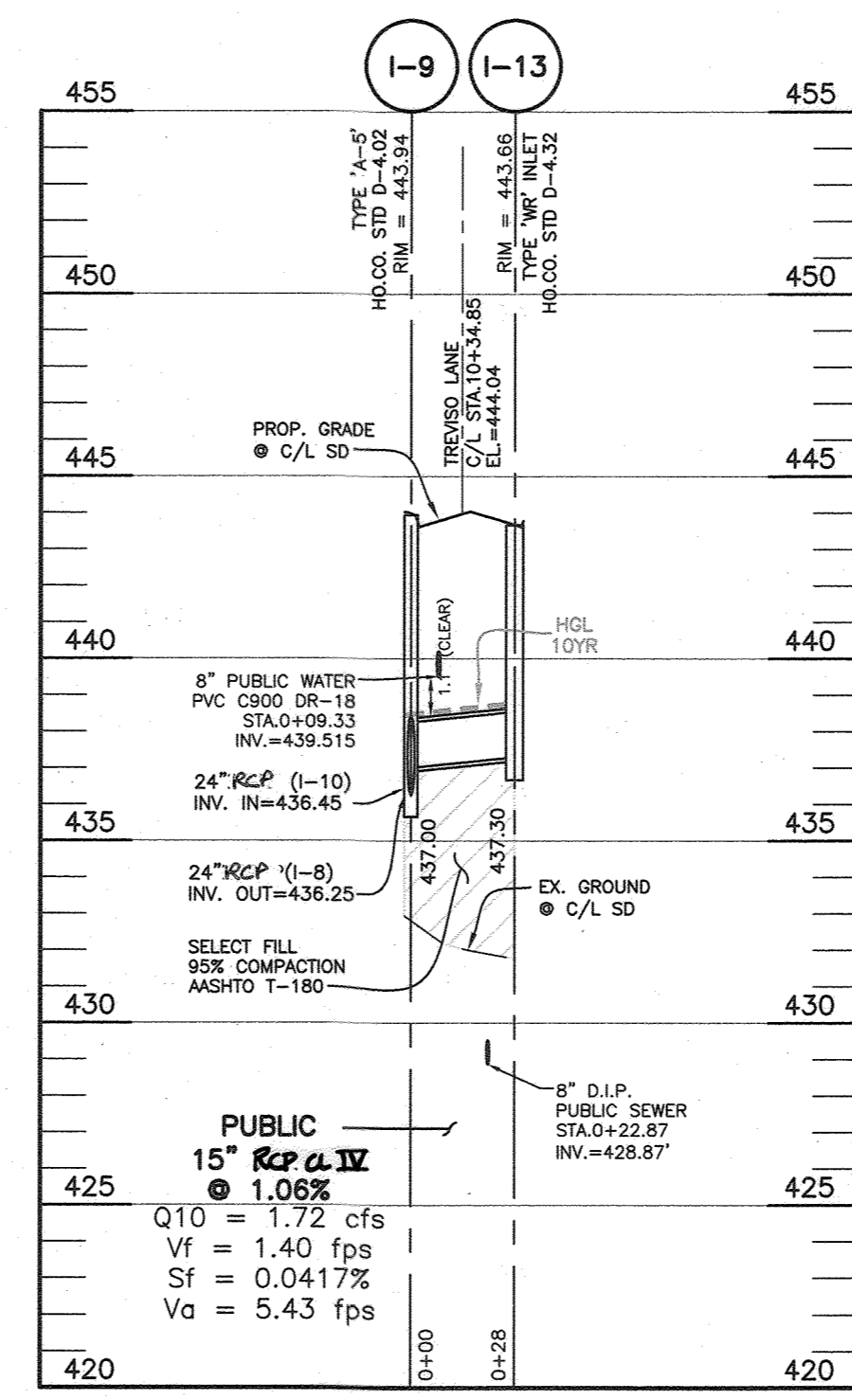
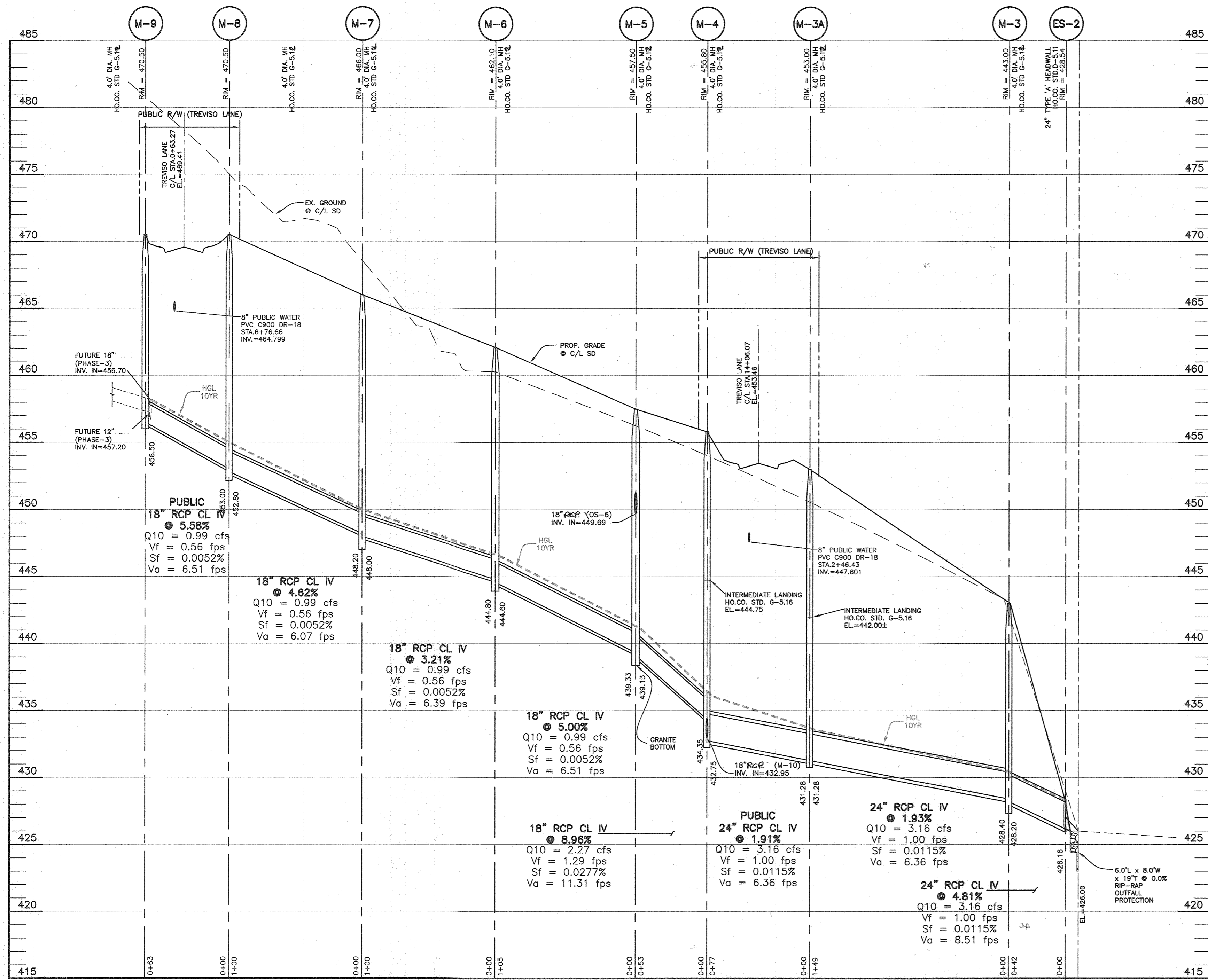
OWNER/DEVELOPER:
 MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

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

STORM DRAIN PROFILE, NOTES, AND DETAILS

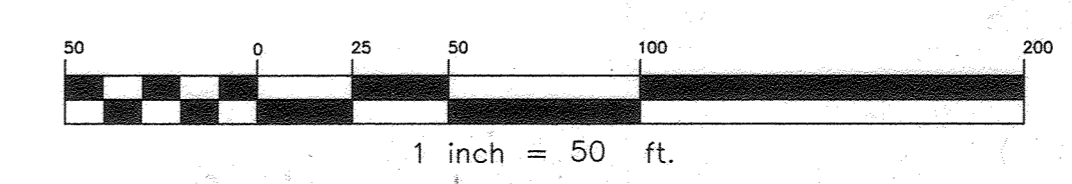
DATE: AUGUST, 2021 BEI PROJECT NO. 2899
 SCALE: AS SHOWN SHEET 8 OF 26

DESIGN: MCR DRAFT: MCR



NOTE: ALL RIP-RAP INFLOW PROTECTION INTO THE ESD SWMF ARE 8.0' x 5.0' x 19" T BASED ON THE MAX. INFLOW @ ES-3 (SEE SD REPORT)

NOTE: ALL STORM DRAINS ARE PRIVATE UNLESS LABELED PUBLIC. THE STORM DRAIN PIPES AND STRUCTURES WITHIN THE PUBLIC R/W SHALL BE PUBLICLY OWNED AND MAINTAINED BY HOWARD COUNTY. THE STORM DRAIN AND STRUCTURES WITHIN OPEN SPACE LOTS SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.



APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 09/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10/12/2021
 CHIEF, DIVISION OF LAND DEVELOPMENT # DATE

[Signature] 1/17/22
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
1	4.27.2023	GENISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-0100 (F) 410-465-8844
 WWW.BEI-CIVLENGINEERING.COM

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

Cl. Matijaga, P.E.

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

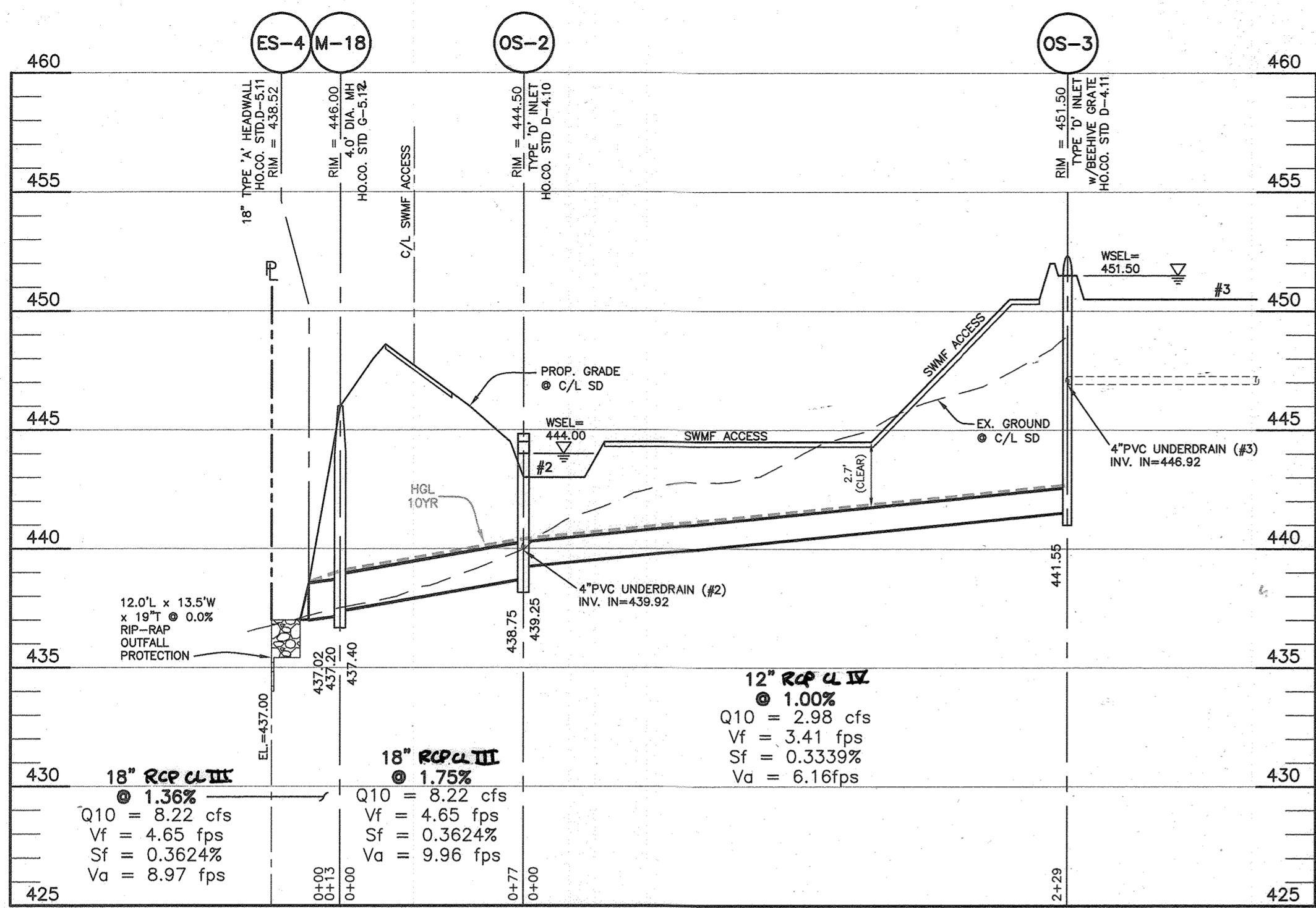
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TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
 ZONED: PGCC

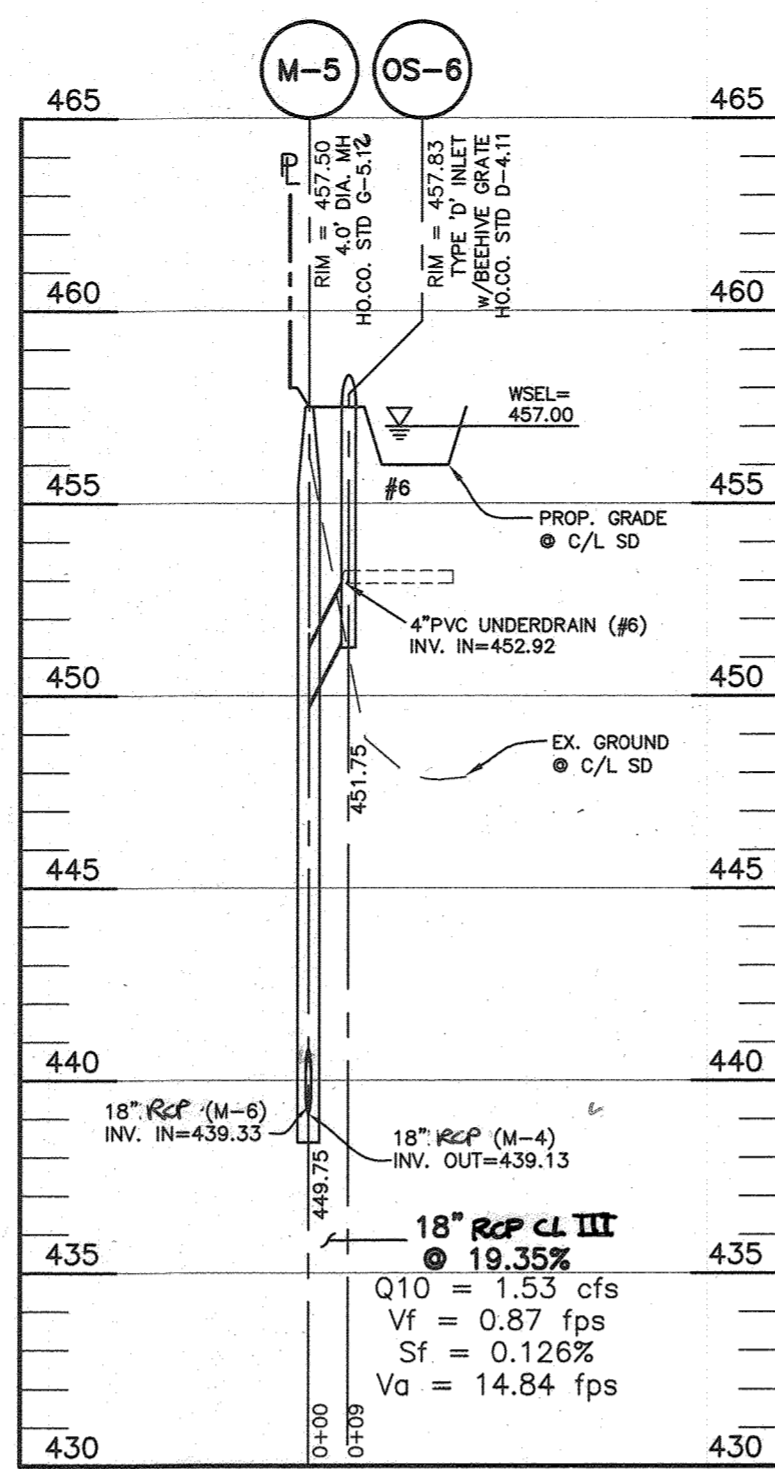
STORM DRAIN PROFILES NOTES, AND DETAILS

DATE: AUGUST, 2021 BEI PROJECT NO. 2899
 SCALE: AS SHOWN SHEET 9 OF 26

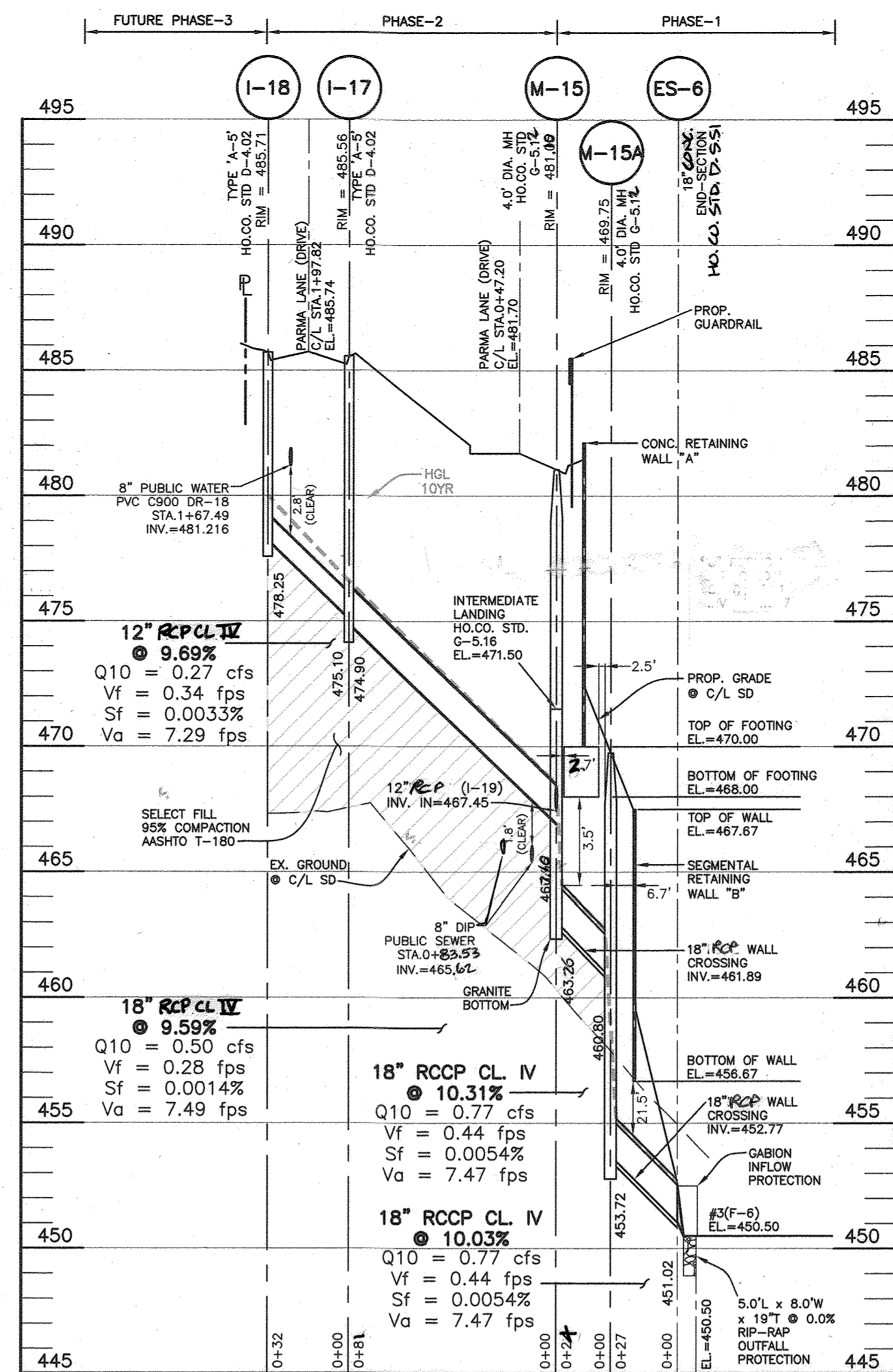
DESIGN: MCR DRAFT: MCR



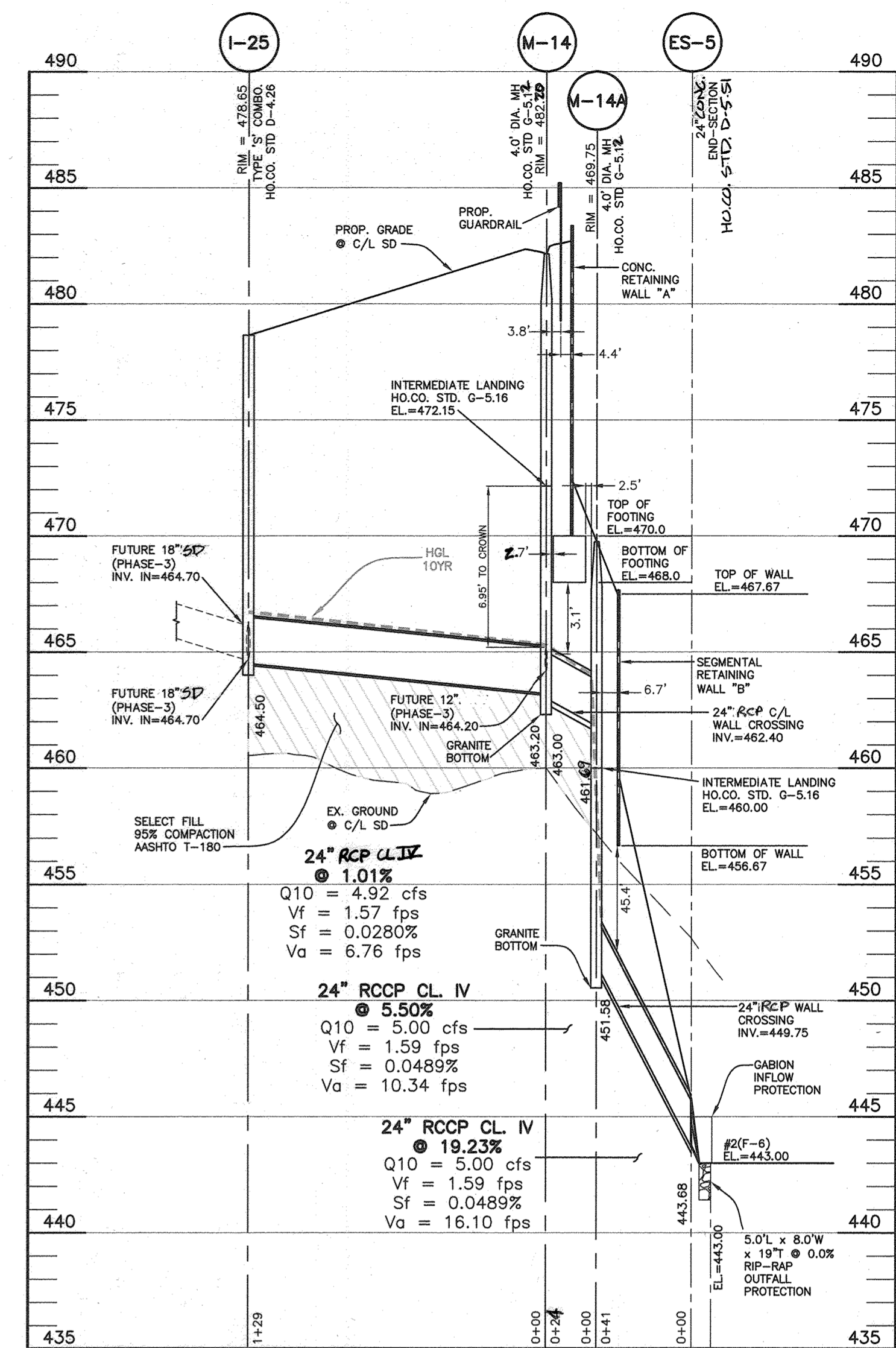
STORM DRAIN PROFILE
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



STORM DRAIN PROFILE
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



STORM DRAIN PROFILE
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



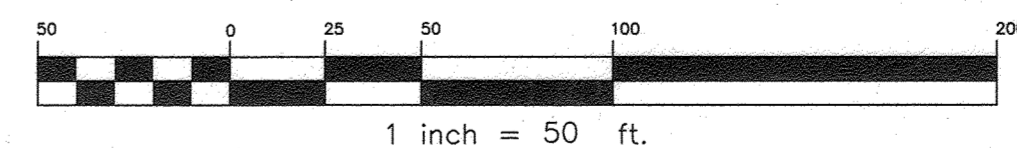
STORM DRAIN PROFILE
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'

STRUCTURE TABLE								
NUMBER	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL	OWNER	REMARKS
END SECTIONS								
ES-1	24" TYPE 'A' CONC. HEADWALL	N:593,620.4687 E:1,342,081.8758	427.10(24")		429.10	HO.CO. STD. D-5.11	PRIVATE	SDW#1 OUTFALL
ES-2	24" TYPE 'A' CONC. HEADWALL	N:593,660.5686 E:1,341,875.8489	426.16(24")		428.34	HO.CO. STD. D-5.11	PRIVATE	BYPASS OUTFALL
ES-3	36" CONC. END-SECTION	N:593,806.4918 E:1,341,896.6366	431.09(36")		434.20	HO.CO. STD. D-5.11	PRIVATE	SDW#1 FOREBAY
ES-4	18" TYPE 'A' CONC. HEADWALL	N:594,109.5048 E:1,342,480.2739	437.02(18")		438.66	HO.CO. STD. D-5.11	PRIVATE	#2 & #3 OUTFALL
ES-5	24" CONC. END-SECTION	N:594,324.4168 E:1,342,597.1575	443.68(24")		445.76	HO.CO. STD. D-5.11	PRIVATE	#2 INFLOW
ES-6	18" CONC. END-SECTION	N:594,371.3518 E:1,342,702.3479	451.02(18")		452.58	HO.CO. STD. D-5.11	PRIVATE	#3 INFLOW
ES-10	12" TYPE 'A' CONC. HEADWALL	N:593,784.6351 E:1,342,261.7282	428.72(12")		427.89	HO.CO. STD. D-5.11	PRIVATE	#7 OUTFALL
INLETS								
I-1	PRE-CAST 'WR'	TREVISO LANE, C/L STA=12+99.46, OFFS.15.76' LT	432.85(36") 432.95(30")	432.45(36")	450.08	MDE STD. MD-374.21	PUBLIC	
I-2	PRE-CAST 'WR'	TREVISO LANE, C/L STA=13+04.45, OFFS.15.76' RT	439.10(36")	438.90(36")	450.33	MDE STD. MD-374.21	PUBLIC	
I-3	PRE-CAST 'WR'	LUCCA LANE, C/L STA=5+59.84, OFFS.15.76' RT	440.10(36")	439.90(36")	449.32	MDE STD. MD-374.21	PUBLIC	
I-4	PRE-CAST 'WR'	LUCCA LANE, C/L STA=5+51.34, OFFS.15.76' LT	441.80(30")	441.10(36")	449.69	MDE STD. MD-374.21	PUBLIC	
I-5	PRE-CAST 'WR'	TREVISO LANE, C/L STA=2+28.66, OFFS.15.77' RT	457.20(24")	456.70(30")	465.79	MDE STD. MD-374.21	PUBLIC	
I-6	A-5	TREVISO LANE, C/L STA=2+28.66, OFFS.15.77' LT	458.15(24")	458.15(24")	465.79	HO.CO. STD. D-4.02	PUBLIC	
I-7	PRE-CAST 'WR'	TREVISO LANE, C/L STA=11+42.10, OFFS.15.77' LT	434.75(24")	434.25(30")	445.49	MDE STD. MD-374.21	PUBLIC	
I-8	WR	TREVISO LANE, C/L STA=11+42.10, OFFS.14.00' RT	435.25(24")	435.05(24")	445.17	HO.CO. STD. D-4.32	PUBLIC	
I-9	A-5	TREVISO LANE, C/L STA=10+34.85, OFFS.15.76' RT	436.45(24") 437.00(15")	436.25(24")	443.94	HO.CO. STD. D-4.02	PUBLIC	
I-10	A-5	TREVISO LANE, C/L STA=8+78.14, OFFS.15.76' RT	439.80(18") 439.85(15")	439.10(24")	447.26	HO.CO. STD. D-4.02	PUBLIC	
I-11	A-5	TREVISO LANE, C/L STA=7+06.68, OFFS.15.76' RT	451.15(15")	450.90(18")	458.96	HO.CO. STD. D-4.02	PUBLIC	
I-12	A-5	TREVISO LANE, C/L STA=6+73.77, OFFS.15.76' LT	453.35(15")	461.55	461.55	HO.CO. STD. D-4.02	PUBLIC	
I-13	WR	TREVISO LANE, C/L STA=10+34.85, OFFS.12.24' LT	437.30(15")	443.72	443.72	HO.CO. STD. D-4.32	PUBLIC	
I-14	A-5	TREVISO LANE, C/L STA=8+78.14, OFFS.15.76' LT	440.40(15")	447.26	447.26	HO.CO. STD. D-4.02	PRIVATE	
I-15	A-5	LUCCA LANE, C/L STA=0+73.51, OFFS.15.76' LT	446.05(12")	453.89	453.89	HO.CO. STD. D-4.02	PRIVATE	
I-16	A-5	LUCCA LANE, C/L STA=0+50.21, OFFS.15.76' RT	448.85(12")	453.32	453.32	HO.CO. STD. D-4.02	PRIVATE	
I-19	TYPE 'S' COMBO	N:594,447.0816 E:1,342,763.8488	473.45(12")		479.15	HO.CO. STD. D-4.26	PRIVATE	PHASE 2
I-25	TYPE 'S' COMBO	N:594,344.0485 E:1,342,456.5480	464.50(24")		478.65	HO.CO. STD. D-4.26	PRIVATE	FUTURE PHASE 3
MANHOLES								
M-1	60" MH	LUCCA LANE, C/L STA=3+86.70, OFFS.8.00' LT	445.10(30")	444.90(30")	454.50	HO.CO. STD. G-5.13	PUBLIC	
M-2	60" MH	N:594,168.3431 E:1,341,980.0844	448.75(30")	448.55(30")	460.50	HO.CO. STD. G-5.13	PUBLIC	
M-3	48" MH	N:593,689.8842 E:1,341,845.1781	428.40(24")	428.20(24")	443.00	HO.CO. STD. G-5.12	PRIVATE	
M-3A	48" MH	TREVISO LANE, C/L STA=14+06.07, OFFS.38.43' RT	431.28(24")	431.28(24")	453.00	HO.CO. STD. G-5.12	PRIVATE	
M-4	48" MH	TREVISO LANE, C/L STA=14+06.07, OFFS.38.43' LT	434.35(18") 432.95(18")	432.75(24")	455.80	HO.CO. STD. G-5.12	PRIVATE	
M-5	48" MH	N:593,963.8311 E:1,341,791.8926	439.33(18") 449.75(18")	439.13(18")	457.50	HO.CO. STD. G-5.12	PRIVATE	GRANITE BOTTOM
M-6	48" MH	N:594,067.2197 E:1,341,771.7846	444.80(18")	444.60(18")	462.10	HO.CO. STD. G-5.12	PRIVATE	
M-7	48" MH	N:594,166.4730 E:1,341,763.8291	448.20(18")	448.00(18")	466.00	HO.CO. STD. G-5.12	PRIVATE	
M-8	48" MH	TREVISO LANE, C/L STA=0+58.96, OFFS.33.97' RT	453.00(18")	452.80(18")	470.50	HO.CO. STD. G-5.12	PRIVATE	
M-9	48" MH	TREVISO LANE, C/L STA=0+58.96, OFFS.28.81' LT	456.50(18")	470.50	470.50	HO.CO. STD. G-5.12	PRIVATE	
M-10	48" MH	TREVISO LANE, C/L STA=13+45.17, OFFS.38.43' RT	434.75(18")	434.55(18")	454.01	HO.CO. STD. G-5.12	PRIVATE	
M-11	48" MH	TREVISO LANE, C/L STA=12+35.22, OFFS.32.31' RT	436.25(18")	436.05(18")	448.50	HO.CO. STD. G-5.12	PRIVATE	
M-12	48" MH	TREVISO LANE, C/L STA=8+07.79, OFFS.15.76' RT	443.75(18") 445.25(12")	443.55(18")	450.60	HO.CO. STD. G-5.12	PRIVATE	
M-13	48" MH	TREVISO LANE, C/L STA=7+53.97, OFFS. 9.69' RT	446.50(18") 448.00(12")	446.30(18")	454.40	HO.CO. STD. G-5.12	PUBLIC	
M-14	48" MH	N:594,306.4097 E:1,342,578.1991	463.20(24") 464.20(18")	463.00(24")	482.20	HO.CO. STD. G-5.12	PRIVATE	(PHASE 2) GRANITE BOTTOM
M-14A	48" MH	N:594,363.7049 E:1,342,585.1573	461.0(24")	451.58(24")	469.75	HO.CO. STD. G-5.12	PRIVATE	(PHASE 2) GRANITE BOTTOM
M-15	48" MH	N:594,411.8752 E:1,342,687.5191	467.48(18") 467.45(18")	463.26(18")	481.10	HO.CO. STD. G-5.12	PRIVATE	(PHASE 2) GRANITE BOTTOM
M-15A	48" MH	N:594,397.0976 E:1,342,694.4841	460.80(18")	453.72(18")	469.75	HO.CO. STD. G-5.12	PRIVATE	(PHASE 2)
M-18	48" MH	N:594,118.1584 E:1,342,470.3081	437.40(18")	437.20(18")	446.00	HO.CO. STD. G-5.12	PRIVATE	#2 & #3 OUTFALL
SWMF STRUCTURES								
OS-1	D	N:593,635.3012 E:1,342,074.4471	429.17(4")	427.67(24")	432.83	HO.CO. STD. D-4.10	PUBLIC	OPEN ON 4 SIDES
OS-2	D	N:594,176.5071 E:1,342,520.9744	439.92(4") 439.25(12")	438.75(18")	444.85	HO.CO. STD. D-4.10	PRIVATE	OPEN ON 4 SIDES
OS-3	D	N:594,316.0716 E:1,342,702.8300	441.92(4")	441.55(12")	452.33	HO.CO. STD. D-4.11	PRIVATE	D-INLET w/BEEHIVE GRATE
OS-5	D	N:593,955.8322 E:1,342,092.0878	446.92(4")	440.75(18")	446.83	HO.CO. STD. D-4.11	PRIVATE	D-INLET w/BEEHIVE GRATE
OS-6	D	N:593,965.8039 E:1,341,802.0358	452.92(4")	451.75(18")	457.83	HO.CO. STD. D-4.11	PRIVATE	D-INLET w/BEEHIVE GRATE
OS-7	D	N:593,813.4897 E:1,342,247.5988	431.42(4")	429.02(12")	436.33	HO.CO. STD. D-4.11	PRIVATE	D-INLET w/BEEHIVE GRATE

PIPE TABLE - PH.1			
OWNER	SIZE / MATERIAL	LENGTH	
PRIVATE	12" RCP CL IV	385'	
PRIVATE	18" RCP CL III	99'	
PRIVATE	18" RCP CL IV	701'	
PRIVATE	24" RCP CL IV	413'	
PRIVATE	30" RCP CL III	317'	
PRIVATE	36" RCP CL IV	148'	
PUBLIC	15" RCP CL IV	102'	
PUBLIC	18" RCP CL IV	732'	
PUBLIC	24" RCP CL IV	348'	
PUBLIC	30" RCP CL IV	155'	
PUBLIC	36" RCP CL IV	27'	

NOTE: ALL RIP-RAP INFLOW PROTECTION INTO THE ESD SWMF ARE 8.0'W x 5.0'L x 19" T BASED ON THE MAX. INFLOW @ ES-3 (SEE SD REPORT)

NOTE: ALL STORM DRAINS ARE PRIVATE UNLESS LABELED PUBLIC. THE STORM DRAIN PIPES AND STRUCTURES WITHIN THE PUBLIC R/W SHALL BE PUBLICLY OWNED AND MAINTAINED BY HOWARD COUNTY. THE STORM DRAIN AND STRUCTURES WITHIN OPEN SPACE LOTS SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.



APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS MKK 09/24/2021 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT *** 10/1/22 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/19/22 DATE

NO.	DATE	REVISION
1	4/27/2023	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

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. 23396, Expiration Date: 6-30-2023.

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLIOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6844
 WWW.BE-CVLENGINEERING.COM

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

THE VILLAGE AT TOWN SQUARE
 PHASE 1: LOTS 1 Thru 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B
 A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL 12 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

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

STORM DRAIN PROFILES, NOTES, AND DETAILS

DATE: AUGUST, 2021 BEI PROJECT NO. 2899
 SCALE: AS SHOWN SHEET 10 OF 26

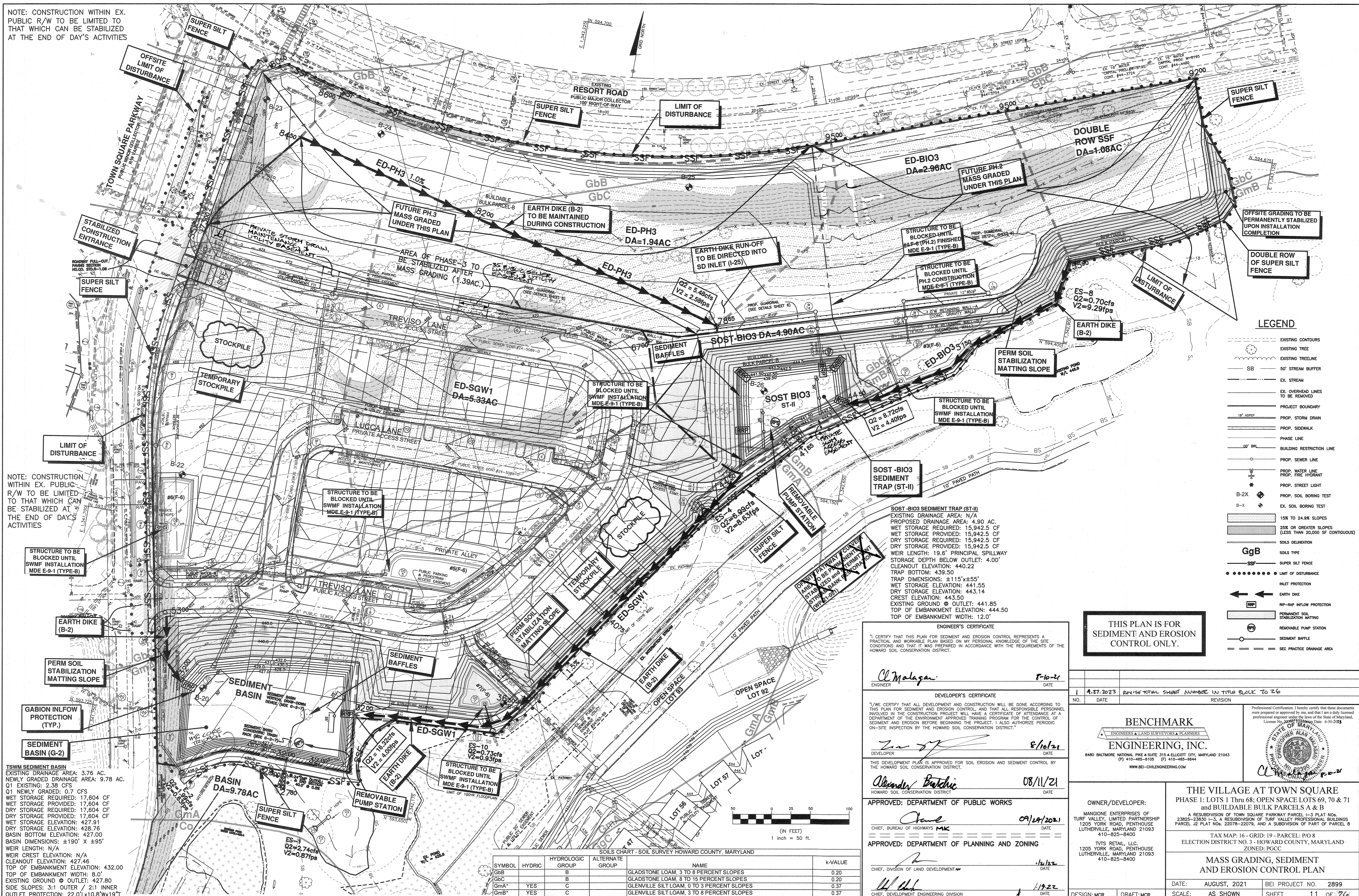
DESIGN: MCR DRAFT: MCR

NOTE: CONSTRUCTION WITHIN EX. PUBLIC R/W TO BE LIMITED TO THAT WHICH CAN BE STABILIZED AT THE END OF DAY'S ACTIVITIES

NOTE: CONSTRUCTION WITHIN EX. PUBLIC R/W TO BE LIMITED TO THAT WHICH CAN BE STABILIZED AT THE END OF DAY'S ACTIVITIES

TSM SEDIMENT BASIN
 EXISTING DRAINAGE AREA: 3.76 AC.
 NEWLY GRADED DRAINAGE AREA: 9.78 AC.
 Q1 EXISTING: 2.38 CFS
 Q1 NEWLY GRADED: 0.7 CFS
 WET STORAGE REQUIRED: 17,604 CF
 WET STORAGE PROVIDED: 17,604 CF
 DRY STORAGE REQUIRED: 17,604 CF
 DRY STORAGE PROVIDED: 17,604 CF
 WET STORAGE ELEVATION: 427.91
 DRY STORAGE ELEVATION: 428.76
 BASIN BOTTOM ELEVATION: 427.00
 BASIN DIMENSIONS: ±190' X ±95'
 WEIR LENGTH: N/A
 WEIR CREST ELEVATION: N/A
 CLEANOUT ELEVATION: 427.46
 TOP OF EMBANKMENT ELEVATION: 432.00
 TOP OF EMBANKMENT WIDTH: 8.0'
 EXISTING GROUND @ OUTLET: 427.80
 SIDE SLOPES: 3:1 OUTER / 2:1 INNER
 OUTLET PROTECTION: 22.0'x10.8'x19.1'

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SOST-BIO3 SEDIMENT TRAP (ST-II)
 EXISTING DRAINAGE AREA: N/A
 PROPOSED DRAINAGE AREA: 4.90 AC.
 WET STORAGE REQUIRED: 15,942.5 CF
 WET STORAGE PROVIDED: 15,942.5 CF
 DRY STORAGE REQUIRED: 15,942.5 CF
 DRY STORAGE PROVIDED: 15,942.5 CF
 WEIR LENGTH: 19.6' PRINCIPAL SPILLWAY
 STORAGE DEPTH BELOW OUTLET: 4.00'
 CLEANOUT ELEVATION: 440.22
 TRAP BOTTOM: 439.50
 TRAP DIMENSIONS: ±115'x±55'
 WET STORAGE ELEVATION: 441.55
 DRY STORAGE ELEVATION: 443.14
 CREST ELEVATION: 443.50
 EXISTING GROUND @ OUTLET: 441.85
 TOP OF EMBANKMENT ELEVATION: 444.50
 TOP OF EMBANKMENT WIDTH: 12.0'

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
 ENGINEER
 DATE: 8/10/21

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.

Z...
 DEVELOPER
 DATE: 8/10/21

APPROVED: DEPARTMENT OF PUBLIC WORKS
 HOWARD SOIL CONSERVATION DISTRICT
 DATE: 08/11/21

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 09/29/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/12/21

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1/19/22

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY.

NO.	DATE	REVISION
1	4.27.2023	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELICOTT CITY, MARYLAND 21043
 (P) 410-465-6100 (F) 410-465-6544
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THE VILLAGE AT TOWN SQUARE
 PHASE 1: LOTS 1 Thru 68; OPEN PARCELS 69, 70 & 71 AND BUILDABLE BULK PARCELS A & B
 A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8
 TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
 ZONED: PGCC

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

TVTS RETAIL, LLC.
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
 410-825-8400

MASS GRADING, SEDIMENT AND EROSION CONTROL PLAN

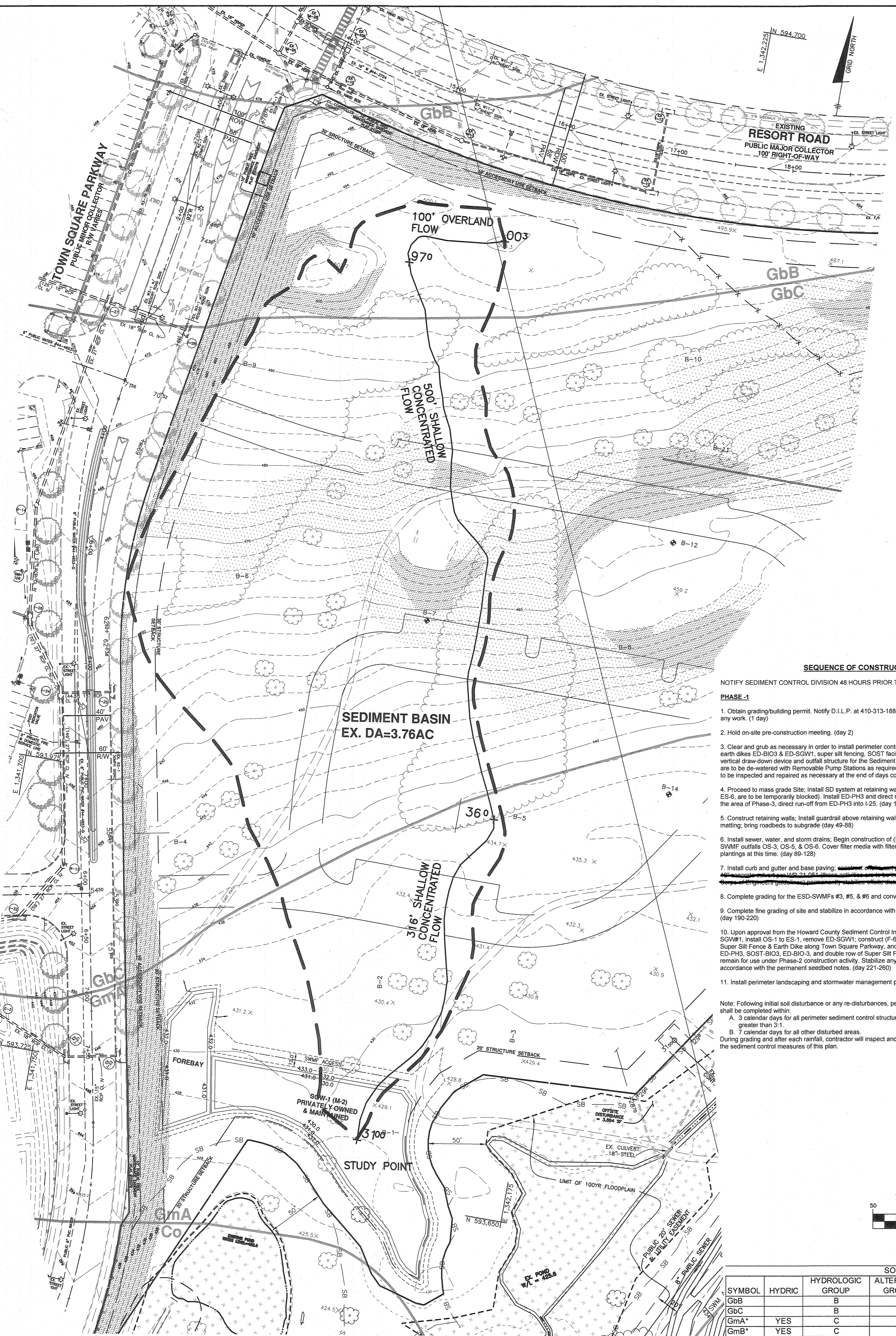
DATE: AUGUST, 2021 BEI PROJECT NO. 2899
 SCALE: AS SHOWN SHEET 11 OF 26

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.20
GgC		B		GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmA*	YES	C		GLENNVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES	0.37
GmB*	YES	C		GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37

LEGEND

- EXISTING CONTOURS
- EXISTING TREE
- EXISTING TREELINE
- SB 50' STREAM BUFFER
- EX. STREAM
- EX. OVERHEAD LINES TO BE REMOVED
- PROJECT BOUNDARY
- 18" HOBEP
- PROP. STORM DRAIN
- PROP. SIDEWALK
- PHASE LINE
- 00' BRL
- BUILDING RESTRICTION LINE
- PROP. SEWER LINE
- PROP. WATER LINE
- PROP. FIRE HYDRANT
- PROP. STREET LIGHT
- PROP. SOIL BORING TEST
- EX. SOIL BORING TEST
- 15% TO 24.9% SLOPES
- 25% OR GREATER SLOPES (LESS THAN 20,000 SF CONTIGUOUS)
- SOILS DELINEATION
- GgB
- SSF SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- INLET PROTECTION
- EARTH DIKE
- RRP RIP-RAP INFLOW PROTECTION
- PERMANENT SOIL STABILIZATION MATTING
- REMOVABLE PUMP STATION
- SEDIMENT BAFFLE
- SEP PRACTICE DRAINAGE AREA



SEQUENCE OF CONSTRUCTION
NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF WORK

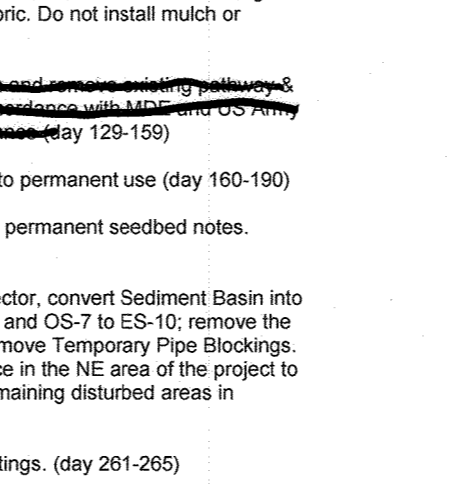
PHASE-1

- Obtain grading/building permit. Notify D.I.L.P. at 410-313-1880 at least 24 hours before starting any work. (1 day)
- Hold on-site pre-construction meeting. (day 2)
- Clear and grub as necessary in order to install perimeter controls and install those controls. (i.e. earth dikes ED-BIO3 & ED-SGW1, super silt fencing, SOST facility, and Sediment Basin). Install the vertical draw-down device and outlet structure for the Sediment Basin. The Sediment Basin & SOST are to be de-watered with Removable Pump Stations as required. Note that all controls installed are to be inspected and repaired as necessary at the end of days construction activities. (day 3-17)
- Proceed to mass grade site. Install SD system at retaining walls (1-25 thru ES-5, SD runs 1-19 thru ES-6, are to be temporary blocks). Install ED-PH3 and direct run-off into I-25. Permanently stabilize the area of Phase-3, direct run-off from ED-PH3 into I-25. (day 18-48)
- Construct retaining walls. Install guardrail above retaining wall; install permanent stabilization matting; bring roadbeds to subgrade (day 49-58)
- Install sewer, water, and storm drains; begin construction of (F-6) #3, #5, & #6. Install blocking in SWMF outfalls OS-3, OS-5, & OS-6. Cover filter media with filter fabric. Do not install mulch or plantings at this time. (day 59-128)
- Install curb and gutter and base paving. (day 129-155)
- Complete grading for the ESD-SWMFs #3, #5, & #6 and convert to permanent use (day 160-190)
- Complete fine grading of site and stabilize in accordance with the permanent seedbed notes. (day 190-220)
- Upon approval from the Howard County Sediment Control Inspector, convert Sediment Basin into SGMW1, install OS-1 to ES-1, remove ED-SGW1; construct (F-6) #7 and OS-7 to ES-10; remove the Super Silt Fence & Earth Dike along Town Square Parkway, and remove Temporary Pipe Blockings. ED-PH3, SOST-BIO3, ED-BIO-3, and double row of Super Silt Fence in the NE area of the project remain for use under Phase-2 construction activity. Stabilize any remaining disturbed areas in accordance with the permanent seedbed notes. (day 221-250)
- Install perimeter landscaping and stormwater management plantings. (day 251-265)

Note: Following initial soil disturbance or any re-disturbances, permanent or temporary stabilization shall be completed within:
 A. 3 calendar days for all perimeter sediment control structures, dikes, swales and all slopes greater than 3:1
 B. 7 calendar days for all other disturbed areas.
 During grading and after each rainfall, contractor will inspect and provide necessary maintenance to the sediment control measures of this plan.

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
Gbb		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.20
Gbc		B		GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmA*	YES	C		GLENNVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES	0.37
GmB*	YES	C		GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37

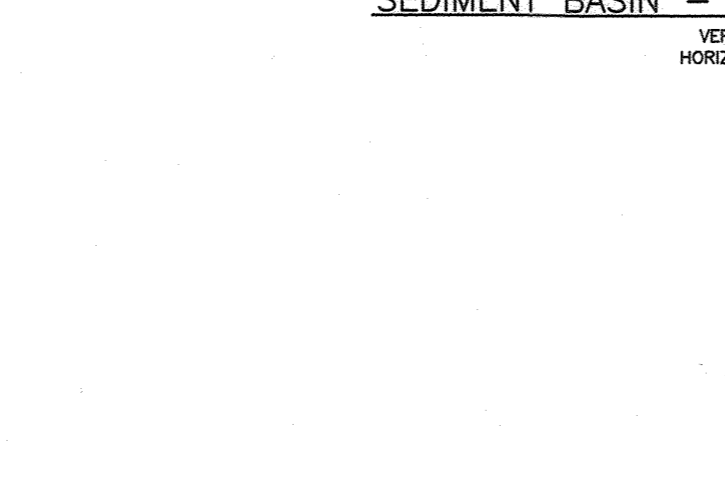
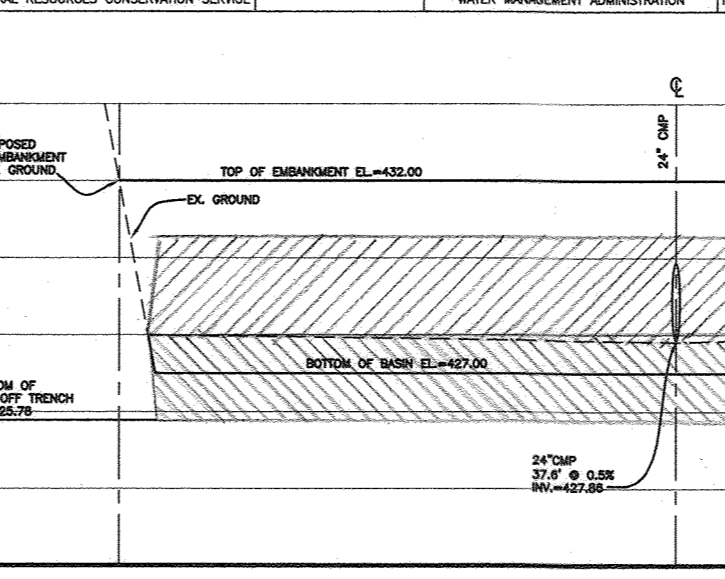


DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

RISER	DAM	THICKNESS (IN)	GAUGES (IN)	MINIMUM SIZE SUPPORT BAR (IN)	MINIMUM SIZE THICKNESS (GAUGES)	STIFFENER
12	18	16	14	#6 REBAR	16	N/A
15	21	16	15	#6 REBAR	16	N/A
18	27	16	16	#6 REBAR	16	N/A
21	30	16	16	#6 REBAR	16	N/A
24	36	16	21	#6 REBAR	14	N/A
27	42	16	21	#6 REBAR	14	N/A
36	54	14	25	#6 REBAR	12	N/A
42	60	14	27	#6 REBAR	12	N/A
48	72	12	29	1/2" IN PIPE OR 1/2" x 1/2" x 1/4" ANGLE	10	N/A
54	78	12	33	1/2" IN PIPE OR 1/2" x 1/2" x 1/4" ANGLE	10	N/A
60	90	12	37	1/2" IN PIPE OR 1/2" x 1/2" x 1/4" ANGLE	8	N/A
66	96	10	41	2 IN PIPE OR 2 x 2 x 1/4 ANGLE	8	2 x 2 x 1/4 ANGLE
72	102	10	44	2 IN PIPE OR 2 x 2 x 1/4 ANGLE	8	2 x 2 x 1/4 ANGLE
78	114	10	47	2 IN PIPE OR 2 x 2 x 1/4 ANGLE	8	2 x 2 x 1/4 ANGLE
84	120	10	50	2 IN PIPE OR 2 x 2 x 1/4 ANGLE	8	2 x 2 x 1/4 ANGLE

DETAIL G-2-1 RISER BASE

DETAIL G-2-2 CORRUGATED ANTI-SEEP COLLARS



CONSTRUCTION SPECIFICATIONS

- PERFORATE PIPE WITH 1/2" DIA. PERFORATIONS AT 8" SPACES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
- DO NOT EXTEND PERFORATIONS IN THE DRAW-DOWN DEVICE INTO NET STORAGE.
- WHERE THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE MEETS WITH 8" DIA. GALVANIZED HANGING CLON, THEN WITH DOWNWARD GUTTER. USE DOWNWARD GUTTER AS SPECIFIED IN SECTION 14 MATERIALS TO NET WRAP WITH ONE MORE LAYER OF GUTTER.
- AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1/2" DIA. STEEL ANCHORS ATTACHED TO DRAW-DOWN DEVICE BY A 1/2" DIA. GALVANIZED STEEL STRAP OR 1/2" DIA. HEAVY WIRE.
- REMOVE SEDIMENT FROM PERFORATIONS TO CLEANLY ELUVIDE. DO NOT ALLOW SEDIMENT TO ACCUMULATE IN PERFORATIONS OR IN SUCH A MANNER THAT IT WILL NOT BE REMOVED BY THE DRAW-DOWN DEVICE. PERFORATIONS SHOULD BE PERFORATED TO A DEPTH OF 1/2" TO 3/4" TO ALLOW SEDIMENT TO BE REMOVED BY THE DRAW-DOWN DEVICE.

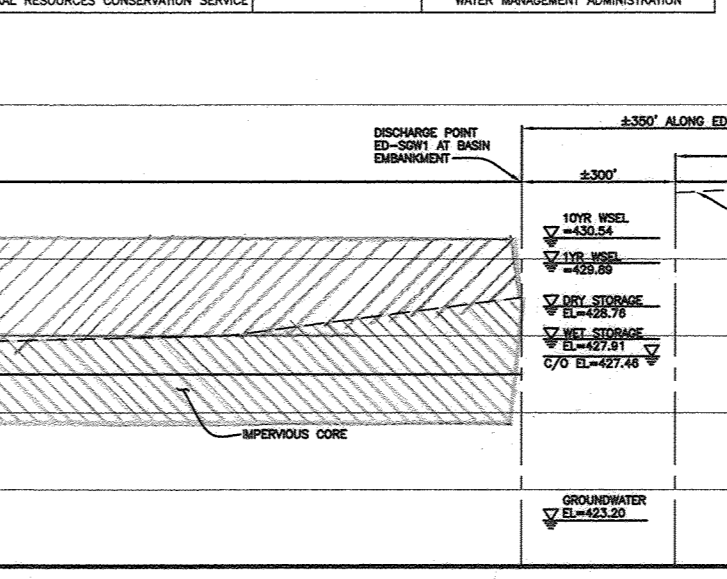
DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

DETAIL G-2-1 TYPICAL ANTI-SEEP COLLARS

DETAIL G-2-2 SEDIMENT BASIN SCHEMATIC VERTICAL DRAW-DOWN DEVICE

CONSTRUCTION SPECIFICATIONS

- PERFORATE PIPE WITH 1/2" DIA. PERFORATIONS AT 8" SPACES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
- DO NOT EXTEND PERFORATIONS IN THE DRAW-DOWN DEVICE INTO NET STORAGE.
- WHERE THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE MEETS WITH 8" DIA. GALVANIZED HANGING CLON, THEN WITH DOWNWARD GUTTER. USE DOWNWARD GUTTER AS SPECIFIED IN SECTION 14 MATERIALS TO NET WRAP WITH ONE MORE LAYER OF GUTTER.
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- REMOVE SEDIMENT FROM PERFORATIONS TO CLEANLY ELUVIDE. DO NOT ALLOW SEDIMENT TO ACCUMULATE IN PERFORATIONS OR IN SUCH A MANNER THAT IT WILL NOT BE REMOVED BY THE DRAW-DOWN DEVICE. PERFORATIONS SHOULD BE PERFORATED TO A DEPTH OF 1/2" TO 3/4" TO ALLOW SEDIMENT TO BE REMOVED BY THE DRAW-DOWN DEVICE.



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. Mdaga 8/10/21
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.

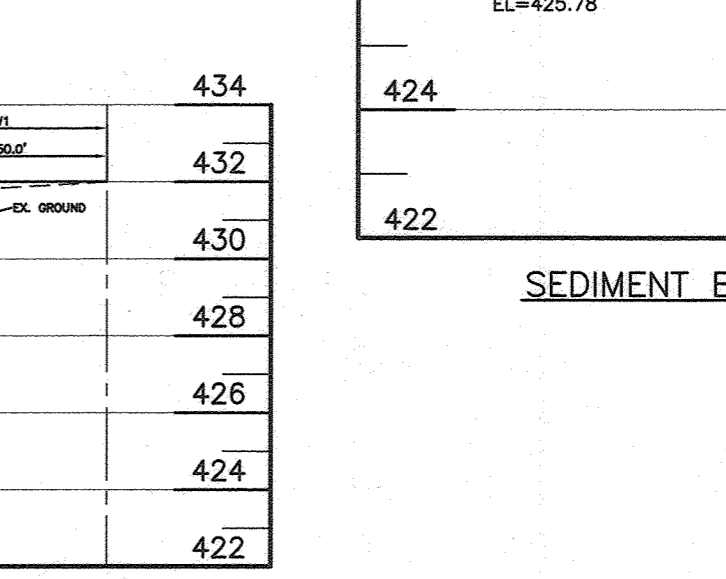
Alexander Butchik 8/10/21
DEVELOPER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Clare 08/11/21
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
W. J. Williams 09/24/2021
CHIEF, DIVISION OF LAND DEVELOPMENT #4 DATE

SEDIMENT BASIN CONSTRUCTION SPECIFICATIONS

- Install sediment control practices necessary to construct basin. Clear and grub to remove trees, vegetation, roots or other objectionable material from the areas where the embankment is to be placed. Do not clear the pool area until completion of the embankment, unless the pool area is to be used for borrow. Salvage topsoil for later use.
- Excavate cut-off trench along centerline of proposed embankment a minimum depth of 4 feet and a bottom (min 4 feet) wide enough to permit operation of excavation and compaction equipment. Construct side slopes 1:1 or flatter. Cut-off trench must be continuous and extend the entire length of embankment. Compaction requirements are the same as those for the embankment. Dewater the trench during the backfilling compaction operations, using an approved practice.
- Construct embankment of clean soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Fill material for impervious core and cut-off trench must conform to Unified Soil Classification Gc, Sc, Ch, or Cl, and must have at least 30 percent passing the #200 sieve. Use fill material containing sufficient moisture so that the soil can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Place fill material in six-inch to eight-inch thick continuous lifts over the entire length of the fill. Obtain compaction by passing construction equipment or compactor over the fill so that the entire surface of each layer of fill is traversed at least four times. Construct the embankment to an elevation a minimum of 10 percent higher than the design height to allow for settlement.
- Install principal spillway prior to, or concurrently with, fill placement. Do not excavate embankment for placement of spillway. All pipe connections, including anti-seep collars must be completely water-tight. Install filter diaphragm when specified on plan. Barrel connection to riser must be welded all around when the pipe and riser are metal. Attach barrel stub to riser at the same percent (slope) of grade as the barrel. For concrete riser/barrel assembly, pour riser with barrel in place or set pre-cast riser and install projection collar for watertight connection. Place fill material around the pipe spillway in four (4) inch lifts and hand compact around the pipe to a depth of 1.5 times the pipe diameter (minimum). Securely install anti-vortex device and trash rack as shown on plan.
- Install the emergency spillway in undisturbed natural ground. Construct spillway within a tolerance of +/- 0.2 feet.
- Stabilize embankment and associated disturbed areas within three (3) days of completion with seed and mulch. Monitor embankment and maintain erosion free during the life of the basin.
- Install fencing and signage in accordance with the approved plan.
- Remove sediment when accumulated material has reached 25 percent of the total storage depth. Restore basin to original design volume. Place removed sediments in a controlled area and stabilize. Do not deposit sediment downstream of the embankment, adjacent to a stream or floodplain.
- When the contributing drainage area is stable, the basin can be removed in accordance with the approved sediment control plan.
- A sediment basin designed, built, and certified as a stormwater management structure, may be converted when the contributing drainage area is stable. Properly dewater basin, modify outlet structure, perform additional grading, and provide required storage volume in accordance with approved stormwater management plans.



LEGEND

- EXISTING CONTOURS
- EXISTING TREE
- EXISTING TREELINE
- SB 50' STREAM BUFFER
- EX. STREAM
- OHL EX. OVERHEAD LINES TO BE REMOVED

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE A SUITE 315 ELLIOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-8644
WWW.BE-CIVILENGINEERING.COM

THE VILLAGE AT TOWN SQUARE
PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71
and BUILDABLE BULK PARCELS A & B
A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830-1-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL 12 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

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

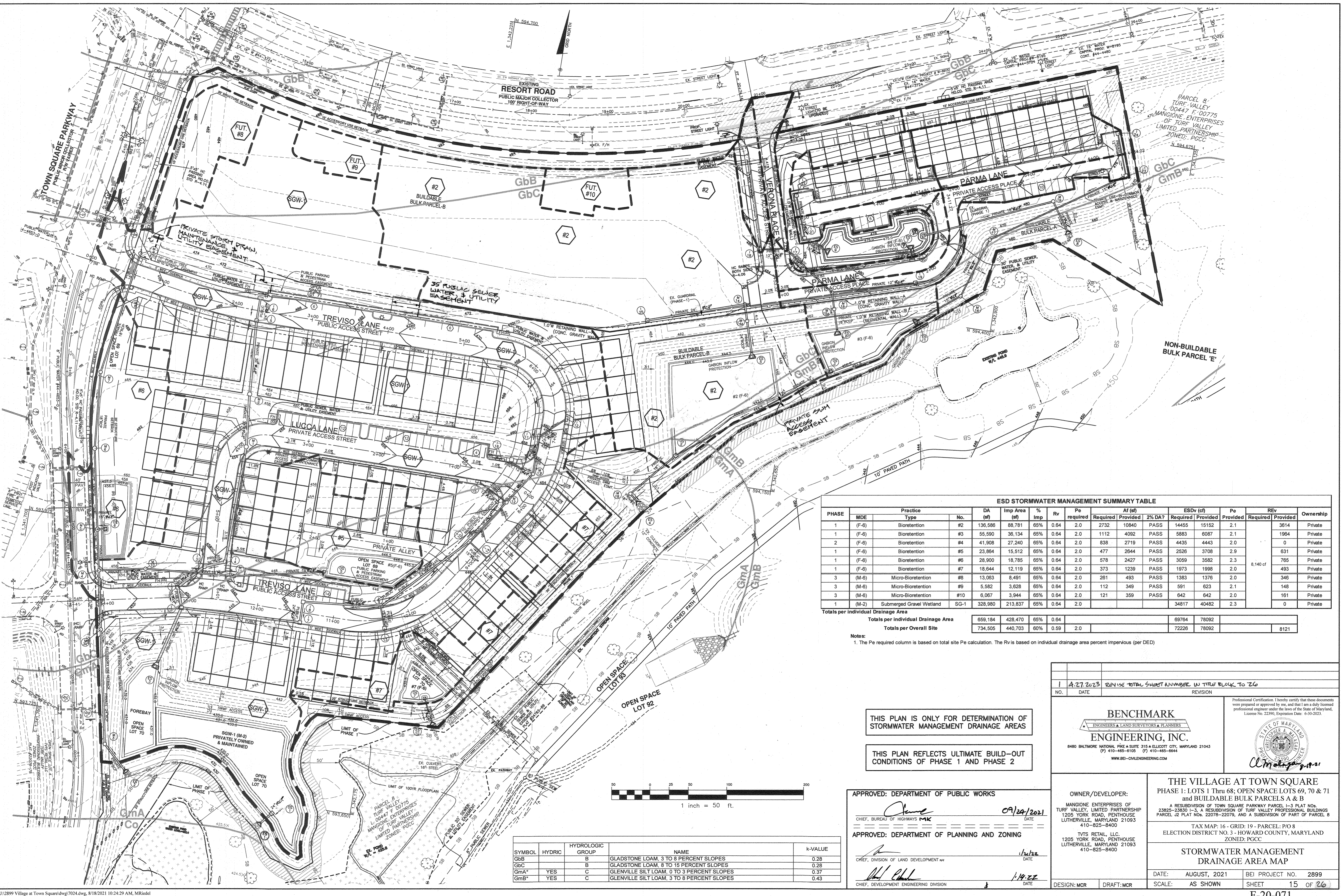
SEDIMENT AND EROSION CONTROL NOTES & DETAILS

DATE: AUGUST, 2021 BEI PROJECT NO. 2899
SCALE: AS SHOWN SHEET 14 OF 20

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

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

DESIGN: MCR DRAFT: MCR



ESD STORMWATER MANAGEMENT SUMMARY TABLE

PHASE	MDE	Practice Type	No.	DA (sf)	Imp Area (sf)	% Imp	Rv	Pe required	Required		Provided		Pe	Rev		Ownership	
									Required	Af (sf)	2% DA?	Required		Provided	Required		Provided
1	(F-6)	Bioretention	#2	136,586	88,781	65%	0.64	2.0	2732	10840	PASS	14455	15152	2.1		3614	Private
1	(F-6)	Bioretention	#3	55,590	36,134	65%	0.64	2.0	1112	4092	PASS	5893	6087	2.1		1964	Private
2	(F-6)	Bioretention	#4	41,908	27,240	65%	0.64	2.0	838	2719	PASS	4435	4443	2.0		0	Private
1	(F-6)	Bioretention	#5	23,864	15,512	65%	0.64	2.0	477	2644	PASS	2526	3708	2.9		631	Private
1	(F-6)	Bioretention	#6	28,900	18,785	65%	0.64	2.0	578	2427	PASS	3059	3582	2.3	8,140 cf	765	Private
1	(F-6)	Bioretention	#7	18,644	12,119	65%	0.64	2.0	373	1239	PASS	1973	1998	2.0		493	Private
3	(M-6)	Micro-Bioretention	#8	13,063	8,491	65%	0.64	2.0	261	493	PASS	1383	1378	2.0		346	Private
3	(M-6)	Micro-Bioretention	#9	5,582	3,628	65%	0.64	2.0	112	349	PASS	591	623	2.1		148	Private
3	(M-6)	Micro-Bioretention	#10	6,067	3,944	65%	0.64	2.0	121	359	PASS	642	642	2.0		161	Private
1	(M-2)	Submerged Gravel Wetland	SG-1	328,980	213,837	65%	0.64	2.0				34817	40482	2.3		0	Private
Totals per individual Drainage Area																	
Totals per individual Drainage Area				659,184	428,470	65%	0.64					69764	78092				
Totals per Overall Site				734,505	440,703	60%	0.59	2.0				72225	78092			8121	

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

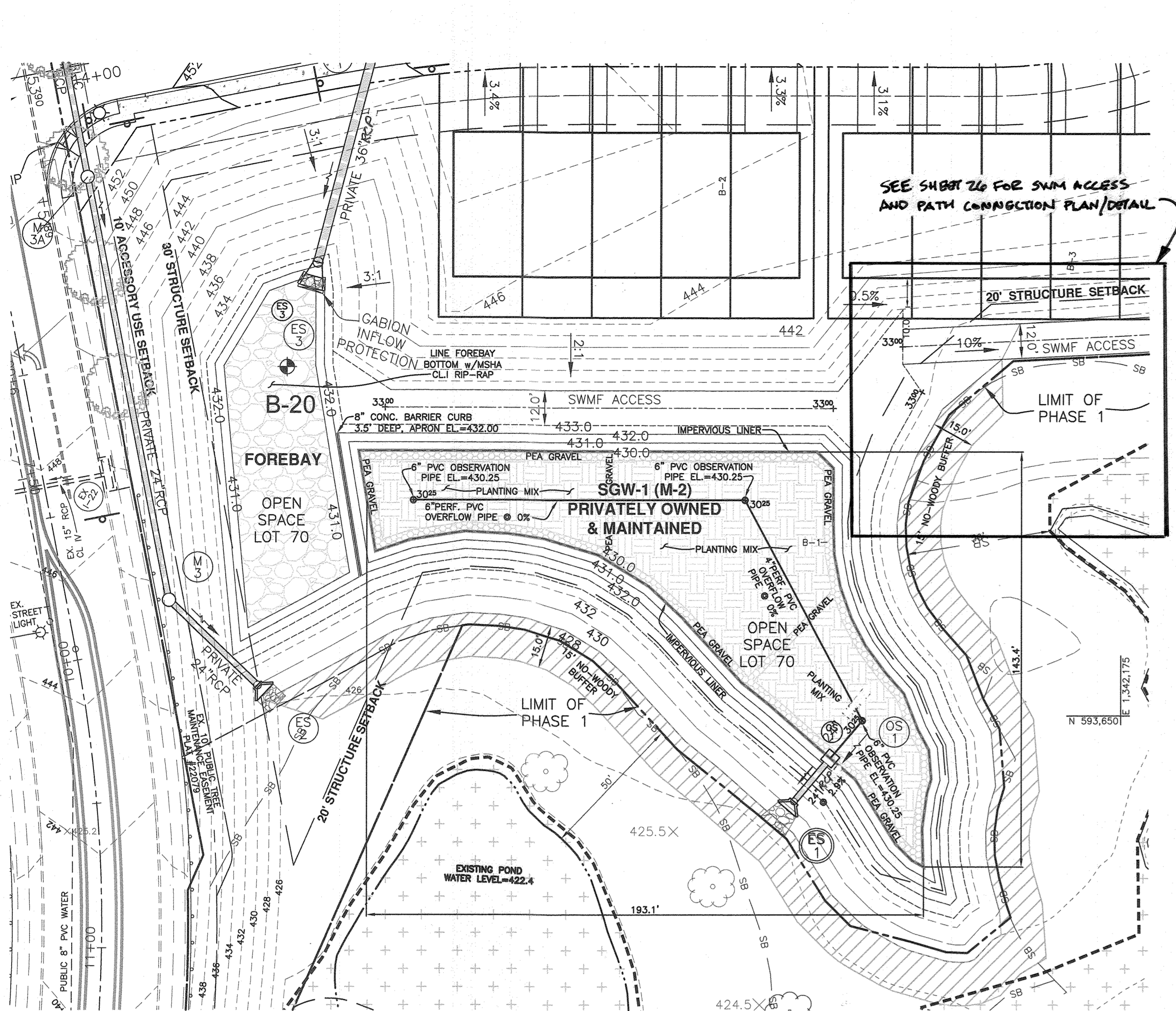
SYMBOL	HYDRIC	HYDROLOGIC GROUP	NAME	K-VALUE
GbB		B	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.28
GbC		B	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.28
GmA*	YES	C	GLENVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES	0.37
GmB*	YES	C	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.43

THIS PLAN IS ONLY FOR DETERMINATION OF STORMWATER MANAGEMENT DRAINAGE AREAS

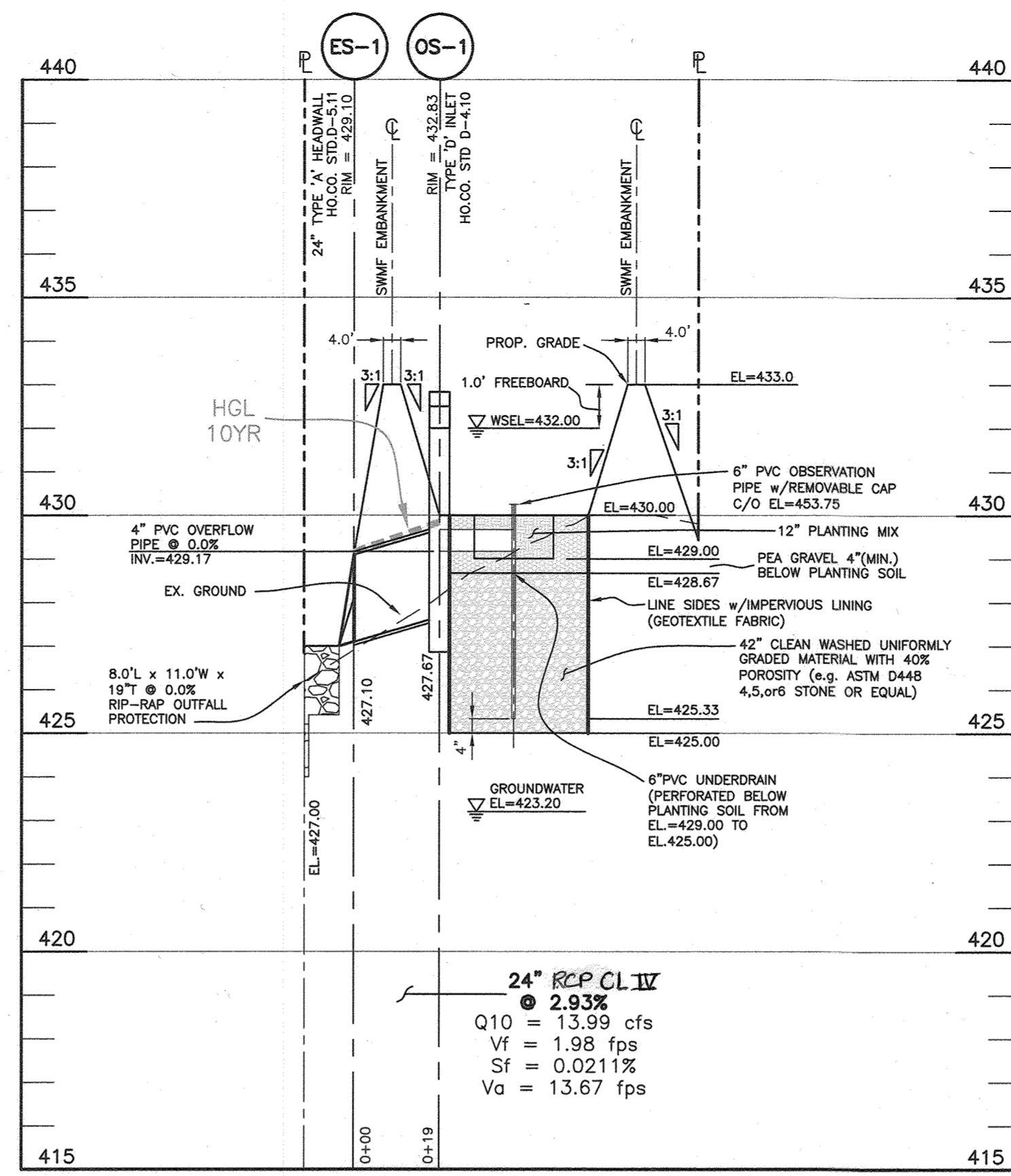
THIS PLAN REFLECTS ULTIMATE BUILD-OUT CONDITIONS OF PHASE 1 AND PHASE 2

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 09/24/2021
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/14/22
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

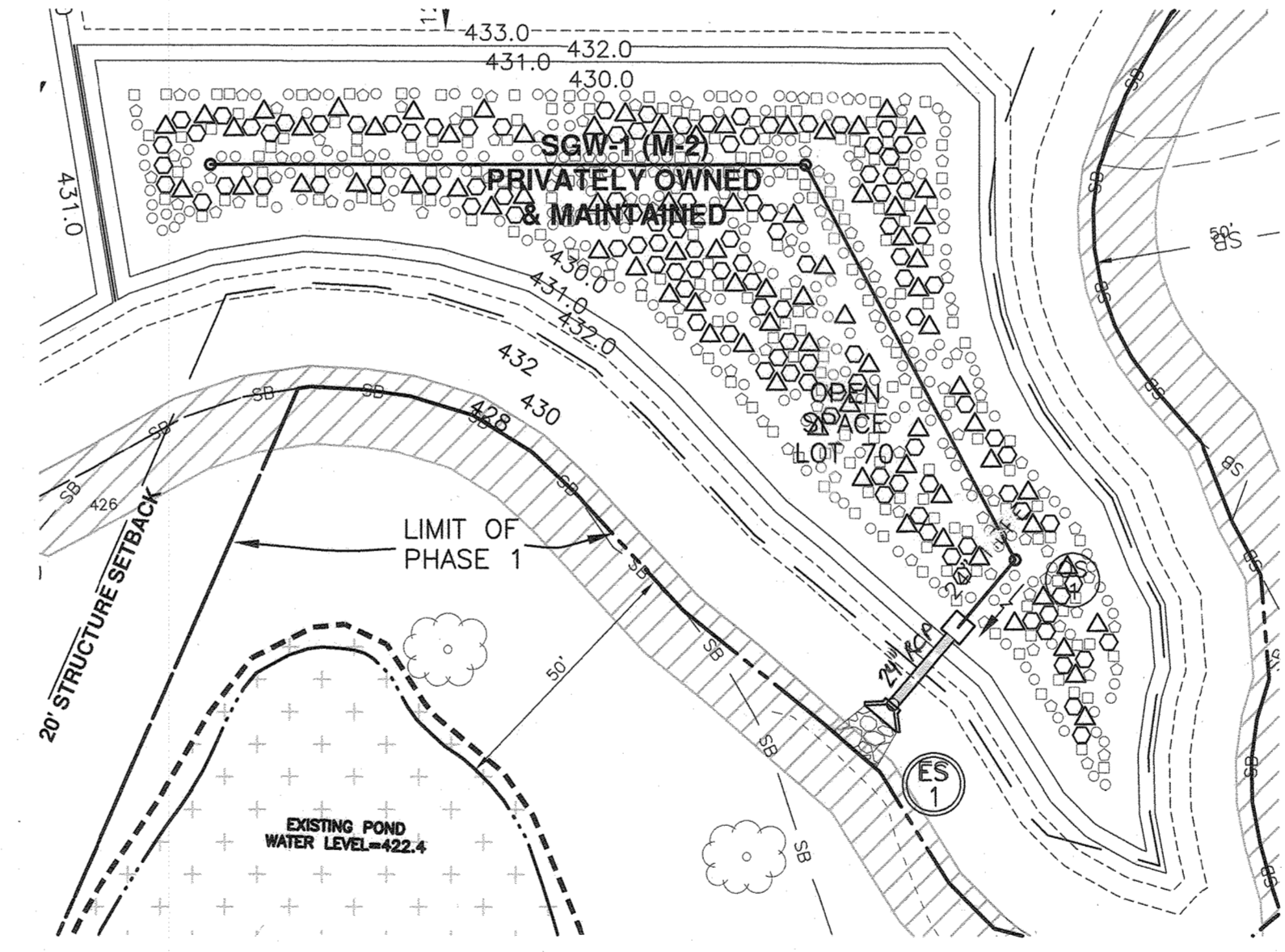
1 A-27-2023 REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26	
NO.	DATE
REVISION	
BENCHMARK ENGINEERING, INC. ENGINEERS & LAND SURVEYORS & PLANNERS 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6844 WWW.BE-CVLENGINEERING.COM	
Professional Certification 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. 23390, Expiration Date: 6-30-2023.	
OWNER/DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400 TYTS RETAIL, LLC 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400	
THE VILLAGE AT TOWN SQUARE PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71 AND BUILDABLE BULK PARCELS A & B A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 1-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL #2 PLAT NO. 22079-22079, AND A SUBDIVISION OF PART OF PARCEL 8 TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND ZONED: PGCC	
STORMWATER MANAGEMENT DRAINAGE AREA MAP	
DATE: AUGUST, 2021	BEI PROJECT NO. 2899
SCALE: AS SHOWN	SHEET 15 OF 26



SUBMERGED GRAVEL WETLANDS - PLAN VIEW
SCALE: 1" = 30'



SUBMERGED GRAVEL WETLANDS - PROFILE VIEW
VERTICAL SCALE: 1" = 3'
HORIZONTAL SCALE: 1" = 30'



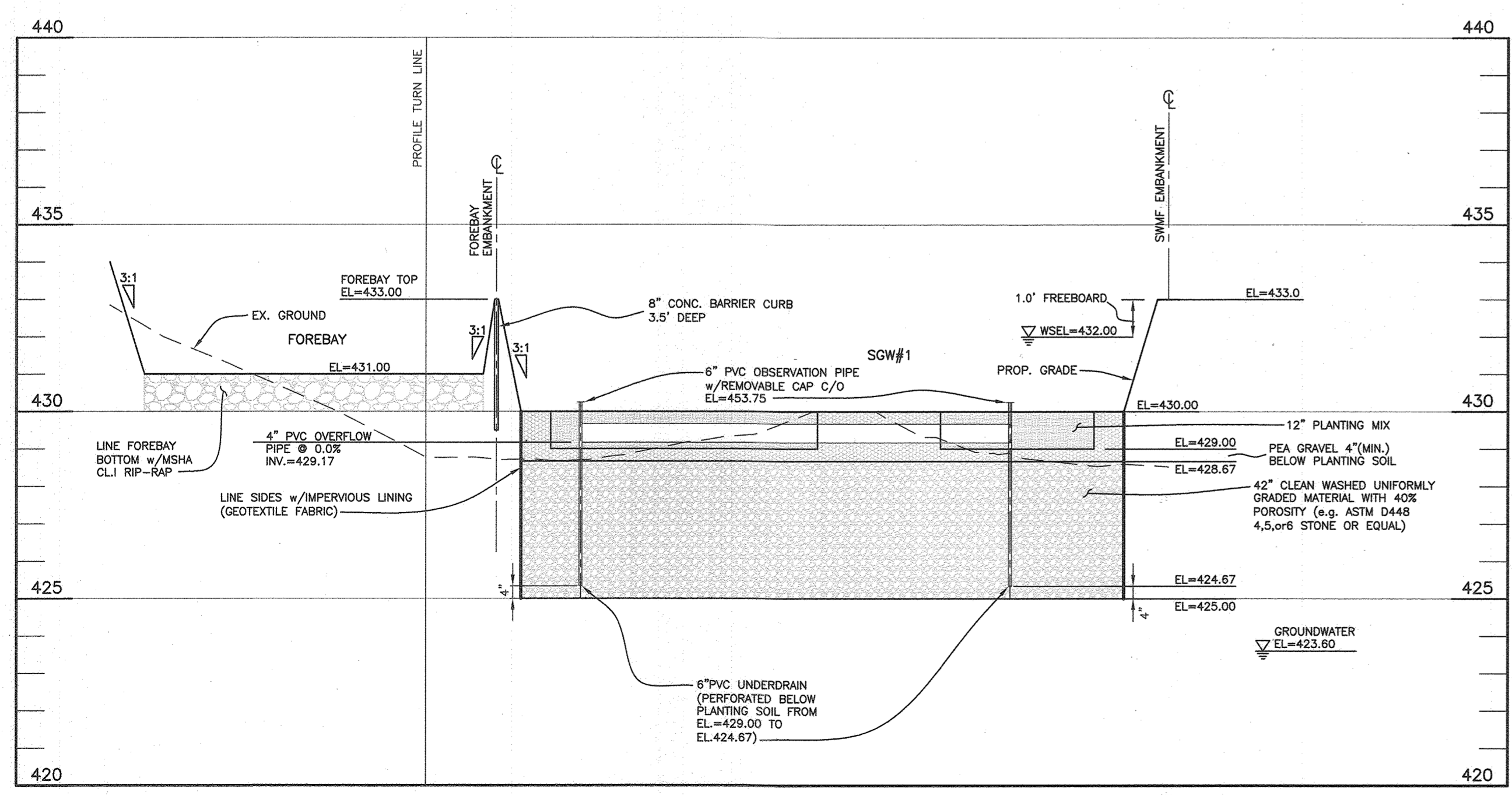
PRIVATELY OWNED AND MAINTAINED
SUBMERGED GRAVEL WETLANDS - PLANTING PLAN
SCALE: 1" = 30'

(M-2) SUBMERGED GRAVEL WETLAND PLANTING CHART

PLANT NAME	COMMON NAME	TYPE	SIZE	QUANTITY	TOTAL QUANTITY
Ranunculus subrigidus	Pond Butter-Cup	perennial herbaceous plant	quart bulb	184	184
Phlox maculata	Meadow Phlox	perennial herbaceous plant	quart bulb	132	132
Lobelia Cardinalis	Cardinal Flower	perennial herbaceous plant	quart bulb	211	211
Salix Sericea	Silky Willow	shrub	2.5'-3' ht	79	79
Viburnum Nudum	Viburnum, Possum-haw	shrub	2.5'-3' ht	113	113

PLANTING LEGEND

SYMBOL	NAME
□	POND BUTTERCUP (RANUNCULUS SUBRIGIDUS)
○	MEADOW PHLOX (PHLOX MACULATA)
◊	CARDINAL FLOWER (LOBELIA CARDINALIS)
△	SILKY WILLOW (SALIX SERICEA)
◇	VIBURNUM, POSSUM-HAW (VIBURNUM NUDUM)



SUBMERGED GRAVEL WETLANDS - PROFILE THRU FOREBAY
VERTICAL SCALE: 1" = 3'
HORIZONTAL SCALE: 1" = 30'

MATERIALS & SPECIFICATIONS FOR ESD PRACTICES

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' 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%
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
GEOTEXTILE (CLASS "C")	1/4" WIRE MESH	N/A	PE TYPE 1, NONWOVEN
GEOTEXTILE (1/4" WIRE MESH)	1/4" WIRE MESH	N/A	1/4" WIRE MESH
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 6 0.375" TO 0.75"	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCH 40 PVC SIZES OR HDPE	3/8" PERFORATED 6" O/C, 4 HOLES PER ROW; MINIMUM UNDERNEATH PIPES.
IMPERVIOUS LINER	ASTM-D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 LB, ELONGATION 200%) ASTM-D-624 (TEAR RESISTANCE - 150 LB/IN) ASTM-D-471 (WATER ADSORPTION: +8 TO -2% MASS)	30 MIL THICK	LINER TO BE ULTRAVIOLET RESISTANT. A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
GEOTEXTILE (BELOW IMPERV. LINER)	ASTM-D-4833 (PUNCTURE STRENGTH 126LB) ASTM-D-4392 (TENSILE STRENGTH 300 LB)	N/A	
FOUNDED IN PLACE CONCRETE	M50A MIX NO. 3, F _c = 3500 PSI(28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM-615-60	N/A	ONSITE 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 REQUIRE DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MEETING ACI CODE 309/R/89; VERTICAL LOADING [+10 OR +1-20]; ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OR POTENTIAL CRACKING
SAND	AASHTO M-6 OR ASTM-C-33	0.2" TO 0.4"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NT ROCK DUST CAN BE USED FOR SAND.

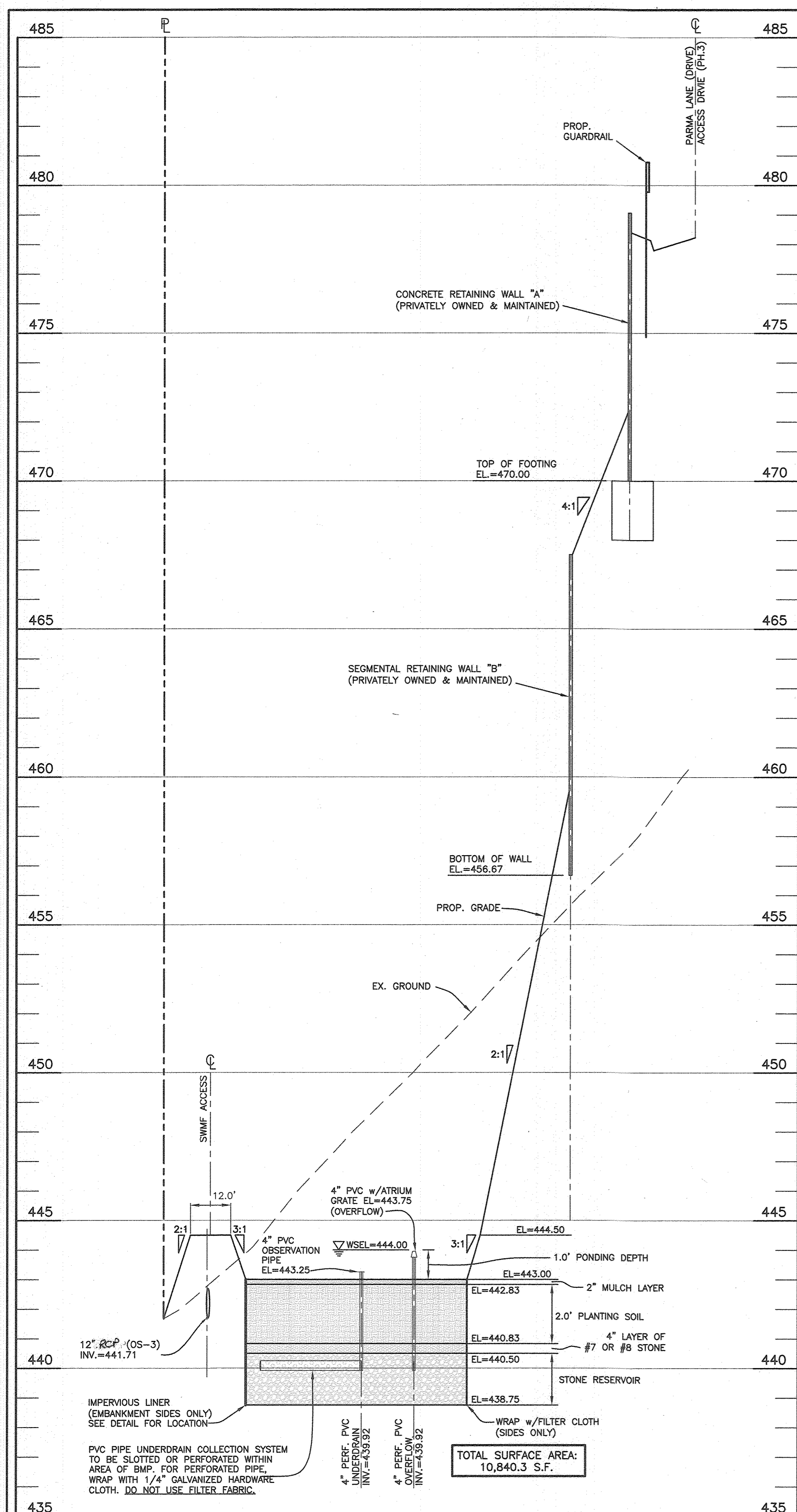
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature]
CHIEF, BUREAU OF HIGHWAYS MK
DATE: 09/29/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/2/22

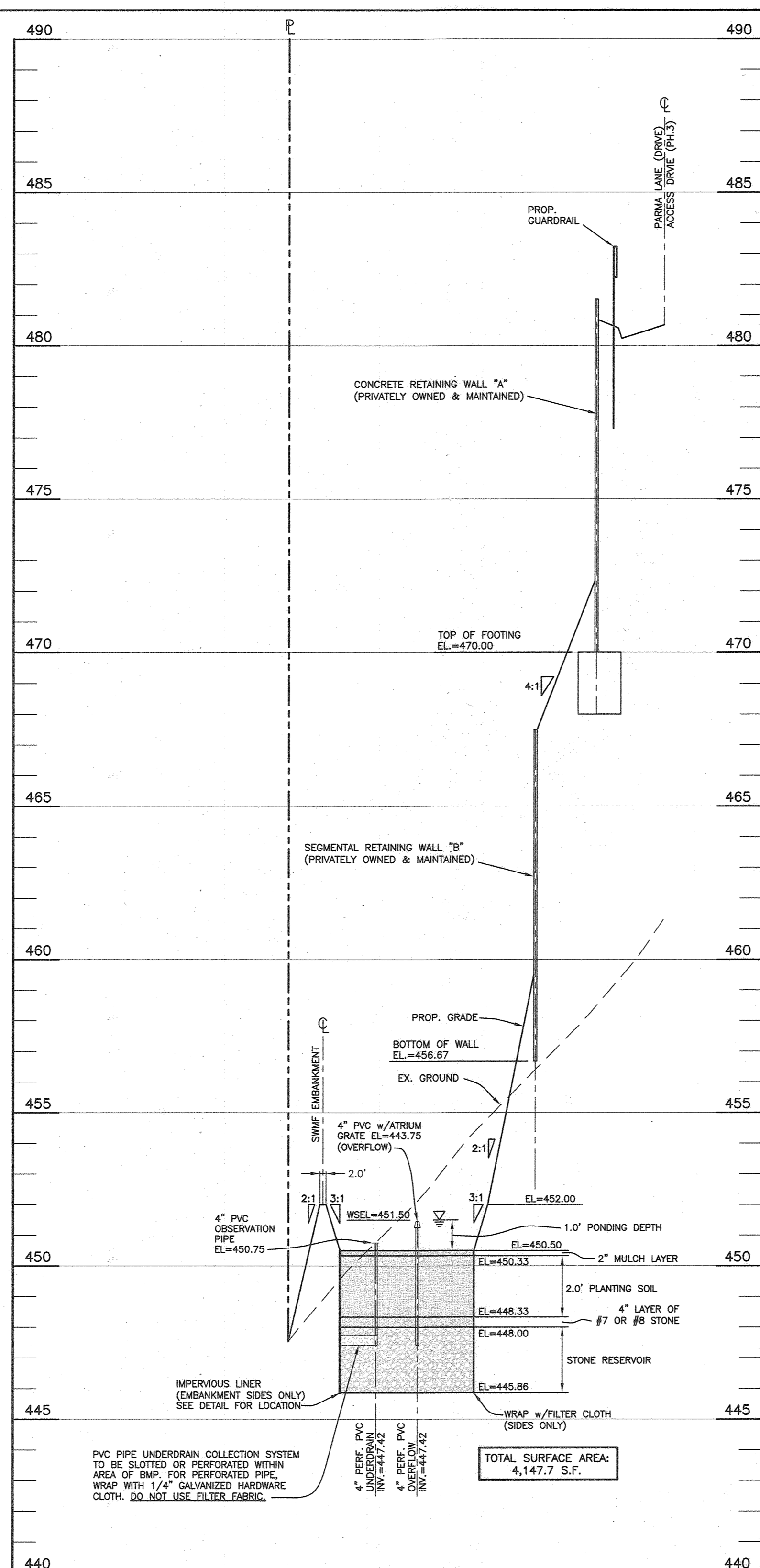
CONSTRUCTION SPECIFICATIONS

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

- Material Specifications:**
The allowable materials to be used in these practices are detailed in Table B.4.1.
- Filtering Media or Planting Soil:**
The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped 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 and(50%-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 textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.
- Compaction:**
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 textural 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.
It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoist 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.
- Plant Material:**
Recommended plant material for micro-bioretenion practices can be found in Appendix A, Section A.2.3.
- Plant Installation:**
Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only 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 defeats, or at 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.
- 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 1/2" (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 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).
- Miscellaneous:**
These practices may not be constructed until all contributing drainage area has been stabilized.



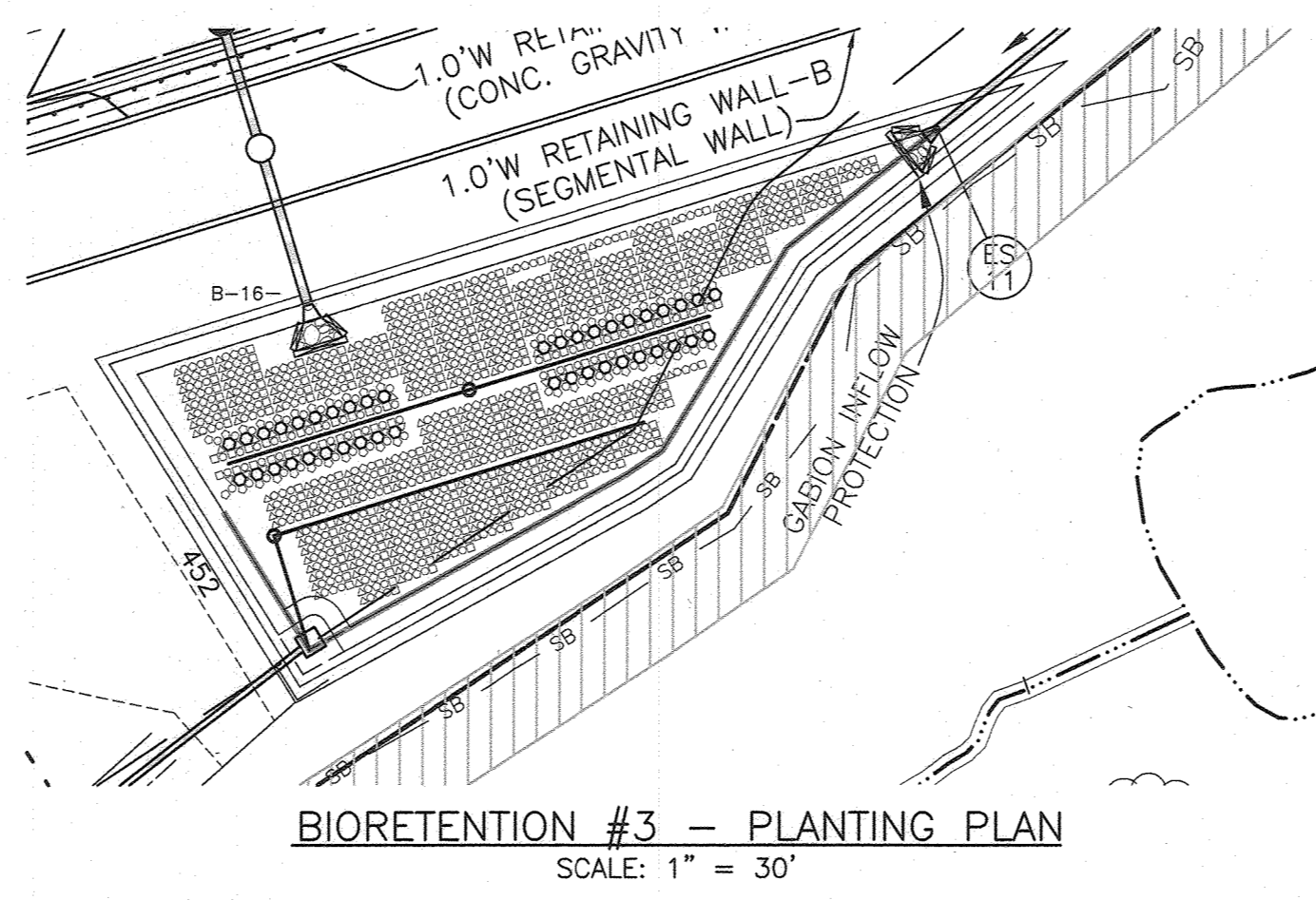
BIORETENTION #2 - PROFILE VIEW
 VERTICAL SCALE: 1" = 3'
 HORIZONTAL SCALE: 1" = 30'



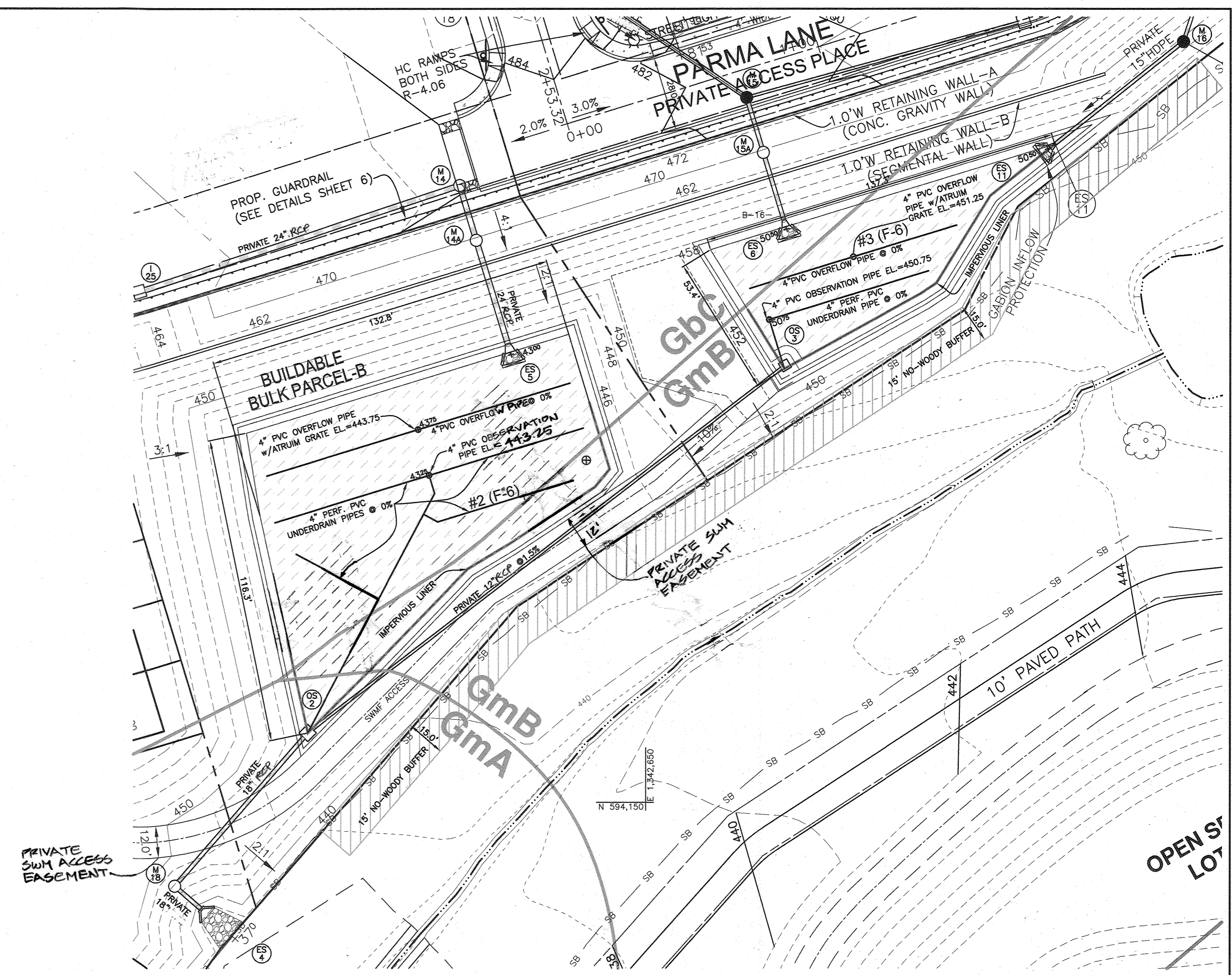
BIORETENTION #3 - PROFILE VIEW
 VERTICAL SCALE: 1" = 3'
 HORIZONTAL SCALE: 1" = 30'

SYMBOL	NAME
○	COMMON WINTERBERRY ILEX VERTICILLATA
□	CARDINAL FLOWER LOBELIA CARDINALIS
◇	GREAT BLUE LOBELIA LOBELIA SIPHILITICA
○	BLUE WATER IRIS IRIS VERSICOLOR
△	PRAIRIE GAY FEATHER LIATRIS SPICATA
○	UPRIGHT SEDGE CAREX STRICTA

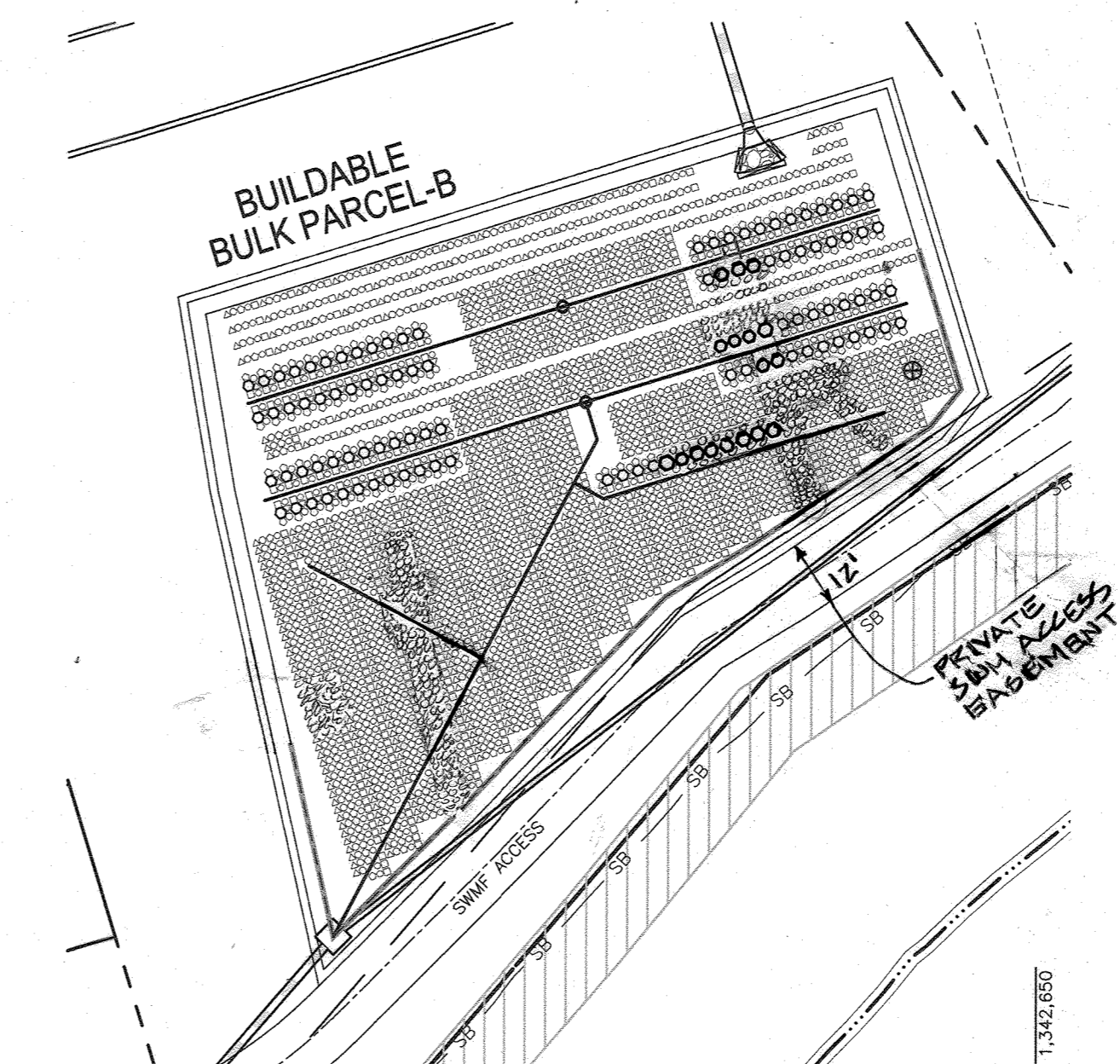
PLANT NAME	COMMON NAME	Surface Area	SIZE	(F-6) Bio-Retention Landscaping Chart					TOTAL
				#2	#3	#5	#6	#7	
Ilex verticillata	Common Winterberry	10840.3	2.5'-3' ht shrub	41	4091.6	2844.3	2426.9	1238.6	21241.7
Lobelia cardinalis	Cardinal flower	10840.3	quart bulb	108	273	26	24	12	212
Lobelia siphilitica	Great Blue Lobelia	10840.3	quart bulb	723	273	176	162	83	1416
Iris versicolor	Blue Water Iris	10840.3	quart bulb	723	273	176	162	83	1416
Liatis spicata	Prairie Gay Feather	10840.3	quart bulb	723	273	176	162	83	1416
Carex stricta	Upright Sedge	10840.3	quart bulb	723	273	176	162	83	1416



BIORETENTION #3 - PLANTING PLAN
 SCALE: 1" = 30'



BIORETENTION #2 & #3 - PLAN VIEW
 SCALE: 1" = 30'



BIORETENTION #2 - PLANTING PLAN
 SCALE: 1" = 30'

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS MK 09/24/2021 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT 1/21/22 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/19/22 DATE

NO.	DATE	REVISION
1	4.27.2023	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-8100 (F) 410-465-8644
 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, Expiration Date: 6-30-2023.

THE VILLAGE AT TOWN SQUARE
 PHASE 1: LOTS 1 Thru 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B
 A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL 12 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

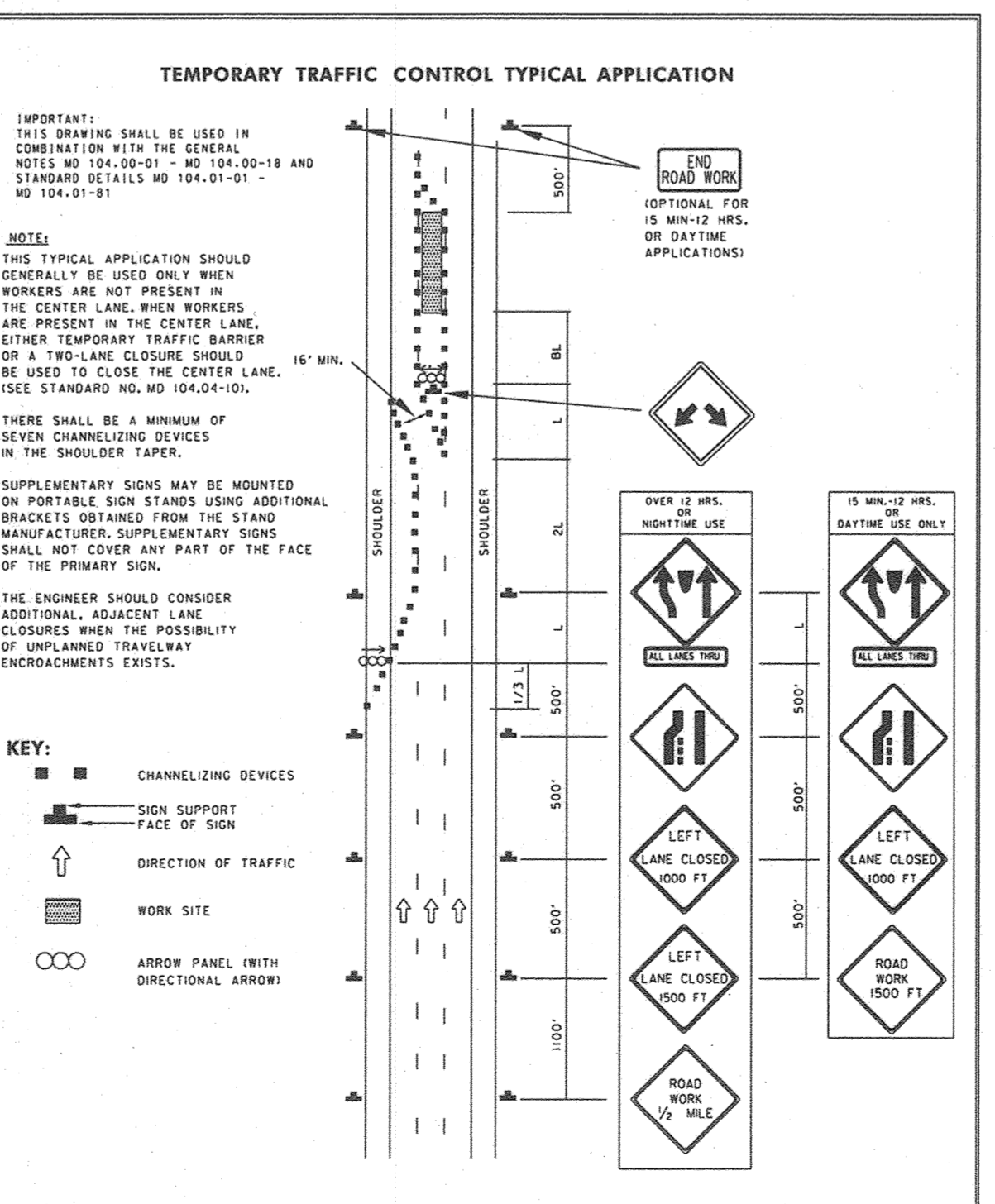
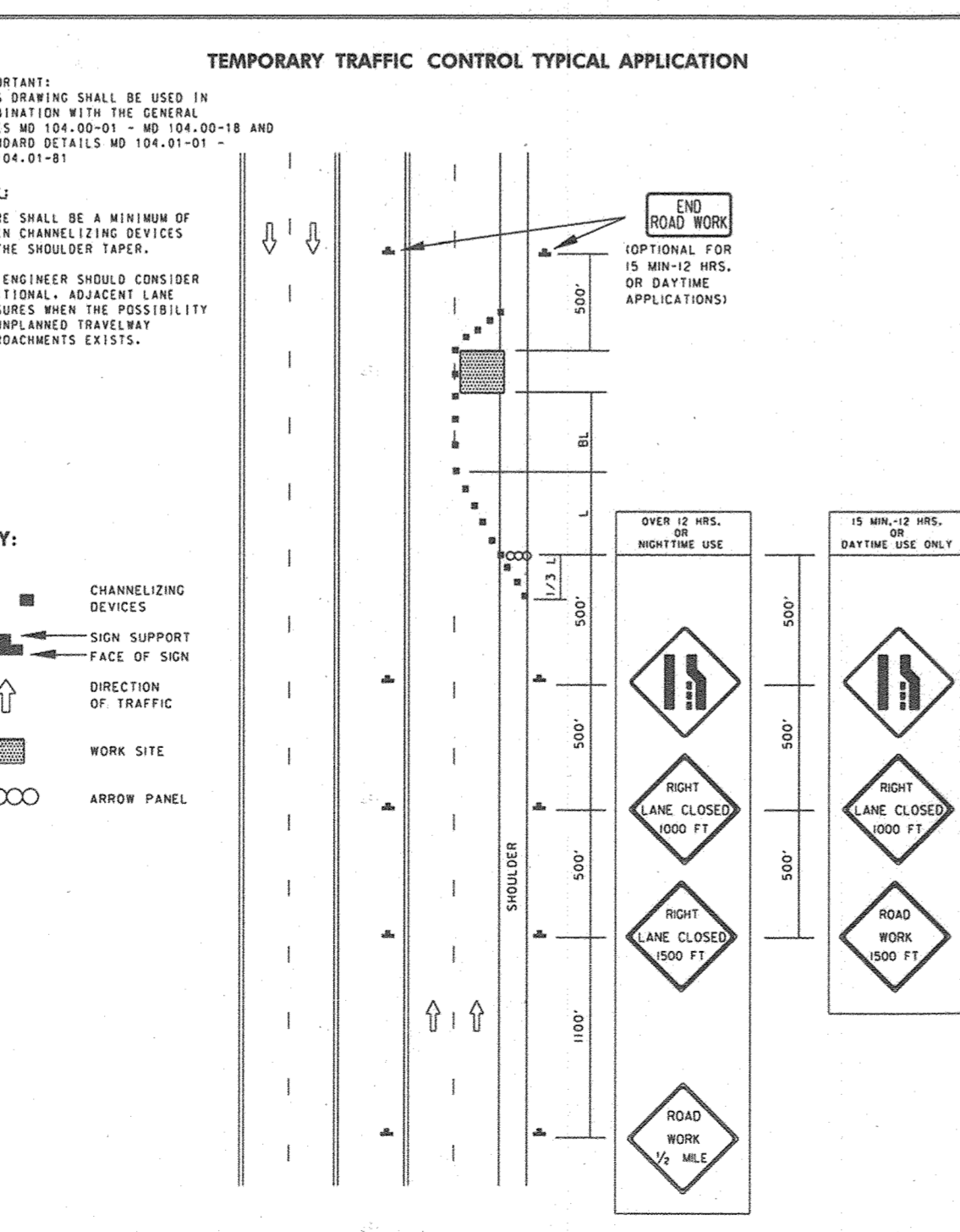
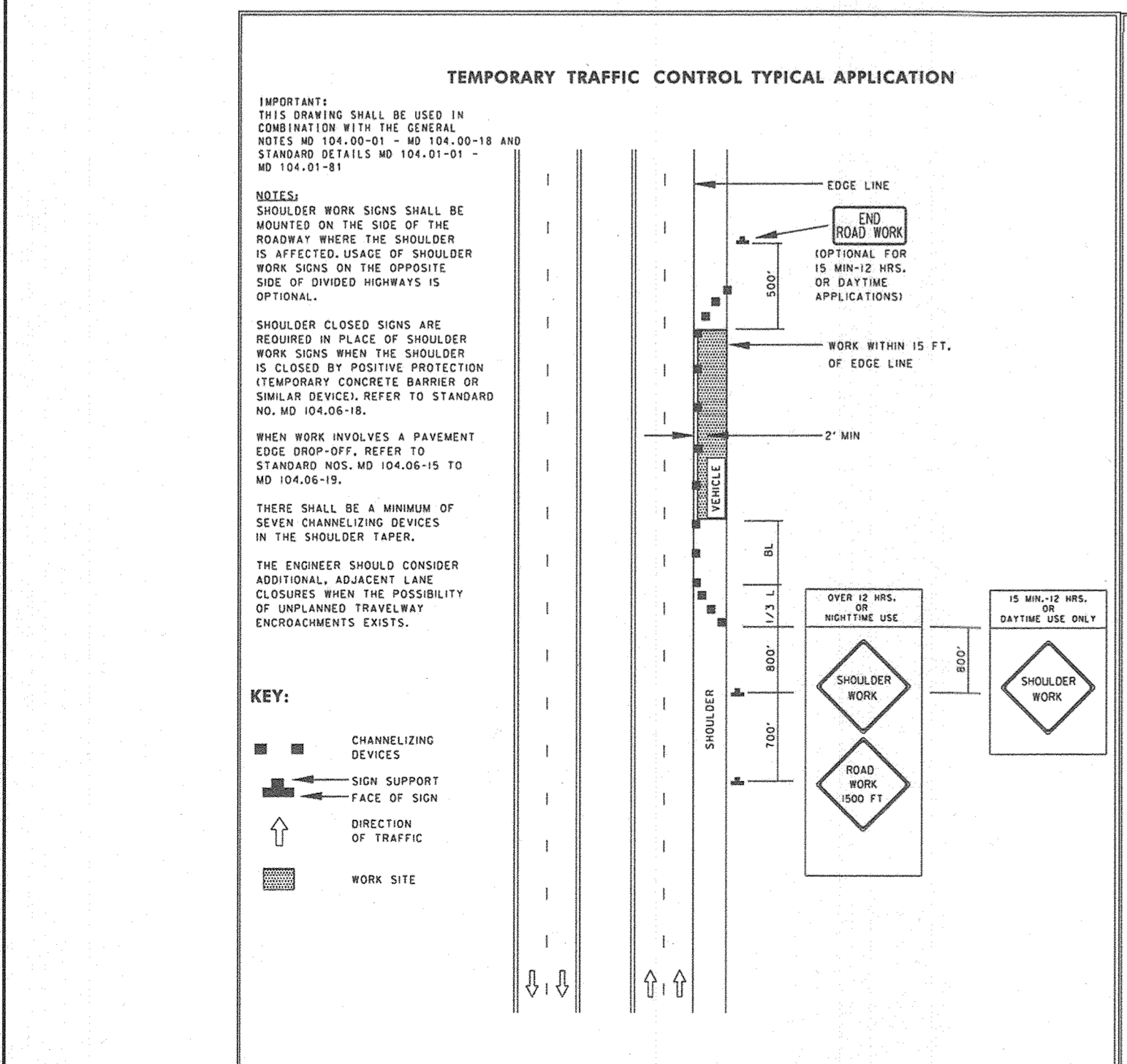
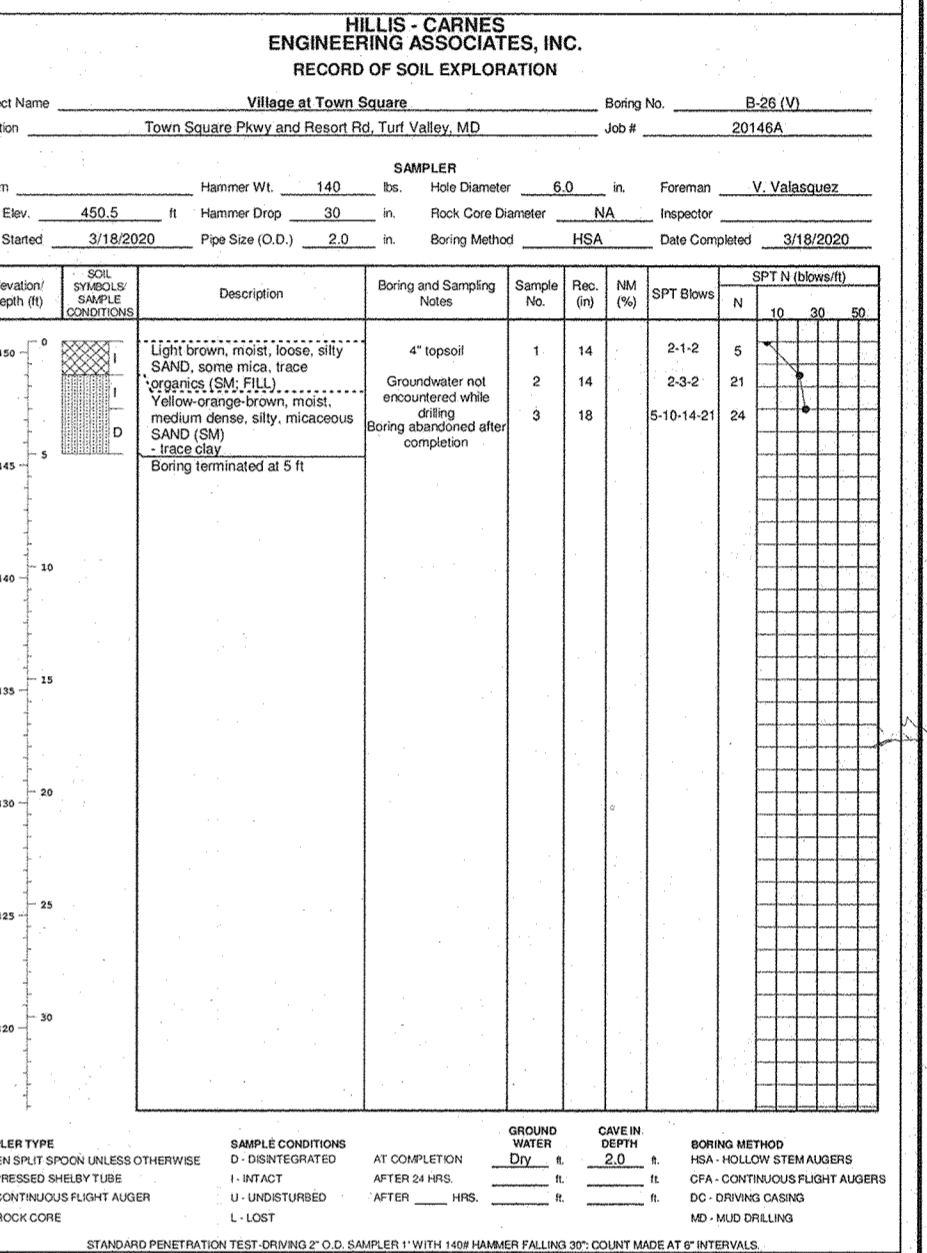
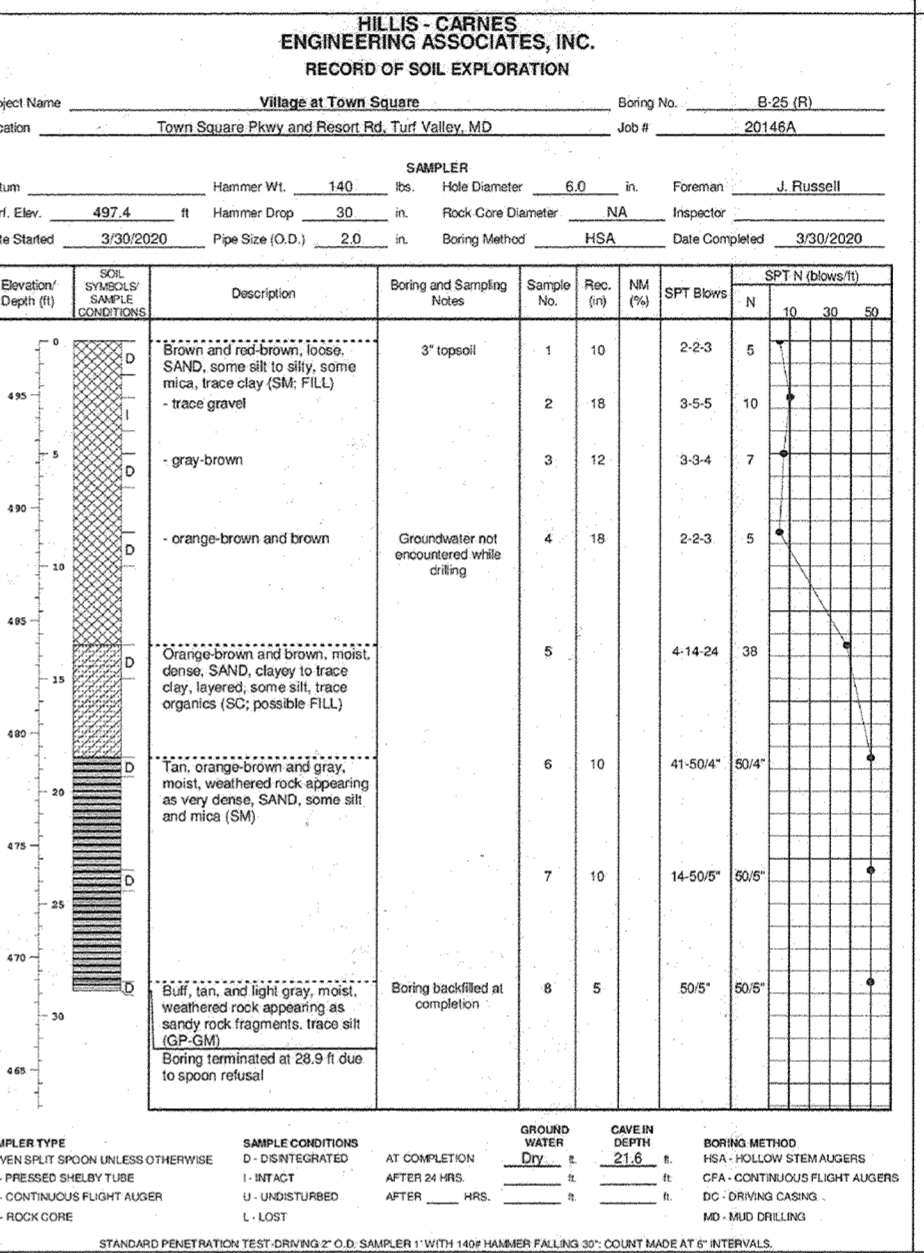
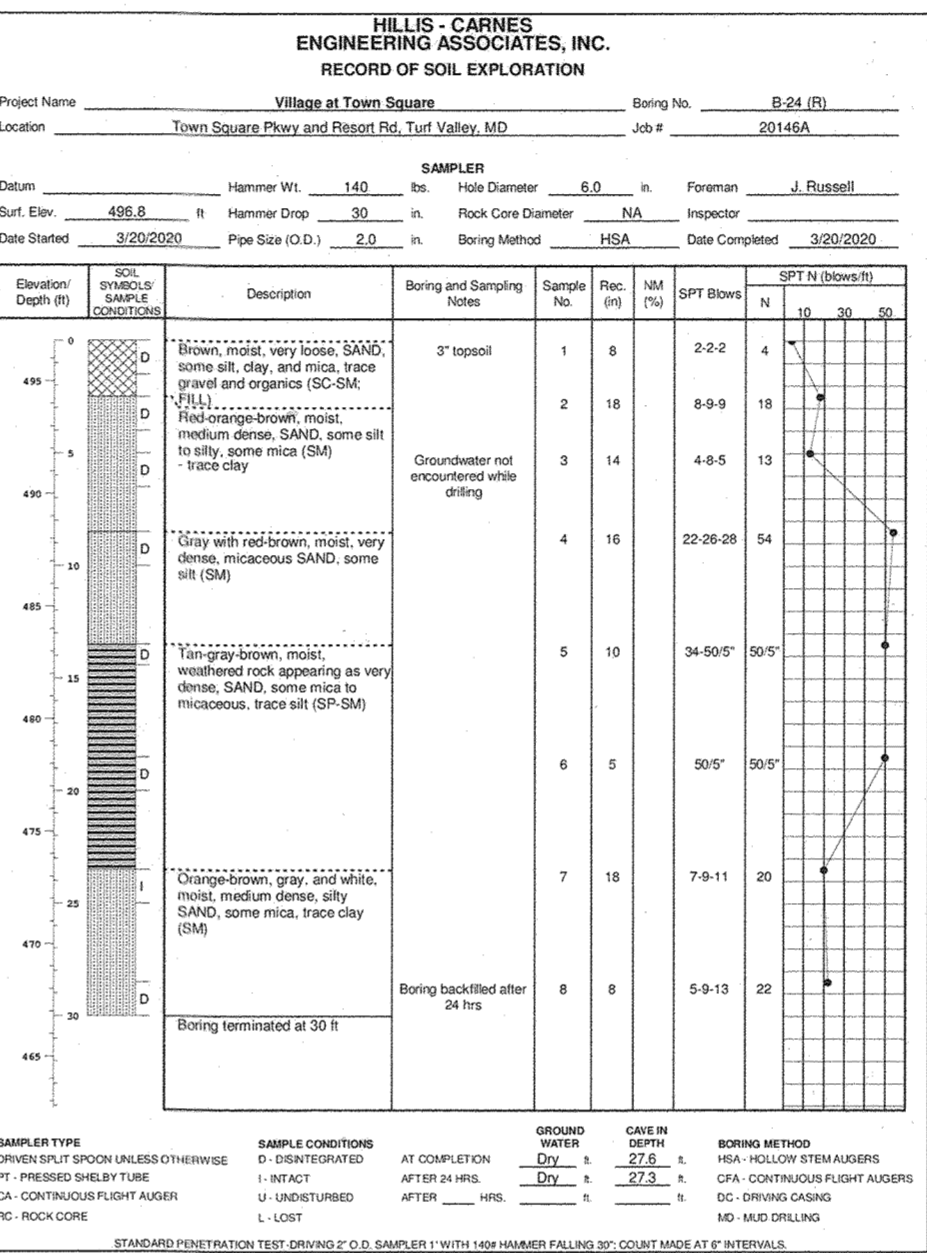
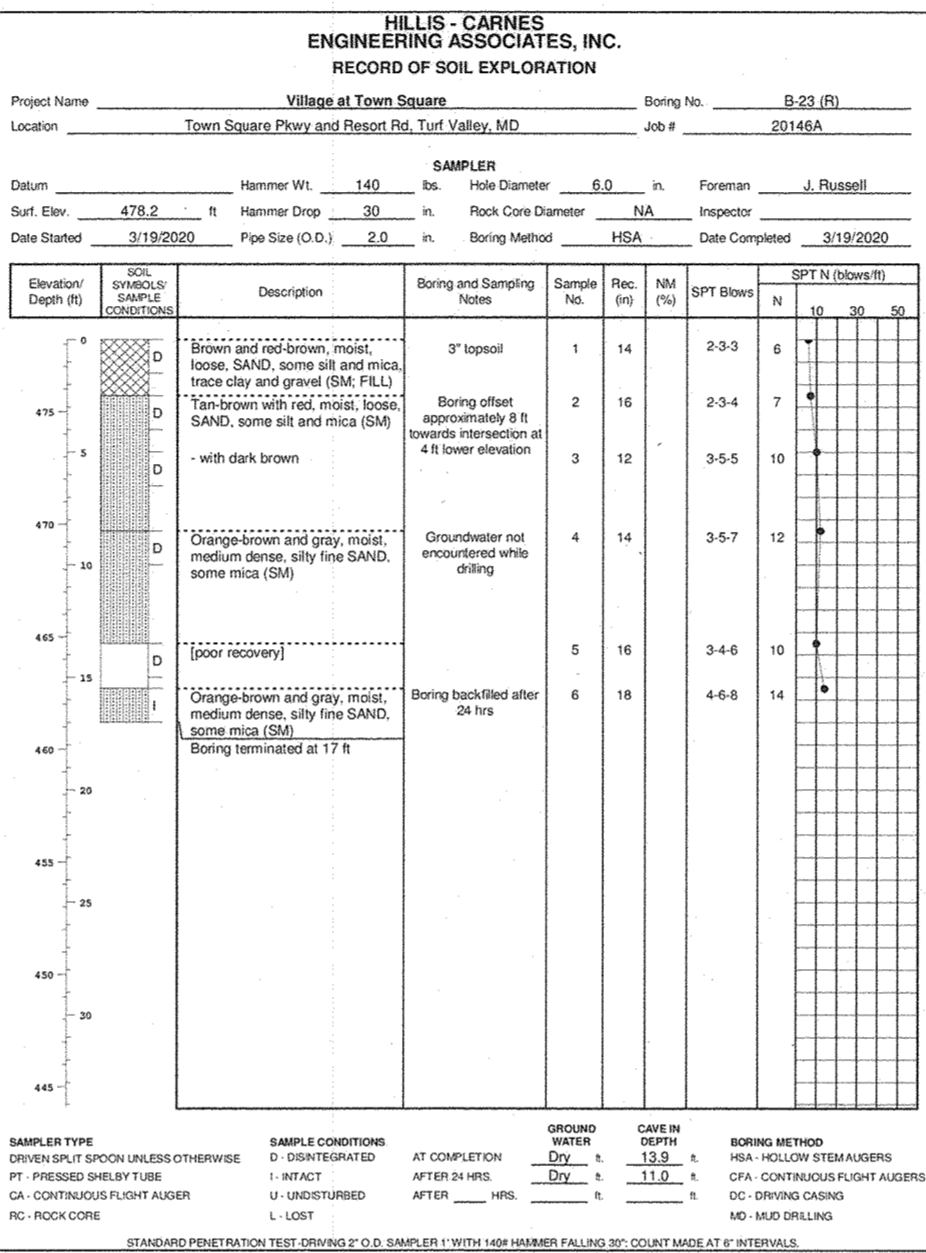
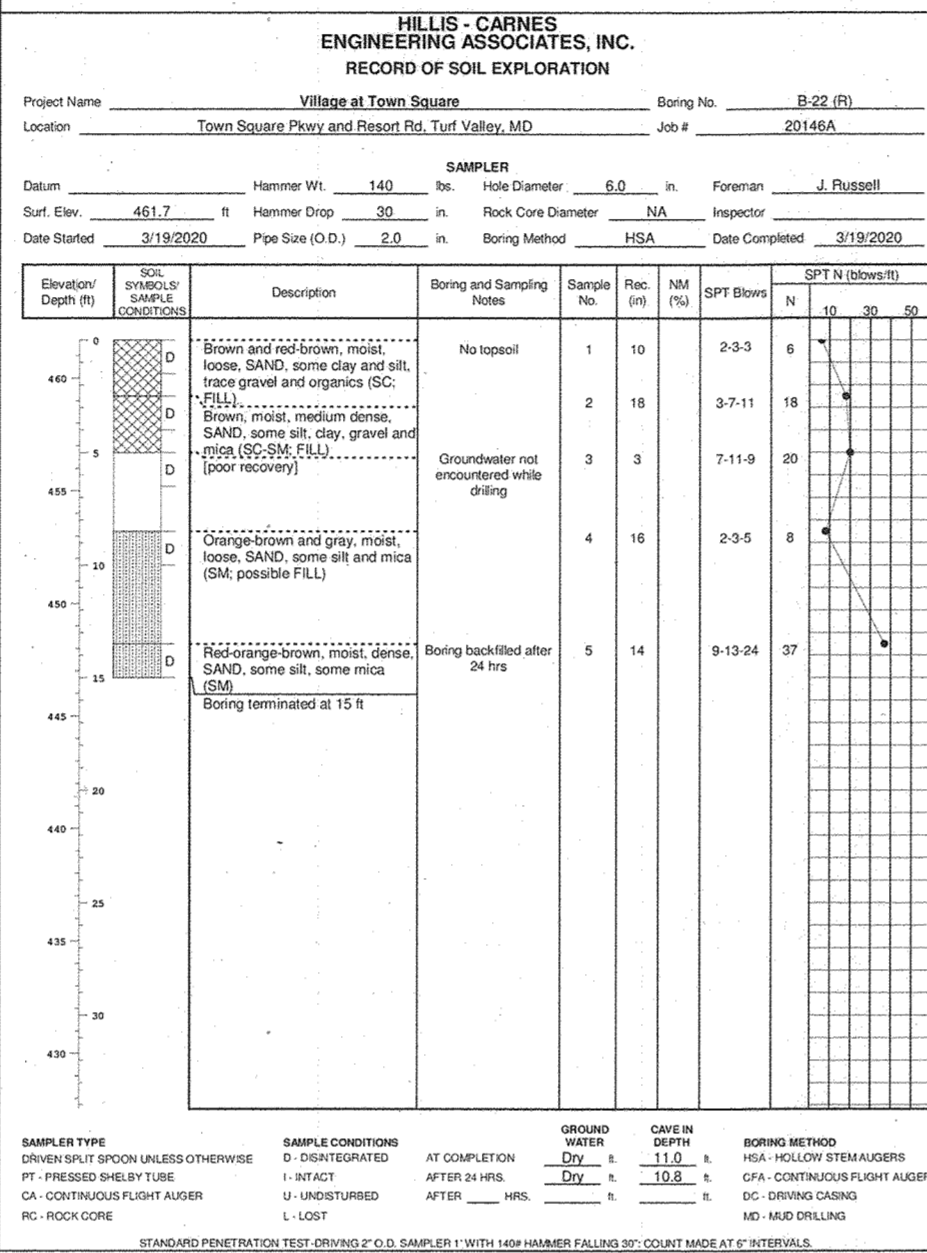
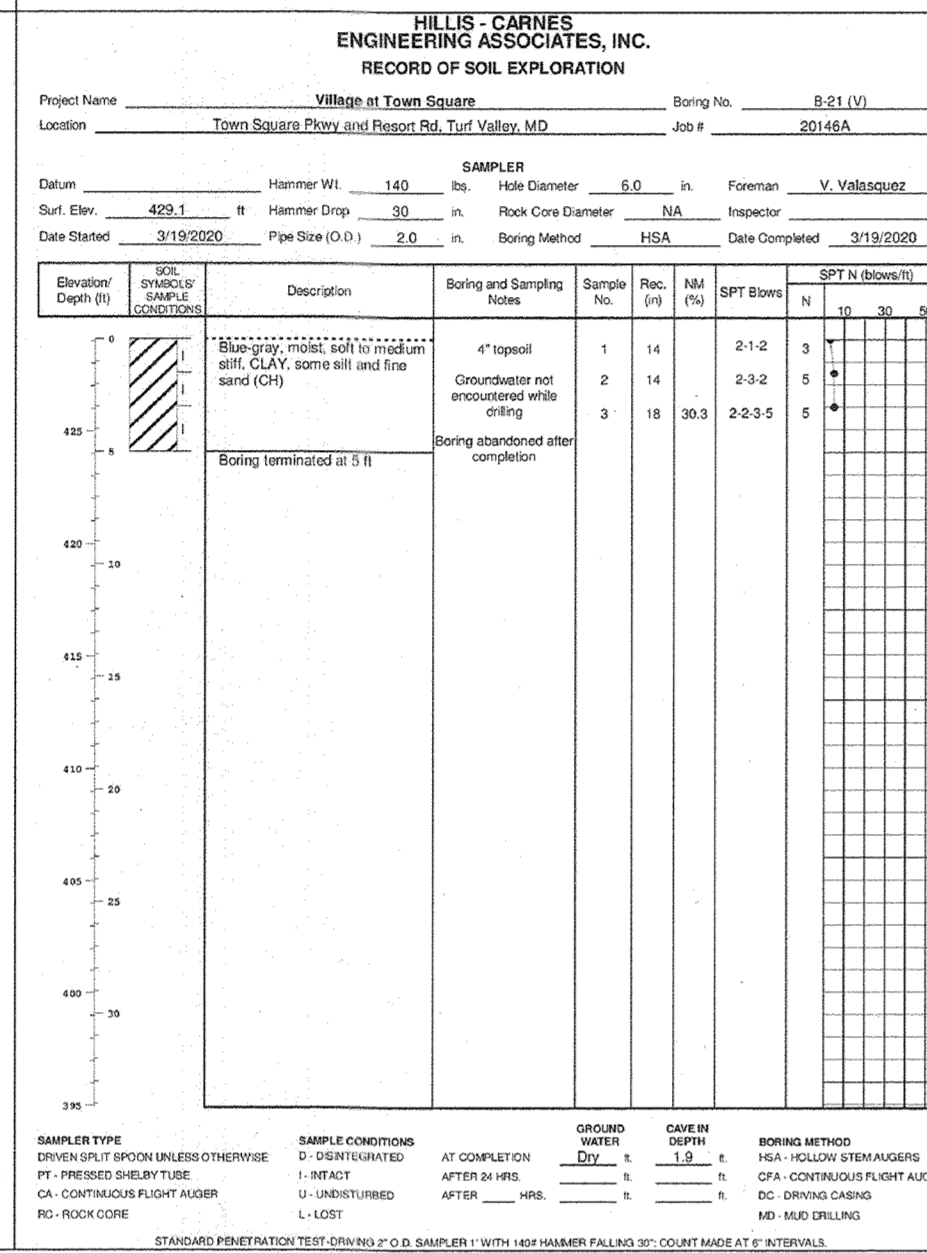
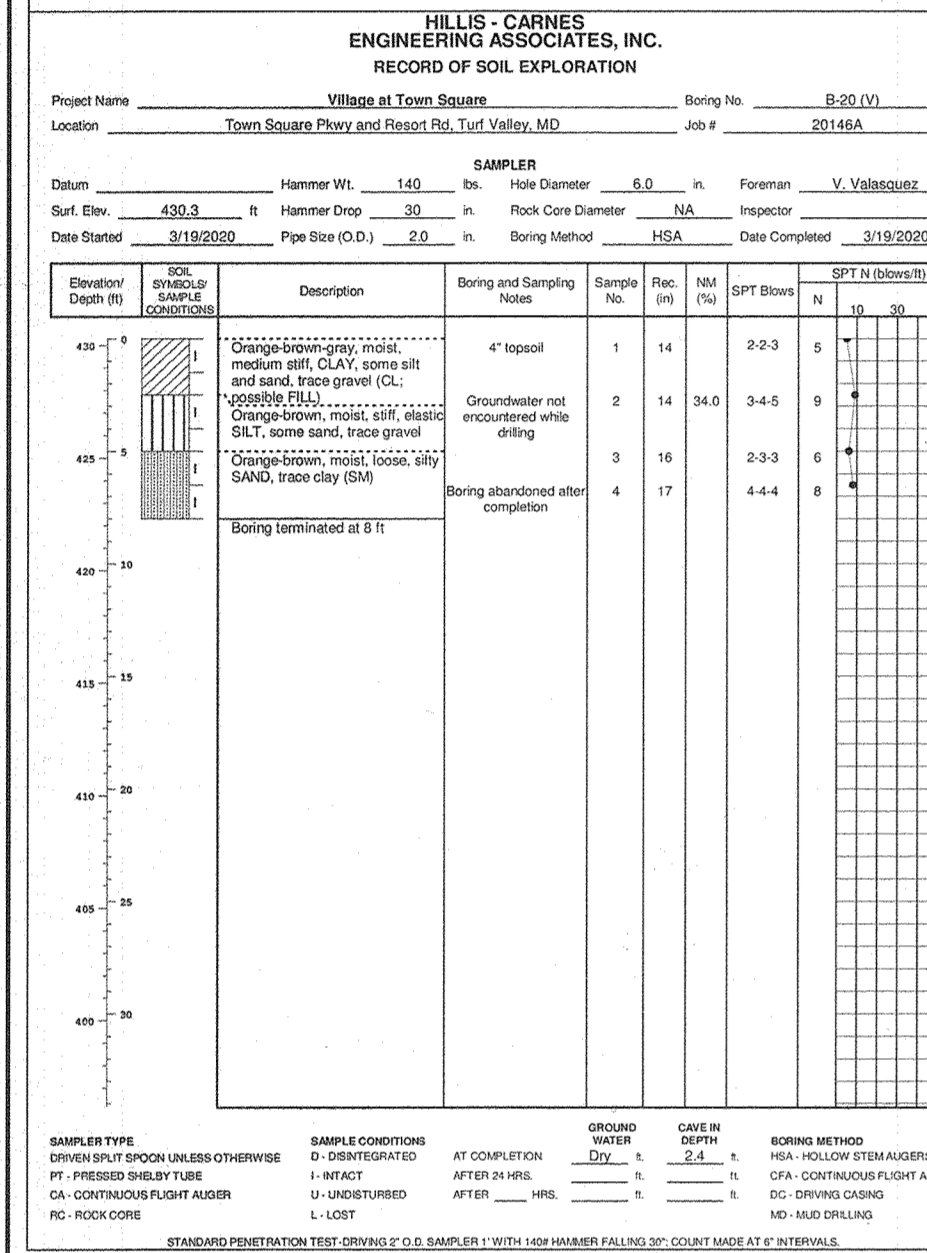
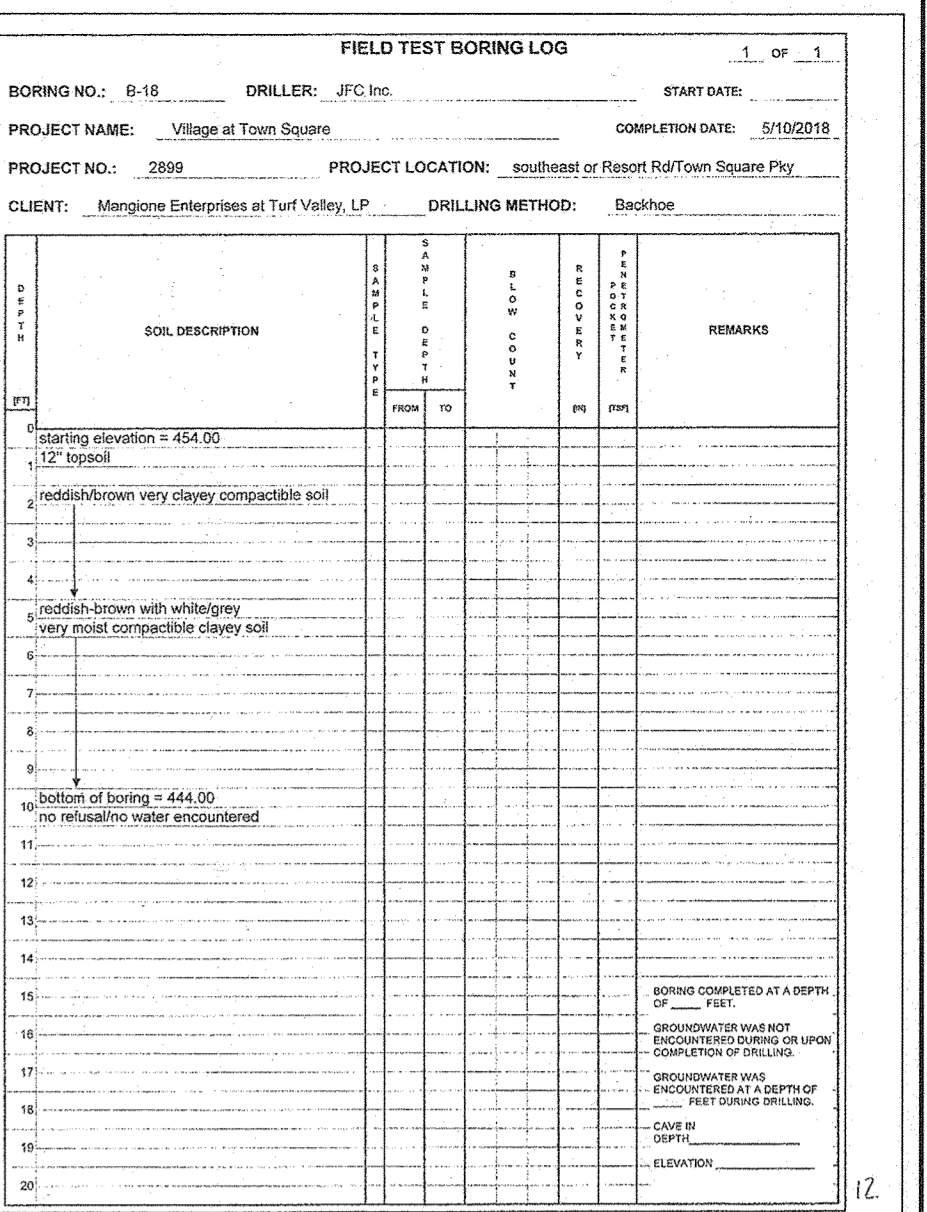
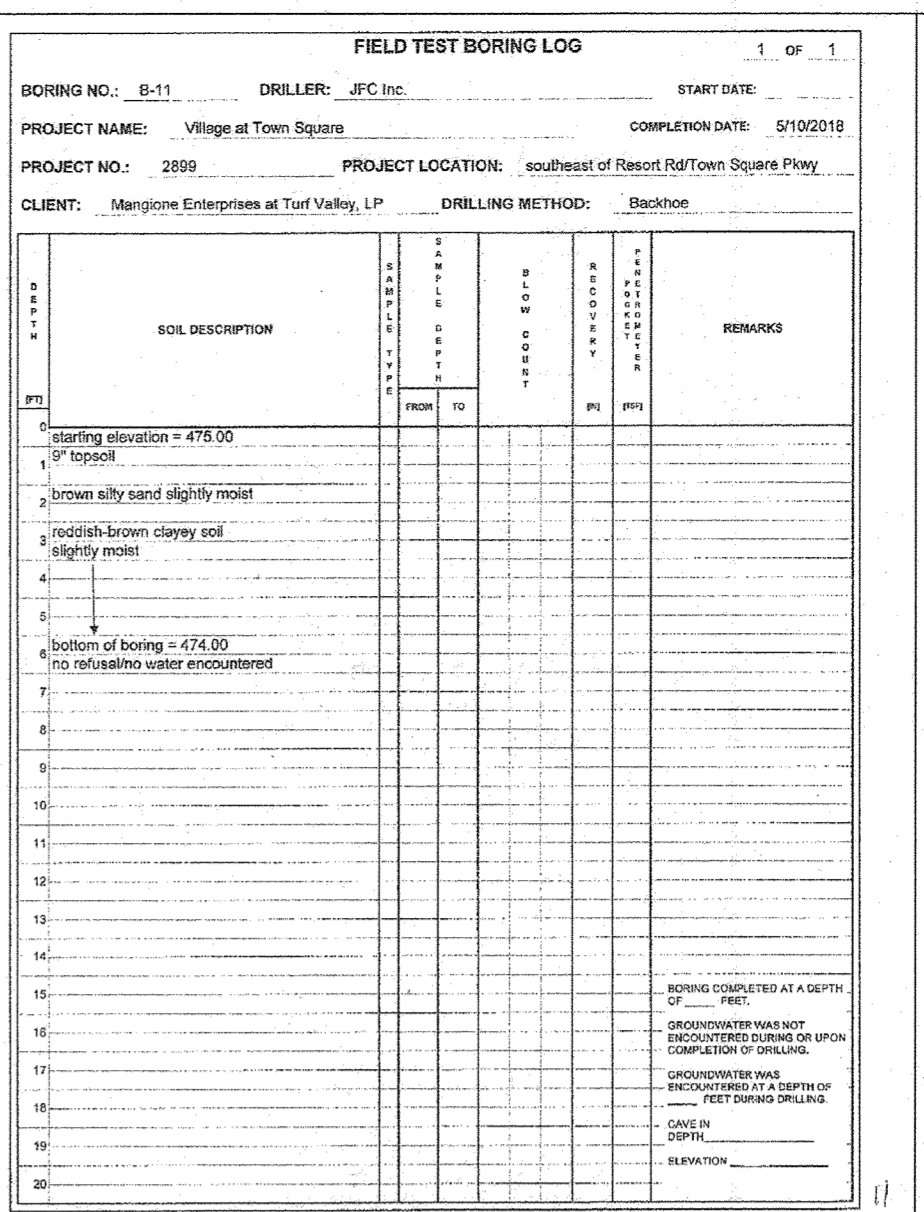
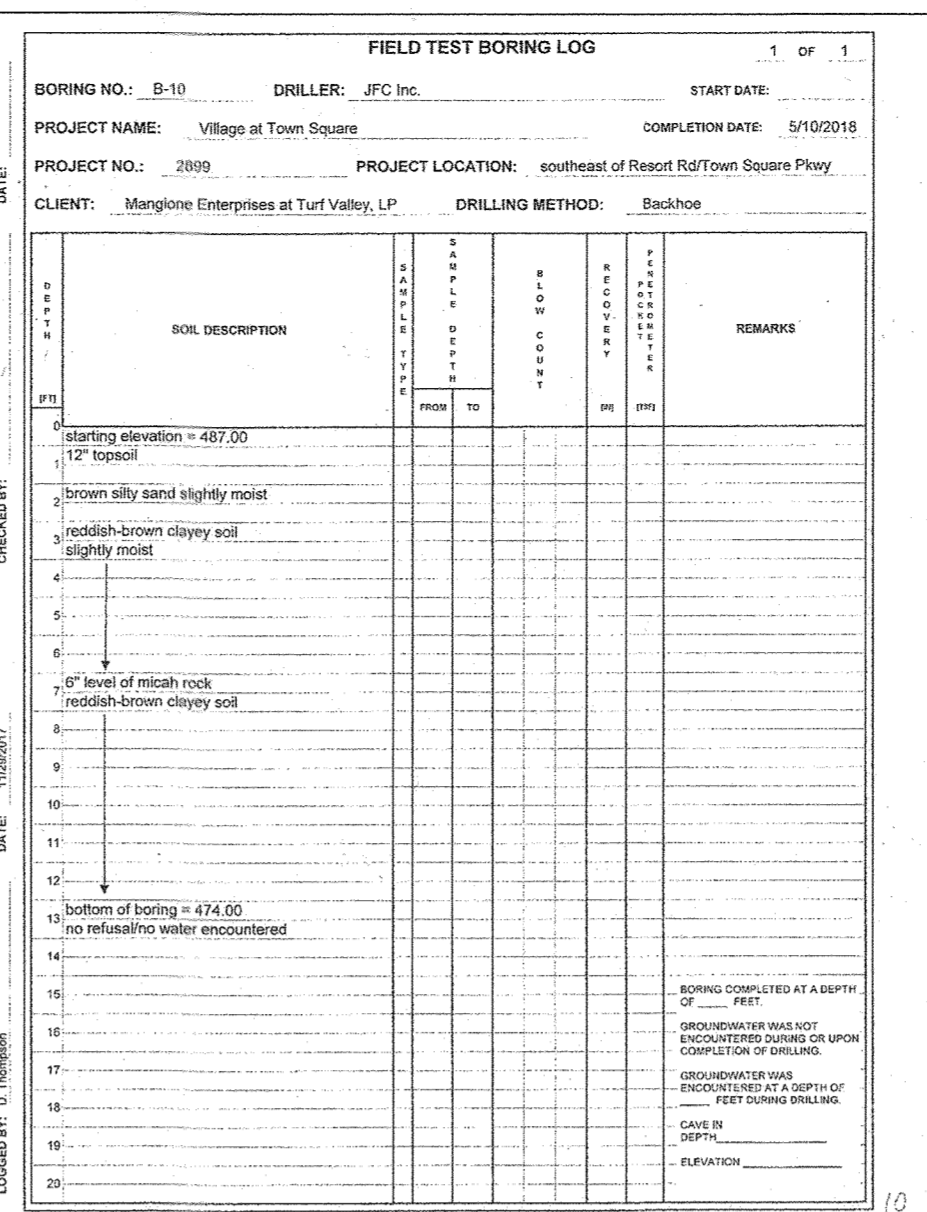
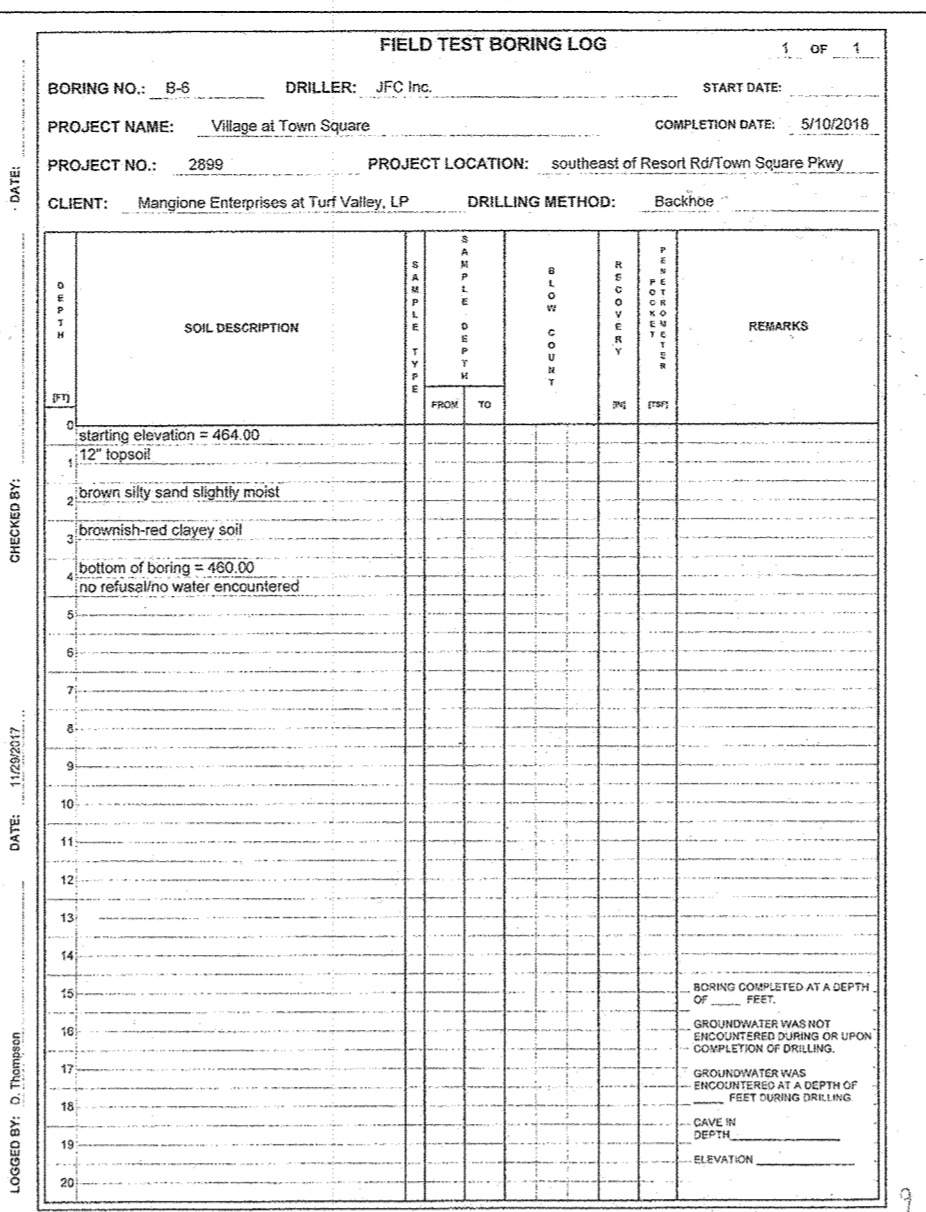
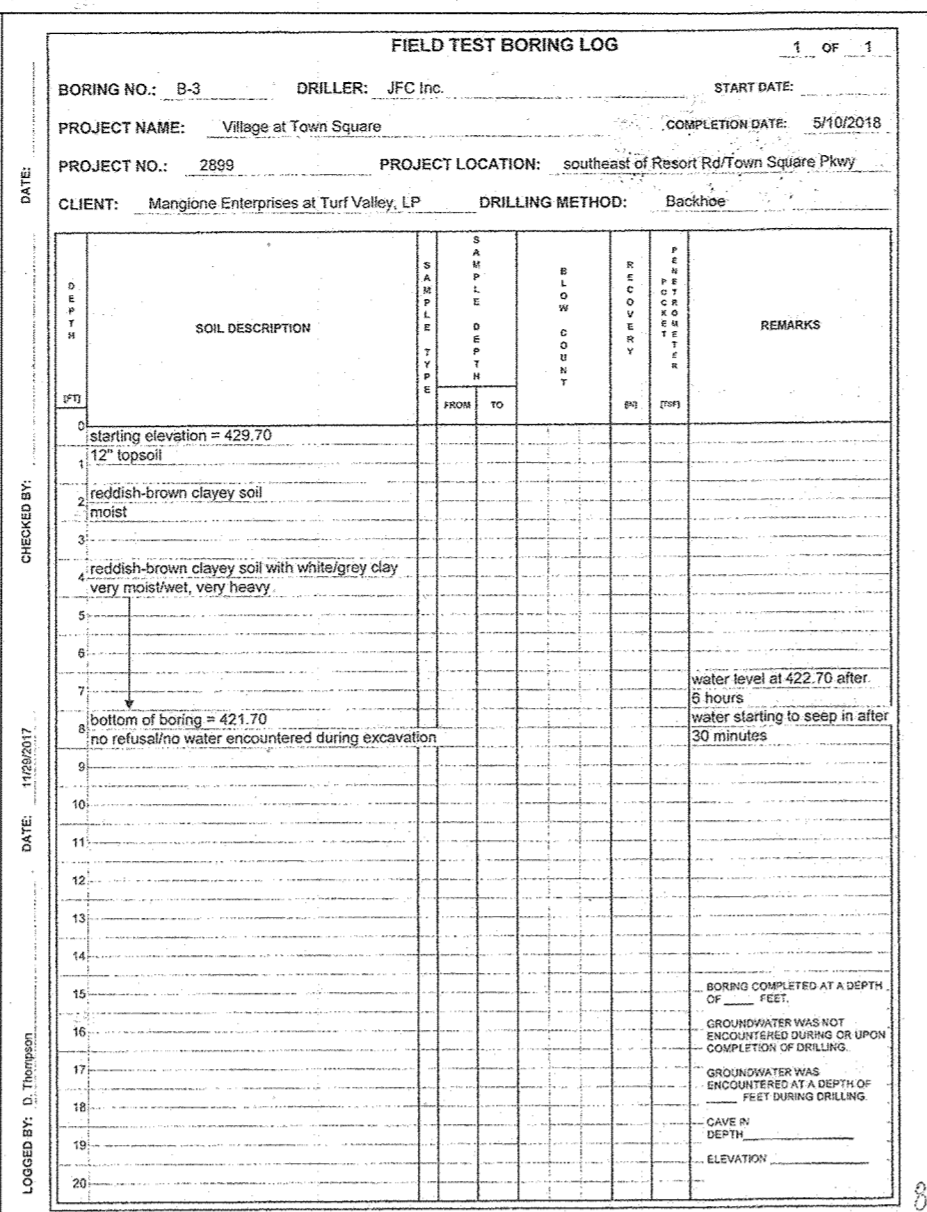
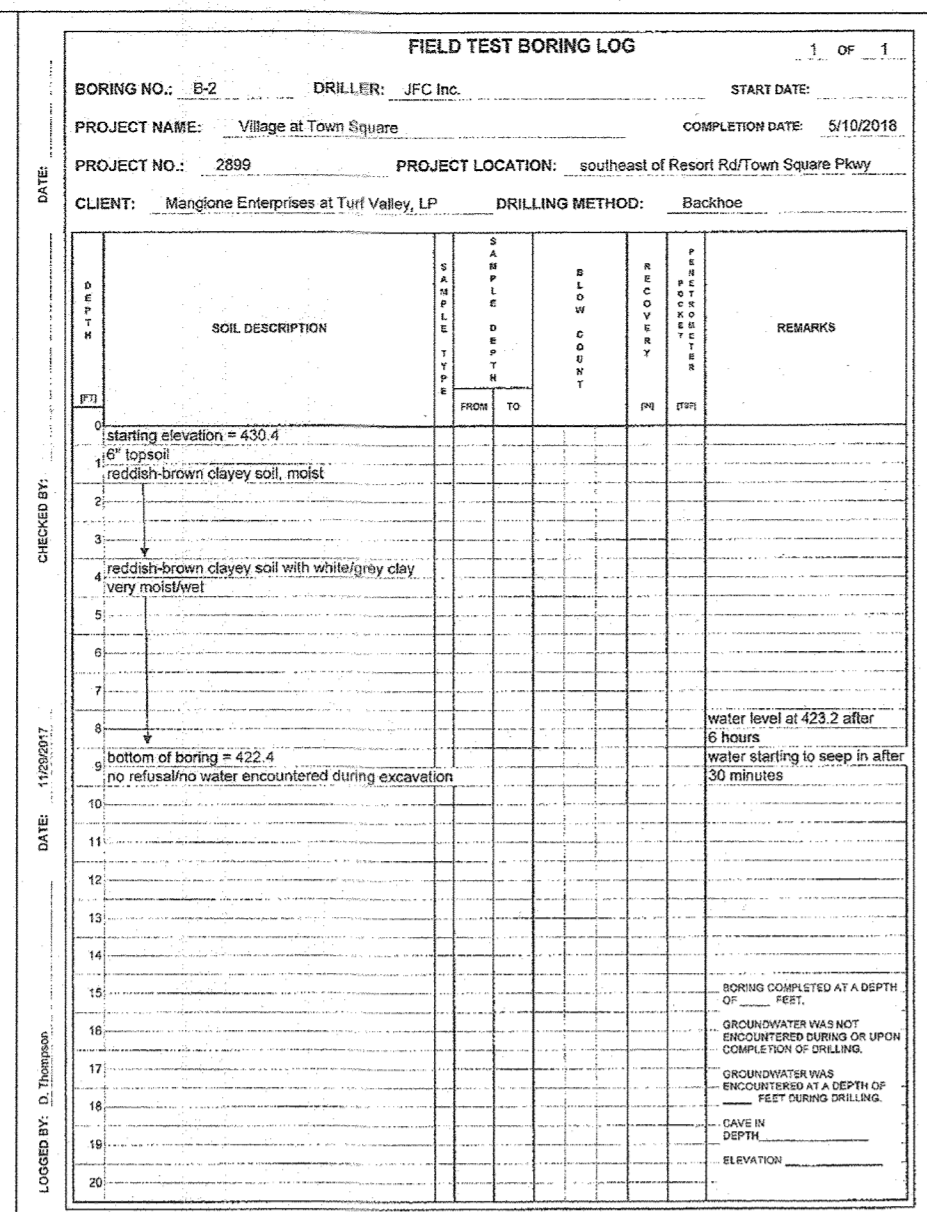
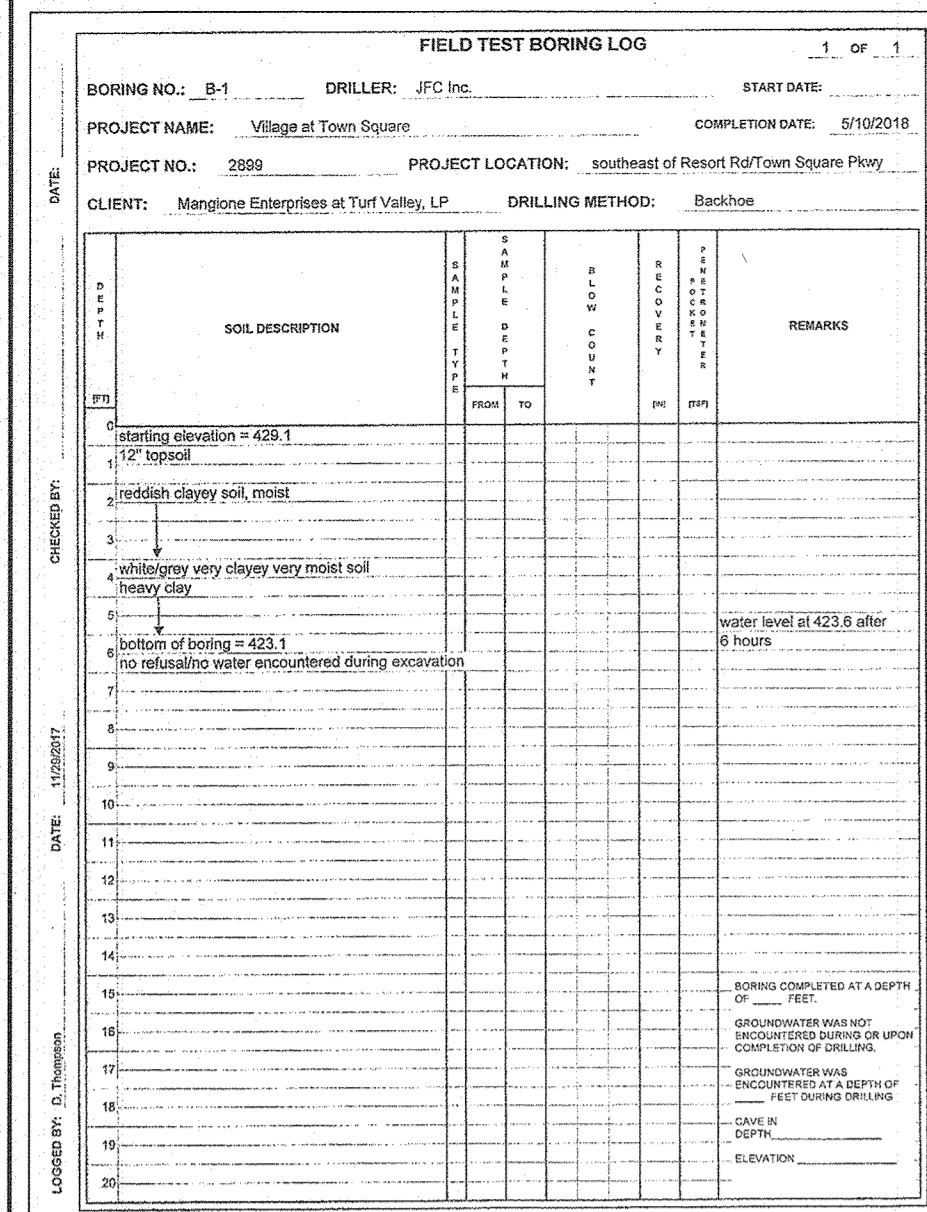
TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
 ZONED: PGCC

STORMWATER MANAGEMENT PROFILES, NOTES, AND DETAILS

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

DATE: AUGUST, 2021 BEI PROJECT NO. 2899
 SCALE: AS SHOWN SHEET 18 OF 26

DESIGN: MCR DRAFT: MCR



Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/DIVIDED UNCON. EQ/L LESS THAN 40 MPH
STANDARD NO. MD 104.04-02

Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
RIGHT LANE CLOSURE/DIVIDED UNCON. EQ/L LESS THAN 40 MPH
STANDARD NO. MD 104.04-06

Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
CENTER LANE CLOSURE/DIVIDED UNCON. EQ/L LESS THAN 40 MPH
STANDARD NO. MD 104.04-08

APPROVED: DEPARTMENT OF PUBLIC WORKS
APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 09/24/2021

NO. DATE REVISION
1 4-26-2023 REVISE TOTAL SHEET NUMBER W/TITLE BLOCK TO 20
REVISION

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE PIKE & SUITE 315 A ELLIOTT CITY, MARYLAND 21043
WWW.BE-ENGINEERING.COM

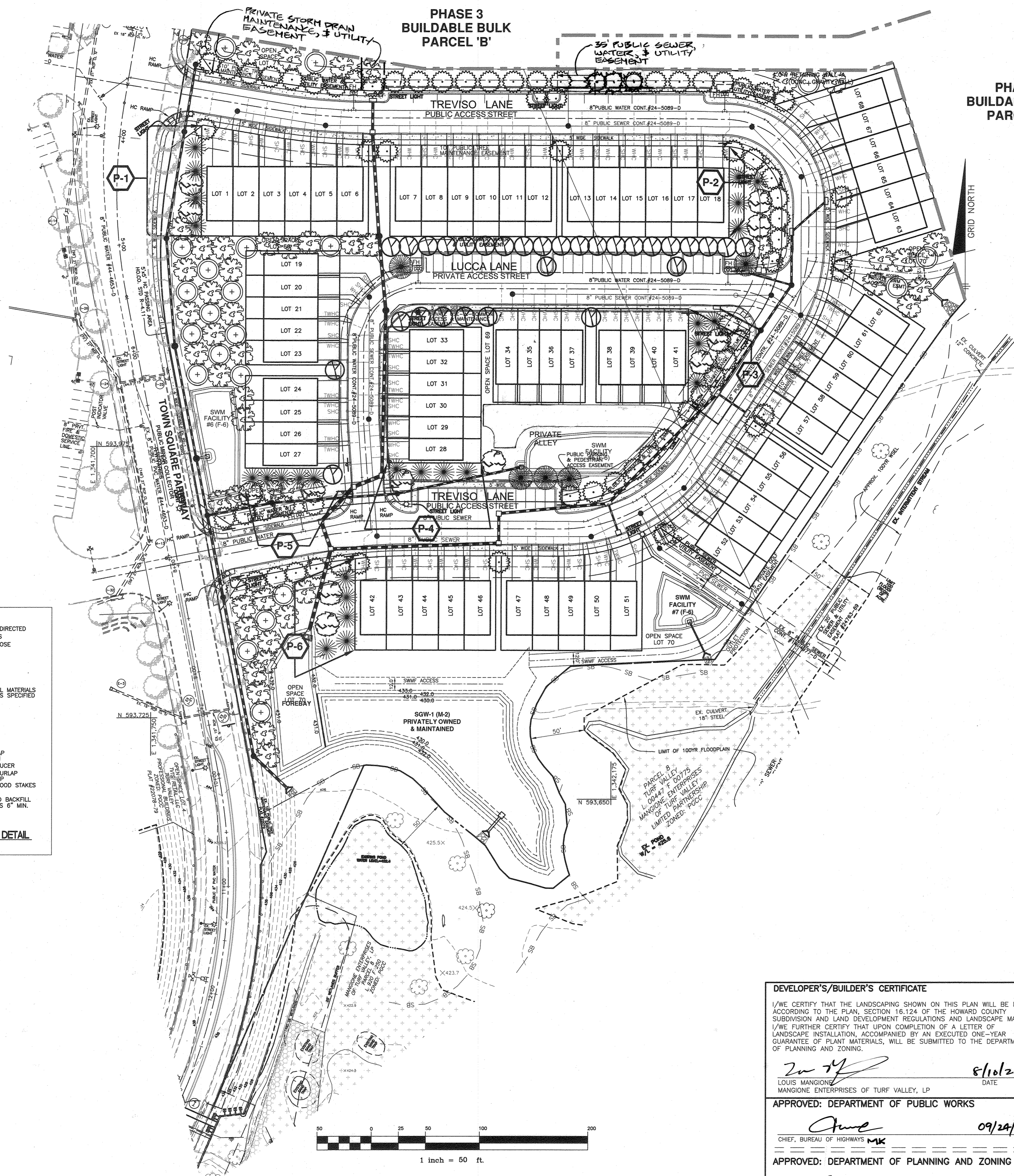
OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093
410-825-8400

TAX MAP: 16 - GRID: 19 - PARCEL: P0 8
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
ZONED: PGCC

THE VILLAGE AT TOWN SQUARE
PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71
and BUILDABLE BULK PARCELS A & B
A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL L-3 PLAT NO. 23822-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8

BORING LOGS AND MAINTENANCE OF TRAFFIC DETAILS
DATE: AUGUST, 2021 BEI PROJECT NO. 2899
SCALE: AS SHOWN SHEET 19 OF 26
DESIGN: MCR DRAFT: MCR

LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	71	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2.5" - 3" cal.	STREET TREES ALONG TREVISO LANE TO BE PROVIDED BY THE DEVELOPER
	30	PLATANUS X ACERFOLIA (Bloodgood London Plane)	2.5" - 3" cal.	STREET TREES LUCCA LANE TO BE PROVIDED BY THE DEVELOPER
	26	CUPRESSOCYPARIS LEYLANDII (Leyland Cypress)	5' - 6' ht.	PERIMETER EVERGREEN TREES TO BE PROVIDED BY THE BUILDER UNDER FUTURE SDP
	12	CLADRASTIS KENTUKEA LUTEA (Yellowwood)	2.5" - 3" cal.	PERIMETER SHADE TREES TO BE PROVIDED BY THE BUILDER UNDER FUTURE SDP
	48	ACER RUBRUM 'RED SUNSET' (Red Sunset Red Maple)	2.5" - 3" cal.	SHADE TREES TO SATISFY RESIDENTIAL INTERNAL OBLIGATION TO BE PROVIDED BY THE BUILDER UNDER FUTURE SDP
	5	PRUNUS SARGENTII (Sargent Cherry)	2.5" - 3" cal.	SHADE TREES TO SATISFY INTERNAL PARKING OBLIGATION TO BE PROVIDED BY THE BUILDER UNDER FUTURE SDP
	21	QUERCUS PALUSTRIS (Pin Oak)	2.5" - 3" cal.	SHADE TREES TO BE SATISFY RESIDENTIAL INTERNAL OBLIGATION TO BE PROVIDED BY THE BUILDER UNDER FUTURE SDP



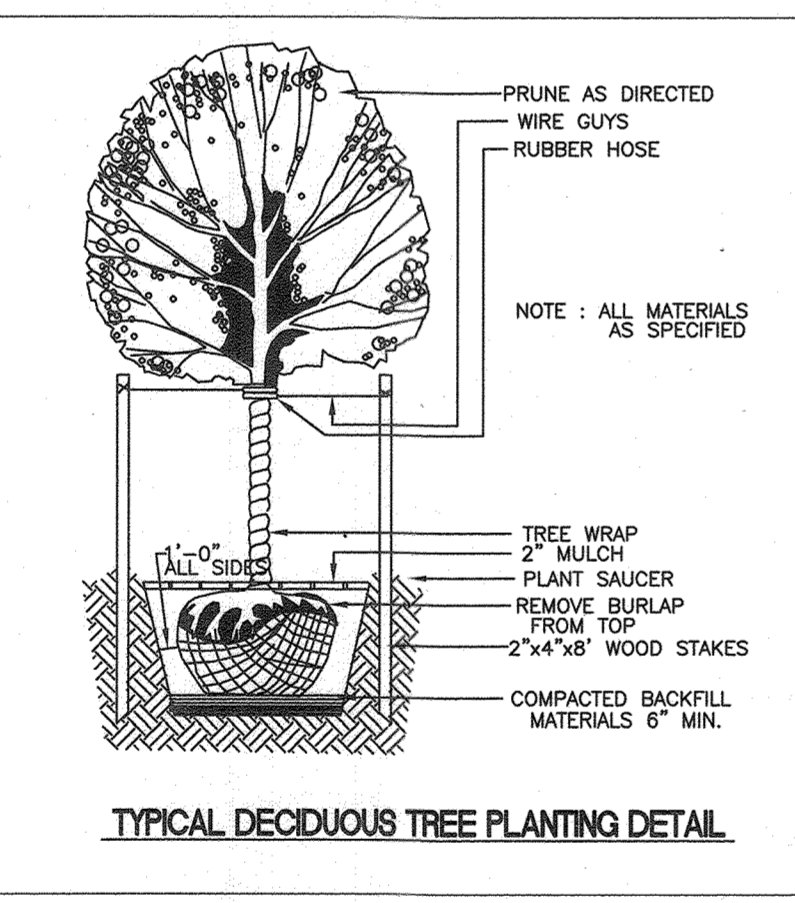
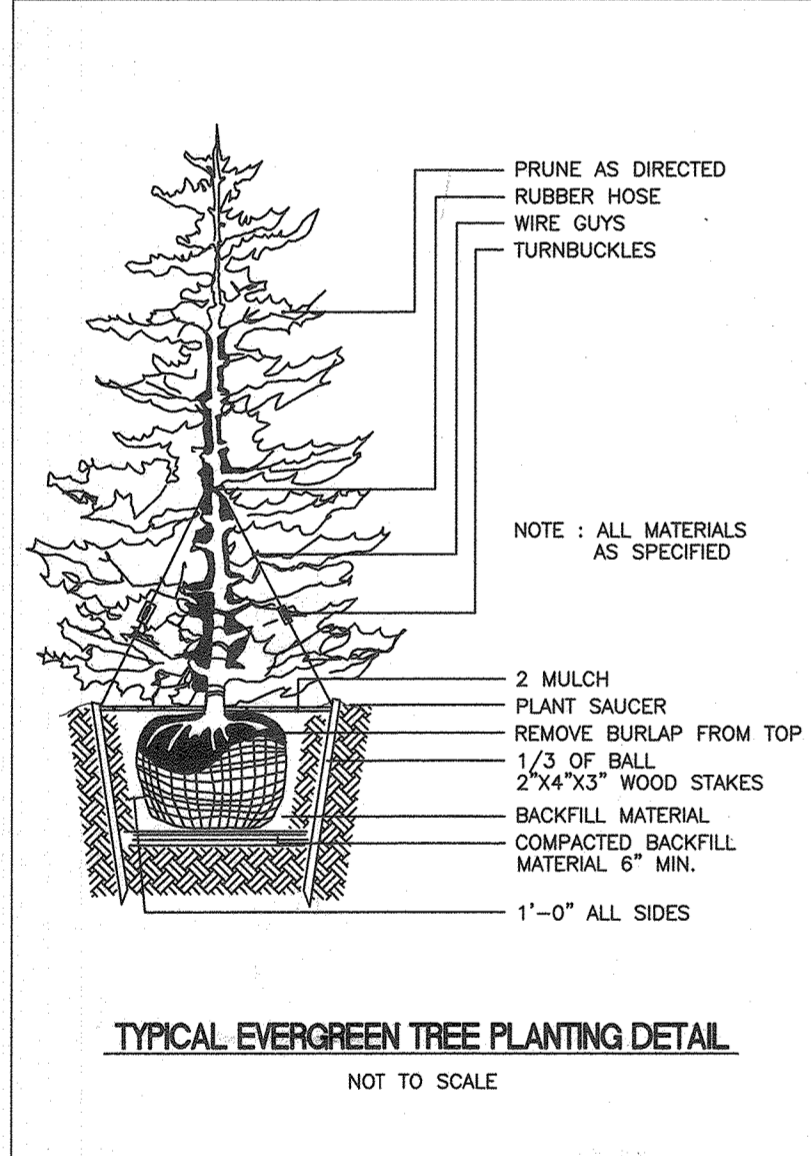
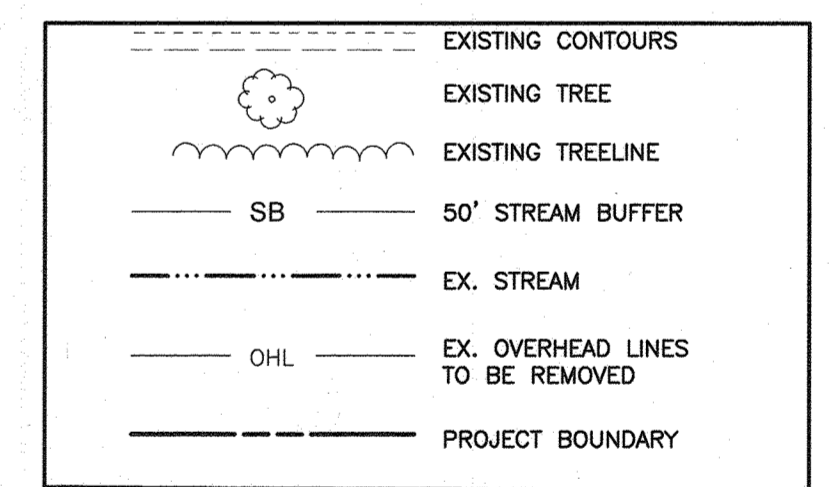
PHASE 2
BUILDABLE BULK
PARCEL 'A'

*SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF EXTERIOR PARKING SPACES	54
NUMBER OF ISLANDS/TREES REQUIRED (1:10 PARKING SPACES)	5

SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING		
	SFA	APTS
NUMBER OF DWELLING UNITS	69	0
NUMBER OF TREES REQUIRED (1:10 SFA; 1:3 DU APTS)	69	0

SCHEDULE A PERIMETER LANDSCAPE EDGE							TOTALS
CATEGORY	SFA LOT SIDE TO ROAD (P-1)	SFA LOT SIDE TO ROAD (P-2)	SFA LOT SIDE TO ROAD (P-3)	SFA LOT SIDE TO ROAD (P-4)	SFA LOT SIDE TO ROAD (P-5)	SFA LOT SIDE TO ROAD (P-6)	
LANDSCAPE TYPE	C 1:40 shade 1:20 evergreen	C 1:40 shade 1:20 evergreen	C 1:40 shade 1:20 evergreen	C 1:40 shade 1:20 evergreen	C 1:40 shade 1:20 evergreen	C 1:40 shade 1:20 evergreen	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	84'(Avg.)	84'(Avg.)	87'	87'	92'(Avg.)	92'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED	84'	84'	87'	87'	92'	87'	
SHADE TREES	2	2	2	2	2	2	12
EVERGREEN TREES	4	4	4	4	5	5	26
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0	0	0	0
SHRUBS	0	0	0	0	0	0	0

STREET TREE SCHEDULE				TOTAL
LINEAR FEET OF R.O.W. / ROADWAY	LUCCA LANE	TREVISO LANE		
LINEAR FEET OF CREDIT	0	0		
LINEAR FEET OF REQUIRED PLANTING	1200'	2,824'		
TREE SIZE	LARGE 1:40 LF	LARGE 1:40 LF		
TREES REQUIRED	30	71		101



- LANDSCAPE NOTES:**
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
 - STREET TREE LOCATIONS:
 - WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS 6 FEET OR GREATER, THE TREES SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY AND SHALL BE CENTERED BETWEEN THE CURB AND SIDEWALK.
 - WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS LESS THAN 6 FEET, TREES MAY BE PLANTED 3 FEET FROM THE SIDEWALK IN THE DIRECTION AWAY FROM THE ROAD. A 10-FOOT WIDE TREE MAINTENANCE EASEMENT SHALL BE REQUIRED IF THE RIGHT-OF-WAY IS LIMITED.
 - TREES SHALL BE PLANTED 6 FEET BEHIND CURB WHEN THERE ARE NO SIDEWALKS.
 - TREES TO BE PLANTED MINIMUM 30 FEET FROM SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB. TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A STORM DRAIN INLET, OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.
 - AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
 - THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 - FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING AND RESIDENTIAL INTERNAL LANDSCAPING SHALL BE POSTED AS PART OF THE GRADING PERMIT UNDER THE SITE DEVELOPMENT PLAN. FINANCIAL SURETY FOR THE 101 STREET TREES IN THE AMOUNT OF \$30,300 SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR F-20-071.
 - A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
 - ON THE APPROACH SIDE OF A STOP SIGN, NO STREET TREE CAN BE PLANTED WITHIN 30' OF THE STOP SIGN.

DEVELOPER'S/BUILDER'S CERTIFICATE

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

Louis Mangione 8/10/21
LOUIS MANGIONE DATE
MANGIONE ENTERPRISES OF TURF VALLEY, LP

Michael M. King 09/24/2021
CHIEF, BUREAU OF HIGHWAYS DATE

Michael M. King 1/21/22
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Michael M. King 1/19/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
1	4.27.2023	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315A ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-6644
WWW.BE-CVLENGINEERING.COM

THE VILLAGE AT TOWN SQUARE
PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71
and BUILDABLE BULK PARCELS A & B
A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 I-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22079-22079, AND A SUBDIVISION OF PART OF PARCEL 6
TAX MAP: 16 - GRID: 19 - PARCEL: P/O 8
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND
ZONED: PGCC



LANDSCAPE PLAN

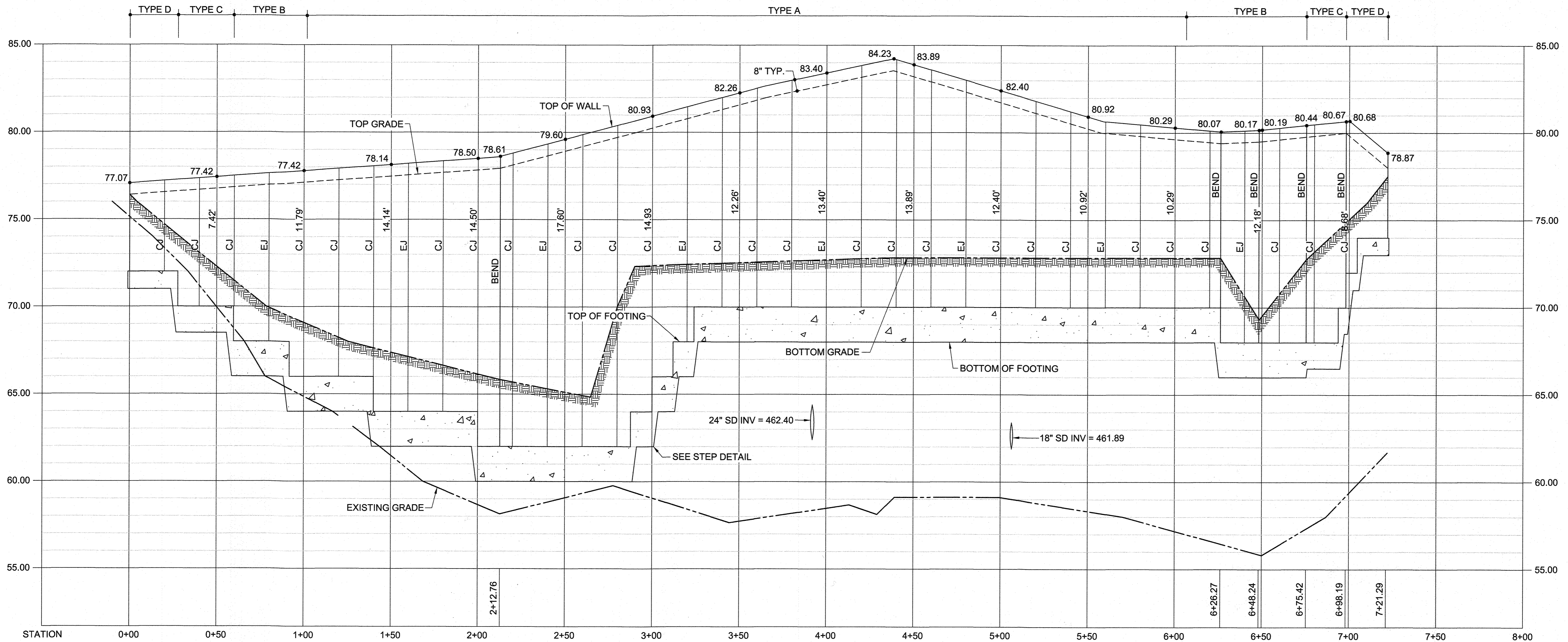
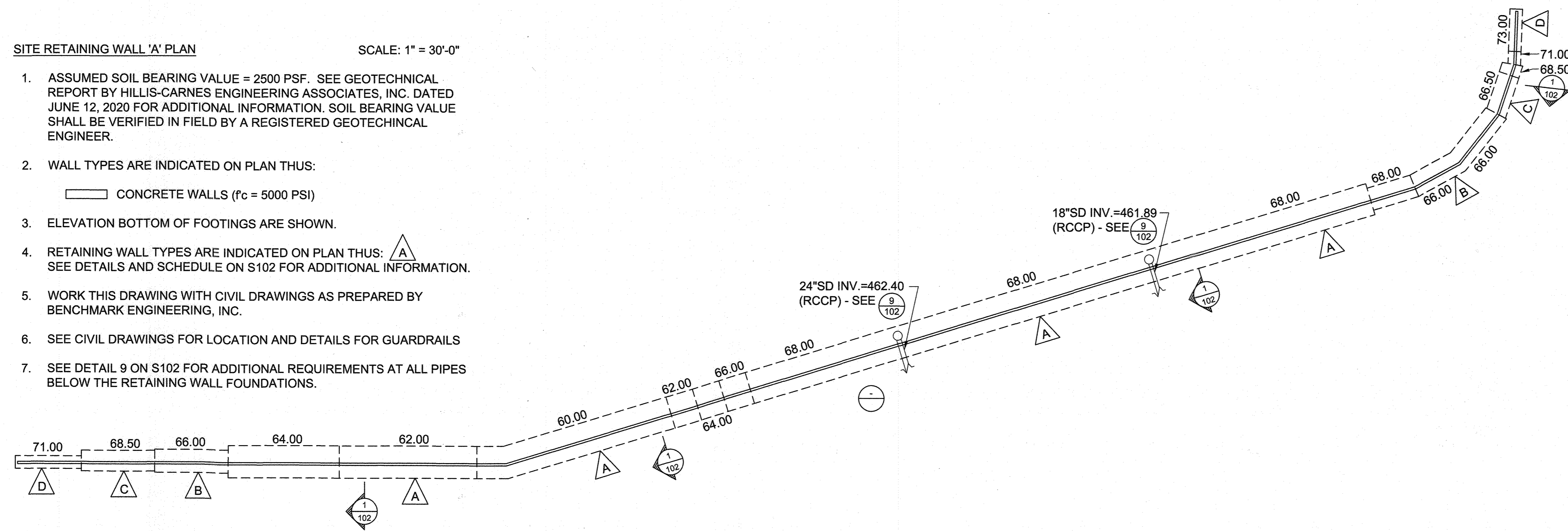
DATE:	AUGUST, 2021	BEI PROJECT NO.	2899
SCALE:	AS SHOWN	SHEET	20 OF 26

DESIGN: MCR DRAFT: MCR

SITE RETAINING WALL 'A' PLAN

SCALE: 1" = 30'-0"

- ASSUMED SOIL BEARING VALUE = 2500 PSF. SEE GEOTECHNICAL REPORT BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. DATED JUNE 12, 2020 FOR ADDITIONAL INFORMATION. SOIL BEARING VALUE SHALL BE VERIFIED IN FIELD BY A REGISTERED GEOTECHNICAL ENGINEER.
- WALL TYPES ARE INDICATED ON PLAN THUS:
 CONCRETE WALLS ($f_c = 5000$ PSI)
- ELEVATION BOTTOM OF FOOTINGS ARE SHOWN.
- RETAINING WALL TYPES ARE INDICATED ON PLAN THUS:  SEE DETAILS AND SCHEDULE ON S102 FOR ADDITIONAL INFORMATION.
- WORK THIS DRAWING WITH CIVIL DRAWINGS AS PREPARED BY BENCHMARK ENGINEERING, INC.
- SEE CIVIL DRAWINGS FOR LOCATION AND DETAILS FOR GUARDRAILS
- SEE DETAIL 9 ON S102 FOR ADDITIONAL REQUIREMENTS AT ALL PIPES BELOW THE RETAINING WALL FOUNDATIONS.



NOTES:

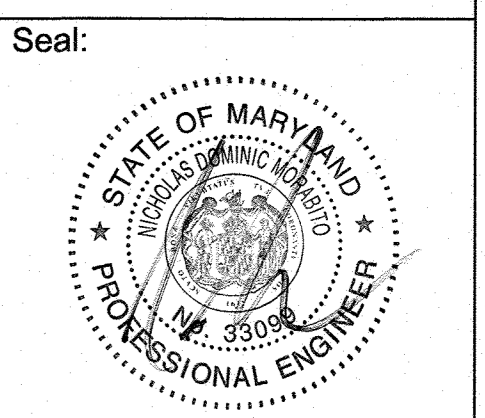
- CJ = CONSTRUCTION/CONTROL JOINT (20'-0" o/c)
- EJ = EXPANSION JOINT (80'-0" o/c)

SITE RETAINING WALL ELEVATION
 HORIZONTAL SCALE: 1" = 30'-0"
 VERTICAL SCALE: 1" = 3'-0"

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

THE VILLAGE AT TOWN SQUARE PHASE 1
 HOWARD COUNTY, MARYLAND

morabito consultants
 Structural Engineers | Parking Consultants
 952 Ridgeway Road, Suite 1700
 Sparks, MD 21152-9472
 410.467.2377 | www.morabitoconsultants.com
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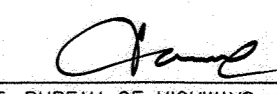
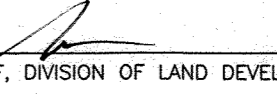
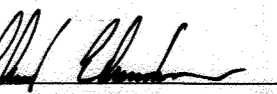
Professional Certification: I hereby declare that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No.: 33999, Expire Date: 09/29/23

No.	Date	Revisions
1	4/21/23	REVISE FROM S101-7 NUMBER TO 20

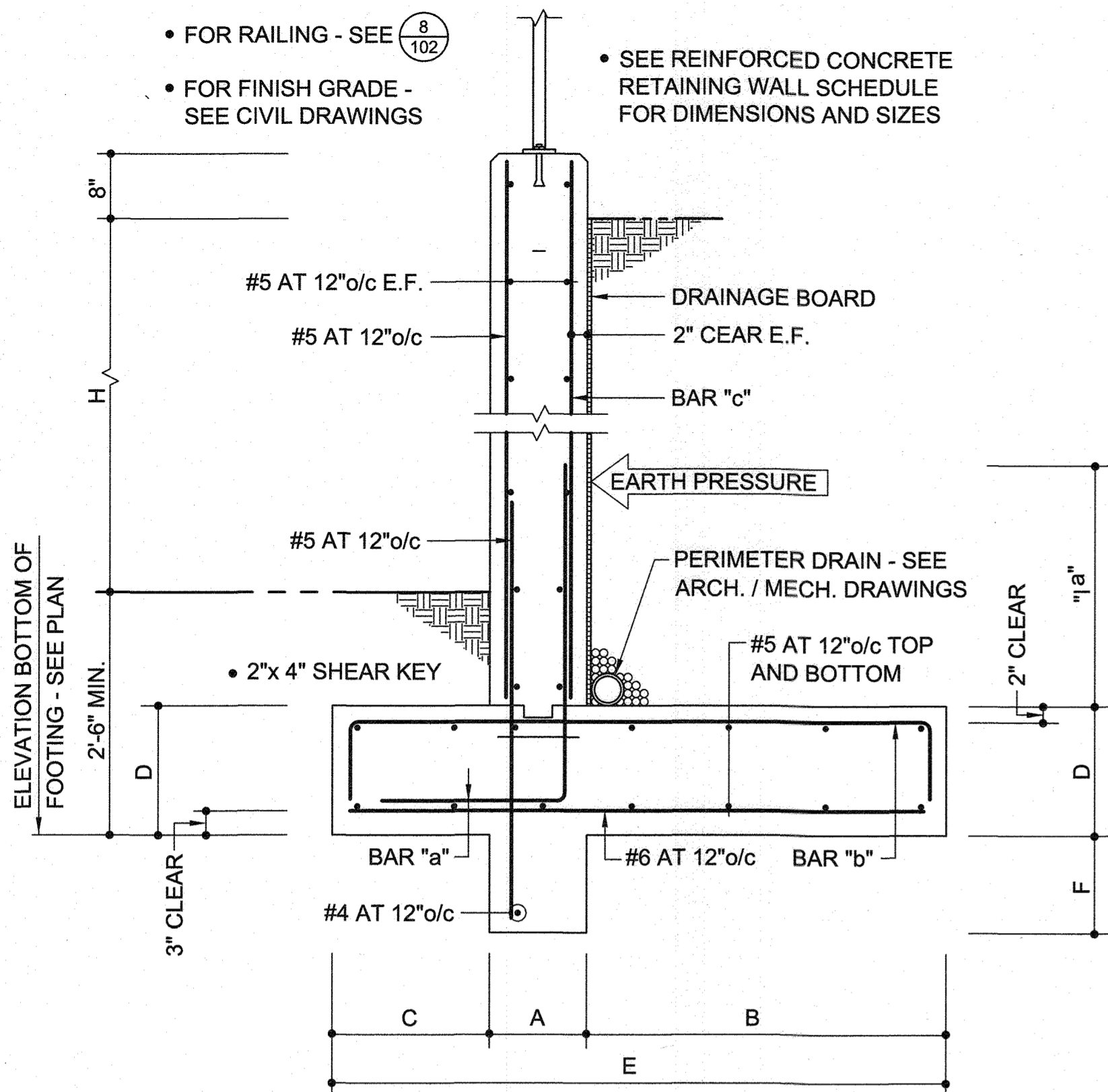
Designed: NDM
 Drawn: NDM
 Project No.: 20187
 Date: AUGUST 2021
 Scale: 1" = 30'-0"

Sheet Title:
RETAINING WALL PLAN AND ELEVATION

Sheet No.:
S101
 Sheet 21 of 26

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF HIGHWAYS MK
 DATE: 09/29/2021
 APPROVED: DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DIVISION OF LAND DEVELOPMENT MM
 DATE: 1/19/22

 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1/19/22

- FOR RAILING - SEE 8/102
- FOR FINISH GRADE - SEE CIVIL DRAWINGS
- SEE REINFORCED CONCRETE RETAINING WALL SCHEDULE FOR DIMENSIONS AND SIZES



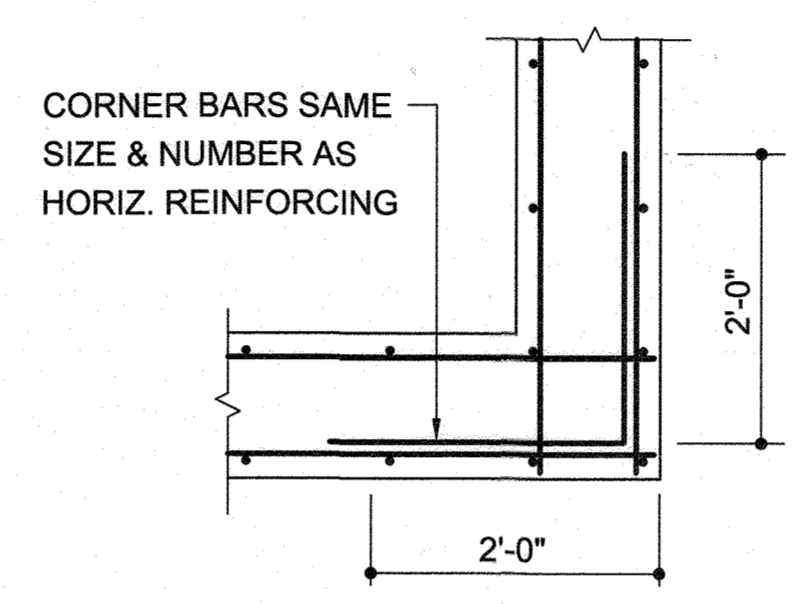
1 TYPICAL CONCRETE RETAINING WALL

CONCRETE RETAINING WALL SCHEDULE

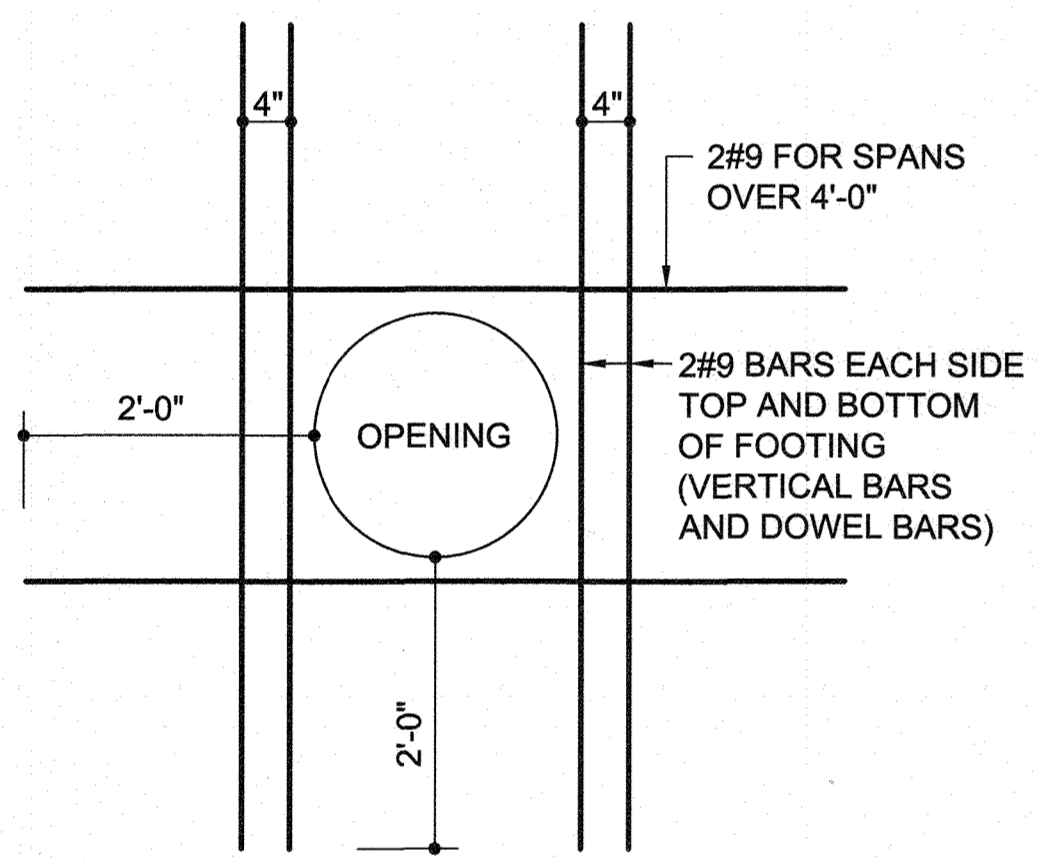
MARK	HEIGHT (NOTE 4)	WALL	FOOTING			REINFORCING			SHEAR KEY	
			H	A	E x D	B	C	BAR "a"		BAR "b"
A	14'-0"	12"	14'-0" x 24"	7'-6"	5'-6"	#9 AT 8"o/c	42"	#8 AT 8"o/c	#7 AT 6"o/c	4'-2"
B	10'-0"	12"	10'-0" x 24"	5'-6"	3'-6"	#7 AT 8"o/c	42"	#7 AT 8"o/c	#5 AT 8"o/c	3'-0"
C	7'-0"	12"	9'-0" x 18"	5'-0"	3'-0"	#6 AT 12"o/c	36"	#6 AT 12"o/c	#4 AT 12"o/c	1'-6"
D	4'-0"	12"	5'-6" x 12"	2'-6"	2'-0"	#5 AT 12"o/c	30"	#5 AT 12"o/c	#4 AT 12"o/c	1'-0"

RETAINING WALL NOTES:

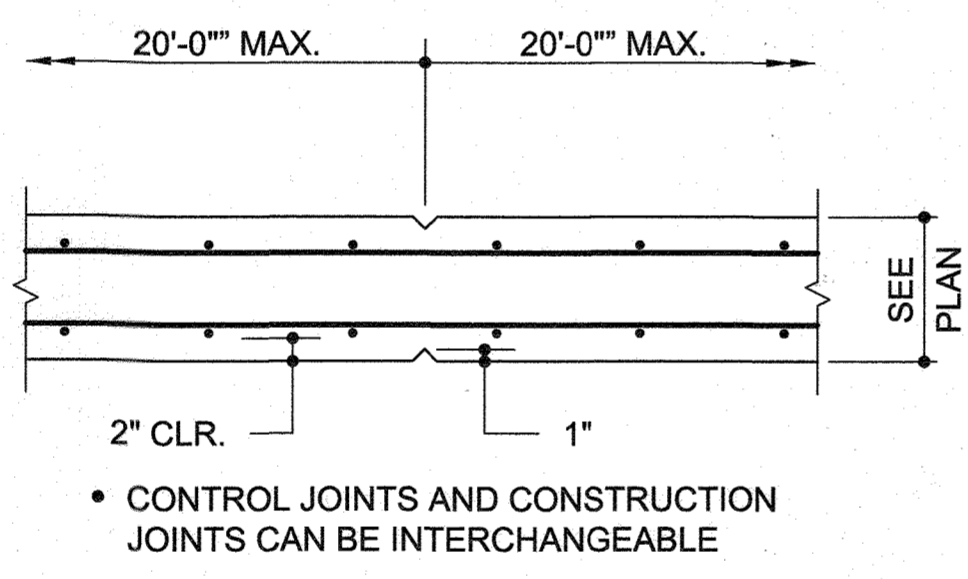
- ALL CONCRETE FOR RETAINING WALLS AND RETAINING WALL FOOTINGS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI
- LATERAL EARTH PRESSURE OF 45H (PSF) AND ALLOWABLE BEARING PRESSURE OF 2,500 PSF WERE USED IN THE DESIGN OF BELOW GRADE SITE WALLS AND FOOTINGS AND MUST BE VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER.
- DO NOT BACKFILL WALLS UNTIL CONCRETE HAS ATTAINED DESIGN STRENGTH AND SLAB ON GRADE HAS BEEN POURED AND CURED FOR AT LEAST 7 DAYS.
- RETAINED EARTH SHALL NOT EXCEED THE CORRESPONDING HEIGHT, H, AS NOTED IN SCHEDULE.
- RETAINING WALL WAS NOT DESIGNED TO SUPPORT THE VEHICULAR GUARDRAIL.



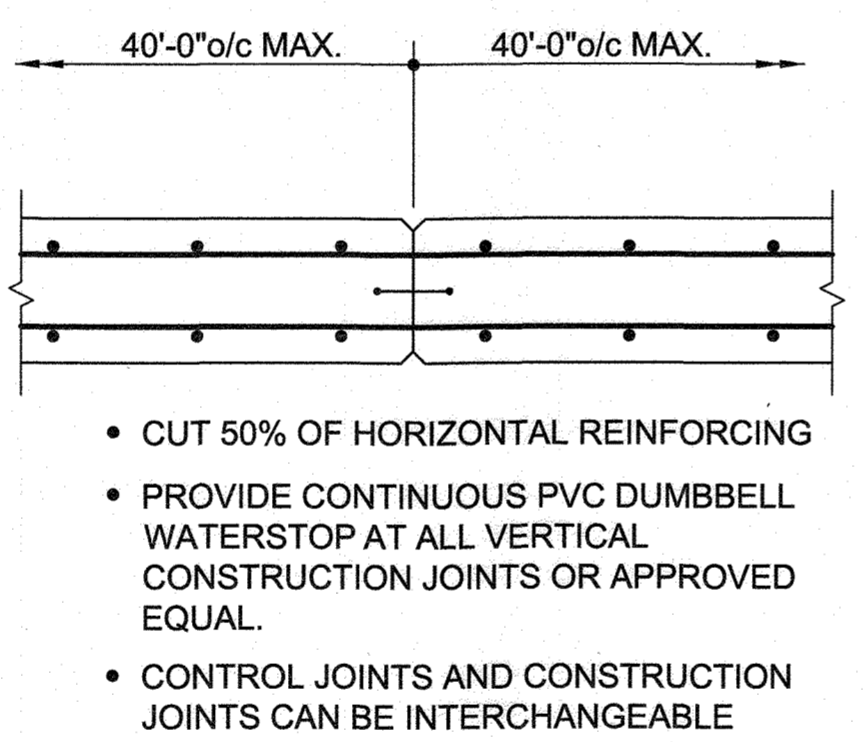
2 TYP. CORNER BARS



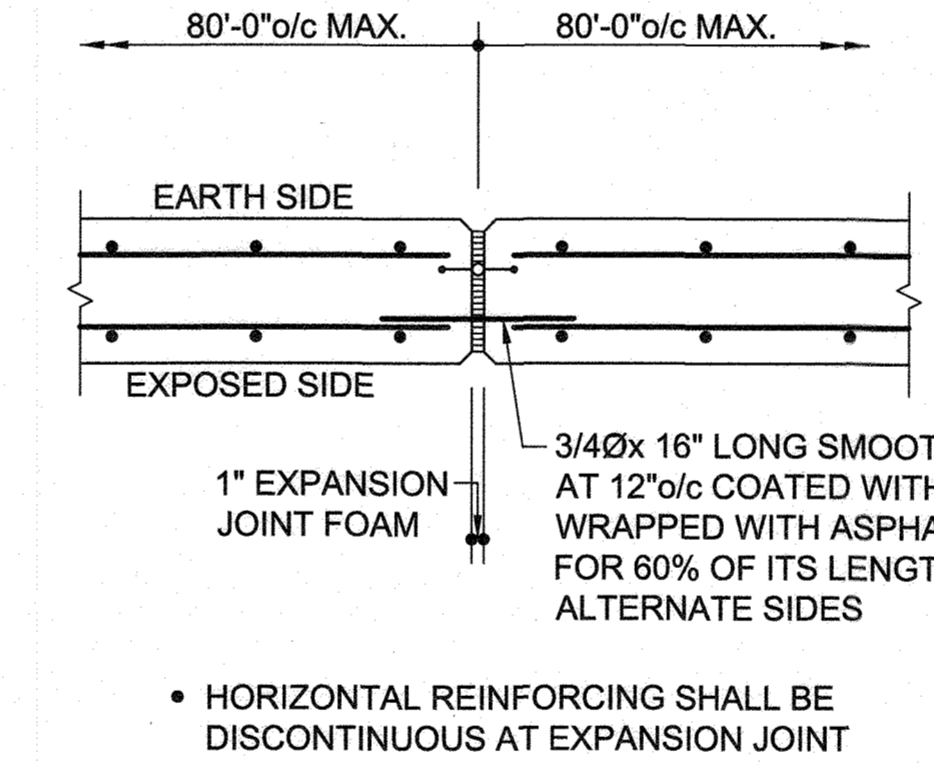
3 TYPICAL OPENING IN CONCRETE WALL



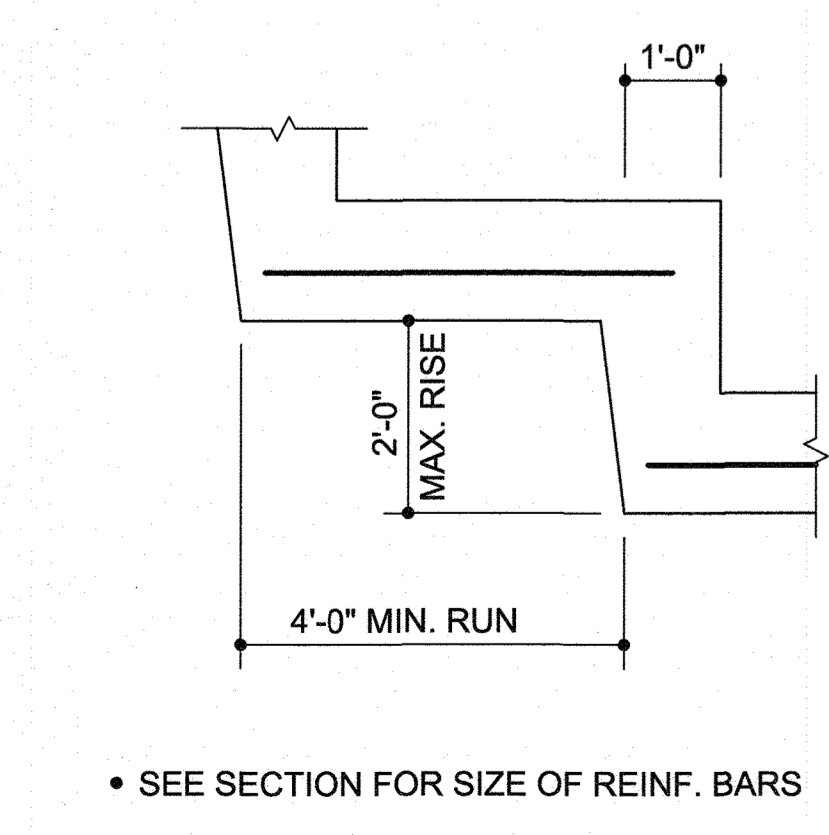
4 CONTROL JOINT IN CONCRETE WALLS



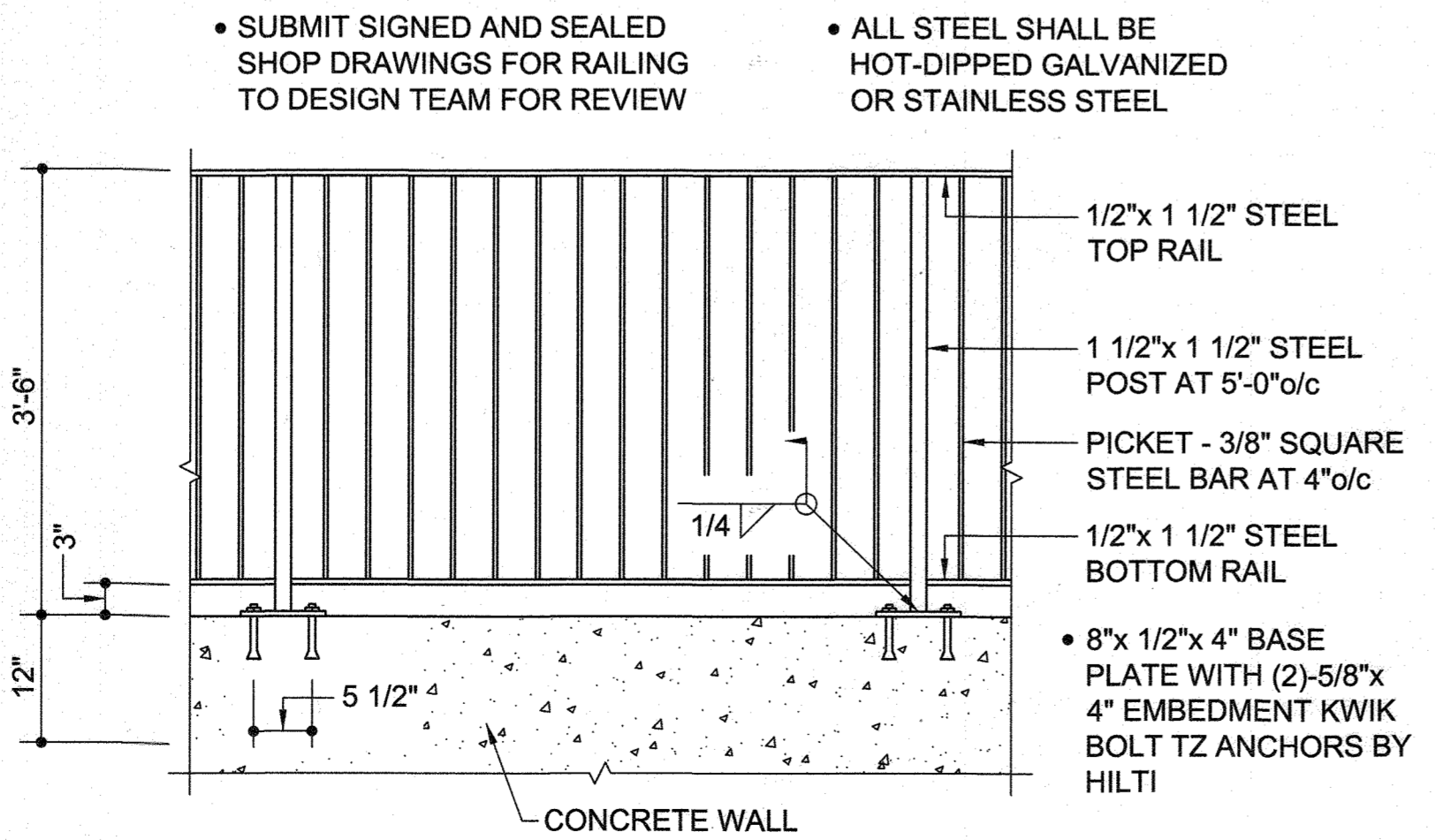
5 CONSTRUCTION JOINT IN CONCRETE WALLS



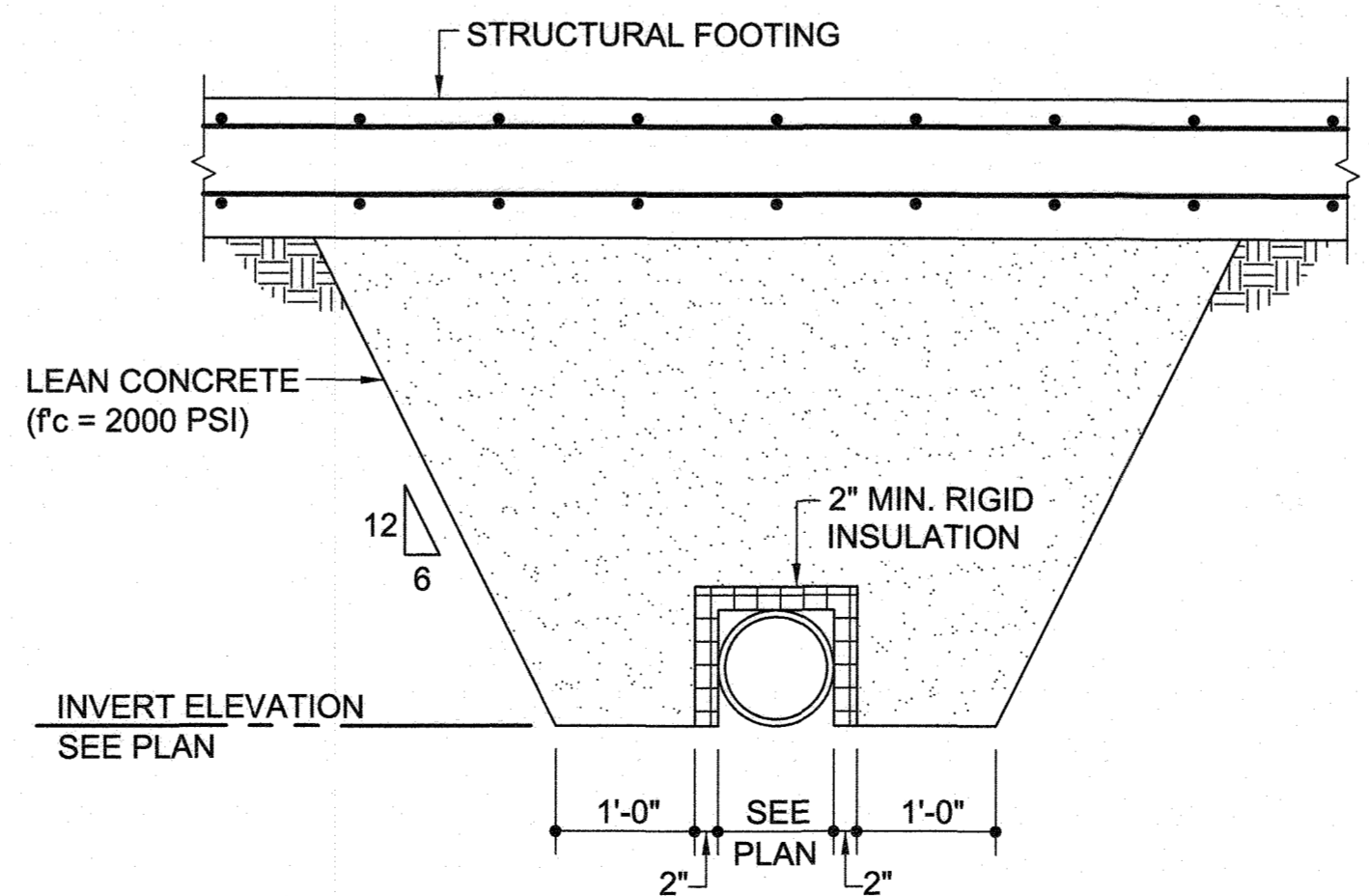
6 EXPANSION JOINT IN CONCRETE WALLS



7 TYP. STEPPED FOOTING



8 TYPICAL RAILING ELEVATION



9 PIPE BELOW FOOTING

- CONTROLLED FILL AND BACKFILL:**
- SAMPLES OF ALL MATERIALS THAT THE CONTRACTOR PROPOSES TO USE FOR COMPACTED FILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
 - COMPACTED FILL SHALL CONSIST OF LOCAL MATERIAL FREE OF DELETERIOUS MATTER AND CLASSIFIED SP, SW, SM, SC, GP, GW, GM, OR GC PER ASTM D-2487.
 - THE CONTROL OF THE FILL PLACING SHALL BE BASED ON THE RESULTS OF COMPACTION TESTS PER ASTM D-698.
 - ALL COMPACTED FILL SHALL HAVE A DENSITY OF AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698.
 - PRIOR TO PLACEMENT OF ANY FILLS, THE SITE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ROCKS, AND ORGANIC MATERIALS AND THE EXPOSED SUBGRADE SHALL BE COMPACTED IN PLACE TO A CONFIRMED DENSITY OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
 - FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8" IN THICKNESS AND SHALL BE MIXED, SPREAD AND PLACED IN SUCH A WAY AS TO PRODUCE A UNIFORM THICKNESS OF MATERIAL AFTER PLACING.
 - EACH LAYER OF FILL SHALL BE COMPACTED WITH A MINIMUM OF 6 COMPLETE PASSES ON ALL PORTIONS OF THE SURFACE OF EACH LIFT OF FILL BY RUBBER-TIRED ROLLERS, SHEEPS-FOOT ROLLERS OR OTHER MECHANICAL EQUIPMENT APPROVED BY THE GEOTECHNICAL ENGINEER.
 - COMPACTED FILL PLACED WITHIN 4 FEET OF STRUCTURES AND PIPES SHOULD BE PLACED IN HORIZONTAL LIFTS NOT TO EXCEED 4 INCHES THICKNESS AND COMPACTED WITH HAND TAMPER OR LIGHT COMPACTION EQUIPMENT TO THE SAME STANDARD.
 - HEAVY COMPACTION EQUIPMENT SHOULD NOT BE ALLOWED WITHIN 4 FEET OF STRUCTURES UNLESS A MINIMUM 2 FEET DEPTH OF FILL COVERS THE STRUCTURES.
 - WHENEVER IN PLACE DENSITIES ARE FOUND BELOW ACCEPTABLE LIMITS, ADDITIONAL ROLLING TO PRODUCE THE SPECIFIED DENSITIES SHALL BE REQUIRED.
 - THE CONTRACTOR SHALL TAKE ALL MEASURES REQUIRED TO PROVIDE FOR FREE DRAINAGE OF THE SITE AND TO PREVENT PONDING OF WATER. SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES.
 - PLACING OF FILL CONTAINING ORGANIC MATTER: PLACING OF FILL WITH MOISTURE CONTENT TOO HIGH OR TOO LOW FOR PROPER COMPACTION; PLACING OF FILL WHEN FREE WATER IS STANDING ON THE EXISTING FILL SURFACE; PLACING OF FILL IN A FROZEN CONDITION OR ON TOP OF FROZEN MATTER WILL NOT BE PERMITTED.
 - THE SOILS ENGINEER SHALL SUPERVISE THE PLACING OF THE COMPACTED FILL AND ALL THE MATERIAL AND EQUIPMENT USED FOR THIS PURPOSE AND SHALL MAKE SUCH SOILS TESTS AS MAY BE REQUIRED FOR THE COMPLETION OF THE WORK PERFORMING AT LEAST 8 IN PLACE DENSITY TESTS DURING EACH EIGHT HOUR SHIFT.

- FOUNDATIONS-SPREAD FOOTINGS:**
- BOTTOM OF ALL FOOTINGS SHALL BE A MINIMUM OF 2'-0" BELOW ORIGINAL GRADE OR PLACED IN APPROVED COMPACTED FILL.
 - BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 2'-6" BELOW FINISHED GRADE.
 - A SOIL BEARING CAPACITY OF 2500 PSF WAS USED IN THE FOUNDATION DESIGN, AND MUST BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER. IF SOIL OF THIS BEARING CAPACITY IS NOT ENCOUNTERED AT THE ELEVATIONS INDICATED ON THE CONTRACT DRAWINGS, FOOTINGS SHALL BE LOWERED OR INCREASED IN SIZE AS DIRECTED BY THE STRUCTURAL ENGINEER.
 - ELEVATIONS SHOWN ON PLAN ARE TO THE BOTTOM OF THE FOOTINGS.

- CONCRETE:**
- ALL CONCRETE WORK SHALL CONFORM TO ALL THE PROVISIONS OF THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
 - CONCRETE PROPERTIES FOR EACH STRUCTURAL ELEMENT IS DEFINED IN THE DESIGN DATA SECTION ON THIS SHEET.
 - CONCRETE SHALL CONFORM TO ALL THE PROVISIONS OF "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING" (ACI 305) AND "RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING" (ACI 306).
 - ALL FORMWORK SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "FORMWORK FOR CONCRETE" SPECIAL PUBLICATION NO. 4 AND ACSI "STANDARD REQUIREMENTS FOR CONCRETE FORMWORK" (ACI 308).
 - CONCRETE MIX DESIGN SHALL BE BASED ON LABORATORY TRIAL BATCH METHOD DESCRIBED IN ACI-318. CONCRETE SHALL ALSO CONFORM TO THE FOLLOWING REQUIREMENTS:
 - ALL CONCRETE EXPOSED TO THE WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 6% +/- 1%.
 - THE MAXIMUM WATER CEMENT RATIO W/C SHALL NOT EXCEED 0.56 FOR ALL CONCRETE EXCEPT CONCRETE EXPOSED TO WEATHER WHICH SHALL NOT EXCEED 0.45.
 - NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED.
 - THE MAXIMUM SLUMP OF ALL CONCRETE SHALL BE 4".
 - CONTRACTOR SHALL SUPPORT ADJACENT STRUCTURES, UTILITIES, AND EXCAVATIONS AS REQUIRED FOR COMPLETION OF WORK.
 - ONE SET OF COMPRESSIVE TEST CYLINDERS FOR EACH 100 CUBIC YARDS POURED, BUT NOT LESS THAN ONE SET FOR EACH DAY'S POUR AND EACH CLASS OF CONCRETE, ALONG WITH SLUMP TESTS SHALL BE PROVIDED BY A TESTING LABORATORY APPROVED BY THE STRUCTURAL ENGINEER OR OTHER MEANS.
 - NO CONCRETE SHALL BE PLACED UNTIL CONCRETE DESIGN MIXES HAVE BEEN SUBMITTED FOR EACH CLASS OF CONCRETE AND HAVE BEEN APPROVED BY THE ENGINEER.

- REINFORCING STEEL:**
- REINFORCING STEEL SHALL BE DEFORMED BARS IN ACCORDANCE WITH ASTM A-615, GRADE 60.
 - BENDS AND HOOKS ARE TO BE FABRICATED IN ACCORDANCE WITH ACI 318-98 ACI DETAILING MANUAL AND AS PER DETAILS.
 - PLACE MAIN REINFORCING STEEL SO AS TO PROVIDE 3" MINIMUM COVER FOR FOUNDATIONS POURED ON EARTH, 2" MINIMUM COVER FOR BEAMS AND COLUMNS, 3/4" MINIMUM COVER FOR SLABS AND 1 1/2" FOR ALL REBAR IN EXPOSED CONCRETE (EXCEPT AS OTHERWISE IN DETAILS).
 - LAP DEFORMED BARS IN ACCORDANCE WITH LAP SPICE SCHEDULE ON THESE DRAWINGS, UNO.
 - HOOKS SHALL BE STANDARD HOOKS, UNO.
 - PROVIDE ACCESSORIES AND BAR SUPPORTS IN ACCORDANCE WITH THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315).
 - WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-1064, UNO.
 - WWF REINFORCING SHALL BE PLACED AT MID-DEPTH OF SLABS ON GRADE AND DRAPED OVER SUPPORTS IN CONCRETE ON METAL DECK SLABS.
 - END LAPS OF ALL WWF REINFORCING SHALL BE LAPPED (1) SQUARE.

- POST-INSTALLED ANCHORS:**
- POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS.
 - SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, FATIGUE, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE.
 - ANCHOR CAPACITY IS HIGHLY DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE/EMASSEMBLY. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS. IF EDGE DISTANCES OR ANCHOR SPACING IS NOT SPECIFIED ON THE DRAWINGS, PROVIDE THE FOLLOWING MINIMUM DISTANCES:
 - ADHESIVE ANCHORS: 3 TIMES THE ANCHOR EMBEDMENT LENGTH
 - UNDERCUT ANCHORS: 2.5 TIMES THE ANCHOR EMBEDMENT LENGTH
 - EXPANSION ANCHORS (SLEEVE OR WEDGE): 4 TIMES THE ANCHOR EMBEDMENT LENGTH
 - ANCHOR SPACING:
 - ALL ANCHORS: 3 TIMES THE ANCHOR EMBEDMENT
 - ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, BUILDING CODE, AND MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPI).
 - THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL POST-INSTALLED ANCHORS HAVE BEEN PROPERLY TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING FOR EACH SPECIFIC PRODUCT.
 - INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLUDING SUPER TENSION LOADS (AS DETERMINED BY THE ENGINEER) SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY THE ACI-CRS "ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM".
 - ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION BY AN INSPECTOR SPECIALLY APPROVED FOR THAT PURPOSE BY THE BUILDING OFFICIAL. THE SPECIAL INSPECTOR SHALL FURNISH A REPORT TO THE STRUCTURAL ENGINEER OF RECORD AND BUILDING OFFICIAL THAT THE WORK COVERED BY THE REPORT HAS BEEN PROPERLY PERFORMED AND THAT THE MATERIALS USED AND THE INSTALLATION PROCEDURES USED CONFORM WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPI).
 - ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION. IF HIGH-EARLY STRENGTH CONCRETE MIXES ARE SPECIFIED, CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL OF MINIMUM INSTALLATION AGE.
 - EXISTING REINFORCING BARS OR PRESTRESSING STEEL IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TESTING TO LOCATE THE POSITION AND DEPTH OF THE REINFORCING BARS OR PRESTRESSING STEEL. THE CONTRACTOR SHALL PROVIDE A REPORT TO THE STRUCTURAL ENGINEER OF RECORD AND BUILDING OFFICIAL THAT THE MATERIALS USED AND THE INSTALLATION PROCEDURES USED CONFORM WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPI).
 - EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES: ANCHORS EXPOSED TO WEATHER AND AT SILL PLATES SHALL BE STAINLESS STEEL.
 - MECHANICAL ANCHORS IN CRACKED OR UNCRACKED CONCRETE USE:
 - HILTI KWIK BOLT-TZ EXPANSION ANCHORS
 - HILTI KWIK HUS-EZ AND KWIK HUS EZ-4 SCREW ANCHORS
 - ADHESIVE ANCHORS IN CRACKED AND UNCRACKED CONCRETE USE:
 - HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HIT-Z ROD
 - HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT SYSTEM WITH H-E THREADED ROD

- SUBMITTALS:**
- SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY GENERAL CONTRACTOR AND REVIEWED BY THE ENGINEER.
 - ALL SHOP DRAWINGS USED FOR WORK SHALL BEAR THE STAMP OF THE ARCHITECT/ENGINEER AND SHALL BE MARKED "APPROVED" OR "APPROVED AS NOTED" AND MARK AS HAVING BEEN VERIFIED.
 - CONTRACTOR SHALL CHECK SHOP DRAWINGS THOROUGHLY BEFORE SUBMITTING. VERIFY DIMENSIONS REQUIRING FIELD VERIFICATION BEFORE SUBMITTING.
 - ALL CONTRACTOR MODIFICATIONS (INCLUDING PRODUCTS SUBSTITUTION) MUST BE IDENTIFIED IN WRITING AS A PROPOSED "AS EQUAL" CHANGES AT TIME OF SUBMISSION.
 - IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS OR FAILS TO FOLLOW THE ABOVE "AS EQUAL" PROCEDURE, THE FIRM MORABITO CONSULTANTS, INC. WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT.
 - SHOP DRAWINGS ARE REVIEWED BY THE ENGINEER AS A CONVENIENCE TO THE CONTRACTOR AND ARE NOT A CONTRACT DOCUMENT.

- INSPECTION:**
- ALL WORK SPECIFIED HEREIN SHALL BE INSPECTED IN ACCORDANCE WITH THE BUILDING CODE AND ALL LOCAL ORDINANCES.
 - THE OWNER SHALL HIRE AN EXPERIENCED QUALIFIED INSPECTOR TO PERFORM ALL REQUIRED INSPECTION WORK.
 - INSPECTION SHALL CONSIST OF VISUAL OBSERVATIONS OF MATERIALS, EQUIPMENT OR CONSTRUCTION WORK FOR THE PURPOSE OF ASCERTAINING THAT THE WORK IS IN SUBSTANTIAL CONFORMANCE WITH THE CONTRACT DOCUMENTS AND WITH THE DESIGN INTENT.
 - THE ENGINEER WILL NOT PERFORM THE REQUIRED INSPECTION AS PART OF THIS PRESENT CONTRACT WITH THE ARCHITECT/OWNER.
 - UNDER THIS PRESENT CONTRACT, THE ENGINEER MAY VISIT THE SITE TO ASCERTAIN GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS. HOWEVER, SUCH VISITS SHALL NOT BE RELIED UPON BY OTHERS AS ACCEPTANCE OF THE WORK. WORK SHOULD BE CONSIDERED TO BE THE CONTRACTOR'S RESPONSIBILITY IN ANY WAY FROM HIS OBLIGATIONS AND RESPONSIBILITIES UNDER THE CONSTRUCTION CONTRACT. HOWEVER, IF DESIRED, MORABITO CONSULTANTS, INC. MAY BE HIRED UNDER A SEPARATE CONTRACT TO PERFORM THIS INSPECTION WORK.

DESIGN WITHOUT CONSTRUCTION REVIEW:

IT IS AGREED THAT IF MORABITO CONSULTANTS, INC.'S PROFESSIONAL SERVICES DO NOT EXTEND TO OR INCLUDE THE REVIEW OR SITE OBSERVATION OF THE CONTRACTOR'S WORK FOR COMPLIANCE, THEN THE OWNER WILL DEFEND, INDEMNIFY AND HOLD HARMLESS MORABITO CONSULTANTS, INC. FROM ANY CLAIM OR SUIT WHATSOEVER, INCLUDING BUT NOT LIMITED TO ALL PAYMENTS, EXPENSES OR COSTS INVOLVED, ARISING FROM OR ALLEGED TO HAVE ARISEN FROM THE CONTRACTOR'S PERFORMANCE OR THE FAILURE OF THE CONTRACTOR'S WORK TO CONFORM TO THE DESIGN INTENT AND THE CONTRACT DOCUMENTS. MORABITO CONSULTANTS, INC. AGREES TO BE RESPONSIBLE FOR ITS OWN OR ITS EMPLOYEES' NEGLIGENCE, ACTS, ERRORS OR OMISSIONS.

OWNERSHIP OF DOCUMENTS:

- THE CONTRACTOR ACKNOWLEDGES THESE PLANS AND SPECIFICATIONS PREPARED BY MORABITO CONSULTANTS, INC. AS INSTRUMENTS OF PROFESSIONAL SERVICE.
- NEVERTHELESS, THE PLANS AND SPECIFICATIONS PREPARED UNDER THIS AGREEMENT SHALL REMAIN THE PROPERTY OF MORABITO CONSULTANTS, INC. UPON COMPLETION OF THE WORK.
- THE CONTRACTOR AGREES TO HOLD HARMLESS AND INDEMNIFY MORABITO CONSULTANTS, INC. AGAINST ALL DAMAGES, CLAIMS, AND LOSSES, INCLUDING DEFENSE COSTS, ARISING OUT OF ANY REUSE OF THE PLANS AND SPECIFICATIONS WITHOUT THE WRITTEN AUTHORIZATION OF MORABITO CONSULTANTS, INC.

DESIGN DATA:

CONCRETE: NORMAL WEIGHT CONCRETE HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH (fc) AS FOLLOWS:
ALL CONCRETE = 5000 PSI

REINFORCING STEEL: Fy = 60,000 PSI

APPROVED: DEPARTMENT OF PUBLIC WORKS

James M. McK 09/24/2021
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Michael J. Smith 1/19/22
CHIEF, DIVISION OF LAND DEVELOPMENT

Michael J. Smith 1/19/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP

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

THE VILLAGE AT TOWN SQUARE PHASE 1

HOWARD COUNTY, MARYLAND

morabito consultants

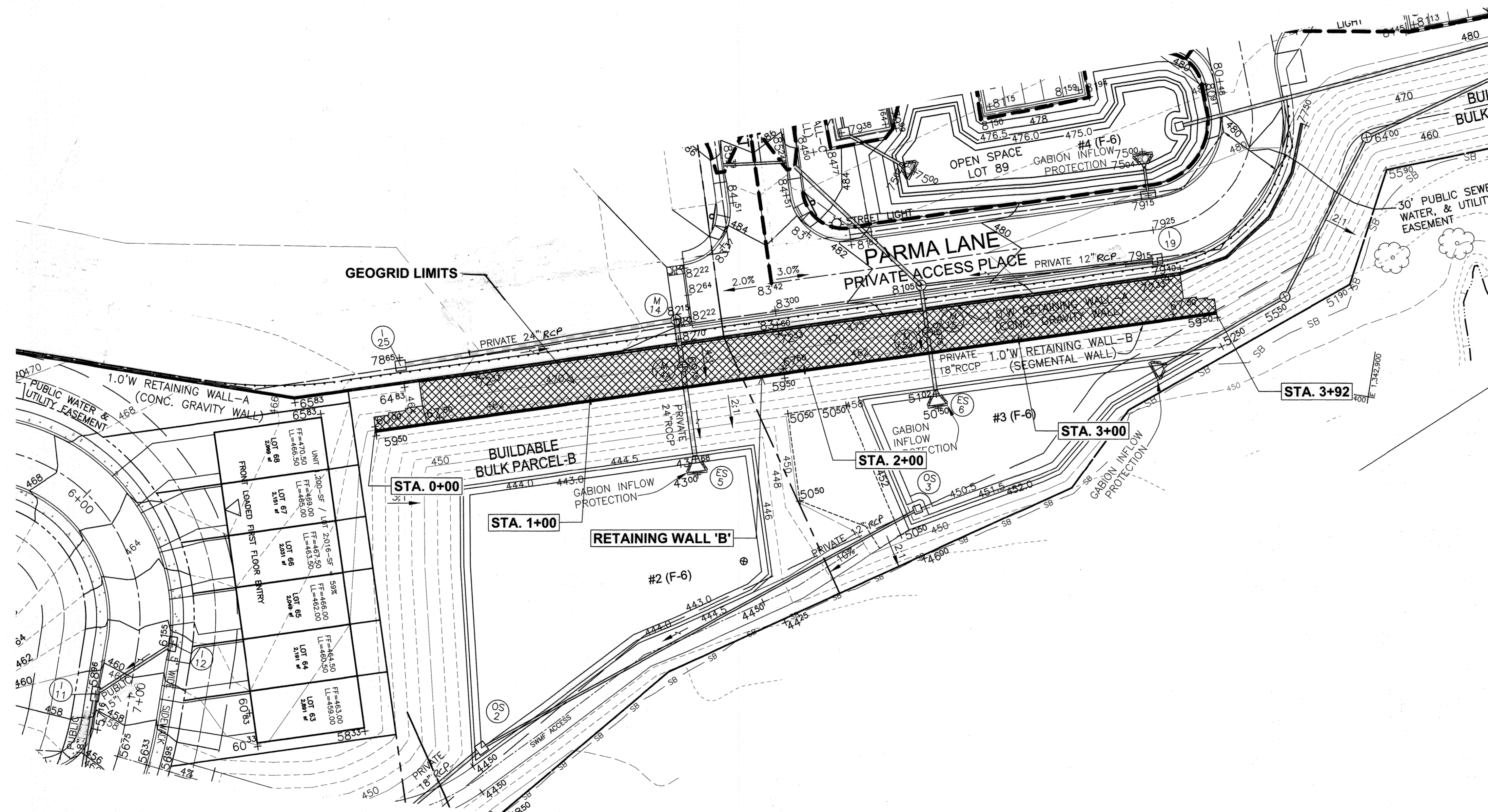
Structural Engineers | Parking Consultants
952 Ridgeway Road, Suite 1700
Sparks, MD 21152-9472
410.467.2377 | www.morabitoconsultants.com
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Seal: PROFESSIONAL ENGINEER

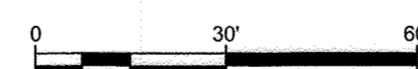
STATE OF MARYLAND
JAMES M. MCK
LICENSE NO. 35369
EXPIRES 09/29/23

No.	Date	Revisions
1	1/27/23	REVISED PER COMMENTS FROM THE STATE OF MARYLAND

Designed: NDM	Drawn: NDM
Project No.: 20187	
Date: AUGUST 2021	
Scale: 3/4" = 1'-0"	
Sheet Title: RETAINING WALL DETAILS AND GENERAL NOTES	
Sheet No.: S102	
Sheet 22 of 26	



WALL 'B' LOCATION PLAN
1" = 30'



APPROVED: DEPARTMENT OF PUBLIC WORKS
 _____ DATE: 09/24/2021
 CHIEF, BUREAU OF HIGHWAYS MK
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 _____ DATE: 10/1/22
 CHIEF, DIVISION OF LAND DEVELOPMENT NW
 _____ DATE: 1/19/22
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

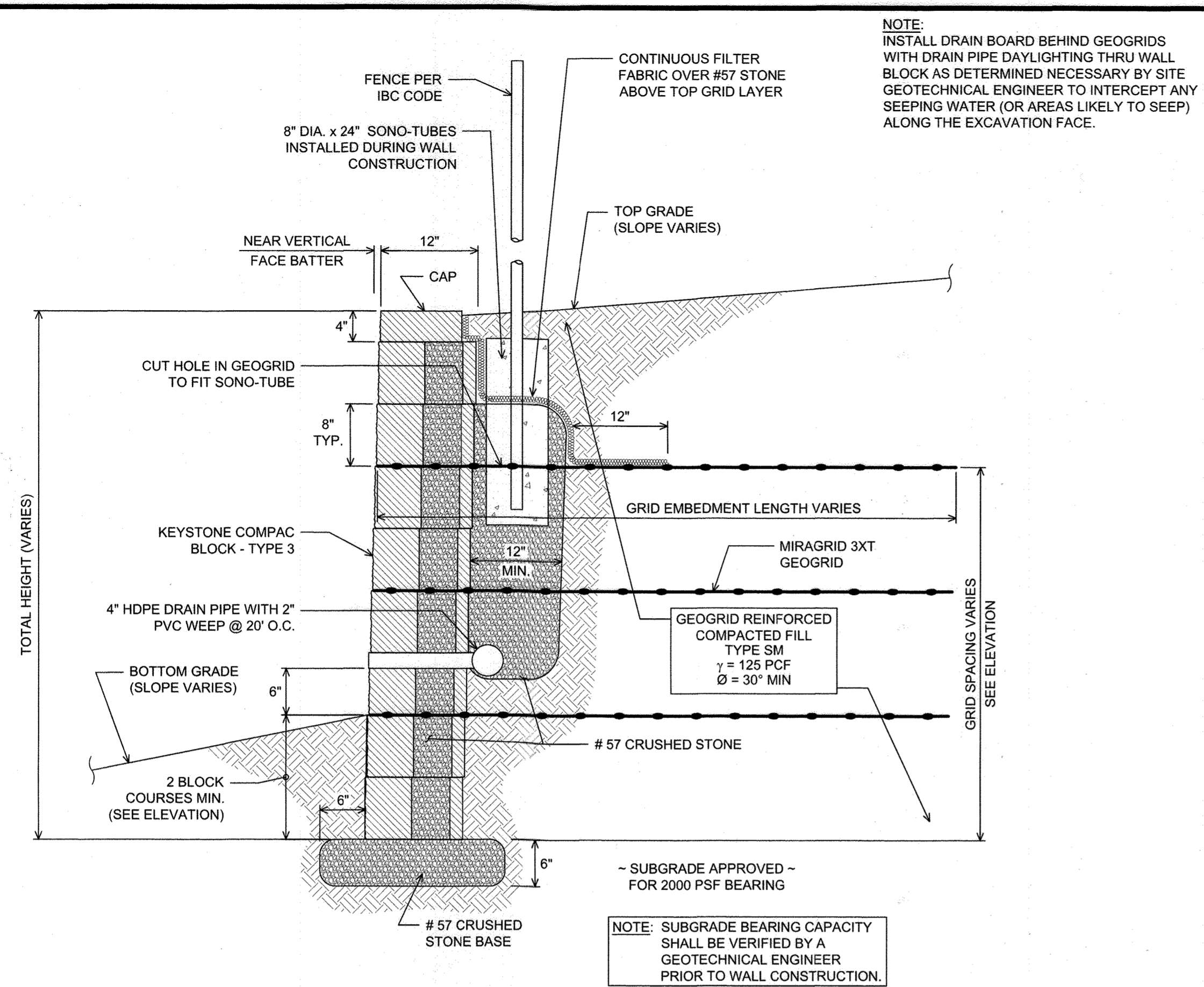
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS
 WERE PREPARED OR APPROVED BY ME,
 AND THAT I AM A DULY LICENSED
 PROFESSIONAL ENGINEER UNDER THE
 LAWS OF THE STATE OF MARYLAND,
 LICENSE NO. 14808,
 EXPIRATION DATE: 02/27/22



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

RETAINING WALL LOCATION PLAN
VILLAGE AT TOWN SQUARE: PHASE 1
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26	4/27/2023	20453A	JE/AM
			SCALE: AS SHOWN	DRAWN BY: AM
			DATE: 08/2021	APPROVED BY: HM



TYPICAL WALL SECTION
N.T.S.

- NOTES:**
- NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
 - RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIV.) CERTIFIED SOILS TECHNICIAN.
 - ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
 - THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
 - THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
 - WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
 - WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD CO. RIGHT-OF-WAY OR EASEMENT.

NOTE:
INSTALL DRAIN BOARD BEHIND GEOGRIDS WITH DRAIN PIPE DAYLIGHTING THRU WALL BLOCK AS DETERMINED NECESSARY BY SITE GEOTECHNICAL ENGINEER TO INTERCEPT ANY SEEPING WATER (OR AREAS LIKELY TO SEEP) ALONG THE EXCAVATION FACE.

MODULAR CONCRETE BLOCK RETAINING WALL

- PART 1: GENERAL**
- 1.01 DESCRIPTION**
- A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.
- B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT FACING SYSTEM, UNIT DRAINAGE FILL AND REINFORCED BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.
- 1.02 DELIVERY, STORAGE AND HANDLING**
- A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.
- PART 2: PRODUCTS**
- 2.01 MODULAR CONCRETE RETAINING WALL UNITS**
- A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:
FACE FINISH - COLOR MAY BE SPECIFIED BY THE OWNER.
FACE FINISH - HARD SPLIT IN ANGULAR TRI-PLANE OR STRAIGHT FACE CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.
BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT IN VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.
EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 20 FEET UNDER DIFFUSED LIGHTING.
- B. MODULAR CONCRETE UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR STANDARD RETAINING WALL UNITS.
- C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH ASTM C140 SAMPLING & TESTING CONCRETE MASONRY UNITS.
- COMPRESSIVE STRENGTH = 3000 PSI MINIMUM;
ABSORPTION = 8% MAXIMUM (8% MAXIMUM IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;
DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE ± 1/8" FROM NOMINAL UNIT HEIGHT: UNIT SIZE - 8" (H) X 18" (W) X 12" (D) MINIMUM FOR COMPAC III UNITS; (UNIT SIZE - 8" (H) X 18" (W) X 18" (D) MINIMUM FOR STANDARD UNITS).
INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE, AT 2 PSI NORMAL FORCE.
[GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM.]
- 2.02 SHEAR AND REINFORCEMENT PIN CONNECTORS**
- A. SHEAR AND REINFORCEMENT PIN CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS AND GEOSYNTHETIC REINFORCEMENT WITH THE FOLLOWING REQUIREMENTS: FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476: 128,000 PSI MINIMUM; SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475: 6,400 PSI MINIMUM.
- B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.
- 2.03 BASE LEVELING PAD MATERIAL**
- A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE OR CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- 2.04 UNIT DRAINAGE FILL**
- A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE.
- 2.05 REINFORCED BACKFILL**
- A. REINFORCED BACKFILL SHALL BE TYPE SM, FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:
- | SIEVE SIZE | PERCENT PASSING |
|------------|-----------------|
| 1 1/2 INCH | 100 |
| 3/4 INCH | 100-75 |
| NO. 40 | 0-60 |
| NO. 200 | 0-35 |
- PLASTICITY INDEX (PI) <15 AND LIQUID LIMIT <40, PER ASTM D4318.
- B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGHLY PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.
- C. CONTRACTOR SHALL SUBMIT REINFORCED FILL SAMPLE AND LABORATORY TEST RESULTS FOR APPROVAL PRIOR TO THE USE OF ANY REINFORCED BACKFILL MATERIAL.
- 2.06 GEOGRID SOIL REINFORCEMENT**
- A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER (PET) YARN.
- 2.07 DRAINAGE PIPE**
- A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D1248.

2.08 GEOTEXTILE FILTER FABRIC

- A. WHEN REQUIRED, FILTER FABRIC SHALL BE A NEEDLE-PUNCHED NONWOVEN FABRIC MEETING REQUIREMENTS OF AASHTO M288.

PART 3: EXECUTION

3.01 EXCAVATION

- A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNERS REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE SUBGRADE PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

3.02 BASE LEVELING PAD

- A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.
- B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.
- C. COMPACT TO MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D698.

3.03 MODULAR UNIT INSTALLATION

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

3.04 STRUCTURAL GEOGRID INSTALLATION

- A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.
- B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNIT PINS AND WITHIN 1 INCH OF THE FACE OF THE UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.
- D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED

SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS GREATER THAN 2 INCHES BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

- A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE TO GEOGRID.
- B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND OPERATED COMPACTION EQUIPMENT IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.
- C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 0% TO - 3% OF OPTIMUM.
- D. ONLY LIGHTWEIGHT HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE BACK OF THE MODULAR CONCRETE UNIT.
- E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNS SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING OR DISPLACING THE MODULAR CONCRETE UNITS OR GEOGRID.
- F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND TURNING SHALL BE AVOIDED.
- G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

3.06 CAP INSTALLATION

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

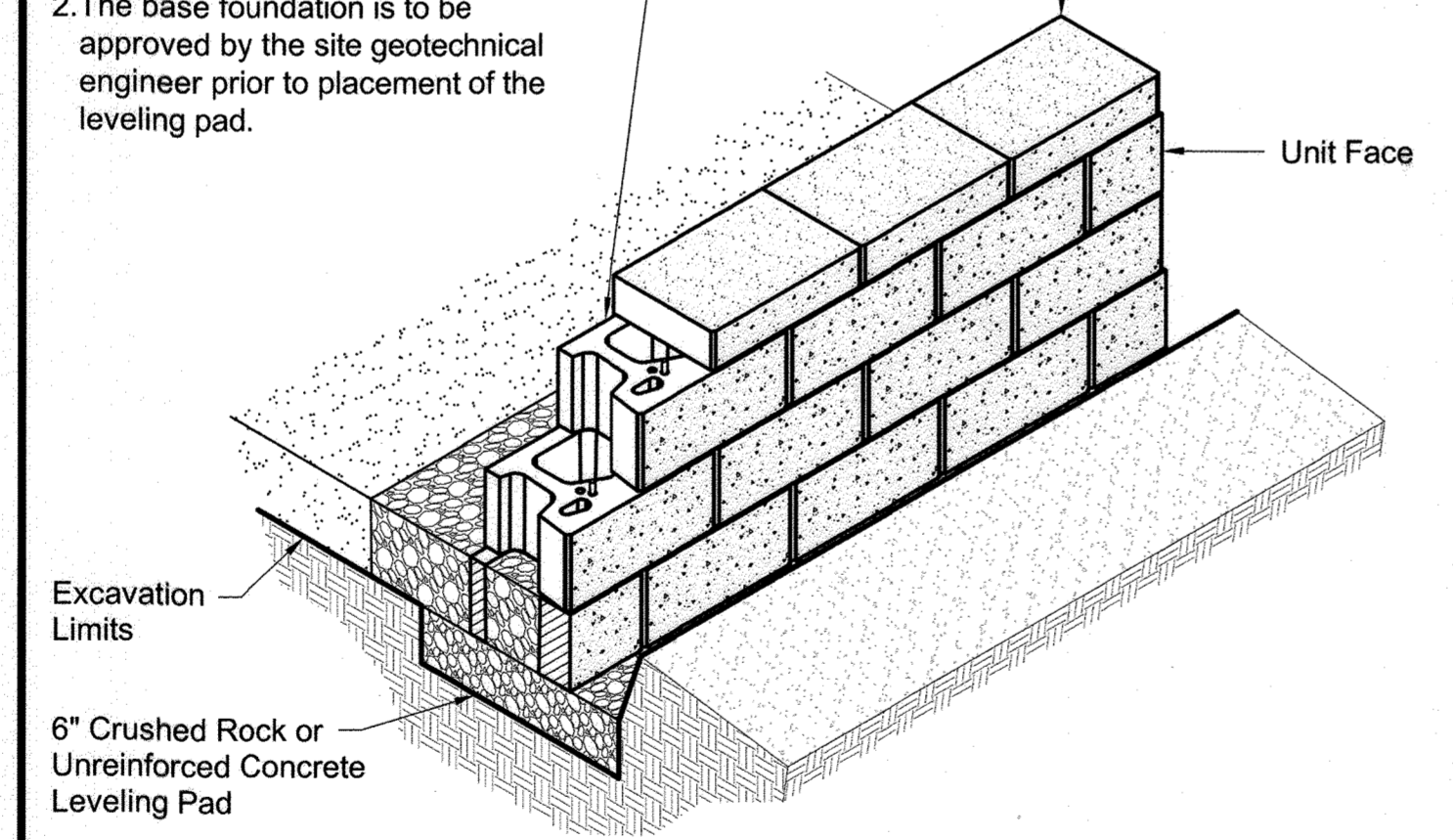
3.07 FIELD QUALITY CONTROL

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

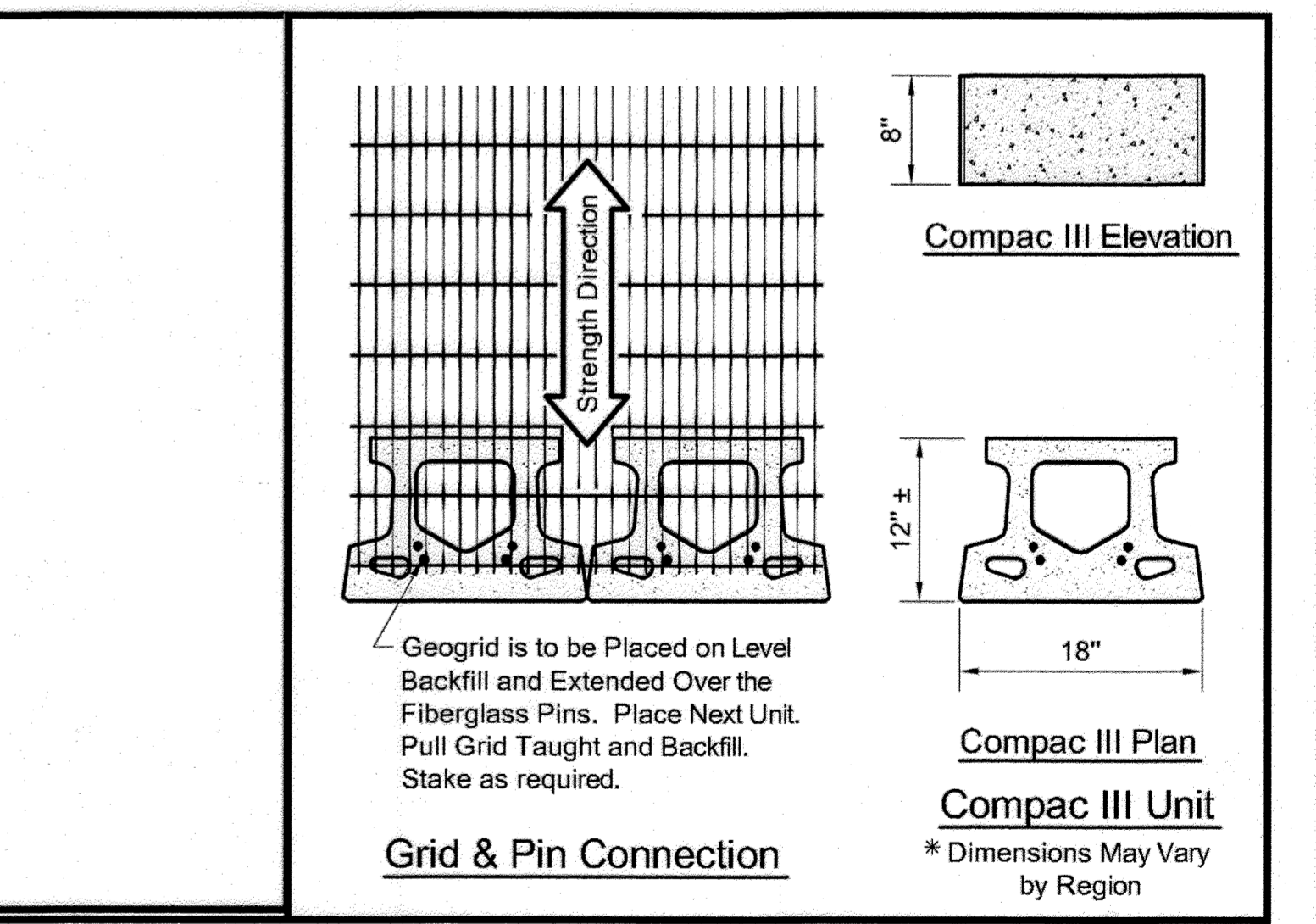
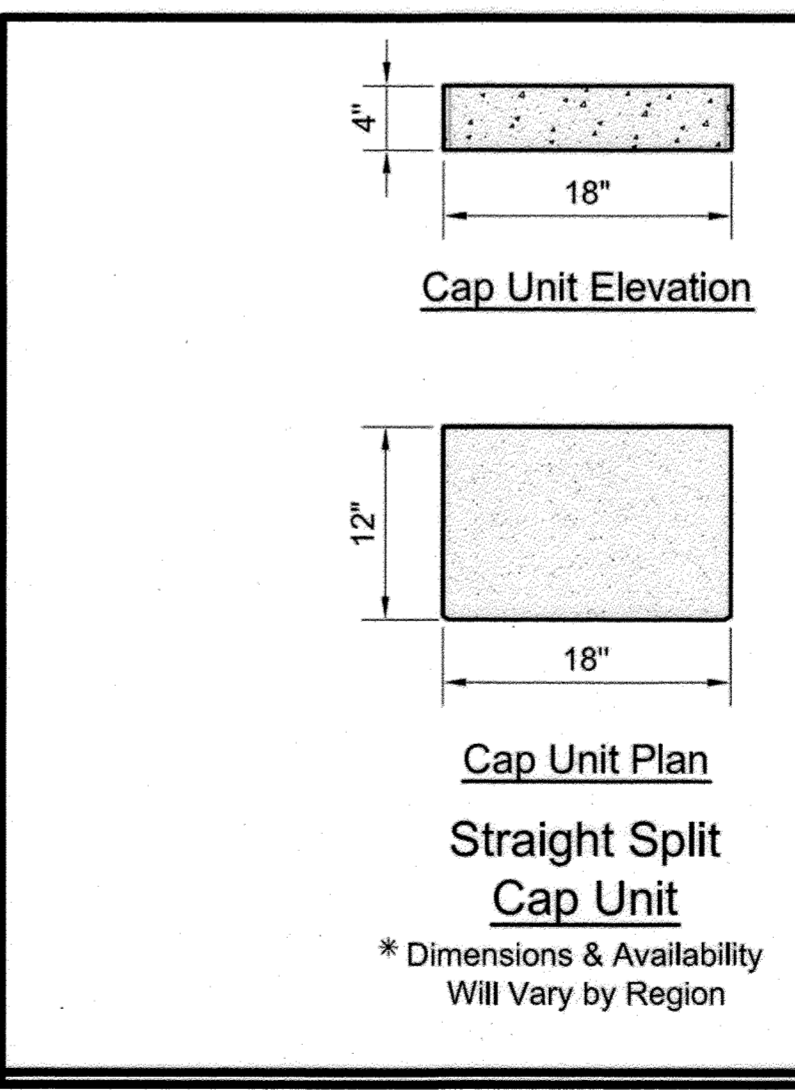
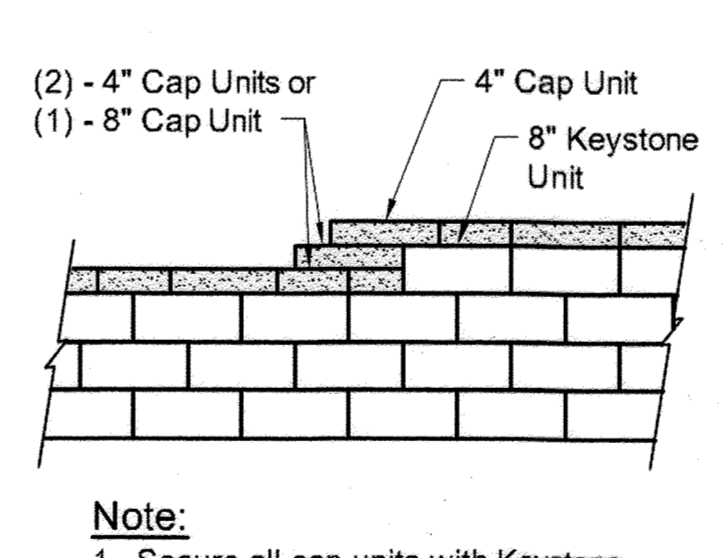
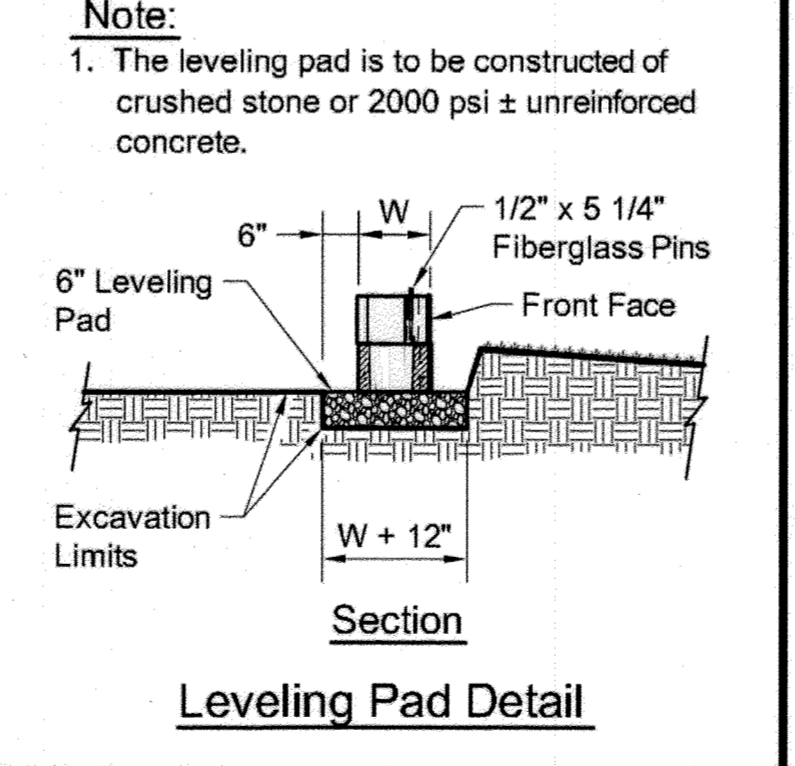
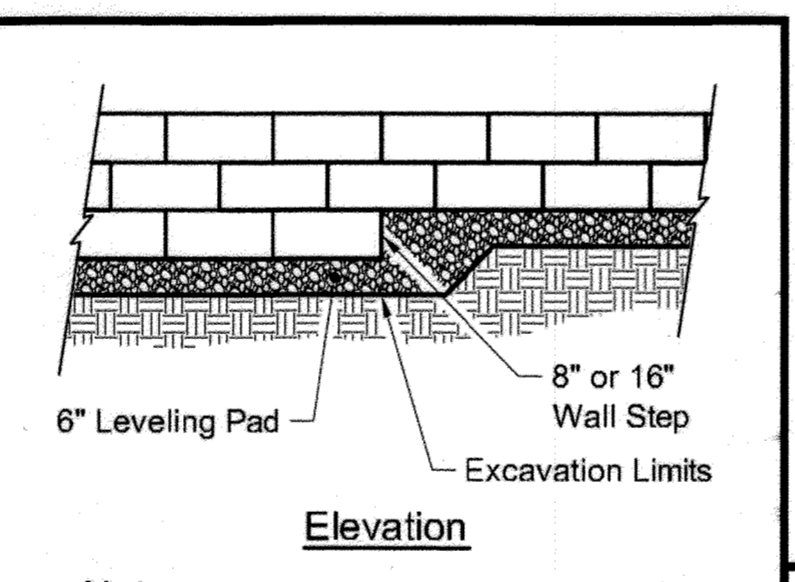
Base Leveling Pad Notes:

- The leveling pad is to be constructed of crushed stone or 2,000 psi unreinforced concrete.
- The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

Compac III Unit	Cap Unit
Width: 18"	Width: 18"
*Depth: 12"	*Depth: 12"
Height: 8"	Height: 4"
*Weight: 75 lbs	*Weight: 67.5 lbs



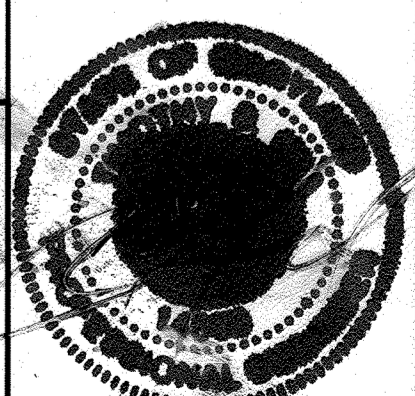
Compac III Unit/Base Pad Isometric Section View
* Dimensions & Weight May Vary by Region



COMPAC III UNIT - STRAIGHT FACE DETAILS

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] DATE: 09/29/2021
CHIEF, BUREAU OF HIGHWAYS MK
APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] DATE: 10/12/22
CHIEF, DIVISION OF LAND DEVELOPMENT M
[Signature] DATE: 1/19/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 14898
EXPIRATION DATE: 02/27/22

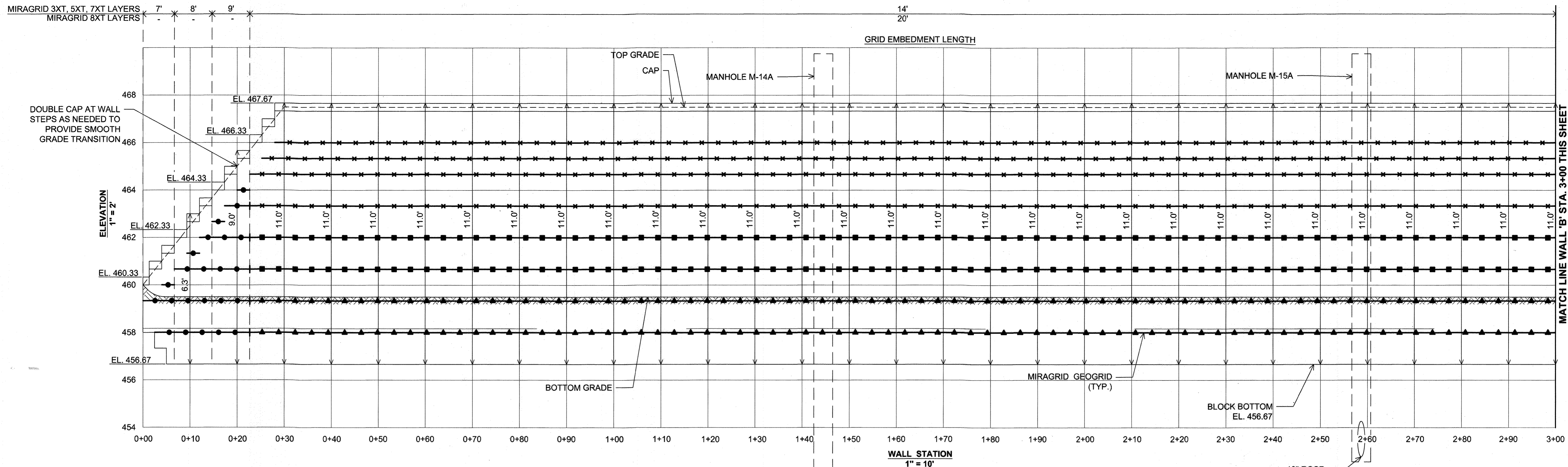


HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
Phone: (410) 880-4788 www.hca.com Fax: (410) 880-4098

RETAINING WALL CONSTRUCTION DETAILS
VILLAGE AT TOWN SQUARE: PHASE 1
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	REVISE TOTAL SHEET NUMBER IN TITLE BLOCK TO 26	4/27/2023	20453A	JE/AM
			SCALE:	DRAWN BY:
			AS SHOWN	AM
			DATE:	APPROVED BY:
			08/2021	HM

24 of 26 SHEET



WALL 'B' ELEVATION

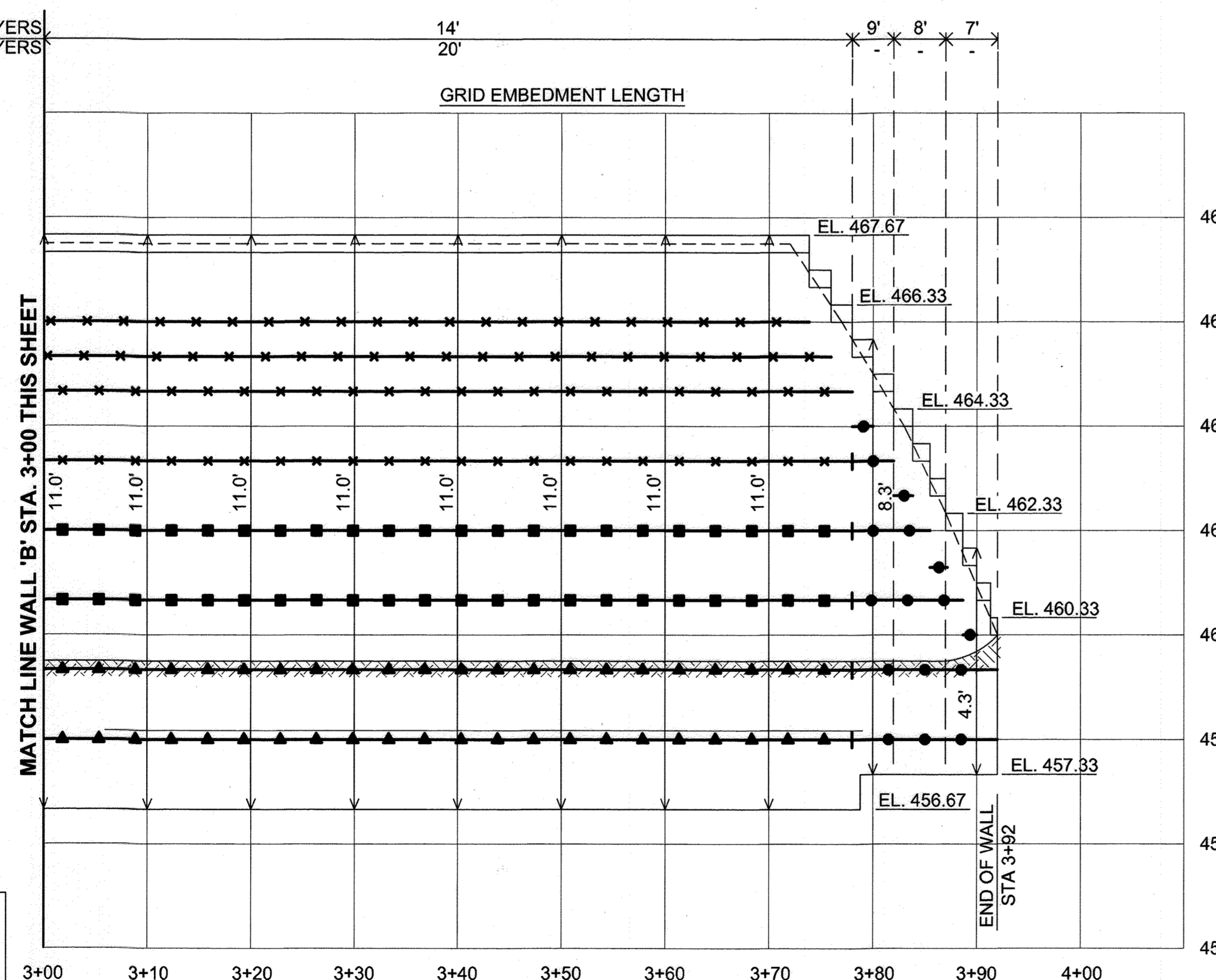
18" RCCP
INV. = 452.77 AT
WALL CROSSING

24" RCCP
INV. = 449.75 AT
WALL CROSSING

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

GEOGRID KEY

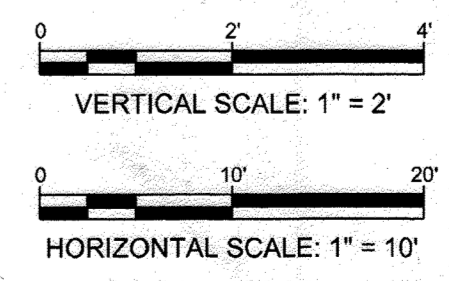
- MIRAGRID 3XT GEOGRID
- ××××× MIRAGRID 5XT GEOGRID
- ■ ■ ■ ■ MIRAGRID 7XT GEOGRID
- ▲▲▲▲▲ MIRAGRID 8XT GEOGRID



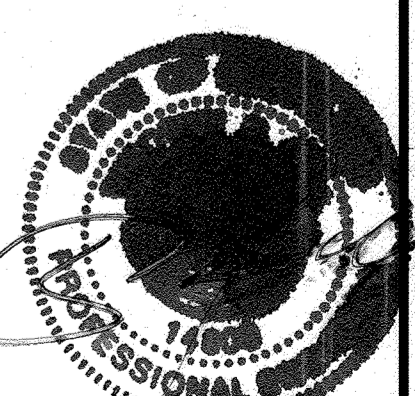
WALL 'B' ELEVATION

NOTE:
INSTALL MANHOLE STRUCTURES M-14A AND M-15A AND ASSOCIATED PIPES DURING WALL CONSTRUCTION. BACKFILL AROUND ENTIRE PERIMETER OF MANHOLE STRUCTURES FOR FULL HEIGHT WITH A 2 FT. THICK WRAP OF COMPACTED SOIL-CEMENT CONSISTING OF A RATIO OF 180 LBS. (2 BAGS) PORTLAND CEMENT THOROUGHLY MIXED WITH 1 CU. YD. OF TYPE SM SOIL AT 3% OVER OPTIMUM MOISTURE. TRIM FULL LENGTH GEOGRIDS AT FACE OF STRUCTURES AND EMBED IN SOIL-CEMENT WITHIN 1 HOUR OF MIXING.

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 09/24/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 1/21/22
 CHIEF, DIVISION OF LAND DEVELOPMENT MW DATE
 APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 1.19.22
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS
 WERE PREPARED OR APPROVED BY ME,
 AND THAT I AM A DULY LICENSED
 PROFESSIONAL ENGINEER UNDER THE
 LAWS OF THE STATE OF MARYLAND,
 LICENSE NO. 14808,
 EXPIRATION DATE: 02/27/22

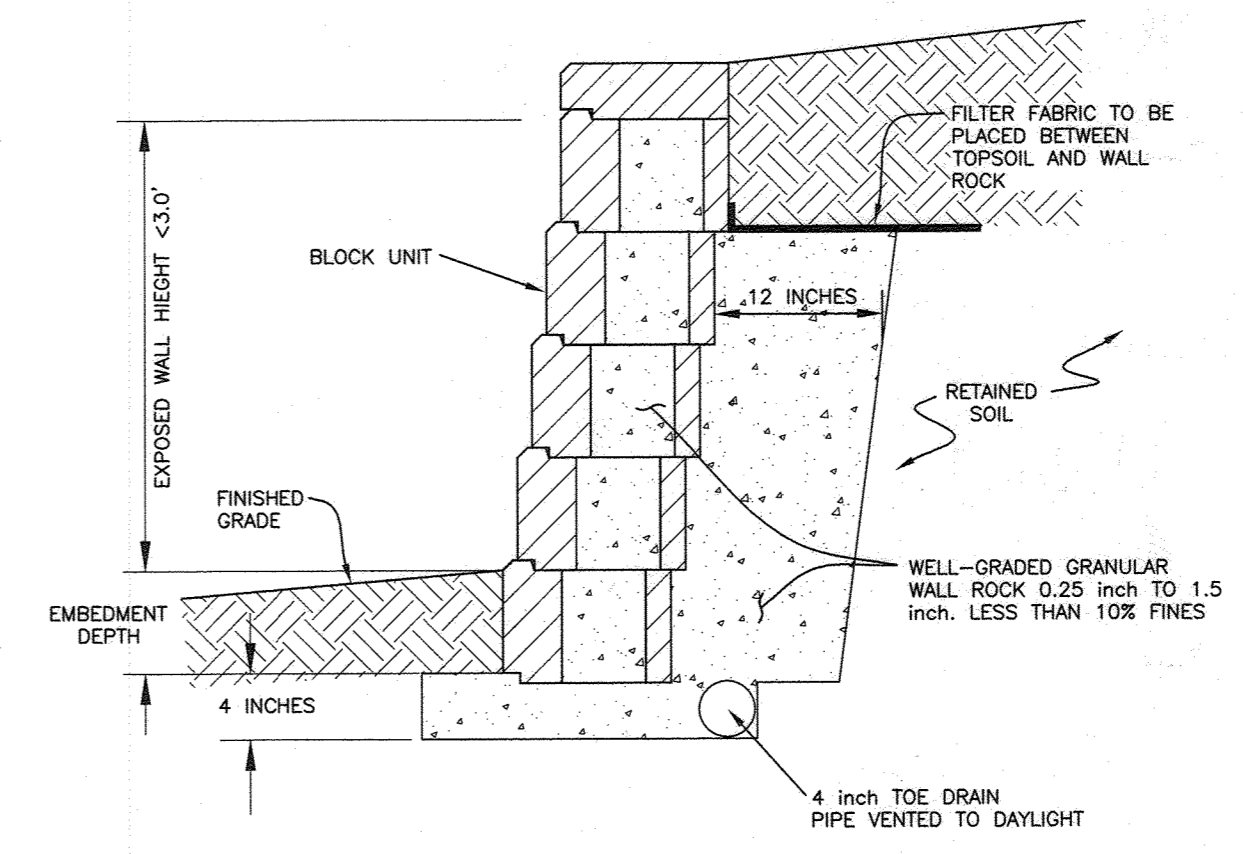
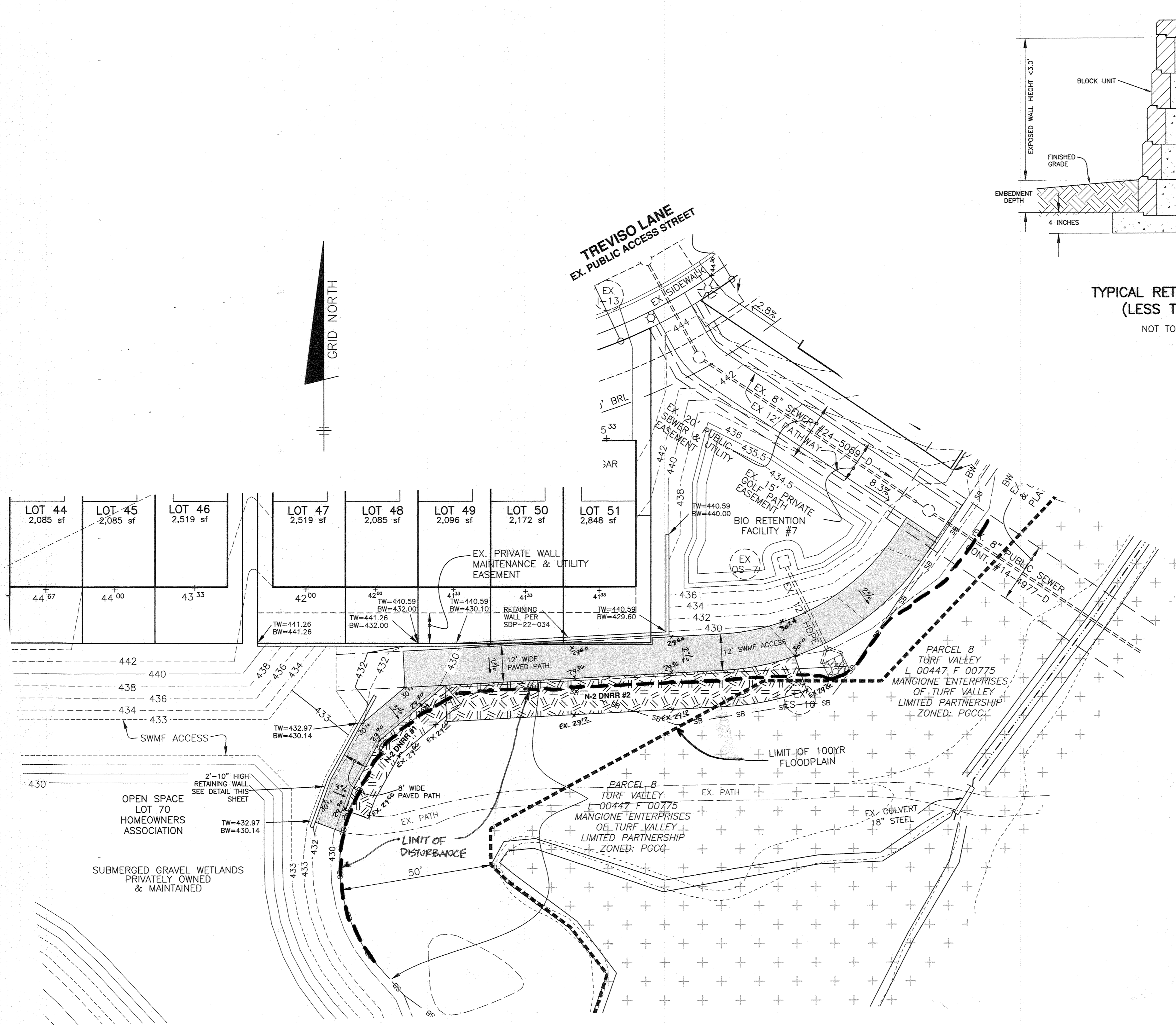


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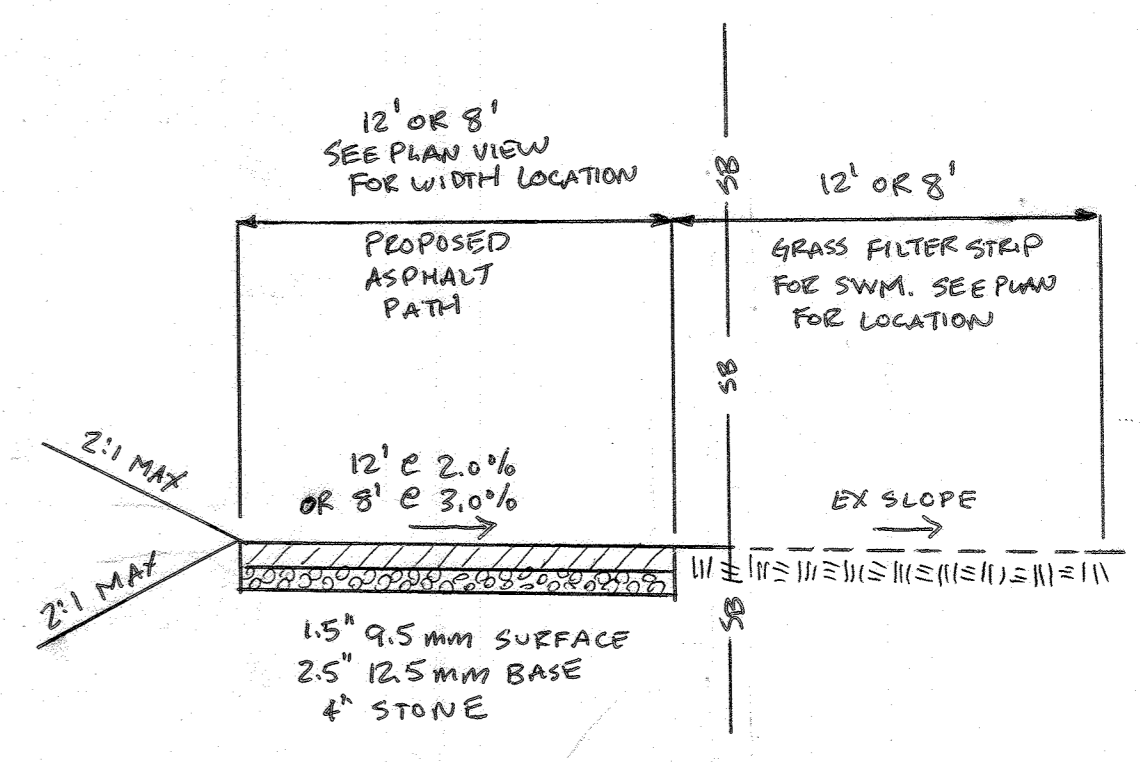
RETAINING WALL 'B' ELEVATION
VILLAGE AT TOWN SQUARE: PHASE 1
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	REVISE TOTAL SHEET NUMBER WITH TITLE BLOCK TO 26		20453A	JE/AM
			SCALE:	DRAWN BY:
			AS SHOWN	AM
			DATE:	APPROVED BY:
			08/2021	HM

25 of 26
SHEET



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



TYPICAL PATH SECTION
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 05/12/2023
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 6/1/23
 CHIEF, DIVISION OF LAND DEVELOPMENT MH DATE

[Signature] 5-31-23
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
1	4/24/2023	NEW SHEET ADDED TO PLAN SET. ADD PAVED PEDESTRIAN PATH CONNECTION
 BENCHMARK ENGINEERING, INC. 3300 N. RIDGE ROAD SUITE 140 • ELLICOTT CITY, MARYLAND 21043 (P) 410-465-8105 (F) 410-465-8844 WWW.BE-CIVILENGINEERING.COM		
THE VILLAGE AT TOWN SQUARE PHASE 1: LOTS 1 THRU 68; OPEN SPACE LOTS 69, 70 & 71 and BUILDABLE BULK PARCELS A & B A RESUBDIVISION OF TOWN SQUARE PARKWAY PARCEL 1-3 PLAT NO. 23825-23830 1-3, A RESUBDIVISION OF TURF VALLEY PROFESSIONAL BUILDINGS PARCEL J2 PLAT NO. 22078-22079, AND A SUBDIVISION OF PART OF PARCEL 8		
OWNER/DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400 TVTS RETAIL, LLC 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400		
TAX MAP: 16 - GRID: 19 - PARCEL: 8 ZONED: PGCC-2 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND		
PEDESTRIAN PATH PLAN AND DETAILS		
DATE:	APRIL 24, 2023	BEI PROJECT NO. 2899
DESIGN:	DBT	DRAFT: DBT
SCALE:	AS SHOWN	SHEET 26 OF 26

