

DESIGN DESIGNATION - PROFESSIONAL BOULEVARD		
CONTROL	2020	2040
AVERAGE DAILY TRAFFIC	11,500	18,750
DESIGN HOURLY VOLUME	1,150	1,875
DIRECTIONAL DISTRIBUTION	50/50	50/50
% TRUCKS - ADT	4%	4%
# TRUCKS - DHV	46	75
DESIGN SPEED	35 M.P.H.	
FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL	
CONTROL ACCESS	LIMITED	
INTENSITY OF DEVELOPMENT	COMMERCIAL	
TERRAIN	ROLLING	
ANTICIPATED POSTED SPEED	30 M.P.H.	

# WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING

## PROFESSIONAL BOULEVARD PHASE II STA 10+33 TO STA 52+88



**ENGINEER'S/ARCHITECT DESIGN CERTIFICATION**  
I HEREBY CERTIFY THAT THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAS BEEN DESIGNED IN ACCORDANCE WITH LOCAL ORDINANCES, COMAR 26.17.01.07, AND MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Scott Hobbs* 200491 10/21/21  
SIGNATURE REGISTRATION NUMBER DATE



**"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. 22440  
EXPIRATION DATE: 08/20/2023



### COUNTY PROJECT NO. 10-270 COUNTY CONTRACT NO. RD-PB-270-10 STATE CONTRACT NO. WA071ZM1 FEDERAL FAP NO. APL-3(779)E

**AASHTO DESIGN CRITERIA**  
THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE 2011 PUBLICATION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

**STANDARD SPECIFICATIONS BOOK, BOOK OF STANDARDS AND MUTCD**

ALL WORK ON THIS PROJECT SHALL CONFORM TO: THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATIONS SPECIFICATIONS ENTITLED STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2008 REVISIONS THEREOF OR ADDITIONS THERETO; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATIONS BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES AND THE LATEST MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

ESD PRACTICES (CHAPTER 5 - STRUCTURE & NON-STRUCTURAL)									
TYPE	NO.	DA (ac)	IMPERVIOUS DA (ac)	RCN	ESDv (ac-ft)	WQv (ac-ft)	CPv (ac-ft)	CPv (cfs)	Rev (ac-ft)
BIO-SWALE	SW-1	0.34	0.19	82	0.0388	0.0155	0.0233	0.73	0.0000
BIO-SWALE	SW-2	0.48	0.27	82	0.0557	0.0223	0.0334	1.05	0.0000
BIO-SWALE	SW-3	0.43	0.23	81	0.0478	0.0191	0.0287	0.90	0.0000
BIO-SWALE	SW-4	0.08	0.04	81	0.0085	0.0034	0.0051	0.16	0.0000
BIO-SWALE	SW-5	0.52	0.33	85	0.0621	0.0269	0.0352	1.28	0.0000
BIO-SWALE	SW-6	0.27	0.16	84	0.0215	0.0134	0.0081	0.63	0.0000
FILTER INLET	F/1-1	0.20	0.17	92	0.0113	0.0113	0.0000	0.99	0.0000
FILTER INLET	F/1-2	0.12	0.10	91	0.0076	0.0076	0.0000	0.56	0.0000
FILTER INLET	F/1-3	0.11	0.10	93	0.0079	0.0079	0.0000	0.58	0.0000
FILTER INLET	F/1-4	0.09	0.09	96	0.0069	0.0069	0.0000	0.50	0.0000
FILTER INLET	F/2-1	0.26	0.19	87	0.0150	0.0150	0.0000	1.13	0.0000
FILTER INLET	F/2-2	0.26	0.19	88	0.0151	0.0151	0.0000	1.13	0.0000
FILTER INLET	F/3-1	0.19	0.08	76	0.0068	0.0068	0.0000	0.57	0.0000

ESD PRACTICES INSTALLED IN PHASE I - CONTRACT 10-244 BETWEEN STA. 21+00 AND STA. 47+50							
TYPE	NO.	DA(ac)	IMP. DA	RCN	ESDv(ac-ft)	WQv(ac-ft)	CPv(cfs)
FILTERRA	F/3-2	0.10	0.10	97	0.0076	0.0076	0.56
FILTERRA	F/4-1	0.27	0.12	78	0.0104	0.0104	0.85
FILTERRA	F/5-1	0.40	0.12	73	0.0109	0.0109	0.99
FILTERRA	F/6-1	0.40	0.24	83	0.0193	0.0193	1.51
FILTERRA	F/7-1	0.14	0.08	83	0.0065	0.0065	0.51
FILTERRA	F/7-2	0.14	0.09	83	0.0071	0.0071	0.55
FILTERRA	F/7-3	0.28	0.16	82	0.0129	0.0129	1.01
FILTERRA	F/8-1	0.17	0.10	83	0.0083	0.0083	0.65

THE HAGERSTOWN LIGHT DEPARTMENT LIGHTING PLAN APPROVAL

*Ken Adams* 2/11/22  
HAGERSTOWN LIGHT DEPARTMENT DATE  
APPROVAL IS FOR THE REVIEW OF MATERIALS AND SPECIFICATIONS ONLY, ASSURANCE OF PROPER LIGHTING LEVELS BY OTHERS

THE STORM WATER MANAGEMENT PLAN SHOWN HEREON IS HEREBY APPROVED.

*Scott Hobbs* 12/16/21  
WASHINGTON COUNTY DIVISION OF ENGINEERING DATE

APPROVED FOR CONSTRUCTION

*Scott Hobbs* 12/16/21  
SCOTT HOBBS, P.E., DIRECTOR OF ENGINEERING DATE

THE STORM WATER MANAGEMENT PLAN SHOWN HEREON IS HEREBY APPROVED.

*Bea Ti* 12/20/21  
CITY ENGINEER DATE

THIS SITE PLAN IS APPROVED BY THE CITY ENGINEERING DEPARTMENT FOR A PERIOD OF TWO YEARS FROM DATE SHOWN

*Bea Ti* 12/20/21  
CITY ENGINEER DATE

**DISTURBED AREA QUANTITY**  
THE TOTAL AREA TO BE DISTURBED SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY 7.05 ACRES AND THE TOTAL AMOUNT OF EXCAVATION AND FILL SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY 7,000 CU. YDS. OF EXCAVATION AND APPROXIMATELY 4,000 CU. YDS. OF FILL.

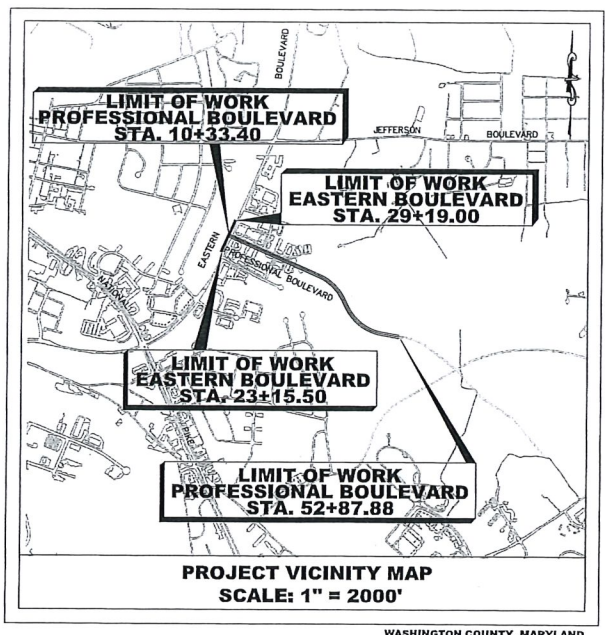
THE ABOVE QUANTITIES ARE APPROXIMATE, AND SHALL NOT BE USED BY THE CONTRACTOR FOR BIDDING PURPOSES.

WASHINGTON COUNTY SOIL CONSERVATION DISTRICT  
SOIL EROSION AND SEDIMENT CONTROL PLAN APPROVAL

BY: *Clayton Wang* 1/20/22  
DATE: 1/20/22  
(PLAN IS VALID FOR TWO YEARS FROM DATE OF APPROVAL)

**OWNER/DEVELOPER CERTIFICATION**  
I/WE CERTIFY ALL/ANY PARTIES RESPONSIBLE FOR CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SOIL EROSION AND SEDIMENT.

*Scott Hobbs* 12/16/21  
SCOTT HOBBS, P.E. PRINTED NAME DATE  
*Scott Hobbs*



**OWNER/DEVELOPER:**  
BOARD OF COUNTY COMMISSIONERS  
FOR WASHINGTON COUNTY, MD  
AGENT: SCOTT HOBBS, P.E.,  
DIRECTOR OF ENGINEERING  
80 WEST BALTIMORE STREET  
HAGERSTOWN, MARYLAND 21740

PHONE: 240-313-2460  
FAX: 240-313-2401



**SENSITIVE AREA NOTICE**  
THE STREAM BUFFERS SHOWN HEREON ARE ESTABLISHED PURSUANT TO THE REQUIREMENTS OF THE WASHINGTON COUNTY SUBDIVISION ORDINANCE, ARTICLE IV, SECTION 409. IN AN EFFORT TO PRESERVE OR IMPROVE WATER QUALITY, THE PROPERTY OWNER IS REQUIRED TO ESTABLISH AND THEREAFTER MAINTAIN IN PERPETUITY VEGETATIVE GROUND COVER IN ACCORDANCE WITH URBAN BEST MANAGEMENT PRACTICES RECOMMENDED BY THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT. NO PERMANENT STRUCTURES OR CONSTRUCTION ARE PERMITTED WITHIN THE STREAM BUFFER EXCEPT THOSE DESIGNED TO IMPROVE WATER QUALITY OR FLOW AS APPROVED BY THE WASHINGTON COUNTY PLANNING COMMISSION IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS, LAWS, AND POLICIES. NO SEPTIC SYSTEMS SHALL BE CONSTRUCTED WITHIN THE BUFFER NOR SHALL ANY RESERVE AREA BE ESTABLISHED WITHIN THE BUFFER.

**RIGHT OF WAY**  
RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL. FOR OFFICIAL FEE RIGHT OF WAY AND EASEMENT INFORMATION, SEE WASHINGTON COUNTY RIGHT OF WAY PLAT NUMBERS 100-10-585 THROUGH 100-10-588.

**ADA COMPLIANCE**  
THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES FOR THE ELDERLY AND HANDICAPPED IN COMPLIANCE WITH THE STATE AND FEDERAL LEGISLATION.

**INDEX OF SHEETS**

1	TITLE SHEET
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17-21	ROADWAY PROFILES
22-31	STORMWATER MANAGEMENT PLANS, PROFILES & DETAILS
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**BOARD OF COUNTY COMMISSIONERS:**

JEFFREY A. CLINE, PRESIDENT  
TERRY L. BAKER, VICE PRESIDENT  
WAYNE K. KEEFER  
RANDALL E. WAGNER  
CHARLES A. BURKETT JR.

JOHN M. MARTIRANO, COUNTY ADMINISTRATOR  
SCOTT HOBBS, P.E., DIRECTOR OF ENGINEERING

**GENERAL NOTES**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIAL PROVISIONS, THE 2017 EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS OF THE MARYLAND STATE HIGHWAY ADMINISTRATION, REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.
- WHERE REFERENCE IS MADE TO STANDARDS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE IN HIS POSSESSION THE MARYLAND SHA BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES WITH THE LATEST UP TO DATE MSHA STANDARDS AS OF THE DATE OF ADVERTISEMENT OF THIS PROJECT.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE THE LATEST APPROVED SET OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND ANY REFERENCED MSHA STANDARDS AS OF NOTICE TO PROCEED.
- HORIZONTAL CONTROL FOR THIS PROJECT IS BASED ON MARYLAND STATE PLANE NAD 83/2011 AND VERTICAL CONTROL IS BASED ON NAVD 88.
- ALL INVERT ELEVATIONS ARE APPROXIMATE. INVERT ELEVATIONS OF INLETS AND PIPES MAY BE MODIFIED, AS DIRECTED BY THE ENGINEER, TO MEET CONDITIONS ENCOUNTERED DURING INSTALLATION OF DRAINAGE STRUCTURES. ALL PIPES SHALL BE CONSTRUCTED ON UNIFORM GRADE BETWEEN INVERT ELEVATIONS AS NOTED ON THE PLANS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE LOCATIONS AND LENGTHS OF PIPES TO BE INSTALLED SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING.
- THE CONTRACTOR SHALL GRADE FOR POSITIVE DRAINAGE AT ALL ROADWAY INTERSECTIONS, ENTRANCES, PARKING LOTS, AND YARDS IN CONFORMANCE WITH THE PROPOSED DRAINAGE PATTERNS SHOWN ON THE PLANS.
- ANY DAMAGE TO ADJACENT ROADS, YARDS, STRUCTURES, FENCES, SHRUBBERY, ETC., DURING CONSTRUCTION SHALL BE REPLACED IN KIND BY THE CONTRACTOR BEFORE ANY WORK COMMENCES.
- MAILBOXES SHALL BE REMOVED AND RESET BY THE CONTRACTOR AS NECESSARY TO COMPLETE THE WORK. THIS COST IS INCIDENTAL TO THE CLEARING AND GRUBBING ITEM.
- MATERIALS SALVAGED FROM CONSTRUCTION SHALL BECOME THE CONTRACTOR'S PROPERTY UNLESS NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
- THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE DRAWINGS IS APPROXIMATE. THE CONTRACTOR SHALL CALL MISS UTILITY AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION TO DETERMINE THE LOCATION OF ALL EXISTING UTILITIES. THE UTILITIES SHOWN ON THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. OTHER UTILITIES THAT THE CONTRACTOR MUST NOTIFY AT LEAST FIVE (5) DAYS PRIOR TO STARTING ANY WORK ARE NOTED BELOW.
 

MISS UTILITY	1-800-257-7777
WASHINGTON COUNTY DIVISION OF ENGINEERING & CONSTRUCTION MANAGEMENT	(240) 313-2460
WASHINGTON COUNTY DEPT. OF WATER QUALITY	(240) 313-2625
WASHINGTON COUNTY SOIL CONSERVATION DISTRICT	(301) 797-6821 EXT. 3
POTOMAC EDISON (ALLEGHANY POWER)	(301) 582-5266
COLUMBIA GAS (HAGERSTOWN)	(240) 420-2026
VERIZON	(301) 790-7135
ANTIETAM CABLE	(240) 420-2082
LUMOS NETWORKS	(724) 749-3250
CITY OF HAGERSTOWN UTILITIES DEPT. - WATER & WASTEWATER DIVISION	(301) 739-8577 EXT. 650
CITY OF HAGERSTOWN PUBLIC WORKS DEPT.	(301) 739-8577 EXT. 178
CITY OF HAGERSTOWN DEPT. OF PARKS & ENGINEERING	(301) 739-8577 EXT. 125
HAGERSTOWN LIGHT DEPARTMENT	(301) 739-8577 EXT. 567
HAGERSTOWN ELECTRIC	(301) 790-2600
- IF DURING CONSTRUCTION THE CONTRACTOR FINDS THAT CLEARANCES BETWEEN EXISTING UTILITIES AND PROPOSED WORK IS LESS THAN THAT NOTED OR IS LESS THAN SIX INCHES, HE SHALL CONTACT THE ENGINEER FOR INSTRUCTION ON HOW TO PROCEED.
- REPAIRS TO UTILITIES OR PROPERTY DAMAGE AS A RESULT OF THE CONSTRUCTION NEGLIGENCE OR METHOD OF OPERATION SHALL BE MADE AT NO ADDITIONAL COST TO THE COUNTY OR PROPERTY OWNER.
- THE CONTRACTOR SHALL PROTECT AND NOT INTERRUPT EXISTING UTILITY SERVICES DURING CONSTRUCTION, UNLESS AUTHORIZED BY THE ENGINEER. THE CONTRACTOR SHALL SUPPORT EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION AND THIS SHALL BE INCIDENTAL TO THE PERTINENT PAY ITEMS. THE LOCATION OF THE UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO PRIVATE PROPERTY AT ALL TIMES. IF ACCESS MUST BE INTERRUPTED FOR SHORT PERIODS OF TIME, THE ENGINEER SHALL NOTIFY THE PROPERTY OWNER A MINIMUM OF 10 DAYS IN ADVANCE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF TRAFFIC THROUGHOUT THE ENTIRE PERIOD OF CONSTRUCTION BY PROVIDING A REASONABLY SMOOTH AND EVEN SURFACE SATISFACTORY FOR THE USE OF PUBLIC TRAFFIC, AND BY PROVIDING ACCESS TO ALL PUBLIC ROADS AND RESIDENTIAL AND COMMERCIAL ENTRANCES AT ALL TIMES.
- THE CONTRACTOR SHALL ADJUST TO PROPOSED GRADE ALL EXISTING MANHOLES, VALVE BOXES, OR OTHER UTILITIES LOCATED WITHIN THE ASPHALT REHABILITATION AND FULL DEPTH ASPHALT PAVING AREAS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ASPHALT PAY ITEMS NECESSARY TO COMPLETE THE WORK.

- THE CONTRACTOR SHALL ADJUST TO PROPOSED GRADE ALL EXISTING MANHOLES, VALVE BOXES, OR OTHER UTILITIES LOCATED WITHIN THE CONCRETE SIDEWALK. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONCRETE SIDEWALK ITEMS NECESSARY TO COMPLETE THE WORK.
- ALL ASPHALT PAVEMENT UTILITY CUTS SHALL BE PERFORMED AND REPAIRED IN ACCORDANCE WITH WASHINGTON COUNTY STANDARDS.
- ASPHALT PAVEMENT TO BE REMOVED THAT ADJOINS ASPHALT TO REMAIN, SHALL BE SAWCUT.
- DEFINITION OF TERMS:
  - PROPOSED RIGHT-OF-WAY: DENOTES LAND BELONGING TO COUNTY OR STATE, CONTAINS THE ROADWAY AND SUPPORTING STRUCTURES.
  - PERPETUAL EASEMENT: PORTIONS OF PRIVATE PROPERTY FOR WHICH THE COUNTY HAS ACQUIRED THE RIGHT TO UTILIZE FOR THE INSTALLATION AND MAINTENANCE OF UTILITIES, DRAINAGE STRUCTURES, ETC.
  - REVERTIBLE EASEMENT: PORTIONS OF PRIVATE PROPERTY FOR WHICH THE COUNTY HAS ACQUIRED THE RIGHT TO CONSTRUCT AND MAINTAIN SUPPORTING SLOPES AND STRUCTURES FOR THE ROADWAY.
  - TEMPORARY CONSTRUCTION EASEMENT: PORTIONS OF PRIVATE PROPERTY ON WHICH THE COUNTY HAS ACQUIRED THE RIGHT TO OCCUPY AND GRADE ON DURING THE PERIOD OF CONSTRUCTION.
- CONTRACTOR SHALL NOSE DOWN LAST THREE (3) FEET OF PROPOSED CURB AND GUTTER WHEN NOT TYING INTO EXISTING CURB AND GUTTER.
- THE BASELINE SHOWN ON THESE PLANS IS THE BASELINE OF CONSTRUCTION. SEE THE RIGHT-OF-WAY PLATS FOR THE BASELINE OF THE RIGHT-OF-WAY.

**ABBREVIATIONS**

AASHTO	-AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ADT	-AVERAGE DAILY TRAFFIC
B/L	-BASELINE
C/O	-CLEAN OUT
CONC.	-CONCRETE
Dc	-DEGREE OF CURVATURE
DHV	-DESIGN HOURLY VOLUME
D.S.	-DESIGN SPEED
E.B.	-EASTBOUND
ELEV./EL.	-ELEVATION
EOP	-EDGE OF PAVEMENT
EX.	-EXISTING
e	-EXTERNAL
H.S.D.	-HEADLIGHT SIGHT DISTANCE
INV.	-INVERT
K	-RATE OF CHANGE OF GRADE
L	-LENGTH
LVC	-LENGTH OF VERTICAL CURVE
LOD	-LIMIT OF DISTURBANCE
MDSHA	-MARYLAND STATE HIGHWAY ADMINISTRATION
M.P.H.	-MILES PER HOUR
N.B.	-NORTHBOUND
N.T.S.	-NOT TO SCALE
POB	-POINT OF BEGINNING
PC	-POINT OF CURVATURE
P/C	-POINT OF CROWN
POE	-POINT OF ENDING
PI	-POINT OF INTERSECTION
P/R	-POINT OF ROTATION
PT	-POINT OF TANGENCY
PVC	-POINT OF VERTICAL CURVATURE
PVI	-POINT OF VERTICAL INTERSECTION
PVT	-POINT OF VERTICAL TANGENCY
P/GE	-PROFILE GRADE ELEVATION
P.G.L.	-PROFILE GRADELINE
P/GL	-PROFILE GROUND LINE
PROP.	-PROPOSED
R	-RADIUS
RCCP	-REINFORCED CONCRETE PIPE
SHLD	-SHOULDER
S.B.	-SOUTHBOUND
STA.	-STATION
S.S.D.	-STOPPING SIGHT DISTANCE
SE	-SUPERELEVATION
T	-TANGENT
TCE	-TEMPORARY CONSTRUCTION EASEMENT
V.C.	-VERTICAL CURVE
W.B.	-WESTBOUND

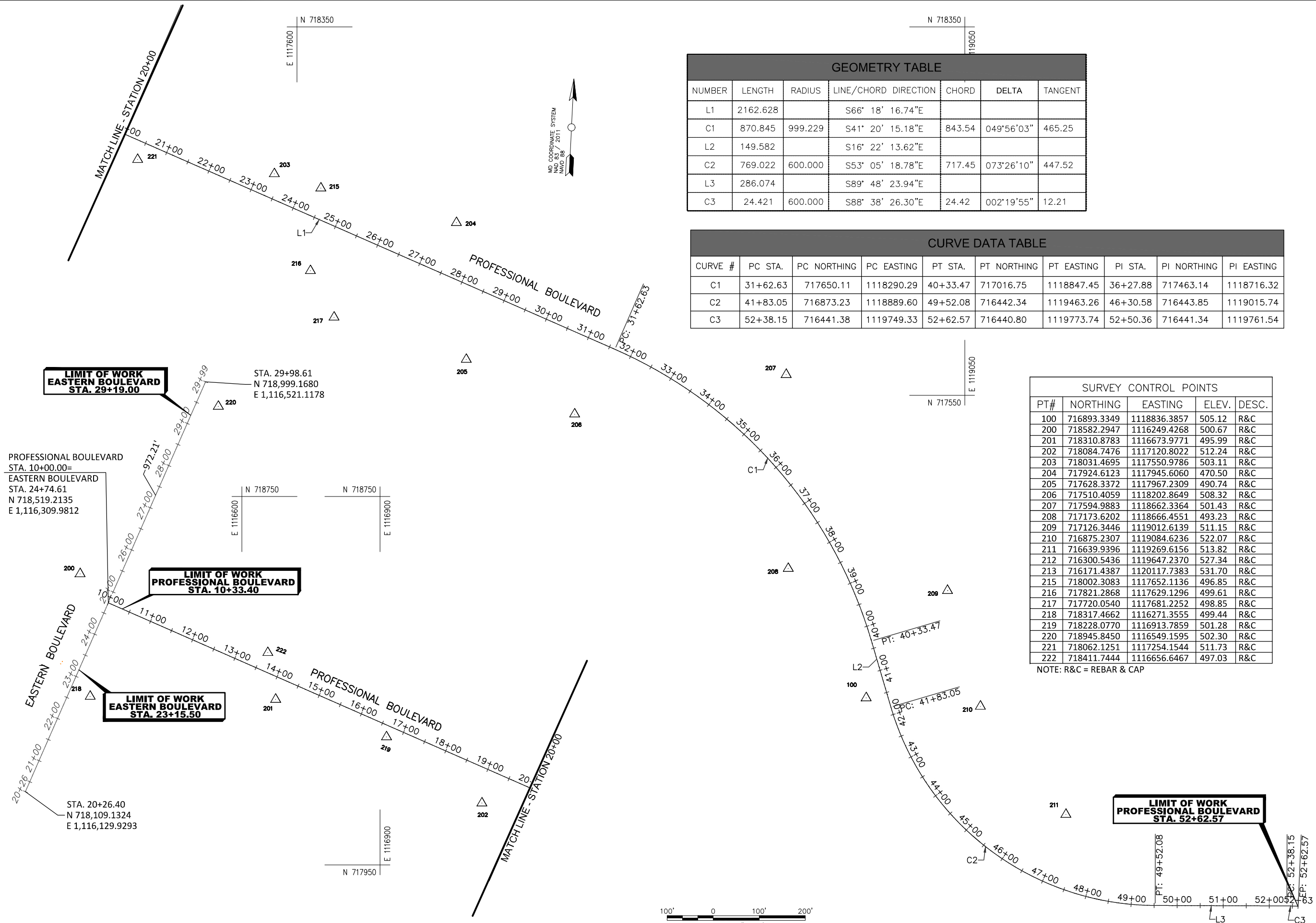
**LEGEND**

SURVEY TRAVERSE POINT	
EXISTING GAS UTILITY LINE	
EXISTING WATER LINE	
EXISTING UNDERGROUND ELECTRIC	
EXISTING SANITARY SEWER	
EXISTING UNDERGROUND TELEPHONE	
EXISTING UNDERGROUND FIBER	
EXISTING EXISTING STORM DRAIN MANHOLE	
EXISTING SANITARY MANHOLE	
EXISTING WATER VALVE	
EXISTING TREE LINE	
EXISTING TREE	
EXISTING UTILITY POLE	
EXISTING LIGHT POLE	
EXISTING SIGN	
PROPOSED TOE OF FILL	
PROPOSED TOP OF CUT	
PROPOSED DITCH	
PROPOSED STORM DRAIN CULVERT	
PROPOSED TRAFFIC BARRIER W BEAM	
EX. RIGHT-OF-WAY/PROPERTY LINE	
PROPOSED RIGHT-OF-WAY LINE	
100 YEAR FLOODPLAIN LINE	
SOIL BORING LOCATION	
EXISTING LIGHT POLE	

DATE	BY	REVISION DESCRIPTION	NO.	DESIGNED BY: TMB	DRAWN BY: TMB	CHECKED BY: TMB	DATE: #PRL2021
<p><b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING</p> <p style="font-size: small;">Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2460 Fax: 240-313-2401</p>							
<p><b>PROFESSIONAL BOULEVARD</b></p> <p style="font-size: small;">LEGEND &amp; NOTES</p>							
SCALE N/A							
SHEET NO. 2 OF 129							
PROJECT NO. 10-270							

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GEOMETRY TABLE						
NUMBER	LENGTH	RADIUS	LINE/CHORD DIRECTION	CHORD	DELTA	TANGENT
L1	2162.628		S66° 18' 16.74"E			
C1	870.845	999.229	S41° 20' 15.18"E	843.54	049°56'03"	465.25
L2	149.582		S16° 22' 13.62"E			
C2	769.022	600.000	S53° 05' 18.78"E	717.45	073°26'10"	447.52
L3	286.074		S89° 48' 23.94"E			
C3	24.421	600.000	S88° 38' 26.30"E	24.42	002°19'55"	12.21

CURVE DATA TABLE									
CURVE #	PC STA.	PC NORTHING	PC EASTING	PT STA.	PT NORTHING	PT EASTING	PI STA.	PI NORTHING	PI EASTING
C1	31+62.63	717650.11	1118290.29	40+33.47	717016.75	1118847.45	36+27.88	717463.14	1118716.32
C2	41+83.05	716873.23	1118889.60	49+52.08	716442.34	1119463.26	46+30.58	716443.85	1119015.74
C3	52+38.15	716441.38	1119749.33	52+62.57	716440.80	1119773.74	52+50.36	716441.34	1119761.54

SURVEY CONTROL POINTS				
PT#	NORTHING	EASTING	ELEV.	DESC.
100	716893.3349	1118836.3857	505.12	R&C
200	718582.2947	1116249.4268	500.67	R&C
201	718310.8783	1116673.9771	495.99	R&C
202	718084.7476	1117120.8022	512.24	R&C
203	718031.4695	1117550.9786	503.11	R&C
204	717924.6123	1117945.6060	470.50	R&C
205	717628.3372	1117967.2309	490.74	R&C
206	717510.4059	1118202.8649	508.32	R&C
207	717594.9883	1118662.3364	501.43	R&C
208	717173.6202	1118666.4551	493.23	R&C
209	717126.3446	1119012.6139	511.15	R&C
210	716875.2307	1119084.6236	522.07	R&C
211	716639.9396	1119269.6156	513.82	R&C
212	716300.5436	1119647.2370	527.34	R&C
213	716171.4387	1120117.7383	531.70	R&C
215	718002.3083	1117652.1136	496.85	R&C
216	717821.2868	1117629.1296	499.61	R&C
217	717720.0540	1117681.2252	498.85	R&C
218	718317.4662	1116271.3555	499.44	R&C
219	718228.0770	1116913.7859	501.28	R&C
220	718945.8450	1116549.1595	502.30	R&C
221	718062.1251	1117254.1544	511.73	R&C
222	718411.7444	1116656.6467	497.03	R&C

NOTE: R&C = REBAR & CAP

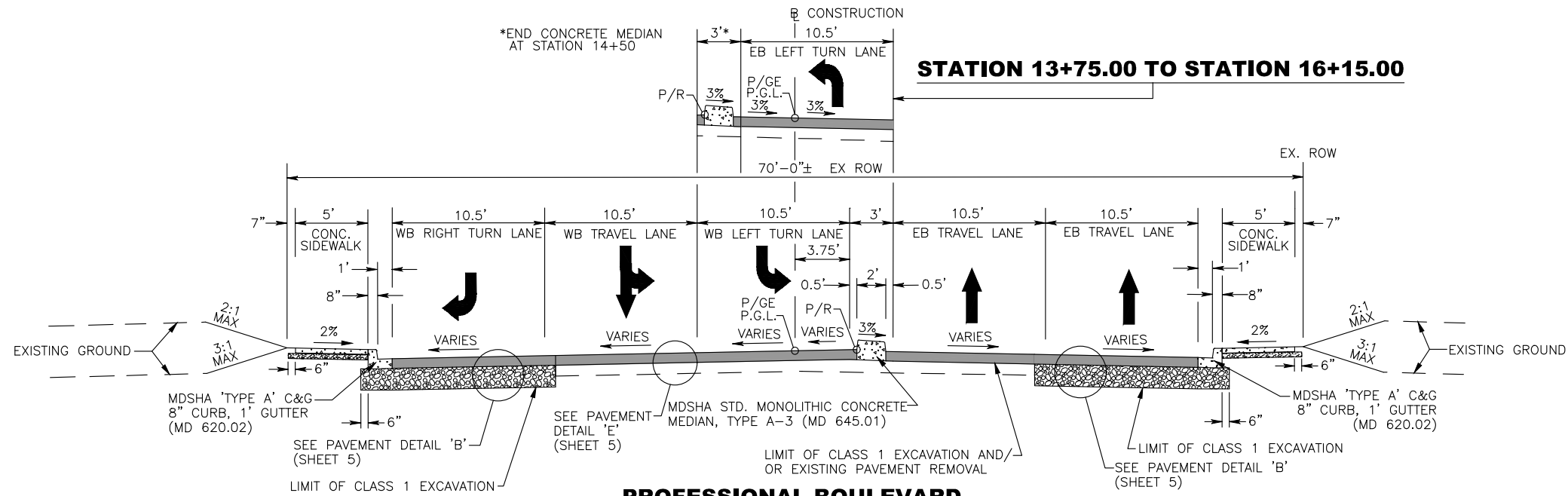
DESIGNED BY:	DATE:
DRAWN BY:	BY:
CHECKED BY:	REVISION DESCRIPTION:
DATE:	

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING  
 Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-315-2460 Fax: 240-313-2401

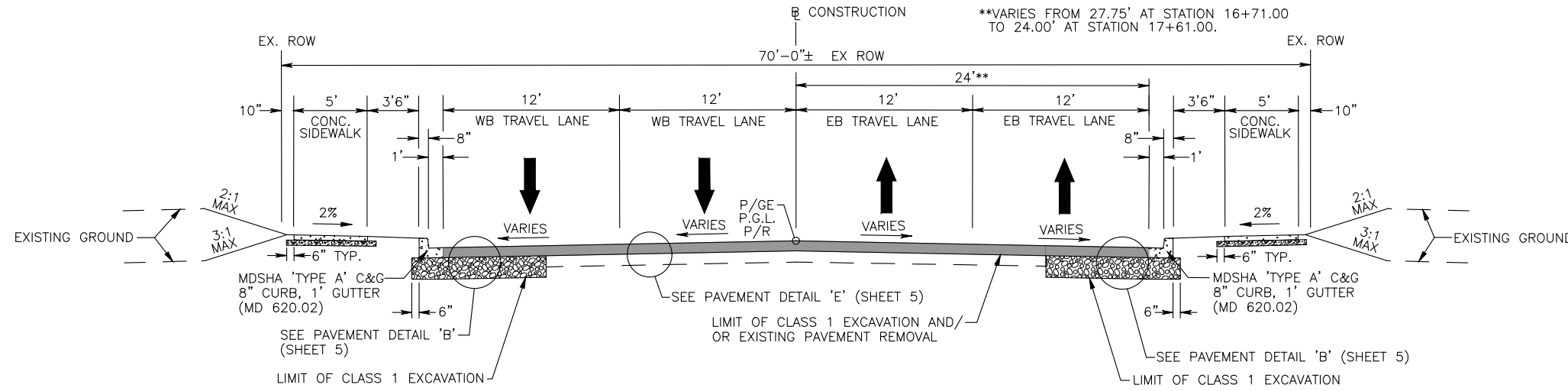
PROFESSIONAL BOWLEARD  
 GEOMETRIC PLAN

SCALE: 1"=100'  
 SHEET NO. 3 OF 129  
 PROJECT NO. 10-270

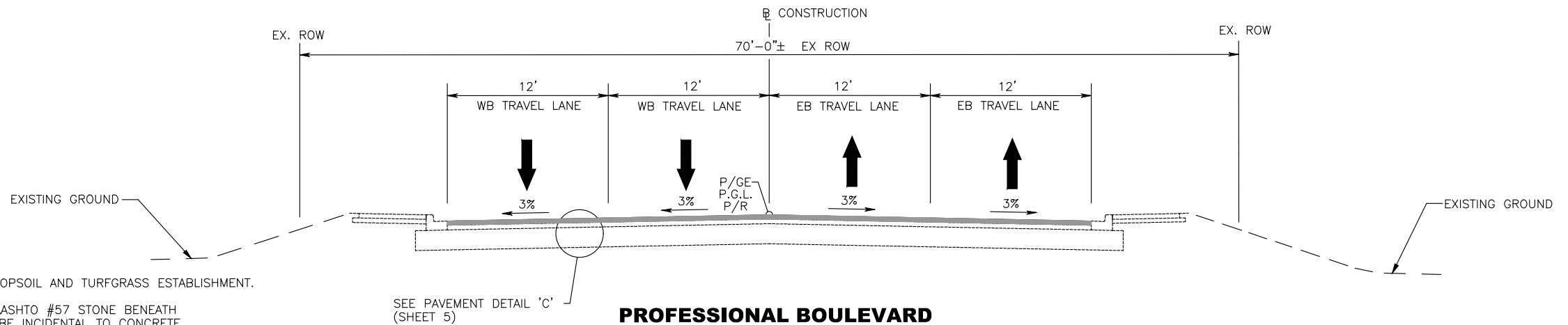
PROFESSIONAL BOULEVARD CROSS SLOPES		
STATION	WESTBOUND	EASTBOUND
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11+50	-3.00%	"
11+94	-3.50%	"
12+00	-3.50%	"
12+50	-3.00%	-3.00%
13+00	"	-3.50%
13+50	-3.00%	"
13+78	-2.00%	-3.50%
14+00	"	"
14+50	-2.00%	-2.50%
14+85	-1.00%	"
15+00	"	-2.50%
15+38	-3.00%	"
15+50	"	-1.50%
16+00	"	"
16+50	"	-2.50%
17+00	"	-2.50%
17+50	"	-3.00%
18+50	"	-3.00%
18+80	"	-2.00%
19+00	-3.00%	"
19+50	"	-2.00%
20+00	"	-2.50%
20+56	-1.00%	"
21+00	"	-2.50%
21+23	"	-2.00%
21+50	-3.00%	"
21+60	-3.00%	-3.00%



**PROFESSIONAL BOULEVARD  
STATION 10+40.00 TO STATION 16+15.00  
(CITY IMPROVEMENTS)**



**PROFESSIONAL BOULEVARD  
STATION 16+15.00 TO STATION 22+00.00  
(CITY IMPROVEMENTS)**



**PROFESSIONAL BOULEVARD  
STA. 22+00.00 TO STA. 25+35.68**

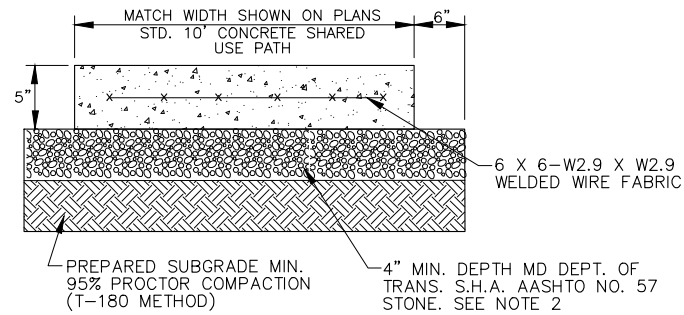
**NOTES:**

- ALL GRASS AREAS SHALL RECEIVE 4 INCH TOPSOIL AND TURFGRASS ESTABLISHMENT.
- CONTRACTOR SHALL INSTALL 4 INCHES OF AASHTO #57 STONE BENEATH 4 INCH CONCRETE SIDEWALK WHICH SHALL BE INCIDENTAL TO CONCRETE SIDEWALK PAY ITEM. SEE CONCRETE SIDEWALK DETAIL ON SHEET 7.
- MARYLAND SHA TYPE A CURB & GUTTER TO BE CONSTRUCTED WITH 9 INCH CONCRETE GUTTER DEPTH.

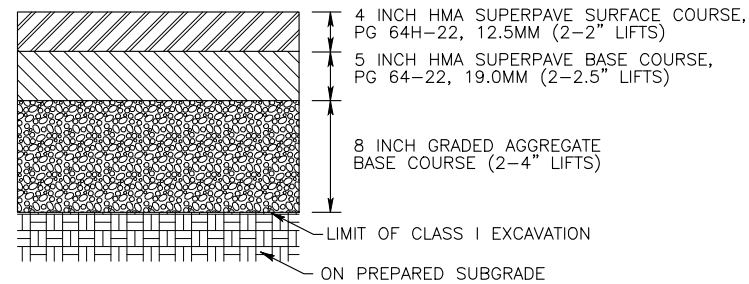


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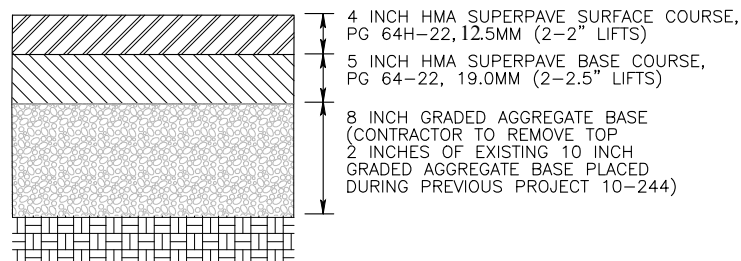
DATE		BY		REVISION DESCRIPTION		NO.	
DESIGNED BY:	TMB	DRAWN BY:	TMB	CHECKED BY:	TMB	DATE:	PP/PL/201
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING 							
<b>PROFESSIONAL BOULEVARD</b> <b>TYPICAL SECTION</b>							
SCALE <b>1"=5'</b>							
SHEET NO. <b>4 OF 129</b>							
PROJECT NO. <b>10-270</b>							



**SHARED USE PATH PAVEMENT DETAIL 'A'**



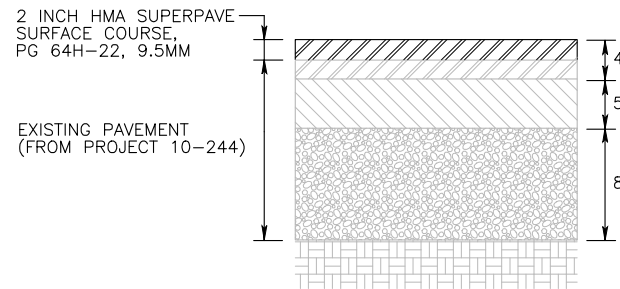
**FULL DEPTH PAVEMENT DETAIL 'B'**



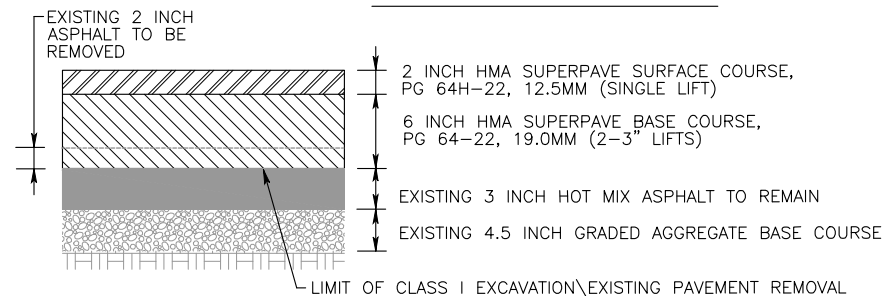
**PAVEMENT DETAIL 'D'**

**NOTES:**

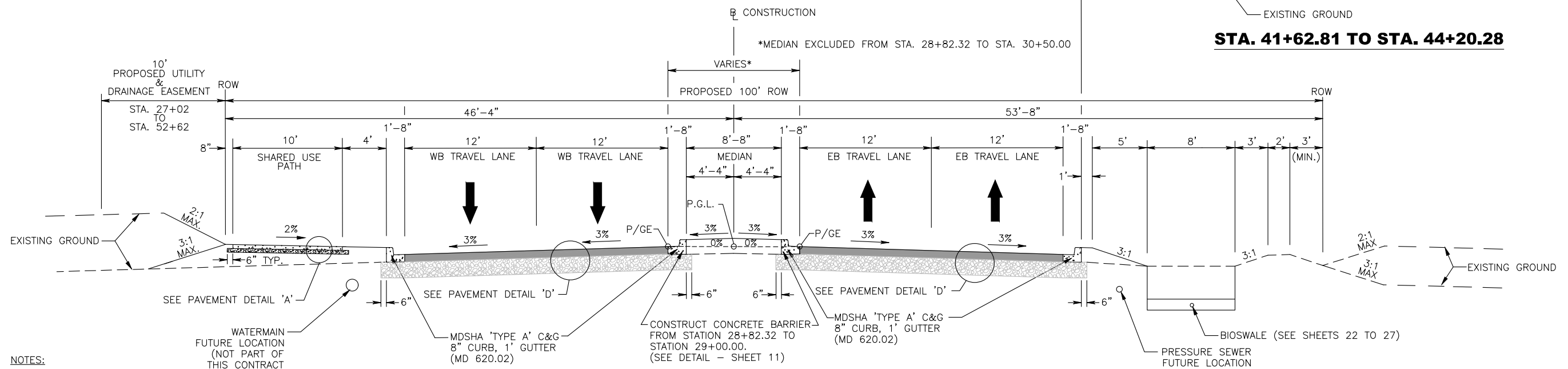
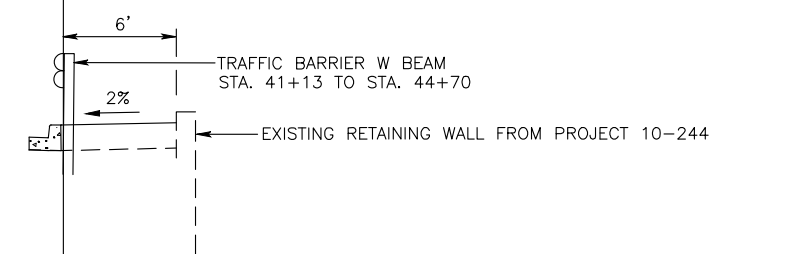
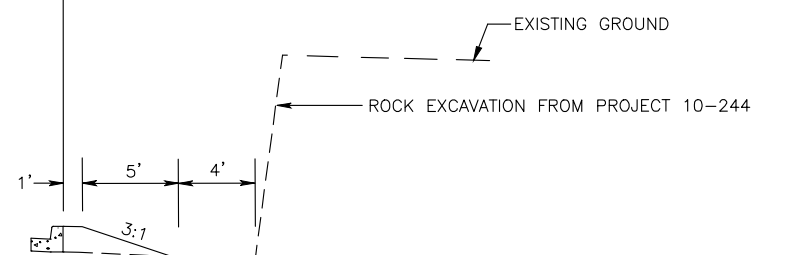
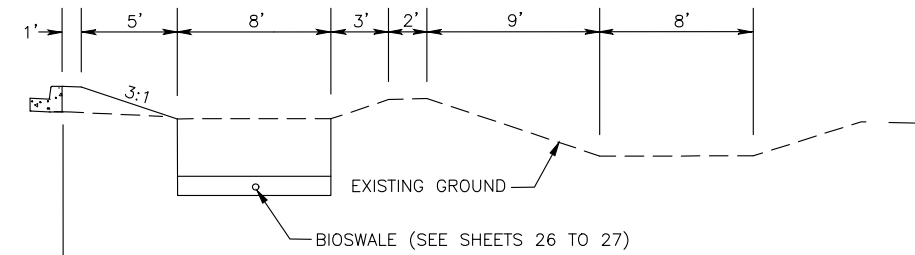
1. CONCRETE FOR SHARED USE PATH SHALL BE S.H.A. MIX No. 3 WITH A 28 DAY COMPRESSIVE STRENGTH OF 3500 P.S.I. AND 6% AIR ENTRAINMENT. ALL EXPOSED SURFACES SHALL RECEIVE LIGHT TRANSVERSE BROOM FINISH. ALL CONCRETE SIDEWALK USED FOR SHARED USE PATH SHALL BE 5" DEEP AND SHALL BE PLACED ON A BED OF 4" MIN. DEPTH AASHTO No. 57 STONE. TRANSVERSE 1/2" BITUMINOUS EXPANSION JOINTS SHALL BE PLACED AT INTERVALS OF 40 FEET. TOOLED TRANSVERSE JOINTS SHALL BE INSTALLED EVERY 5 FEET SO AS TO CREATE SQUARES AND EVENLY DIVIDED TO THE 40 FEET BETWEEN THE EXPANSION JOINTS.
2. No. 57 STONE SHALL BE AGITATED, VIBRATED, OR OTHERWISE SETTLED IN PLACE.
3. SHARED USE PATH SHALL HAVE A 2% MAXIMUM CROSS SLOPE DRAINING TOWARDS THE ROADWAY.
4. PRICE AND QUANTITY OF STONE BASE INCIDENTAL TO SHARED USE PATH.



**PAVEMENT DETAIL 'C'**

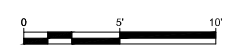


**PAVEMENT REHABILITATION DETAIL 'E'**



**PROFESSIONAL BOULEVARD  
STA. 28+82.32 TO STA. 52+62.57**

- NOTES:**
1. GUTTER PAN SHALL SLOPE AWAY FROM MEDIAN IN ALL LOCATIONS.
  2. ALL GRASS AREAS SHALL RECEIVE 4 INCH TOPSOIL AND TURFGRASS ESTABLISHMENT.
  3. MARYLAND SHA TYPE A CURB AND GUTTER TO BE CONSTRUCTED WITH 9 INCH CONCRETE GUTTER DEPTH.



DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY:	TMB
DRAWN BY:	TMB
CHECKED BY:	
DATE:	APRIL 2011

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD

TYPICAL SECTION

SCALE  
1"=5'

SHEET NO.  
5 OF 129

PROJECT NO.  
10-270

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**PLAN VIEW**

**SECTION A-A**

**NOTES**

1. WHEN THE TRAFFIC BARRIER POST IS PLACED LESS THAN 4' FROM THE EDGE OF SHOULDER/PAVEMENT, THE END TREATMENT SHALL BE FLASER AT A RATE OF 20% OVER THE FULL LENGTH AND ON A STRAIGHT LINE.
2. AN EFFECTIVE LOW OF 36" SHALL BE MAINTAINED IN THE END TREATMENT PAVEMENT.
3. SYSTEM MUST BE INSTALLED AT A HEIGHT OF 36".
4. FOR ORIENTATION, SEE STANDARD NO. 605.1A.
5. THIS DRAWING IS SCHEMATIC ONLY FOR ILLUSTRATION PURPOSES. SEE MDT SHA OPL FOR APPROVED SYSTEMS THAT ARE 100% SHOP COMPLIANT.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**TRAFFIC BARRIER W-BEAM ONE-SIDED PARALLEL END TREATMENT (TYPE C)**  
**STANDARD NO. MD 605.03**

**SIDE VIEW**

**NOTES**

1. W-BEAM RAIL IS FURNISHED RAMP CURVED, CONCAVE OR CONVEX TO RADIUS BETWEEN 20'-100'.
2. W-BEAM RAIL SECTIONS SHALL BE 12'-0" OR 25'-0" LENGTHS UNLESS SPECIFIED OTHERWISE.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**TRAFFIC BARRIER W-BEAM SINGLE FACE**  
**STANDARD NO. MD 605.22**

**PLACEMENT BEHIND SIDEWALK AREA**

**PLACEMENT ON SLOPE**

**PLACEMENT AT SHOULDER**

**PLACEMENT AT CURB (WITHOUT SIDEWALK)**

**MINIMUM OFFSET TO HAZARD**

**NOTES**

1. THE MINIMUM OFFSET DIMENSION SHOWN CAN BE REDUCED BY STIFFENING THE TRAFFIC BARRIER SYSTEM. SEE STD NO. 605.31-07.
2. 8'-0" LONG PASTES ARE TO BE USED WHEN THE DISTANCE FROM THE BACK OF THE W-BEAM POST TO THE HINGE POINT IS LESS THAN 2' AND THE SLOPE BEYOND THE HINGE IS STEEPER THAN 4:1.
3. WHEN THE FACE OF THE TRAFFIC BARRIER IS MORE THAN 2' FROM THE SHOULDER EDGE, THE HEIGHT MEASURED FROM THE EXISTING GROUND SHALL BE 36".
4. WHEN SLOPE IS STEEPER THAN 4:1, THE FACE OF THE BARRIER MUST BE ALIGNED WITH THE EDGE OF SHOULDER.
5. SLOPE IN FRONT OF BARRIER INSTALLED 2' OFFSET FROM SHOULDER EDGE MUST BE 10:1 OR SHALLOWER.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**TRAFFIC BARRIER W-BEAM PLACEMENT DETAILS**  
**STANDARD NO. MD 605.31**

**TYPE 'A'**  
COMBINATION CURB & GUTTER  
DESIGN SPEED 45 MPH

**TYPE 'B'**  
CURB

**NOTES**

1. SLOPE GUTTER PAN 1/4" PER FOOT TOWARD FLOW LINE ON ALL ROADWAYS INCLUDING SUPERELEVATED SECTIONS, EXCEPT INTERCHANGE RAMP.
2. ROADWAY PAVEMENT SLOPE.
3. ROADWAY PAVEMENT CONSTRUCTION JOINT.
4. PROVIDE LONGITUDINAL TIE DEVICE "A" BAR MODIFIED, REFER TO STANDARD NO. 605.61.
5. FLOW LINE.

**NOTES**

1. DESIGN PAVEMENT ROADWAY ADJACENT TO COMBINATION CURB AND GUTTER AND CLOSED SECTION ROADWAY USING ROAD PAVEMENT WITH COMBINATION CURB AND GUTTER SHALL BE TIED AT THE ROADWAY PAVEMENT CONSTRUCTION JOINT. REFER TO STANDARD NO. 605.61 FOR METHOD OF LONGITUDINAL TIE DEVICES. SPACING OF THE TIE BARS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. REINFORCED PAVEMENT AND CURB SHALL BE CONSTRUCTED AS INDICATED. TIE DEVICES ARE NOT REQUIRED WHEN USING FLEXIBLE PAVEMENT FOR ROADWAY.
2. MAXIMUM JOINT SPACING FOR CONCRETE CURB AND COMBINATION CURB & GUTTER IS 10'. SEE SPECIFICATION FOR LOCATIONS AND DESCRIPTION OF TREATMENT FOR THE TYPES OF JOINTS USED.
3. TYPE A OR B COMBINATION CURB AND GUTTER SHALL BE USED FOR ALL APPLICABLE NEW CONSTRUCTION AND IN THOSE AREAS WHERE THE COMBINATION CURB AND GUTTER IS TO BE REPLACED IN NEW.
4. TYPE C OR D CURB SHALL BE USED FOR THE REPLACEMENT OF THE KIND OF CURB ONLY. NOT TO BE USED FOR NEW CONSTRUCTION EXCEPT WHERE INDICATED ON APPROPRIATE INLET STANDARDS.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STATE HIGHWAY ADMINISTRATION**  
**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STANDARD TYPES A & B CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER**  
**STANDARD NO. MD 620.02**

**TYPE 'C'**  
COMBINATION CURB & GUTTER  
DESIGN SPEED 60 MPH

**TYPE 'D'**  
CURB

**NOTES**

1. SLOPE GUTTER PAN 1/4" PER FOOT TOWARD FLOW LINE ON ALL ROADWAYS INCLUDING SUPERELEVATED SECTIONS, EXCEPT INTERCHANGE RAMP.
2. ROADWAY PAVEMENT SLOPE.
3. ROADWAY PAVEMENT CONSTRUCTION JOINT.
4. PROVIDE LONGITUDINAL TIE DEVICE "A" BAR MODIFIED, REFER TO STANDARD NO. 605.61.
5. FLOW LINE.

**NOTES**

1. DESIGN PAVEMENT ROADWAY ADJACENT TO COMBINATION CURB AND GUTTER AND CLOSED SECTION ROADWAY USING ROAD PAVEMENT WITH COMBINATION CURB AND GUTTER SHALL BE TIED AT THE ROADWAY PAVEMENT CONSTRUCTION JOINT. REFER TO STANDARD NO. 605.61 FOR METHOD OF LONGITUDINAL TIE DEVICES. SPACING OF THE TIE BARS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. REINFORCED PAVEMENT AND CURB SHALL BE CONSTRUCTED AS INDICATED. TIE DEVICES ARE NOT REQUIRED WHEN USING FLEXIBLE PAVEMENT FOR ROADWAY.
2. MAXIMUM JOINT SPACING FOR CONCRETE CURB AND COMBINATION CURB & GUTTER IS 10'. SEE SPECIFICATION FOR LOCATIONS AND DESCRIPTION OF TREATMENT FOR THE TYPES OF JOINTS USED.
3. TYPE C OR B COMBINATION CURB AND GUTTER SHALL BE USED FOR ALL APPLICABLE NEW CONSTRUCTION AND IN THOSE AREAS WHERE THE COMBINATION CURB AND GUTTER IS TO BE REPLACED IN NEW.
4. TYPE C OR D CURB SHALL BE USED FOR THE REPLACEMENT OF THE KIND OF CURB ONLY. NOT TO BE USED FOR NEW CONSTRUCTION EXCEPT WHERE INDICATED ON APPROPRIATE INLET STANDARDS.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STATE HIGHWAY ADMINISTRATION**  
**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STANDARD TYPES C AND D CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER**  
**STANDARD NO. MD 620.02-01**

**DEPRESSED CURB FOR COMBINATION CONCRETE CURB & GUTTER FOR SIDEWALK RAMPS**

**DEPRESSED CONCRETE CURB FOR SIDEWALK RAMPS**

**NOTES**

1. SLOPE GUTTER PAN 1/4" PER FOOT TOWARD FLOW LINE ON ALL ROADWAYS INCLUDING SUPERELEVATED SECTIONS, EXCEPT INTERCHANGE RAMP.
2. ROADWAY PAVEMENT SLOPE.
3. ROADWAY PAVEMENT CONSTRUCTION JOINT.
4. PROVIDE LONGITUDINAL TIE DEVICE "A" BAR MODIFIED, REFER TO STANDARD NO. 605.61.
5. FLOW LINE.

**NOTES**

1. DESIGN PAVEMENT ROADWAY ADJACENT TO COMBINATION CURB AND GUTTER AND CLOSED SECTION ROADWAY USING ROAD PAVEMENT WITH COMBINATION CURB AND GUTTER SHALL BE TIED AT THE ROADWAY PAVEMENT CONSTRUCTION JOINT. REFER TO STANDARD NO. 605.61 FOR METHOD OF LONGITUDINAL TIE DEVICES. SPACING OF THE TIE BARS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. REINFORCED PAVEMENT AND CURB SHALL BE CONSTRUCTED AS INDICATED. TIE DEVICES ARE NOT REQUIRED WHEN USING FLEXIBLE PAVEMENT FOR ROADWAY.
2. MAXIMUM JOINT SPACING FOR CONCRETE CURB AND COMBINATION CURB & GUTTER IS 10'. SEE SPECIFICATION FOR LOCATIONS AND DESCRIPTION OF TREATMENT FOR THE TYPES OF JOINTS USED.
3. PAVEMENT FOR DEPRESSING THE CURB SHALL BE INCIDENTAL TO THE CONTRACT ONLY PRIOR TO PER LINEAR FOOT FOR THE VIEW CONCRETE CURB OR COMBINATION CONCRETE CURB AND GUTTER, AS SPECIFIED IN THE CONTRACT DOCUMENTS.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STATE HIGHWAY ADMINISTRATION**  
**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**DEPRESSED CURB FOR COMBINATION CURB AND GUTTER AND DEPRESSED CURB FOR SIDEWALK RAMPS**  
**STANDARD NO. MD 620.03**

**STANDARD ENTRANCE CONSTRUCTION RESIDENTIAL & COMMERCIAL METHOD NO. 1**

**NOTES**

1. FOR USE IN AREAS WHERE THERE IS SIDEWALK ADJACENT TO THE BACK OF CURB OR WHERE IT IS EXPECTED THAT SIDEWALK WILL BE ADDED IN THE FUTURE.
2. WHEN AN EXISTING ENTRANCE IS LESS THAN 20' IN WIDTH A UNIFORM PAPER SHALL BE CONSTRUCTED TO THE INTO THE EXISTING ENTRANCE AS DIRECTED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH STD. NO. 605.01.
4. NOTE: 8'-0" SIDEWALK CAN ONLY BE PROVIDED AT 10' JOINT. MAY BE USED AS LONG AS PAVING ZONES ARE PROVIDED IN ACCORDANCE WITH STD. NO. 605.01.
5. TYPE A AND B CURB AND THE CURB FOR TYPE A, B, AND C COMBINATION CURB AND GUTTER SHALL BE DEPRESSED AS SHOWN ON STD. 605.01-07 TYPE C. PAVEMENT FOR DEPRESSING THE CURB SHALL BE AS SPECIFIED ON STD. 605.03 NOTE C.
6. TRANSFER PAVEMENT TO THE JOINT EXISTING SIDEWALK MUST BE A MINIMUM OF 4' IN LENGTH.
7. RAMP SLOPES MUST BE CALCULATED USING THE HORIZONTAL PLANE. USING THE RISE-OVER-RUN METHOD FOR 1% INSUFFICIENT FOR DETERMINING SLOPE. TYPICAL PAVEMENT FROM THE HORIZONTAL PLANE OF THE SURROUNDING ROADWAY FACILITY MUST ALSO BE DETERMINED AND ACCORDED FOR.
8. USE MTR 6 UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STATE HIGHWAY ADMINISTRATION**  
**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STANDARD ENTRANCE CONSTRUCTION RESIDENTIAL & COMMERCIAL METHOD NO. 1**  
**STANDARD NO. MD 630.01**

**MONOLITHIC CONCRETE MEDIAN TYPE 'A'**

**NOTES**

1. UNLESS OTHERWISE SPECIFIED, LONGITUDINAL TIE BARS BEHIND TYPE 'A' OR TYPE 'B' SHALL BE PLACED AT MIDSPAN OF BEYOND A SPACED ACCORDING TO SPECIFICATIONS FOR CONCRETE PAVEMENT SHALL BE USED AT CONSTRUCTION JOINT BETWEEN MONOLITHIC CONCRETE MEDIAN FOR GUTTER PAN AND EXISTING PAVEMENT. SEE STANDARD NO. 605.61.
2. JOINT SPACING SHALL BE A MAXIMUM OF 10'-0" APART. SEE SPECIFICATIONS FOR LOCATION AND DESCRIPTION OF TREATMENT FOR THE TYPES OF JOINTS USED. CONCRETE PAVEMENT JOINTS SHALL BE ON PAVEMENT JOINTS.
3. ALLOW 4" HOLES IN MEDIAN FOR SIMS, SPACED AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

APPROVED	SHA	APPROVAL	MD
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE
APPROVAL	DATE	APPROVAL	DATE

**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STATE HIGHWAY ADMINISTRATION**  
**STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES**  
**STANDARD MONOLITHIC CONCRETE MEDIAN TYPE 'A'**  
**STANDARD NO. MD 645.01**

DATE: \_\_\_\_\_

REVISION DESCRIPTION: \_\_\_\_\_

NO: \_\_\_\_\_

DESIGNED BY: \_\_\_\_\_

DRAWN BY: TMB

CHECKED BY: \_\_\_\_\_

DATE: 1/18/2012

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD

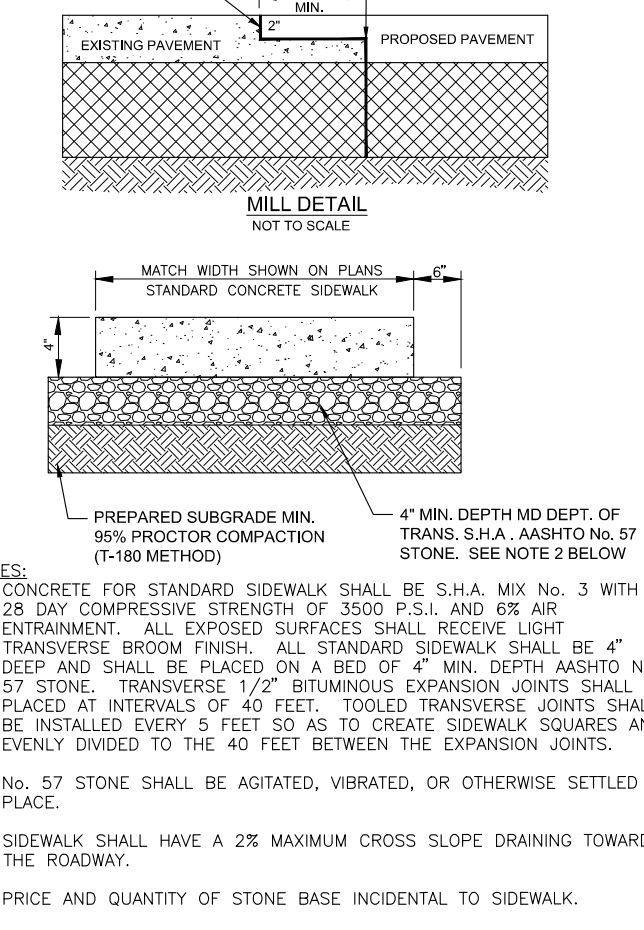
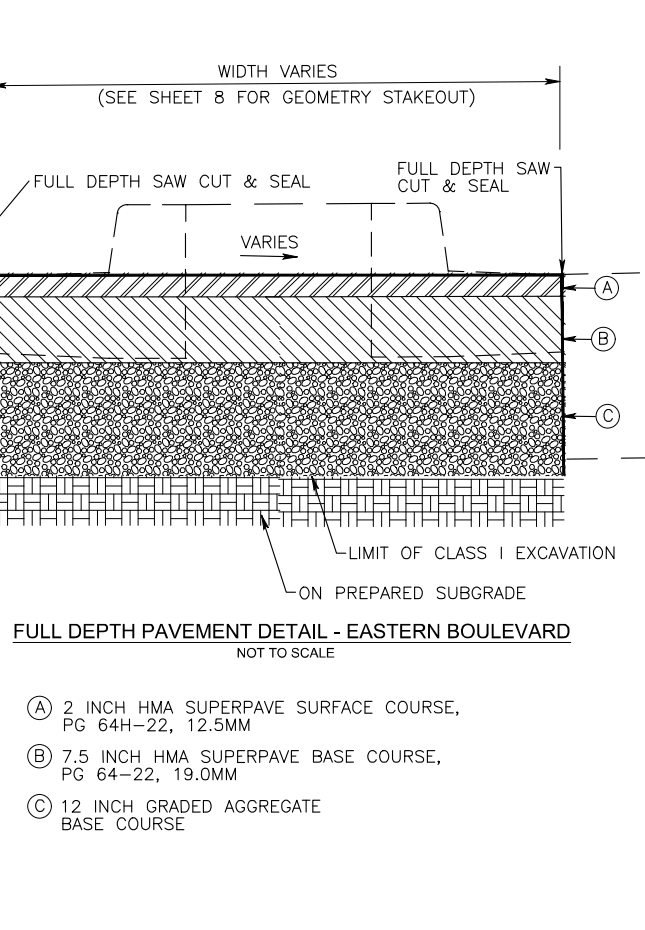
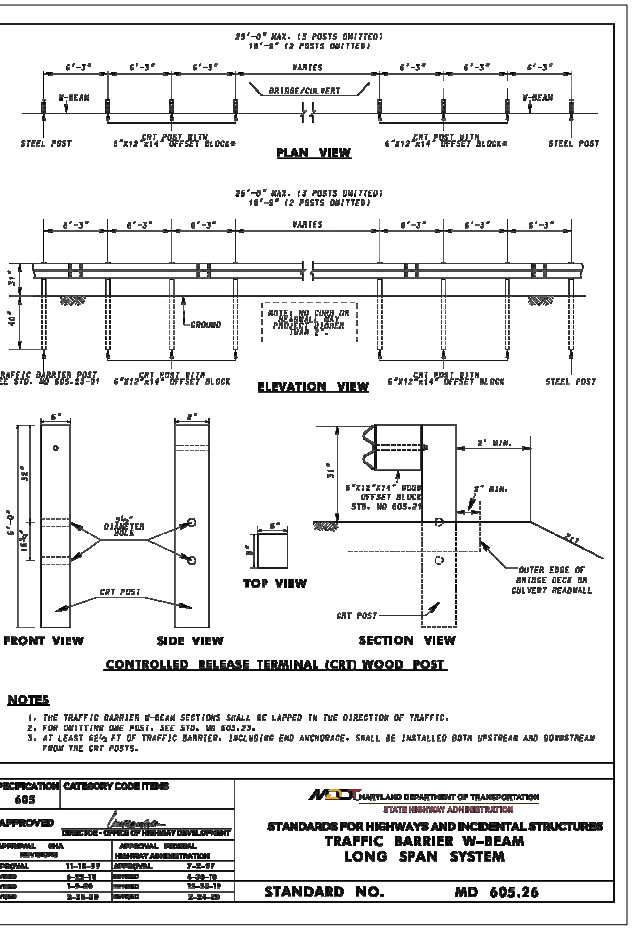
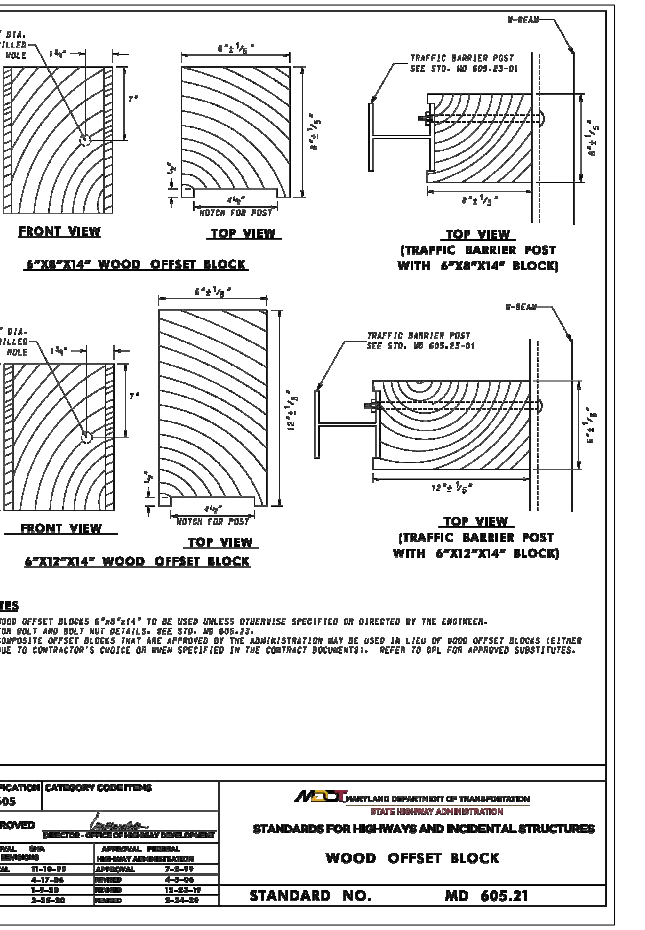
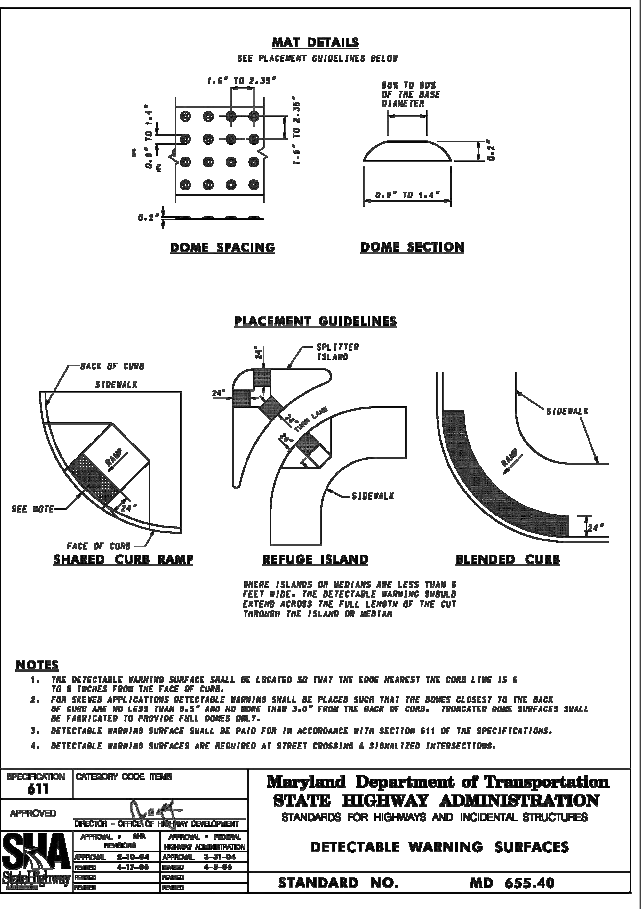
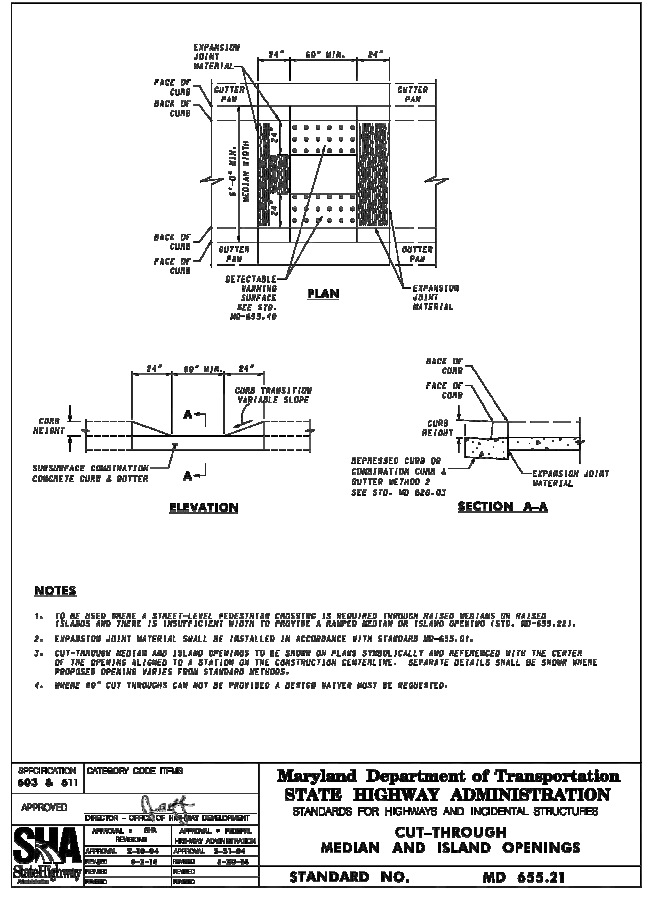
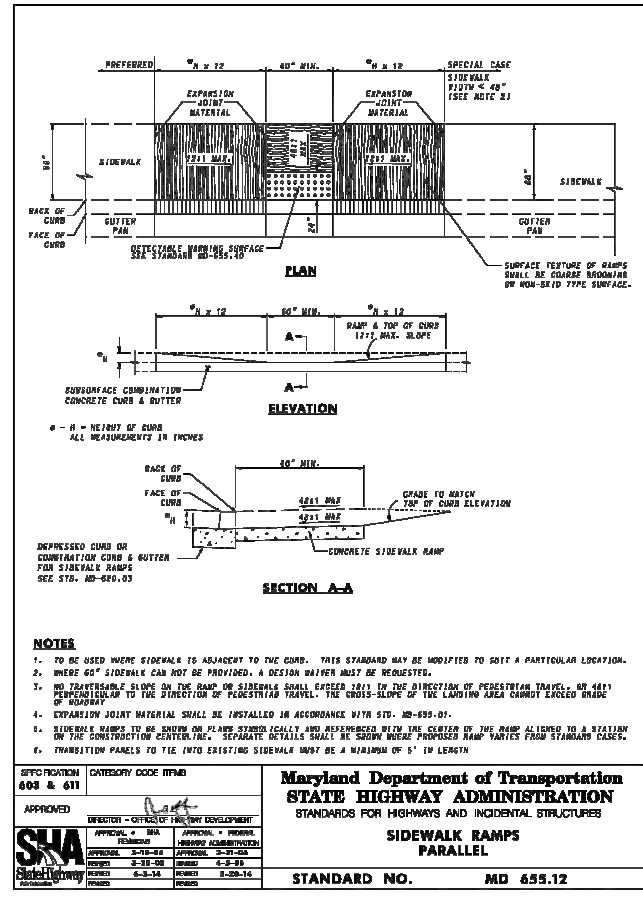
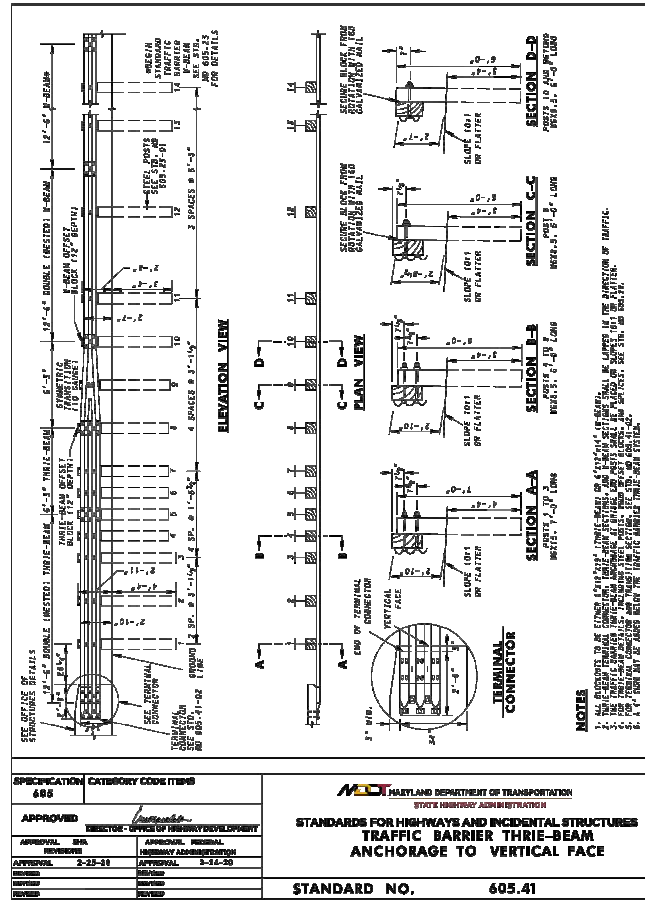
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SCALE: N/A

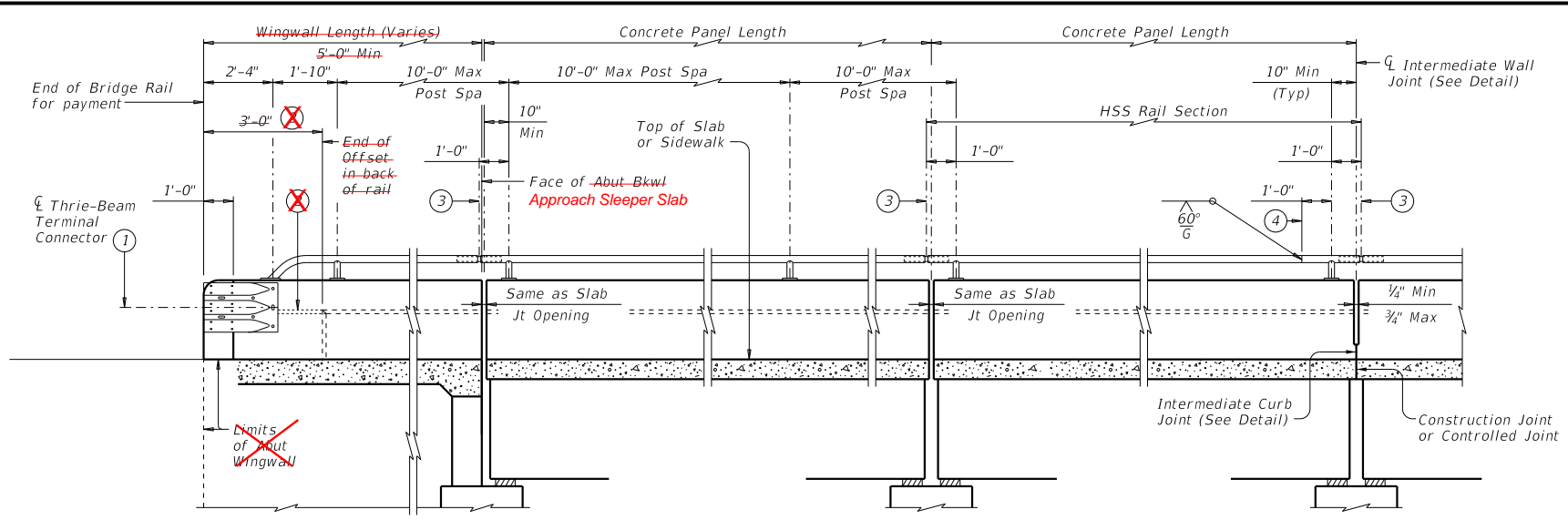
SHEET NO. 6 OF 129

PROJECT NO. 10-270

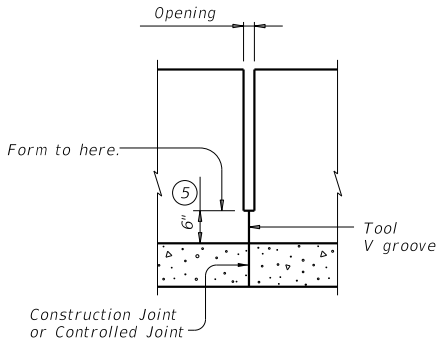
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DESIGNED BY:	TMB	DRAWN BY:	TMB	CHECKED BY:	TMB	DATE:	7/19/2014
NO.		NO.		NO.		NO.	
REVISION DESCRIPTION		REVISION DESCRIPTION		REVISION DESCRIPTION		REVISION DESCRIPTION	
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2460 Fax: 240-313-2401							
<b>PROFESSIONAL BOULEVARD</b> <b>STANDARD ROADWAY DETAILS</b>							
SCALE N/A							
SHEET NO. 7 OF 129							
PROJECT NO. 10-270							

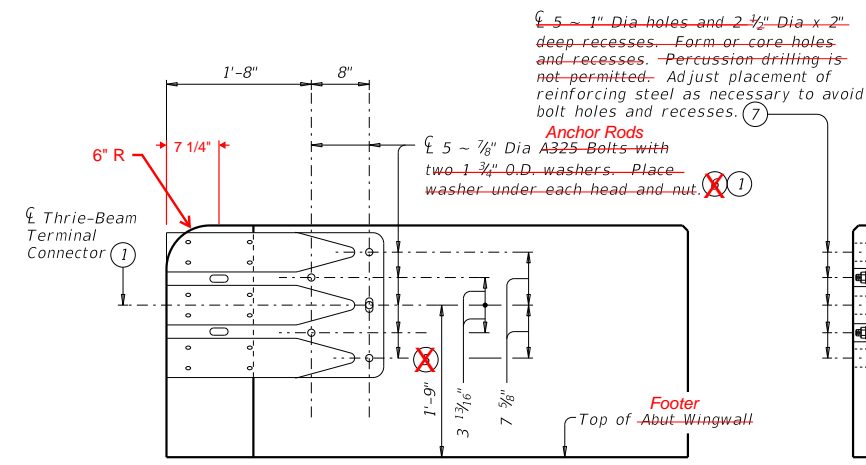


**ROADWAY ELEVATION OF RAIL**  
 AT ABUTMENTS SLEEPER SLAB (Abutment shown. Similar barrier and rail joint at Approach Sleeper Slab)  
 AT BENTS WITH SLAB EXP JOINTS  
 AT BENTS WITHOUT SLAB EXP JOINTS

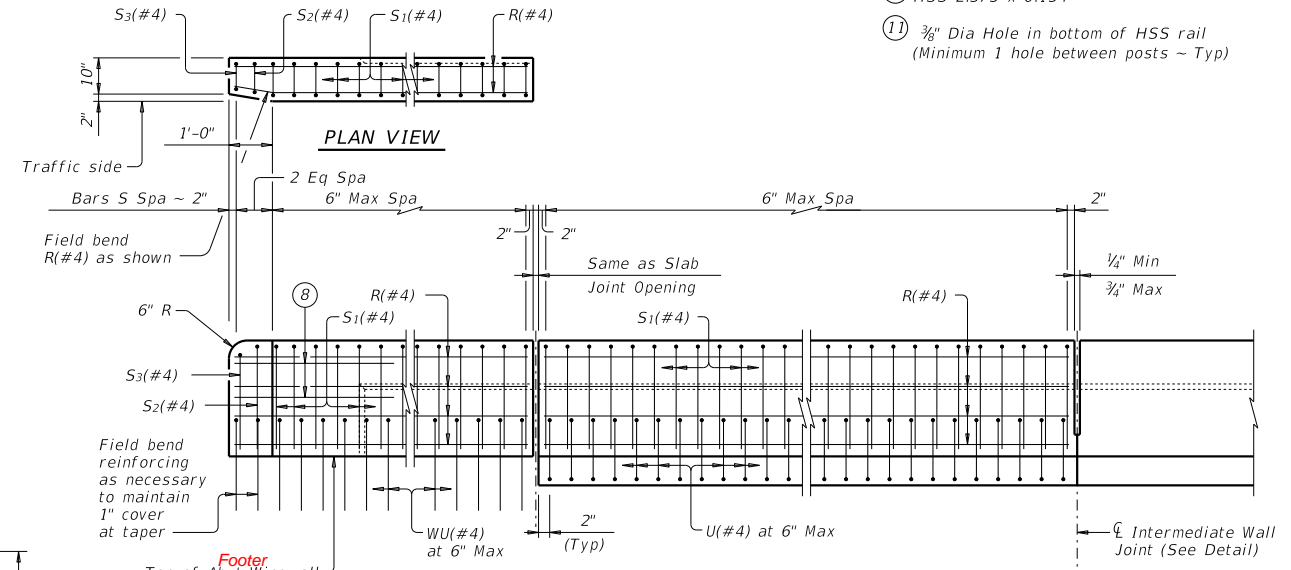


**INTERMEDIATE WALL JOINT DETAIL**  
 Provide at all interior bents without slab expansion joints. Location independent of HSS rail splices.

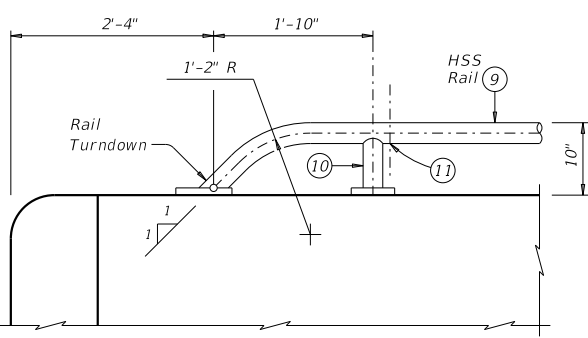
- ① Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence". Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans. Attach per details shown in Standard Roadway Details.
- ② Back-of-rail offset may, with Engineer's approval, be continued to the end of the rail.
- ③ Exp Joint or Splice Joint as required.
- ④ One shop splice per HSS rail section is permitted with minimum 85 percent penetration. The weld may be square groove, or single vee groove. Grind smooth.
- ⑤ Increase 2" for structures with overlay.
- ⑥ Provide bolts of sufficient length to extend 1/2" to 3/4" beyond nut.
- ⑦ Bolt recesses are only required when pedestrian sidewalks are adjacent to back-of-rail.
- ⑧ Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.
- ⑨ HSS 2.875 x 0.203
- ⑩ HSS 2.375 x 0.154
- ⑪ 3/8" Dia Hole in bottom of HSS rail (Minimum 1 hole between posts ~ Typ)



**TERMINAL CONNECTION DETAILS**  
 ELEVATION  
 SECTION

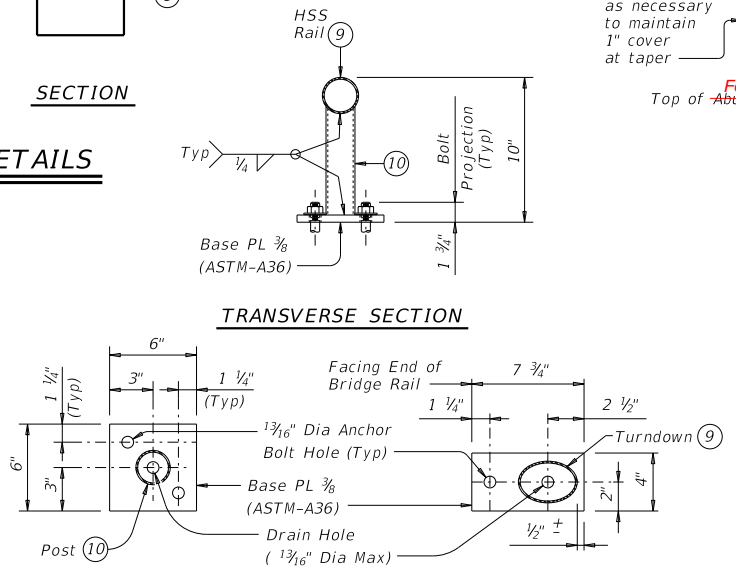


**ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT**  
 (Showing without raised sidewalk)  
 SLEEPER SLAB AT ABUT WINGWALL  
 AT BENTS WITH SLAB EXP JOINTS  
 AT SLAB  
 AT BENTS WITHOUT SLAB EXP JOINTS



Note that at least two anchor points (as shown) are required for the Bridge Rail on the Abutment Wingwall. Longer Wingwalls may require more than two Rail anchorages.

**HSS RAIL TERMINAL DETAIL**



**RAIL TURNDOWN BASE PLATE PLAN**  
**POST BASE PLATE PLAN**  
**HSS RAIL DETAILS**

SHEET 1 OF 3

**Texas Department of Transportation** Bridge Division Standard

## COMBINATION RAIL

### TYPE C221

FILE: r1std018.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT July 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS				
03-16: Removed shop drawing note. Added MASH TL-3 in General Notes. Added additional epoxy classes.	DIST	COUNTY	SHEET NO.	

DATE		BY		REVISION DESCRIPTION		NO.	
DESIGNED BY:	KMD	DRAWN BY:	KMD	CHECKED BY:	KMD	DATE:	APRIL 2021

**WASHINGTON COUNTY, MARYLAND**  
 DIVISION OF ENGINEERING

**PROFESSIONAL BOULEVARD**

**STANDARD ROADWAY DETAILS**

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

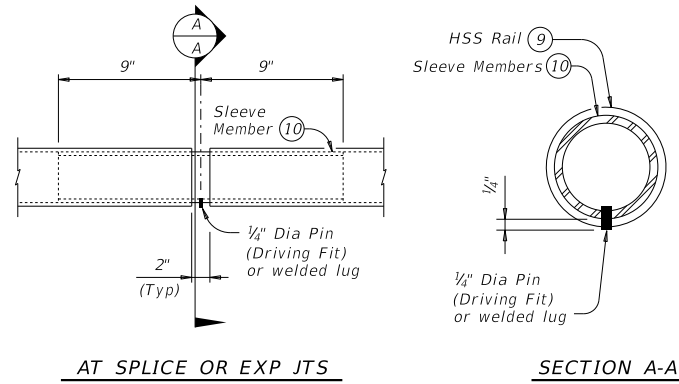
SCALE  
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SHEET NO.  
 7A OF 129

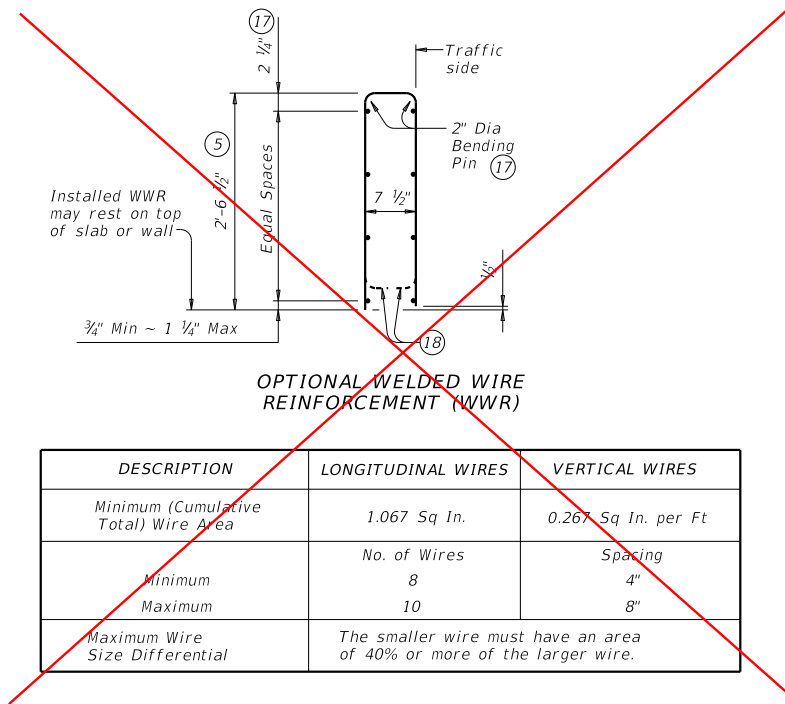
PROJECT NO.  
 10-270



RAIL DATA FOR HORIZONTAL CURVES		
	RADIUS TO FACE OF RAIL	CONSTRUCT OR FABRICATE
HSS Rail	Over 2800'	29'-0"
	Over 1400' thru 2800'	14'-6"
	Over 700' thru 1400'	7'-3"
	Thru 700'	Zero



**PIPE SPlice DETAILS**



DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
Minimum	No. of Wires	Spacing
Maximum	8	4"
Maximum Wire Size Differential	10	8"
	The smaller wire must have an area of 40% or more of the larger wire.	

**CONSTRUCTION NOTES:**

~~This railing may be constructed with slip-forms when approved by the Engineer, with equipment approved by the Engineer and when epoxy adhesive anchor bolts are used. Slip-forming parapet is not allowed if anchor bolts are cast with parapet wall. Provide sensor control for both line and grade. Tack welding to provide bracing for slip-form operations is acceptable. Welding can be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to U, WU and S bars at any location on the cage. If increased bracing is needed, additional anchorage devices must be added and welding must be performed in the upper two thirds of the cage.~~

Face of rail, parapet must be plumb unless otherwise approved by the Engineer. HSS rail posts must be square to the top of parapet. Use epoxy mortar under post base plates if gaps larger than 1/16" exist.

Round or chamfer exposed edges of HSS rail and HSS rail posts to approximately 1/16" by grinding.

At the contractor's option anchor bolts may be cast with the parapet (See Cast-in-Place Anchor Bolt Options).

HSS rail sections must not include less than two posts, and no more than four (except at Abutments).

Chamfer all parapet exposed corners.

**MATERIAL NOTES:**

~~Galvanize all steel components except reinforcing steel unless otherwise shown on plans.~~

~~Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.~~

Provide Grade 60 reinforcing steel.

Epoxy coat all rail reinforcement if slab bars are epoxy coated.

~~Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM 1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other than those shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.~~

Provide ASTM-A1085 or A500 Grade B or A53 Grade B for all HSS.

Anchor bolts must be 3/8" Dia ASTM A36 fully threaded rods with one hex nut and one hardened steel washer at each bolt. Embed threaded rods into parapet wall with a Type III, Class C, D, E, or F Epoxy anchorage system. Minimum embedment depth is 3". Anchorage system chosen must be able to achieve an ultimate tensile resistance of 8.4 kips per bolt. The Contractor must provide evidence to the Engineer that this can be achieved. Evidence of adequate tensile resistance can be based on the manufacturer's published values of ultimate tensile strength (anchor spacing and edge distance must be accounted for). Anchor installation, including hole size, drilling, and clean-out, must be in accordance with the manufacturer's instructions.

Optional cast-in-place anchor bolts must be 3/8" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt.

Provide bar laps, where required, as follows:  
 - Uncoated - #4 = 1'-5"  
 Epoxy coated - #4 = 2'-1"

**GENERAL NOTES:**

This rail has been evaluated and accepted to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-3 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

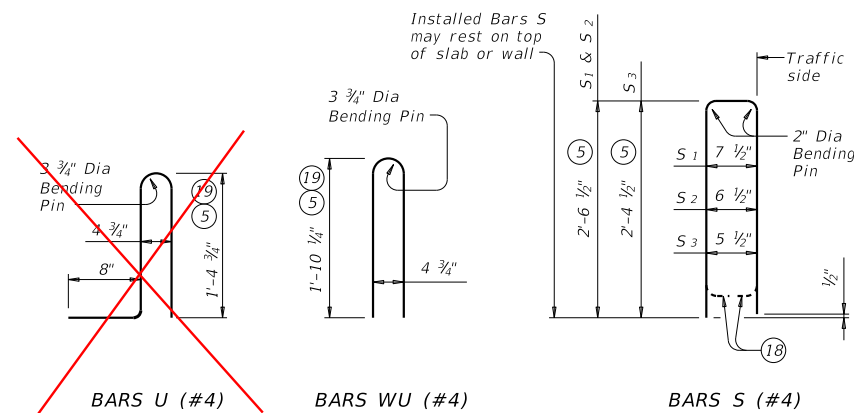
Do not use this railing on bridges with expansion joints providing more than 5" movement.

Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Submit erection drawings showing panel lengths, rail post spacing, and anchor bolt setting to the Engineer for approval.

Average weight of railing with no overlay: 380 plf (total)  
 370 plf (Conc)  
 10 plf (Steel)

Cover dimensions are clear dimensions, unless noted otherwise.  
 Reinforcing bar dimensions shown are out-to-out of bar.



**CAST-IN-PLACE ANCHOR BOLT OPTIONS (20)**

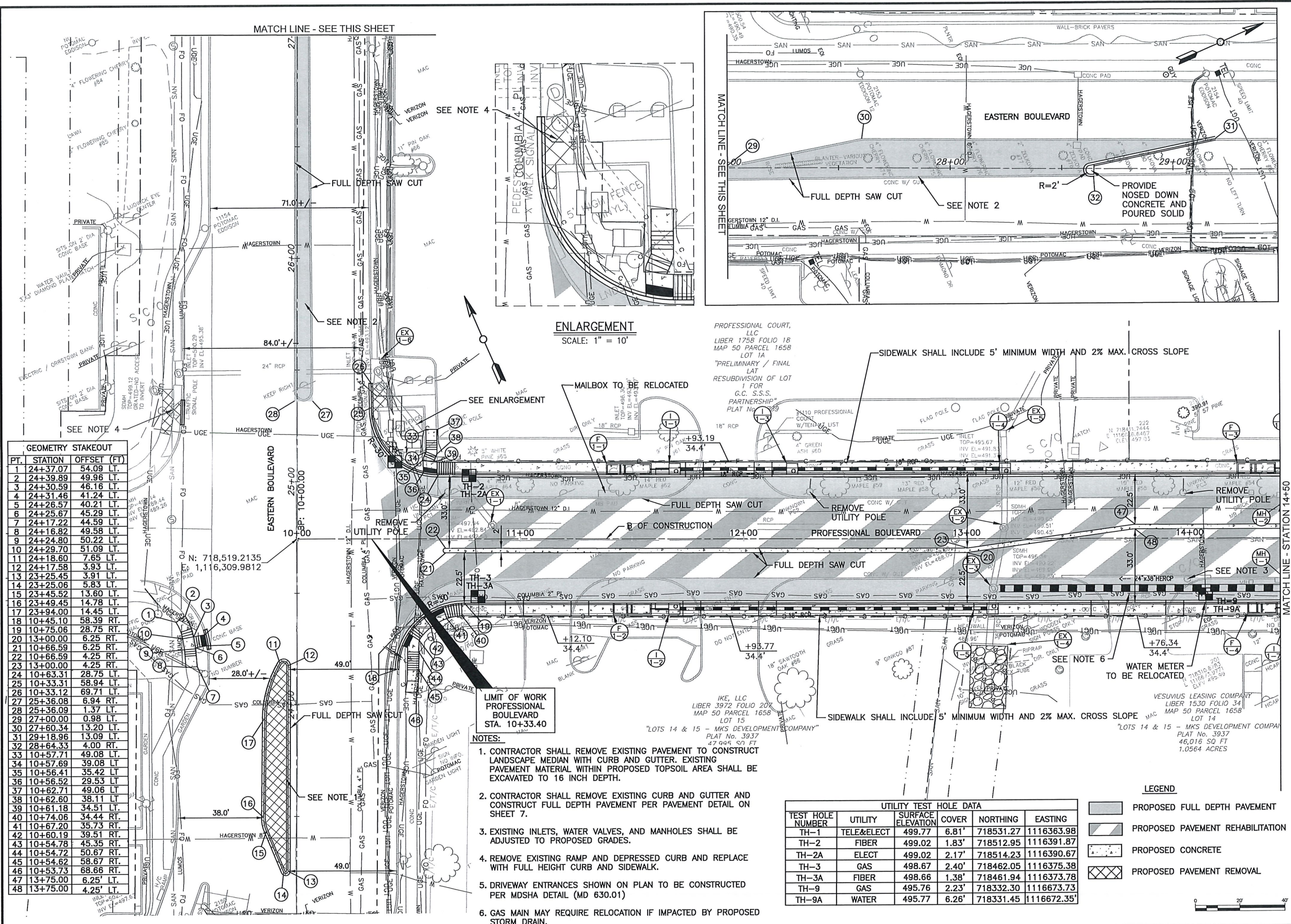
- (5) Increase 2" for structures with overlay.
- (9) HSS 2.875 x 0.203
- (10) HSS 2.375 x 0.154
- (17) No longitudinal wires may be in top center of cage.
- (18) Bend or cut as required to clear drain slots.
- (19) For raised sidewalks, add sidewalk height to total bar height. Use sidewalk height at rail's location.
- (20) See "Material Notes" for anchor bolt information.

<b>COMBINATION RAIL</b>			
<b>TYPE C221</b>			
FILE: r1std018.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
CR: JNH	REVISIONS		
TXDOT July 2014	CONT	SECT	JOB
03-16: Removed shop drawing note. Added MASH TL-3 in General Notes. Added additional epoxy classes.	DIST	COUNTY	SHEET NO.

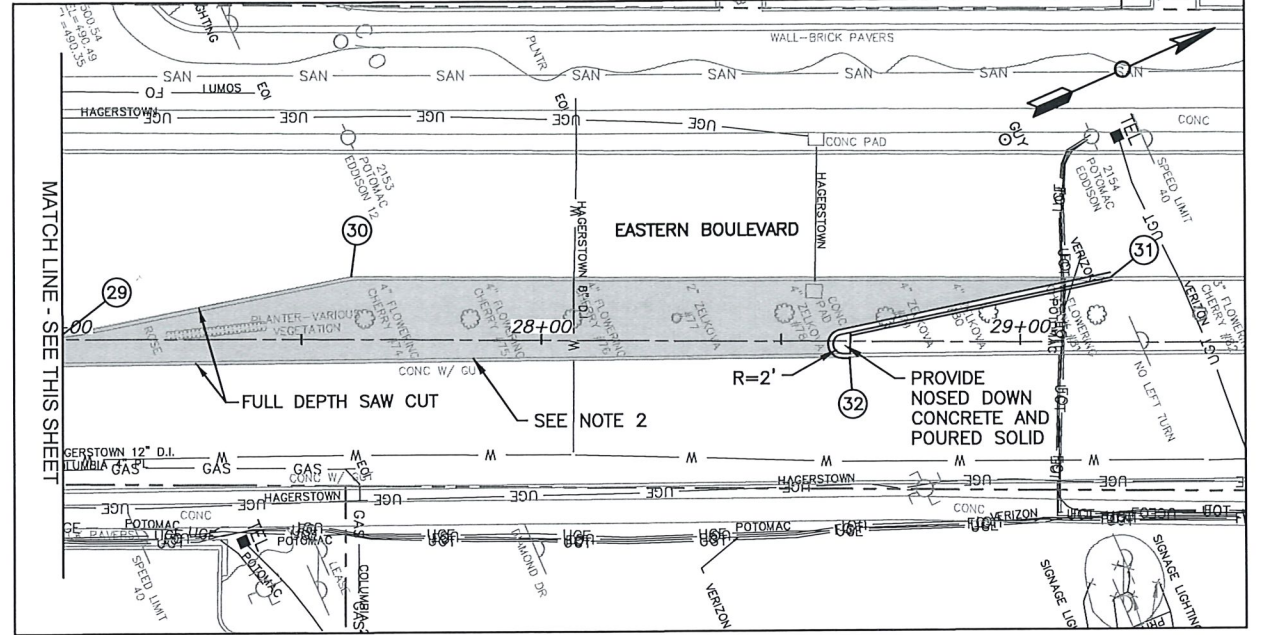
DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY: KMD	DATE: APRIL 2021
DRAWN BY: KMD	
CHECKED BY:	
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING	
Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2460 Fax: 240-313-2401	
<b>PROFESSIONAL BOULEVARD</b> <b>STANDARD ROADWAY DETAILS</b>	
SCALE	N/A
SHEET NO.	7B OF 129
PROJECT NO.	10-270

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PT.	STATION	OFFSET (FT)	
1	24+37.07	54.09	LT.
2	24+39.89	49.96	LT.
3	24+30.59	46.16	LT.
4	24+31.46	41.24	LT.
5	24+26.57	40.21	LT.
6	24+25.67	45.29	LT.
7	24+17.22	44.59	LT.
8	24+16.82	49.58	LT.
9	24+24.80	50.22	LT.
10	24+29.70	51.09	LT.
11	24+18.60	7.65	LT.
12	24+17.58	3.93	LT.
13	23+25.45	3.91	LT.
14	23+25.06	5.83	LT.
15	23+45.52	13.60	LT.
16	23+49.45	14.78	LT.
17	23+94.00	14.45	LT.
18	10+45.10	58.39	RT.
19	10+75.06	28.75	RT.
20	13+00.00	6.25	RT.
21	10+66.59	6.25	RT.
22	10+66.59	4.25	RT.
23	13+00.00	4.25	RT.
24	10+63.31	28.75	LT.
25	10+33.31	58.94	LT.
26	10+33.12	69.71	LT.
27	25+36.08	6.94	RT.
28	25+36.09	1.37	LT.
29	27+00.00	0.98	LT.
30	27+60.34	13.20	LT.
31	29+18.96	13.09	LT.
32	28+64.33	4.00	RT.
33	10+57.71	49.08	LT.
34	10+57.69	39.08	LT.
35	10+56.41	35.42	LT.
36	10+56.52	29.53	LT.
37	10+62.71	49.06	LT.
38	10+62.60	38.11	LT.
39	10+61.18	34.51	LT.
40	10+74.06	34.44	RT.
41	10+67.20	35.73	RT.
42	10+60.19	39.51	RT.
43	10+54.78	45.35	RT.
44	10+54.72	50.67	RT.
45	10+54.62	58.67	RT.
46	10+53.73	68.66	RT.
47	13+75.00	6.25	LT.
48	13+75.00	4.25	LT.



**ENLARGEMENT**  
SCALE: 1" = 10'



**LIMIT OF WORK**  
PROFESSIONAL BOULEVARD  
STA. 10+33.40

- NOTES:**
- CONTRACTOR SHALL REMOVE EXISTING PAVEMENT TO CONSTRUCT LANDSCAPE MEDIAN WITH CURB AND GUTTER. EXISTING PAVEMENT MATERIAL WITHIN PROPOSED TOPSOIL AREA SHALL BE EXCAVATED TO 16 INCH DEPTH.
  - CONTRACTOR SHALL REMOVE EXISTING CURB AND GUTTER AND CONSTRUCT FULL DEPTH PAVEMENT PER PAVEMENT DETAIL ON SHEET 7.
  - EXISTING INLETS, WATER VALVES, AND MANHOLES SHALL BE ADJUSTED TO PROPOSED GRADES.
  - REMOVE EXISTING RAMP AND DEPRESSED CURB AND REPLACE WITH FULL HEIGHT CURB AND SIDEWALK.
  - DRIVEWAY ENTRANCES SHOWN ON PLAN TO BE CONSTRUCTED PER MDSA DETAIL (MD 630.01)
  - GAS MAIN MAY REQUIRE RELOCATION IF IMPACTED BY PROPOSED STORM DRAIN.

UTILITY TEST HOLE DATA					
TEST HOLE NUMBER	UTILITY	SURFACE ELEVATION	COVER	NORTHING	EASTING
TH-1	TELE&ELECT	499.77	6.81'	718531.27	1116363.98
TH-2	FIBER	499.02	1.83'	718512.95	1116391.87
TH-2A	ELECT	499.02	2.17'	718514.23	1116390.67
TH-3	GAS	498.67	2.40'	718462.05	1116375.38
TH-3A	FIBER	498.66	1.38'	718461.94	1116373.78
TH-9	GAS	495.76	2.23'	718332.30	1116673.73
TH-9A	WATER	495.77	6.26'	718331.45	1116672.35'

**LEGEND**

	PROPOSED FULL DEPTH PAVEMENT
	PROPOSED PAVEMENT REHABILITATION
	PROPOSED CONCRETE
	PROPOSED PAVEMENT REMOVAL

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2400 Fax: 240-313-2401

DESIGNED BY: TMB  
DRAWN BY: TMB  
CHECKED BY: TMB  
DATE: JUNE 2021

REVISION DESCRIPTION  
NO. BY DATE

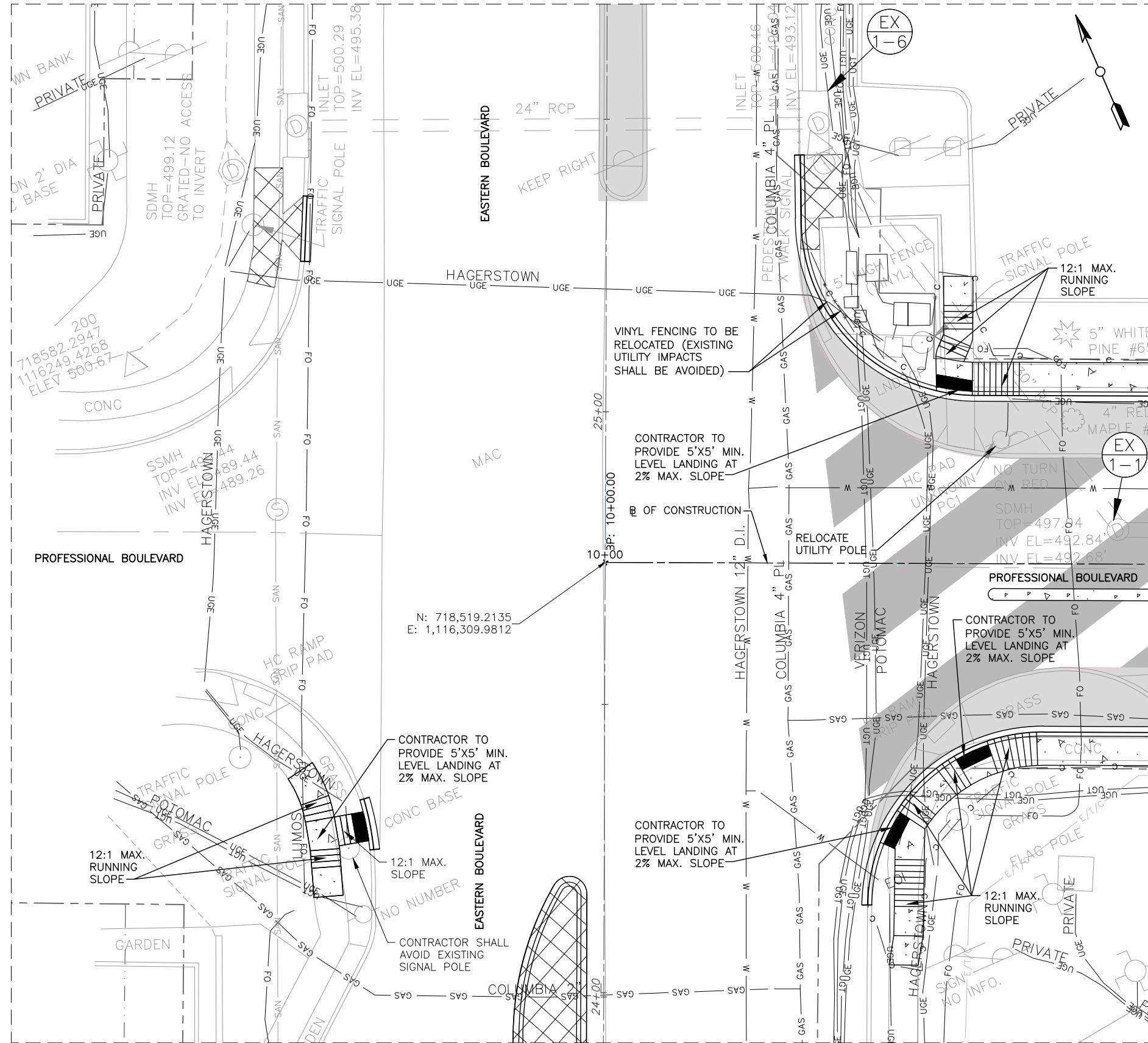
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SHEET NO.  
8 OF 129

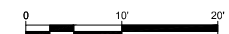
PROJECT NO.  
10-270

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 22444  
JAMES W. HEEBER

\\balsrv01\2014\2014\14187\_WashCoProj\Phase II Contract\CADD\Plans\PS-01A\_PH2.dwg



**ENLARGEMENT**  
SCALE: 1" = 10'



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2011

**WASHINGTON COUNTY, MARYLAND**  
 DIVISION OF ENGINEERING

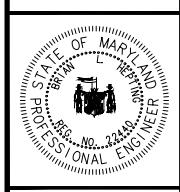
Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

**PROFESSIONAL BOULEVARD**  
**(ADD ALT ONLY)**  
**ROADWAY PLAN**

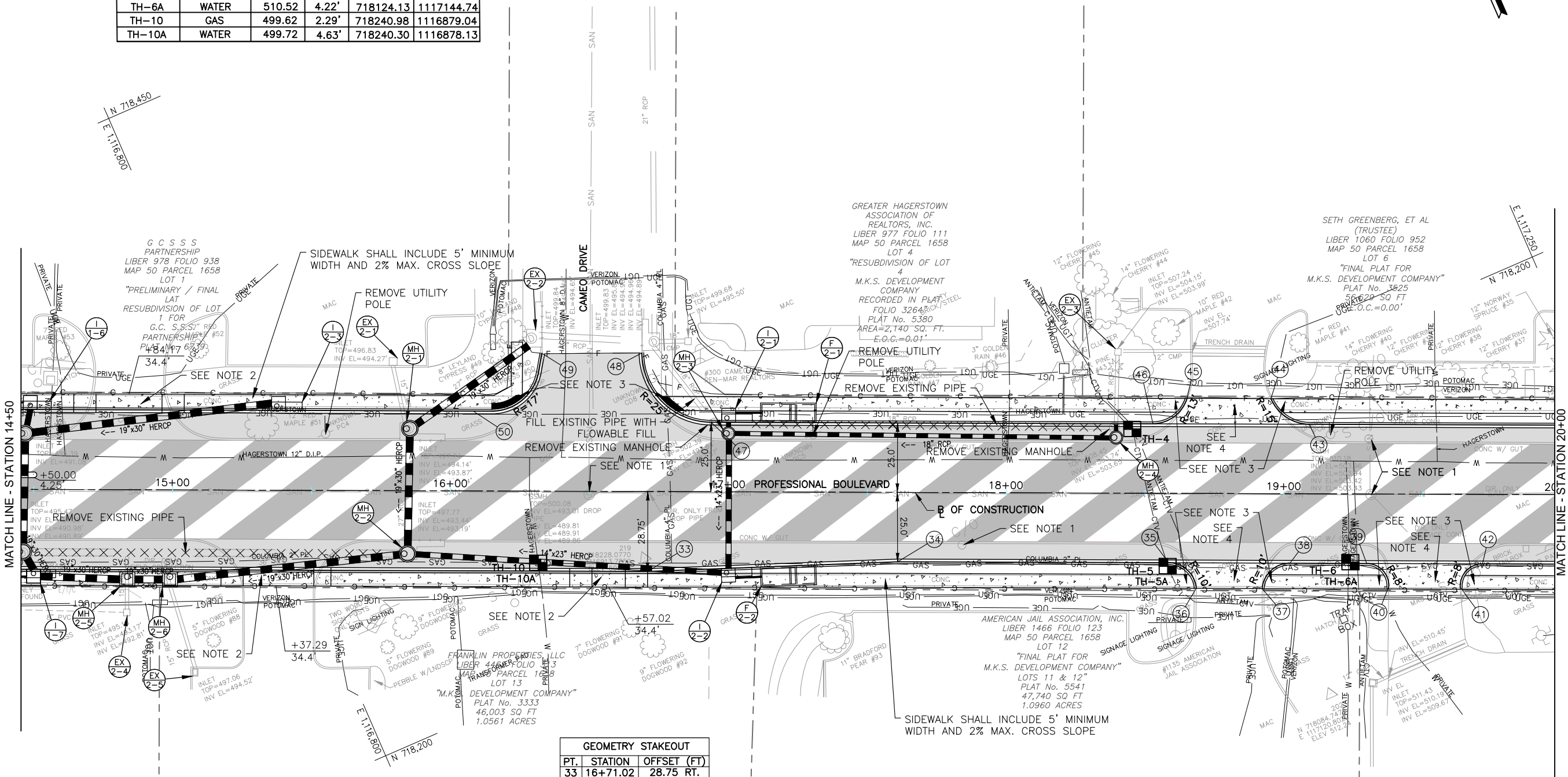
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SHEET NO.  
 8A OF 129

PROJECT NO.  
 10-270



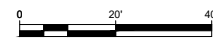
UTILITY TEST HOLE DATA					
TEST HOLE NUMBER	UTILITY	SURFACE ELEVATION	COVER	NORTHING	EASTING
TH-4	CTV	508.61	3.10'	718200.45	1117093.42
TH-5	GAS	509.18	2.44'	718150.07	1117086.06
TH-5A	CTV	509.16	1.98'	718149.69	1117085.05
TH-6	GAS	510.38	1.93'	718125.84	1117144.46
TH-6A	WATER	510.52	4.22'	718124.13	1117144.74
TH-10	GAS	499.62	2.29'	718240.98	1116879.04
TH-10A	WATER	499.72	4.63'	718240.30	1116878.13



GEOMETRY STAKEOUT		
PT.	STATION	OFFSET (FT)
33	16+71.02	28.75 RT.
34	17+61.02	25.00 RT.
35	18+58.57	25.00 RT.
36	18+68.54	34.17 RT.
37	18+92.27	34.17 RT.
38	19+02.24	25.00 RT.
39	19+29.84	25.00 RT.
40	19+37.81	34.16 RT.
41	19+63.59	34.17 RT.
42	19+71.54	25.00 RT.
43	19+09.01	25.00 LT.
44	18+95.18	34.17 LT.
45	18+65.02	34.19 LT.
46	18+52.76	25.00 LT.
47	16+93.74	25.00 LT.
48	16+68.74	49.87 LT.
49	16+32.71	49.60 LT.
50	16+08.06	28.75 LT.

- LEGEND**
- PROPOSED FULL DEPTH PAVEMENT
  - PROPOSED PAVEMENT REHABILITATION
  - PROPOSED CONCRETE

- NOTES:**
- EXISTING INLETS, WATER VALVES, METERS, AND MANHOLES SHALL BE ADJUSTED TO PROPOSED GRADES.
  - CONSTRUCT DRIVEWAY PER MDSA DETAIL (MD 630.01).
  - CONSTRUCT PEDESTRIAN RAMPS PER MDSA DETAIL (MD 655.11).
  - PROVIDE A 5' MINIMUM PEDESTRIAN PATHWAY WITH A 2% CROSS-SLOPE ACROSS THE ENTIRE ENTRANCE REGARDLESS OF TYPE OF MATERIAL USED.



DATE		BY		REVISION DESCRIPTION		NO	
DESIGNED BY:	TMB	DRAWN BY:	TMB	CHECKED BY:		DATE:	JUNE 2021

**WASHINGTON COUNTY, MARYLAND**  
DIVISION OF ENGINEERING

**PROFESSIONAL BOULEVARD**  
**(ADD ALT ONLY)**  
**ROADWAY PLAN**

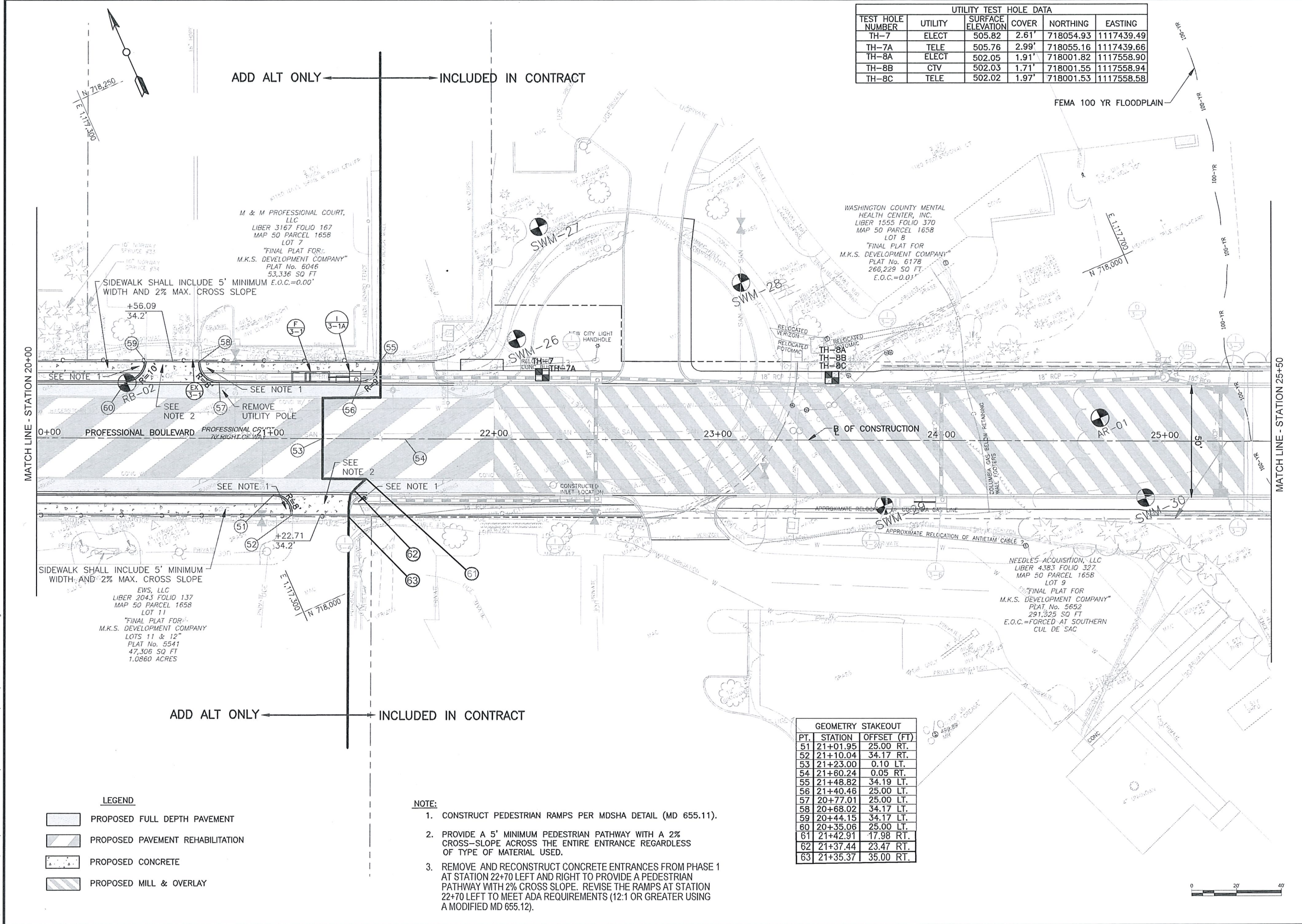
Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

SCALE  
1"=20'

SHEET NO.  
9 OF 129

PROJECT NO.  
10-270

UTILITY TEST HOLE DATA					
TEST HOLE NUMBER	UTILITY	SURFACE ELEVATION	COVER	NORTHING	EASTING
TH-7	ELECT	505.82	2.61'	718054.93	1117439.49
TH-7A	TELE	505.76	2.99'	718055.16	1117439.66
TH-8A	ELECT	502.05	1.91'	718001.82	1117558.90
TH-8B	CTV	502.03	1.71'	718001.55	1117558.94
TH-8C	TELE	502.02	1.97'	718001.53	1117558.58



SIDEWALK SHALL INCLUDE 5' MINIMUM WIDTH AND 2% MAX. CROSS SLOPE

SIDEWALK SHALL INCLUDE 5' MINIMUM WIDTH AND 2% MAX. CROSS SLOPE

**LEGEND**

	PROPOSED FULL DEPTH PAVEMENT
	PROPOSED PAVEMENT REHABILITATION
	PROPOSED CONCRETE
	PROPOSED MILL & OVERLAY

- NOTE:**
1. CONSTRUCT PEDESTRIAN RAMPS PER MDSA DETAIL (MD 655.11).
  2. PROVIDE A 5' MINIMUM PEDESTRIAN PATHWAY WITH A 2% CROSS-SLOPE ACROSS THE ENTIRE ENTRANCE REGARDLESS OF TYPE OF MATERIAL USED.
  3. REMOVE AND RECONSTRUCT CONCRETE ENTRANCES FROM PHASE 1 AT STATION 22+70 LEFT AND RIGHT TO PROVIDE A PEDESTRIAN PATHWAY WITH 2% CROSS SLOPE. REVISE THE RAMPS AT STATION 22+70 LEFT TO MEET ADA REQUIREMENTS (12:1 OR GREATER USING A MODIFIED MD 655.12).

**GEOMETRY STAKEOUT**

PT.	STATION	OFFSET (FT)
51	21+01.95	25.00 RT.
52	21+10.04	34.17 RT.
53	21+23.00	0.10 LT.
54	21+60.24	0.05 RT.
55	21+48.82	34.19 LT.
56	21+40.46	25.00 LT.
57	20+77.01	25.00 LT.
58	20+68.02	34.17 LT.
59	20+44.15	34.17 LT.
60	20+35.06	25.00 LT.
61	21+42.91	17.98 RT.
62	21+37.44	23.47 RT.
63	21+35.37	35.00 RT.

DESIGNED BY:	TMB	DATE:	JUNE 2021
REVISION DESCRIPTION:	NO. 1	BY:	PJM
	2	DATE:	5.31.22
		DATE:	5.31.22

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
ROADWAY PLAN

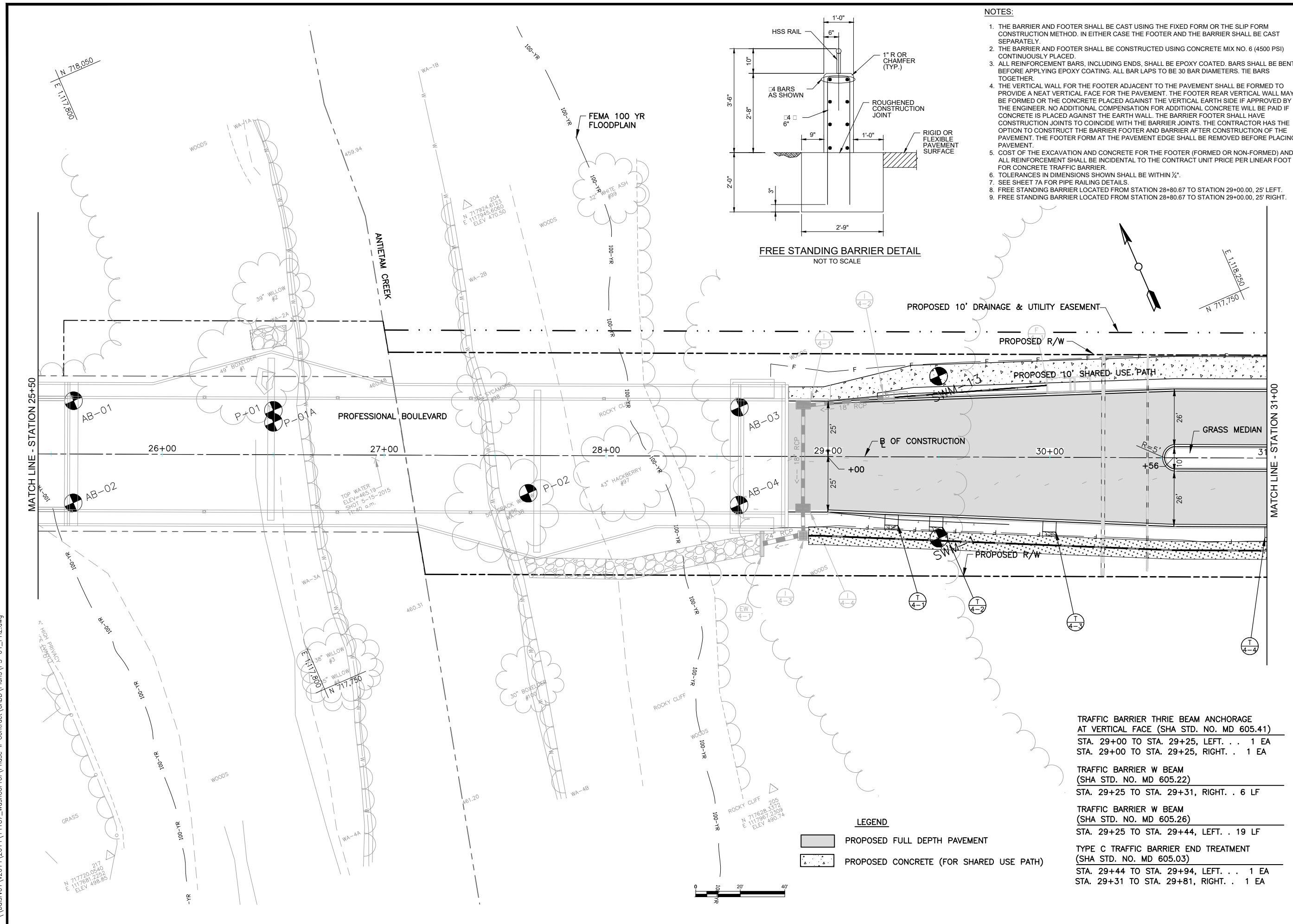
SCALE  
1"=20'

SHEET NO.  
10 OF 129

PROJECT NO.  
10-270

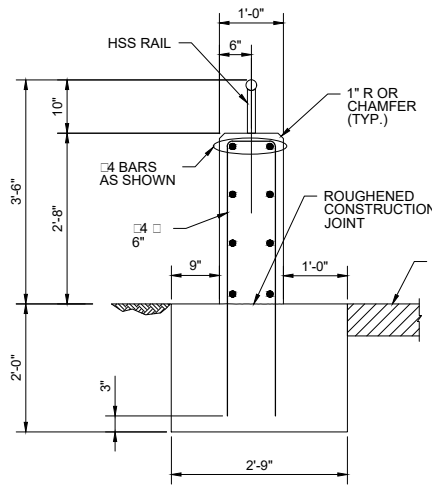
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\\balsrv01\2014\2014\14187\_WashCoProj\Phase II Contract\CADD\Plans\PS-04\_P12.dwg



**NOTES:**

1. THE BARRIER AND FOOTER SHALL BE CAST USING THE FIXED FORM OR THE SLIP FORM CONSTRUCTION METHOD. IN EITHER CASE THE FOOTER AND THE BARRIER SHALL BE CAST SEPARATELY.
2. THE BARRIER AND FOOTER SHALL BE CONSTRUCTED USING CONCRETE MIX NO. 6 (4500 PSI) CONTINUOUSLY PLACED.
3. ALL REINFORCEMENT BARS, INCLUDING ENDS, SHALL BE EPOXY COATED. BARS SHALL BE BENT BEFORE APPLYING EPOXY COATING. ALL BAR LAPS TO BE 30 BAR DIAMETERS. TIE BARS TOGETHER.
4. THE VERTICAL WALL FOR THE FOOTER ADJACENT TO THE PAVEMENT SHALL BE FORMED TO PROVIDE A NEAT VERTICAL FACE FOR THE PAVEMENT. THE FOOTER REAR VERTICAL WALL MAY BE FORMED OR THE CONCRETE PLACED AGAINST THE VERTICAL EARTH SIDE IF APPROVED BY THE ENGINEER. NO ADDITIONAL COMPENSATION FOR ADDITIONAL CONCRETE WILL BE PAID IF CONCRETE IS PLACED AGAINST THE EARTH WALL. THE BARRIER FOOTER SHALL HAVE CONSTRUCTION JOINTS TO COINCIDE WITH THE BARRIER JOINTS. THE CONTRACTOR HAS THE OPTION TO CONSTRUCT THE BARRIER FOOTER AND BARRIER AFTER CONSTRUCTION OF THE PAVEMENT. THE FOOTER FORM AT THE PAVEMENT EDGE SHALL BE REMOVED BEFORE PLACING PAVEMENT.
5. COST OF THE EXCAVATION AND CONCRETE FOR THE FOOTER (FORMED OR NON-FORMED) AND ALL REINFORCEMENT SHALL BE INCIDENTAL TO THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR CONCRETE TRAFFIC BARRIER.
6. TOLERANCES IN DIMENSIONS SHOWN SHALL BE WITHIN 1/4".
7. SEE SHEET 7A FOR PIPE RAILING DETAILS.
8. FREE STANDING BARRIER LOCATED FROM STATION 28+80.67 TO STATION 29+00.00, 25' LEFT.
9. FREE STANDING BARRIER LOCATED FROM STATION 28+80.67 TO STATION 29+00.00, 25' RIGHT.



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: JUNE 2021

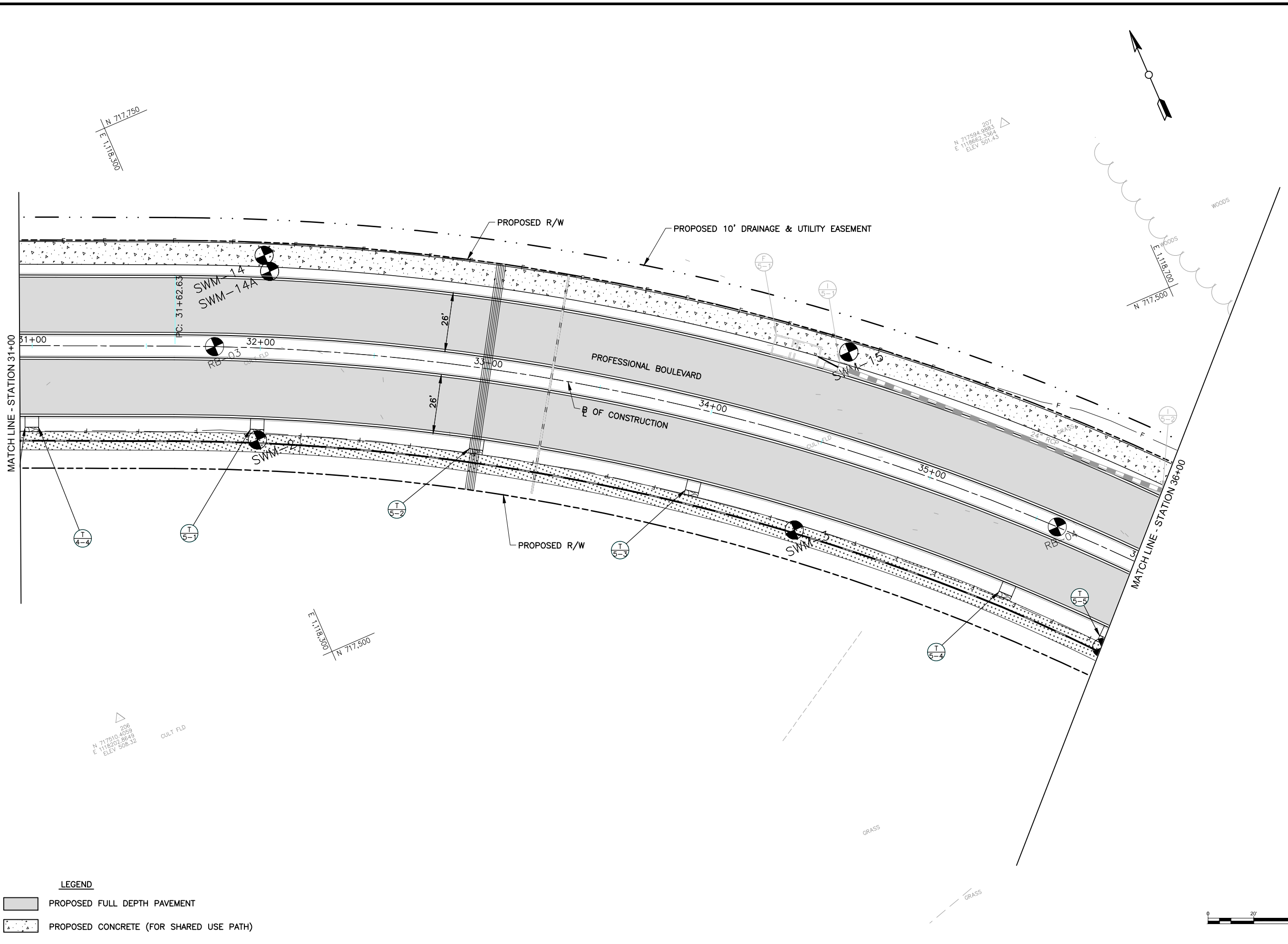
**WASHINGTON COUNTY, MARYLAND**  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

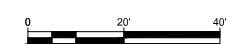
**PROFESSIONAL BOULEVARD**  
**ROADWAY PLAN**

<p>TRAFFIC BARRIER THRIE BEAM ANCHORAGE AT VERTICAL FACE (SHA STD. NO. MD 605.41)                  STA. 29+00 TO STA. 29+25, LEFT. . . 1 EA                  STA. 29+00 TO STA. 29+25, RIGHT. . 1 EA</p>
<p>TRAFFIC BARRIER W BEAM (SHA STD. NO. MD 605.22)                  STA. 29+25 TO STA. 29+31, RIGHT. . 6 LF</p>
<p>TRAFFIC BARRIER W BEAM (SHA STD. NO. MD 605.26)                  STA. 29+25 TO STA. 29+44, LEFT. . 19 LF</p>
<p>TYPE C TRAFFIC BARRIER END TREATMENT (SHA STD. NO. MD 605.03)                  STA. 29+44 TO STA. 29+94, LEFT. . . 1 EA                  STA. 29+31 TO STA. 29+81, RIGHT. . 1 EA</p>
<p>SCALE                  1"=20'</p>
<p>SHEET NO.                  11 OF 129</p>
<p>PROJECT NO.                  10-270</p>

\\boisrv01\2014\2014\14187\_WashCoProf\Phase II Contract\CADD\Plans\PS-05\_PH2.dwg

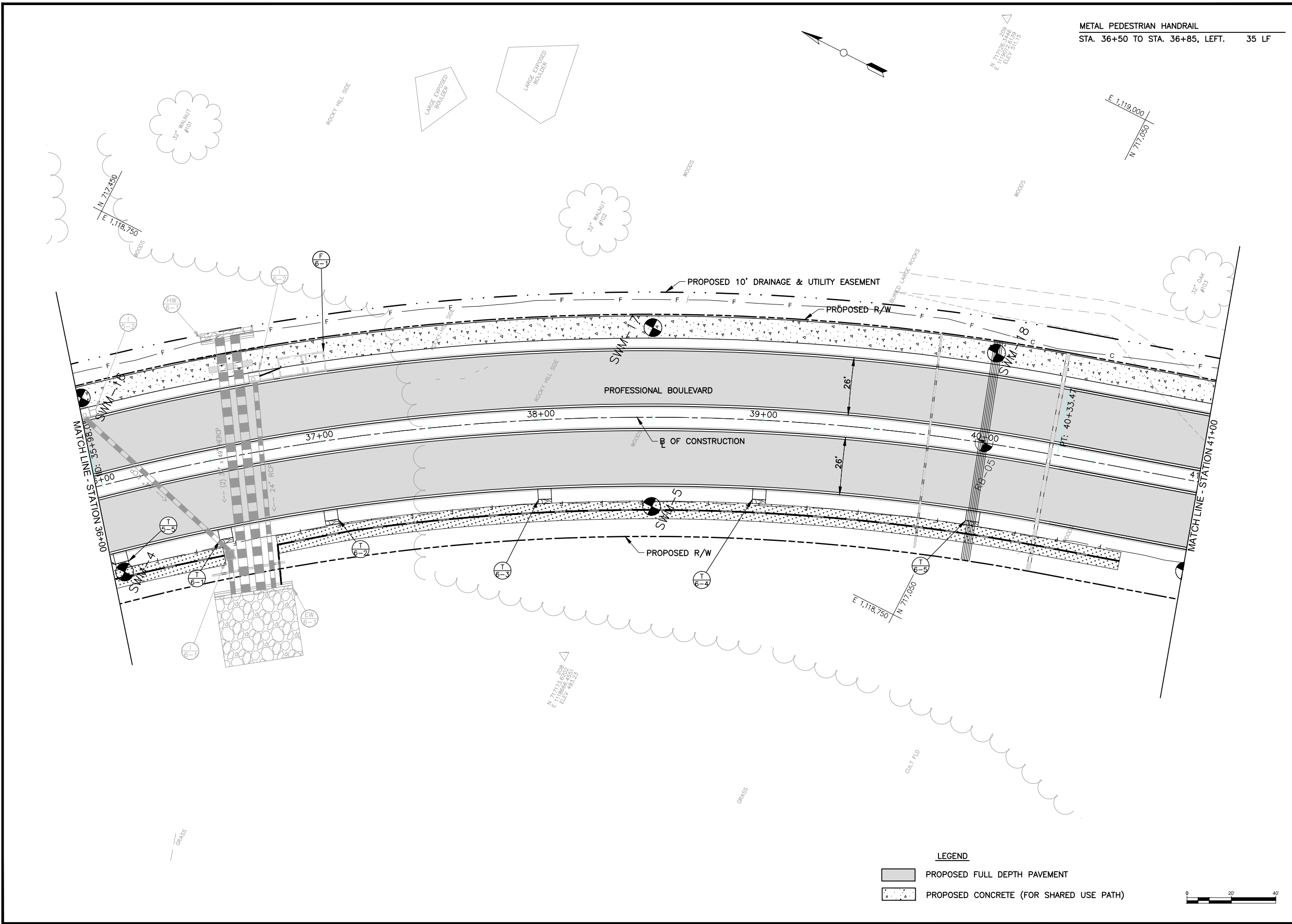


- LEGEND**
- PROPOSED FULL DEPTH PAVEMENT
  - PROPOSED CONCRETE (FOR SHARED USE PATH)





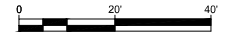
	DESIGNED BY:	NO.	REVISION DESCRIPTION	BY	DATE
	TMB				
	TMB				
	CHECKED BY:				
	DATE:				
<p><b>WASHINGTON COUNTY, MARYLAND</b>  <b>DIVISION OF ENGINEERING</b></p> <p style="font-size: small;">Washington County Administrative Annex, Building              80 W. Baltimore St., Hagerstown, MD 21740              Phone: 240-315-2460 Fax: 240-313-2401</p>					
<p><b>PROFESSIONAL ENGINEER</b></p> <p style="font-size: small;">STATE OF MARYLAND              PROFESSIONAL ENGINEER              REG. NO. 2244</p>					
<p><b>PROFESSIONAL BOULEVARD</b></p> <p><b>ROADWAY PLAN</b></p>					
<p>SCALE              1"=20'</p>					
<p>SHEET NO.              12 OF 129</p>					
<p>PROJECT NO.              10-270</p>					


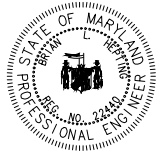
\\boisrv01\2014\2014\14187\_WashCoProf\Phase II Contract\CADD\Plans\PS-06\_PH2.dwg



METAL PEDESTRIAN HANDRAIL  
STA. 36+50 TO STA. 36+85, LEFT. 35 LF

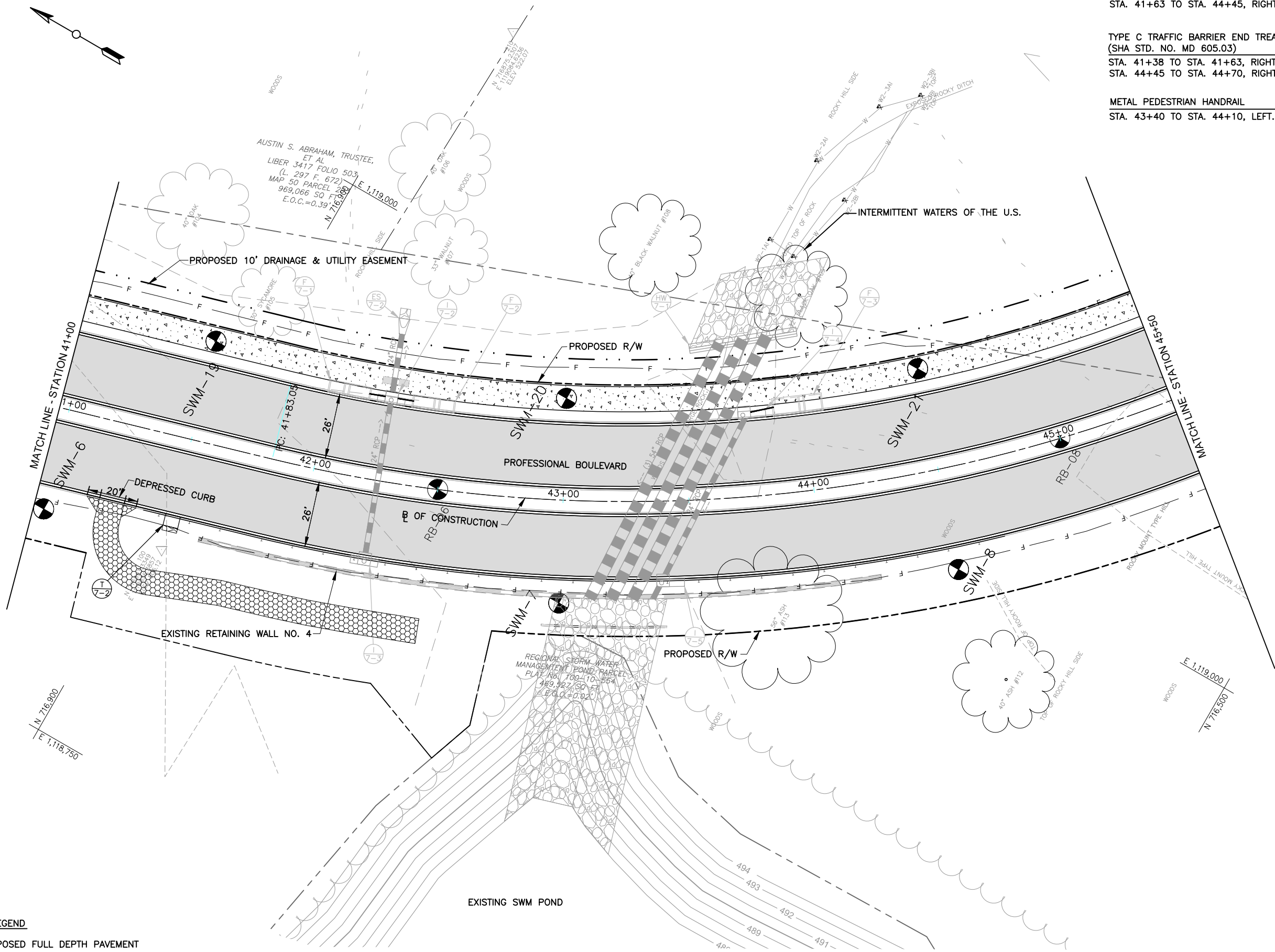
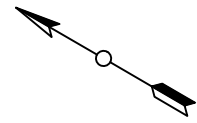
**LEGEND**  
 PROPOSED FULL DEPTH PAVEMENT  
 PROPOSED CONCRETE (FOR SHARED USE PATH)



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NO.	REVISION DESCRIPTION		
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<p><b>PROFESSIONAL BOULEVARD</b></p> <p><b>ROADWAY PLAN</b></p>			
			
SCALE 1"=20'			
SHEET NO. 13 OF 129			
PROJECT NO. 10-270			



\\balsrv01\2014\2014\14187\_WashCoProj\Phase II Contract\CADD\Plans\PS-07\_PH2.dwg



TRAFFIC BARRIER W BEAM (SHA STD. NO. MD 605.22) STA. 41+63 TO STA. 44+45, RIGHT. . . 307 LF
TYPE C TRAFFIC BARRIER END TREATMENT (SHA STD. NO. MD 605.03) STA. 41+38 TO STA. 41+63, RIGHT. . . 1 EA STA. 44+45 TO STA. 44+70, RIGHT. . . 1 EA
METAL PEDESTRIAN HANDRAIL STA. 43+40 TO STA. 44+10, LEFT. . . . 70 LF

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DESIGNED BY: TMB  
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CHECKED BY: TMB  
DATE: JUNE 2021

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**PROFESSIONAL BOULEVARD**  
**ROADWAY PLAN**



SCALE  
1"=20'

SHEET NO.  
14 OF 129

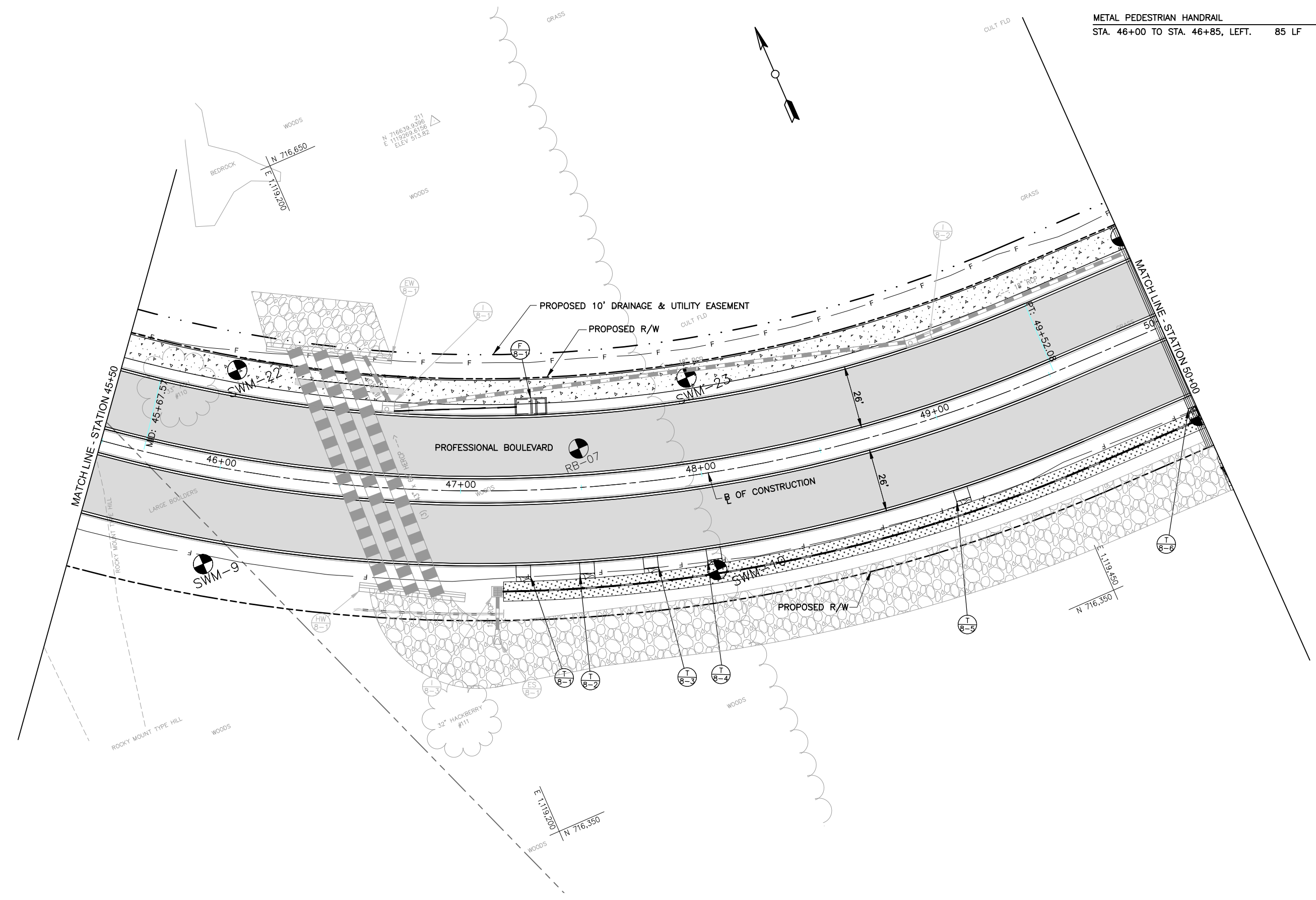
PROJECT NO.  
10-270

**LEGEND**

	PROPOSED FULL DEPTH PAVEMENT
	PROPOSED CONCRETE (FOR SHARED USE PATH)



\\boisrv01\2014\2014\14187\_WashCoProf\Phase II Contract\CADD\Plans\PS-08\_Ph2.dwg



METAL PEDESTRIAN HANDRAIL  
 STA. 46+00 TO STA. 46+85, LEFT. 85 LF


**LEGEND**  
 [Shaded Area] PROPOSED FULL DEPTH PAVEMENT  
 [Dotted Area] PROPOSED CONCRETE (FOR SHARED USE PATH)



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY:	TMB
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CHECKED BY:	
DATE:	APRIL 2021

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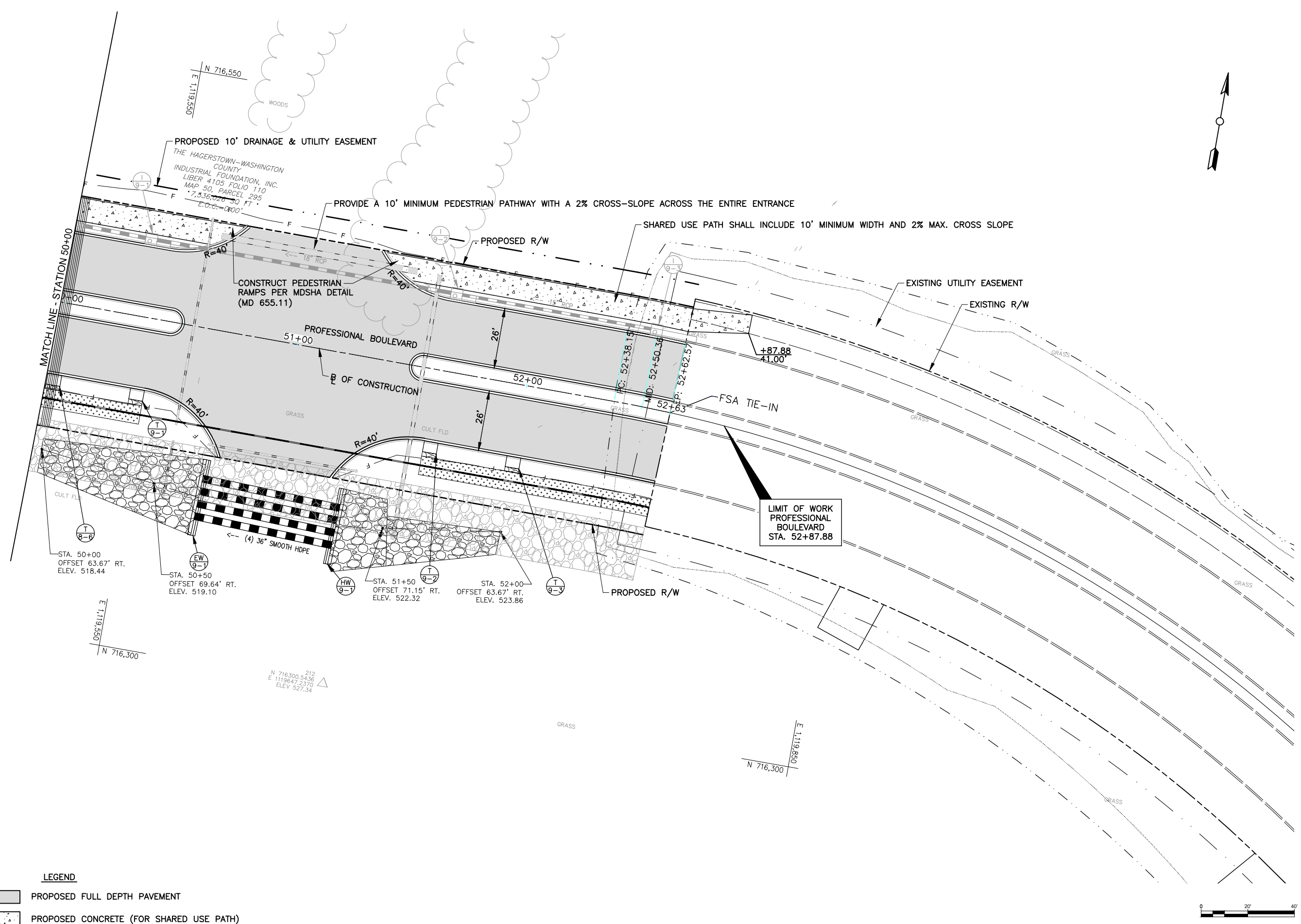


**PROFESSIONAL BOULEVARD**  
**ROADWAY PLAN**



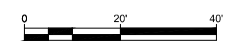
SCALE  
 1"=20'  
 SHEET NO.  
 15 OF 129  
 PROJECT NO.  
 10-270

\\boisrv01\2014\2014\14187\_WashCoProf\Phase II Contract\CADD\Plans\PS-09\_P12.dwg



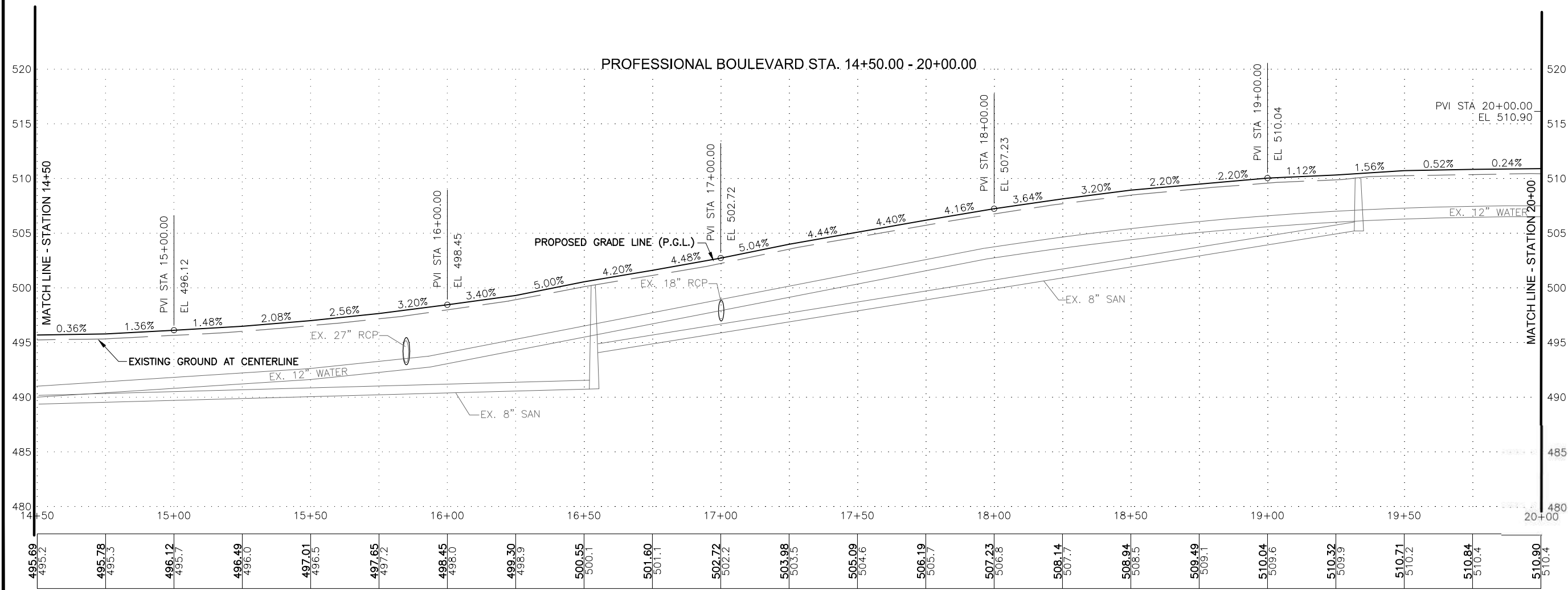
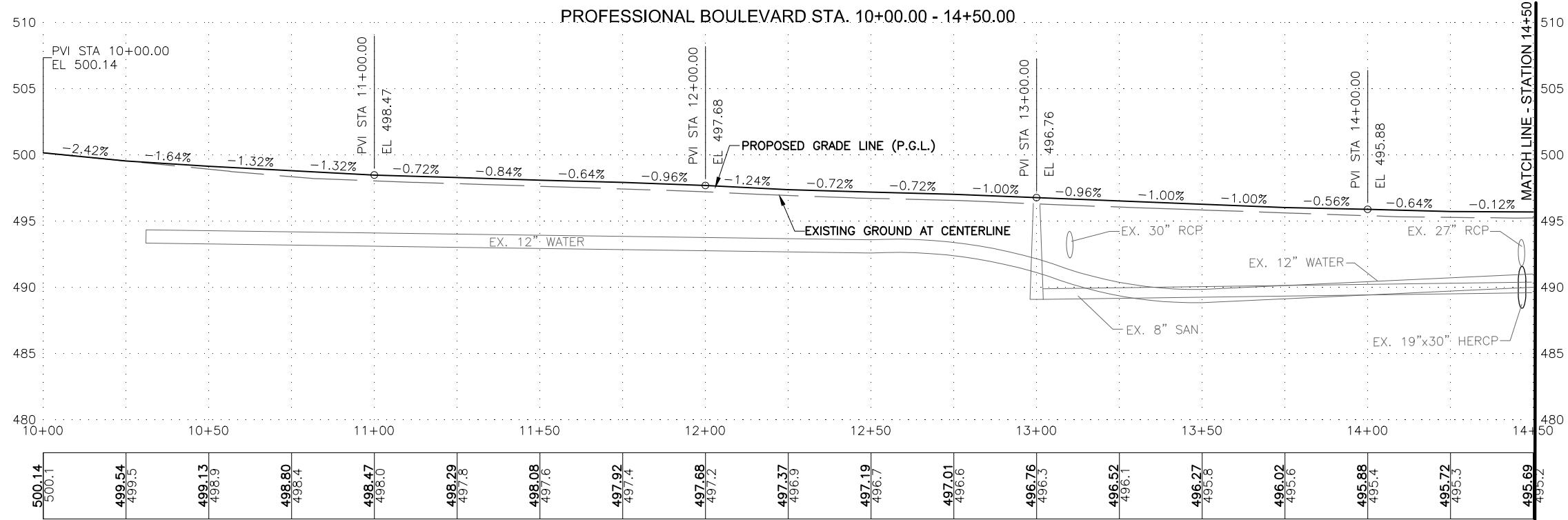
**LEGEND**

	PROPOSED FULL DEPTH PAVEMENT
	PROPOSED CONCRETE (FOR SHARED USE PATH)



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NO.		REVISION DESCRIPTION	
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<b>PROFESSIONAL BOULEVARD</b> <b>ROADWAY PLAN</b>			
SCALE <b>1"=20'</b>			
SHEET NO. <b>16 OF 129</b>			
PROJECT NO. <b>10-270</b>			

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NO.	REVISION DESCRIPTION	BY	DATE

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DATE:	

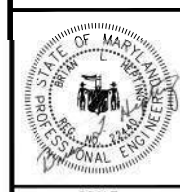
**WASHINGTON COUNTY, MARYLAND**  
DIVISION OF ENGINEERING

**PROFESSIONAL BOULEVARD**  
**(ADD ALT ONLY)**  
**ROADWAY PROFILE**

SCALE  
H:1"=20' V:1"=5'

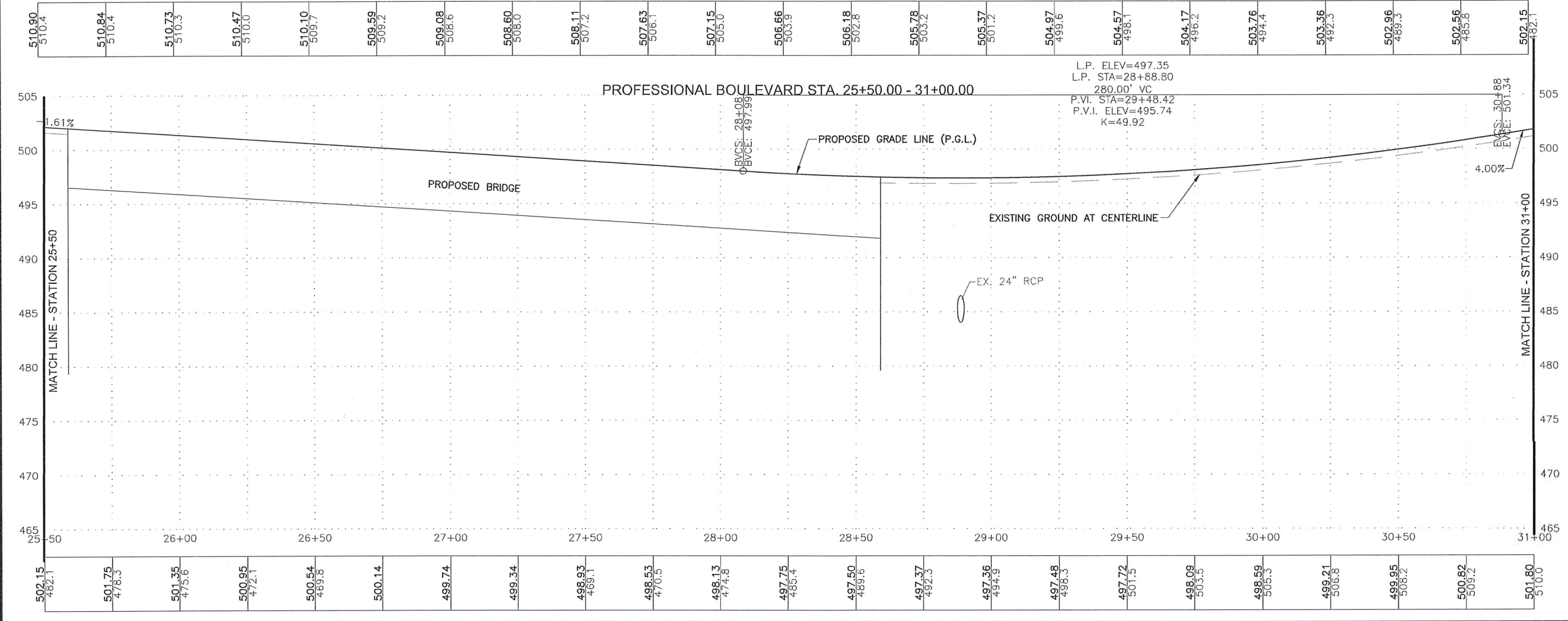
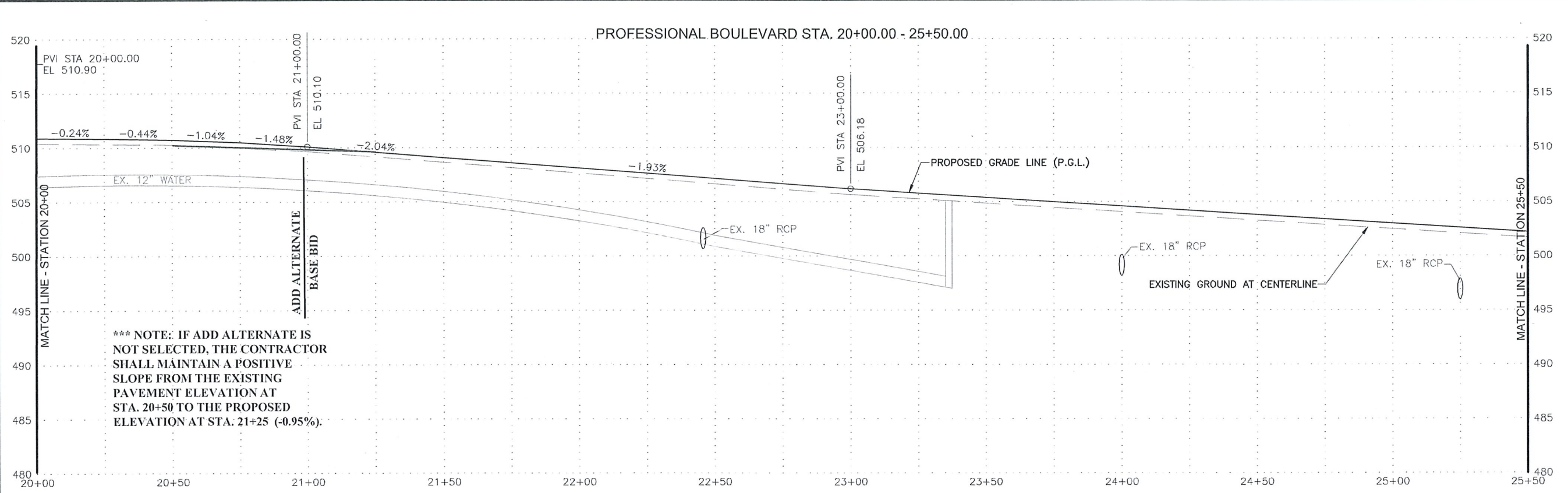
SHEET NO.  
17 OF 129

PROJECT NO.  
10-270



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NO.	REVISION DESCRIPTION	BY	DATE
1	NOTE FOR TRANSITION GRADE	PJM	5.31.22

DESIGNED BY: TMB  
DRAWN BY: TMB  
CHECKED BY:  
DATE: APRIL 2021

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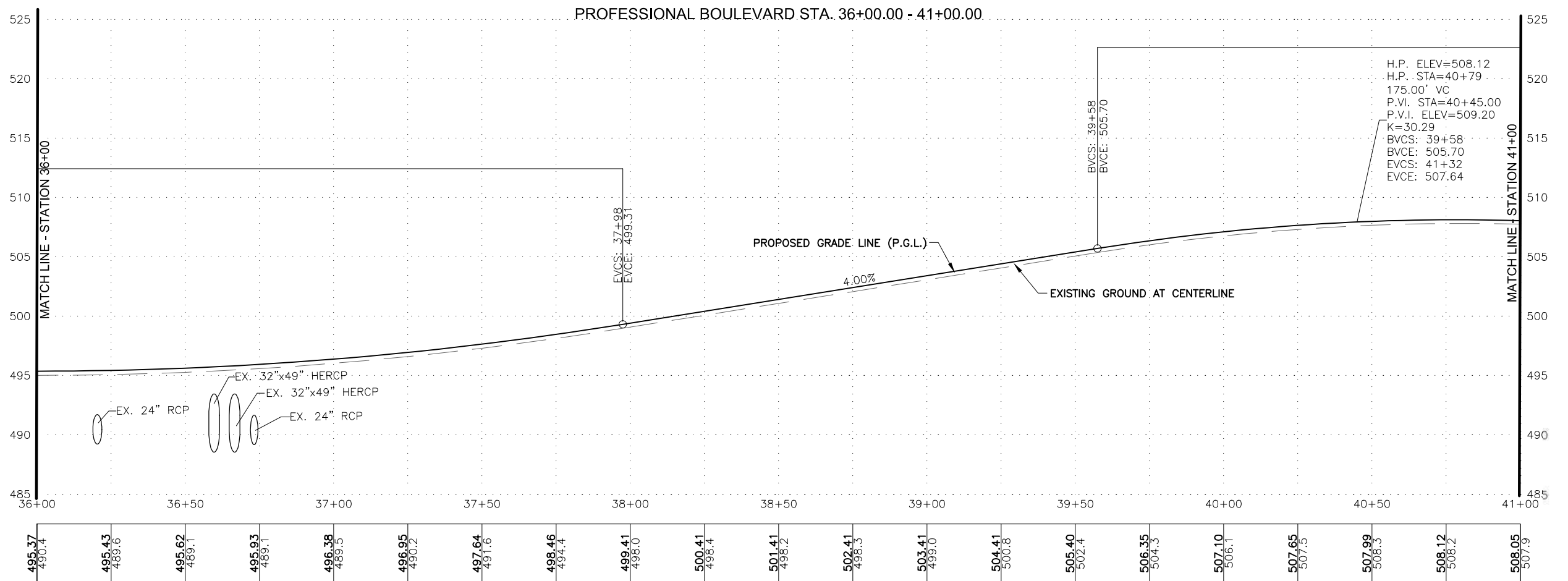
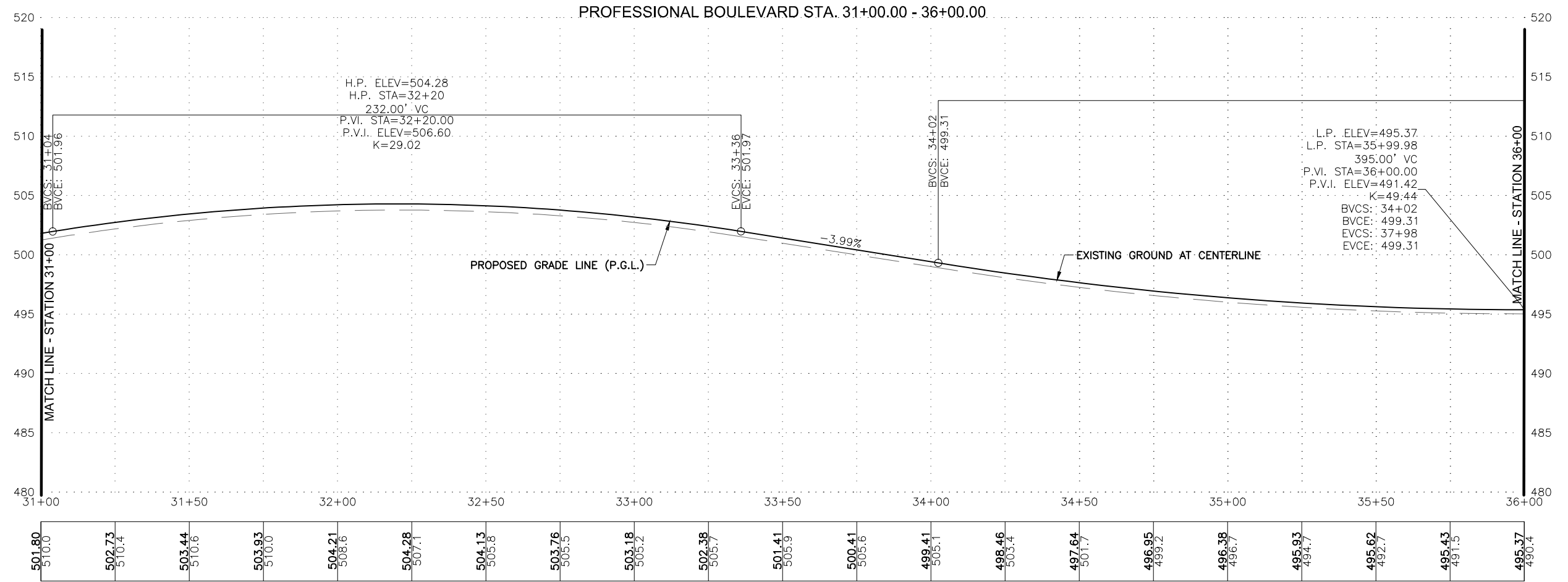
PROFESSIONAL BOULEVARD  
ROADWAY PROFILE

SCALE  
H:1"=20' V:1"=5'

SHEET NO.  
18 OF 129

PROJECT NO.  
10-270

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	NO.	REVISION DESCRIPTION	BY	DATE
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CHECKED BY:				
DATE:				
				PPR/BL/201

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PROFESSIONAL BOULEVARD

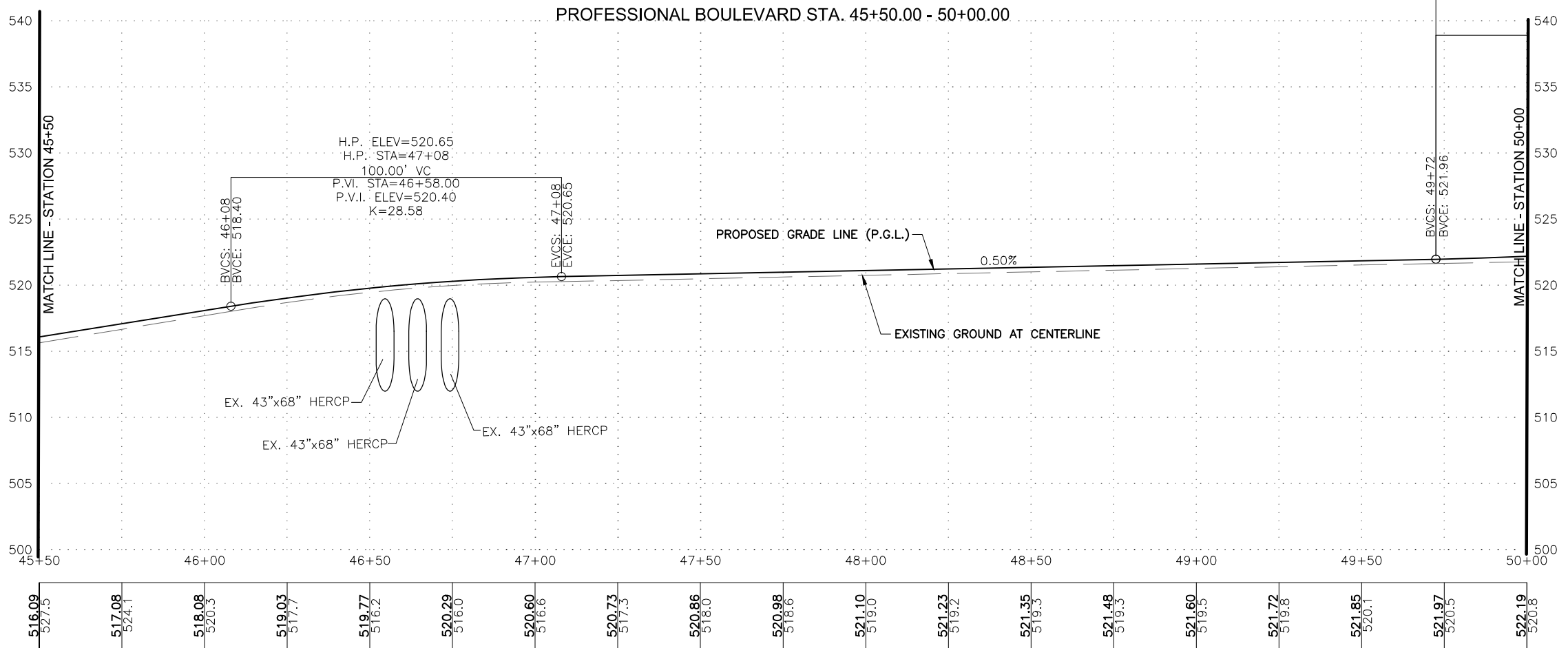
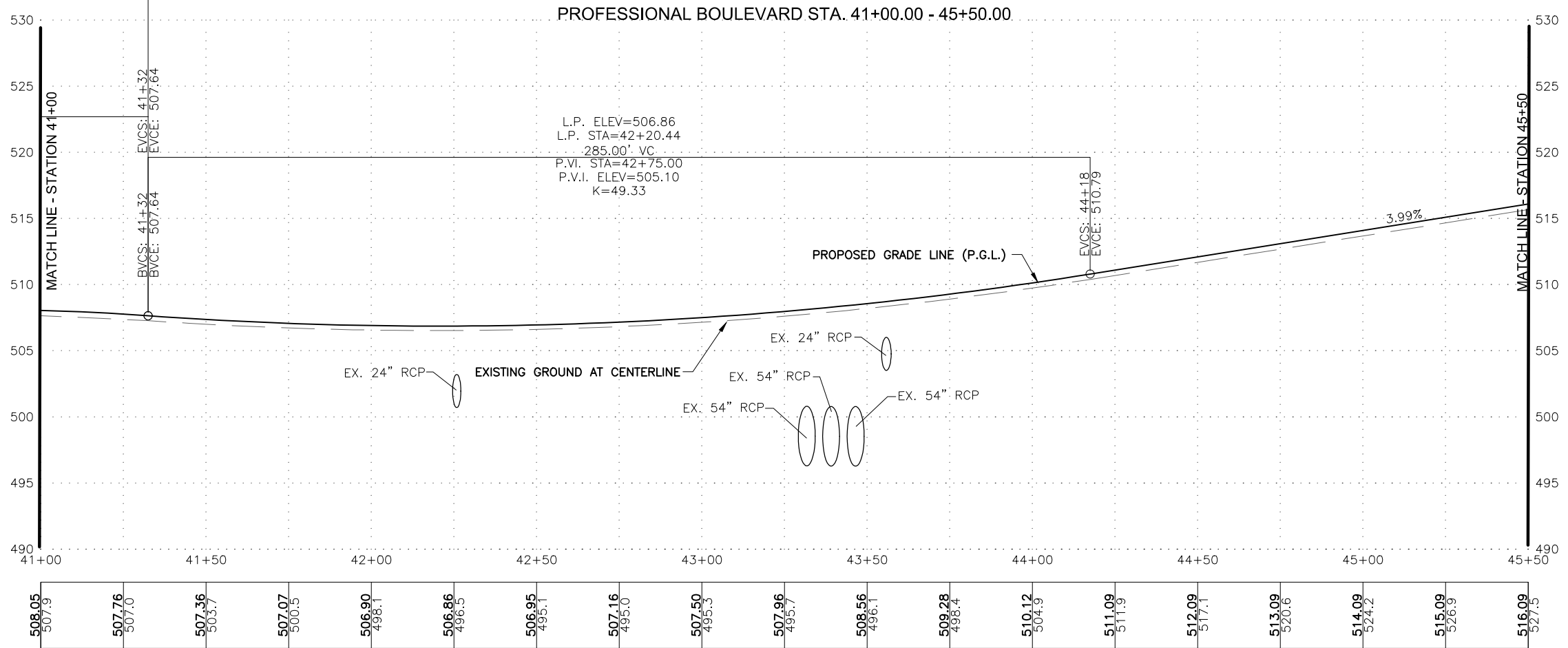
ROADWAY PROFILE

SCALE  
H:1"=20' V:1"=5'

SHEET NO.  
19 OF 129

PROJECT NO.  
10-270

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NO.	REVISION DESCRIPTION	BY	DATE

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DATE:	11/18/2014

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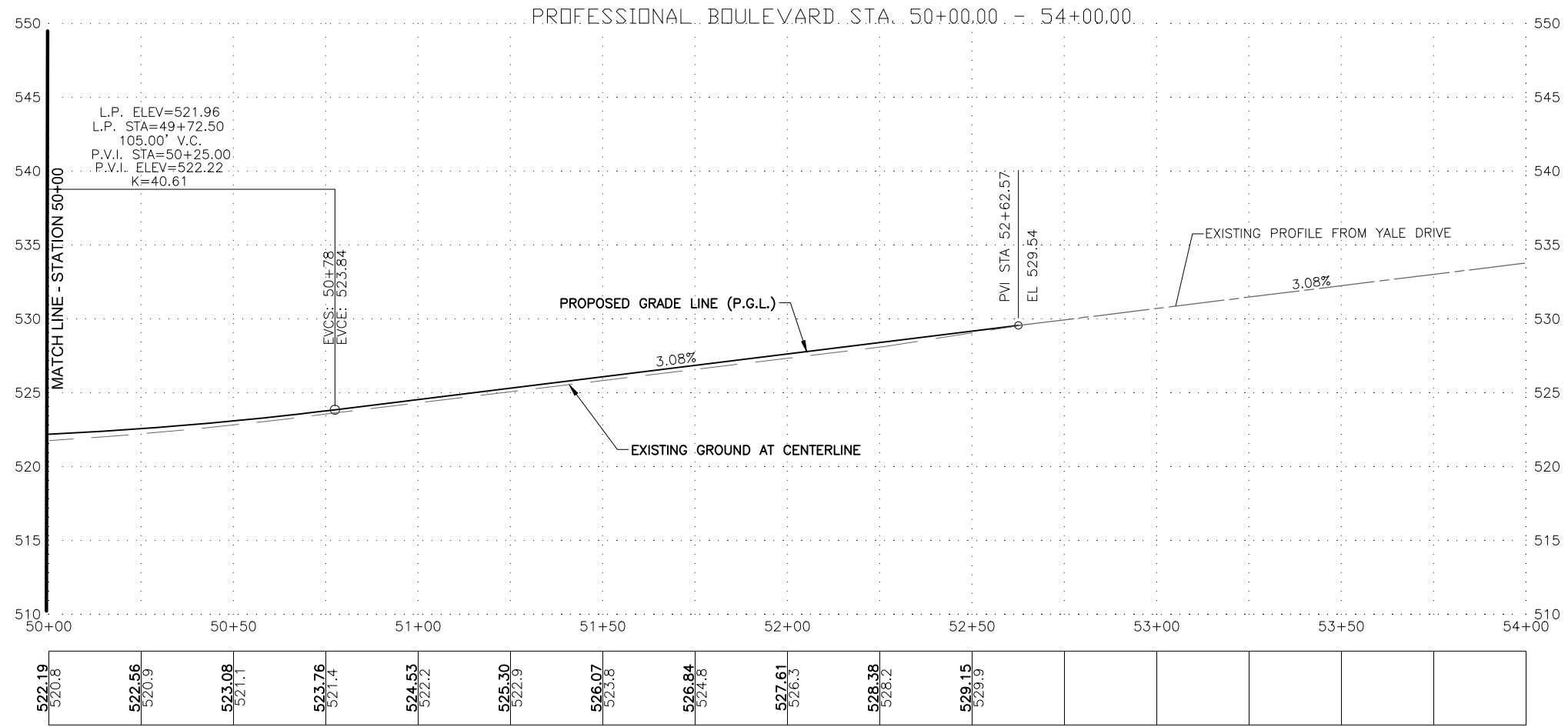
**PROFESSIONAL BOULEVARD**  
**ROADWAY PROFILE**

SCALE  
H:1"=20' V:1"=5'

SHEET NO.  
20 OF 129

PROJECT NO.  
10-270

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PROFESSIONAL BOULEVARD

ROADWAY PROFILE



SCALE  
H:1"=20' V:1"=5'

SHEET NO.  
21 OF 129

PROJECT NO.  
10-270

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DIVISION OF ENGINEERING

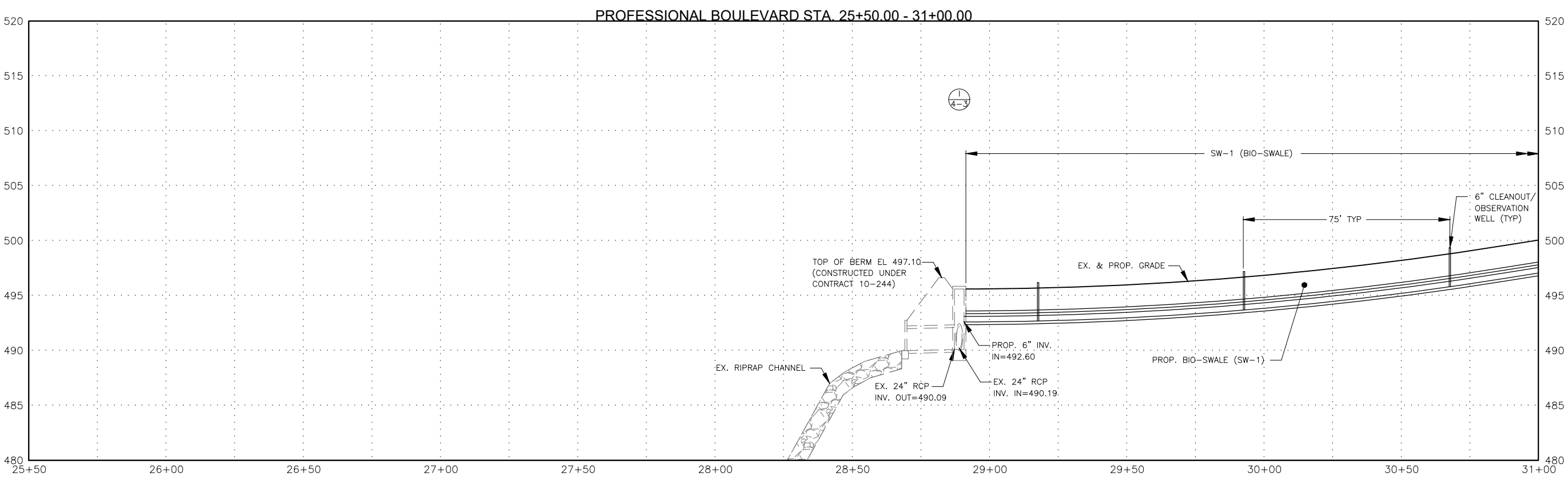
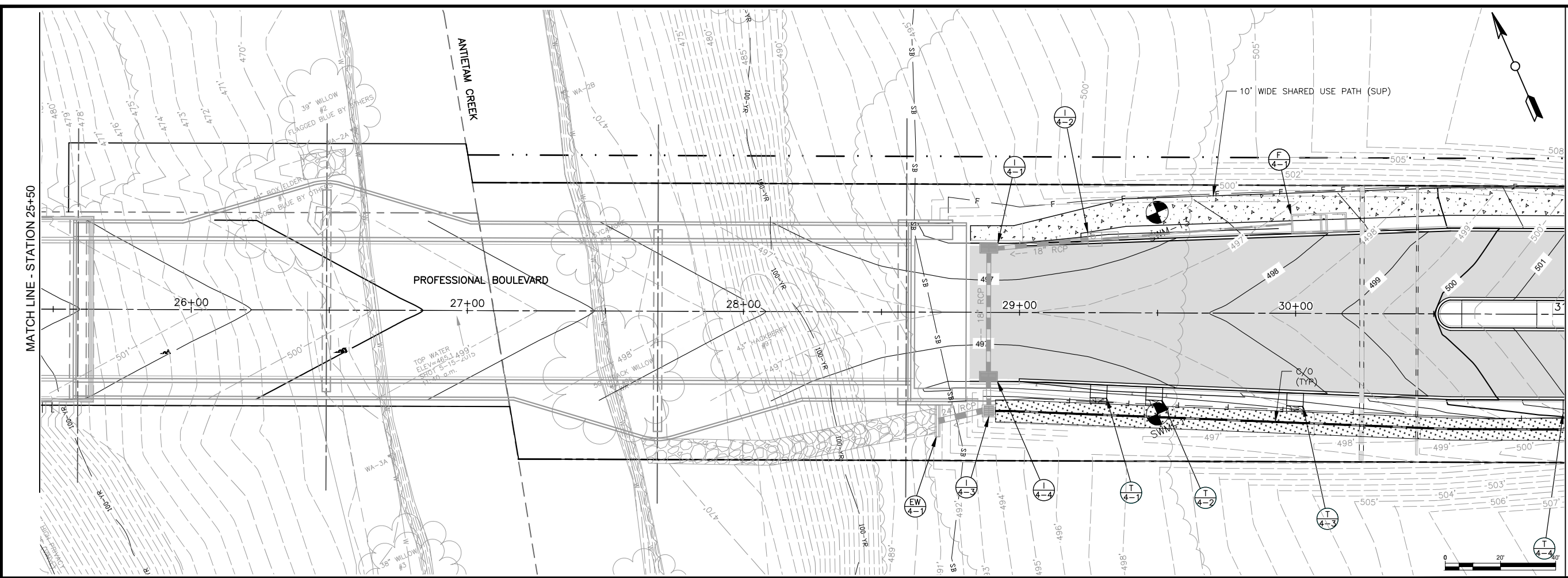


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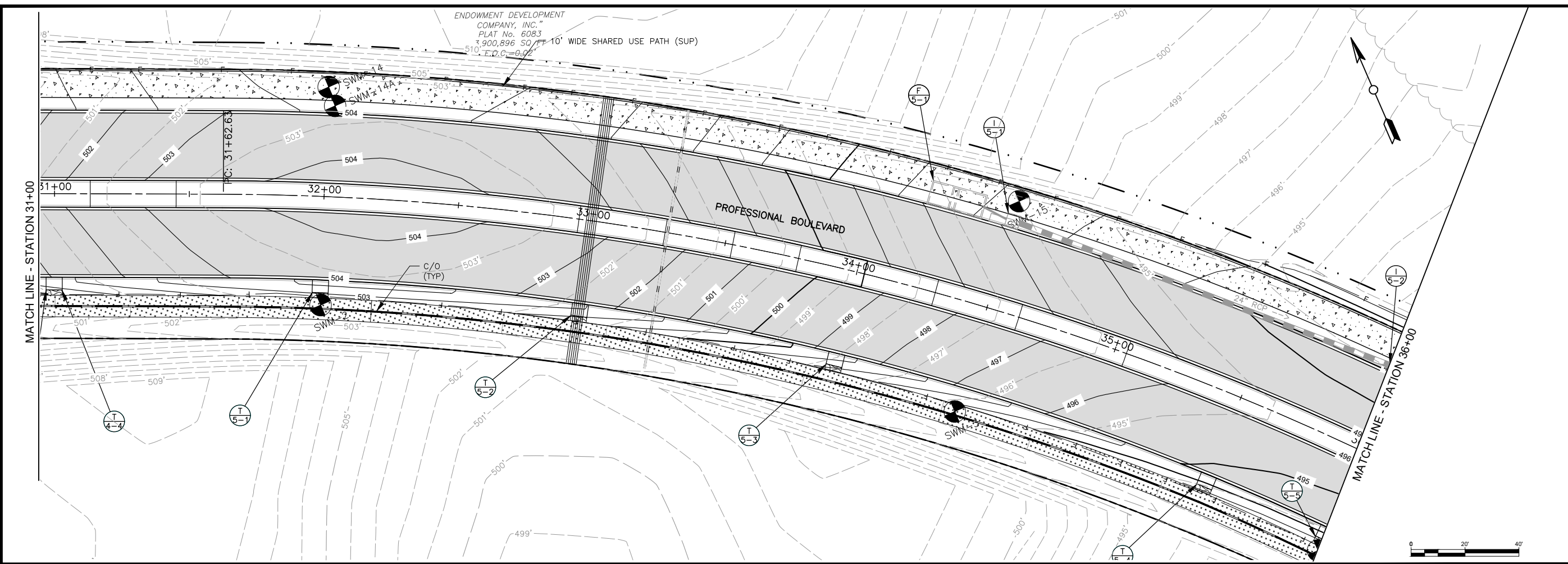


SCALE	1"=20'
SHEET NO.	22 OF 129
DRAWING	SW-01
PROJECT NO.	10-270

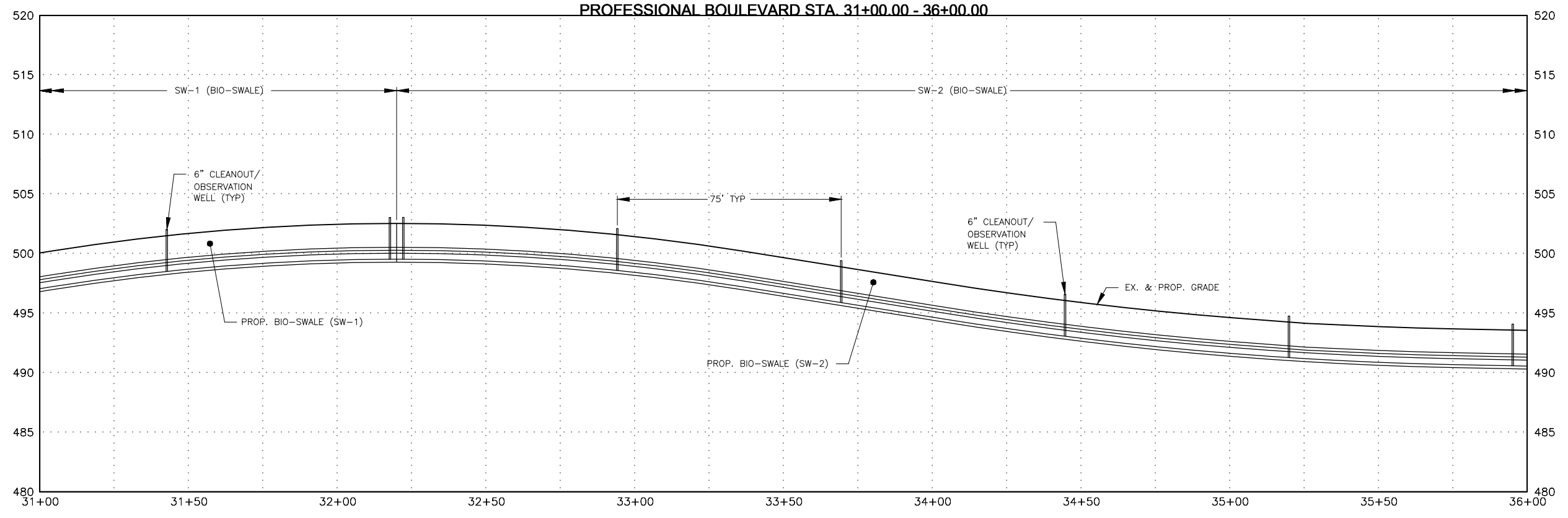
DESIGNED BY: CEB  
 DRAWN BY: CEB  
 CHECKED BY: BGB  
 DATE: JUNE 2021

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 DIVISION OF ENGINEERING  
 Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
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**PROFESSIONAL BOULEVARD**  
**STORMWATER MANAGEMENT**  
**SWALE PLAN & PROFILE**



PROFESSIONAL BOULEVARD STA. 31+00.00 - 36+00.00



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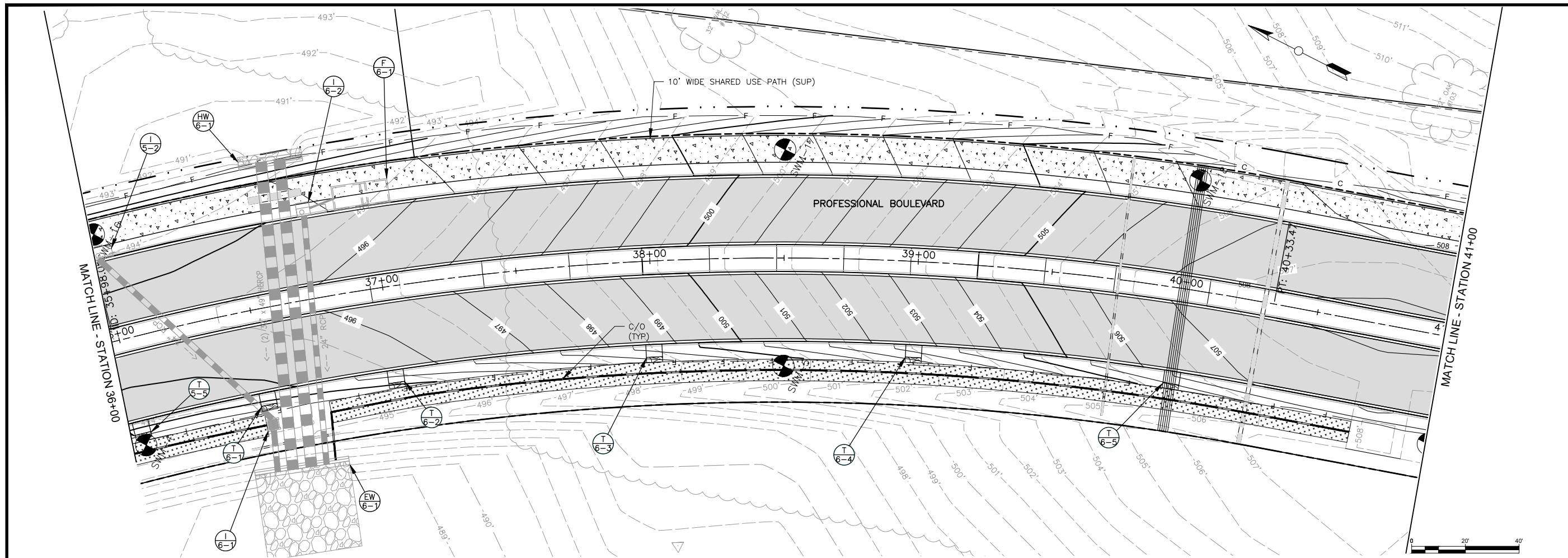
WASHINGTON COUNTY, MARYLAND  
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 80 W. Baltimore St., Hagerstown, MD 21740  
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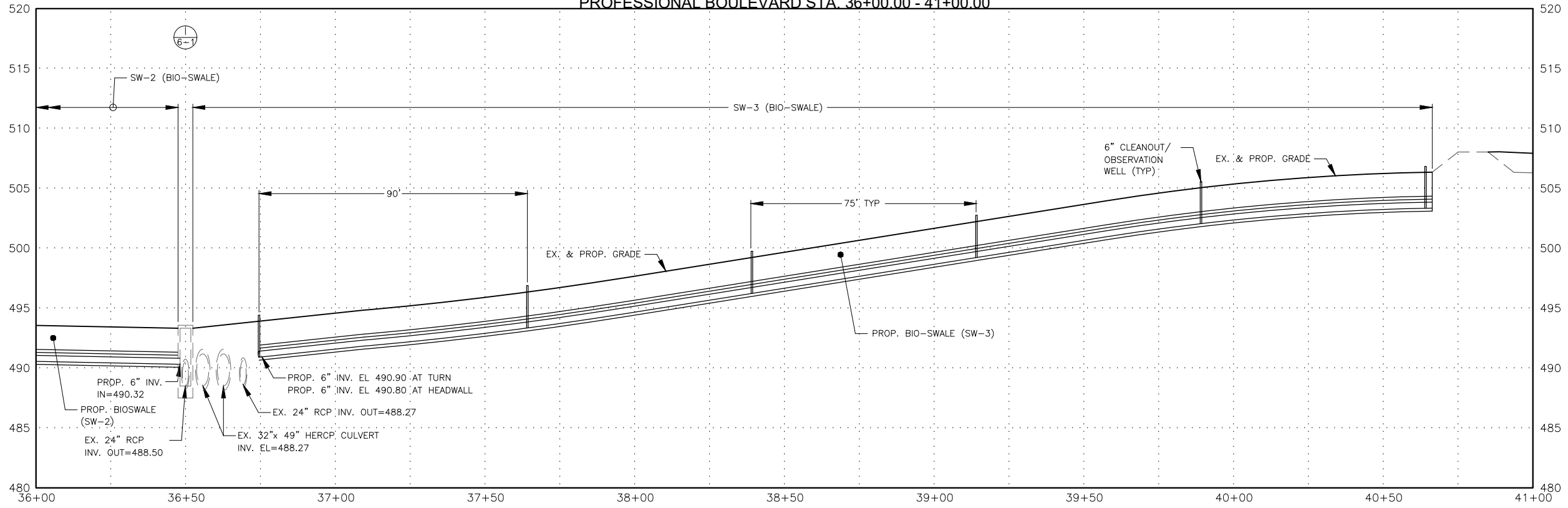
PROFESSIONAL BOULEVARD  
 STORMWATER MANAGEMENT  
 SWALE PLAN & PROFILE

SCALE 1"=20'
SHEET NO. 23 OF 129
PROJECT NO. 10-270

DRAWING  
SW-02



PROFESSIONAL BOULEVARD STA. 36+00.00 - 41+00.00



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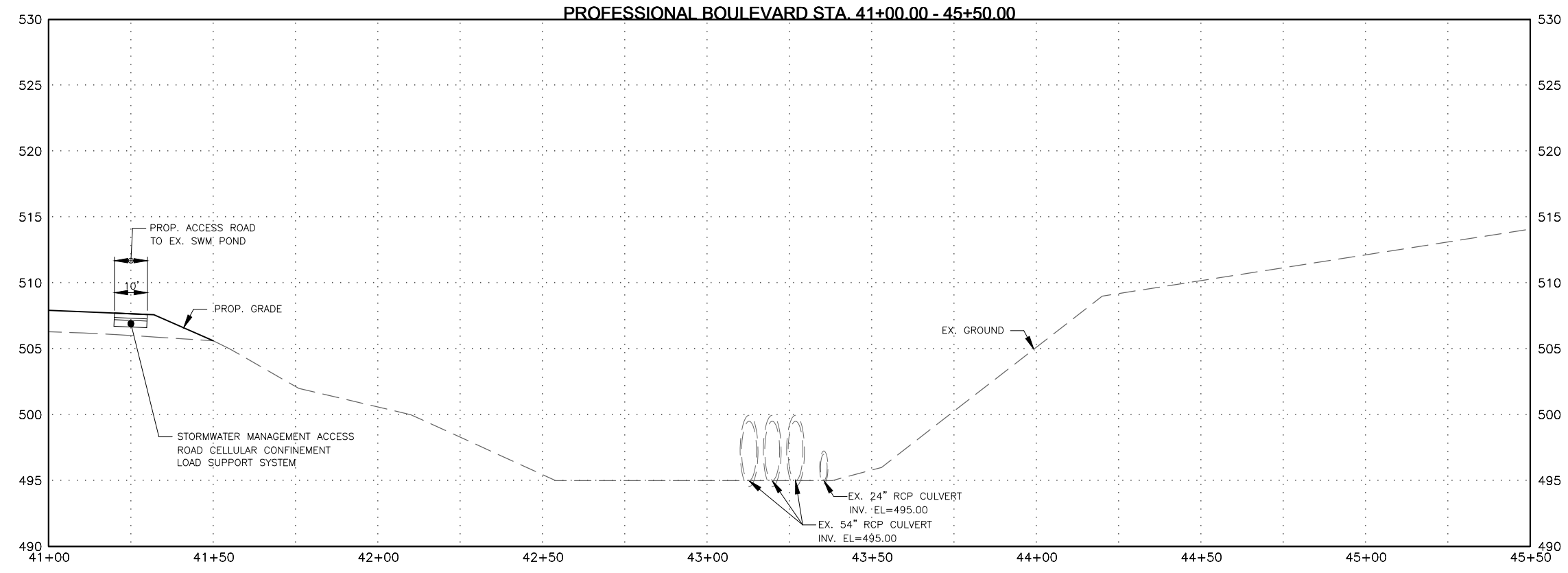
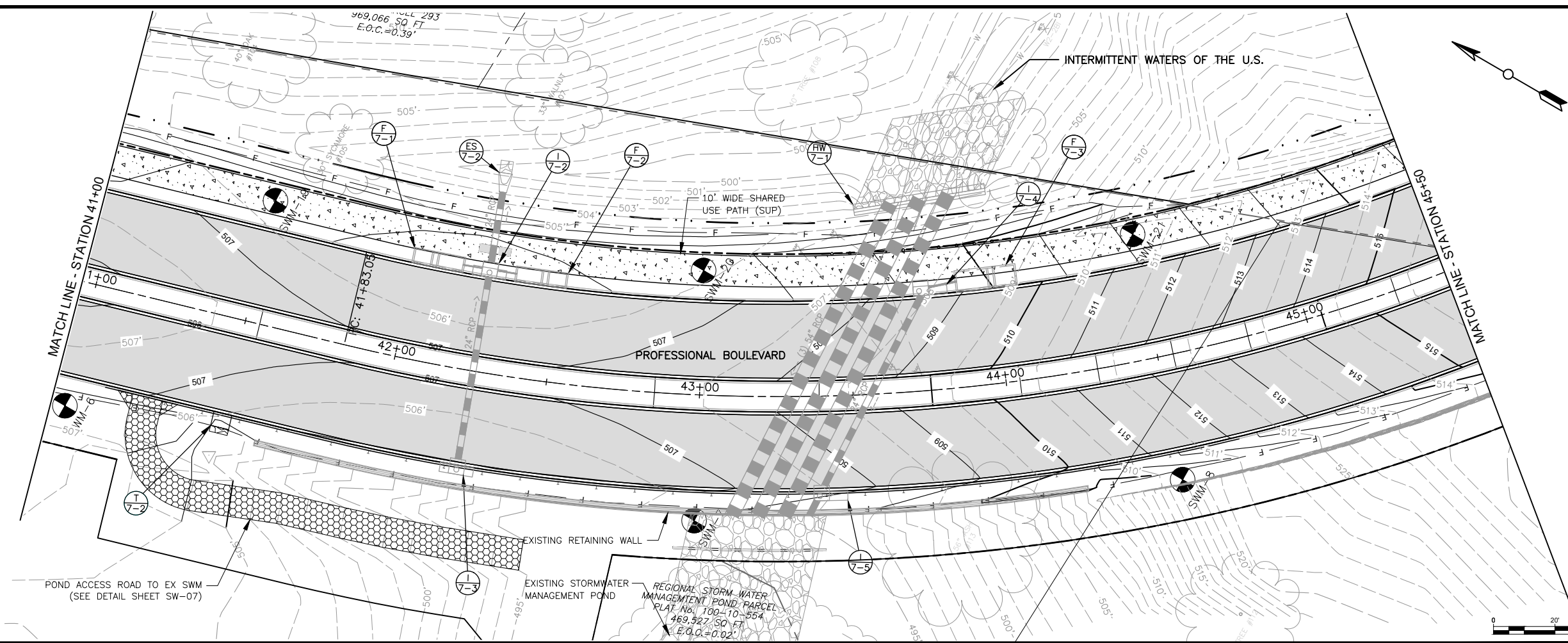
WASHINGTON COUNTY, MARYLAND  
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PROFESSIONAL BOULEVARD  
 STORMWATER MANAGEMENT  
 SWALE PLAN & PROFILE

SCALE 1"=20'
SHEET NO. 24 OF 129
PROJECT NO. 10-270

DRAWING  
SW-03



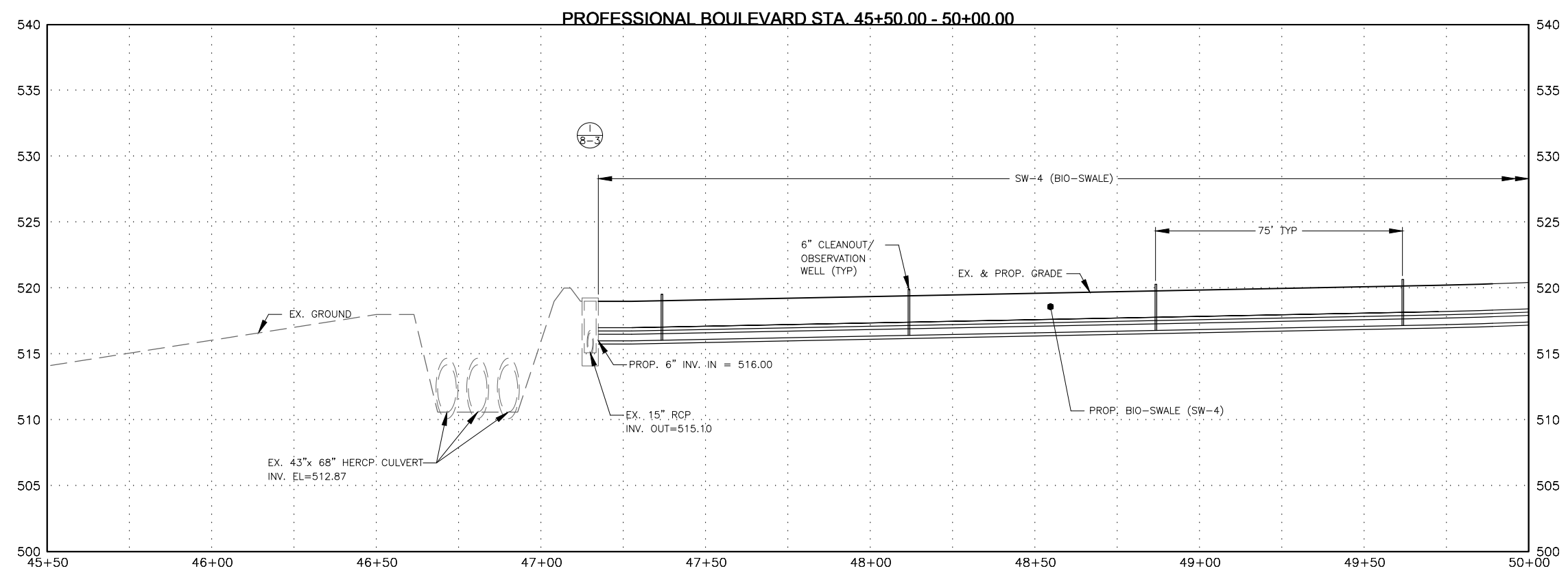
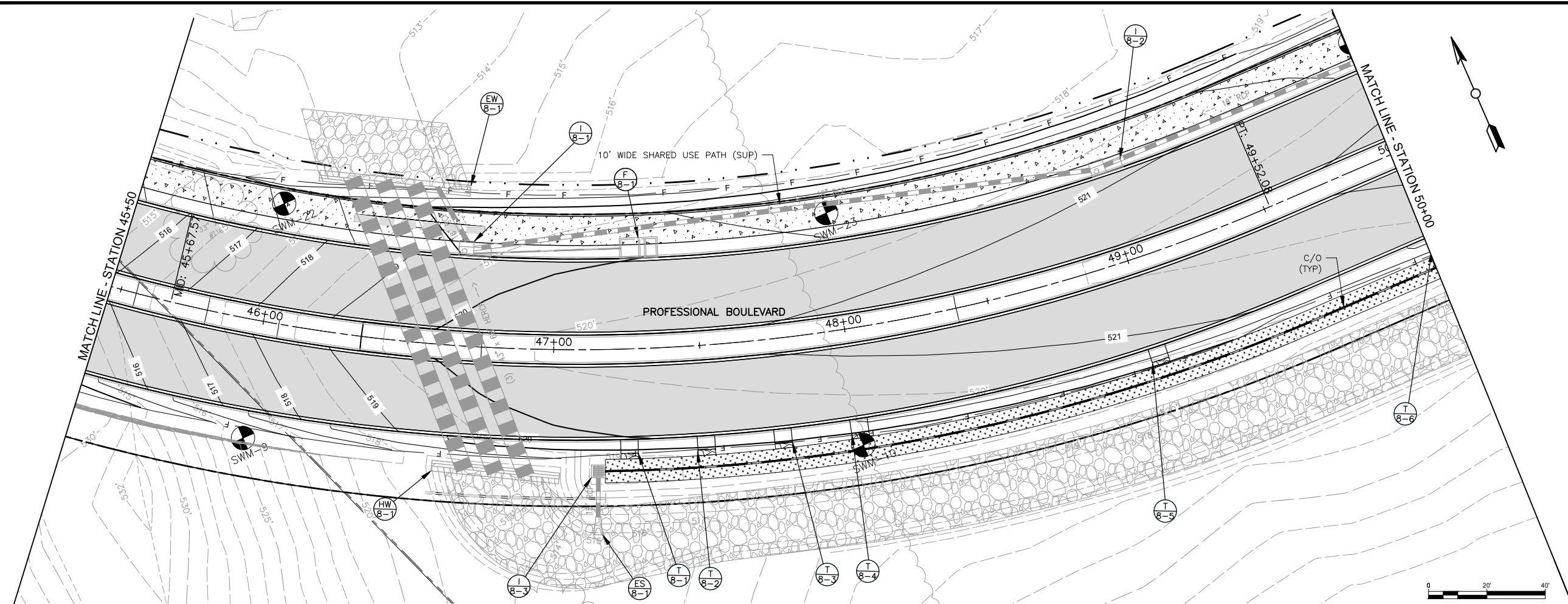
NO.	REVISION DESCRIPTION	BY	DATE

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**PROFESSIONAL BOULEVARD**  
**STORMWATER MANAGEMENT**  
**SWALE PLAN & PROFILE**

SCALE  
 1"=20'  
 SHEET NO.  
 25 OF 129  
 PROJECT NO.  
 10-270

DRAWING  
 SW-04



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: CEB  
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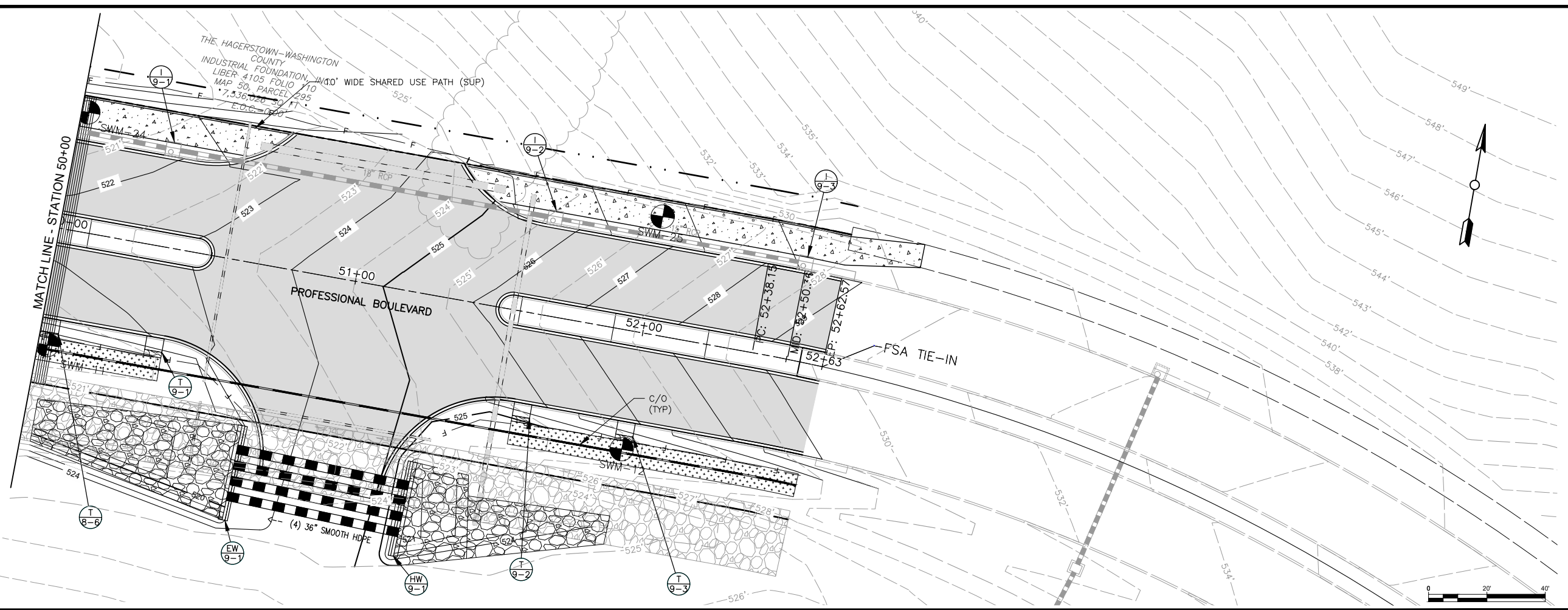
**PROFESSIONAL BOULEVARD  
 STORMWATER MANAGEMENT  
 SWALE PLAN & PROFILE**

SCALE  
 1"=20'

SHEET NO.  
 26 OF 129

PROJECT NO.  
 10-270

DRAWING  
 SW-05



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: CEB  
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**WASHINGTON COUNTY, MARYLAND**  
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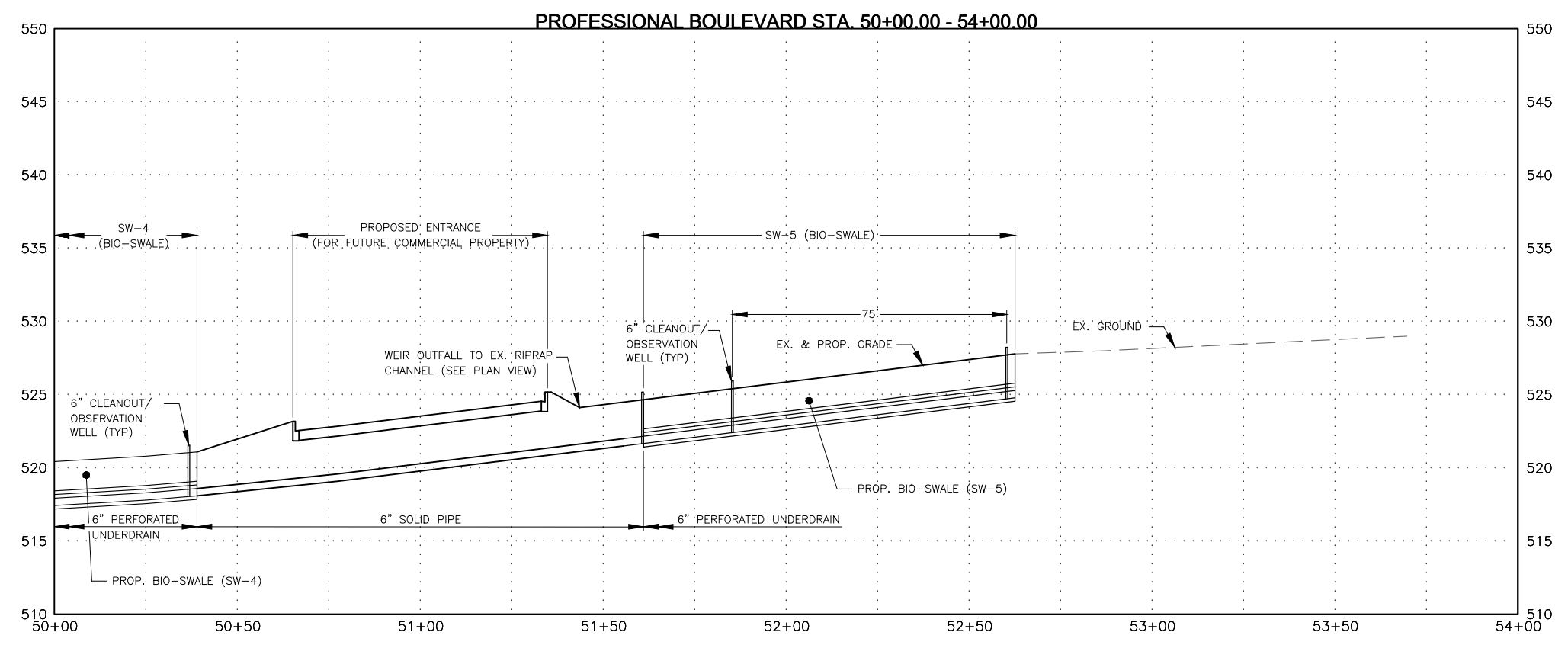
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**PROFESSIONAL BOULEVARD**  
**STORMWATER MANAGEMENT**  
**SWALE PLAN & PROFILE**

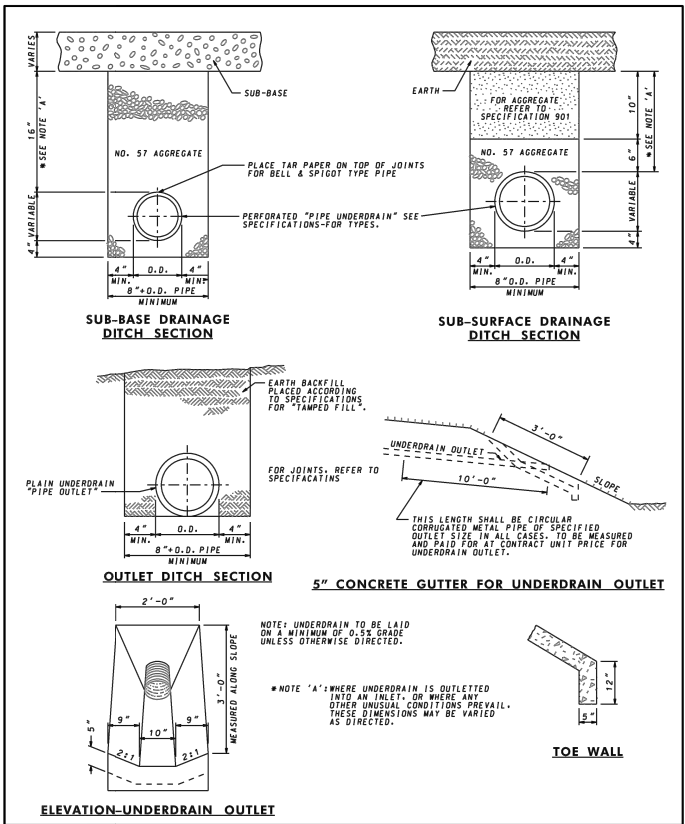
SCALE  
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SHEET NO.  
 27 OF 129

PROJECT NO.  
 10-270

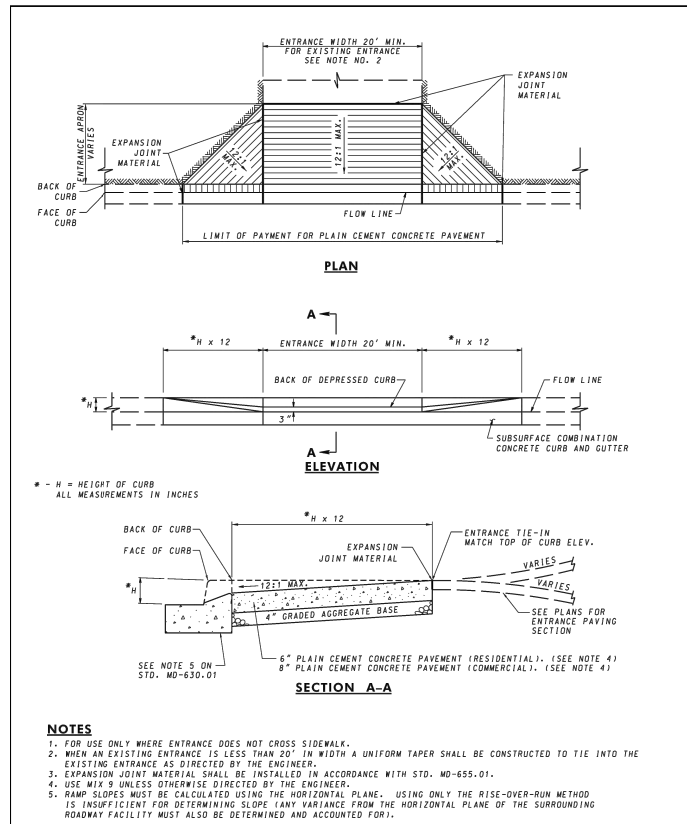


DRAWING	PROJECT NO.
SW-06	10-270



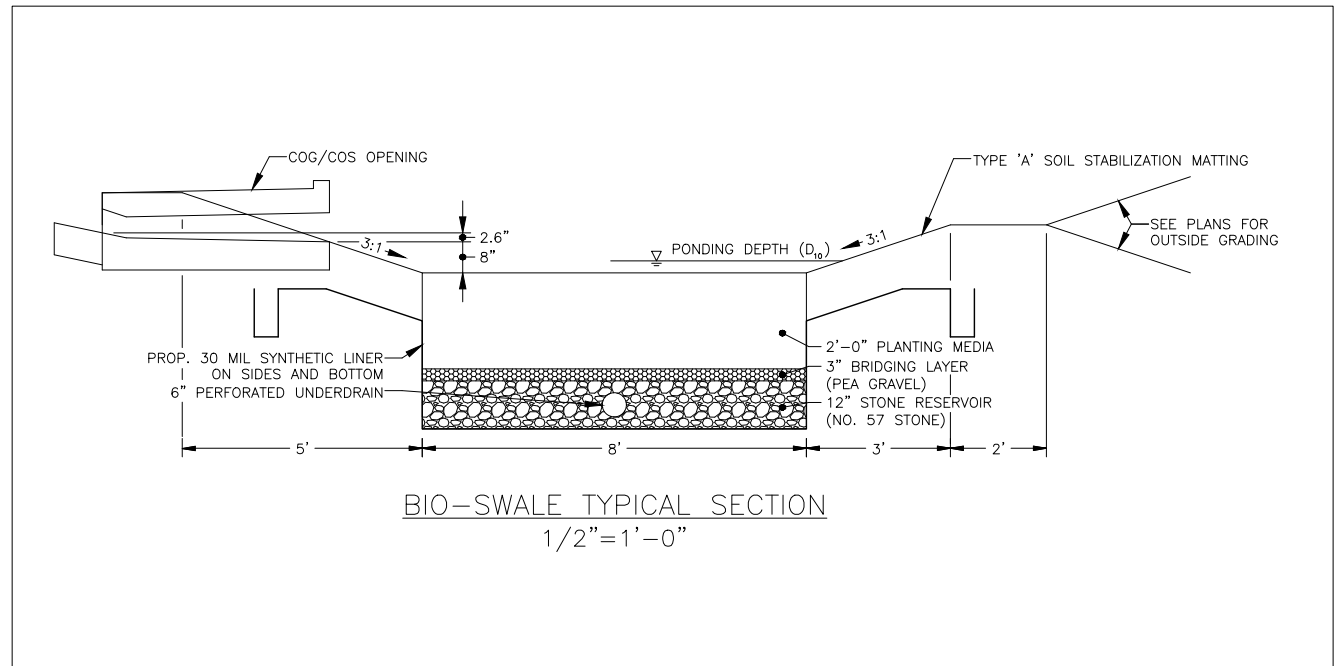
SPECIFICATION	CATEGORY CODE ITEMS	<b>Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION</b> STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES <b>STANDARD UNDERDRAINS</b> <b>STANDARD NO. MD 387.01</b>
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT APPROVAL * SHA REGIONAL HIGHWAY ADMINISTRATION APPROVAL 3-8-84 REVISION 10-1-87 REVISION 6-14-84	

UNDERDRAIN DETAIL  
NOT TO SCALE



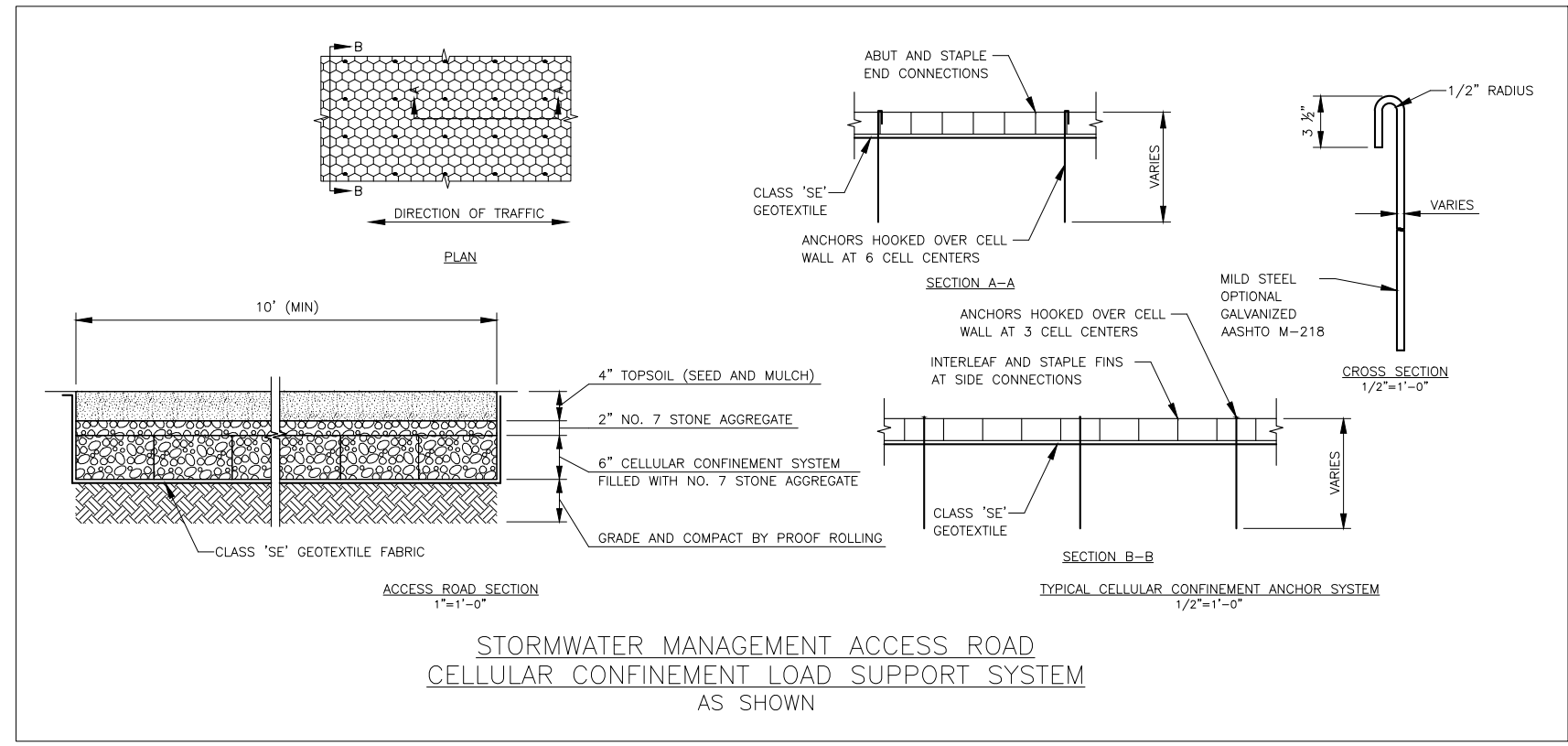
SPECIFICATION	CATEGORY CODE ITEMS	<b>Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION</b> STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES <b>STANDARD ENTRANCE CONSTRUCTION RESIDENTIAL &amp; COMMERCIAL METHOD NO.3</b> <b>STANDARD NO. MD 630.03</b>
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT APPROVAL * SHA REGIONAL HIGHWAY ADMINISTRATION APPROVAL 2-10-04 REVISION 4-17-97 REVISION 6-14-16	

STORMWATER MANAGEMENT ACCESS ROAD  
ENTRANCE APRON DETAIL  
NOT TO SCALE

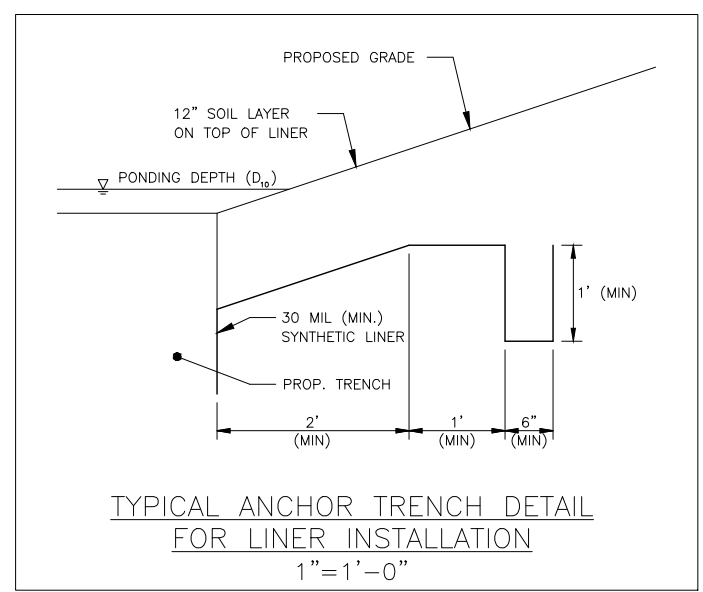


FACILITY NO.	LOCATION	FACILITY TYPE	AREA (SF)	WIDTH	LENGTH	TOP WIDTH	DEPTH, D <sub>0</sub>	DISCHARGE, Q <sub>0</sub> (CFS)	VELOCITY, V <sub>0</sub> (FPS)	C.O.S
SW-1	STA. 28+91 TO STA. 32+20, RT	BIO-SWALE	2,610	8'-0"	326'	14'	0.15'	1.21	0.97	5
SW-2	STA. 32+20 TO STA. 36+47, RT	BIO-SWALE	3,277	8'-0"	410'	14'	0.15'	1.74	1.35	6
SW-3	STA. 36+73 TO STA. 40+70, RT	BIO-SWALE	3,054	8'-0"	382'	14'	0.15'	1.49	1.21	6
SW-4	STA. 47+17 TO STA. 50+39, RT	BIO-SWALE	2,706	8'-0"	338'	14'	0.30'	1.99	0.74	5
SW-5	STA. 51+61 TO STA. 52+63, RT	BIO-SWALE	800	8'-0"	100'	14'	0.12'	1.03	1.03	3

\* SEE SHEETS SWM 01 TO SWM 06 FOR SWALE PLAN AND PROFILES.



STORMWATER MANAGEMENT ACCESS ROAD  
CELLULAR CONFINEMENT LOAD SUPPORT SYSTEM  
AS SHOWN



DESIGNED BY:	CEB
DRAWN BY:	CEB
CHECKED BY:	BGB
DATE:	JUNE 2021

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

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PROFESSIONAL BOULEVARD  
STORMWATER MANAGEMENT  
BIO-SWALE DETAILS

SCALE	AS SHOWN
SHEET NO.	28 OF 129
PROJECT NO.	10-270

**STORMWATER MANAGEMENT FACILITIES CONSTRUCTION INSPECTION REQUIREMENTS**

- The developer/contractor shall notify that Division of Public Works ("DPW") at least five (5) days before commencing any work in conjunction with the approved final stormwater management plan and upon completion of the project when a final inspection will be conducted.
- Regular inspections shall be made and documented for each stormwater practice every two (2) weeks and at the required critical inspection stages identified in the attached checklists and the Washington County SWM, Grading, Soil Erosion and Sediment Control Ordinance.
- All non-structural practices shall be inspected, at a minimum, upon completion of final grading, the establishment of permanent stabilization, and before issuance of use and occupancy permit.
- Inspections shall be conducted by DPW, the MDE (as applicable), and by the Verifying Professional. Inspections performed by the DPW are not to be considered a substitute for those inspections required by the Verifying Professional. Written inspection reports shall be prepared by the Verifying Professional during construction of stormwater facilities. Copies of all inspection reports shall be provided to DPW by the person performing the inspection and kept on file with DPW.
- Written inspection reports are required and shall be submitted in a manner consistent with the Public Works Agreement and this Article and in a format approved by DPW, and shall include, at a minimum:
  - The date and location of the inspection;
  - Work observed;
  - Photos;
  - Tests performed;
  - Whether construction was in compliance with the approved stormwater management plan;
  - Any variations from the approved construction specifications;
  - Any violations that exist;
  - Signature and date of Verifying Professional.
- Failure to comply with these inspection requirements and/or obtain approval from the Verifying Professional or DPW at the required construction stages will result in disapproval of the facility, delays of final acceptance and permit release.
- The developer, DPW, the MDE, Verifying Professional, and on-site personnel shall be notified in writing when violations are observed. Written notification shall be made by the person discovering the violation and shall describe the nature of the violation and the required corrective action. No further work affected by the violation shall proceed until the corrective action is inspected and approved in writing by the Verifying Professional, the Division, MDE (as applicable), and the District (as applicable).
- DPW may require adjustments to address items overlooked or inappropriately addressed by the plans. Such adjustments may be required during construction or at the final inspection.
- The County may require a revision to the approved construction drawings or site plans be submitted and approved by the DPW, the Division of Planning and Community Development (as applicable), the MDE (as applicable) and the District prior to continuation of construction activity.
- No work shall proceed beyond the construction stages specified in attached Checklists and the Washington County SWM, Grading, Soil Erosion and Sediment Control Ordinance until DPW and the Verifying Professional inspect and approve the work previously completed and the Verifying Professional furnishes the DPW and developer with the results of the inspection reports as soon as possible after completion of each required inspection.

**BIORETENTION/BIO-SWALE MAINTENANCE NOTES:**

- Bioretention/bio-swale areas shall be inspected at a minimum bi-annually.
- Owner shall remove silt/sediment if the accumulation of sediment exceeds one inch within the bioretention/swale area.
- The top few inches of filter media shall be removed and replaced when water ponds for more than 48 hours.
- Trash and debris shall be removed as necessary.
- Mulch shall be replaced on an annual basis.
- Plant material shall be inspected yearly and dead and/or diseased vegetation shall be replaced, as necessary. Watering may be required during prolonged dry spells.

**NOTES:**

- Developer/contractor must contact the Certifying Engineer and the County at least five (5) days prior to the start of construction of the stormwater management system to coordinate inspection time tables.
- If rock is encountered, undercut 18" below the facility and backfill with CL type soil.
- Earth dams shall be compacted to a minimum 95% dry density.
- No trees or shrubs are permitted on the embankment.
- Facility embankments shall be planted with grass only.
- All pipe joints shall be water-tight. (HDPE pipe joints shall meet the 10.8 psi water-tight requirements of ASTM D3212).
- All proposed storm drain pipes must be placed on 95% compacted fill according to AASHTO T180A standards.
- All underdrain piping must have a minimum of 0.5% slope.
- The contractor is to contact Miss Utility a minimum of two (2) days prior to any digging on the site (1-800-257-7777).

**LINER NOTES:**

- See details to attach the PVC/HDPE liner to inlets and for the anchoring of the detail at the terminus.
- The Contractor is to follow all manufacturer's specifications and instructions for the attachment of the liner to pipes and inlets. Water-tight connections are required for all connections and seams of the liner.

OPERATION AND MAINTENANCE PLAN – BIORETENTION		
INSPECTION ITEM	INSPECTION REQUIREMENTS	REMEDIAL ACTION
<i>Maintenance Access</i>		
General	Check for accessibility to facility; excessive vegetation; surface stability	Repair erosion and maintain access surface in good condition
<i>Pretreatment</i>		
Grass filter strip or sand layer	Check for sediment accumulation	Remove sediment as needed
Optional sand layer	Check sand for staining and sediment accumulation	If contaminated, replace first three inches of sand layer
Gravel diaphragm	Check for sediment accumulation and evidence of erosion	Remove sediment and replace gravel as needed
Mulch layer	Check for a 2-3 inch mulch layer	Remove mulch and replace as needed
<i>Filter Bed</i>		
Dewatering	Check for dewatering within 48 hours of rainfall; noticeable odors; water stains on the filter surface or at the outlet; presence of algae or aquatic vegetation	Remove mulch and the top 3-6 inches of soil/sediment and replace with suitable materials per plan specifications; follow up inspections shall confirm adequate dewatering; contact the plan approval authority if the facility does not function as intended.
Sediment	Check for sediment accumulation	Remove sediment as needed
Mulch layer	Check for adequate cover; sediment accumulation; discoloration	Remove and replace mulch and excess sediment as needed
<i>Vegetation</i>		
Plant composition and health	Check for plant composition according to approved plans; invasive species, weeds, and dead or dying vegetation	Remove and replace plants as necessary
Vegetative cover/erosion	Check for erosion, runoff channelizing, or bare spots	Repair/grade and stabilize as needed
<i>Outlets</i>		
Underdrain system	Check outlet end to ensure that discharge is not obstructed; check for erosion	Remove any flow obstructions; grade and stabilize any eroded areas to provide stable conveyance
Overflow spillway	Check for displacement of riprap, stable conveyance, and erosion below the outlet	Repair and replace as needed
<i>Conveyance Systems</i>		
General	Check for erosion, flow blockages or bypass, and stable conveyance	Repair/replace and stabilize as needed
Flow diversion	Check flow splitter for proper functioning	Repair as necessary
<i>Trash and Debris</i>		
	Check for trash and debris accumulation	Trash and debris shall be disposed of in an acceptable manner
<i>Structural Components</i>		
	Check for structural deterioration, spalling, or cracking	Repair according to specifications on the approved plans

Field conditions may require a modification to the original approval in order to achieve the intended design function. The plan approval authority should be contacted for review and approval of all proposed modifications. Inspection and maintenance should occur after any major rain event (meeting or exceeding the design rainfall depth for the facility).


NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS SAND FILTERS, BIORETENTION AND RAIN GARDEN FACILITIES						
The following inspections are required to be performed by the Qualified Professional for the construction of any Sand Filter, Bioretention or Rain Garden Facility. Additional Inspections may be needed based on professional engineering judgement. Each inspection is required at the start of each stage.						
Inspection Item		SW-1	SW-2	SW-3	SW-4	SW-5
EXCAVATION OF FACILITY – Prior to excavation, verify sediment and erosion control features are in place to prevent sediment inflow. Verify all flagging required in the area for sensitive area protection. Verify grading is accurately staked-out and re-staked as needed. Facility dimensions shall be verified and soils checked for infiltration. Verify contributing area is permanently stabilized. Verify that water is not present. Ensure roughening of side walls if sheared and sealed by heavy equipment. Verify that compaction of facility base is minimized.	CERTIFYING ENGINEER					
	DATE					
	COUNTY INSPECTOR					
PVC LINER (Trenches) – PVC Liner is installed per the specification. Ensure filter fabric is overlapping six (6) inches between strips of cloth. Ensure tree roots or other obstacles are removed from facility walls or sides and base to prevent tearing. Verify that uphill fabric roll overlaps two (2) feet over downhill roll.	CERTIFYING ENGINEER					
	DATE					
	COUNTY INSPECTOR					
PLACEMENT OF UNDERDRAINS AND OBSERVATION WELLS – Location, Size and material of underdrain and observation wells shall be verified prior to stone placement. Verify pipe ends capped. Verify 3" gravel cover.	CERTIFYING ENGINEER					
	DATE					
	COUNTY INSPECTOR					
PLACEMENT OF FILTERING MEDIA– Verify bottom layer material and thickness. Verify sand and/or filter media layer material and thickness. Verify filter fabric or pea gravel used between sand layers. Verify top filter media layer.	CERTIFYING ENGINEER					
	DATE					
	COUNTY INSPECTOR					
PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM – Verify depth and width of sand and/or diaphragm layer. Verify fill material.	CERTIFYING ENGINEER					
	DATE					
	COUNTY INSPECTOR					
STABILIZATION AND LANDSCAPING – Verify site top soiled, seeded and mulched. Verify embankment top soiled and seeded. Verify location, size, type and number of planted landscape material. Verify no more than 1/8 inch root ball exposed. Verify planting stock kept moist during on-site storage. Verify installation location, size, material type of fencing or other safety barriers.	CERTIFYING ENGINEER					
	DATE					
	COUNTY INSPECTOR					

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: CEB  
 DRAWN BY: CEB  
 CHECKED BY: BGB  
 DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401



PROFESSIONAL BOULEVARD

**STORMWATER MANAGEMENT  
FACILITY DETAILS**

SCALE NONE
SHEET NO. 29 OF 129
DRAWING SW-08
PROJECT NO. 10-270



# MARYLAND STORMWATER DESIGN MANUAL

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

## 1. Material Specifications

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

## 2. Planting Soil

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

The planting soil shall be tested and shall meet the following criteria:

- Soil Component – Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- Organic Content – Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content – Media shall have a clay content of less than 5%.
- pH Range – Should be between 5.5 and 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.

## 3. Compaction

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or march 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 refractures the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the Engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

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

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

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

## 4. Plant Material

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

## 5. Plant Installation

Compost is a better organic materials 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 acceptable 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 rate of 2 pounds per 1000 square feet.

## 6. Underdrains

Underdrains should meet the following criteria:

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

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observations well and/or cleanout pipes must be provided (one minimum per every 1,000 square feet or surface area).

## 7. Miscellaneous

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

Table B-4.1 Material Specifications for Micro-Bioretenion, Rain Gardens & Landscape Infiltration

MATERIAL	SPECIFICATION	SIZE	NOTES
Plantings	See planting list.	n/a	plantings are site-specific
Planting soil (2' to 4' deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood	n/a	aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile			PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 or NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'c=3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	On-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) <i>not using previously approved State or local standards</i> requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland – design to include meeting ACI Code 350.R/89; vertical loading [H=10 or H=20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand (if required)	AASHTO M-6 or ASTM C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
Compost	MSHA Standard Specifications for Construction and Materials, May 2017 920.02.05 Compost.	Uniform particle size of 0.5" or less	Source – Separated Compost (Type B). Type B Compost shall be tree leaf compost or non-tree leaf compost. Type B Compost produced from lawn clippings shall be tested for contaminants in conformance with Maryland law and regulations.

# CATEGORY 300 – PVC LINED STORMWATER FACILITIES

DECRPTION. This work shall consist of furnishing, placing and anchoring of a 30 mil PVC liner within the designated stormwater facility area as shown in the Contract Documents and as directed by the Engineer.

## MATERIALS

Furnished Topsoil	920
Type B Soil Stabilization Matting	920
Staples	920

PVC LINER MATERIAL. The 30 mil PVC Liner shall conform to the following minimum physical properties.

PROPERTY	TEST METHOD	REQUIREMENT
Thickness	D 1593	+/- 5%
Specific Gravity (min.)	D 792	1.20
100% Modulus (psi. min.) (1 b. force/in. width, min.)	D 882	100 30
Tensile (psi, min.) (Lb. force/in. width, min.)	D 882	2300 69
Elongation at Break (% min.)	D 882	325
Graves Tear (lb./in., min.) (1 b. force/in. width, min.)	D 1004	325 8
Resistance to Soil Burial (% change max.) (a) Breaking Factor (b) Elongation At Break (c) Modulus at 100% Elongation	D 3083 (NSF Modified)	5 20 20
Impact Cold Crack(/F)	D 1790	-20
Dimensional Stability (% change/max.)	D 120 (212/f/15 min.)	5
Water Extraction (% max.)	D 3083	-0.25
Volatile Loss (% max.)	D 1203	0.70
Hyrostatic Resistance (psi, min.)	D 751	82

## PVC LINER CERTIFICATION.

The Contractor shall certify that the PVC liner material conforms to the physical properties. The PVC Liner Certification shall also include:

- Polymer and composition of the PVC Liner, including additive composition of any coating materials.
- Manufacturer's Quality Control plan including properties, test methods, frequency of testing, tolerances and method of resolution for out-of-specification material.
- Laboratory test results documenting the physical properties.

## STORAGE AND HANDLING.

The PVC liner shall remain stored in its original container in a dry area and protected from puncture, dirt, grease, water, mud, mechanical abrasions, excessive heat, extreme cold or other damage. On-site handling of the PVC liner is the responsibility of the Contractor.

Any damage of the PVC liner shall be documented. If the damaged PVC liner cannot be repaired to comply with the specification it shall be removed and replaced at no additional cost to the Administration.

## CONSTRUCTION.

Construction shall be in conformance with the details shown on the plans or as directed by the Engineer and the following:

### Area Subgrade Preparation.

Surfaces to be lined shall be smooth and free of all rocks, stones, sticks, sharp objects, or debris of any kind. The surface shall provide a firm, unyielding foundation for the liner with no sudden sharp or abrupt changes or break in grade. No standing water, mud, snow, or frozen subgrade that has become softened by water or overly dried until it has been properly reconditioned and recompacted. Special care shall be taken to maintain the prepared soil surfaces. The soil surface will be observed daily by the Engineer to evaluate the surface condition. Any damage to the surface caused by weather conditions shall be repaired by the Contractor.

### Anchor Trench.

The anchor trench shall be excavated to the line, grade, and width shown on the construction drawings, prior to liner placement.

If the anchor trench is located in clay susceptible to desiccation; no more than the amount of trench required for the liner to be anchored in one day shall be excavated to minimize desiccation of the anchor trench soils.

Slightly rounded corners shall be provided in the trench where the liner adjoins the trench so as to avoid sharp bends in the liner. No loose soil or rocks shall be allowed to underlie the liner in the anchor trench. Leading edges of the anchor trench shall be smooth and even.

### Placement of Liner.

- The liner shall be placed down gradient (upstream to downstream) to facilitate overlapping and prevent runoff from entering under the placed liner.
- The method used to place the liner panels shall minimize wrinkles (especially differential wrinkles between adjacent panels). Minimum wrinkles shall be allowed to insure the liner is installed in a relaxed condition. Excessive wrinkles which overlap themselves shall not be allowed.
- All panels may be repositioned after deployment to conform to the overlap requirements, however, deployment and repositioning measures may eliminate dragging or elongating the PVC liner panels.
- The seam overlap shall be a minimum of 3 ft. and a maximum of 4 ft.
- Adequate ballast (e.g. cover soil, or similar measures that will not damage the liner) shall be placed to prevent uplift by wind. In case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels.
- Only equipment necessary for installation and testing of the liner shall be permitted to come in contact with the liner. This equipment shall be rubber tired with a ground pressure not exceeding 5 psi, and the total weight not exceeding 750 lb.

### Weather Conditions.

PVC liner deployment shall proceed when ambient temperature and material sheet temperature is between 60 and 106 F. Sheet temperature shall be measured on the liner surface by an infrared thermometer or surface contact thermometer.

Liner placement shall not be done during any precipitation, in the presence of excessive moisture (e.g. snow, fog, rain, dew, mud) or in the presence of excessive winds, as determined by the Engineer.

If the liner placement is required at ambient temperatures below 60 F, a means of storing the liner in an area that maintains the liner temperature above 60 F shall be provided. This liner temperature shall be maintained until the time of deployment.

### Unpacking the Panels.

The Contractor shall notify the Engineer, before the liner is unpacked. Damaged or suspect areas shall be marked for testing and/or repair. Liner that is damaged during deployment (i.e. that cannot be adequately repaired) shall be replaced at no additional cost to the Administration.

### Backfilling of the Anchor Trench.

The anchor trench shall be backfilled and compacted by the Contractor to the satisfaction of the Engineer. Trench backfill material shall be placed in 8 in. thick loose lifts and compacted by wheel rolling with light, rubber-tired or other light compaction equipment.

Care shall be taken when backfilling the trenches to prevent any damage to the PVC liner. At no time shall construction equipment come in direct contact with the liner. If damage occurs, it shall be repaired at no additional cost to the Administration.

### Backfilling of PVC Liner.

The liner shall be covered with a 2 ft. layer of soil; the first 1.8 ft. shal conform to Common Borrow specifications and the top 4 in. shall be a layer of furnished topsoil. The backfill shall be tamped in place. Permanent type B soil stabilization matting shall be placed over the topsoil.

At no time shall construction equipment come into direct contact with the liner or traverse the backfilled trench. When damage occurs, it shall be repaired by the Contractor at no additional cost to the Administration. Compaction shall be to the satisfaction of the Engineer.

### Measurement and Payment.

The PVC ditch liner will be measured and paid for at the contract unit price per square yard accepted in place. The payment will be full compensation for all excavation, PVC liner, furnished topsoil, backfill, and for all overlap. All PVC overlap shall be incidental to the cost of PVC liner installation.

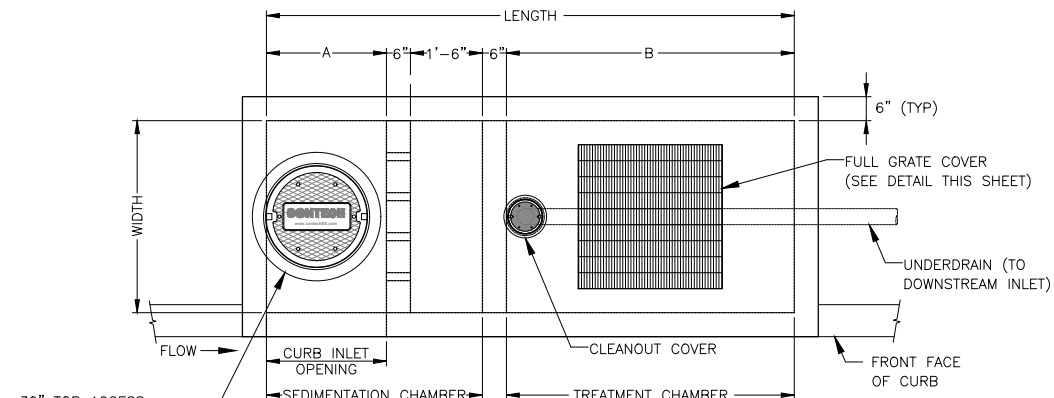
Excavation will be measured and paid for at the contract unit price per cubic yard for class 2 excavation for incidental construction.

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING  
Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

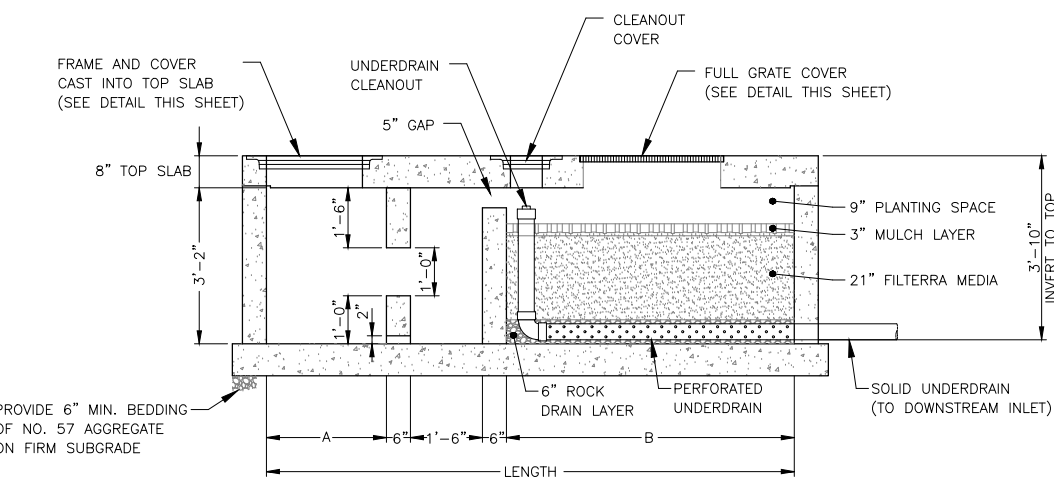
PROFESSIONAL BOULEVARD  
STORMWATER MANAGEMENT  
FACILITY DETAILS

SCALE  
NONE  
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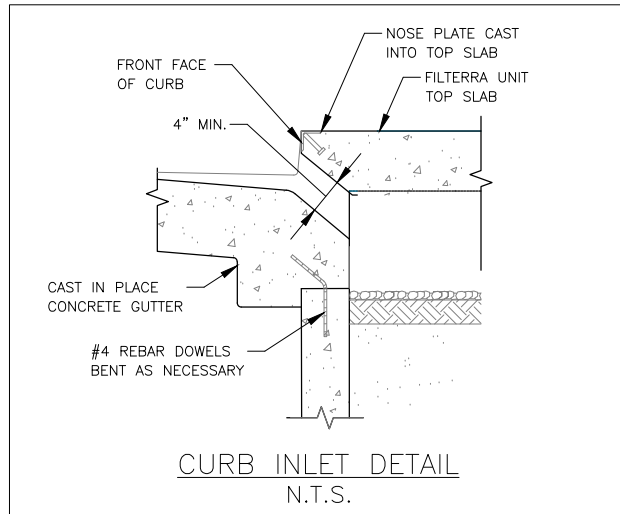
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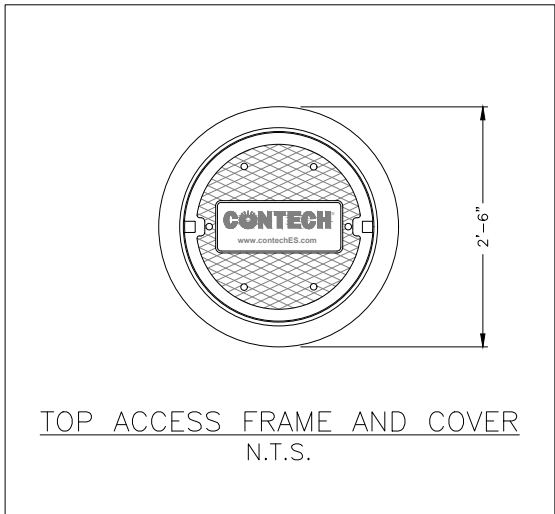
PLAN VIEW  
N.T.S.



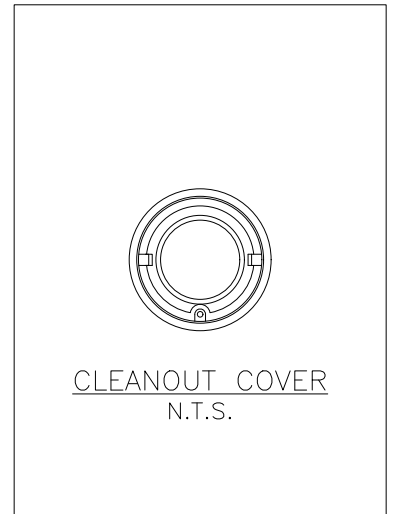
ELEVATION VIEW  
N.T.S.



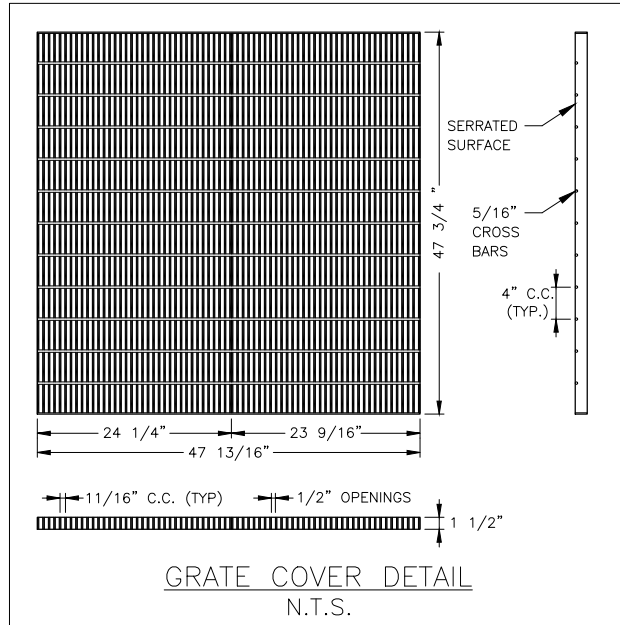
CURB INLET DETAIL  
N.T.S.



TOP ACCESS FRAME AND COVER  
N.T.S.



CLEANOUT COVER  
N.T.S.



GRATE COVER DETAIL  
N.T.S.

**INSTALLATION PROCEDURE**

- THE FOLLOWING PROCEDURE PROVIDES AN OVERVIEW OF RECOMMENDED INSTALLATION PRACTICES. INSTALLATION SHALL FOLLOW THE REQUIREMENTS OUTLINED IN THE FILTERRA INSTALLATION MANUAL, PREPARED BY CONTECH.
- CONTECH SHALL DELIVER THE FILTERRA UNITS TO THE SITE IN COORDINATION WITH THE CONTRACTOR. INSPECTION OF THE FILTERRA UNIT AND ALL PARTS CONTAINED IN OR SHIPPED OUTSIDE OF THE UNIT SHALL BE PERFORMED AT THE TIME OF DELIVERY BY THE SITE ENGINEER/INSPECTOR AND THE CONTRACTOR. ANY NONCONFORMANCE TO THE APPROVED DRAWINGS OR DAMAGE TO ANY PART OF THE SYSTEM SHALL BE DOCUMENTED ON THE FILTERRA SHIPPING TICKET. DAMAGE TO THE UNIT DURING AND AFTER UNLOADING SHALL BE CORRECTED AT THE EXPENSE OF THE CONTRACTOR. ANY NECESSARY REPAIRS TO THE FILTERRA UNIT SHALL BE MADE TO THE ACCEPTANCE OF THE ENGINEER/INSPECTOR.
  - THE CONTRACTOR SHALL PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE FILTERRA VAULT. THE CONTRACTOR WILL REQUIRE SPREADER BARS AND CHAINS/CABLES/STRAPS, AS WELL AS LIFTING BLOCKS TO SAFELY AND SECURELY LIFT BOX SECTIONS AND TOP SLABS. FILTERRA BOXES SHALL BE LIFTED SEPARATELY FROM THE TOP SLABS.
  - THE UNIT SHALL BE PLACED ON A COMPACTED SUB-GRADE WITH A MINIMUM 6-INCH GRAVEL BASE MATCHING THE FINAL GRADE OF THE CURB LINE IN THE AREA OF THE UNIT. THE UNIT IS TO BE PLACED SUCH THAT THE UNIT AND TOP SLAB MATCH THE GRADE OF THE CURB IN THE AREA OF THE UNIT. COMPACTED UNDISTURBED SUB-GRADE MATERIALS TO 95% OF MAXIMUM DENSITY AT +1% TO +2% OF OPTIMUM MOISTURE. UNSUITABLE MATERIAL BELOW SUB-GRADE SHALL BE REPLACED TO THE SITE ENGINEER'S APPROVAL.
  - ONCE THE UNIT IS SET, THE INTERNAL WOODEN FORMS AND PROTECTED SILT FABRIC COVER MUST BE LEFT INTACT. THE TOP LID SHOULD BE SEALED ONTO THE BOX BEFORE BACKFILLING, USING A NON-SHRINK GROUT, BUTYL RUBBER, OR SIMILAR WATERPROOF SEAL. THE BOARDS ON THE TOP OF THE LID AND BOARDS SEALED IN THE UNIT'S THROAT MUST NOT BE REMOVED. THE SUPPLIER WILL REMOVE THESE SECTIONS AT THE TIME OF ACTIVATION.
  - OUTLET CONNECTIONS SHALL BE ALIGNED AND SEALED AT THE OUTLET CONNECTION LOCATION MARKED ON THE FILTERRA BOX. DO NOT USE PLUGGED COUPLINGS MARKED "USE OTHER CONNECTION".
  - BACKFILLING SHOULD BE PERFORMED IN A CAREFUL MANNER, BRINGING THE APPROPRIATE FILL MATERIAL UP IN 6" LIFTS ON ALL SIDES. PRECAST SECTIONS SHALL BE SET IN A MANNER THAT WILL RESULT IN A WATERTIGHT JOINT. IN ALL INSTANCES, INSTALLATION OF THE FILTERRA UNIT SHALL CONFORM TO ASTM SPECIFICATION C891 "STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES".
  - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE CURB AND GUTTER AND TRANSITION TO THE FILTERRA UNIT FOR PROPER FLOW INTO THE SYSTEM.
  - THE CONTRACTOR SHALL BLOCK FILTERRA CURB OPENINGS AFTER THE VAULT IS IN PLACE UNTIL THE SYSTEM IS ACTIVATED BY CONTECH. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE AND COMPLETE MEASURES TO PROTECT THE FILTERRA UNIT FROM CONSTRUCTION-RELATED EROSION RUNOFF.
  - ACTIVATION SHALL BE PERFORMED ONLY BY CONTECH AUTHORIZED PERSONNEL. ACTIVATION CAN OCCUR ONCE THE PROJECT SITE IS FULLY STABILIZED. CALL 800-338-1122 TO SCHEDULE ACTIVATION.

**MAINTENANCE PROCEDURE**

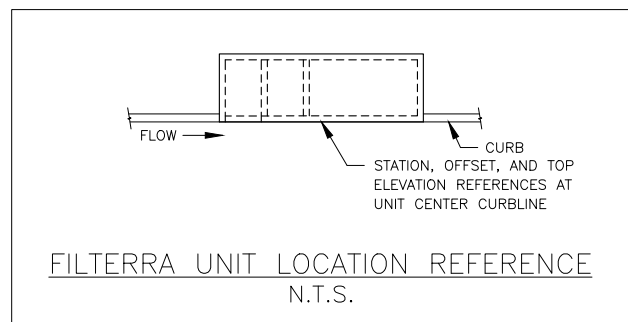
- THE FOLLOWING PROCEDURE PROVIDES AN OVERVIEW OF RECOMMENDED MAINTENANCE PRACTICES FOR FILTERRA UNITS. OPERATION AND MAINTENANCE WORK SHALL ADHERE TO THE METHODS OUTLINED IN THE FILTERRA OWNER'S MANUAL, PREPARED BY CONTECH.
- INSPECT THE FILTERRA UNIT AND SURROUNDING AREA. THE PRESENCE OF THE FOLLOWING CONDITIONS SHOULD BE NOTED ON THE MAINTENANCE REPORT AND PHOTOGRAPHED FOR DOCUMENTATION.
    - STANDING WATER
    - DAMAGE TO BOX STRUCTURE
    - DAMAGE TO GRATE
    - FLOW PREVENTED TO BYPASS
  - REMOVE THE UNIT GRATE FOR ACCESS INTO THE FILTERRA BOX AND DIG OUT ANY SILT, DEBRIS, OR TRASH. NOTE THE VOLUME AND TYPE OF MATERIAL REQUIRING REMOVAL.
  - MEASURE THE DISTANCE FROM THE TOP OF THE FILTERRA MEDIA LAYER TO THE BOTTOM OF THE TOP SLAB. IF THE DISTANCE IS GREATER THAN 15", ADD FILTERRA MEDIA (NOT TOP SOIL OR OTHER) TO A DISTANCE OF 12" TO THE TOP SLAB AND REPLACE MULCH.
  - ADD DOUBLE SHREDDED MULCH EVENLY ACROSS THE ENTIRE UNIT TO A DEPTH OF 3". MULCH SHOULD BE APPROVED BY CONTECH FOR USE IN FILTERRA SYSTEMS.
  - EXAMINE THE HEALTH OF THE PLANTED SURFACE AND REPLACE IF DEAD. TRIM AS NECESSARY TO REMAIN BELOW THE GRATE SURFACE. THE FOLLOWING ITEMS SHOULD BE NOTED ON THE MAINTENANCE REPORT. PROVIDE PHOTOGRAPHS OF CONDITION FOR DOCUMENTATION.
    - HEIGHT OF PLANT MATERIAL.
    - HEALTH
    - DAMAGE TO PLANTING
    - PLANTING REPLACED
  - CLEAN AREA AROUND THE UNIT AND REMOVE ALL REFUSE TO BE DISPOSED OF APPROPRIATELY.

**GENERAL NOTES**

- FILTERRA UNITS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH OF THE PERTINENT SIZE UNIT. THE PAYMENT WILL BE FULL COMPENSATION FOR ALL EXCAVATION, THE PRECAST UNIT AND MATERIALS FROM CONTECH, AGGREGATE, GRADE AND SLOPE ADJUSTMENTS, BACKFILL AND FOR ALL MATERIAL, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
- CONTECH SHALL PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- FILTERRA STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM-918, AND ACI-319 LOAD FACTOR DESIGN METHOD.
- IF THE FILTERRA UNIT IS STORED BEFORE INSTALLATION, THE TOP SLAB MUST BE PLACED ON THE BOX USING 2X4 WOOD PROVIDED, TO PREVENT ANY CONTAMINATION FROM THE SITE. ALL INTERNAL FITTING SUPPLIED (IF ANY) MUST BE LEFT IN PLACE AS PER THE DELIVERY.
- THE CONTRACTOR SHALL ADHERE TO ALL JURISDICTIONAL AND/OR OSHA SAFETY RULES DURING FILTERRA INSTALLATION AND FOR PROVIDING TEMPORARY SHORING OF THE EXCAVATION.
- EACH UNIT SHALL BE CONSTRUCTED AT THE LOCATIONS AND ELEVATIONS ACCORDING TO THE SIZES SHOWN ON THE APPROVED DRAWINGS. ANY MODIFICATIONS TO THE ELEVATIONS OR LOCATION SHALL BE AT THE DIRECTION OF AND APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE, INSTALL, AND GROUT OUTLET PIPES. OUTLET PIPES SHALL BE PAID OR PER LINEAR FOOT OF SUB-DRAIN PIPE.
- PLANTINGS AND MULCH SHALL BE SUPPLIED BY CONTECH AND DELIVERED AT THE TIME OF SYSTEM ACTIVATION. UNITS SHALL BE PLANTED USING CAREX APPALACHICA (APPALACHIAN SEDGE). ANY CHANGE TO THE PLANT SELECTION SHALL BE APPROVED BY CONTECH.
- FILTERRA UNITS WILL BE MAINTAINED BY CONTECH FOR 1 YEAR AFTER ACTIVATION. AFTER THE 1-YEAR MAINTENANCE PERIOD IS OVER, FILTERRA UNITS SHALL BE MAINTAINED ACCORDING TO THE MAINTENANCE PROCEDURES OUTLINED ON THIS SHEET.
- CONTACT CONTECH FOR ADDITIONAL DOCUMENTATION INCLUDING THE FILTERRA OWNER'S MANUAL, INSTALLATION MANUAL, AND OPERATIONS & MAINTENANCE MANUAL.

FILTERRA UNIT SCHEDULE								
FILTERRA NO.	LOCATION	WIDTH	LENGTH	A	B	TOP EL*	UNDERDRAIN DIAMETER	DOWNSTREAM INLET
F/1-1**	STA. 11+48.5, 28.8' LT	4'	19'	5'-6"	11'-0"	497.89	4"	I/1-1
F/1-2	STA. 11+50.2, 28.8' RT	4'	16'	5'-6"	8'-0"	498.19	4"	I/1-2
F/1-3	STA. 14+29.7, 28.8' LT	4'	16'	5'-6"	8'-0"	495.51	4"	I/1-6
F/1-4	STA. 14+32.5, 28.8' RT	4'	12'	3'-6"	6'-0"	495.82	4"	I/1-7
F/2-1	STA. 17+21.5, 25.0' LT	6'	19'	6'-6"	10'-0"	503.71	6"	I/2-1
F/2-2	STA. 17+21.6, 26.6' RT	6'	19'	6'-6"	10'-0"	503.58	6"	I/2-2
F/3-1	STA. 21+18.0, 25.0' LT	4'	16'	5'-6"	8'-0"	509.64	4"	I/3-1A

\*TOP ELEVATION REFERS TO THE TOP OF CURB ELEVATION AT THE CENTER OF THE UNIT. THE UNIT SHALL BE SLOPED TO THE GRADE OF THE PROPOSED CURB.  
\*\*UNIT DIMENSIONS ARE NOT A STANDARD SIZE FOR PRECAST FILTERRA UNITS AND MAY REQUIRE A LONGER PRODUCTION LEAD TIME.



FILTERRA UNIT LOCATION REFERENCE  
N.T.S.

FILTERRA WITH SEDIMENTATION CHAMBER DETAILS  
N.T.S.

DESIGNED BY:	CEB	DATE:	JUNE 2021
DRAWN BY:	CEB	CHECKED BY:	BGB
NO.		REVISION DESCRIPTION	
BY			
DATE			
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2660 Fax: 240-313-2401			
PROFESSIONAL BOULEVARD STORMWATER MANAGEMENT FILTERRA DETAILS			
SCALE AS SHOWN			
SHEET NO. 31 OF 129			
DRAWING SW-10			
PROJECT NO. 10-270			

**TABLE 1 – COG INLET (MD-374.51) SCHEDULE**

INLET NO.	STATION (PROF. BLVD.)	OFFSET (FT)	L (FT)	T (FT)	INV. IN	INV. OUT	SLAB ELEV.	PIPE DIA. (IN)	REMARKS
I/1-1	STA. 11+65.00	28.75 LT.	11	10	-	492.59	497.75	18	ADD ALT. ONLY
I/1-2	STA. 11+65.00	28.75 RT.	11	10	-	492.90	498.07	18	ADD ALT. ONLY
I/1-3	STA. 12+21.57	28.75 LT.	11	10	492.06	491.96	497.20	18	ADD ALT. ONLY
I/1-4	STA. 13+17.04	28.75 LT.	11	10	490.96/490.93	490.86	496.39	18/30/30	ADD ALT. ONLY
I/1-5	STA. 13+11.64	28.75 RT.	11	10	491.00/489.56	489.54	496.75	18/36/36	ADD ALT. ONLY
I/2-1	STA. 17+00.00	25.00 LT.	11	10	-	497.49	502.63	18	ADD ALT. ONLY
I/2-2	STA. 17+00.00	27.55 RT.	11	10	493.45	493.35	502.54	14X23 (2)	ADD ALT. ONLY
I/2-3	STA. 15+38.00	28.75 LT.	11	10	-	492.00	496.89	19X30	ADD ALT. ONLY
I/3-1A	STA. 21+37.96	25.00 LT.	11	10	-	503.53	509.33	18	ADD ALT. ONLY

**TABLE 2 – COS INLET (MD-374.61) SCHEDULE**

INLET NO.	STATION (PROF. BLVD.)	OFFSET (FT)	L (FT)	T (FT)	INV. IN	INV. OUT	SLAB ELEV.	PIPE DIA. (IN)	REMARKS
I/1-6	STA. 14+48.65	28.75 LT.	16	15	-	491.48	495.48	14X23	ADD ALT. ONLY
I/1-7	STA. 14+50.00	28.75 RT.	16	15	490.65	490.55	495.80	19X30 (2)	ADD ALT. ONLY

**TABLE 3 – STD. SQUARE 48 SHALLOW MANHOLE (MD-383.00) SCHEDULE**

INLET NO.	STATION (PROF. BLVD.)	OFFSET (FT)	LID ELEV.	PIPE SIZE IN	INV. IN	PIPE SIZE OUT	INV. OUT	REMARKS
MH/2-5	STA. 14+83.75	32.23 RT.	495.61	15/19X30	492.38/492.11	19X30	492.01	ADD ALT. ONLY
MH/2-6	STA. 14+99.12	32.21 RT.	495.83	15/19X30	492.68/492.34	19X30	492.24	ADD ALT. ONLY

**TABLE 4 – STD. PRECAST 48 MANHOLE (MD-384.01) SCHEDULE**

INLET NO.	STATION (PROF. BLVD.)	OFFSET (FT)	LID ELEV.	PIPE SIZE IN	INV. IN	PIPE SIZE OUT	INV. OUT	REMARKS
MH/2-3	STA. 17+00.00	21.00 LT.	502.09	18/18	497.45/497.45	14X23	493.70	ADD ALT. ONLY
MH/2-4	STA. 18+39.52	20.00 LT.	508.00	15	503.72	18	503.62	ADD ALT. ONLY

**TABLE 5 – STD. PRECAST 60 MANHOLE (MD-384.03) SCHEDULE**

INLET NO.	STATION (PROF. BLVD.)	OFFSET (FT)	LID ELEV.	PIPE SIZE IN	INV. IN	PIPE SIZE OUT	INV. OUT	REMARKS
MH/1-1	14+46.26	22.37 RT.	495.34	19X30/19X30	490.50/490.98	24X38	490.40	ADD ALT. ONLY
MH/1-2	14+46.93	20.16 LT.	494.76	14X23/19X30	491.28/491.28	19X30	491.18	ADD ALT. ONLY
MH/2-1	15+85.32	22.30 LT.	497.63	15/19X30	494.14/493.74	19X30	493.64	ADD ALT. ONLY
MH/2-2	15+84.64	22.71 RT.	497.28	14X23/19X30	492.80/493.44	19X30	492.70	ADD ALT. ONLY

**TABLE 6 – TROUGH INLET (MD-374.68) SCHEDULE**

INLET NO.	STATION (PROF. BLVD.)	OFFSET (FT)	L (FT)	T (FT)	SLAB ELEV.	REMARKS
T/4-1	STA. 29+28.86	26.11 RT.	6	5	497.38	
T/4-2	STA. 29+50.00	26.88 RT.	6	5	497.56	
T/4-3	STA. 30+00.00	28.84 RT.	6	5	498.36	
T/4-4	STA. 31+00.00	31.00 RT.	6	5	501.71	
T/5-1	STA. 32+00.00	31.00 RT.	6	5	504.13	
T/5-2	STA. 33+00.00	31.00 RT.	6	5	503.10	
T/5-3	STA. 34+00.00	31.00 RT.	6	5	499.33	
T/5-4	STA. 35+50.00	31.00 RT.	6	5	495.54	
T/5-5	STA. 36+00.00	31.00 RT.	6	5	495.29	
T/6-1	STA. 36+50.00	31.00 RT.	6	5	495.54	
T/6-2	STA. 37+00.00	31.00 RT.	6	5	496.30	
T/6-3	STA. 38+00.00	31.00 RT.	6	5	499.33	
T/6-4	STA. 39+00.00	31.00 RT.	6	5	503.33	
T/6-5	STA. 40+00.00	31.00 RT.	6	5	507.02	
T/7-2	STA. 41+50.00	31.00 RT.	6	5	507.28	
T/8-1	STA. 47+25.00	31.00 RT.	6	5	520.65	
T/8-2	STA. 47+50.00	31.00 RT.	6	5	520.78	
T/8-3	STA. 47+75.00	31.00 RT.	6	5	520.90	
T/8-4	STA. 48+00.00	31.00 RT.	6	5	521.02	
T/8-5	STA. 49+00.00	31.00 RT.	6	5	521.52	
T/8-6	STA. 50+00.00	31.00 RT.	6	5	522.11	
T/9-1	STA. 50+36.00	31.00 RT.	6	5	522.70	
T/9-2	STA. 51+64.00	31.00 RT.	6	5	526.40	
T/9-3	STA. 52+00.00	31.00 RT.	6	5	527.51	

**TABLE 7 – CONCRETE COLLAR SCHEDULE**

INLET NO.	STATION (PROF. BLVD.)	OFFSET (FT)	UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE IN	PIPE SIZE OUT
CC-1	STA. 18+39.50	24.59 LT.	EX/2-3	MH/2-4	15	15

**TABLE 8 – RIPRAP FOR SLOPE AND CHANNEL PROTECTION SCHEDULE**

STRUCTURE	LOCATION (PROF. BLVD.)	LENGTH (FT)	WIDTH (FT)	RIPRAP CLASS*	QUANTITY (SY)	BOTTOM CUTOFF WALL (FT)**
EX/1-4	STA. 13+10.18, RT	28	16.5	CLASS I	51.0	17
T/4-1	STA. 29+28.86, RT	1.9	6	CLASS I	1.5	6
T/4-2	STA. 29+50.00, RT	1.9	6	CLASS I	1.5	6
T/4-3	STA. 30+00.00, RT	1.9	6	CLASS I	1.5	6
T/4-4	STA. 31+00.00, RT	1.9	6	CLASS I	1.5	6
T/5-1	STA. 32+00.00, RT	1.9	6	CLASS I	1.5	6
T/5-2	STA. 33+00.00, RT	1.9	6	CLASS I	1.5	6
T/5-3	STA. 34+00.00, RT	1.9	6	CLASS I	1.5	6
T/5-4	STA. 35+50.00, RT	1.9	6	CLASS I	1.5	6
T/5-5	STA. 36+00.00, RT	1.9	6	CLASS I	1.5	6
T/6-1	STA. 36+50.00, RT	1.9	6	CLASS I	1.5	6
T/6-2	STA. 37+00.00, RT	1.9	6	CLASS I	1.5	6
T/6-3	STA. 38+00.00, RT	1.9	6	CLASS I	1.5	6
T/6-4	STA. 39+00.00, RT	1.9	6	CLASS I	1.5	6
T/6-5	STA. 40+00.00, RT	1.9	6	CLASS I	1.5	6
T/7-2	STA. 41+50.00, RT	1.9	6	CLASS I	1.5	6
T/8-1	STA. 47+25.00, RT	1.9	6	CLASS I	1.5	6
T/8-2	STA. 47+50.00, RT	1.9	6	CLASS I	1.5	6
T/8-3	STA. 47+75.00, RT	1.9	6	CLASS I	1.5	6
T/8-4	STA. 48+00.00, RT	1.9	6	CLASS I	1.5	6
T/8-5	STA. 49+00.00, RT	1.9	6	CLASS I	1.5	6
T/8-6	STA. 50+00.00, RT	1.9	6	CLASS I	1.5	6
T/9-1	STA. 50+36.00, RT	1.9	6	CLASS I	1.5	6
T/9-2	STA. 51+64.00, RT	1.9	6	CLASS I	1.5	6
T/9-3	STA. 52+00.00, RT	1.9	6	CLASS I	1.5	6

\* CLASS I RIPRAP SHALL BE PLACED AT 19" THICKNESS AND UNDERLAIN WITH NONWOVEN GEOTEXTILE CLASS 'SE'. GEOTEXTILE SHALL BE EMBEDDED 4" AND SHALL EXTEND 6" BEYOND THE EDGE OF THE RIPRAP.  
 \*\* A BOTTOM CUTOFF WALL SHALL BE INSTALLED ALONG THE DOWNSTREAM EDGE OF EACH RIPRAP PAD AT A DEPTH OF 3' AND WIDTH OF 1' FROM THE BOTTOM EDGE OF THE RIPRAP.

**PROPOSED PIPE CONNECTION TO EXISTING MANHOLE SCHEDULE**

STRUCTURE NUMBER	BASELINE	STATION	OFFSET	PROPOSED PIPE DIAMETER
EX/1-2	PROF. BLVD.	13+16.72	4.81' LT.	30" RCP
EX/1-3	PROF. BLVD.	13+12.05	22.32' RT.	24"x38" H.E.R.C.P.

**NOTES:**  
 1. REFER TO STORM DRAIN PROFILE DRAWING NUMBERS SD-04 TO SD-07 FOR INVERT ELEVATIONS.  
 2. PROPOSED PIPE CONNECTIONS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH AND SHALL INCLUDE DEMOLITION, RECONSTRUCTION, MORTAR, EXCAVATION, AND ALL OTHER MATERIALS, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

**PROPOSED PIPE CONNECTION TO EXISTING MANHOLE DETAILS AND SCHEDULE**

NOT TO SCALE

**DRAINAGE STRUCTURE LOCATION REFERENCES**

NOT TO SCALE

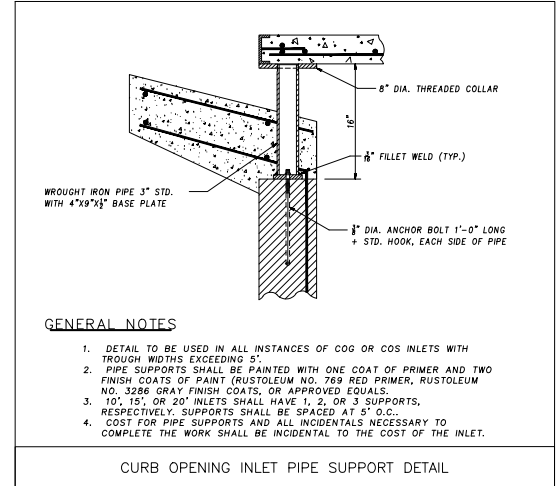
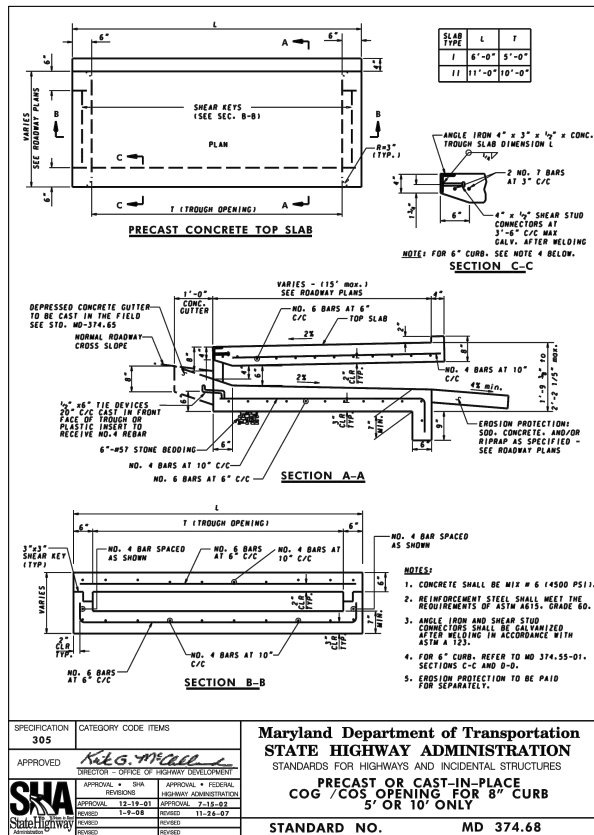
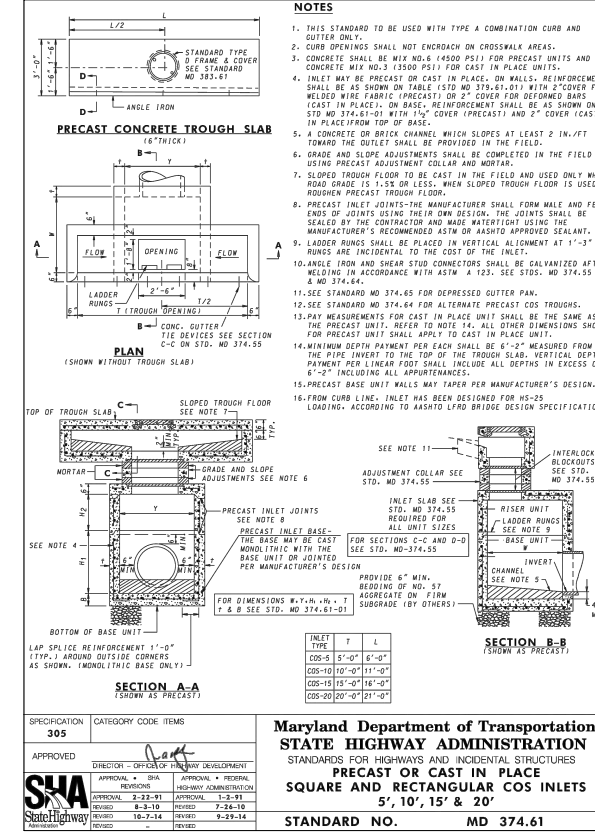
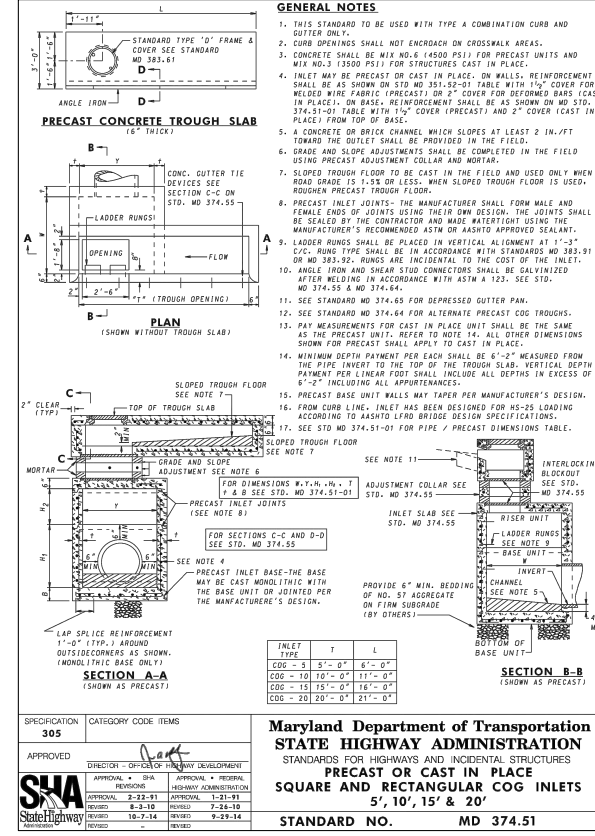
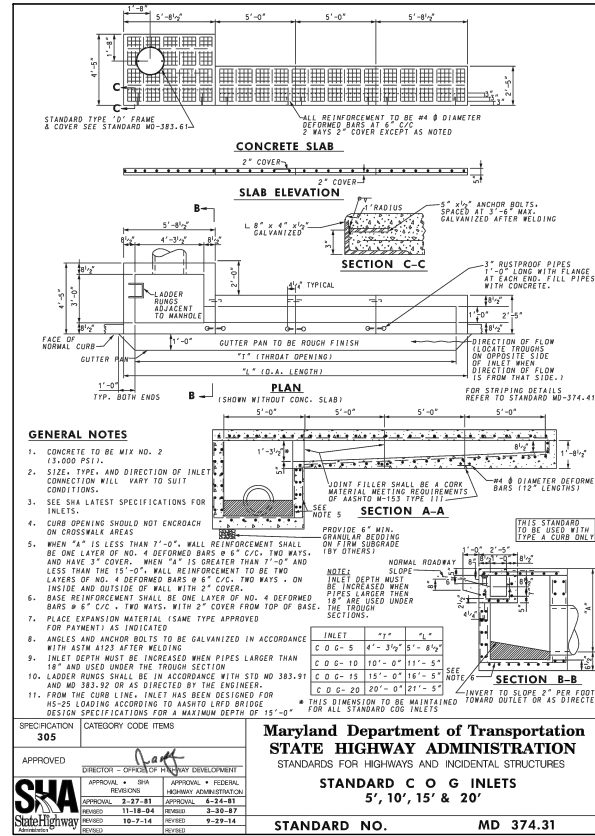
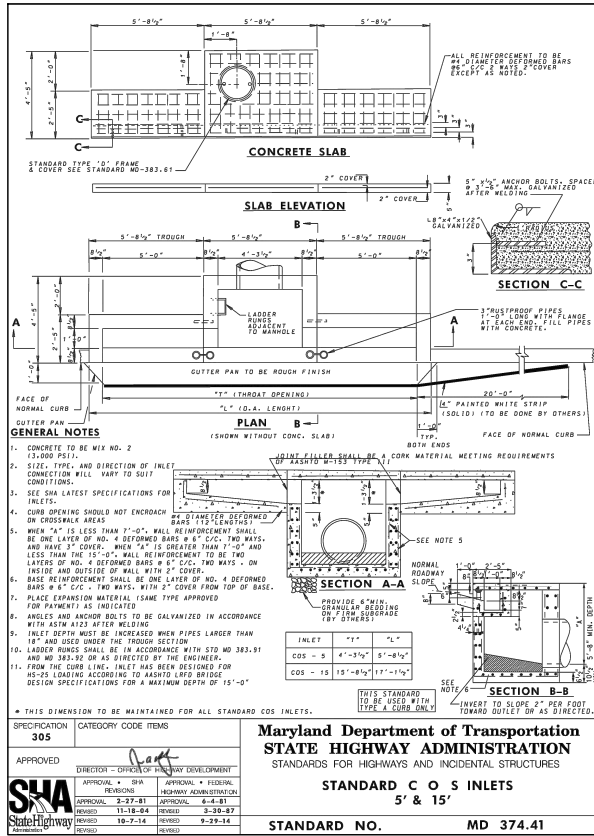
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 T.S. – TOP OF STRUCTURE  
 T.G. – TOP OF GRATE

**CONCRETE COLLAR STORM DRAIN CONNECTION DETAIL**

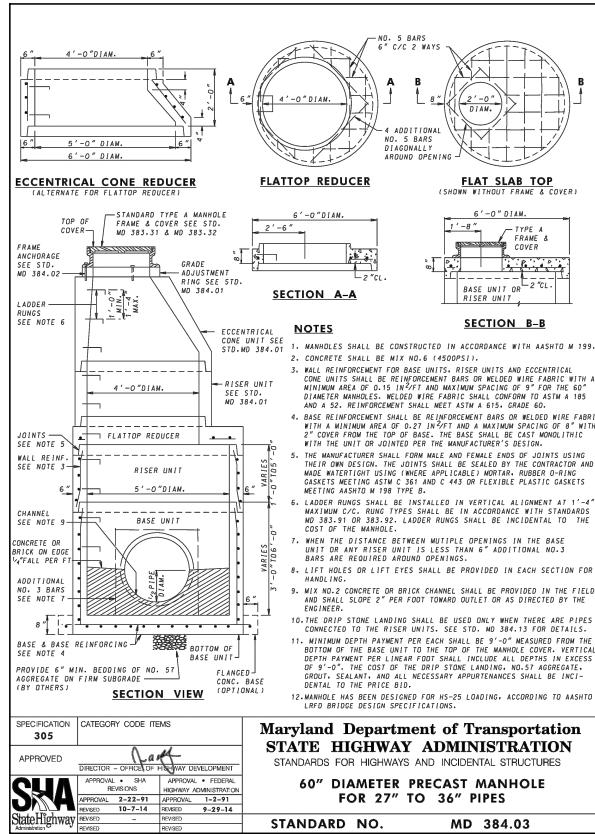
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**NOTE:**  
 CONCRETE FOR STORM DRAIN CONCRETE COLLAR SHALL BE MIX NO. 2 CONCRETE AND SHALL BE PAID UNDER MIX NO. 2 CONCRETE FOR MISCELLANEOUS STRUCTURES ITEM.

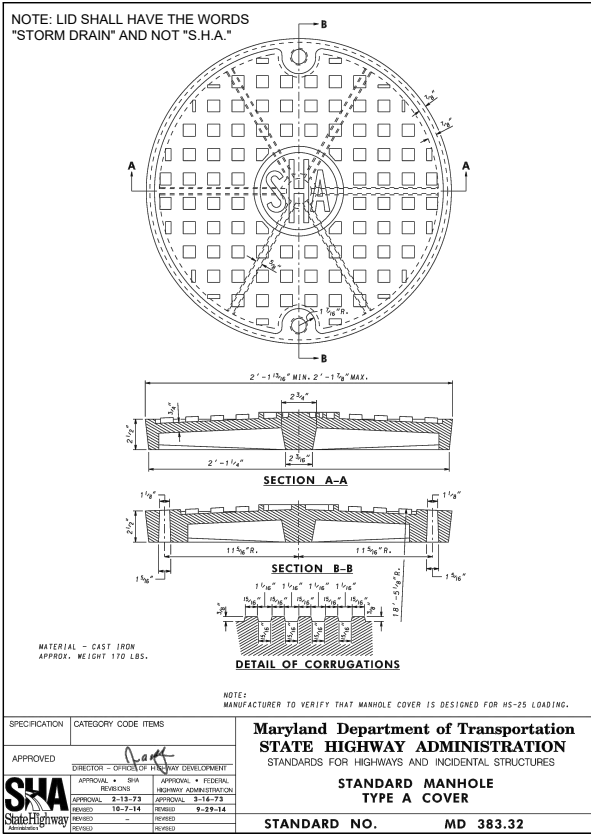
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CHECKED BY:	BGB								
DATE:	JUNE 2021								
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2660 Fax: 240-313-2401									
PROFESSIONAL BOULEVARD STORM DRAIN STRUCTURE DETAILS & SCHEDULE									
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SHEET NO.									
32 OF 129									
DRAWING									
SD-01									
PROJECT NO.									
10-270									



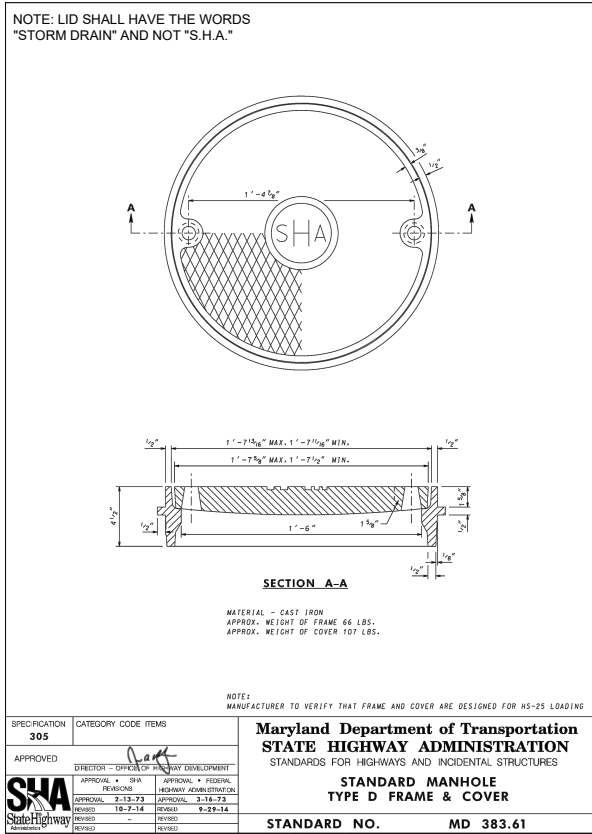
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NO.					
DESIGNED BY:	JJK				
DRAWN BY:	JJK				
CHECKED BY:	BGB				
DATE:	JUNE 2021				
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING PROFESSIONAL BOULEVARD STORM DRAIN STRUCTURE DETAILS SCALE: NOT TO SCALE SHEET NO. 33 OF 129 PROJECT NO. 10-270 DRAWING SD-02					



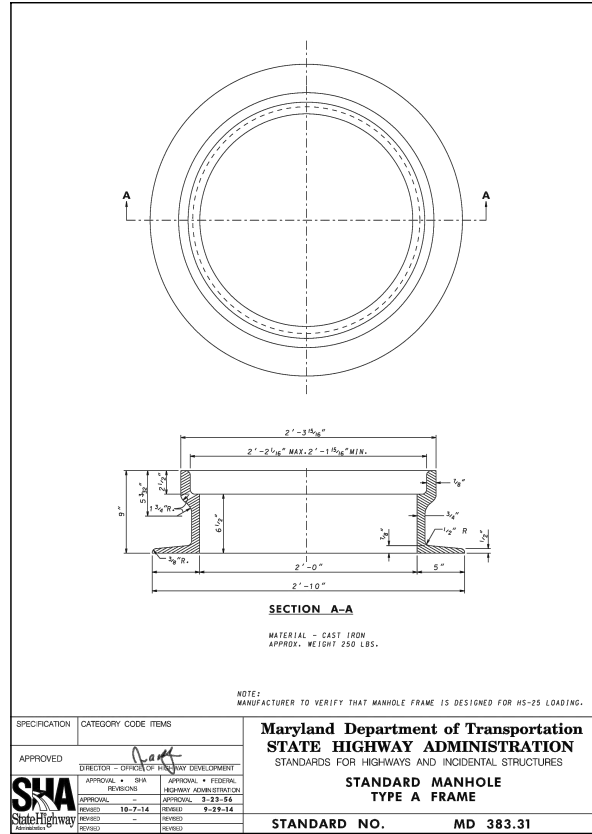
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305		MD 384.03	



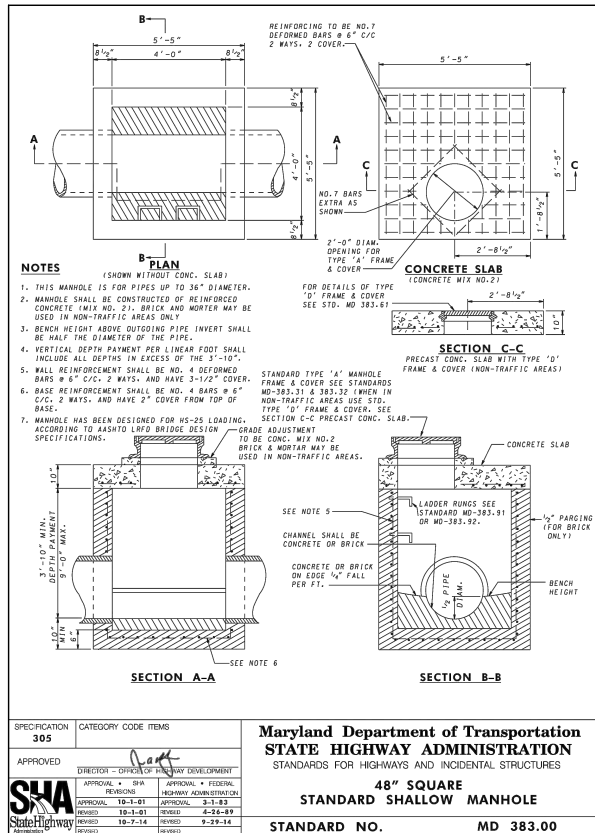
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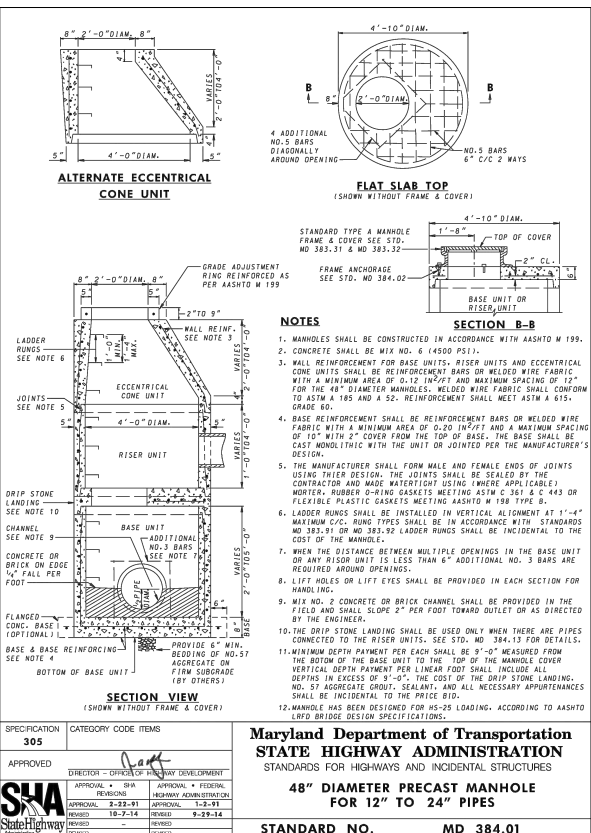
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SPECIFICATION	CATEGORY CODE ITEMS	STANDARD NO.	MD
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SPECIFICATION	CATEGORY CODE ITEMS	STANDARD NO.	MD
305		MD 383.00	



SPECIFICATION	CATEGORY CODE ITEMS	STANDARD NO.	MD
305		MD 384.01	

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: JJK  
 DRAWN BY: JJK  
 CHECKED BY: BGB  
 DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

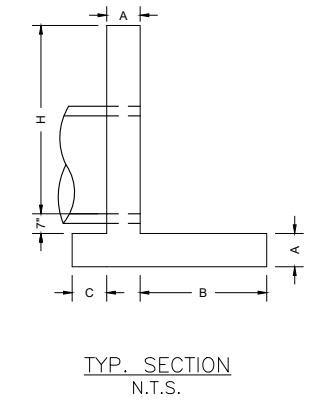
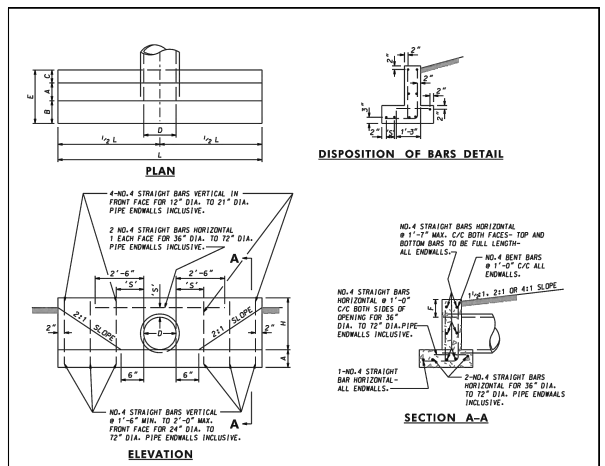


Washington County Administrative Annex - Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

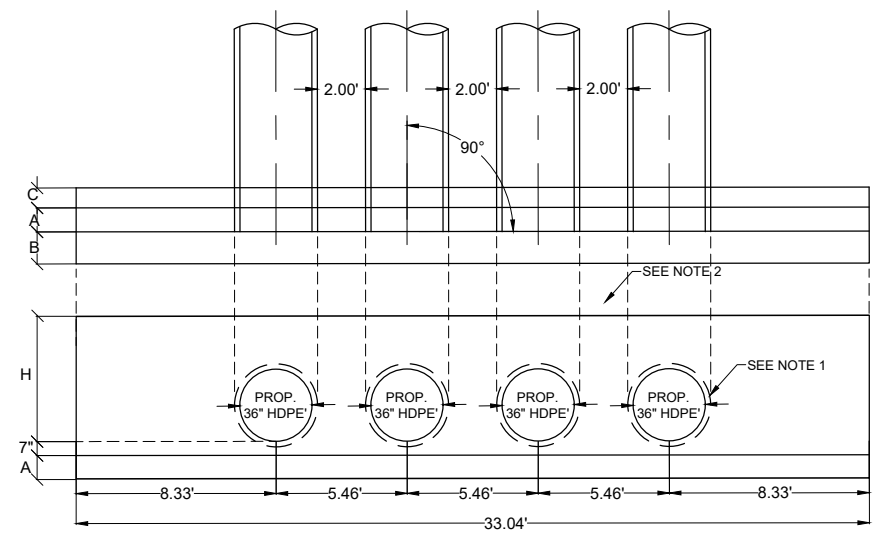
PROFESSIONAL BOULEVARD  
 STORM DRAIN STRUCTURE  
 DETAILS

TABLE 9 - STD. TYPE C ENDWALL (MD-354.01) SCHEDULE

STATION NO.	STATION (PROF. BLVD.)	OFFSET (FT)	INV. ELEV.	PIPE SIZE	A	B	C	E	F	H	L
EW/9-1	STA. 50+70	73.74 RT.	519.20	36"	12"	16"	10"	3'-2"	12"	5'-0"	33'-1 1/2"
HW/9-1	STA. 51+30	73.96 RT.	520.60	36"	12"	16"	10"	3'-2"	12"	5'-0"	33'-1 1/2"

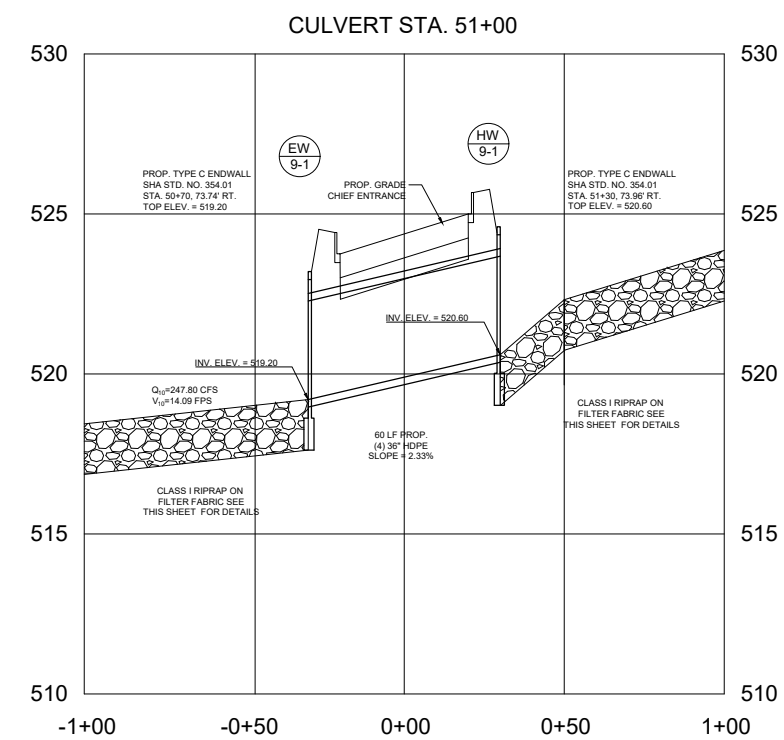


SEE STD. MD 354.01 FOR A, B, C, AND H DIMENSIONS



- NOTES:  
 1. THE PIPE WALLS SHALL HAVE A 1.5:1 BEVELED EDGE AT THE UPSTREAM END.  
 2. PROVIDE FLOWABLE FILL BETWEEN THE PIPES IN LIEU OF COMPACTED EARTH.

PROP. HW 9-1 & EW 9-1  
 SCALE: 1/4" = 1'

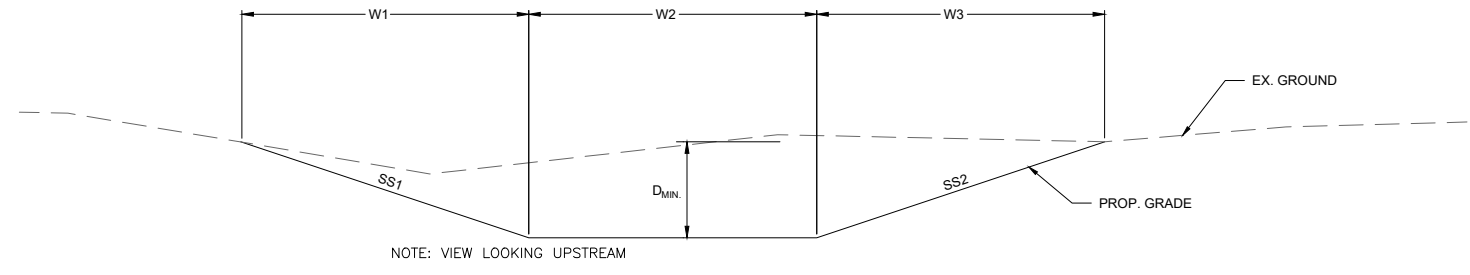


D	AREA SQ. FT.	DIMENSIONS											CONC. C.Y.	STEEL LBS.	
		A	B	C	E	F	H	L	L	L	L	L			
12	0.79	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	0.81	41
15	1.23	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	0.77	47
18	1.77	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	0.85	54
21	2.40	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	1.14	70
24	3.14	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	1.56	80
27	3.98	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	1.82	88
30	4.91	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	2.33	98
33	5.94	8"	6"	8"	12"	8"	10"	6"	4"	6"	8"	4"	12"	2.48	105
36	7.07	12"	16"	10"	12"	12"	12"	12"	12"	12"	12"	12"	12"	4.16	182
42	9.82	12"	16"	10"	12"	12"	12"	12"	12"	12"	12"	12"	12"	5.07	206
48	12.57	12"	16"	10"	12"	12"	12"	12"	12"	12"	12"	12"	12"	6.09	244
54	15.80	12"	20"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	7.82	275
60	19.64	12"	20"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	8.81	304
72	28.27	12"	20"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	11.46	377

'S' DISTANCES  
 4" FOR 12" DIA. TO 21" DIA. PIPES INCLUSIVE.  
 6" FOR 24" DIA. TO 36" DIA. PIPES INCLUSIVE.  
 8" FOR 42" DIA. TO 12" DIA. PIPES INCLUSIVE.

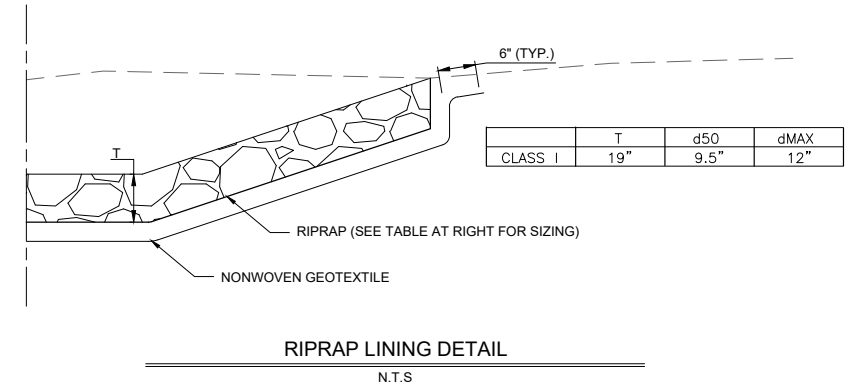
GENERAL NOTES  
 SPECIFICATIONS: LATEST S.W.A.  
 CONCRETE SHALL BE MIX NO. 2  
 REINFORCING: DEFORMED STEEL BARS NO. 4  
 CHAMFER: ALL EXPOSED EDGES 1"x1" OR AS DIRECTED

Maryland Department of Transportation  
 STATE HIGHWAY ADMINISTRATION  
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**STANDARD TYPE C ENDWALL**  
**METAL OR CONCRETE ROUND PIPE**  
 STANDARD NO. MD 354.01



NOTE: VIEW LOOKING UPSTREAM

DITCH DETAIL  
 SCALE: 1" = 1'-0"



RIPRAP LINING DETAIL  
 N.T.S.

STATION AND OFFSET (PROFESSIONAL BLVD.)	LENGTH (FT)	SS1 (H:V)	SS2 (H:V)	W1 (FT)	W2 (FT)	W3 (FT)	Q10 MAX. (CFS)	V10 MAX. (FPS)	D10 MAX. (FT)	D MIN. (FT)	SSM TYPE B QTY. (SY)	CLASS I RIPRAP QTY. (SY)	REMOVE AND ADJUST EXISTING RIPRAP QTY. (SY)	REMARKS
STA. 52+00 TO STA. 51+50 RT.	50	3	2	9	8-13	VARIES	155.70	7.72	1.66	3	-	48	35	TRANSITION BOTTOM WIDTH
STA. 51+50 TO STA. 51+30 RT.	20	3	2	VARIES	13-17	VARIES	155.99	10.21	0.99	3	-	44	36	TRANSITION BOTTOM WIDTH
STA. 50+70 TO STA. 50+00 RT.	70	3	2	VARIES	17-8	VARIES	157.01	5.32	1.61	3	-	58	128	TRANSITION BOTTOM WIDTH

NOTE:  
 REMOVE AND ADJUST EXISTING RIPRAP WILL BE PAID FOR PER SQUARE YARD OF ADJUSTED RIPRAP. THIS WORK INCLUDES REMOVING CLASS I RIPRAP FROM THE EXISTING DITCH AND MOVING EXISTING GEOTEXTILE OUT OF THE PROPOSED GRADING AREA AS NEEDED TO PERFORM GRADING WORK. EXISTING RIPRAP SHALL BE STORED IN A STABLE LOCATION, ONCE THE FINAL GRADE IS ESTABLISHED. THE GEOTEXTILE SHALL BE REINSTALLED OR REPLACED AS NEEDED AND THE RIPRAP INSTALLED PER THE PLAN AND DETAILS ON THIS SHEET. THE PAYMENT WILL BE FULL COMPENSATION FOR ALL MATERIAL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_  
 REVISION DESCRIPTION: \_\_\_\_\_  
 NO: \_\_\_\_\_  
 DESIGNED BY: CEB  
 DRAWN BY: CEB  
 CHECKED BY: BGB  
 DATE: JUNE, 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING  
 Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

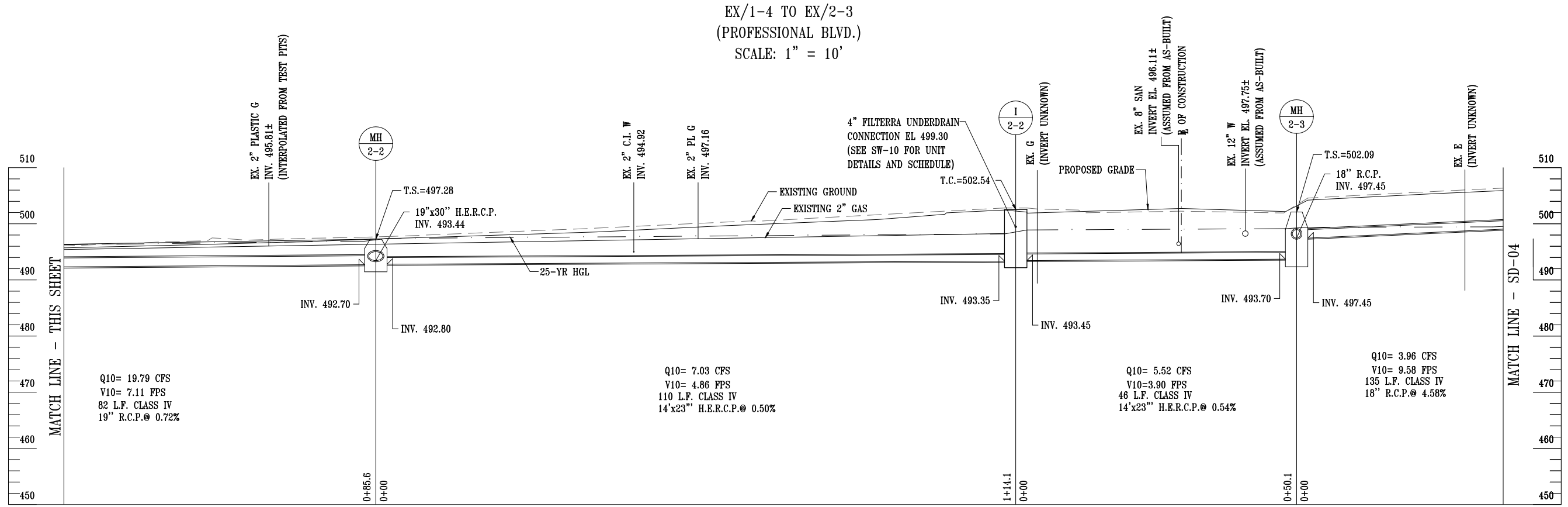
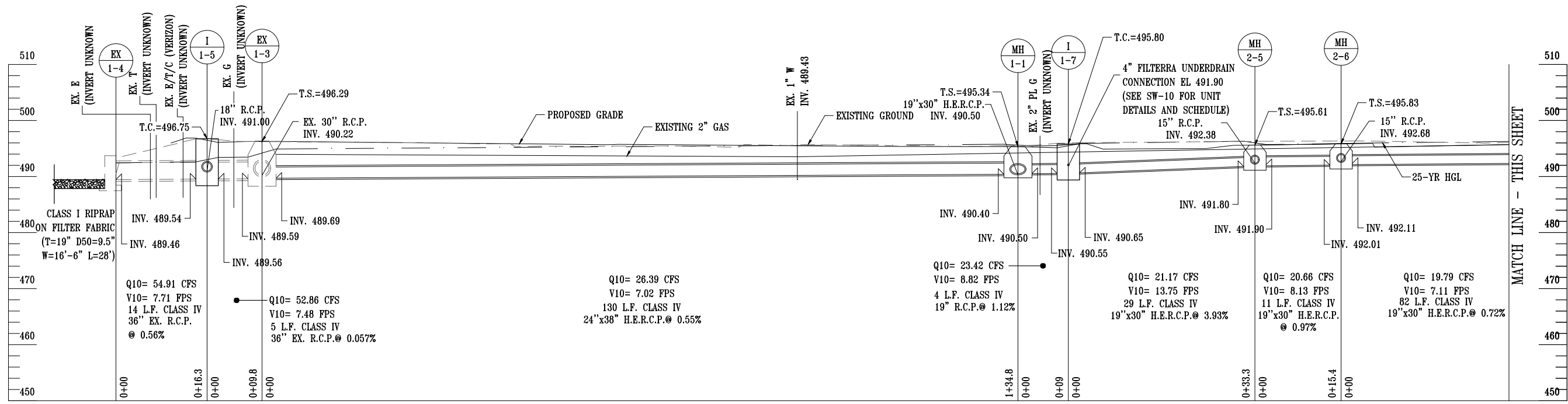
PROFESSIONAL BOULEVARD  
 CULVERT DETAILS & PROFILE

SCALE  
 AS SHOWN

SHEET NO.  
 34A OF 129

DRAWING  
 SD-03A

PROJECT NO.  
 10-270



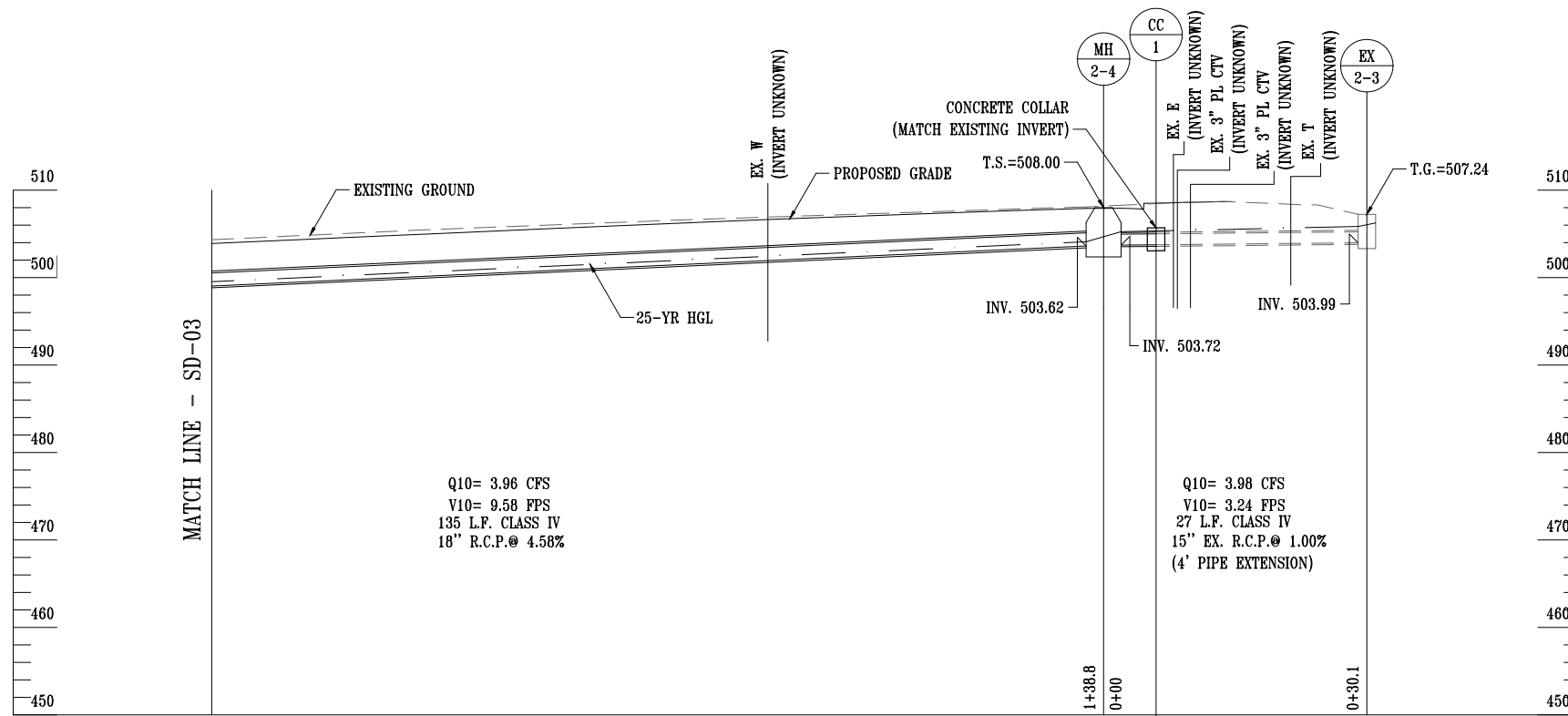
NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: JCK  
 DRAWN BY: JCK  
 CHECKED BY: BGB  
 DATE: JUNE 2021

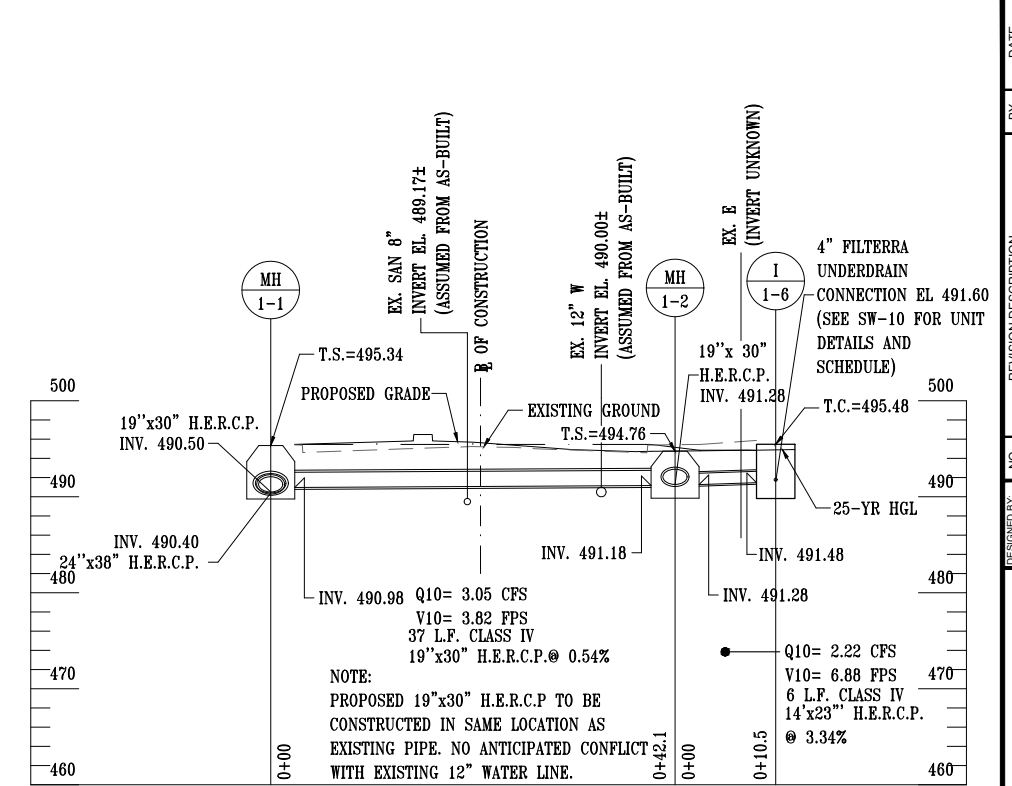
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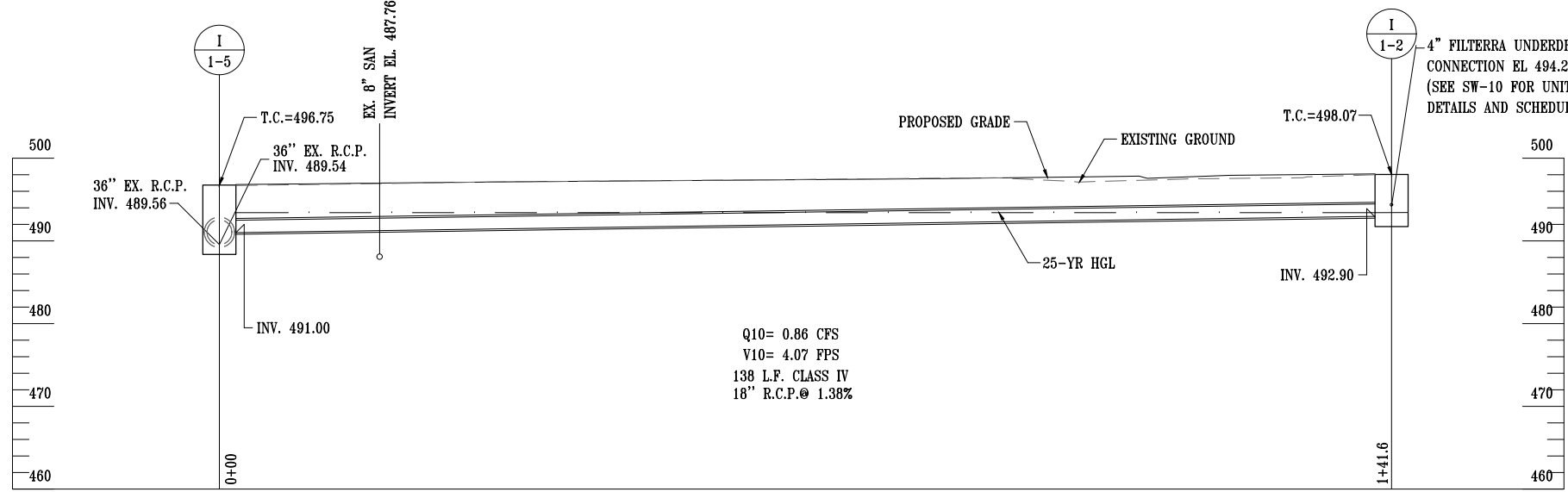
PROFESSIONAL BOULEVARD  
 STORM DRAIN PROFILES



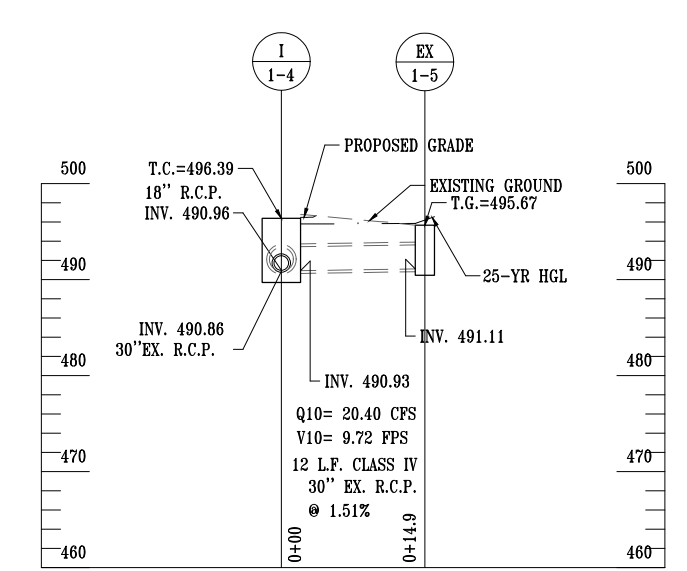
EX/1-4 TO EX/2-3  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



MH/1-1 TO I/1-6  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



I/1-5 TO I/1-2  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



STA. 13+10.3 RT. I/1-4 TO EX/1-5  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'

REVISION DESCRIPTION		DATE
NO.	BY	

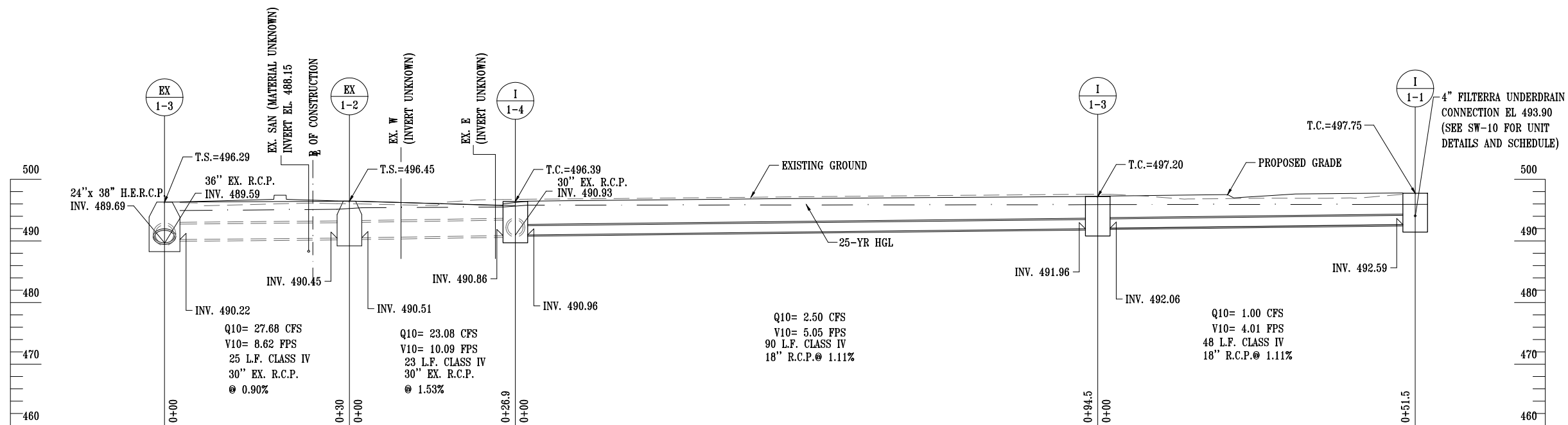
DESIGNED BY:	JCK
DRAWN BY:	JCK
CHECKED BY:	BGB
DATE:	JUNE 2021

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

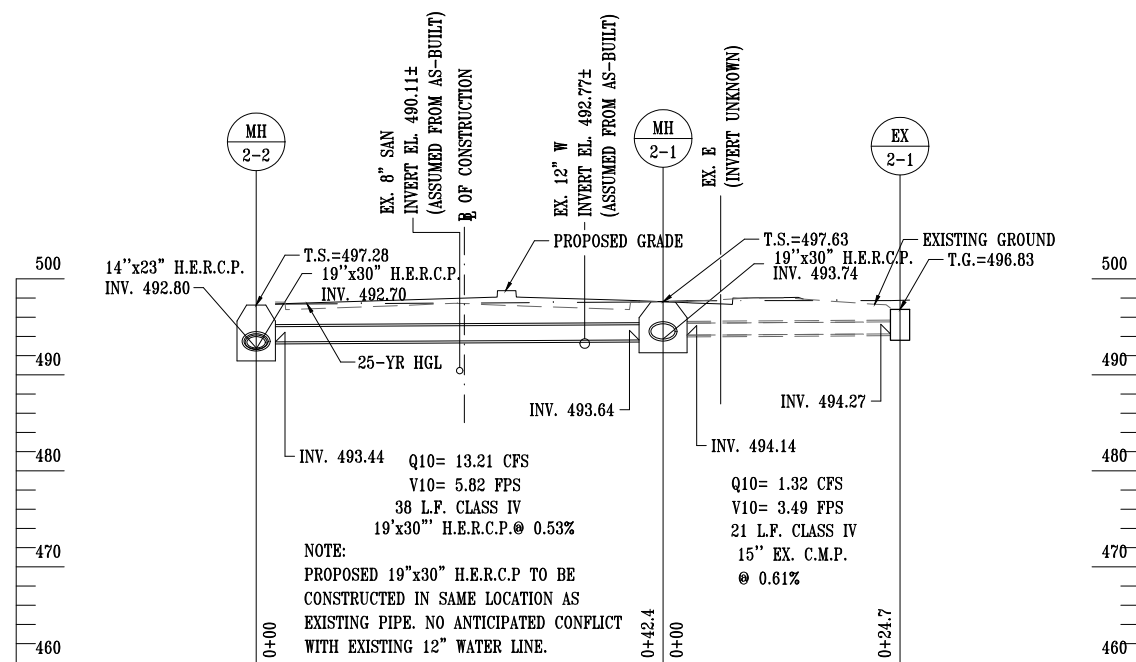
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Phone: 240-313-2660 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
STORM DRAIN PROFILES

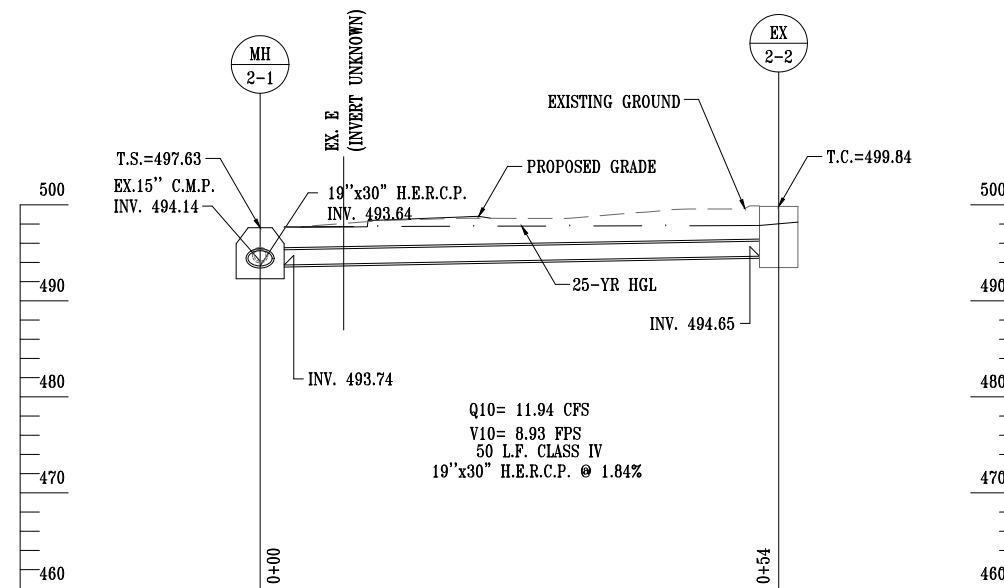




EX/1-3 TO I/1-1  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



MH/2-2 TO EX/2-1  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



MH/2-1 TO EX/2-2  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'

NOTE: UTILITY INVERTS BASED ON LIMITED SURVEY AND TEST PIT DATA. ALL ELEVATIONS ASSUMED.

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: JCK  
 DRAWN BY: JCK  
 CHECKED BY: BGB  
 DATE: JUNE, 2021

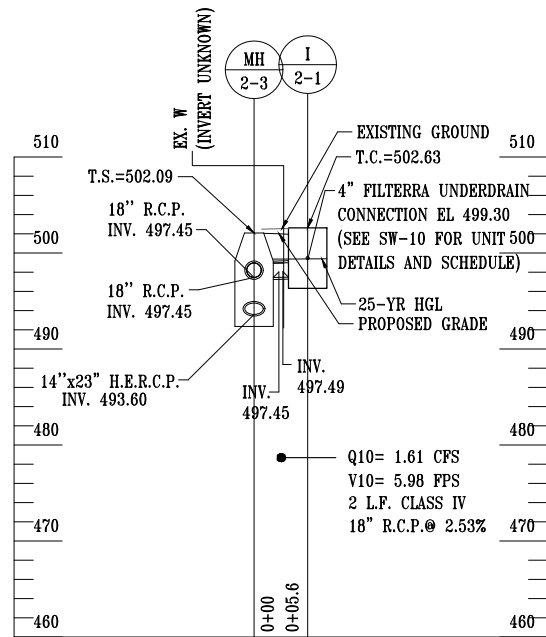
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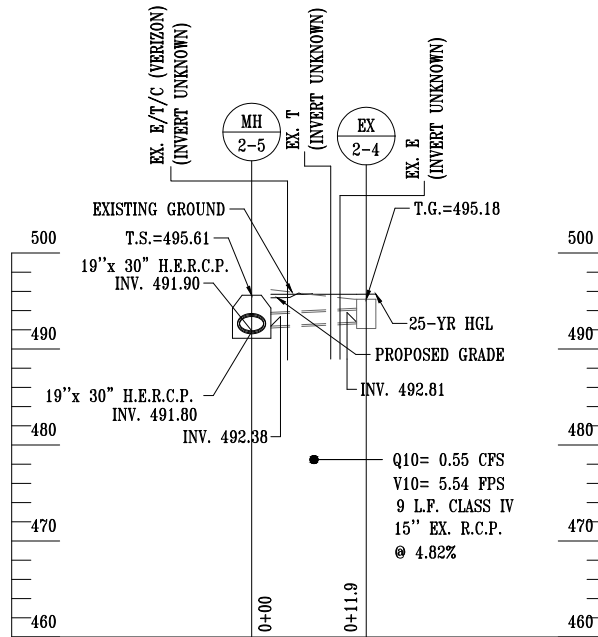
PROFESSIONAL BOULEVARD  
 STORM DRAIN PROFILES

SCALE	1"=10'
SHEET NO.	37 OF 129
PROJECT NO.	10-270

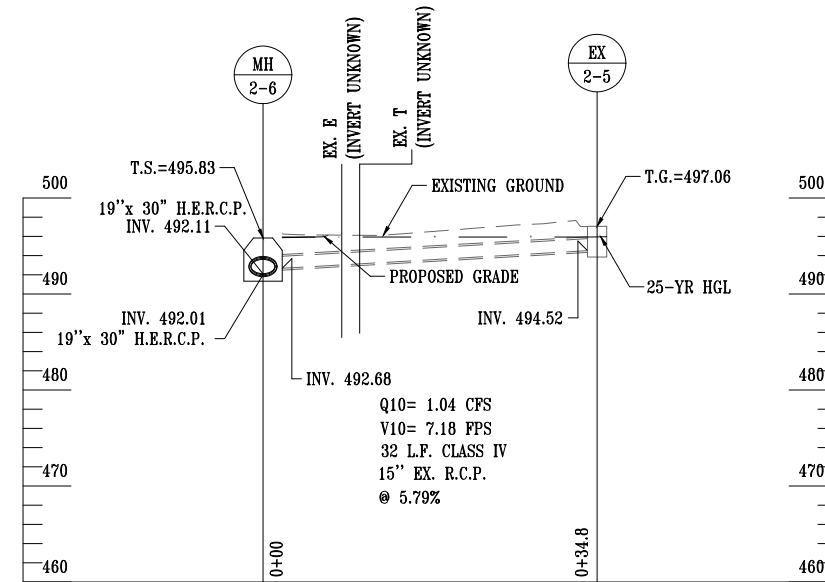
DRAWING  
SD-06



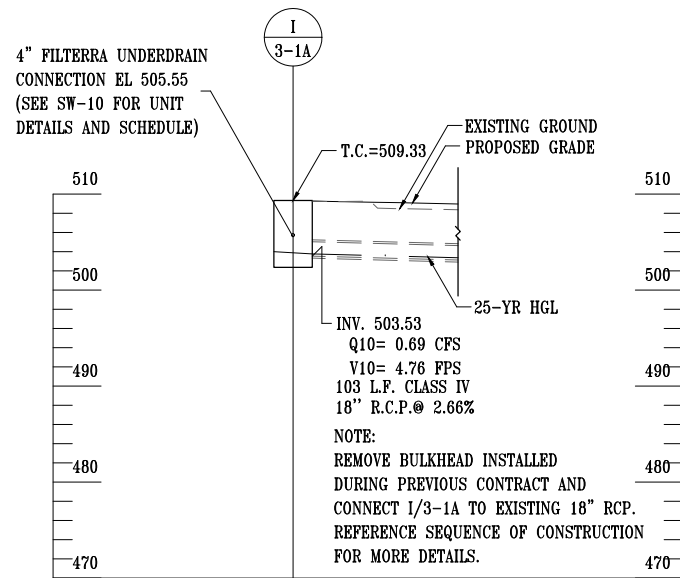
MH/2-3 TO I/2-1  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



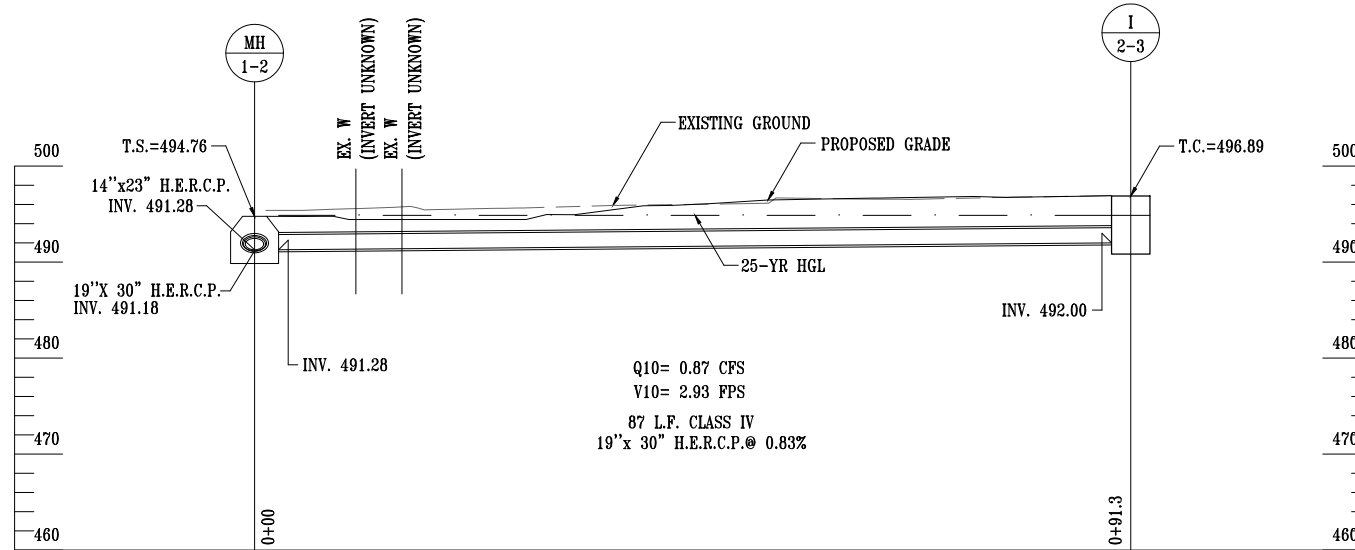
MH/2-5 TO EX/2-4  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



MH/2-6 TO EX/2-5  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



I/3-1A TO EX. I/3-1  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'



MH/1-2 TO I/2-3  
(PROFESSIONAL BLVD.)  
SCALE: 1" = 10'

NOTE: UTILITY INVERTS BASED ON LIMITED SURVEY AND TEST PIT DATA. ALL ELEVATIONS ASSUMED.

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: JCK  
DRAWN BY: JCK  
CHECKED BY: BGB  
DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
STORM DRAIN PROFILES

SCALE 1"=10'
SHEET NO. 38 OF 129
DRAWING SD-07
PROJECT NO. 10-270

**SOIL EROSION, SEDIMENT CONTROL, & SEEDING NOTES**

- All soil erosion control measures shall comply with the "2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control" and the provisions of the approved plan.
- All grading and stabilization shall comply with the "2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control", "Section B- Grading and Stabilization" and the provisions of the approved plan.
- All soil erosion and sediment control practices (ESD and BMP) are to be constructed and/or installed prior to or at the initiation of grading in accordance with the "2011 Maryland Standards and Specification for Soil Erosion and Sediment Control" and the approved plan.
- A grading unit in the maximum contiguous area allowed to be graded at a given time and is limited to 20 acres. Work may proceed to a subsequent grading unit when at least 50% of the disturbed area in the preceding grading unit has been stabilized and approved by the enforcement authority and/or the Washington County Soil Conservation District (approval authority). Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.
- For initial soil disturbance or re-disturbance, temporary or permanent stabilization must be completed within:
  - Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and
  - Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.
- Stockpiles must be stabilized in accordance within the 7 day stabilization requirement, as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization (as applicable)
- All constructed channels and swales shall have specified treatment installed to the design flow depth. Complete downstream to upstream as construction progresses. An installation detail shall be shown on the plans.
- All storm drains and sanitary sewer lines not in paved areas are to be mulched and seeded within 3 days of initial backfill unless otherwise specified on the plans.
- Electric power, telephone, and gas lines are to be compacted, seeded, and mulched within 3 days after initial backfill unless otherwise specified on the plans.
- No slope shall be greater than 2:1.
- As required by Section B of the "2011 Maryland Standards and Specification for Soil Erosion and Sediment Control", "Adequate Vegetative Stabilization" is defined as 95% ground cover. The Washington County Soil Conservation District requires the project adhere to this for scheduling of the Final Site Closeout Review and/or release of the site for soil erosion and sediment control.

For sites 1.0 acre or more, the following are required:

- Maryland Department of the Environment, General Permit for Stormwater Associated with a Construction Activity, NPDES Permit Number MDRC, State Discharge Permit Number 14GP, or an Individual Permit.
- The Maryland Department of the Environment (General/Individual Permit- Notice Of Intent- NOI) application and permit shall be posted and/or available on-site at all times.
- During construction, all soil erosion and sediment control practices (ESD and BMP) shall be inspected and recorded on the "Standard Inspection Form", "General Permit for Stormwater Associated with a Construction Activity" per the Maryland Department of the Environment (General/Individual Permit - Notice of Intent- NOI)
- Following construction and release of the site for soil erosion and sediment control by the Washington County Soil Conservation District, i.e., all portions of a site have been permanently stabilized, and all stormwater discharges from construction sites that are authorized by the permit are eliminated, the authorized permittee shall submit the Maryland Department of the Environment, General/Individual Permit- Notice of Termination- NOT.

**GENERAL SEQUENCE OF CONSTRUCTION**

**GENERAL NOTES**

- CONTRACTOR TO CONTACT WSCD (301) 797-6821 EXT. 3, THE WASHINGTON CO. DIVISION OF ENGINEERING (240) 313-2460, AND THE WASHINGTON CO. DEPARTMENT OF PLANNING & ZONING (240) 313-2430 AT LEAST FIVE DAYS PRIOR TO THE START OF ANY EARTHWORK TO SCHEDULE A PRE-CONSTRUCTION MEETING.
- THE CONTRACTOR SHALL PERFORM WORK IN THE SEQUENCE OF CONSTRUCTION DETAILED BELOW. THE SEQUENCE FOR THIS CONTRACT (10-270) ASSUMES THAT ALL WORK PROPOSED AS A PART OF CONTRACT (10-244) HAS ALREADY BEEN COMPLETED. THE PROPOSED CONDITION FOR CONTRACT (10-244) REPRESENTS THE EXISTING CONDITION FOR CONTRACT (10-270). ALL WORK SHOWN IN THESE PLANS IS TO BE COMPLETED UNDER THIS CONTRACT (10-270).
- AN ADD ALTERNATE OPTION IS INCLUDED UNDER THIS CONTRACT AND IS DETAILED AS PART B IN THE SEQUENCE OF CONSTRUCTION. IF THE ADD ALTERNATE IS NOT CONSTRUCTED, COMPLETE THE WORK DESCRIBED ONLY IN PART A. IF THE ADD ALTERNATE IS CONSTRUCTED, THE WORK CAN BE COMPLETED CONCURRENTLY WITH PART A.
- WEST OF ANTIETAM CREEK (STA. 21+20 TO STA. 25+36), FINAL GRADING AND PARTIAL PAVING OF THE ROADWAY WAS COMPLETED UNDER THIS CONTRACT. FINAL PAVING OPERATIONS FOR THIS PORTION OF THE ROADWAY ARE TO BE COMPLETED UNDER THIS CONTRACT. SEE THE ROADWAY PLANS AND TYPICAL SECTIONS FOR ADDITIONAL DETAIL.
- EAST OF ANTIETAM CREEK (STA. 28+82 TO STA. 52+63), ROUGH GRADING FOR THE ROADWAY WAS COMPLETED DURING THE PREVIOUSLY COMPLETED CONTRACT, AND IS SHOWN AS EXISTING GRADE IN THE TYPICAL SECTION BELOW. FINAL GRADING AND FULL PAVING OPERATIONS ARE TO BE COMPLETED UNDER THIS CONTRACT. SEE THE ROADWAY PLANS AND TYPICAL SECTIONS FOR ADDITIONAL DETAIL.
- ALL E&S CONTROLS INSTALLED DURING THE PREVIOUSLY COMPLETED CONTRACT HAVE BEEN REMOVED. UNLESS OTHERWISE DIRECTED BY THE COUNTY, CONTROLS SHOWN IN THESE PLANS ARE TO BE INSTALLED UNDER THIS CONTRACT (10-270).

**PART A (5.9 ACRES OF DISTURBANCE)**

- INSTALL ALL E&S CONTROLS AS SHOWN IN THE PLANS AND ON THE TYPICAL SECTION ON THIS SHEET. THE CONTRACTOR SHALL ACCESS ALL WORK AREAS FROM THE EXISTING MACADAM. THE CONTRACTOR SHALL STOCKPILE ANY TOPSOIL WITHIN THE LOD PROVIDED. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY ADDITIONAL STOCKPILE AREAS WITH SEDIMENT CONTROLS AS REQUIRED BY THE WSCD.
- THE OPENINGS TO FILTERRA SYSTEMS INSTALLED DURING THE PREVIOUS CONTRACT WERE BLOCKED AT THE TIME OF INSTALLATION, AND THE BLOCKING IS TO REMAIN IN PLACE. FILTERRA SYSTEMS INSTALLED UNDER THIS CONTRACT ARE TO BE INSTALLED AS DETAILED IN THE SWM PLANS AND THE OPENINGS ARE TO BE BLOCKED ONCE INSTALLED. AT THE COMPLETION OF WORK, AND WITH THE CONCURRENCE OF WSCD (301) 797-6821 EXT. 3 ALL FILTERRA SYSTEMS (INCLUDING THOSE INSTALLED UNDER EITHER CONTRACT) WILL BE ACTIVATED BY A CONTECH REPRESENTATIVE. SEE THE SWM PLANS FOR INFORMATION REGARDING THIS PROCEDURE AND REQUIRED COORDINATION.
- REMOVE AND DISPOSE OF THE TOP 2" OF GRADED AGGREGATE BASE (G.A.B.) FROM STA. 28+82 TO STA. 52+63. ANY SPOIL AND/OR BORROW MUST COME FROM OR GO TO A SITE THAT HAS A CURRENT AND APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN.
- BRING THE ROADWAY TO THE FINAL GRADE AND COMPLETE CURB CONSTRUCTION FROM STA. 28+82 TO STA. 52+63.
- STORMWATER MANAGEMENT FACILITIES BROUGHT TO GRADE DURING THE PREVIOUS CONTRACT SHALL BE EXCAVATED AND BACKFILLED/COMPLETED PER THE STORMWATER MANAGEMENT PLANS. ONCE THE ROADWAY IS BROUGHT TO FINAL GRADE AND STABILIZED, BUT PRIOR TO ANY EXCAVATION, CONTACT THE WSCD AT 301-797-6821 EXT. 3 FOR AN INTERIM INSPECTION OF THE BIO-SWALE AREAS.
- RESET INLET PROTECTION AT EACH INLET AS THE ROADWAY IS BROUGHT TO GRADE AND CONSTRUCTION PROGRESSES.
- COMPLETE PAVING OPERATIONS FROM 21+20 TO STA. 25+36 AND FROM STA. 28+82 TO STA. 52+63 PER THE ROADWAY PLANS AND TYPICAL SECTIONS.
- ONCE ALL AREAS ARE STABILIZED CONTACT WSCD AT 301-797-6821 EXT. 3 FOR A FINAL CONSTRUCTION INSPECTION.

**PART B: ADD ALTERNATE (1.1 ACRES OF DISTURBANCE)**

- INSTALL ALL E&S CONTROLS AS SHOWN IN THE PLANS. THE CONTRACTOR SHALL ACCESS ALL WORK AREAS FROM THE EXISTING MACADAM. THE CONTRACTOR SHALL STOCKPILE ANY TOPSOIL WITHIN THE LOD PROVIDED. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY ADDITIONAL STOCKPILE AREAS WITH SEDIMENT CONTROLS AS REQUIRED BY THE WSCD. INLET PROTECTION FOR PROPOSED INLETS SHALL BE INSTALLED AS THE STORM DRAINS ARE CONSTRUCTED, AND ADJUSTED AS NEEDED AS CONSTRUCTION PROGRESSES.
- BEGIN WIDENING OF THE ROADWAY BEHIND THE EXISTING CURB LINE. THE EXISTING CURB AND FUNCTIONALITY OF THE DRAINAGE SYSTEMS MUST BE MAINTAINED UNTIL ALL PROPOSED STORM DRAIN STRUCTURES ARE INSTALLED AND FUNCTIONAL AND THE AREA HAS BEEN STABILIZED WITH STONE. ALL DISTURBED AREAS SHALL BE STABILIZED AT THE END OF EACH WORK DAY. ONLY CLEAR AND GRUB FOR A PORTION OF THE WIDENING THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. NO DISTURBED AREAS SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO A MDE-APPROVED EROSION AND SEDIMENT CONTROL DEVICE.

Temporary Seeding Summary						
Hardiness Zone (Fig. B.3): 6b Seed Mixture (Table B.1): N/A					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
N/A	Barley	96	Mar.1 to May 15 Aug.1 to Oct.15	1 in	436 lb/ac (1 lb/1000 sf)	2 tons per acre (90 lb/ 1000 sf)

Permanent Seeding Summary								
Hardiness Zone (Fig. B.3): 6b Seed Mixture (Table B.3): 6					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
6	Tall Fescue	40	Mar.1 to May 15 Aug.15 to Oct.15	1/2 - 1 in	45 pounds per acre (1.0 lb/ 1000 sf)	90 pounds per acre (2.0 lb/ 1000 sf)	90 pounds per acre (2.0 lb/ 1000 sf)	2 tons per acre (90 lb/ 1000 sf)
	Perennial Ryegrass	25	Mar.1 to May 15 Aug.15 to Oct.15	1/2 - 1 in				
	White Clover	5	Mar.1 to May 15 Aug.15 to Oct.15	1/2 - 1 in				

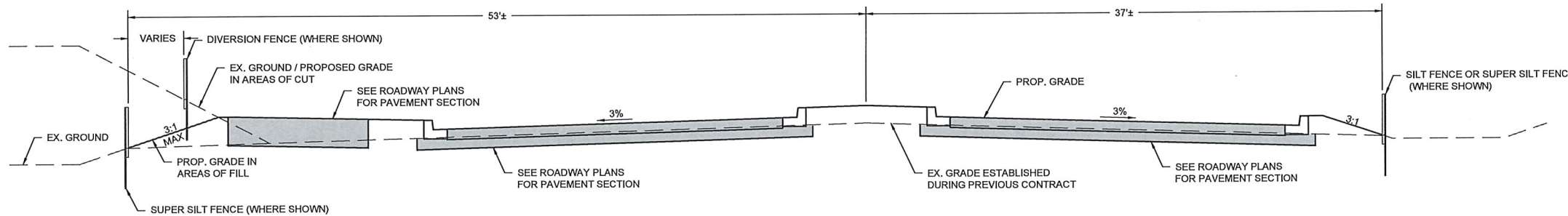
**PART B: CONTINUED FROM LEFT**

- THE STORM DRAIN PIPE EXTENDING EAST FROM INLET 1/3-1A HAS ALREADY BEEN INSTALLED UNDER THE PREVIOUSLY COMPLETED CONTRACT 10-244 MENTIONED ABOVE. THE PIPE BULKHEAD AT STA. 21+40 SHALL BE REMOVED WHEN INLET 1/3-1A IS INSTALLED.
- FILTERRA SYSTEMS ARE TO BE INSTALLED AS DETAILED IN THE SWM PLANS AND THE OPENINGS ARE TO BE BLOCKED ONCE INSTALLED. AT THE COMPLETION OF WORK, AND WITH THE CONCURRENCE OF WSCD (301) 797-6821 EXT. 3 ALL FILTERRA SYSTEMS WILL BE ACTIVATED BY A CONTECH REPRESENTATIVE. SEE THE SWM PLANS FOR INFORMATION REGARDING THIS PROCEDURE AND REQUIRED COORDINATION.
- ONCE THE EXISTING CURB HAS BEEN REMOVED, COMPLETE PAVING OPERATION PER THE ROADWAY PLANS AND TYPICAL SECTIONS.
- ONCE ALL AREAS ARE STABILIZED CONTACT WSCD AT 301-797-6821 EXT. 3 FOR A FINAL CONSTRUCTION INSPECTION.

NOTE: THE USDA SOIL SURVEY OF WASHINGTON COUNTY IDENTIFIES THE SOILS ON THIS PROJECT AS BEING KARST LANDSCAPE SOILS.

**STANDARD SYMBOLS**

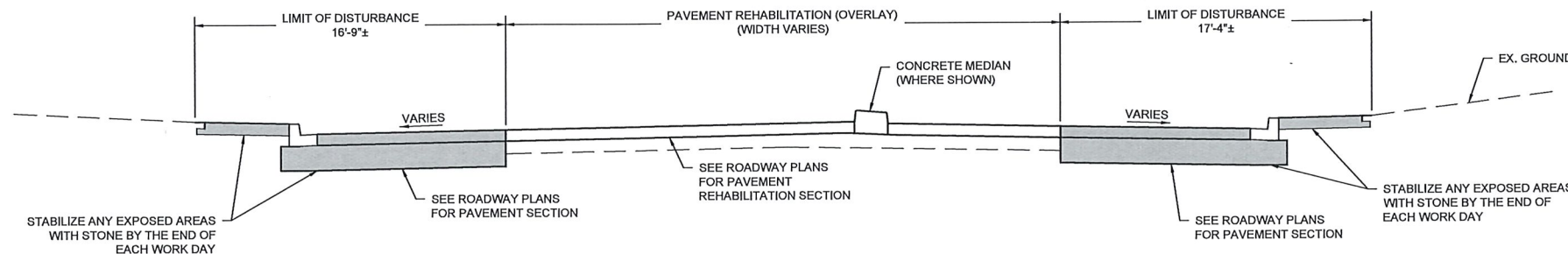
STABILIZED CONSTRUCTION ENTRANCE	
LIMIT OF DISTURBANCE	
SILT FENCE	
SUPER SILT FENCE	
EARTH DIKE (ED)	
DIVERSION FENCE	
TEMPORARY GABION OUTLET STRUCTURE	
TEMPORARY STONE OUTLET STRUCTURE	
CURB INLET PROTECTION	
MEDIAN INLET PROTECTION	
MEDIAN SUMP INLET PROTECTION	



**EROSION & SEDIMENT CONTROL TYPICAL SECTION STA. 28+82 TO STA. 52+62.57**

SCALE: 1" = 5'

(SEE TYPICAL SECTIONS IN ROADWAY PLANS FOR MORE DETAIL)



**EROSION & SEDIMENT CONTROL TYPICAL SECTION STA. 10+33.40 TO STA. 21+20**

SCALE: 1" = 5'

(SEE TYPICAL SECTIONS IN ROADWAY PLANS FOR MORE DETAIL)

DESIGNED BY: IMS  
 DRAWN BY: IMS  
 CHECKED BY: BGB  
 DATE: APRIL 2019

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD

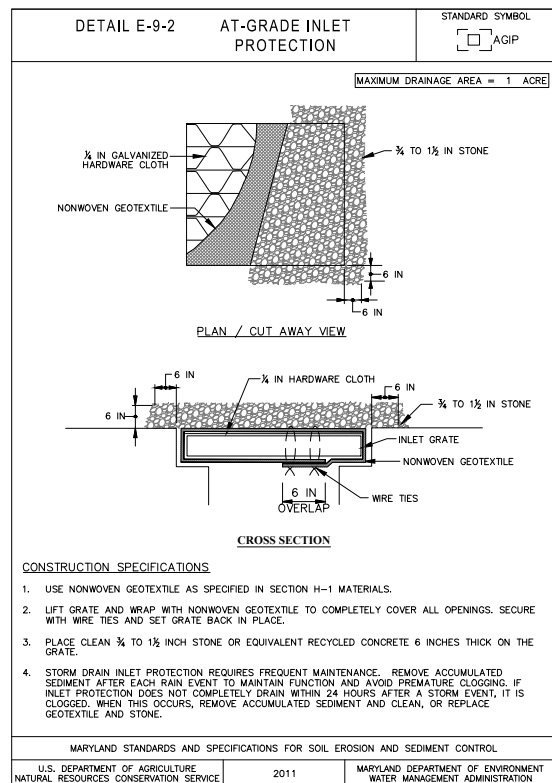
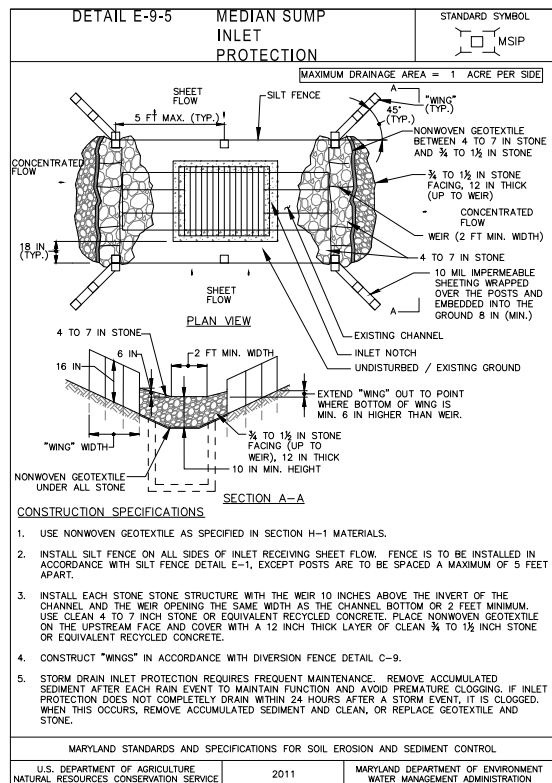
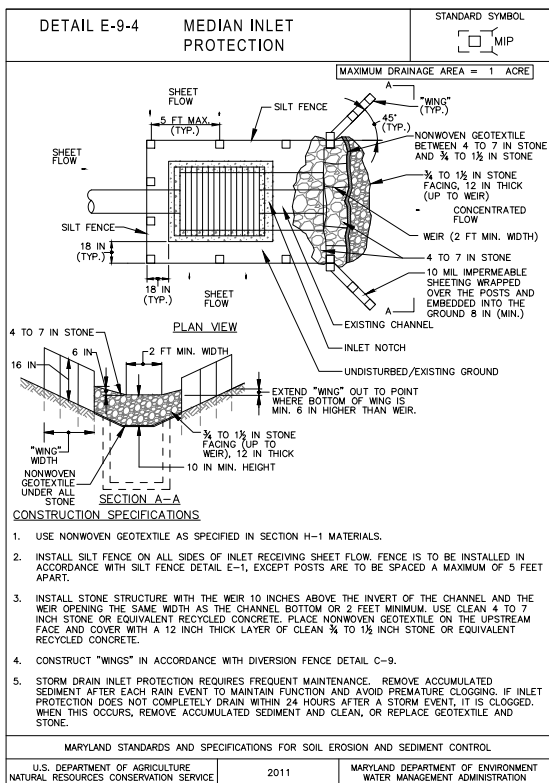
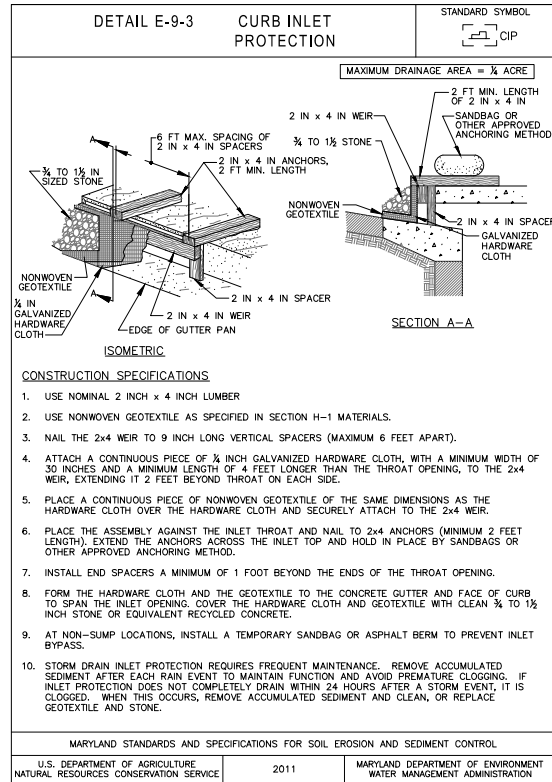
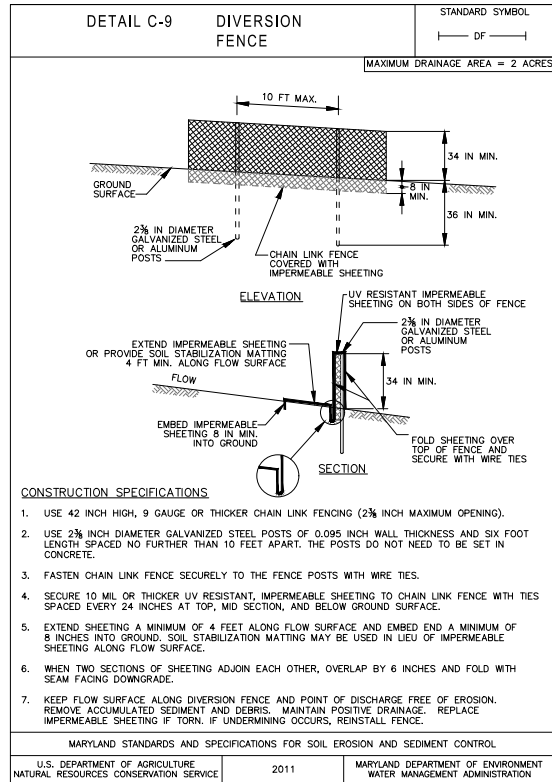
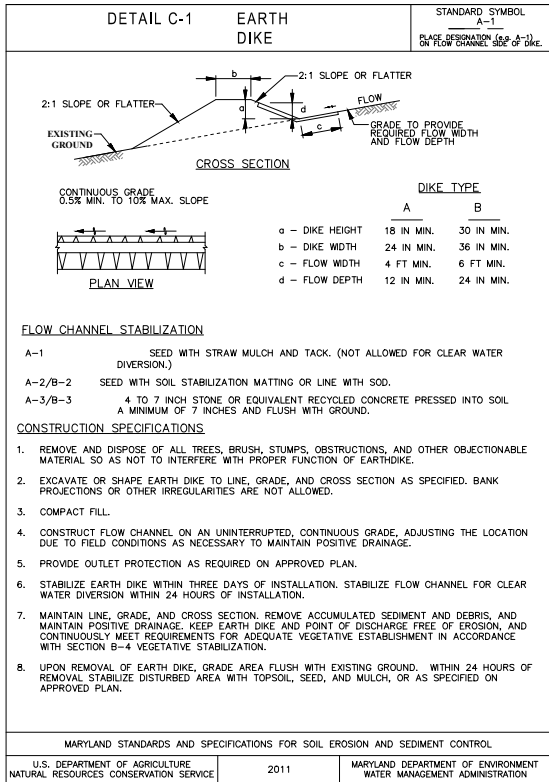
E&S CONTROL  
 GENERAL NOTES

SCALE  
 AS SHOWN

SHEET NO.  
 39 OF 129

DRAWING  
 EN-01

PROJECT NO.  
 10-270



REVISION DESCRIPTION		BY	DATE
NO.			

DESIGNED BY: IMS  
 DRAWN BY: IMS  
 CHECKED BY: BGB  
 DATE: JUNE 2021

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 DIVISION OF ENGINEERING

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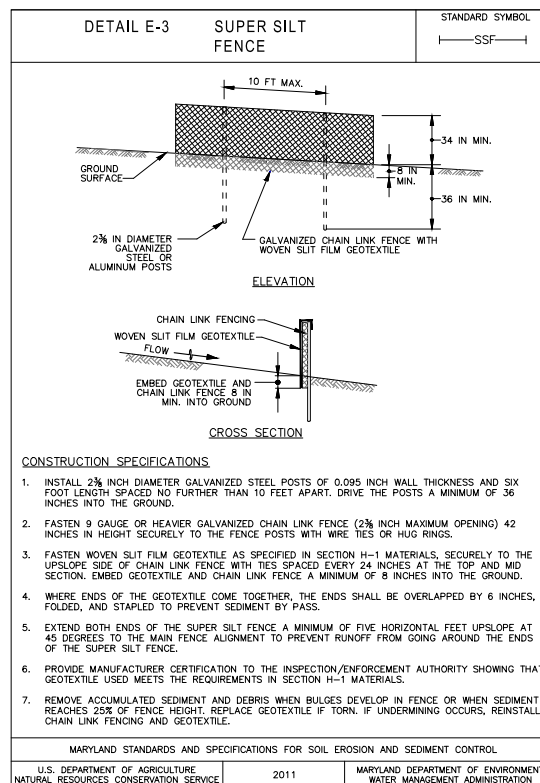
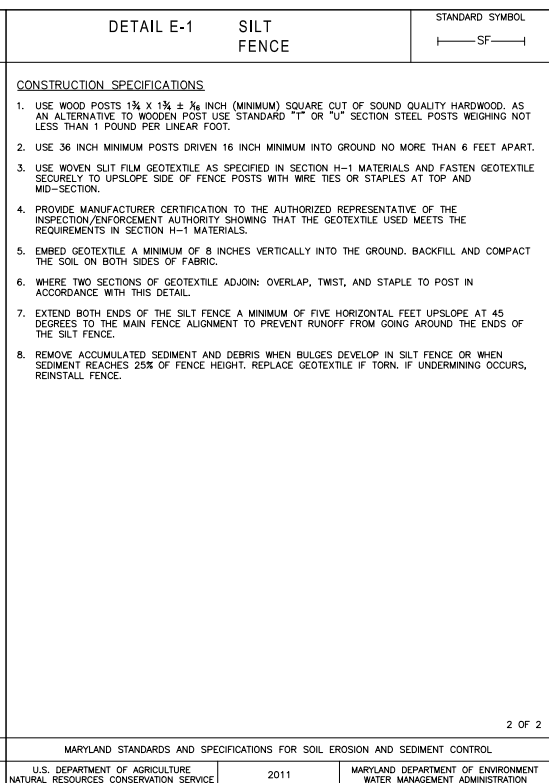
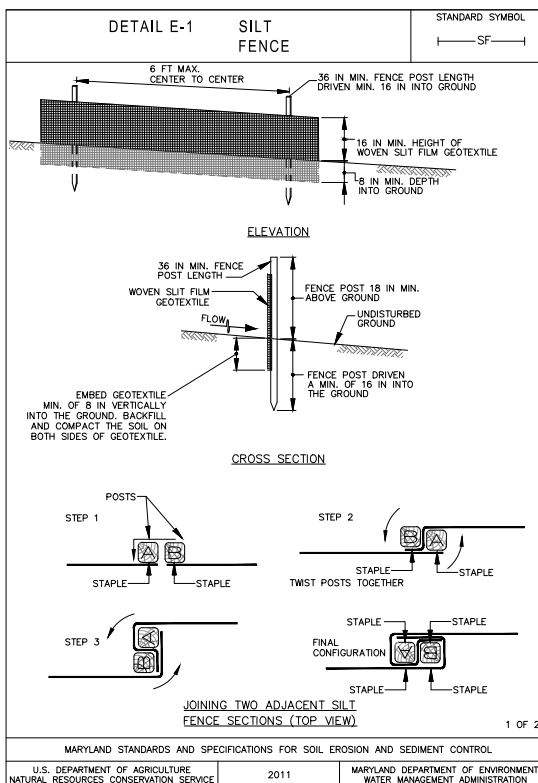
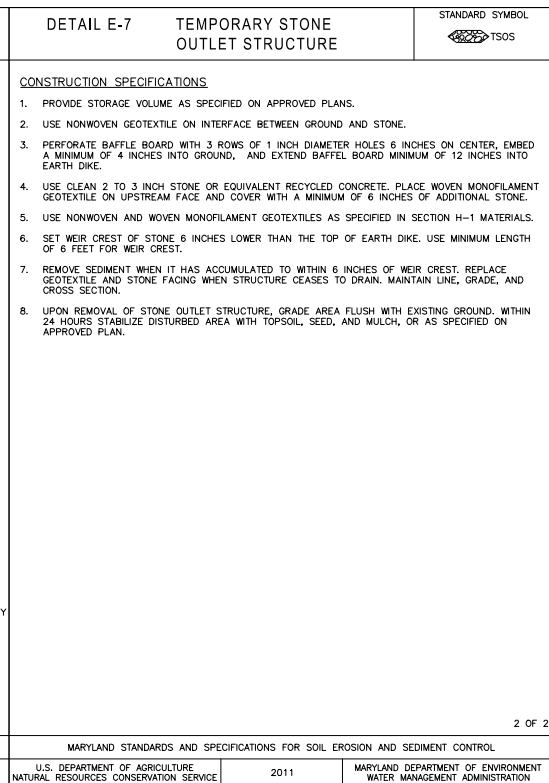
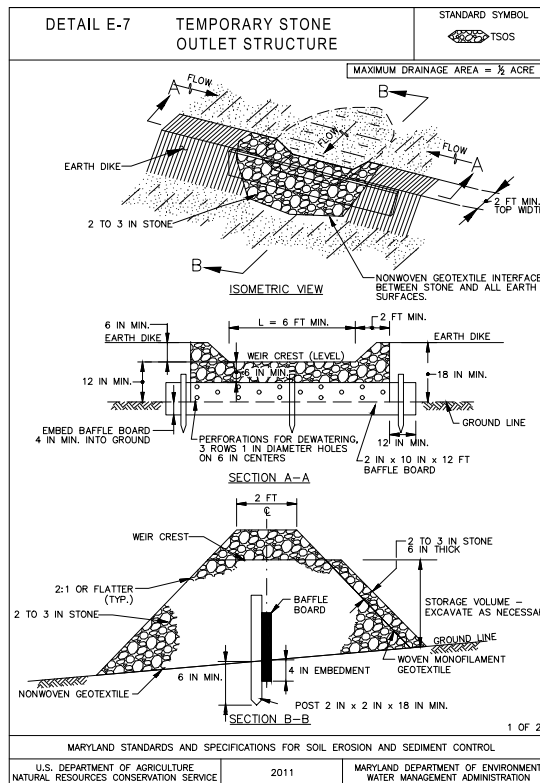
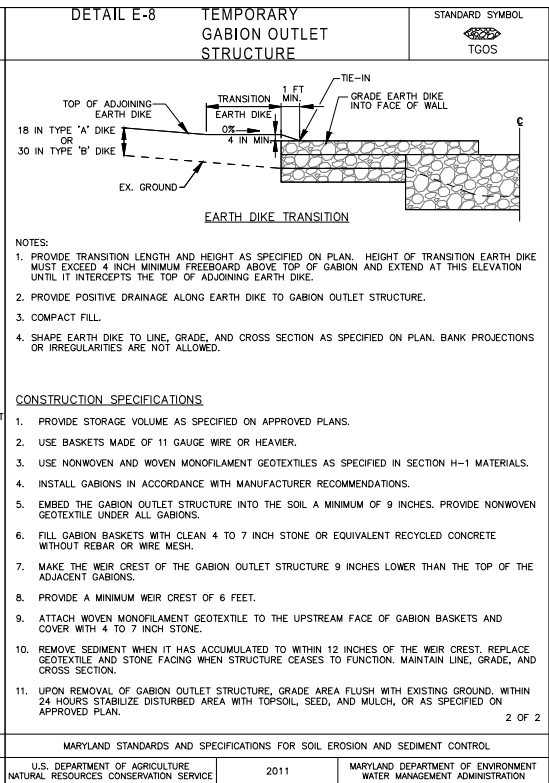
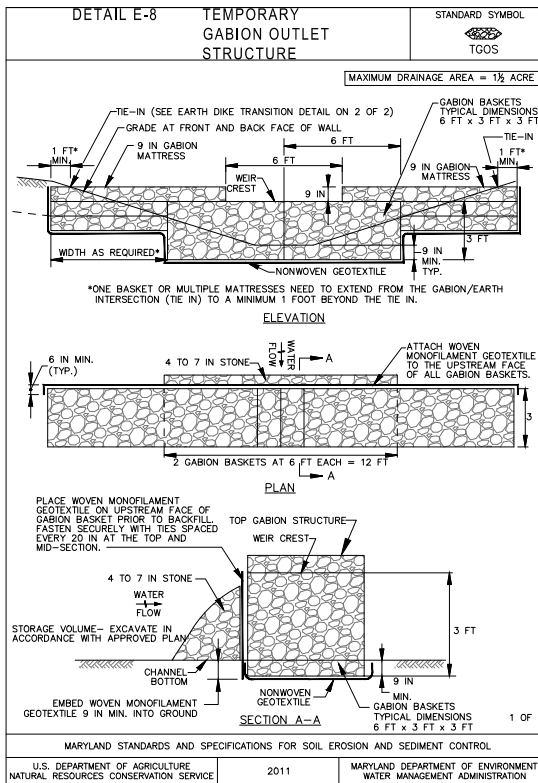
PROFESSIONAL BOULEVARD  
 EROSION & SEDIMENT CONTROL DETAILS

SCALE  
 NOT TO SCALE

SHEET NO.  
 40 OF 129

PROJECT NO.  
 10-270

DRAWING  
 EN-02



DATE	
BY	
REVISION DESCRIPTION	
NO	
DESIGNED BY:	IMS
DRAWN BY:	IMS
CHECKED BY:	BGB
DATE:	JUNE 2021

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DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD

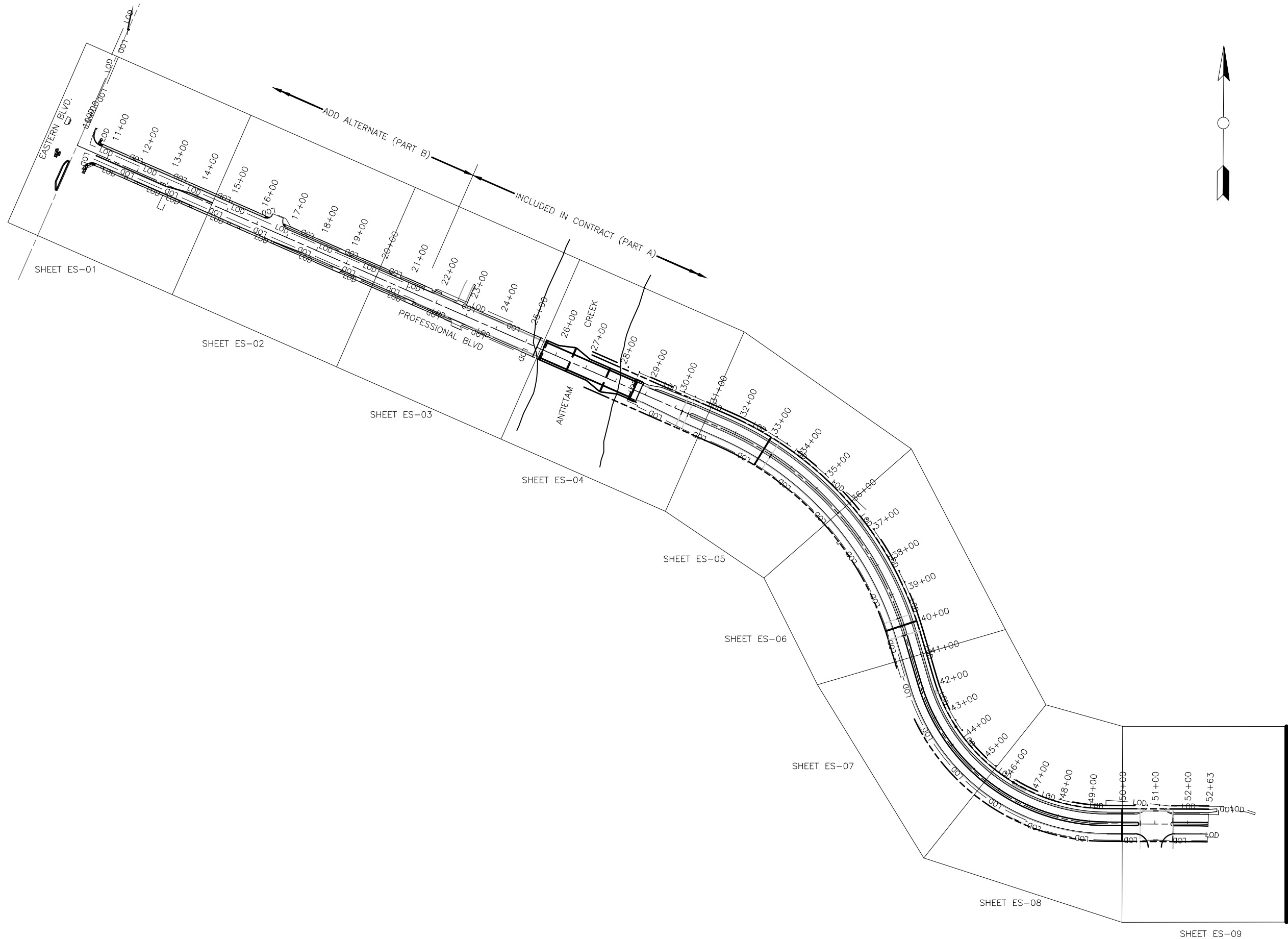
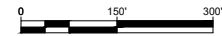
EROSION & SEDIMENT CONTROL DETAILS

SCALE  
NOT TO SCALE

SHEET NO.  
41 OF 129

PROJECT NO.  
10-270

DRAWING  
EN-03



NO.	REVISION DESCRIPTION	BY	DATE

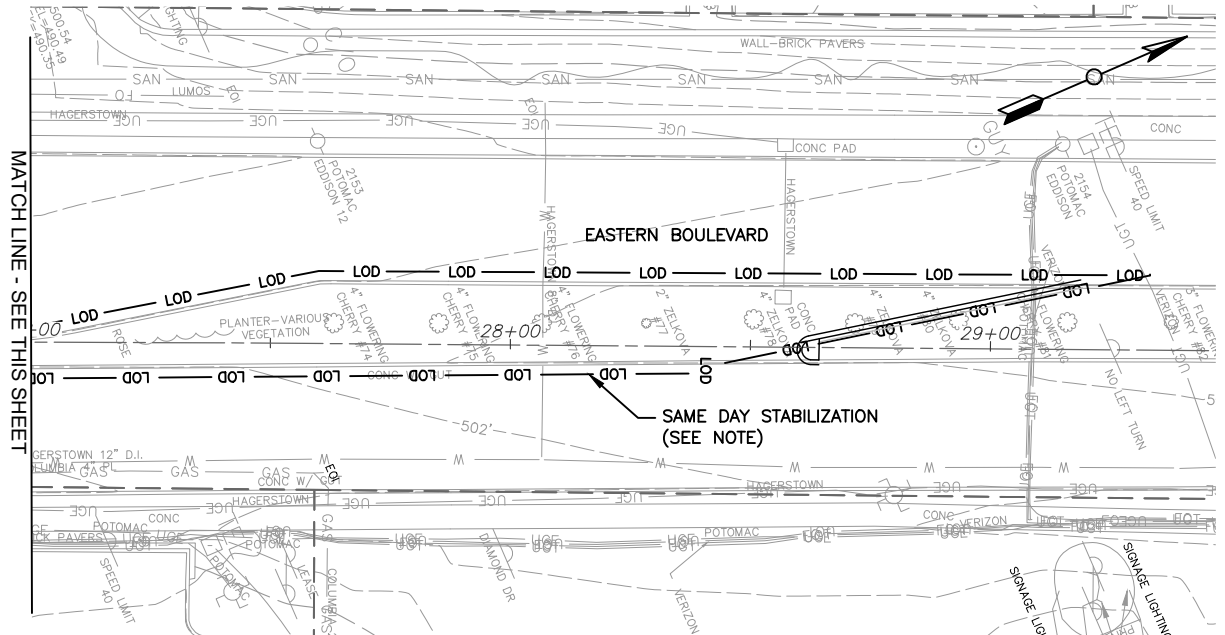
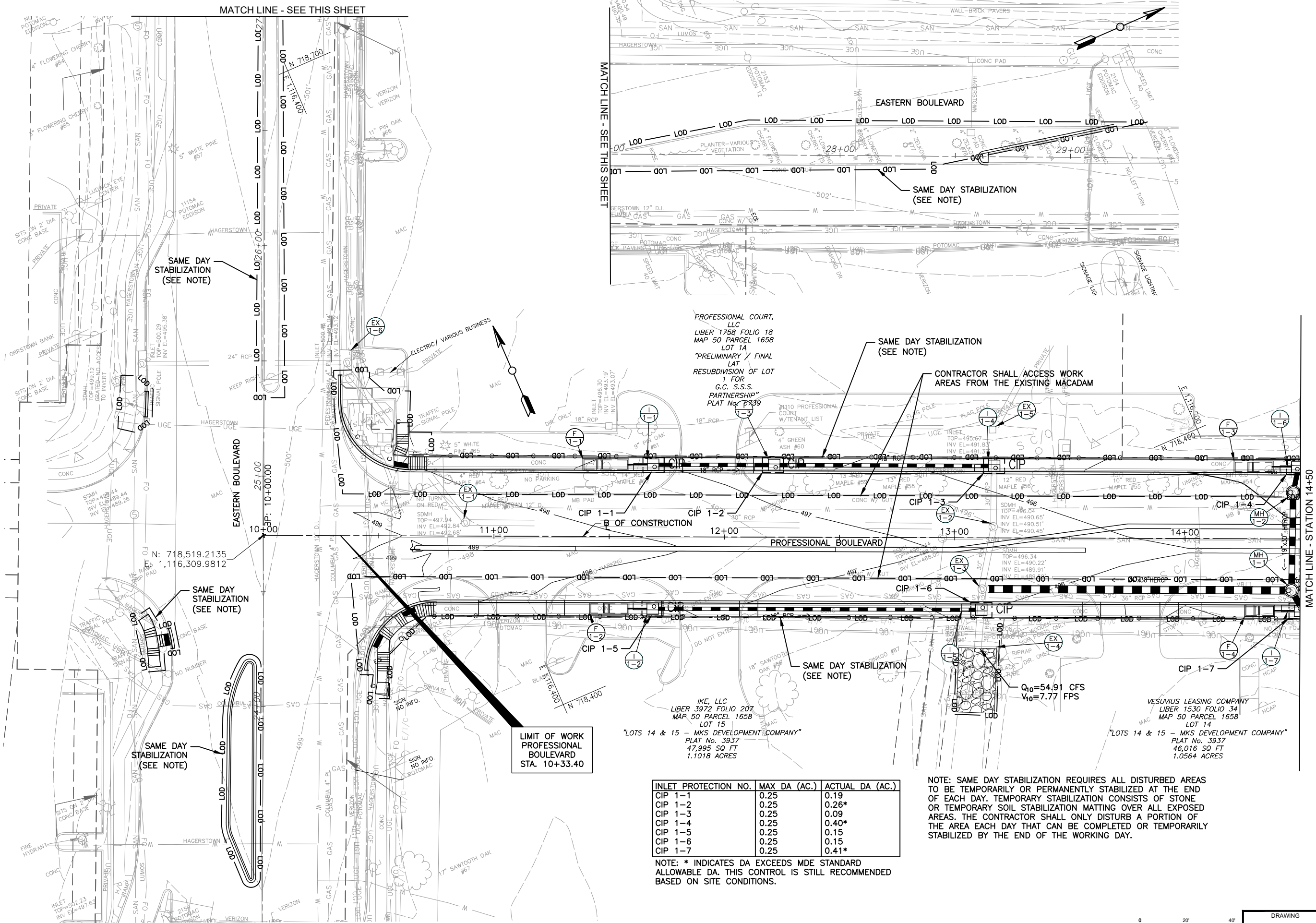
DESIGNED BY: IMS  
 DRAWN BY: IMS  
 CHECKED BY: BGB  
 DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING  
 Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2660 Fax: 240-313-2401

**PROFESSIONAL BOULEVARD**  
**EROSION & SEDIMENT CONTROL**  
**KEY MAP**

SCALE	1"=150'
SHEET NO.	42 OF 129
DRAWING	EN-04
PROJECT NO.	10-270

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MATCH LINE - STATION 14+50

MATCH LINE - SEE THIS SHEET

MATCH LINE - SEE THIS SHEET

INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 1-1	0.25	0.19
CIP 1-2	0.25	0.26*
CIP 1-3	0.25	0.09
CIP 1-4	0.25	0.40*
CIP 1-5	0.25	0.15
CIP 1-6	0.25	0.15
CIP 1-7	0.25	0.41*

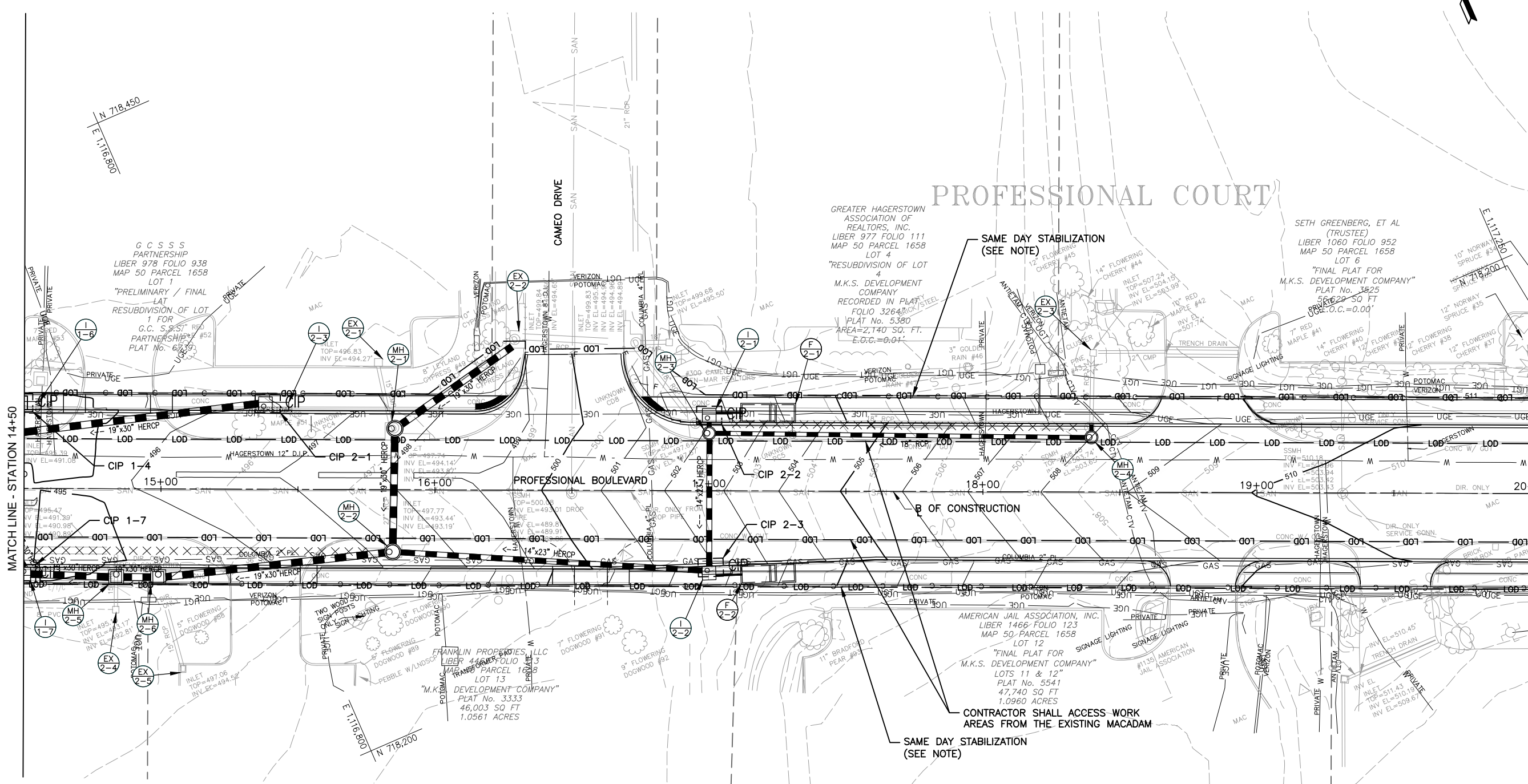
NOTE: \* INDICATES DA EXCEEDS MDE STANDARD ALLOWABLE DA. THIS CONTROL IS STILL RECOMMENDED BASED ON SITE CONDITIONS.

NOTE: SAME DAY STABILIZATION REQUIRES ALL DISTURBED AREAS TO BE TEMPORARILY OR PERMANENTLY STABILIZED AT THE END OF EACH DAY. TEMPORARY STABILIZATION CONSISTS OF STONE OR TEMPORARY SOIL STABILIZATION MATTING OVER ALL EXPOSED AREAS. THE CONTRACTOR SHALL ONLY DISTURB A PORTION OF THE AREA EACH DAY THAT CAN BE COMPLETED OR TEMPORARILY STABILIZED BY THE END OF THE WORKING DAY.



DATE	
BY	
REVISION DESCRIPTION	
NO	
DESIGNED BY:	IMS
DRAWN BY:	IMS
CHECKED BY:	BGB
DATE:	JUNE 2021
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING 	
<b>PROFESSIONAL BOULEVARD</b> <b>EROSION AND SEDIMENT CONTROL PLAN (ADD ALT. ONLY)</b>	
SCALE	1"=20'
SHEET NO.	43 OF 129
PROJECT NO.	10-270
DRAWING	ES-01

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 80 W. Baltimore St., Hagerstown, MD 21740  
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INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 2-1	0.25	0.20
CIP 2-2	0.25	0.28*
CIP 2-3	0.25	0.27*

NOTE: \* INDICATES DA EXCEEDS MDE STANDARD ALLOWABLE DA. THIS CONTROL IS STILL RECOMMENDED BASED ON SITE CONDITIONS.

NOTE: SAME DAY STABILIZATION REQUIRES ALL DISTURBED AREAS TO BE TEMPORARILY OR PERMANENTLY STABILIZED AT THE END OF EACH DAY. TEMPORARY STABILIZATION CONSISTS OF STONE OR TEMPORARY SOIL STABILIZATION MATTING OVER ALL EXPOSED AREAS. THE CONTRACTOR SHALL ONLY DISTURB A PORTION OF THE AREA EACH DAY THAT CAN BE COMPLETED OR TEMPORARILY STABILIZED BY THE END OF THE WORKING DAY.



DRAWING  
ES-02

DESIGNED BY:	IMS	DATE:	JUNE 2021
DRAWN BY:	IMS	CHECKED BY:	BGB
REVISION DESCRIPTION:			
NO.			
BY			
DATE			

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

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Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
EROSION AND SEDIMENT CONTROL PLAN (ADD ALT. ONLY)

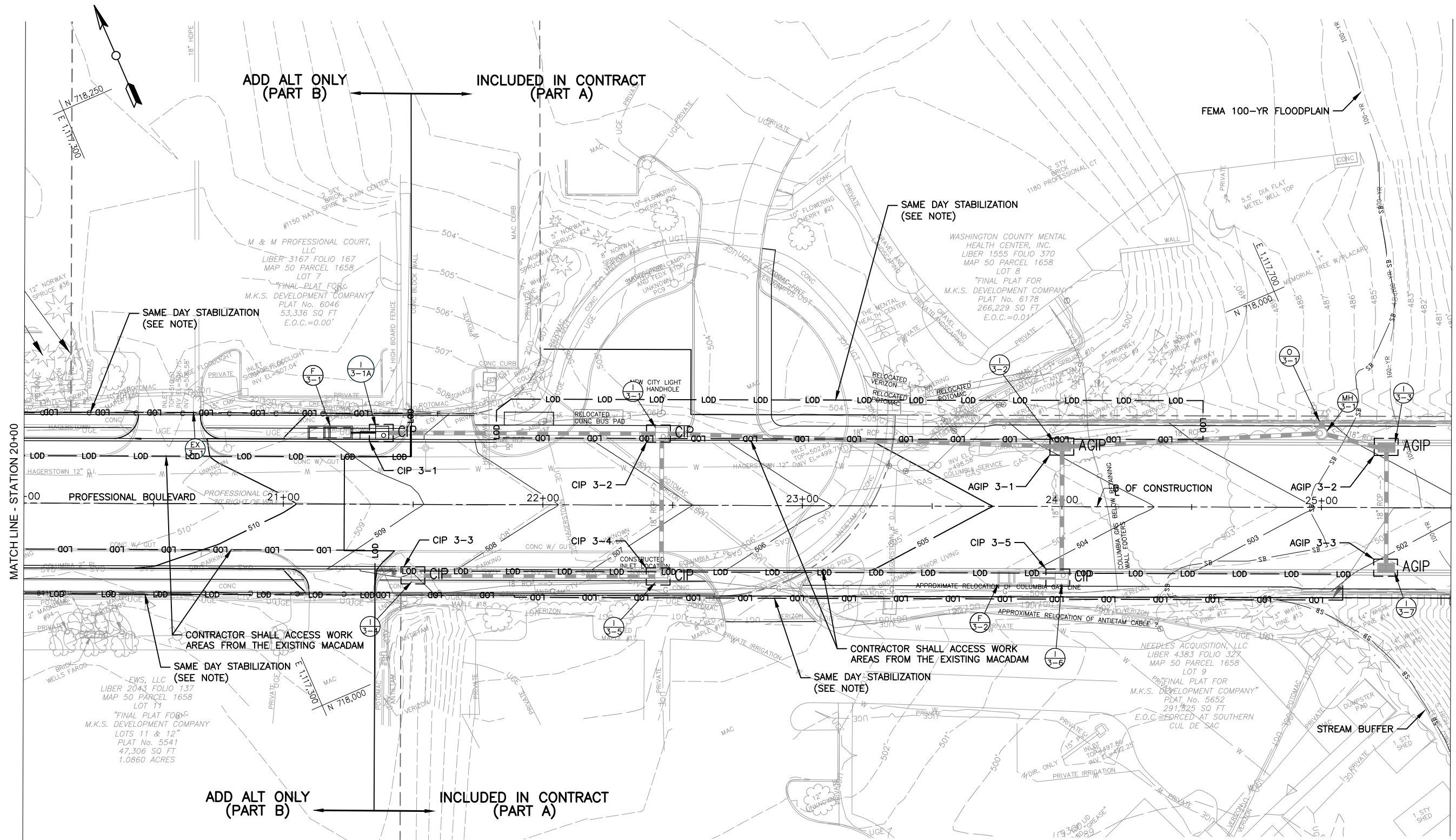
SCALE  
1"=20'

SHEET NO.  
44 OF 129

PROJECT NO.  
10-270



S:\Proj\_Hwy\Co.W - Professional Boulevard\Civil\_3D\Avt\ES-03\_PH2.dwg



INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 3-1	0.25	0.15
CIP 3-2	0.25	0.23
CIP 3-3	0.25	0.31*
CIP 3-4	0.25	0.08
CIP 3-5	0.25	0.12
AGIP 3-1	1.00	0.12
AGIP 3-2	1.00	0.09
AGIP 3-3	1.00	0.09

NOTE: SAME DAY STABILIZATION REQUIRES ALL DISTURBED AREAS TO BE TEMPORARILY OR PERMANENTLY STABILIZED AT THE END OF EACH DAY. TEMPORARY STABILIZATION CONSISTS OF STONE OR TEMPORARY SOIL STABILIZATION MATTING OVER ALL EXPOSED AREAS. THE CONTRACTOR SHALL ONLY DISTURB A PORTION OF THE AREA EACH DAY THAT CAN BE COMPLETED OR TEMPORARILY STABILIZED BY THE END OF THE WORKING DAY.

NOTE: \* INDICATES DA EXCEEDS MDE STANDARD ALLOWABLE DA. THIS CONTROL IS STILL RECOMMENDED BASED ON SITE CONDITIONS.



DESIGNED BY:	IMS	DATE:	
DRAWN BY:	IMS	REVISION DESCRIPTION:	
CHECKED BY:	BGB	NO.	
DATE:	JUNE 2021	BY:	

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DIVISION OF ENGINEERING

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PROFESSIONAL BOULEVARD

EROSION AND SEDIMENT CONTROL PLAN

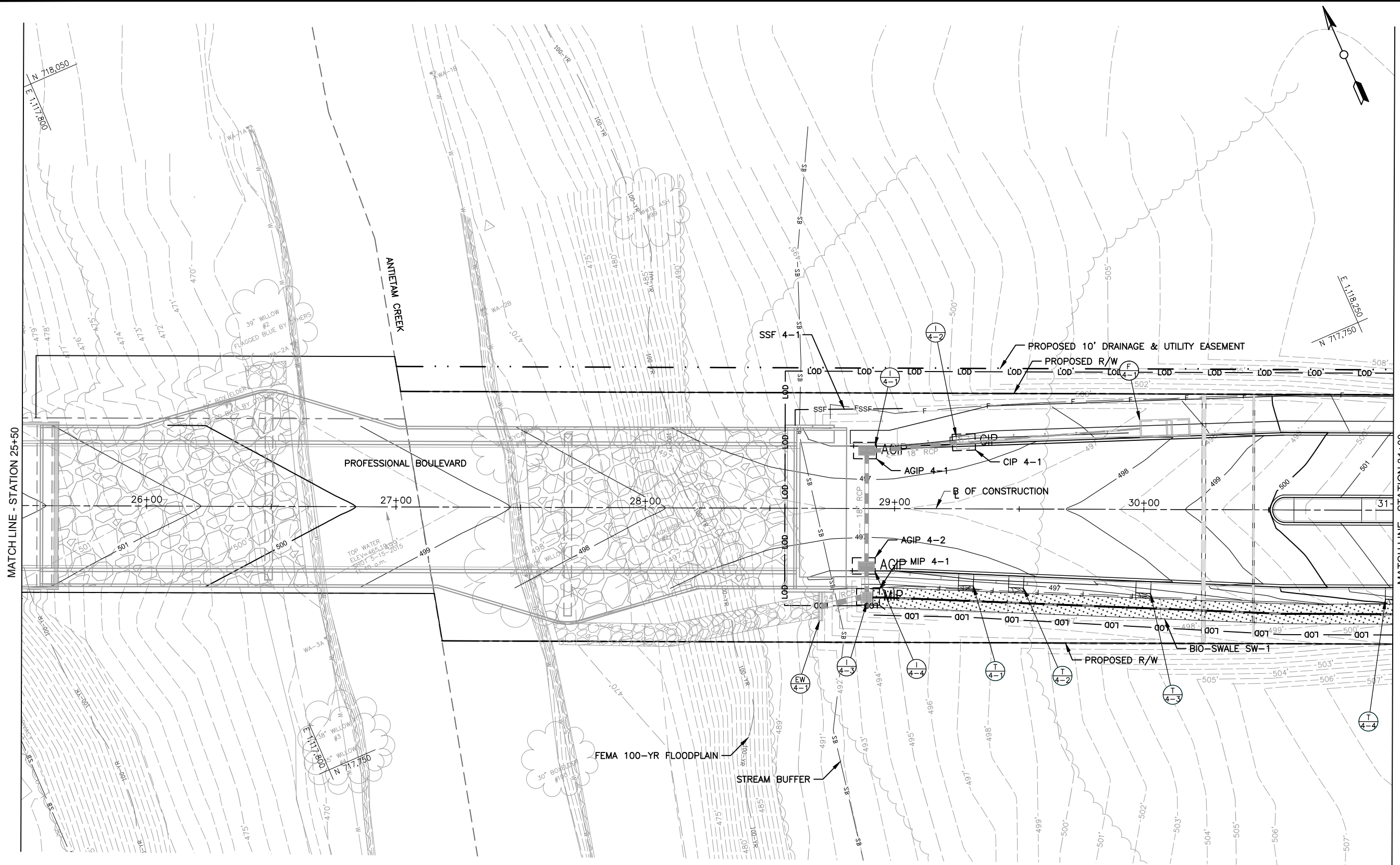
SCALE  
1"=20'

SHEET NO.  
45 OF 129

DRAWING  
ES-03

PROJECT NO.  
10-270

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INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 4-1	0.25	0.39*
MIP 4-1	1	0.36
AGIP 4-1	1	0.31
AGIP 4-2	1	0.23

NOTE: \* INDICATES DA EXCEEDS MDE STANDARD ALLOWABLE DA. THIS CONTROL IS STILL RECOMMENDED BASED ON SITE CONDITIONS.

SSF/SF/FL NO.	AVG. SLOPE (%)	MAX SLOPE LENGTH (FT)	ACTUAL SLOPE LENGTH (FT)	MAX SSF/SF/FL LENGTH (FT)	ACTUAL SSF/SF/FL LENGTH (FT)
SSF 4-1	3	UNLIMITED	15	UNLIMITED	75

- NOTES:
- DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE GENERAL NOTES AND SCHEDULES ON DRAWING EN-01.
  - SEE LANDSCAPE PLANS FOR PROPOSED PERMANENT GROUNDCOVER.

**LEGEND**  
 PROPOSED SWM FACILITY



DRAWING ES-04 PROJECT NO. 10-270

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: IMS  
 DRAWN BY: IMS  
 CHECKED BY: BGB  
 DATE: JUNE 2021

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 DIVISION OF ENGINEERING

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 80 W. Baltimore St., Hagerstown, MD 21740  
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PROFESSIONAL BOULEVARD  
 EROSION AND SEDIMENT CONTROL PLAN

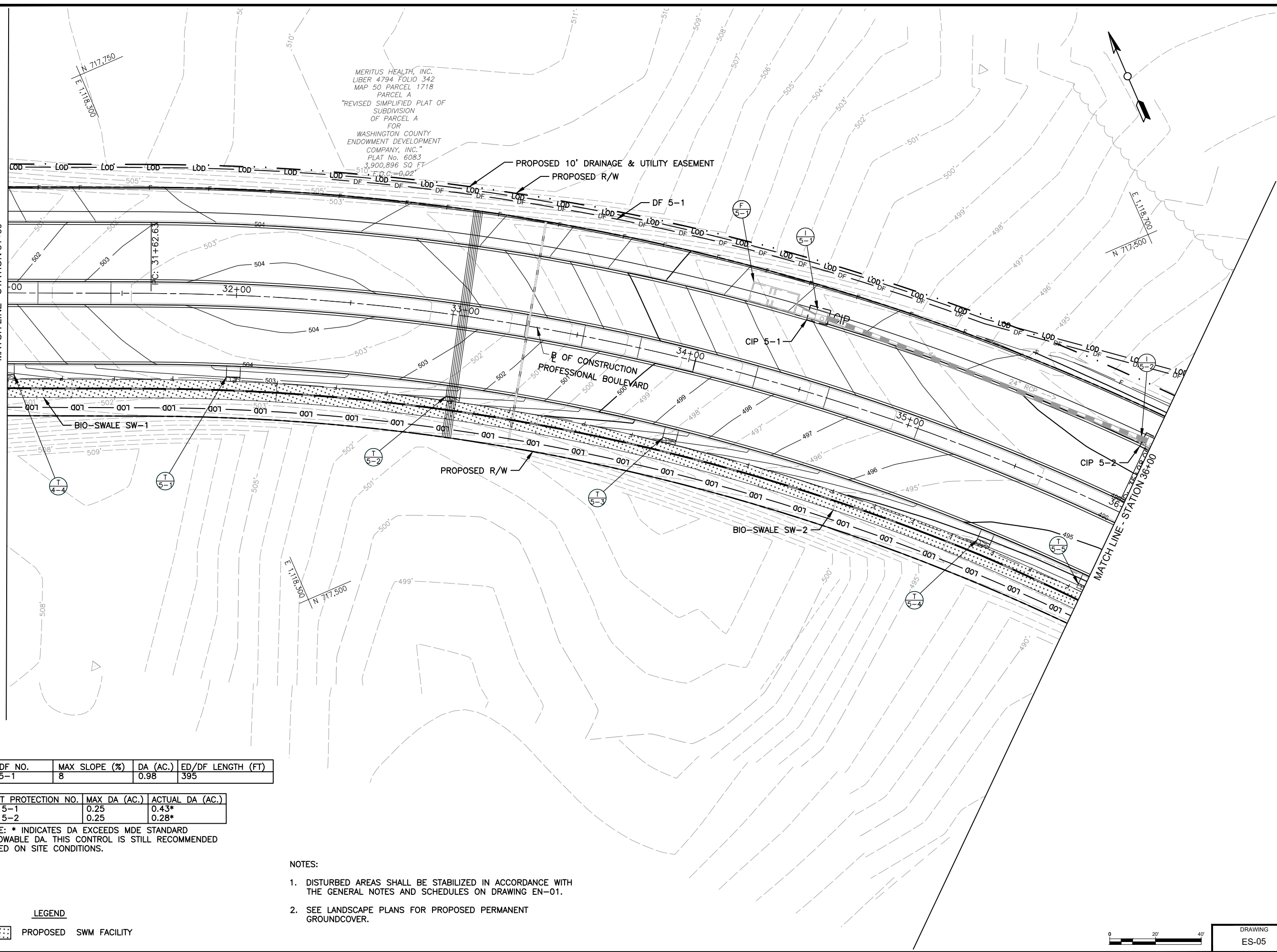
SCALE 1"=20'  
 SHEET NO. 46 OF 129  
 PROJECT NO. 10-270

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MATCH LINE - STATION 31+00

MATCH LINE - STATION 36+00

MERITUS HEALTH, INC.  
LIBER 4794 FOLIO 342  
MAP 50 PARCEL 1718  
PARCEL A  
"REVISED SIMPLIFIED PLAT OF  
SUBDIVISION  
OF PARCEL A  
FOR  
WASHINGTON COUNTY  
ENDOWMENT DEVELOPMENT  
COMPANY, INC."  
PLAT No. 6083  
3,900,896 SQ FT  
F.O.C. = 9.02'



ED/DF NO.	MAX SLOPE (%)	DA (AC.)	ED/DF LENGTH (FT)
DF 5-1	8	0.98	395

INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 5-1	0.25	0.43*
CIP 5-2	0.25	0.28*

NOTE: \* INDICATES DA EXCEEDS MDE STANDARD ALLOWABLE DA. THIS CONTROL IS STILL RECOMMENDED BASED ON SITE CONDITIONS.

**LEGEND**

PROPOSED SWM FACILITY

**NOTES:**

1. DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE GENERAL NOTES AND SCHEDULES ON DRAWING EN-01.
2. SEE LANDSCAPE PLANS FOR PROPOSED PERMANENT GROUNDCOVER.



DRAWING  
ES-05

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: IMS  
DRAWN BY: IMS  
CHECKED BY: BGB  
DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

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Phone: 240-313-2460 Fax: 240-313-2401

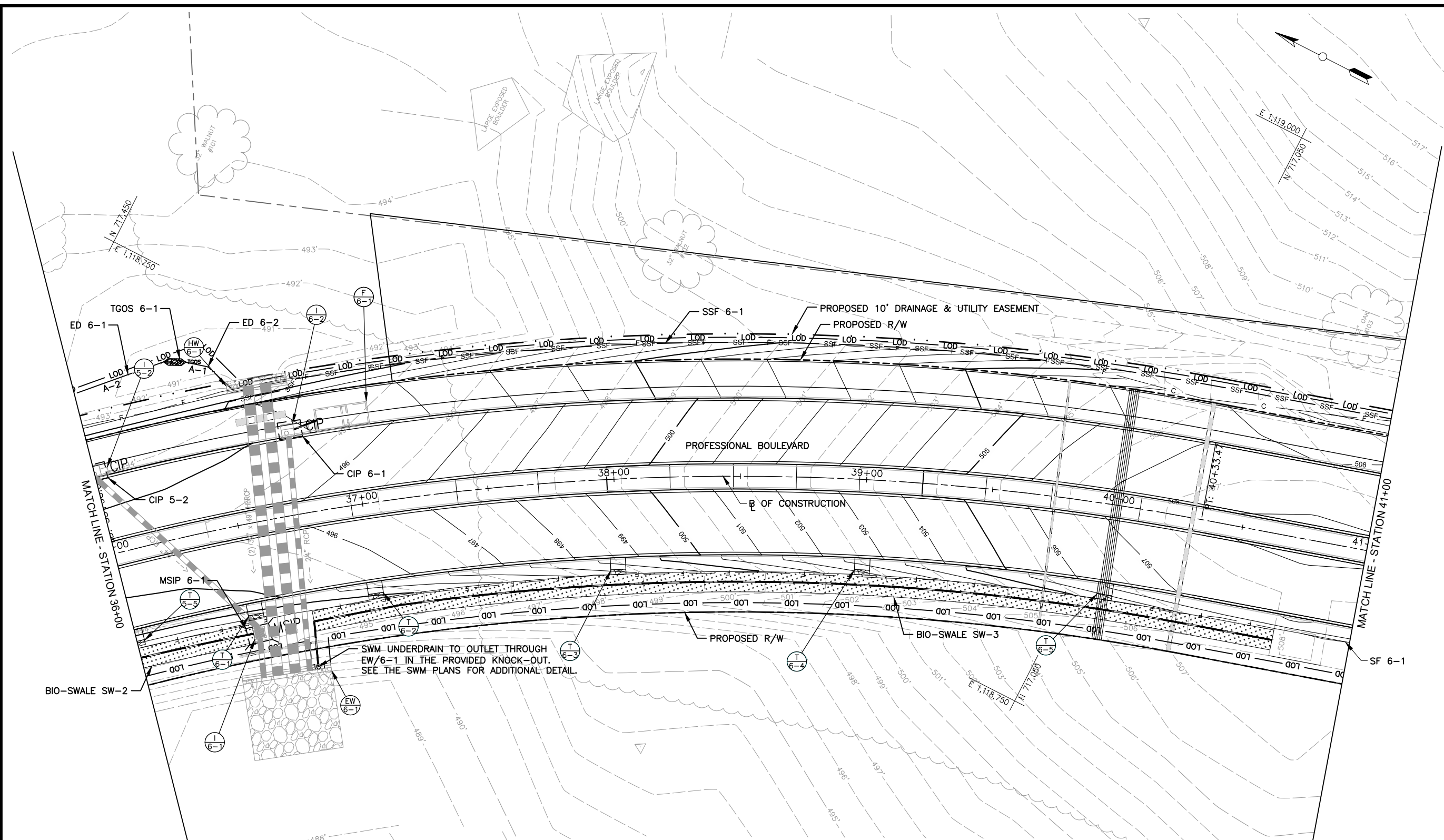
PROFESSIONAL BOULEVARD  
EROSION AND SEDIMENT  
CONTROL PLAN

SCALE  
1"=20'

SHEET NO.  
47 OF 129

PROJECT NO.  
10-270

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**LEGEND**  
 PROPOSED SWM FACILITY

- NOTES:**
- DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE GENERAL NOTES AND SCHEDULES ON DRAWING EN-01.
  - SEE LANDSCAPE PLANS FOR PROPOSED PERMANENT GROUNDCOVER.

SSF/SF/FL NO.	AVG. SLOPE (%)	MAX SLOPE LENGTH (FT)	ACTUAL SLOPE LENGTH (FT)	MAX SSF/SF/FL LENGTH (FT)	ACTUAL SSF/SF/FL LENGTH (FT)
SSF 6-1	33	150	10	1000	706
SF 6-1	33	40	5	250	70

ED/DF NO.	MAX SLOPE (%)	DA (AC.)	ED/DF LENGTH (FT)
ED 6-1	8	0.61	25
ED 6-2	3	0.61	25

TGOS/TSOS NO.	DA (AC.)	REQUIRED STORAGE (CF)
TGOS 6-1	0.61	1098

INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 6-1	0.25	0.43*
MSIP 6-1	1 / SIDE	0.17 / 0.47

NOTE: \* INDICATES DA EXCEEDS MDE STANDARD ALLOWABLE DA. THIS CONTROL IS STILL RECOMMENDED BASED ON SITE CONDITIONS.



DRAWING  
ES-06

DESIGNED BY:	IMS	NO.	REVISION DESCRIPTION	BY	DATE
DRAWN BY:	IMS				
CHECKED BY:	BGB				
DATE:	JUNE 2021				

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

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 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOUNDARY

EROSION AND SEDIMENT CONTROL PLAN

SCALE  
1"=20'

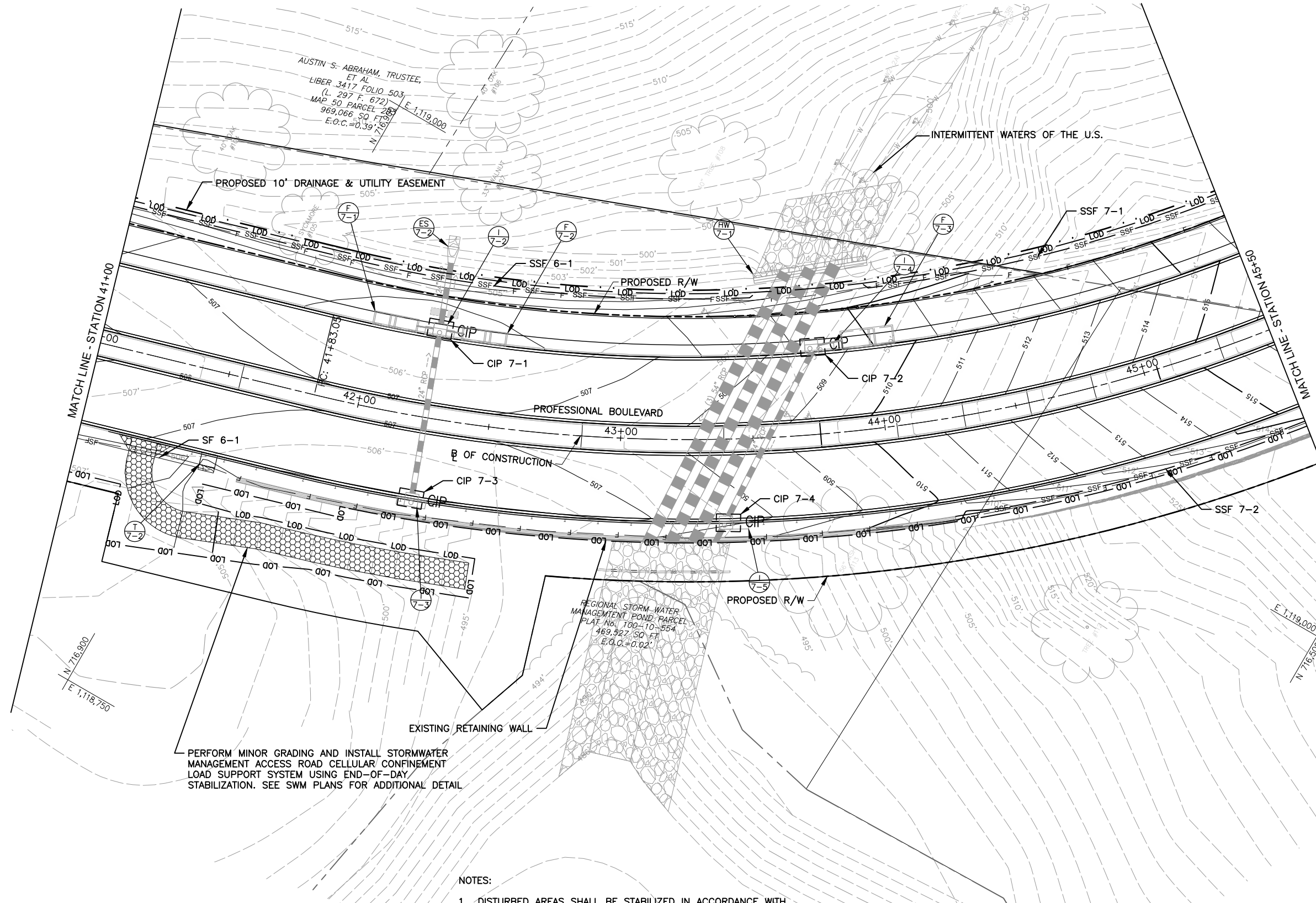
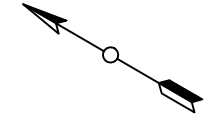
SHEET NO.  
48 OF 129

PROJECT NO.  
10-270

SSF/SF/FL NO.	AVG. SLOPE (%)	MAX SLOPE LENGTH (FT)	ACTUAL SLOPE LENGTH (FT)	MAX SSF/SF/FL LENGTH (FT)	ACTUAL SSF/SF/FL LENGTH (FT)
SSF 7-1	33	150	10	1000	199
SSF 7-2	33	150	4	1000	304

INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 7-1	0.25	0.31*
CIP 7-2	0.25	0.31*
CIP 7-3	0.25	0.18
CIP 7-4	0.25	0.29*

NOTE: \* INDICATES DA EXCEEDS MDE STANDARD ALLOWABLE DA. THIS CONTROL IS STILL RECOMMENDED BASED ON SITE CONDITIONS.



PERFORM MINOR GRADING AND INSTALL STORMWATER MANAGEMENT ACCESS ROAD CELLULAR CONFINEMENT LOAD SUPPORT SYSTEM USING END-OF-DAY STABILIZATION. SEE SWM PLANS FOR ADDITIONAL DETAIL

- NOTES:
1. DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE GENERAL NOTES AND SCHEDULES ON DRAWING EN-01.
  2. SEE LANDSCAPE PLANS FOR PROPOSED PERMANENT GROUNDCOVER.

LEGEND

PROPOSED SWM FACILITY



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DESIGNED BY:	IMS	NO.	REVISION DESCRIPTION
DRAWN BY:	IMS	BY	
CHECKED BY:	BGB	DATE	
DATE:	JUNE 2021		

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DIVISION OF ENGINEERING

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80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOUNDARY

EROSION AND SEDIMENT CONTROL PLAN

SCALE  
1"=20'

SHEET NO.  
49 OF 129

DRAWING  
ES-07

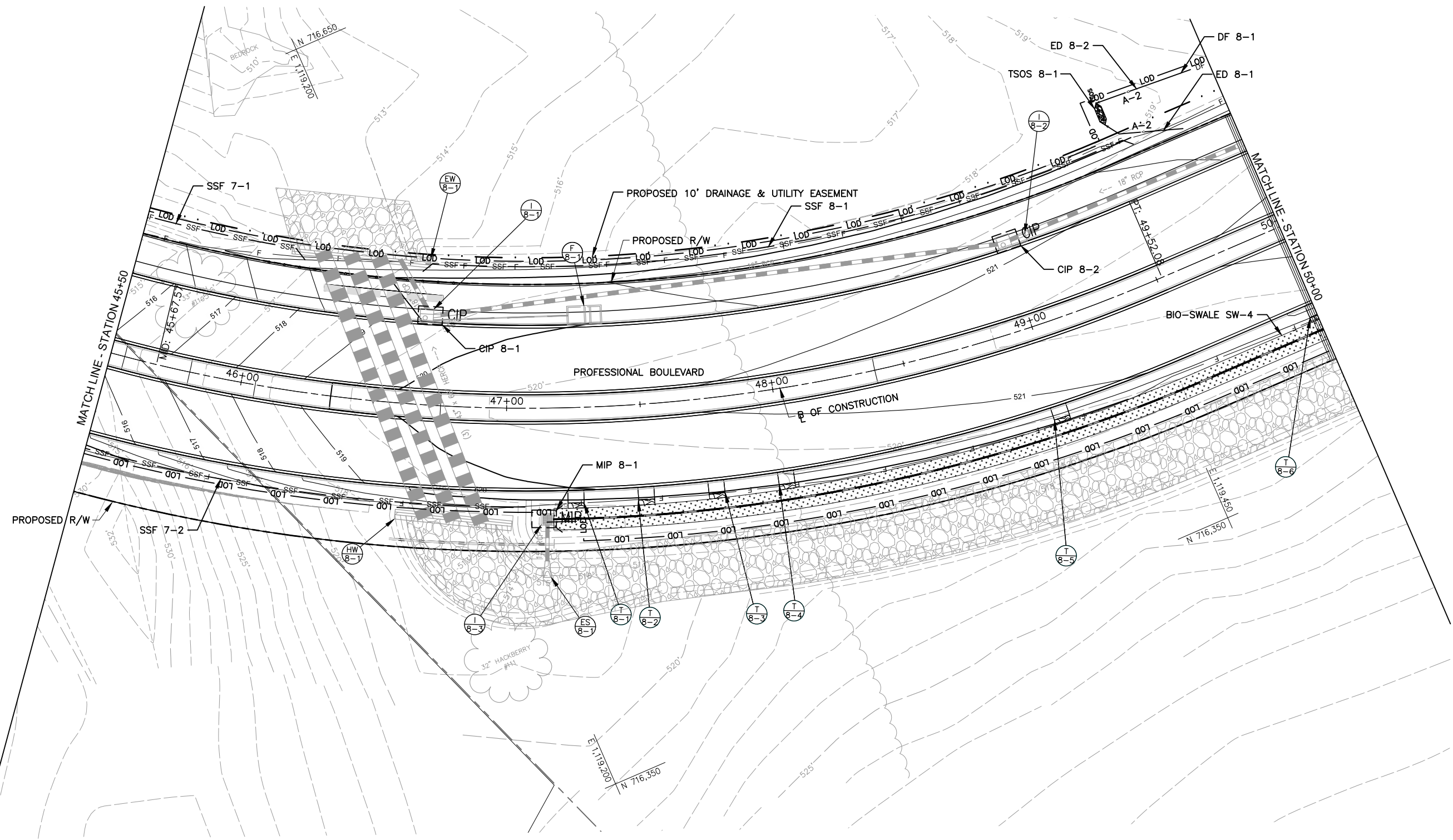
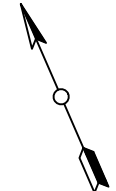
PROJECT NO.  
10-270

SSF/SF/FL NO.	AVG. SLOPE (%)	MAX SLOPE LENGTH (FT)	ACTUAL SLOPE LENGTH (FT)	MAX SSF/SF/FL LENGTH (FT)	ACTUAL SSF/SF/FL LENGTH (FT)
SSF 8-1	33	150	10	1000	274


ED/DF NO.	MAX SLOPE (%)	DA (AC.)	ED/DF LENGTH (FT)
ED 8-1	4	0.38	25
ED 8-2	10	0.38	25
DF 8-1	8	1.86	430

TGOS/TSOS NO.	DA (AC.)	REQUIRED STORAGE (CF)
TSOS 8-1	0.38	684

INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 8-1	0.25	0.24
CIP 8-2	0.25	0.15
MIP 8-1	1	0.47



- NOTES:
- DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE GENERAL NOTES AND SCHEDULES ON DRAWING EN-01.
  - SEE LANDSCAPE PLANS FOR PROPOSED PERMANENT GROUNDCOVER.

LEGEND  
 PROPOSED SWM FACILITY



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: IMS  
DRAWN BY: IMS  
CHECKED BY: BGB  
DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

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80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2660 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
EROSION AND SEDIMENT CONTROL PLAN

SCALE  
1"=20'

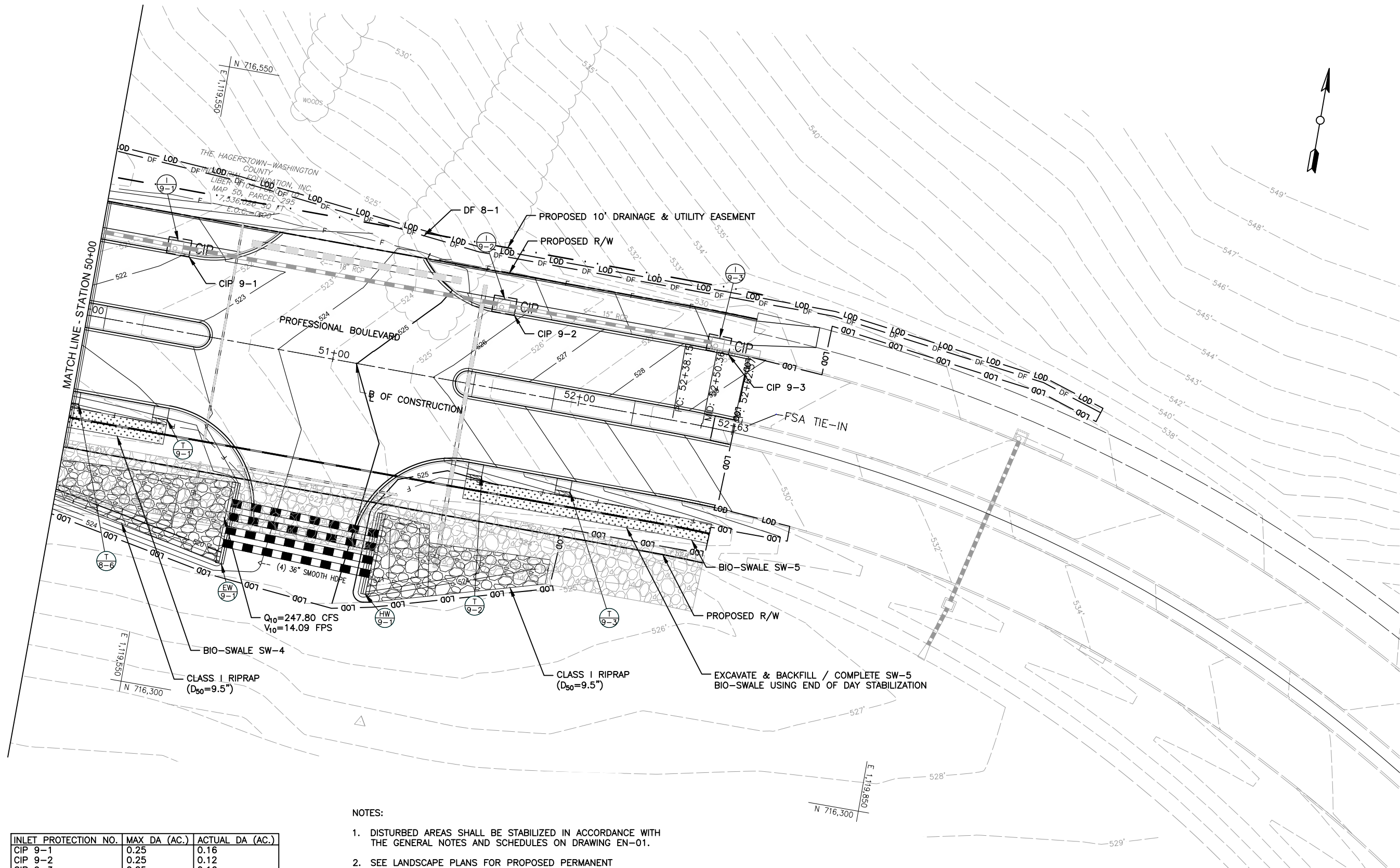
SHEET NO.  
50 OF 129

PROJECT NO.  
10-270

DRAWING  
ES-08

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S:\Proj\_Hwy\Co.W - Professional Boulevard\Civil 3D\Avt\ES-09\_PH2.dwg



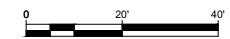
INLET PROTECTION NO.	MAX DA (AC.)	ACTUAL DA (AC.)
CIP 9-1	0.25	0.16
CIP 9-2	0.25	0.12
CIP 9-3	0.25	0.16

NOTES:

1. DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE GENERAL NOTES AND SCHEDULES ON DRAWING EN-01.
2. SEE LANDSCAPE PLANS FOR PROPOSED PERMANENT GROUNDCOVER.

LEGEND

PROPOSED SWM FACILITY



DRAWING  
ES-09

SCALE  
1"=20'

SHEET NO.  
51 OF 129

PROJECT NO.  
10-270

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: IMS  
DRAWN BY: IMS  
CHECKED BY: BGB  
DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2660 Fax: 240-313-2401

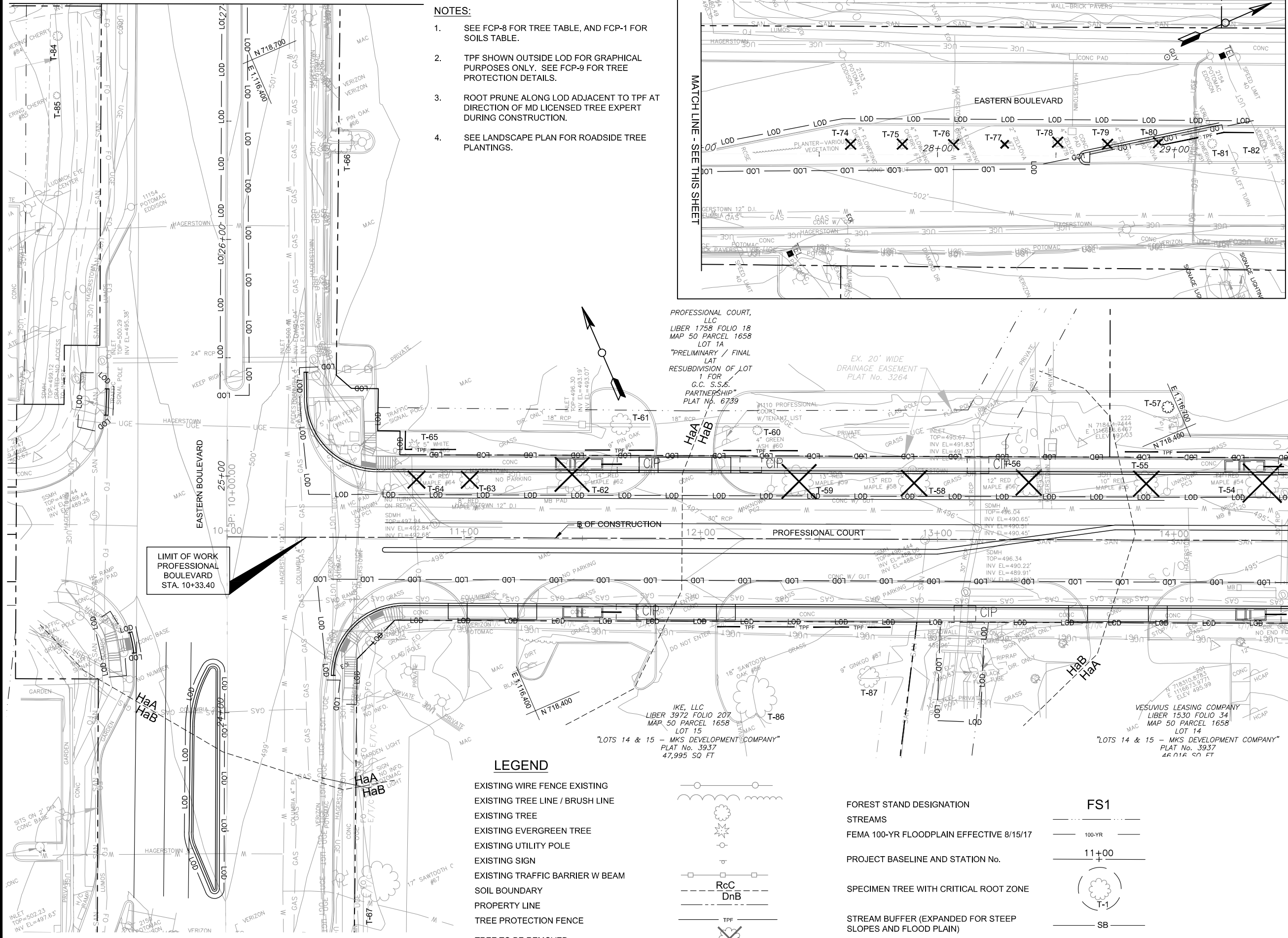
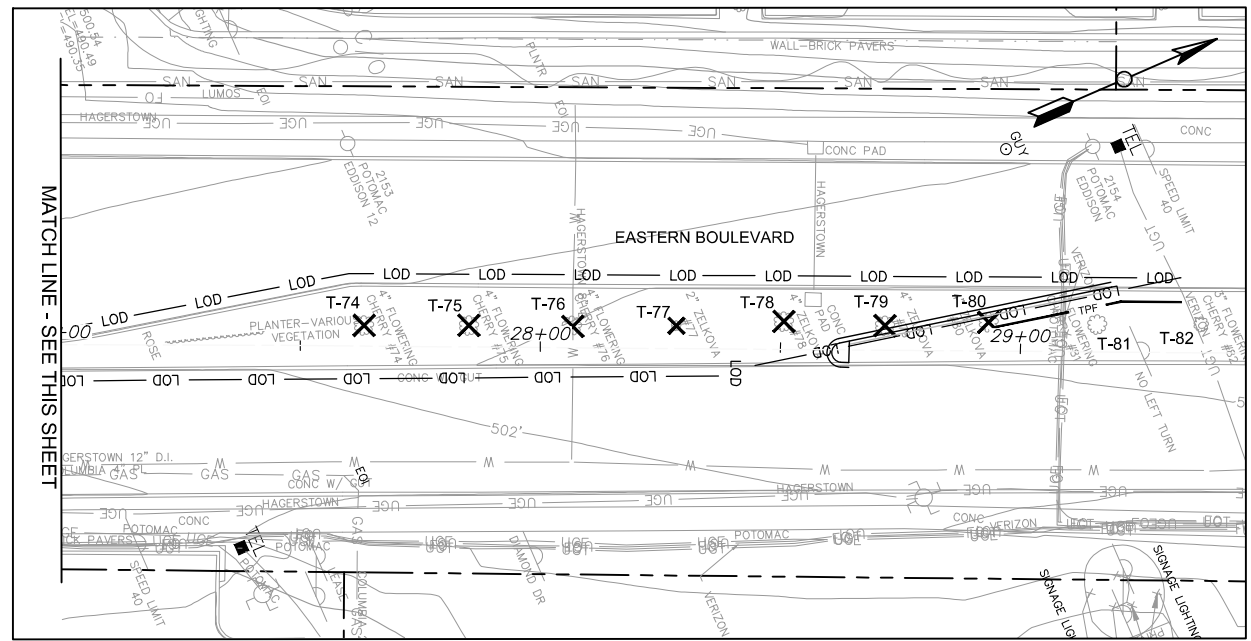
PROFESSIONAL BOULEVARD  
EROSION AND SEDIMENT  
CONTROL PLAN

\\balsrv01\v2014\2014\14187\_WashCoProj\Phase II Contract\CADD\Plans\RTP\_PH2.dwg

MATCH LINE - SEE THIS SHEET

**NOTES:**

1. SEE FCP-8 FOR TREE TABLE, AND FCP-1 FOR SOILS TABLE.
2. TPF SHOWN OUTSIDE LOD FOR GRAPHICAL PURPOSES ONLY. SEE FCP-9 FOR TREE PROTECTION DETAILS.
3. ROOT PRUNE ALONG LOD ADJACENT TO TPF AT DIRECTION OF MD LICENSED TREE EXPERT DURING CONSTRUCTION.
4. SEE LANDSCAPE PLAN FOR ROADSIDE TREE PLANTINGS.



LIMIT OF WORK PROFESSIONAL BOULEVARD STA. 10+33.40

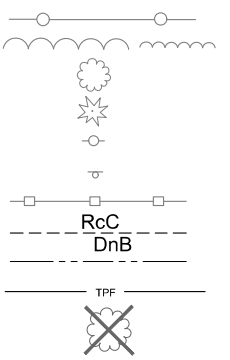
PROFESSIONAL COURT, LLC  
LIBER 1758 FOLIO 18  
MAP 50 PARCEL 1658  
LOT 1A  
"PRELIMINARY / FINAL  
LAT  
RESUBDIVISION OF LOT  
1 FOR  
G.C. S.S.S.  
PARTNERSHIP"  
PLAT No. 6739

IKE, LLC  
LIBER 3972 FOLIO 207  
MAP 50 PARCEL 1658  
LOT 15  
"LOTS 14 & 15 - MKS DEVELOPMENT COMPANY"  
PLAT No. 3937  
47,995 SQ FT

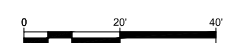
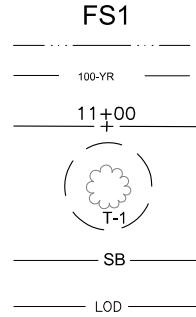
VESUVIUS LEASING COMPANY  
LIBER 1530 FOLIO 34  
MAP 50 PARCEL 1658  
LOT 14  
"LOTS 14 & 15 - MKS DEVELOPMENT COMPANY"  
PLAT No. 3937  
46,016 SQ FT

**LEGEND**

- EXISTING WIRE FENCE EXISTING
- EXISTING TREE LINE / BRUSH LINE
- EXISTING TREE
- EXISTING EVERGREEN TREE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING TRAFFIC BARRIER W BEAM
- SOIL BOUNDARY
- PROPERTY LINE
- TREE PROTECTION FENCE
- TREE TO BE REMOVED



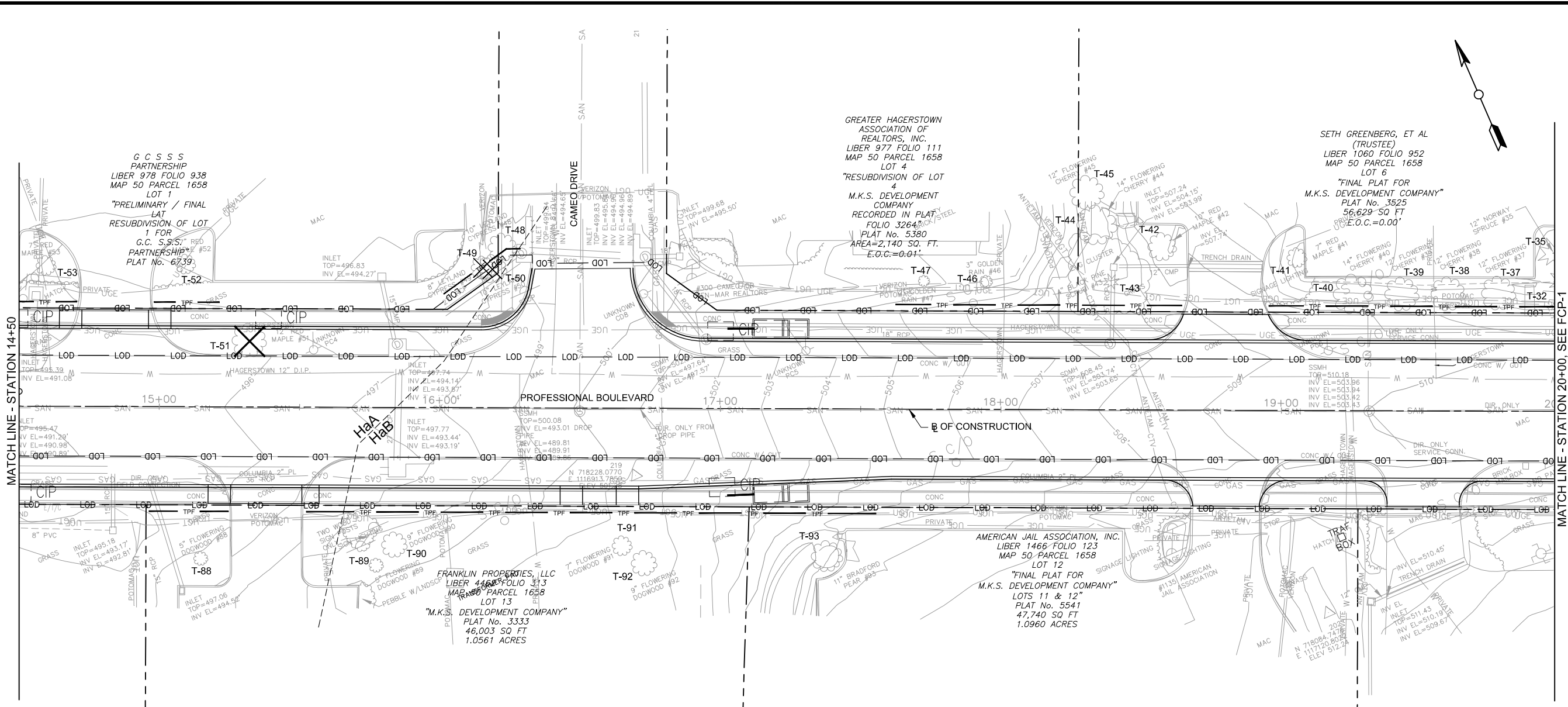
- FOREST STAND DESIGNATION
- STREAMS
- FEMA 100-YR FLOODPLAIN EFFECTIVE 8/15/17
- PROJECT BASELINE AND STATION No.
- SPECIMEN TREE WITH CRITICAL ROOT ZONE
- STREAM BUFFER (EXPANDED FOR STEEP SLOPES AND FLOOD PLAIN)
- ADD ALT. LIMIT OF DISTURBANCE



MATCH LINE - STATION 14+50

DESIGNED BY:	SJK	DATE:	
DRAWN BY:	CP	REVISION DESCRIPTION:	
CHECKED BY:	GRO	NO.	
DATE:	04/16/2014	BY:	
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING 			
<b>PROFESSIONAL BOULEVARD</b> <b>ROADSIDE TREE</b> <b>PROTECTION PLAN</b>			
SCALE		PROJECT NO.	
1"=20'		10-270	
SHEET NO.		DRAWING NUMBER	
52 OF 129		RTP - 1 OF 2	





**PROFESSIONAL BLVD. ROADSIDE TREE IMPACT TABLE**

Tree No.	Common Name	Scientific Name	DBH, in.	Condition	Remove ?
27	Arborvitae	<i>Thuja occidentalis</i>	7	Good	Yes
48	Leyland cypress	* <i>Hesperotropis leylandii</i>	10	Fair	No
51	Red maple	<i>Acer rubrum</i>	12	Good	Yes*
54	Red maple	<i>Acer rubrum</i>	14	Fair	Yes*
55	Red maple	<i>Acer rubrum</i>	10	Fair	Yes*
56	Red maple	<i>Acer rubrum</i>	12	Good	Yes*
58	Red maple	<i>Acer rubrum</i>	13	Fair	Yes*
59	Red maple	<i>Acer rubrum</i>	13	Poor	Yes*
62	Red maple	<i>Acer rubrum</i>	14	Fair	Yes*
63	Red maple	<i>Acer rubrum</i>	8	Poor	Yes*
64	Red maple	<i>Acer rubrum</i>	4	Good	Yes*
74	Flowering cherry	<i>Prunus sp.</i>	4	Good	Yes*
75	Flowering cherry	<i>Prunus sp.</i>	4	Good	Yes*
76	Flowering cherry	<i>Prunus sp.</i>	4	Good	Yes*
77	Japanese zelkova	<i>Zelkova serrata</i>	2	Good	Yes*
78	Japanese zelkova	<i>Zelkova serrata</i>	4	Good	Yes*
79	Japanese zelkova	<i>Zelkova serrata</i>	4	Fair	Yes*
80	Japanese zelkova	<i>Zelkova serrata</i>	4	Good	Yes*
81	Flowering cherry	<i>Prunus sp.</i>	4	Good	No
82	Flowering cherry	<i>Prunus sp.</i>	3	Good	No
83	Flowering cherry	<i>Prunus sp.</i>	3	Good	No

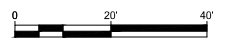
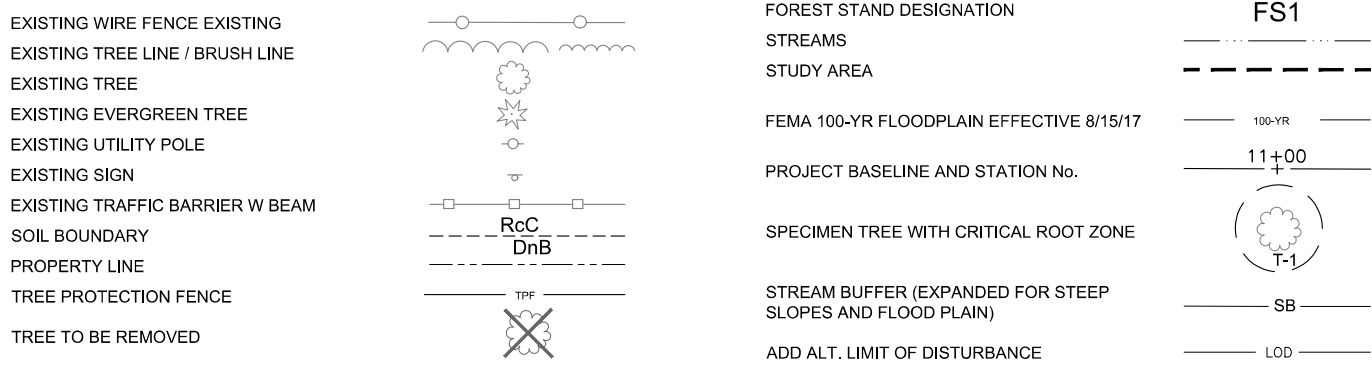
\* Removal only if Add Alternate will be done.

Roadside Forest Impact (FS1 in road ROW)			
acres total impact	FCP-1	FCP-2	Total, SF
0.32	5,926	7,906	13,832

**NOTES:**

- SEE FCP-8 FOR TREE TABLE, AND FCP-1 FOR SOILS TABLE.
- TPF SHOWN OUTSIDE LOD FOR GRAPHICAL PURPOSES ONLY. SEE FCP-9 FOR TREE PROTECTION DETAILS.
- ROOT PRUNE ALONG LOD ADJACENT TO TPF AT DIRECTION OF MD LICENSED TREE EXPERT DURING CONSTRUCTION.
- SEE LANDSCAPE PLAN FOR ROADSIDE TREE PLANTINGS.

**LEGEND**

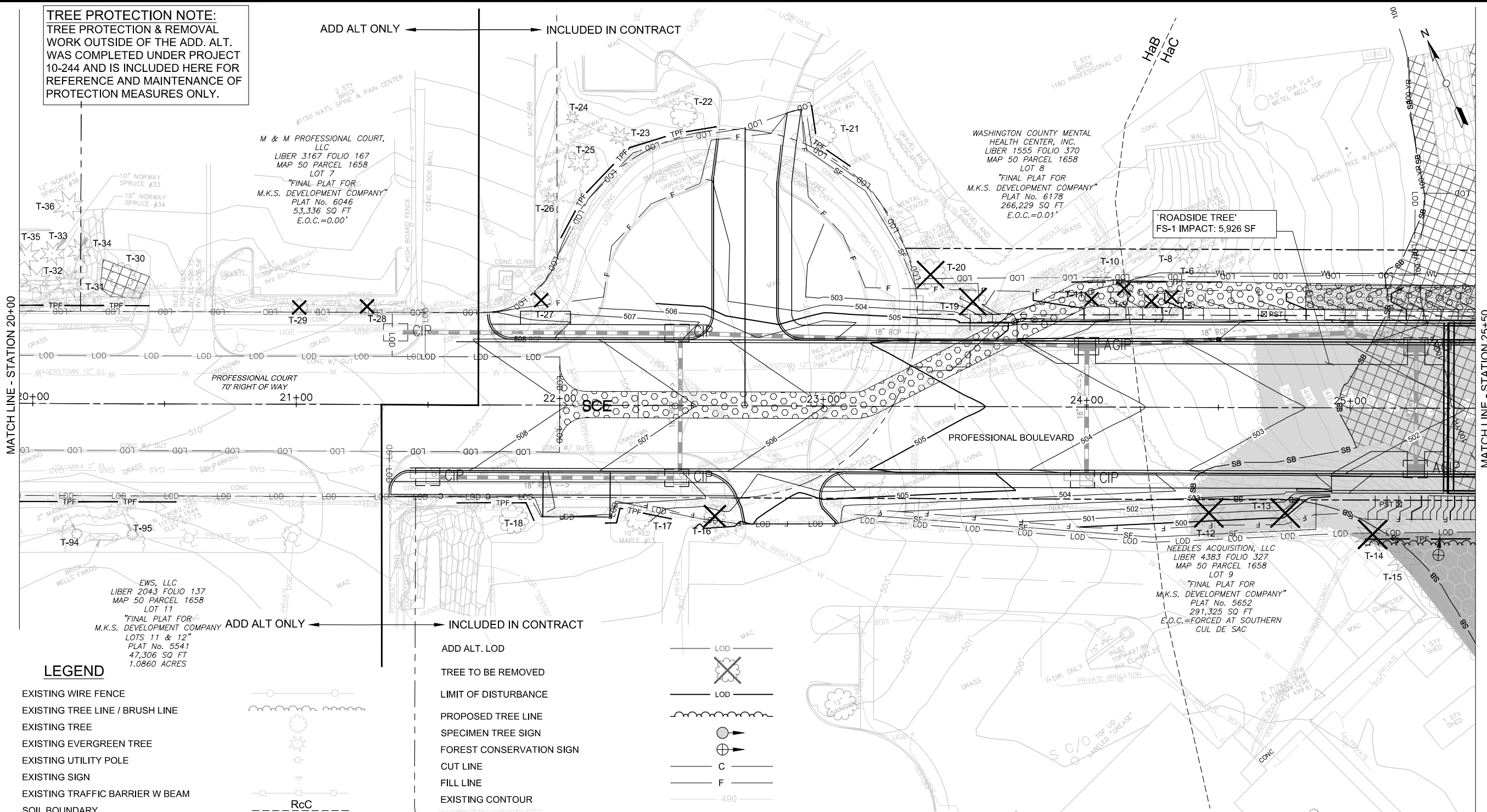


DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY: SJK	
DRAWN BY: CP	
CHECKED BY: GFO	
DATE: APRIL 2011	
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING 	
<b>PROFESSIONAL BOULEVARD</b> <b>ROADSIDE TREE</b> <b>PROTECTION PLAN</b>	
SCALE	1"=20'
SHEET NO.	53 OF 129
DRAWING NUMBER	RTP - 2 OF 2
PROJECT NO.	10-270

\\bolso01\2014\2014\14187\_WashCoProj\Phase II Contract\CADD\Plans\RTP\_P12.dwg

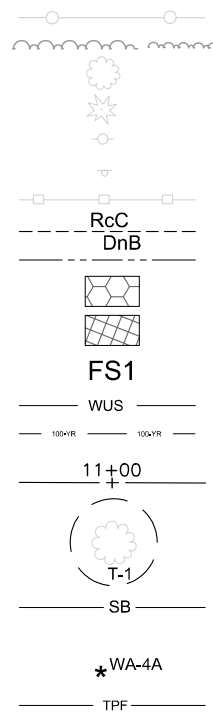
**TREE PROTECTION NOTE:**  
 TREE PROTECTION & REMOVAL WORK OUTSIDE OF THE ADD. ALT. WAS COMPLETED UNDER PROJECT 10-244 AND IS INCLUDED HERE FOR REFERENCE AND MAINTENANCE OF PROTECTION MEASURES ONLY.

ADD ALT ONLY ← → INCLUDED IN CONTRACT



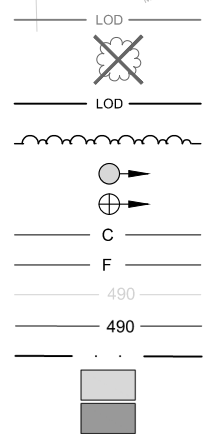
**LEGEND**

- EXISTING WIRE FENCE
- EXISTING TREE LINE / BRUSH LINE
- EXISTING TREE
- EXISTING EVERGREEN TREE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING TRAFFIC BARRIER W BEAM
- SOIL BOUNDARY
- PROPERTY LINE
- STEEP SLOPES (>25%)
- STEEP SLOPES ON ERODIBLE SOILS (≥ 15% AND ≤ 25% WITH K FACTOR ≥ 0.35)
- FOREST STAND DESIGNATION
- STREAMS
- FEMA 100-YR FLOODPLAIN EFFECTIVE 8/15/17
- PROJECT BASELINE AND STATION No.
- SPECIMEN TREE WITH ROOT ZONE
- STREAM BUFFER (EXPANDED FOR STEEP SLOPES AND FLOOD PLAIN)
- STREAM FLAG LOCATION
- TREE PROTECTION FENCE



ADD ALT. LOD

- TREE TO BE REMOVED
- LIMIT OF DISTURBANCE
- PROPOSED TREE LINE
- SPECIMEN TREE SIGN
- FOREST CONSERVATION SIGN
- CUT LINE
- FILL LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- UTILITY EASEMENT
- FOREST TO BE CLEARED
- FOREST TO BE RETAINED

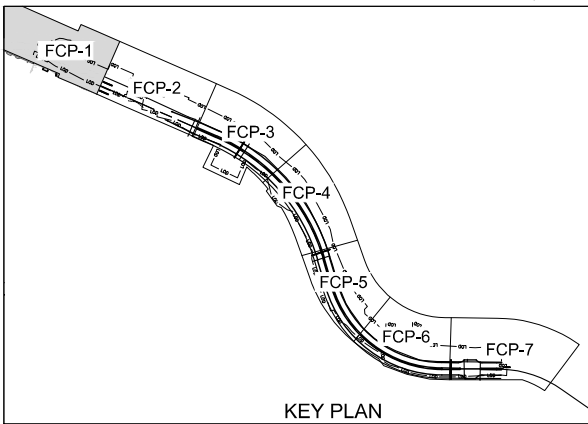


**SOILS TABLE**

Soil Code	Description	K-Factor, Whole Soil	Hydric
DsB	Duffield silt loam, 3 to 8 percent slopes	0.37	No
DsC	Duffield silt loam, 8 to 15 percent slopes	0.37	No
HaA	Hagerstown silt loam, 0 to 3 percent slopes	0.37	No
HaB	Hagerstown silt loam, 3 to 8 percent slopes	0.37	No
HaC	Hagerstown silt loam, 8 to 15 percent slopes	0.37	No
HcC	Hagerstown Rock outcrop complex, 8 to 15 percent slopes	0.32	No
RmB	Ryder-Duffield channery silt loams, 3 to 8 percent slopes	0.24	No
RmC	Ryder-Duffield channery silt loams, 3 to 15 percent slopes	0.24	No
SsA	Swanpond-Funkstown silt loams, 0 to 3 percent slopes	0.43	No
W	Water	-	unranked

**NOTES:**

1. SEE FCP-8 FOR TREE TABLE, AND FCP-1 FOR SOILS TABLE.
2. TPF, SPECIMEN TREE SIGN AND FOREST CONSERVATION SIGN SHOWN OUTSIDE LOD FOR GRAPHICAL PURPOSES ONLY. SEE FCP-9 FOR TREE PROTECTION DETAILS AND FOREST CONSERVATION WORKSHEET.
3. ROOT PRUNE ALONG LOD ADJACENT TO TPF AT DIRECTION OF MD LICENSED TREE EXPERT DURING CONSTRUCTION OF ADD. ALT. ALL ROOT PRUNING, MARKED TREE REMOVALS, AND TPF OUTSIDE OF THE ADD. ALT. WERE COMPLETED IN PREVIOUS PROJECT 10-244. TPF SHOULD BE MAINTAINED AS PART OF PROJECT 10-270.
4. SEE FCP-7 FOR FSD APPROVAL LETTER (FS-16-007).



*Signature*  
 MDNR QUALIFIED FOREST PROFESSIONAL

4/05/19  
 DATE



PLAN NO.  
 FCP - 1 OF 9

DATE		BY		REVISION DESCRIPTION		NO	
DESIGNED BY:	SJK	DRAWN BY:	CP	CHECKED BY:	GRO	DATE:	APRIL 2019

**WASHINGTON COUNTY, MARYLAND**  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

**PROFESSIONAL BOULEVARD**

**FOREST CONSERVATION PLAN**

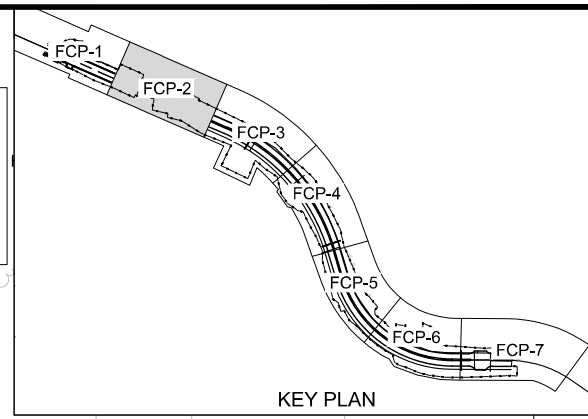
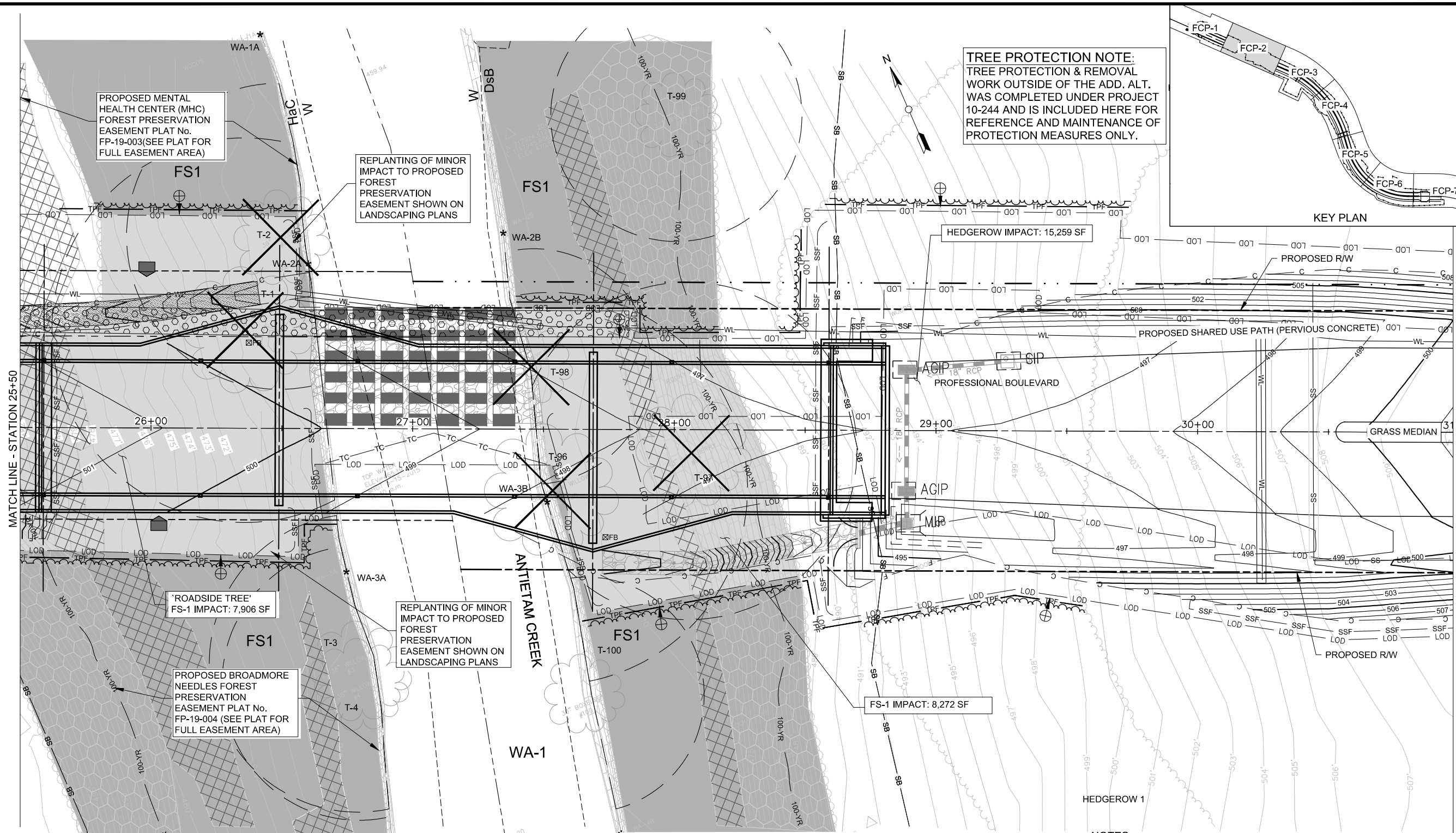
SCALE  
 1"=20'

SHEET NO.  
 54 OF 129

PROJECT NO.  
 10-270

\\balsrv01\work\2014\14187\_WashCoProf\Phase II Contract\CADD\Plans\FCP\_Ph2.dwg

\\balsrv01\2014\2014\14187\WashCoProf\Phase II Contract\CADD\Plans\FCP\_Phr2.dwg



**TREE PROTECTION NOTE:**  
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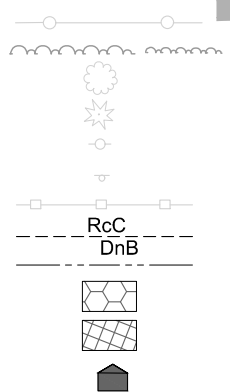
HEDGEROW IMPACT: 15,259 SF

'ROADSIDE TREE' FS-1 IMPACT: 7,906 SF

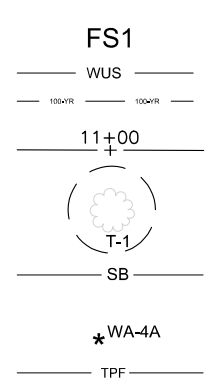
FS-1 IMPACT: 8,272 SF

**LEGEND**

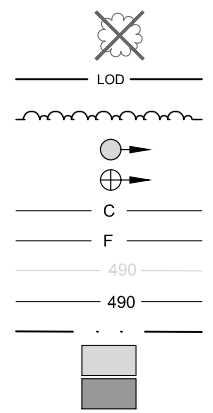
- EXISTING WIRE FENCE
- EXISTING TREE LINE / BRUSH LINE
- EXISTING TREE
- EXISTING EVERGREEN TREE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING TRAFFIC BARRIER W BEAM
- SOIL BOUNDARY
- PROPERTY LINE
- STEEP SLOPES (>25%)
- STEEP SLOPES ON ERODIBLE SOILS (≥ 15% AND ≤ 25% WITH K FACTOR ≥ 0.35)
- PERMANENT FOREST CONSERVATION SIGNS



- FOREST STAND DESIGNATION
- STREAMS
- FEMA 100-YR FLOODPLAIN EFFECTIVE 8/15/17
- PROJECT BASELINE AND STATION No.
- SPECIMEN TREE WITH CRITICAL ROOT ZONE
- STREAM BUFFER (EXPANDED FOR STEEP SLOPES AND FLOOD PLAIN)
- STREAM FLAG LOCATION
- TREE PROTECTION FENCE



- TREE TO BE REMOVED
- LIMIT OF DISTURBANCE
- PROPOSED TREE LINE
- SPECIMEN TREE SIGN
- FOREST CONSERVATION SIGN
- CUT LINE
- FILL LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- UTILITY EASEMENT
- FOREST TO BE CLEARED
- FOREST TO BE RETAINED



**NOTES:**

1. SEE FCP-8 FOR TREE TABLE, AND FCP-1 FOR SOILS TABLE.
2. TPF, SPECIMEN TREE SIGN AND FOREST CONSERVATION SIGN SHOWN OUTSIDE LOD FOR GRAPHICAL PURPOSES ONLY. SEE FCP-9 FOR TREE PROTECTION DETAILS AND FOREST CONSERVATION WORKSHEET.
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4. SEE FCP-7 FOR FSD APPROVAL LETTER (FS-16-007).

*Sam K. Kishner*  
 MDNR QUALIFIED FOREST PROFESSIONAL



4/5/19  
 DATE  
 PLAN No.  
 FCP - 2 OF 9

DESIGNED BY:	SJK	DATE:	
DRAWN BY:	CP	CHECKED BY:	GRO
NO.		DATE:	APRIL 2011
REVISION DESCRIPTION			
BY			
DATE			

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOUNDARY

FOREST CONSERVATION PLAN

SCALE  
 1"=20'

SHEET No.  
 55 OF 129

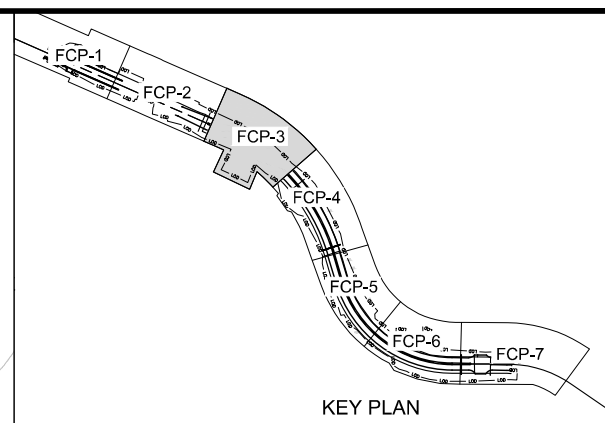
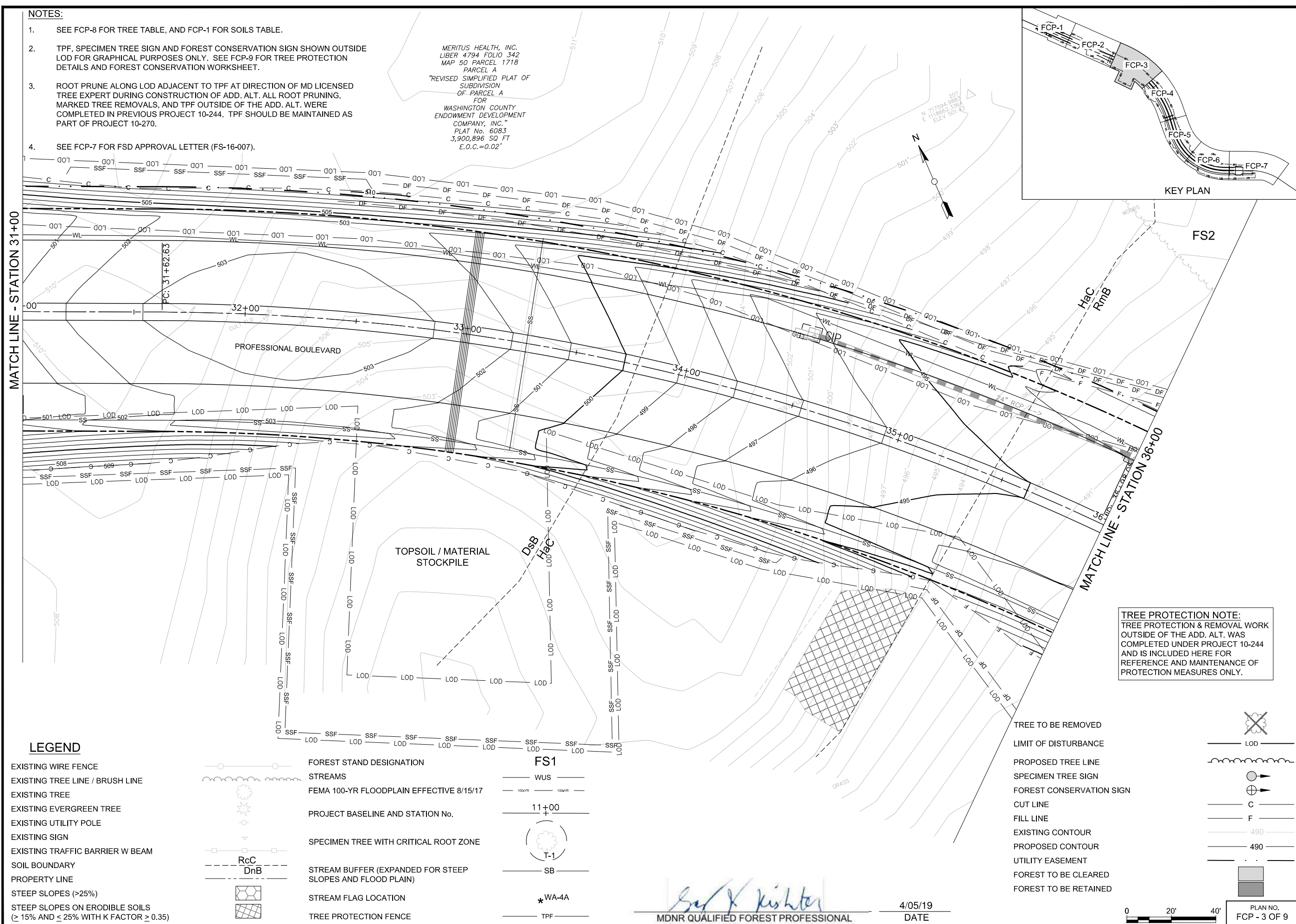
PROJECT No.  
 10-270

**NOTES:**

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- SEE FCP-7 FOR FSD APPROVAL LETTER (FS-16-007).

MERITUS HEALTH, INC.  
 LIBER 4794 FOLIO 342  
 MAP 50 PARCEL 1718  
 PARCEL A  
 "REVISED SIMPLIFIED PLAT OF  
 SUBDIVISION  
 OF PARCEL A  
 FOR  
 WASHINGTON COUNTY  
 ENDOWMENT DEVELOPMENT  
 COMPANY, INC."  
 PLAT No. 6083  
 3,900,896 SQ FT  
 E.O.C.=0.02'

MATCH LINE - STATION 31+00



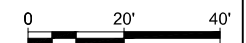
**LEGEND**

- EXISTING WIRE FENCE
- EXISTING TREE LINE / BRUSH LINE
- EXISTING TREE
- EXISTING EVERGREEN TREE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING TRAFFIC BARRIER W BEAM
- SOIL BOUNDARY
- PROPERTY LINE
- STEEP SLOPES (>25%)
- STEEP SLOPES ON ERODIBLE SOILS (> 15% AND ≤ 25% WITH K FACTOR ≥ 0.35)

- FOREST STAND DESIGNATION
- STREAMS
- FEMA 100-YR FLOODPLAIN EFFECTIVE 8/15/17
- PROJECT BASELINE AND STATION No.
- SPECIMEN TREE WITH CRITICAL ROOT ZONE
- STREAM BUFFER (EXPANDED FOR STEEP SLOPES AND FLOOD PLAIN)
- STREAM FLAG LOCATION
- TREE PROTECTION FENCE
- FS1
- WUS
- 11+00
- T-1
- SB
- \*WA-4A
- TPF

**TREE PROTECTION NOTE:**  
 TREE PROTECTION & REMOVAL WORK OUTSIDE OF THE ADD. ALT. WAS COMPLETED UNDER PROJECT 10-244 AND IS INCLUDED HERE FOR REFERENCE AND MAINTENANCE OF PROTECTION MEASURES ONLY.

- TREE TO BE REMOVED
- LIMIT OF DISTURBANCE
- PROPOSED TREE LINE
- SPECIMEN TREE SIGN
- FOREST CONSERVATION SIGN
- CUT LINE
- FILL LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- UTILITY EASEMENT
- FOREST TO BE CLEARED
- FOREST TO BE RETAINED



*Bar X Kichter*  
 MDNR QUALIFIED FOREST PROFESSIONAL  
 DATE 4/05/19

\\balsrv01\p2014\2014\14187\_WashCoProf\Phase II Contract\CADD\Plans\FCP\_P12.dwg

DESIGNED BY:	SJK	DATE:	
DRAWN BY:	CP	REVISION DESCRIPTION:	
CHECKED BY:	GRO	NO.	
DATE:	4/05/19	BY:	

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOUNDARY

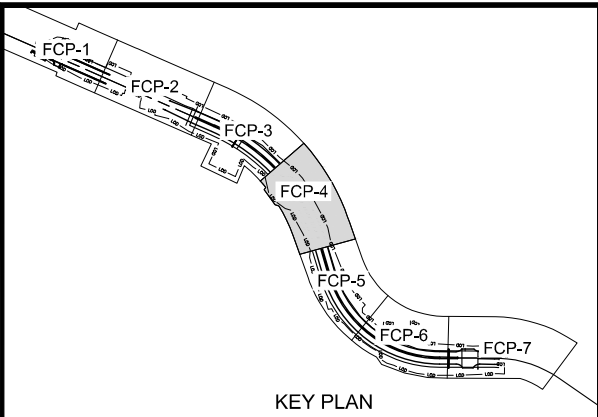
FOREST CONSERVATION PLAN

SCALE  
 1"=20'

SHEET NO.  
 56 OF 129

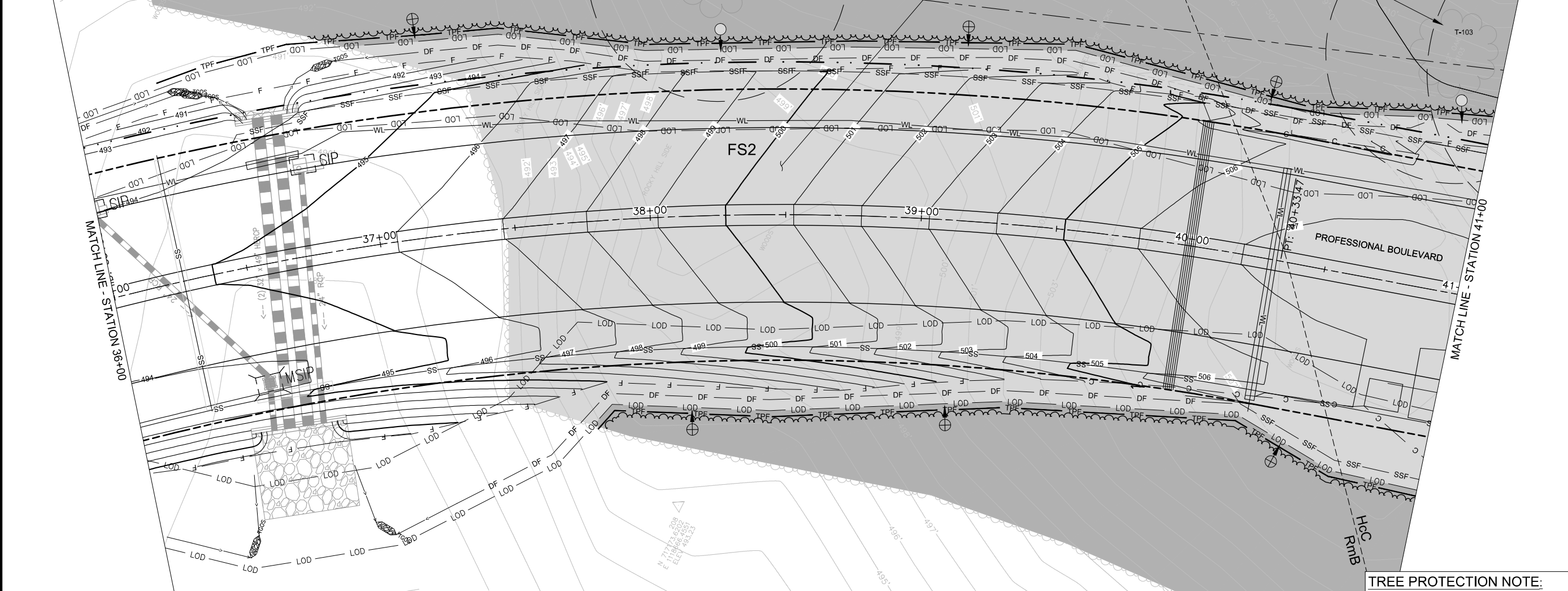
PROJECT NO.  
 10-270

PLAN NO.  
 FCP - 3 OF 9



**LTE NOTE:**  
 TREE T-102 AND T-103 TO BE EVALUATED BY ONSITE MD LICENSED TREE EXPERT (LTE) DURING AND AT THE END OF CONSTRUCTION AND REMOVED IF NEEDED TO PREVENT HAZARDOUS CONDITIONS

FS-2 IMPACT: 46,741 SF



**NOTES:**

- SEE FCP-8 FOR TREE TABLE, AND FCP-1 FOR SOILS TABLE.
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- SEE FCP-7 FOR FSD APPROVAL LETTER (FS-16-007).

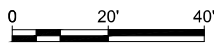
**LEGEND**

EXISTING WIRE FENCE	FOREST STAND DESIGNATION	UTILITY EASEMENT	FOREST TO BE CLEARED
EXISTING TREE LINE / BRUSH LINE	STREAMS	TREE PROTECTION FENCE	FOREST TO BE RETAINED
EXISTING TREE	STUDY AREA	TREE TO BE REMOVED	
EXISTING EVERGREEN TREE	FEMA PRELIMINARY MARCH 31, 2015	LOD	
EXISTING UTILITY POLE	PROJECT BASELINE AND STATION No.	PROPOSED TREE LINE	
EXISTING SIGN	SPECIMEN TREE WITH CRITICAL ROOT ZONE	SPECIMEN TREE SIGN	
EXISTING TRAFFIC BARRIER W BEAM	STREAM BUFFER (EXPANDED FOR STEEP SLOPES AND FLOOD PLAIN)	FOREST CONSERVATION SIGN	
SOIL BOUNDARY	STREAM FLAG LOCATION	CUT LINE	
PROPERTY LINE		FILL LINE	
STEEP SLOPES (>25%)		EXISTING CONTOUR	
STEEP SLOPES ON ERODIBLE SOILS (> 15% AND < 25% WITH K FACTOR >= 0.35)		PROPOSED CONTOUR	

**TREE PROTECTION NOTE:**  
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*Seif X Kishor*  
 MDNR QUALIFIED FOREST PROFESSIONAL

4/05/19  
 DATE



PLAN NO.  
 FCP - 4 OF 9

DESIGNED BY:	SJK	CHECKED BY:	GRO
DRAWN BY:	CP	DATE:	04/18/2019
NO.		REVISION DESCRIPTION	
BY			
DATE			

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 FOREST CONSERVATION PLAN

SCALE  
 1"=20'

SHEET NO.  
 57 OF 129

PROJECT NO.  
 10-270

- NOTES:**
- SEE FCP-8 FOR TREE TABLE, AND FCP-1 FOR SOILS TABLE.
  - TPF, SPECIMEN TREE SIGN AND FOREST CONSERVATION SIGN SHOWN OUTSIDE LOD FOR GRAPHICAL PURPOSES ONLY. SEE FCP-9 FOR TREE PROTECTION DETAILS AND FOREST CONSERVATION WORKSHEET.
  - ROOT PRUNE ALONG LOD ADJACENT TO TPF AT DIRECTION OF MD LICENSED TREE EXPERT DURING CONSTRUCTION OF ADD. ALT. ALL ROOT PRUNING, MARKED TREE REMOVALS, AND TPF OUTSIDE OF THE ADD. ALT. WERE COMPLETED IN PREVIOUS PROJECT 10-244. TPF SHOULD BE MAINTAINED AS PART OF PROJECT 10-270.
  - SEE FCP-7 FOR FSD APPROVAL LETTER (FS-16-007).

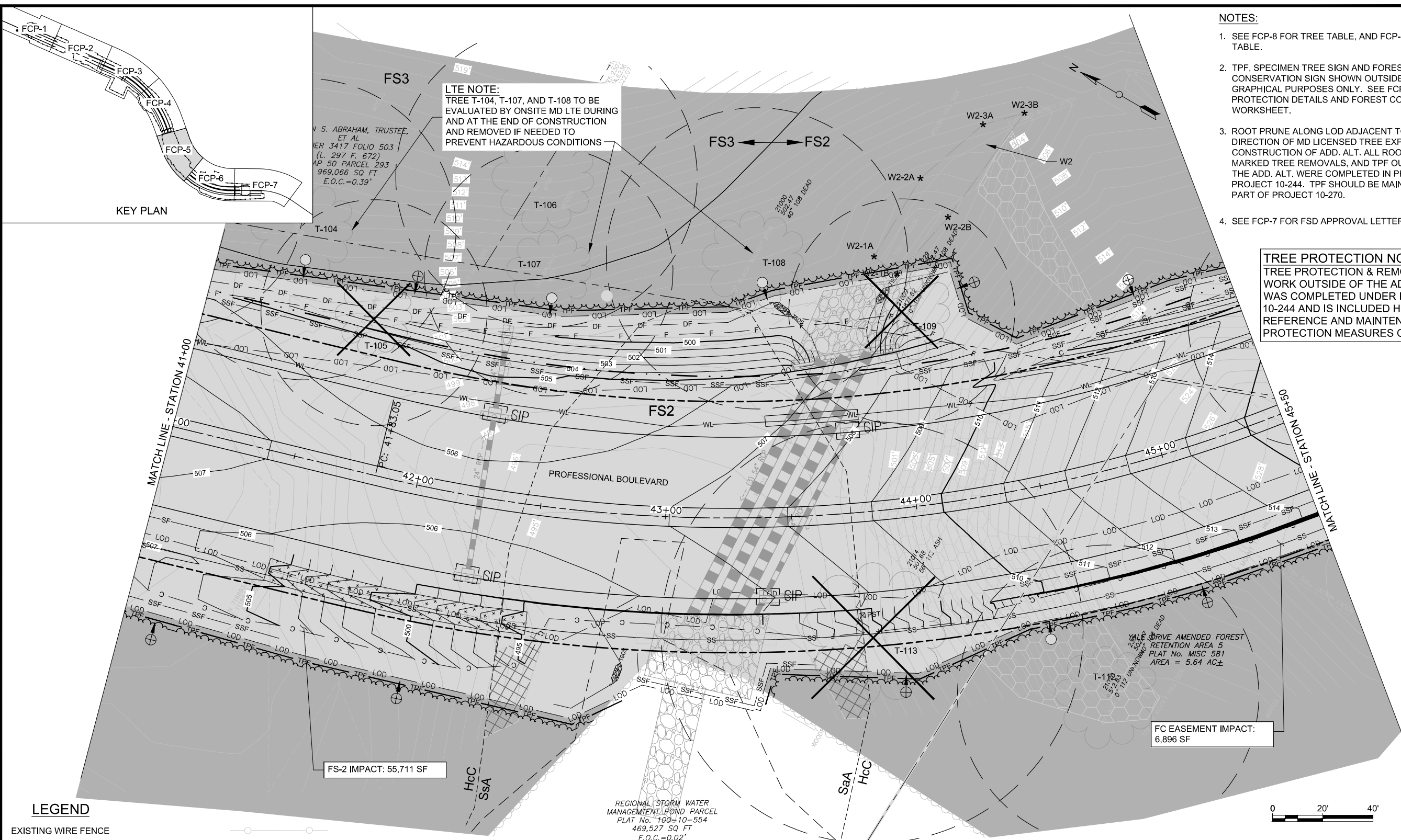
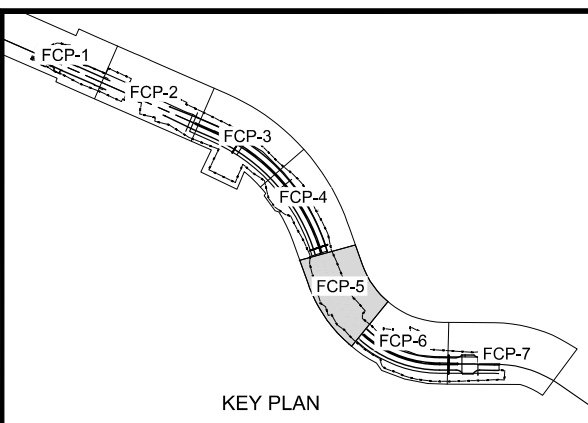
**TREE PROTECTION NOTE:**  
 TREE PROTECTION & REMOVAL WORK OUTSIDE OF THE ADD. ALT. WAS COMPLETED UNDER PROJECT 10-244 AND IS INCLUDED HERE FOR REFERENCE AND MAINTENANCE OF PROTECTION MEASURES ONLY.

**LTE NOTE:**  
 TREE T-104, T-107, AND T-108 TO BE EVALUATED BY ONSITE MD LTE DURING AND AT THE END OF CONSTRUCTION AND REMOVED IF NEEDED TO PREVENT HAZARDOUS CONDITIONS

S. ABRAHAM, TRUSTEE, ET AL  
 DEED 3417 FOLIO 503 (L. 297 F. 672)  
 AP 50 PARCEL 293  
 969,066 SQ FT  
 E.O.C.=0.39'

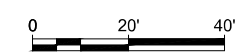
FC EASEMENT IMPACT:  
 6,896 SF

FS-2 IMPACT: 55,711 SF



**LEGEND**

- |  |  |   |  |                                       |  |
|--|--|---|--|---------------------------------------|--|
| EXISTING WIRE FENCE  |  | FEMA 100-YR FLOODPLAIN EFFECTIVE 8/15/17                  |  | LIMIT OF DISTURBANCE                  |  |
| EXISTING TREE LINE / BRUSH LINE  |  | PROJECT BASELINE AND STATION No.                          |  | PROPOSED TREE LINE                    |  |
| EXISTING TREE  |  | SPECIMEN TREE WITH CRITICAL ROOT ZONE                     |  | SPECIMEN TREE SIGN                    |  |
| EXISTING EVERGREEN TREE  |  | STREAM BUFFER (EXPANDED FOR STEEP SLOPES AND FLOOD PLAIN) |  | FOREST CONSERVATION SIGN              |  |
| EXISTING UTILITY POLE  |  | STREAM FLAG LOCATION                                      |  | CUT LINE                              |  |
| EXISTING SIGN  |  | TREE PROTECTION FENCE                                     |  | FILL LINE                             |  |
| EXISTING TRAFFIC BARRIER W BEAM  |  | TREE TO BE REMOVED  |  | EXISTING CONTOUR                      |  |
| SOIL BOUNDARY  |  |   |  | PROPOSED CONTOUR                      |  |
| PROPERTY LINE  |  |   |  | UTILITY EASEMENT                      |  |
| STEEP SLOPES (>25%)  |  |   |  | FOREST TO BE CLEARED                  |  |
| STEEP SLOPES ON ERODIBLE SOILS (> 15% AND < 25% WITH K FACTOR >= 0.35) |  |   |  | FOREST TO BE RETAINED                 |  |
| FOREST STAND DESIGNATION   |  |   |  | FOREST CONSERVATION EASEMENT BOUNDARY |  |
| STREAMS  |  |   |  |                                       |  |



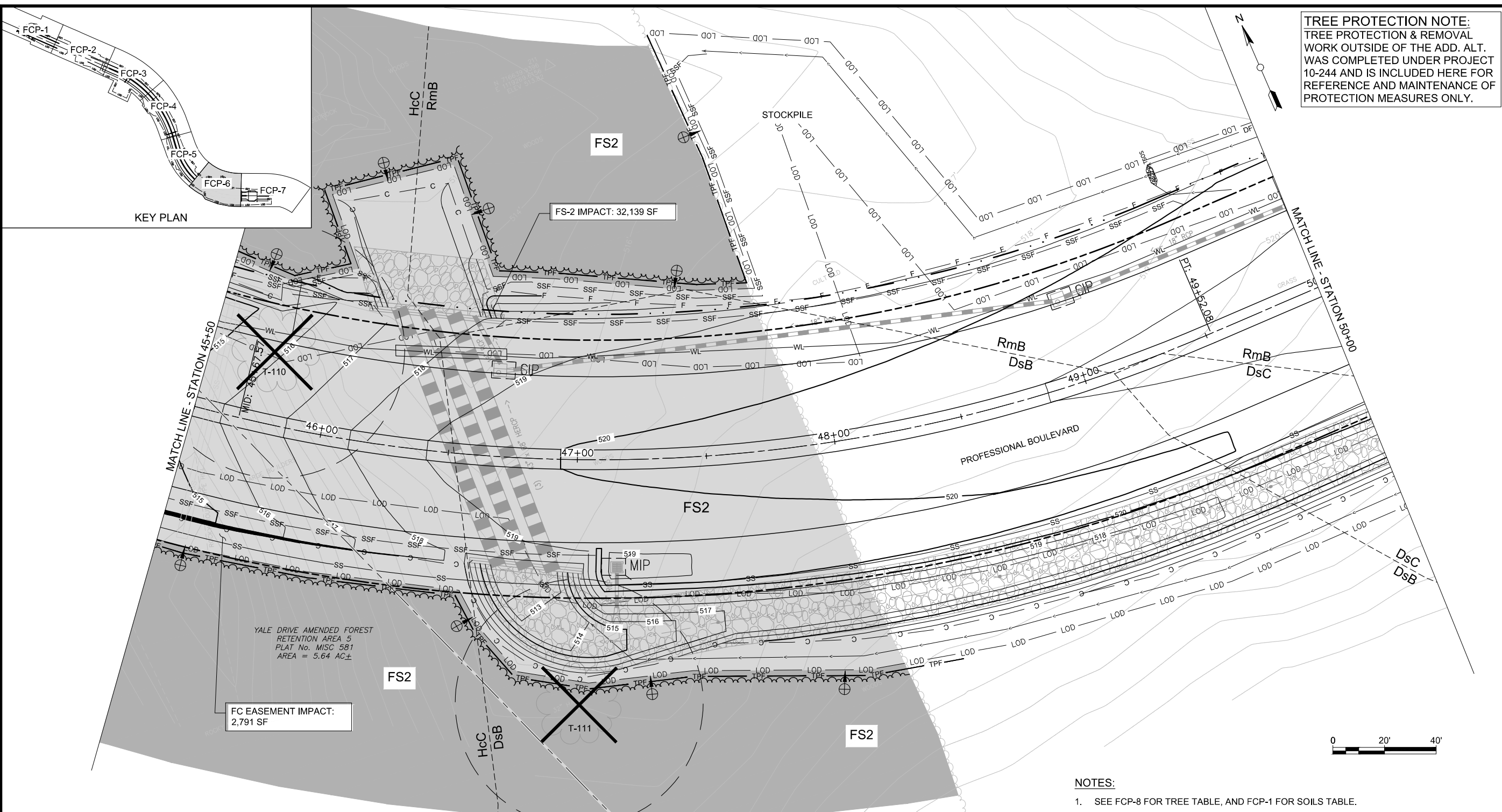
*Sam K. Richter*  
 MDNR QUALIFIED FOREST PROFESSIONAL

4/05/19  
 DATE

PLAN NO.  
 FCP - 5 OF 9

NO.	REVISION DESCRIPTION	DATE
DESIGNED BY:	SJK	
DRAWN BY:	CP	
CHECKED BY:	GRO	
DATE:	4/15/2019	
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING 		
Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2460 Fax: 240-313-2401		
<b>PROFESSIONAL BOULEVARD</b> <b>FOREST CONSERVATION PLAN</b>		
SCALE	1"=20'	SHEET NO.
		58 OF 129
PROJECT NO.	10-270	

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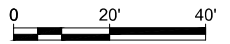
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KEY PLAN

FS-2 IMPACT: 32,139 SF

FC EASEMENT IMPACT: 2,791 SF

YALE DRIVE AMENDED FOREST RETENTION AREA 5  
 PLAT No. MISC 581  
 AREA = 5.64 AC±



**LEGEND**

- EXISTING WIRE FENCE
- EXISTING TREE LINE / BRUSH LINE
- EXISTING TREE
- EXISTING EVERGREEN TREE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING TRAFFIC BARRIER W BEAM
- SOIL BOUNDARY
- PROPERTY LINE
- STEEP SLOPES (>25%)
- STEEP SLOPES ON ERODIBLE SOILS (> 15% AND ≤ 25% WITH K FACTOR ≥ 0.35)
- PERMANENT FOREST CONSERVATION SIGNS

- FOREST STAND DESIGNATION
- STREAMS
- FEMA 100-YR FLOODPLAIN EFFECTIVE 8/15/17
- PROJECT BASELINE AND STATION No.
- SPECIMEN TREE WITH CRITICAL ROOT ZONE
- STREAM BUFFER (EXPANDED FOR STEEP SLOPES AND FLOOD PLAN)
- STREAM FLAG LOCATION
- TREE PROTECTION FENCE

- TREE TO BE REMOVED
- LIMIT OF DISTURBANCE
- PROPOSED TREE LINE
- SPECIMEN TREE SIGN
- FOREST CONSERVATION SIGN
- CUT LINE
- FILL LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- UTILITY EASEMENT
- FOREST TO BE CLEARED
- FOREST TO BE RETAINED

**NOTES:**

1. SEE FCP-8 FOR TREE TABLE, AND FCP-1 FOR SOILS TABLE.
2. TPF, SPECIMEN TREE SIGN AND FOREST CONSERVATION SIGN SHOWN OUTSIDE LOD FOR GRAPHICAL PURPOSES ONLY. SEE FCP-9 FOR TREE PROTECTION DETAILS AND FOREST CONSERVATION WORKSHEET.
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4. SEE FCP-7 FOR FSD APPROVAL LETTER (FS-16-007).

*[Signature]*  
 MDNR QUALIFIED FOREST PROFESSIONAL

4/05/19  
 DATE

PLAN NO.  
 FCP - 6 OF 9

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: SJK  
 DRAWN BY: CP  
 CHECKED BY: GFO  
 DATE: 4/15/2019

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 FOREST CONSERVATION PLAN

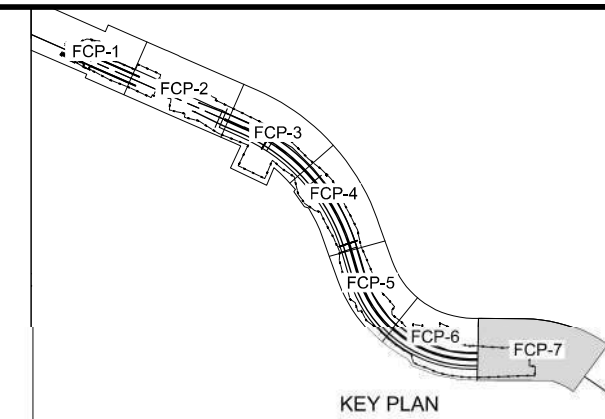
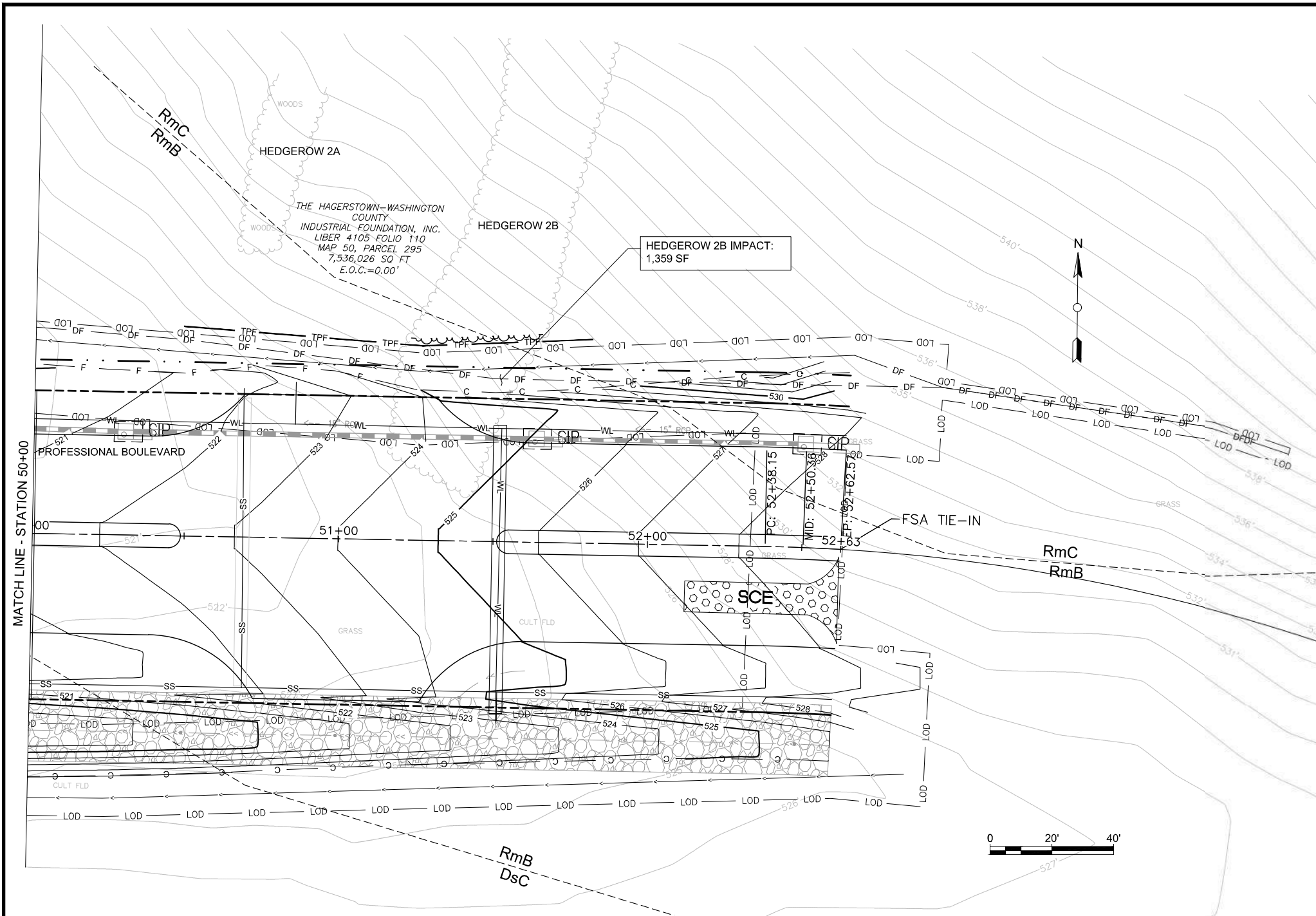
SCALE  
 1"=20'

SHEET NO.  
 59 OF 129

PROJECT NO.  
 10-270

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\\balsrv01\2014\2014\14187\_WashCoProf\Phase II Contract\CADD\Plans\FCP\_P12.dwg



**WASHINGTON COUNTY PLANNING COMMISSION**  
 Washington County Administration Building  
 100 West Washington Street, Suite 2600  
 Hagerstown, Maryland 21740-6003  
 Telephone: 703-240-313-2430  
 Fax: 240-313-2431  
 Hearing Impaired CALL 7-1-1 for Maryland Relay

06-22-2016

BOARD OF WASHINGTON COUNTY COMMISSIONERS  
 100 W. WASHINGTON STREET  
 HAGERSTOWN, MD  
 C/O ANDREW ESHLEMAN - ECM ENGINEERING 21740

FOREST STAND : PROF. BLVD. BRIDGE & EXTENSION  
 PROPERTY OWNER : BOARD OF WASHINGTON COUNTY COMMISSIONERS  
 DELINEATION NO : FS-16-007

Dear Sirs:

This is to inform you that the FOREST STAND DELINEATION referenced above was acted on by the Commission on 06/22/2016 and was:

X APPROVED  
 - DISAPPROVED FOR THE REASONS STATED BELOW

This letter shall be made a part of the Forest Conservation Plan that must accompany the subdivision plat submittal for the above referenced property.

This Forest Stand Delineation is valid for five (5) years from this date. If not submitted with a subdivision plat within the five year period, the approval shall become void.

Sincerely,  
  
 By: Terry Reizer, Chairman  
 Washington County Planning Commission

CONDITIONS:  
 TR/TRI/LAK  
 CC: RUMMEL, KLEPPER & KAHL, LLP

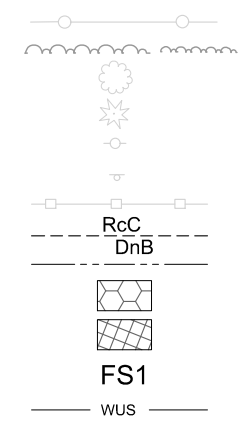
NO.	REVISION DESCRIPTION	BY	DATE

**WASHINGTON COUNTY, MARYLAND**  
 DIVISION OF ENGINEERING  
  
 Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

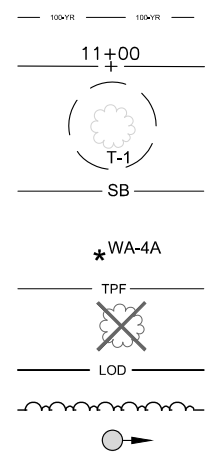
**PROFESSIONAL BOULEVARD**  
**FOREST CONSERVATION PLAN**

**LEGEND**

- EXISTING WIRE FENCE
- EXISTING TREE LINE / BRUSH LINE
- EXISTING TREE
- EXISTING EVERGREEN TREE
- EXISTING UTILITY POLE
- EXISTING SIGN
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- FOREST STAND DESIGNATION
- STREAMS

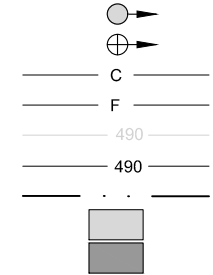


- FEMA 100-YR FLOODPLAIN EFFECTIVE 8/15/17
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- SPECIMEN TREE WITH CRITICAL ROOT ZONE
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- TREE TO BE REMOVED
- LIMIT OF DISTURBANCE
- PROPOSED TREE LINE
- SPECIMEN TREE SIGN



- SPECIMEN TREE SIGN
- FOREST CONSERVATION SIGN
- CUT LINE
- FILL LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- UTILITY EASEMENT
- FOREST TO BE CLEARED
- FOREST TO BE RETAINED

**TREE PROTECTION NOTE:**  
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**NOTES:**

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MDNR QUALIFIED FOREST PROFESSIONAL

4/05/19  
 DATE

PLAN NO.  
 FCP - 7 OF 9

SCALE  
 1"=20'  
 SHEET NO.  
 60 OF 129  
 PROJECT NO.  
 10-270



PROFESSIONAL BLVD. TREE TABLE						
Tree No.	Common Name	Scientific Name	Remove?	DBH, in.	Condition	RT? Comments
1	Boxelder	<i>Acer negundo</i>	Yes	49	Fair	Lots of water sprouts, deadwood, cavities, included bark, lean
2	Crack willow	<i>Salix fragilis</i>	Yes	39	Poor	Basal decay and deadwood, crown decline
3	Crack willow	<i>Salix fragilis</i>	No	38	Poor	Broken crown, deadwood
4	Crack willow	<i>Salix fragilis</i>	No	35	Poor	Basal decay, broken crown, deadwood
5	Spruce	<i>Picea sp.</i>	Yes	8	Good	ornamental spruce
6	Norway spruce	<i>Picea abies</i>	No	5	Good	
7	Norway spruce	<i>Picea abies</i>	Yes	9	Good	
8	Norway spruce	<i>Picea abies</i>	No	8	Good	
9	Norway spruce	<i>Picea abies</i>	Yes	8	Good	
10	Spruce	<i>Picea sp.</i>	No	7	Good	ornamental spruce
11	Spruce	<i>Picea sp.</i>	Yes	5	Good	ornamental spruce
12	White pine	<i>Pinus strobus</i>	Yes	13	Good	Included bark, minor deadwood
13	White pine	<i>Pinus strobus</i>	Yes	13	Good	Minor deadwood
14	White pine	<i>Pinus strobus</i>	Yes	14	Fair	Poor crown structure, improper pruning
15	White pine	<i>Pinus strobus</i>	No	14	Fair	Poor crown structure, included bark
16	Red maple	<i>Acer rubrum</i>	Yes	8	Fair	Mulch volcano
17	Red maple	<i>Acer rubrum</i>	No	10	Fair	Mulch volcano, improper pruning
18	Red maple	<i>Acer rubrum</i>	No	11	Fair	Girdled roots, mulch volcano
19	Flowering cherry	<i>Prunus sp.</i>	Yes	10	Fair	Girdling roots, included bark
20	Flowering cherry	<i>Prunus sp.</i>	Yes	11	Fair	Improper pruning cuts, girdling roots, included bark
21	Flowering cherry	<i>Prunus sp.</i>	No	10	Fair	Girdling roots, improper pruning cuts, included bark
22	Flowering cherry	<i>Prunus sp.</i>	No	10	Good	Included bark, improper pruning
23	Norway spruce	<i>Picea abies</i>	No	8	Good	
24	Norway spruce	<i>Picea abies</i>	No	5	Fair	Thin crown
25	Norway spruce	<i>Picea abies</i>	No	9	Good	
26	White pine	<i>Pinus strobus</i>	No	5	Poor	Thin crown, fluorosis
27	Arbutus	<i>Thuja occidentalis</i>	Yes	7	Good	Y
28	Crapemyrtle	<i>Lagerstroemia indica</i>	Yes	4	Good	
29	Crapemyrtle	<i>Lagerstroemia indica</i>	Yes	4	Poor	Deadwood
30	Red maple	<i>Acer rubrum</i>	No	10	Good	Minor deadwood
31	Norway spruce	<i>Picea abies</i>	No	12	Good	
32	Norway spruce	<i>Picea abies</i>	No	12	Good	
33	Norway spruce	<i>Picea abies</i>	No	10	Fair	Deadwood, overtopped
34	Norway spruce	<i>Picea abies</i>	No	10	Good	
35	Norway spruce	<i>Picea abies</i>	No	12	Good	
36	Norway spruce	<i>Picea abies</i>	No	12	Good	
37	Flowering cherry	<i>Prunus sp.</i>	No	12	Fair	Included bark, girdling roots
38	Flowering cherry	<i>Prunus sp.</i>	No	12	Fair	Girdling roots
39	Flowering cherry	<i>Prunus sp.</i>	No	12	Fair	Girdling roots
40	Flowering cherry	<i>Prunus sp.</i>	No	14	Fair	Girdling roots
41	Red maple	<i>Acer rubrum</i>	No	7	Good	
42	Red maple	<i>Acer rubrum</i>	No	10	Good	Included bark, mulch volcano
43	Jack pine	<i>Pinus banksiana</i>	No	6	Fair	Multiple stems in clusters
44	Flowering cherry	<i>Prunus sp.</i>	No	14	Good	Included bark
45	Flowering cherry	<i>Prunus sp.</i>	No	12	Fair	Girdling roots, included bark
46	Goldenrain tree	<i>Koeleruteria paniculata</i>	No	3	Good	Mulch volcano
47	Goldenrain tree	<i>Koeleruteria paniculata</i>	No	2	Poor	Mulch volcano, stem decay
48	Leyland cypress	<i>Hesperotropis leylandii</i>	No	10	Fair	Y Deadwood, Cameo Dr. ROW
49	Leyland cypress	<i>Hesperotropis leylandii</i>	Yes*	10	Fair	Deadwood
50	Leyland cypress	<i>Hesperotropis leylandii</i>	Yes*	8	Fair	Deadwood
51	Red maple	<i>Acer rubrum</i>	Yes*	12	Good	Y Included bark, girdling root
52	Red maple	<i>Acer rubrum</i>	No	7	Good	
53	Red maple	<i>Acer rubrum</i>	No	7	Good	
54	Red maple	<i>Acer rubrum</i>	Yes*	14	Fair	Y Included bark
55	Red maple	<i>Acer rubrum</i>	Yes*	10	Fair	Y Girdling roots
56	Red maple	<i>Acer rubrum</i>	Yes*	12	Good	Y Included bark, minor girdling root
57	White pine	<i>Acer rubrum</i>	No	5	Fair	Missshapen crown
58	Red maple	<i>Acer rubrum</i>	Yes*	13	Fair	Y Included bark, girdling roots
59	Red maple	<i>Acer rubrum</i>	Yes*	13	Poor	Y Girdling to its, included bark, stem decay
60	Green ash	<i>Fraxinus pennsylvanica</i>	No	4	Good	
61	Pin oak	<i>Quercus palustris</i>	No	9	Good	
62	Red maple	<i>Acer rubrum</i>	Yes*	14	Fair	Y Included bark, girdling roots
63	Red maple	<i>Acer rubrum</i>	Yes*	8	Poor	Y Stem decay, included bark, girdling roots
64	Red maple	<i>Acer rubrum</i>	Yes*	4	Good	Y Minor deadwood
65	White pine	<i>Pinus strobus</i>	No	5	Fair	Scale insects, girdled by staking and guying
66	Pin oak	<i>Quercus palustris</i>	No	11	Good	
67	Sawtooth oak	<i>Quercus acutissima</i>	No	17	Good	Mulch volcano
68	Ginkgo	<i>Ginkgo biloba</i>	No	5	Good	Mulch volcano
69	Sawtooth oak	<i>Quercus acutissima</i>	No	13	Good	Mulch volcano
70	Red maple	<i>Acer rubrum</i>	No	4	Good	Mulch volcano
71	Red maple	<i>Acer rubrum</i>	No	4	Fair	Mulch volcano, deadwood
72	Red maple	<i>Acer rubrum</i>	No	4	Fair	Mulch volcano, stem defect
73	Leyland Cypress hedge	<i>Hesperotropis leylandii</i>	No	6	Good	Hedge row of 21 leyland cypress
74	Flowering cherry	<i>Prunus sp.</i>	Yes*	4	Good	Y Eastern Blvd. median
75	Flowering cherry	<i>Prunus sp.</i>	Yes*	4	Good	Y Eastern Blvd. median
76	Flowering cherry	<i>Prunus sp.</i>	Yes*	4	Good	Y Eastern Blvd. median
77	Japanese zelkova	<i>Zelkova serrata</i>	Yes*	2	Good	Y Eastern Blvd. median
78	Japanese zelkova	<i>Zelkova serrata</i>	Yes*	4	Good	Y Included bark, Eastern Blvd. median
79	Japanese zelkova	<i>Zelkova serrata</i>	Yes*	4	Fair	Y Deadwood, interfering branches, included bark, E. Blvd. median
80	Japanese zelkova	<i>Zelkova serrata</i>	Yes*	4	Good	Y Included bark, Eastern Blvd. median
81	Flowering cherry	<i>Prunus sp.</i>	No	4	Good	Y Eastern Blvd. median
82	Flowering cherry	<i>Prunus sp.</i>	No	3	Good	Y Eastern Blvd. median
83	Flowering cherry	<i>Prunus sp.</i>	No	3	Good	Y Eastern Blvd. median
84	Flowering cherry	<i>Prunus sp.</i>	No	4	Good	
85	Flowering cherry	<i>Prunus sp.</i>	No	3	Good	
86	Sawtooth oak	<i>Quercus acutissima</i>	No	18	Poor	Central stem decay, mulch volcano, girdling roots
87	Ginkgo	<i>Ginkgo biloba</i>	No	9	Fair	Girdling root
88	Flowering dogwood	<i>Comus florida</i>	No	5	Fair	Included bark, improper pruning cuts
89	Flowering dogwood	<i>Comus florida</i>	No	5	Fair	Deadwood, included bark
90	Flowering dogwood	<i>Comus florida</i>	No	9	Good	

91	Flowering dogwood	<i>Comus florida</i>	No	7	Good	Included bark
92	Flowering dogwood	<i>Comus florida</i>	No	9	Good	Included bark, improper pruning cuts
93	Bradford pear	<i>Pyrus calleryana</i>	No	11	Good	Mulch volcano
94	Star magnolia	<i>Magnolia stellata</i>	No	2	Fair	Interfering branches, included bark
95	Star magnolia	<i>Magnolia stellata</i>	No	2	Fair	Interfering branches, included bark
96	Crack willow	<i>Salix fragilis</i>	Yes	50	Poor	Hollow stem, broken leads, deadwood
97	Hackberry	<i>Celtis occidentalis</i>	Yes	43	Poor	Major stem defect/decay
98	Sycamore	<i>Platanus occidentalis</i>	Yes	30	Good	
99	White ash	<i>Fraxinus americana</i>	No	32	Poor	Broken top, deadwood
100	Boxelder	<i>Acer negundo</i>	No	30	Poor	Hollow stem, lean, deadwood
101	Black walnut	<i>Juglans nigra</i>	No	32	Fair/good	Vines in canopy, some dead branches
102	Black walnut	<i>Juglans nigra</i>	No**	32	Poor	Large cavity in trunk, large broken branches, bacterial staining on lower trunk, large area outer bark damage, heartwood decay
103	White oak	<i>Quercus alba</i>	No**	32	Fair	Large Dead branches, scant crown
104	Northern red oak	<i>Quercus rubra</i>	No**	40	Poor	Major bark damage, rotting heartwood, large dead br., large wound starts in canopy & runs to bottom of trunk, vines in lower canopy
105	Sycamore	<i>Platanus occidentalis</i>	Yes	30	Fair	Med-large dead branches, included bark, double trunk, slight lean
106	White oak	<i>Quercus alba</i>	No	40	Fair	Large trunk wound, large dead branches
107	Black walnut	<i>Juglans nigra</i>	No**	33	Poor	lot of large dead br. vines in canopy, small canopy, bark damage
108	Black walnut	<i>Juglans nigra</i>	No**	40	Poor	Dead
109	Black oak	<i>Quercus velutina</i>	Yes	32	Fair	Included bark, slight lean, minor dead branches, split leader, conks
110	Green ash	<i>Fraxinus pennsylvanica</i>	Yes	33	Fair	Splits ~5', included bark, dead branches
111	Hackberry	<i>Celtis occidentalis</i>	Yes	32	Fair/good	Split leader, moderate dead branches, girdling roots
112	Green ash	<i>Fraxinus pennsylvanica</i>	No	40	Fair	Dead branches, vines in the canopy
113	Green ash	<i>Fraxinus pennsylvanica</i>	Yes	56	Fair/poor	Significant large dead branches, vines in lower canopy, bark damage, some decay into heartwood

NOTES: 1. Tree survey conducted April 2015 by Sally J. Kishter, ISA #MA-4996A/MD LTE #1731/QP and Greg O'Hare, LPF/ISA/MD LTE/JP of RK&K, LLP.  
 2. RT = Roadside Tree  
 3. Specimen Trees in bold text (trees ≥ 30" DBH)  
 4. Removals outside of the add. Alt. were completed in previous contract 10-244, and are only included here for reference.  
 \* Removal only if Add Alternate will be done.  
 \*\* LTE to evaluate during & post-construction and remove if needed to prevent hazardous conditions.

### TREE CONDITION ASSESSMENT GUIDELINES:

EXCELLENT- HEALTHY TREE WITH EXCEPTIONAL GROWTH FORM; NO VISIBLE DEFECTS; WELL-FORMED CROWN; FEW MINOR DEAD BRANCHES ACCEPTABLE; THIS TREE CONDITION IS RARE.

GOOD- HEALTHY TREE; VERY MINOR DEFECTS/DECAY ACCEPTABLE WITH CALLOUS FORMING/COMPLETE; WELL-FORMED CROWN; MINOR LEAN AND/OR FEW MINOR/MAJOR DEAD BRANCHES ACCEPTABLE; VINES MAY BE GROWING ALONG TRUNK BUT NOT PRESENT WITHIN CROWN.

FAIR- HEALTH QUESTIONABLE/STRESS EVIDENT; STRUCTURALLY SOUND TREE; DEFECTS PRESENT THAT DO NOT AFFECT STRUCTURAL INTEGRITY; MODERATE LEAN; MINOR/MAJOR DEAD BRANCHES MAY BE PRESENT; CROWN NOT BROKEN OUT BUT NOT NECESSARILY WELL FORMED OR EVEN; VINES MAY BE GROWING ALONG TRUNK AND WITHIN CROWN.

EX- FAIR TREE COULD BE EXPERIENCING INSECT DAMAGE, OR EXHIBIT A GROWTH FORM THAT MAKES IT VERY SUSCEPTIBLE TO WIND DAMAGE IN AN OPEN SETTING.

POOR- SIGNIFICANT HEALTH PROBLEMS; MAY BE STRUCTURALLY UNSOUND; MAY BE DEAD OR DYING; MAY CONTAIN SIGNIFICANT DECAY; MAY HAVE BROKEN OR MISSING TOP/CROWN; MAY HAVE HEAVY LEAN; VINES MAY BE SIGNIFICANTLY AFFECTING TREE HEALTH.

NOTE: THESE GUIDELINES WERE DEVELOPED IN-HOUSE BASED ON THE PROFESSIONAL JUDGEMENT OF OUR CERTIFIED ARBORISTS AND OTHER SENIOR ENVIRONMENTAL STAFF. THESE GUIDELINES SHOULD BE INCORPORATED INTO DOCUMENTS (SUCH AS FSD'S) WHENEVER A TREE ASSESSMENT IS CONDUCTED.

FOREST STAND & IMPACT TABLE								
ID	Association	Successional stage	Dominant Species	Dominant Size Class	Notes	Condition	Impact (\$F)	Impact (AC)
FS1	Sycamore-Green Ash-Boxelder-Silver Maple	early-mid	Boxelder & Sycamore	6-11" & 12-20"	Antietam Creek riparian forest, scattered specimen trees, moderate invasives	Fair to Poor	3,272	0.19
FS2	Sycamore-Green Ash-Boxelder-Silver Maple	mid	Green Ash, Boxelder & Black Walnut	12-20"	some specimen trees, moderate invasives	Fair	144,278	3.31
FS3	Mixed Oak	mid-late	White & Red Oaks	20-30"	some specimen trees, moderate invasives	Fair to Good	0	0.00
<b>TOTAL FOREST IMPACT:</b>							<b>152,550</b>	<b>3.50</b>

NOTES:  
 1. Additional impacts to FS 1 are within the City of Hagerstown, and are FCA exempt since a preliminary plan for the entire MKS Business park, including street Rights of Way, was approved October 1990 (Article 7-A-3.b-11). See FCP Note 4 on drawing FCP-9.  
 2. 7,361 SF of the FS 1 impact is located within the 100-Yr Floodplain, which is a Net Tract Area Deduction. See FC Worksheet on FCP-9.  
 3. 0.22 AC of the FS 2 impact is within the existing Vale Drive Amended Forest Retention Area 5, Plat No. Misc. 581.

  
 MDNR QUALIFIED FOREST PROFESSIONAL

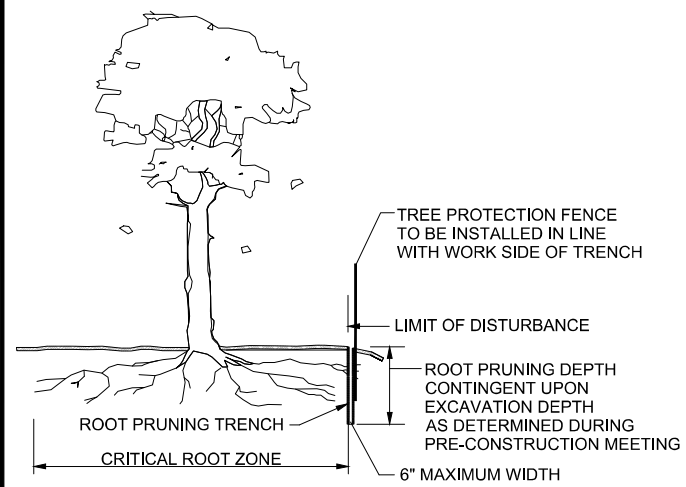
4/05/19  
 DATE

PLAN NO.  
 FCP - 8 OF 9

SHEET NO.  
 61 OF 129

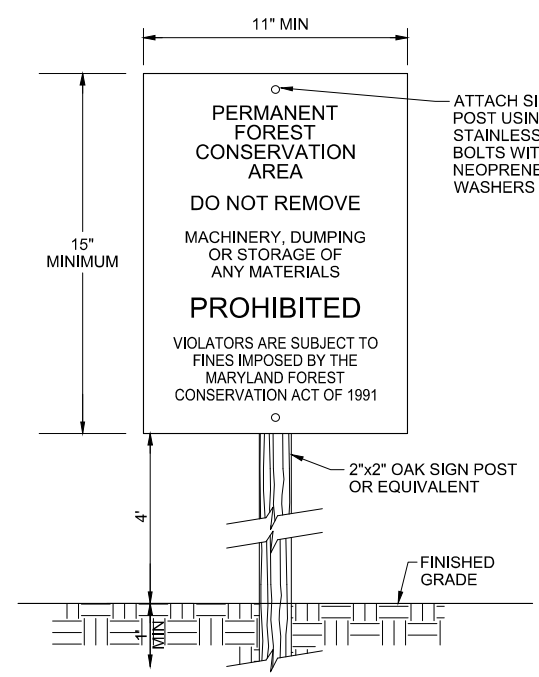
PROJECT NO.  
 10-270





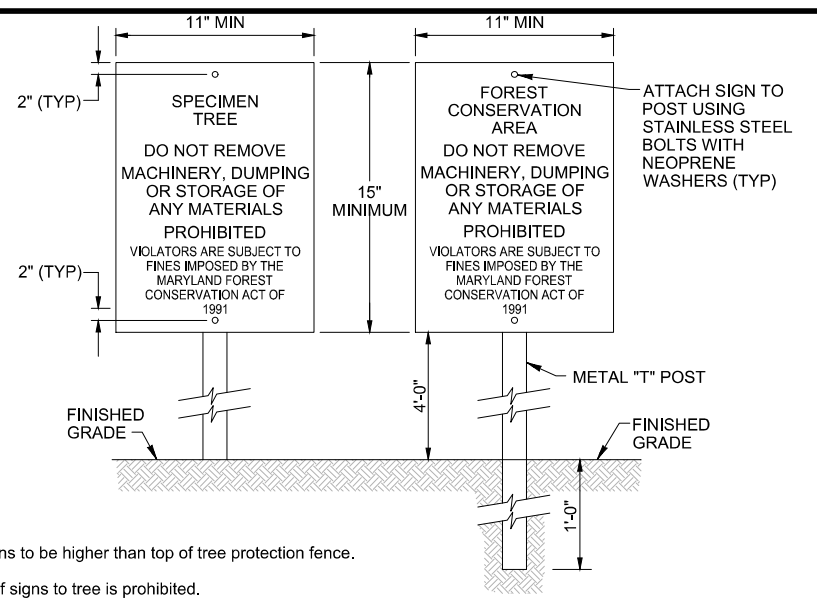
- Notes:
- Retention Areas to be established as part of the forest conservation plan review process.
  - Boundaries of Retention Areas to be staked, flagged and/or fenced prior to trenching.
  - Exact location of trench should be identified.
  - Trench should be immediately backfilled with soil removed or organic soil.
  - Roots should be cleanly cut using vibratory knife or other acceptable equipment.
  - In some instances, it may be beneficial to perform root pruning at the edge of the excavation rather than at the LOD, provided the roots between the edge of excavation and the LOD are protected during construction.

ROOT PRUNING DETAIL  
N.T.S.



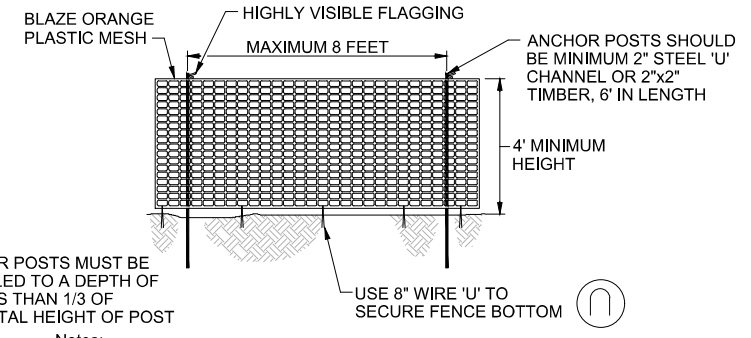
PERMANENT FOREST CONSERVATION SIGN DETAILS  
N.T.S.

- NOTES:
- USE SHOP-FABRICATED, RIGID PLASTIC OR METAL SHEET WITH ATTACHMENT HOLES PRE-PUNCHED AND REINFORCED; LEGIBLY PRINTED WITH NONFADING LETTERING.
  - PLACE SIGNS AS NOTED ON PLANS.
  - ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.



- Notes:
- Bottom of signs to be higher than top of tree protection fence.
  - Attachment of signs to tree is prohibited.
  - Attach signs to metal "T" posts or directly to tree protection fence/existing chain link fence.
  - Signs to be placed approximately 50' apart. Conditions on site may warrant placing signs closer or farther apart.

TREE PROTECTION SIGN DETAIL  
N.T.S.



ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL HEIGHT OF POST

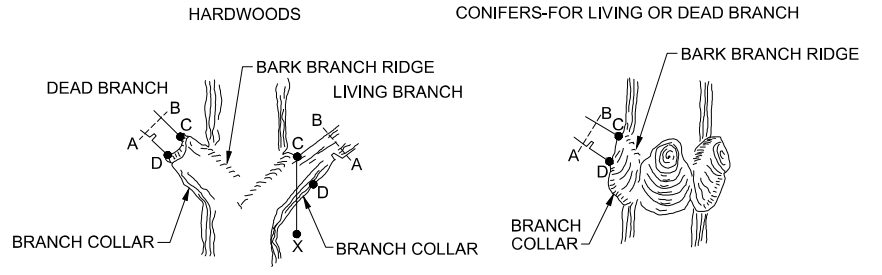
Notes:

- Boundaries of retention area should be staked and flagged prior to installing device.
- Root damage should be avoided.
- Device should be maintained throughout construction.

TREE PROTECTION FENCE  
N.T.S.

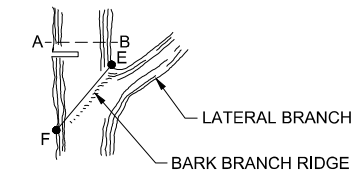
FCP NOTES:

- FOREST CONSERVATION PLANS WERE PREPARED BY SALLY KISHTER, QUALIFIED PROFESSIONAL USING FIELD DATA COLLECTED ON APRIL 1 & 23, 2015.
- THE NET TRACT AREA FOR FOREST CONSERVATION IS 8.52 ACRES (SEE FOREST CONSERVATION WORKSHEET ON THIS SHEET). MINOR FOREST IMPACTS (0.22 ACRES) IN AN EXISTING FOREST CONSERVATION EASEMENT ARE ANTICIPATED AT "YALE DRIVE AMENDED FOREST RETENTION AREA 5", PLAT NO. MISC. 581 (NEAR PROJECT STATION 45 ON FCP PLAN SHEET 5). THIS WILL BE MITIGATED 1:1 WITH NEW FOREST PRESERVATION.
- ALL FOREST IMPACTS ASSOCIATED WITH THIS PROJECT WITHIN WASHINGTON COUNTY ARE SUBJECT TO THE FOREST CONSERVATION ACT (FCA). A ROADSIDE TREE PERMIT (RTP) WILL BE REQUIRED FOR THE EXISTING CITY OF HAGERSTOWN ROAD SECTION.
- ALL FOREST IMPACTS WEST OF ANTIETAM CREEK/IN THE CITY OF HAGERSTOWN ARE FCA EXEMPT SINCE A PRELIMINARY PLAN FOR THE ENTIRE MKS BUSINESS PARK, INCLUDING STREET RIGHTS OF WAY, WAS APPROVED OCTOBER 1990 (ARTICLE 7-A-3.b-11).
- NO WETLANDS WERE IDENTIFIED WITHIN THE STUDY AREA, HOWEVER A PORTION OF THE PROJECT IS LOCATED INSIDE THE FEMA-100 YEAR FLOODPLAIN FOR ANTIETAM CREEK. FLOODPLAIN DATA WAS OBTAINED FROM FEMA/FIRM MAPPING AND SOIL DATA WAS OBTAINED FROM THE USDA NRCS SOIL SURVEY GEOGRAPHIC (SSURGO) DATABASE FOR WASHINGTON COUNTY, MARYLAND. IN THEIR MAY 28, 2015 LETTER, MDNR PRD STATED THAT ANTIETAM CREEK AND TRIBUTARIES NEAR THE SITE ARE USE IV-P STREAMS, WITH AN IN-STREAM WORK RESTRICTION OF MARCH 1 THROUGH MAY 31 INCLUSIVE DURING ANY YEAR.
- IN A MARCH 24, 2015 RESPONSE LETTER, MDNR W&H INDICATED THAT THERE ARE NO STATE OR FEDERAL RTE RECORDS WITHIN THE PROJECT BOUNDARIES. IN THEIR 10/9/2017 RESPONSE, USFWS DETERMINED THAT EXCEPT FOR OCCASIONAL TRANSIENT INDIVIDUALS, NO FEDERALLY PROPOSED OR LISTED ENDANGERED OR THREATENED SPECIES ARE KNOWN TO EXIST WITHIN THE PROJECT IMPACT AREA. THE UPDATED SEARCH WAS CONDUCTED DUE TO FREQUENT CHANGES IN THE USFWS'S INFORMATION FOR PLANNING AND CONSULTATION DATABASE. NO RTES OR RTE HABITAT WAS OBSERVED DURING THE FIELD INVESTIGATION.
- IN THEIR MARCH 13, 2015 LETTER, MHT DETERMINED THAT THE PROJECT WILL HAVE NO ADVERSE AFFECT ON THE TWO NATIONAL REGISTER OF HISTORIC PLACES PROPERTIES LOCATED NEARBY, AND NO ADDITIONAL STUDIES PERTAINING TO THE HISTORIC BUILT ENVIRONMENT ARE NEEDED. A PHASE I ARCHAEOLOGICAL SURVEY WAS CONDUCTED IN MAY 2015 PER MHT'S REQUEST. NO INTACT CULTURAL RESOURCES WERE IDENTIFIED IN THE PHASE I SURVEY WITH THE EXCEPTION OF TWO ISOLATED FINDS, AND MHT AGREED IN THEIR JULY 27, 2015 RESPONSE TO THE PHASE I REPORT THAT, "NO FURTHER ARCHAEOLOGICAL INVESTIGATIONS ARE WARRANTED".
- THE LOD SHOWN ON THE FCP OUTSIDE OF THE ADD. ALT. AREA IS THE CONTRACT 10-244 LOD, AND THE CONTRACT 10-270 LOD IS COMPLETELY WITHIN THE CONTRACT 10-244 LOD. TREE PROTECTION SHOULD BE MAINTAINED ALONG THE 10-244 LOD.



- Notes:
- Remove branch weight by undercutting at A and remove limb by cutting through AB.
  - Remove stub at CD (line between branch bark ridge and outer edge of branch collar)
  - If D is difficult to find on hardwoods, angle of CD to trunk should be the reflective angle of the bark branch ridge to the trunk.
  - Only prune at specified times.
  - Remove no more than 30% of crown at one time.

PRUNING A BRANCH  
N.T.S.



- Notes:
- Remove top weight by undercutting at A and remove limb by cutting through AB.
  - Remove stub at EF parallel to the bark branch ridge.
  - Only prune at specified times.
  - No more than 30% of the crown to be removed at one time.
  - Diameter of lateral branch should be no less than 30% of the diameter of the leader.

PRUNING A LEADER TO REDUCE SIZE  
N.T.S.

Source: Adapted from Steve Clark & Associates/ACRT, Inc.

Forest Conservation Worksheet 2.2						
<b>Net Tract Area</b>						
A.	Total Tract Area				A = 8.91	
B.	Deductions (100-Yr Floodplain + Existing FCE)				B = 0.39	
C.	Net Tract Area				C = 8.52	
<b>Land Use Category</b>						
Input the number "1" under the appropriate land use zoning, and limit to only one entry						
	ARA	MDR	IDA	HDR	MPD	CIA
	0	0	0	0	0	1
D.	Afforestation Threshold ( Net Tract Area x 15% )					D = 1.28
E.	Conservation Threshold ( Net Tract Area x 15% )					E = 1.28
<b>Existing Forest Cover</b>						
F.	Existing Forest Cover within the Net Tract Area					F = 3.11
G.	Area of Forest Above Conservation Threshold					G = 1.83
<b>Break Even Point</b>						
H.	Break Even Point					H = 1.64
I.	Forest Clearing Permitted Without Mitigation					I = 1.47
<b>Proposed Forest Clearing</b>						
J.	Total Area of Forest to be Cleared					J = 3.11
K.	Total Area of Forest to be Retained					K = 0.00
<b>Planting Requirements</b>						
L.	Reforestation for Clearing Above the Conservation Threshold					L = 0.46
M.	Reforestation for Clearing Below the Conservation Threshold					M = 2.55
N.	Credit for Retention above the Conservation Threshold					N = 0.00
P.	Total Reforestation Required					P = 3.01
Q.	Total Afforestation Required					Q = 0.00
R.	Total Planting Requirement					R = 3.01
					Yale Drive FCE Impact	0.22
					Total Planting Requirement	3.24
		MHC	Eroadmore			
		1.77	1.36			3.13
		Roadside & Landscape Tree Planting Reforestation:				0.11
		Landscape Tree Planting (100 trees/acre):		11	3" cal. trees	

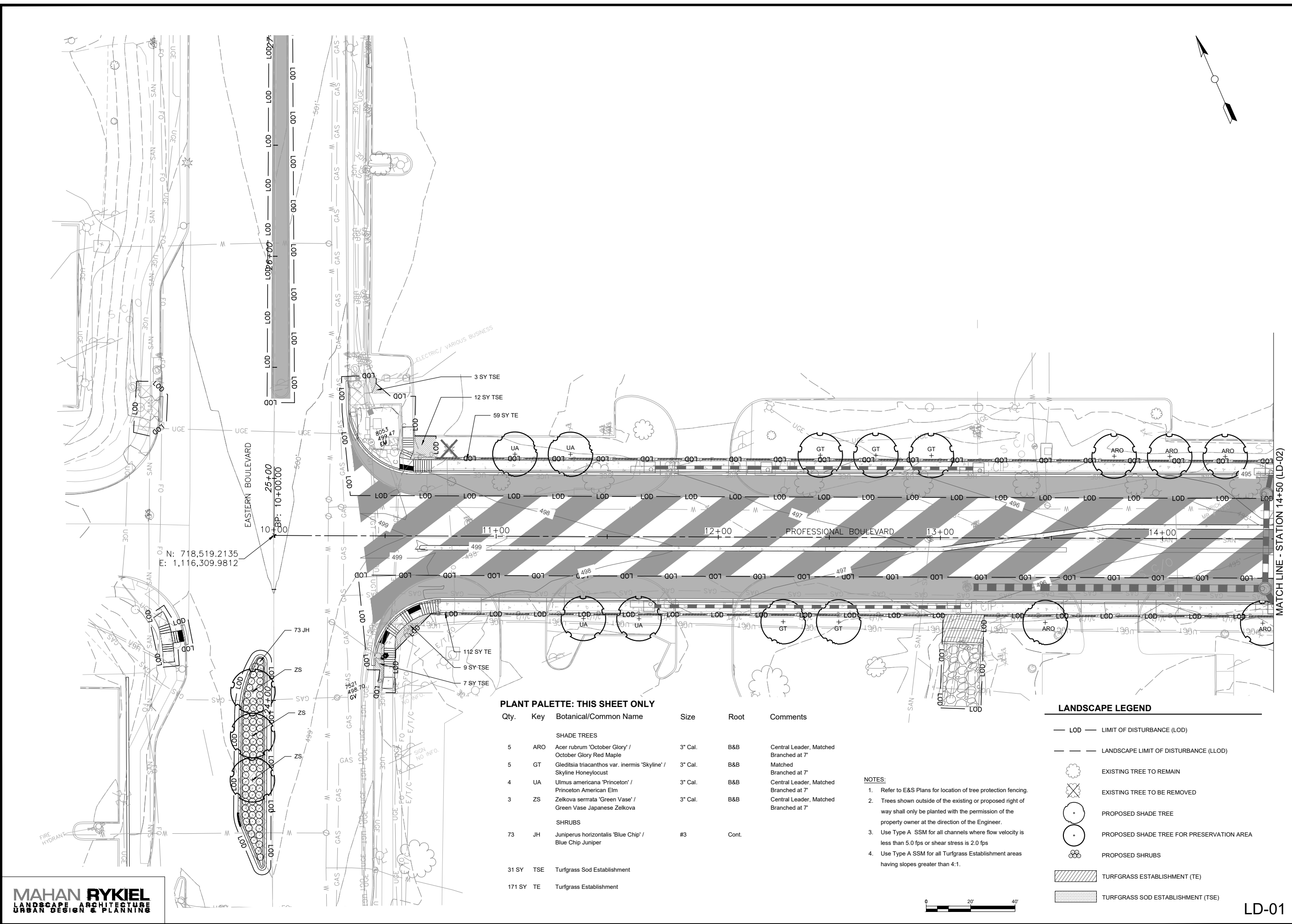
PLANTING NOTE:  
REQUIREMENT REMAINING AFTER FOREST PRESERVATION TO BE MET WITH ROADSIDE TREE AND LANDSCAPE TREE PLANTING (SEE LANDSCAPE PLANS FOR PLANTINGS).

*Sally K. Kishter*  
MDNR QUALIFIED FOREST PROFESSIONAL

4/5/19  
DATE

PLAN NO.  
FCP - 9 OF 9

DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY:	SJK
DRAWN BY:	CP
CHECKED BY:	GRO
DATE:	APRIL 2011
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING	
Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-312-2460 Fax: 240-312-2401	
PROFESSIONAL BOULEVARD FOREST CONSERVATION PLAN	
SCALE	1"=20'
SHEET NO.	62 OF 129
PROJECT NO.	10-270



N: 718,519.2135  
E: 1,116,309.9812

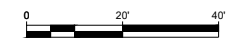
**PLANT PALETTE: THIS SHEET ONLY**

Qty.	Key	Botanical/Common Name	Size	Root	Comments
<b>SHADE TREES</b>					
5	ARO	Acer rubrum 'October Glory' / October Glory Red Maple	3" Cal.	B&B	Central Leader, Matched Branched at 7'
5	GT	Gleditsia triacanthos var. inermis 'Skyline' / Skyline Honeylocust	3" Cal.	B&B	Matched Branched at 7'
4	UA	Ulmus americana 'Princeton' / Princeton American Elm	3" Cal.	B&B	Central Leader, Matched Branched at 7'
3	ZS	Zelkova serrata 'Green Vase' / Green Vase Japanese Zelkova	3" Cal.	B&B	Central Leader, Matched Branched at 7'
<b>SHRUBS</b>					
73	JH	Juniperus horizontalis 'Blue Chip' / Blue Chip Juniper	#3	Cont.	
31 SY	TSE	Turfgrass Sod Establishment			
171 SY	TE	Turfgrass Establishment			

- NOTES:**
- Refer to E&S Plans for location of tree protection fencing.
  - Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
  - Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
  - Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.

**LANDSCAPE LEGEND**

- LOD — LIMIT OF DISTURBANCE (LOD)
- - - LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- PROPOSED SHADE TREE
- PROPOSED SHADE TREE FOR PRESERVATION AREA
- PROPOSED SHRUBS
- TURFGRASS ESTABLISHMENT (TE)
- TURFGRASS SOD ESTABLISHMENT (TSE)



LD-01

DESIGNED BY: AS / FL	DRAWN BY: AS / FL	CHECKED BY: JKS	DATE: APRIL 2019	
				REVISION DESCRIPTION
				NO.
				BY
				DATE

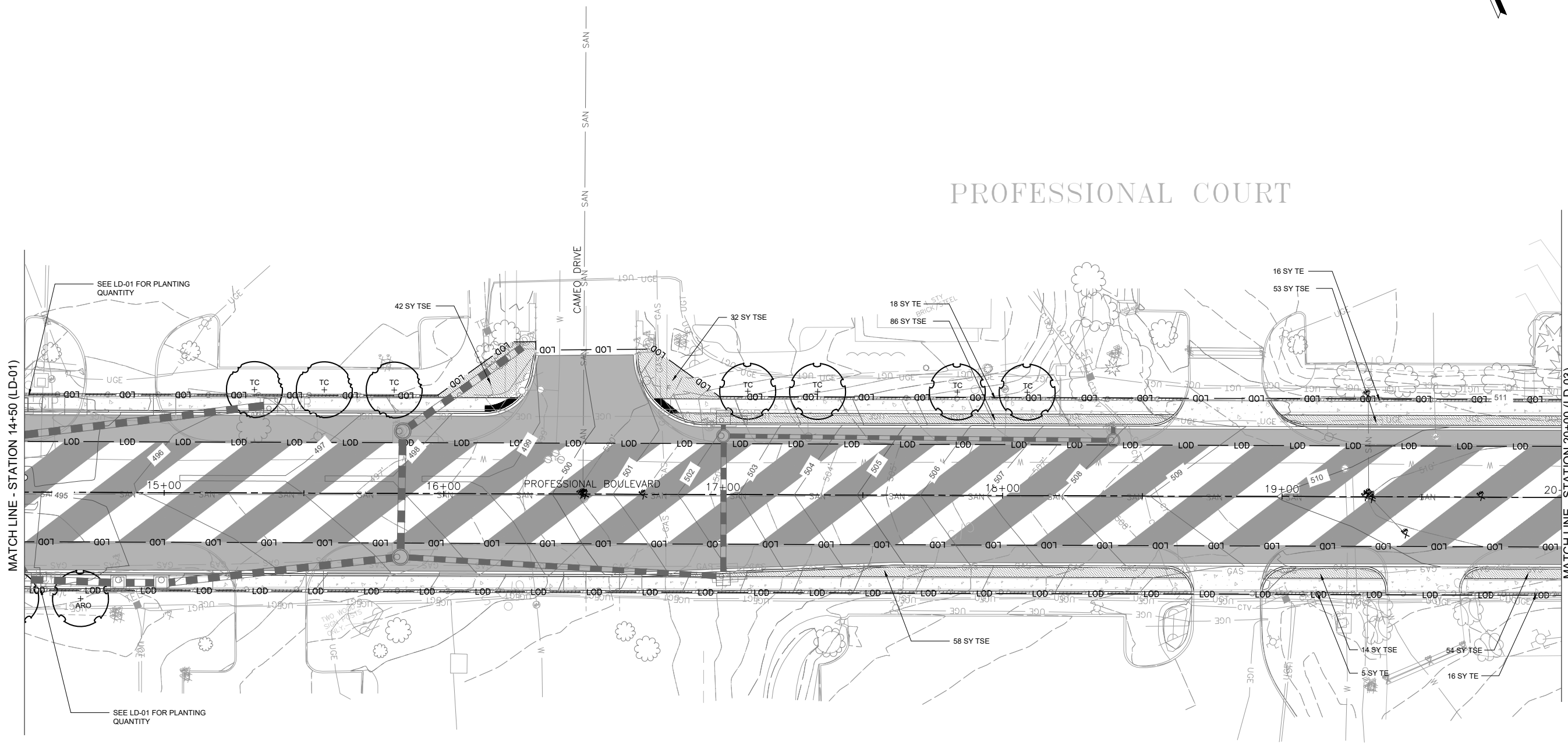
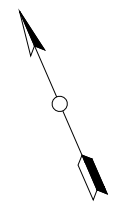
**WASHINGTON COUNTY, MARYLAND**  
DIVISION OF ENGINEERING

Washington County Administrative Annex - Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2660 Fax: 240-313-2401

**PROFESSIONAL BOULEVARD**

**LANDSCAPE PLAN**

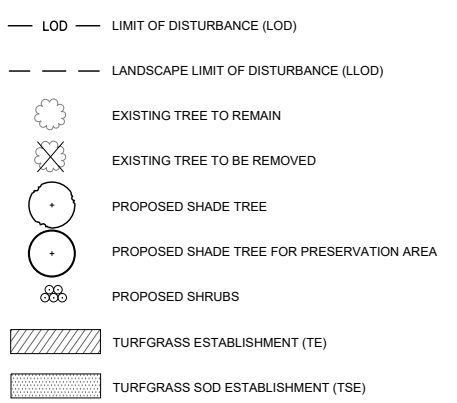
SCALE 1"=20'
SHEET NO. 63 OF 129
PROJECT NO. 10-270



# PROFESSIONAL COURT

## PROFESSIONAL BOULEVARD

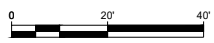
### LANDSCAPE LEGEND



### PLANT PALETTE: THIS SHEET ONLY

Qty.	Key	Botanical/Common Name	Size	Root	Comments
<b>SHADE TREES</b>					
1	ARO	Acer rubrum 'October Glory' / October Glory Red Maple	3" Cal.	B&B	Central Leader, Matched Branched at 7'
7	TC	Tilia cordata 'Greenspire' / Greenspire Little-leaf Linden	3" Cal.	B&B	Central Leader, Matched Branched at 7'
339	SY TSE	Turfgrass Sod Establishment			
55	SY TE	Turfgrass Establishment			

- NOTES:**
1. Refer to E&S Plans for location of tree protection fencing.
  2. Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
  3. Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
  4. Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: AS / FL  
 DRAWN BY: AS / FL  
 CHECKED BY: JKS  
 DATE: APRIL, 2019

**WASHINGTON COUNTY, MARYLAND**  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2660 Fax: 240-313-2401

# PROFESSIONAL BOULEVARD BRIDGE & EXTENSION LANDSCAPE PLAN



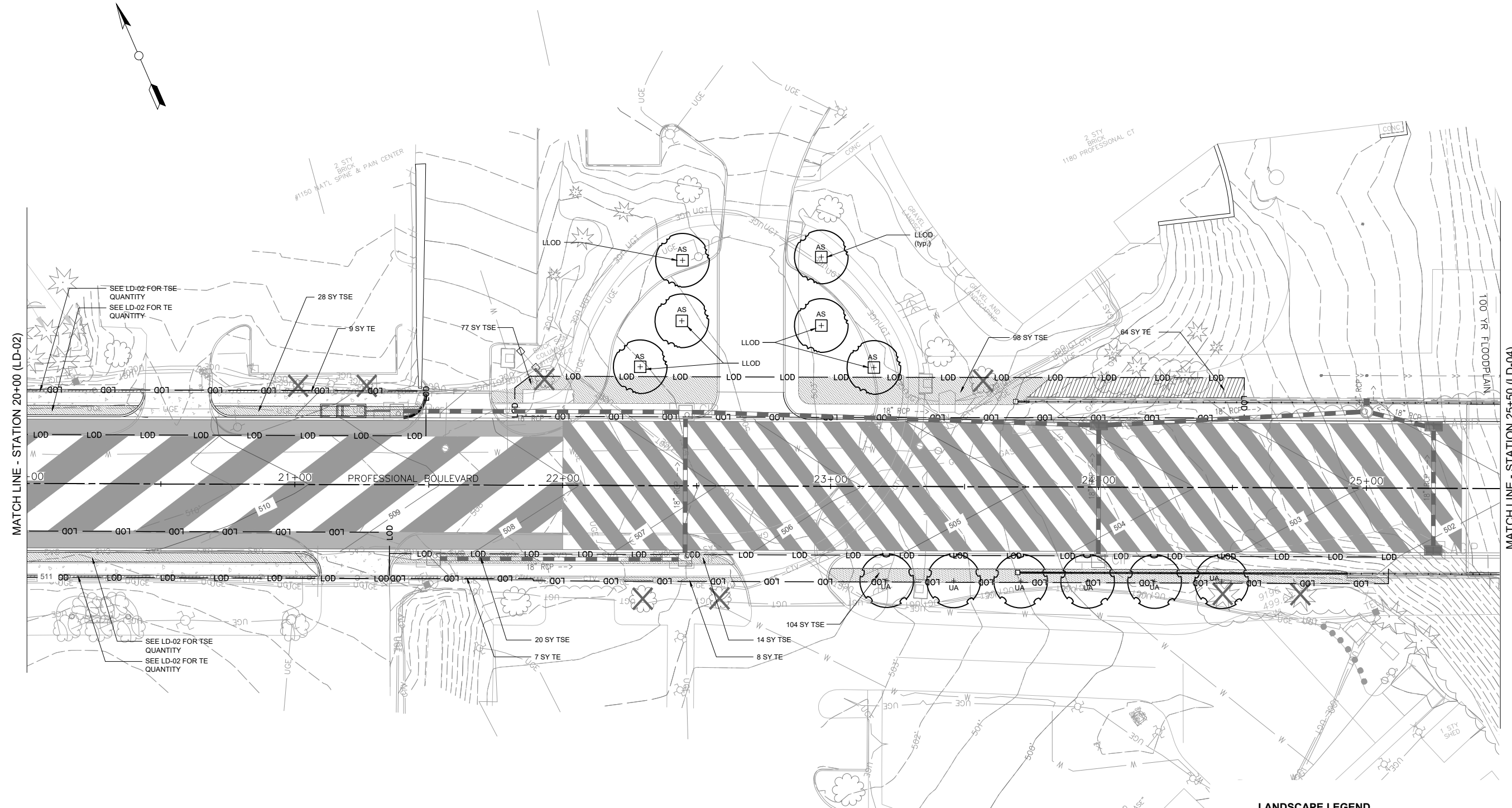
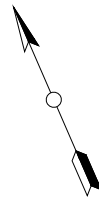
SCALE  
 1"=20'

SHEET NO.  
 64 OF 127

PROJECT NO.  
 10-270

LD-02





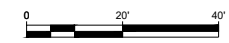
**PLANT PALETTE: THIS SHEET ONLY**

Qty.	Key	Botanical/Common Name	Size	Root	Comments
<b>SHADE TREES</b>					
6	AS	Acer saccharum 'Fall Fiesta' / Fall Fiesta Sugar Maple	3" Cal.	B&B	Central Leader, Matched Branched at 7'
6	UA	Ulmus americana 'Princeton' / Princeton American Elm	3" Cal.	B&B	Central Leader, Matched Branched at 7'
88	SY	TE			Turfgrass Establishment
341	SY	TSE			Turfgrass Sod Establishment

**LANDSCAPE LEGEND**

— LOD	LIMIT OF DISTURBANCE (LOD)
- - - LLOD	LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
(Tree symbol)	EXISTING TREE TO REMAIN
(Tree symbol with X)	EXISTING TREE TO BE REMOVED
(Circle with dot)	PROPOSED SHADE TREE
(Circle with dot and dashed line)	PROPOSED SHADE TREE FOR PRESERVATION AREA
(Circle with three dots)	PROPOSED SHRUBS
(Hatched pattern)	TURFGRASS ESTABLISHMENT (TE)
(Dotted pattern)	TURFGRASS SOD ESTABLISHMENT (TSE)

- NOTES:**
- Refer to E&S Plans for location of tree protection fencing.
  - Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
  - Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
  - Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.



**MAHAN RYKIEL**  
LANDSCAPE ARCHITECTURE  
URBAN DESIGN & PLANNING

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: AS / FL  
DRAWN BY: AS / FL  
CHECKED BY: JKS  
DATE: APRIL 2019

**WASHINGTON COUNTY, MARYLAND**  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2660 Fax: 240-313-2401

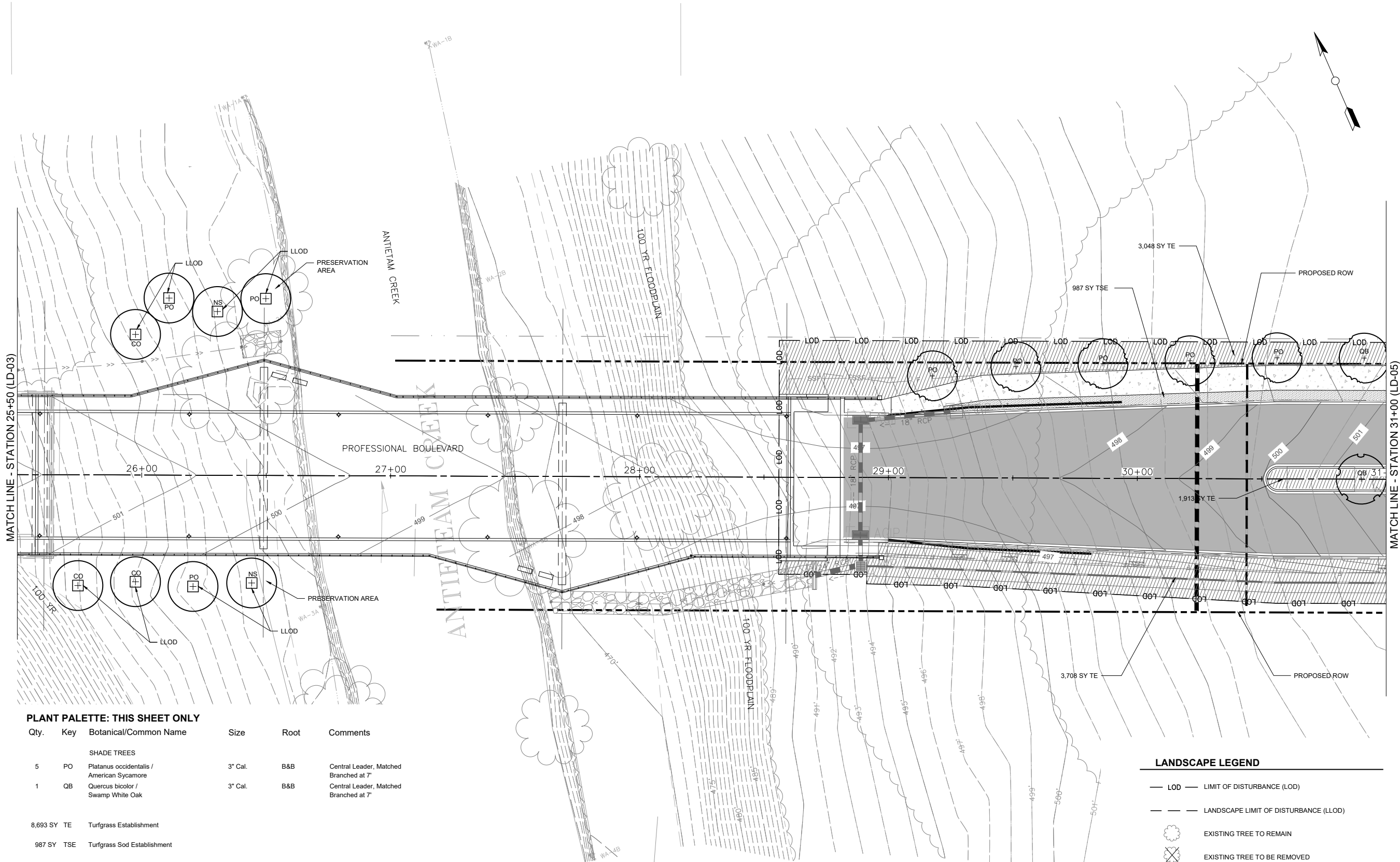
**PROFESSIONAL BOULEVARD  
BRIDGE OVER ANTIETAM CREEK**

**LANDSCAPE PLAN**

SCALE  
1"=20'

SHEET NO.  
65 OF 129

PROJECT NO.  
10-270



**PLANT PALETTE: THIS SHEET ONLY**

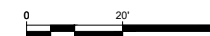
Qty.	Key	Botanical/Common Name	Size	Root	Comments
<b>SHADE TREES</b>					
5	PO	Platanus occidentalis / American Sycamore	3" Cal.	B&B	Central Leader, Matched Branched at 7'
1	QB	Quercus bicolor / Swamp White Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
8,693	SY TE	Turfgrass Establishment			
987	SY TSE	Turfgrass Sod Establishment			
<b>SHADE TREES FOR PRESERVATION AREA</b>					
3	CO	Celtis occidentalis / Hackberry	3" Cal.	B&B	Central Leader Matched
2	NS	Nyssa sylvatica / Black Gum	3" Cal.	B&B	Central Leader Matched
3	PO	Platanus occidentalis / American Sycamore	3" Cal.	B&B	Central Leader Matched

**LANDSCAPE LEGEND**

- LOD — LIMIT OF DISTURBANCE (LOD)
- - - LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
- EXISTING TREE TO BE REMOVED
- PROPOSED SHADE TREE
- PROPOSED SHADE TREE FOR PRESERVATION AREA
- PROPOSED SHRUBS
- TURFGRASS ESTABLISHMENT (TE)
- TURFGRASS SOD ESTABLISHMENT (TSE)

**NOTES:**

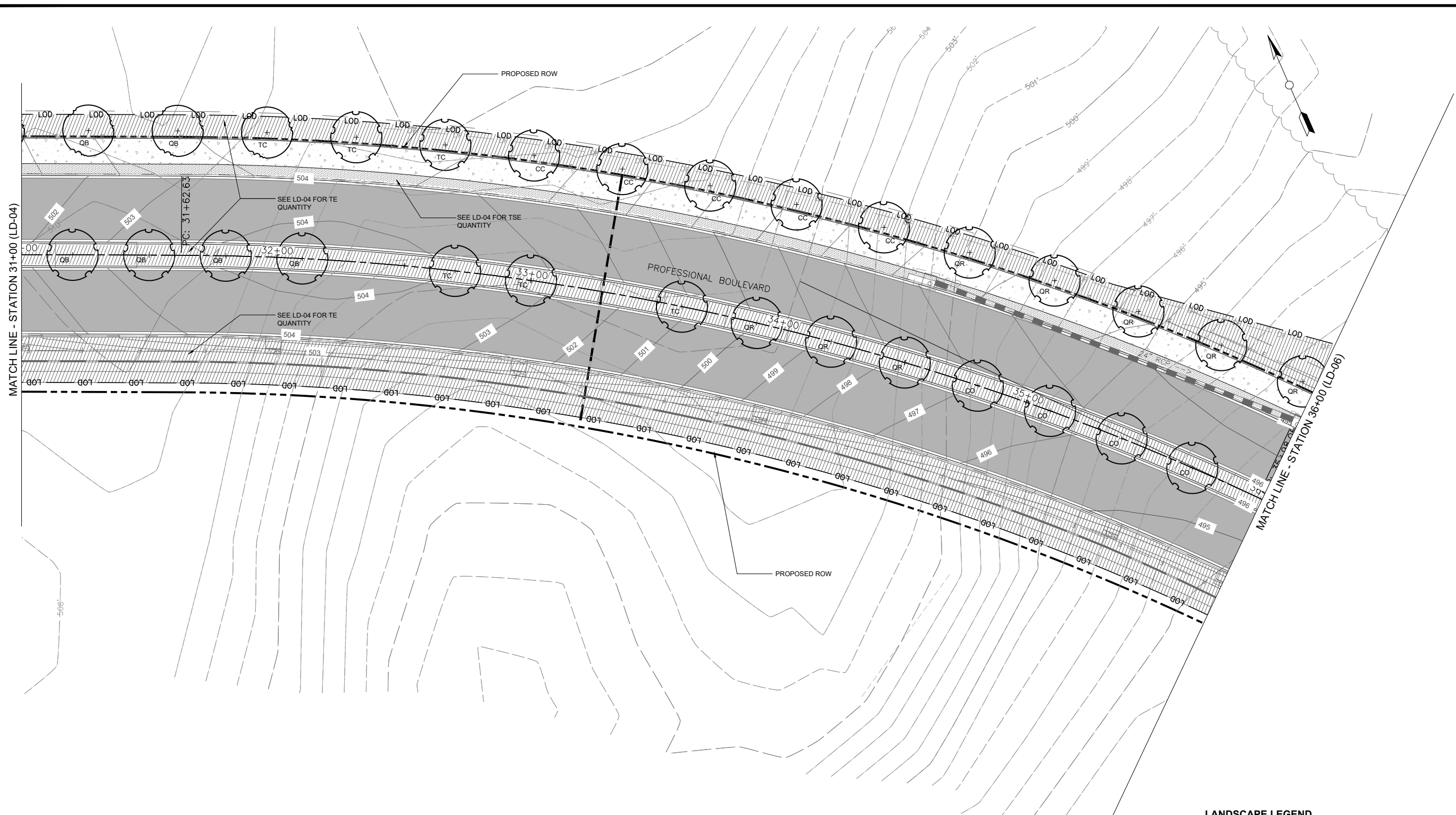
- Refer to E&S Plans for location of tree protection fencing.
- Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
- Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
- Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.



LD-04

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY:	AS / FL	CHECKED BY:	JMS	DATE:	APRIL, 2019
DRAWN BY:	AS / FL				



MATCH LINE - STATION 31+00 (LD-04)

MATCH LINE - STATION 36+00 (LD-06)

**PLANT PALETTE: THIS SHEET ONLY**

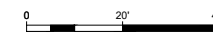
Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHADE TREES					
5	CC	Carpinus caroliniana / American Hornbeam	3" Cal.	B&B	Full, Central Leader Matched, Branched at 7'
4	CO	Celtis occidentalis / Common Hackberry	3" Cal.	B&B	Central Leader, Matched Branched at 7'
6	QB	Quercus bicolor / Swamp White Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
8	QR	Quercus rubra / Red Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
5	TC	Tilia cordata 'Greenspire' / Greenspire Little-leaf Linden	3" Cal.	B&B	Central Leader, Matched Branched at 7'

**LANDSCAPE LEGEND**

- LOD — LIMIT OF DISTURBANCE (LOD)
- - - LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- PROPOSED SHADE TREE
- PROPOSED SHADE TREE FOR PRESERVATION AREA
- PROPOSED SHRUBS
- TURFGRASS ESTABLISHMENT (TE)
- TURFGRASS SOD ESTABLISHMENT (TSE)

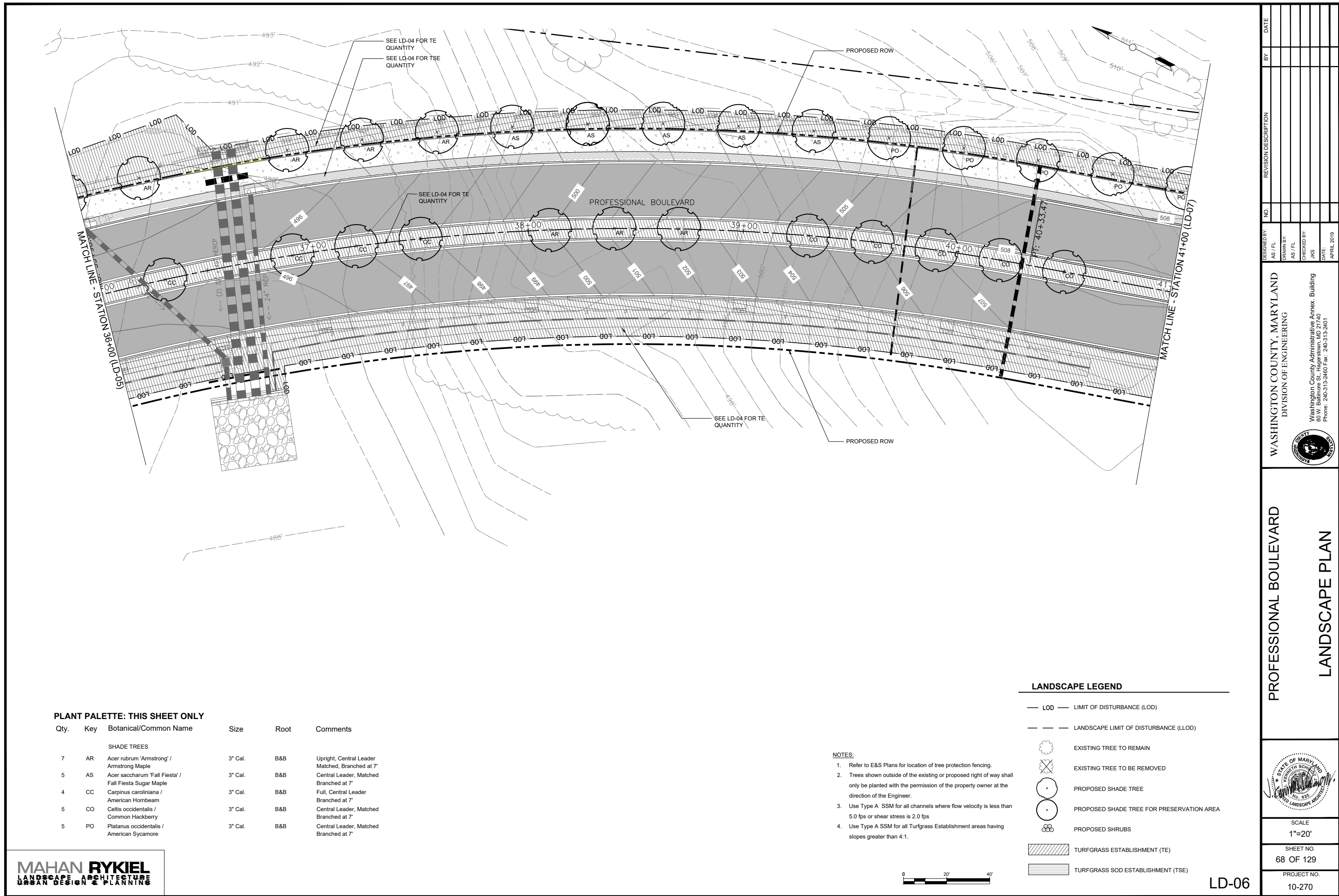
**NOTES:**

- Refer to E&S Plans for location of tree protection fencing.
- Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
- Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
- Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.



NO.	REVISION DESCRIPTION	BY	DATE





**PLANT PALETTE: THIS SHEET ONLY**

Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHADE TREES					
7	AR	Acer rubrum 'Armstrong' / Armstrong Maple	3" Cal.	B&B	Upright, Central Leader Matched, Branched at 7'
5	AS	Acer saccharum 'Fall Fiesta' / Fall Fiesta Sugar Maple	3" Cal.	B&B	Central Leader, Matched Branched at 7'
4	CC	Carpinus caroliniana / American Hornbeam	3" Cal.	B&B	Full, Central Leader Branched at 7'
5	CO	Celtis occidentalis / Common Hackberry	3" Cal.	B&B	Central Leader, Matched Branched at 7'
5	PO	Platanus occidentalis / American Sycamore	3" Cal.	B&B	Central Leader, Matched Branched at 7'

**LANDSCAPE LEGEND**

- LOD — LIMIT OF DISTURBANCE (LOD)
- - - LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- PROPOSED SHADE TREE
- PROPOSED SHADE TREE FOR PRESERVATION AREA
- PROPOSED SHRUBS
- TURFGRASS ESTABLISHMENT (TE)
- TURFGRASS SOD ESTABLISHMENT (TSE)

**NOTES:**

1. Refer to E&S Plans for location of tree protection fencing.
2. Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
3. Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
4. Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.



LD-06

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: AS / FL  
DRAWN BY: AS / FL  
CHECKED BY: JKS  
DATE: APRIL 2019

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2660 Fax: 240-313-2401

**PROFESSIONAL BOULEVARD**  
**LANDSCAPE PLAN**

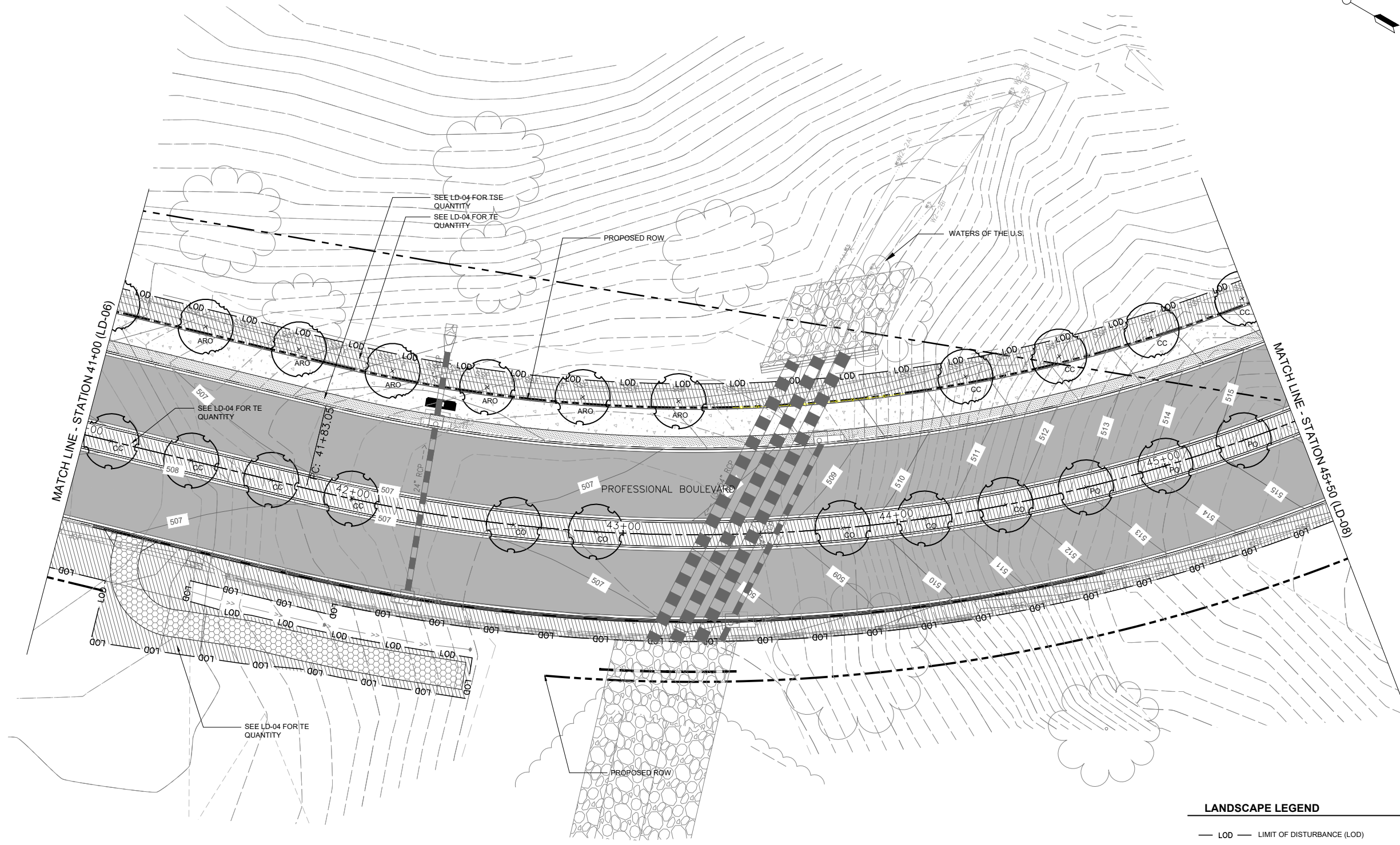
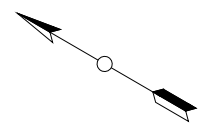


SCALE  
1"=20'

SHEET NO.  
68 OF 129

PROJECT NO.  
10-270





**PLANT PALETTE: THIS SHEET ONLY**

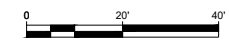
Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHADE TREES					
6	ARO	Acer rubrum 'October Glory' / October Glory Red Maple	3" Cal.	B&B	Full, Central Leader Branched at 7'
8	CC	Carpinus caroliniana / American Hornbeam	3" Cal.	B&B	Full, Central Leader Branched at 7'
5	CO	Celtis occidentalis / Common Hackberry	3" Cal.	B&B	Central Leader, Matched Branched at 7'
3	PO	Platanus occidentalis / American Sycamore	3" Cal.	B&B	Central Leader, Matched Branched at 7'

**LANDSCAPE LEGEND**

- LOD — LIMIT OF DISTURBANCE (LOD)
- - - LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- PROPOSED SHADE TREE
- PROPOSED SHADE TREE FOR PRESERVATION AREA
- PROPOSED SHRUBS
- TURFGRASS ESTABLISHMENT (TE)
- TURFGRASS SOD ESTABLISHMENT (TSE)

**NOTES:**

1. Refer to E&S Plans for location of tree protection fencing.
2. Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
3. Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
4. Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.



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DIVISION OF ENGINEERING

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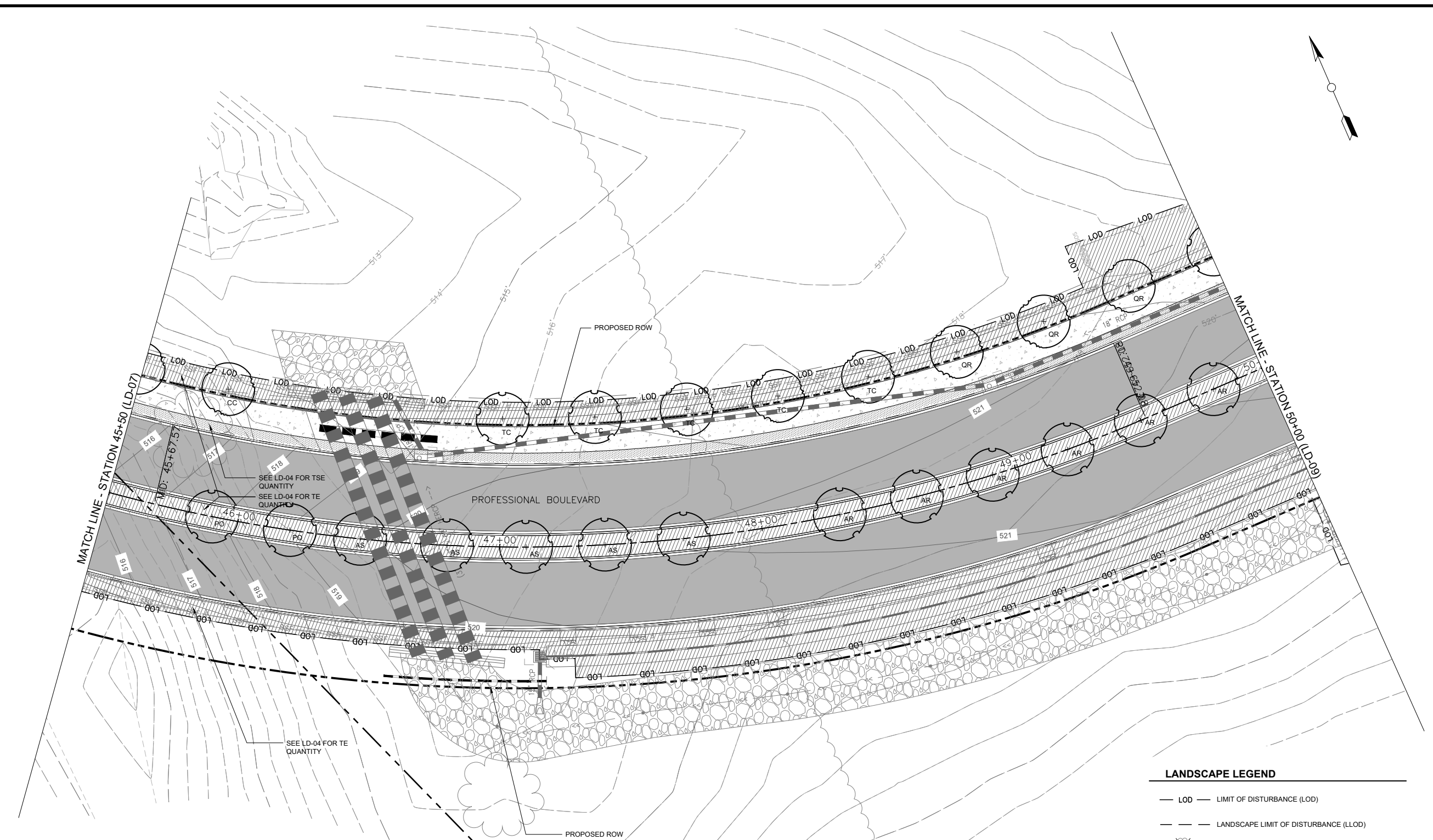
**PROFESSIONAL BOULEVARD  
LANDSCAPE PLAN**



SCALE  
1"=20'

SHEET NO.  
69 OF 129

PROJECT NO.  
10-270



**PLANT PALETTE: THIS SHEET ONLY**

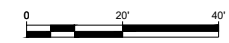
Qty.	Key	Botanical/Common Name	Size	Root	Comments
<b>SHADE TREES</b>					
6	AR	Acer rubrum 'Armstrong' / Armstrong Maple	3" Cal.	B&B	Upright, Central Leader Matched, Branched at 7'
5	AS	Acer saccharum 'Fall Fiesta' / Fall Fiesta Sugar Maple	3" Cal.	B&B	Central Leader, Matched Branched at 7'
1	CC	Carpinus caroliniana / American Hornbeam	3" Cal.	B&B	Central Leader, Matched Branched at 7'
2	PO	Platanus occidentalis / American Sycamore	3" Cal.	B&B	Central Leader, Matched Branched at 7'
3	QR	Quercus rubra / Red Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
5	TC	Tilia cordata 'Greenspire' / Greenspire Little-leaf Linden	3" Cal.	B&B	Central Leader, Matched Branched at 7'

**LANDSCAPE LEGEND**

- LOD — LIMIT OF DISTURBANCE (LOD)
- - - LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
- TREE TO BE REMOVED
- PROPOSED SHADE TREE
- PROPOSED SHADE TREE FOR PRESERVATION AREA
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE
- PROPOSED SHRUBS
- PROPOSED GROUNDCOVER / PERENNIALS / GRASSES
- TURFGRASS ESTABLISHMENT
- TEMPORARY TURFGRASS ESTABLISHMENT
- TURFGRASS SOD ESTABLISHMENT

**NOTES:**

- Refer to E&S Plans for location of tree protection fencing.
- Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
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- Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.



LD-08



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: AS / FL  
 DRAWN BY: AS / FL  
 CHECKED BY: JKS  
 DATE: APRIL 2019

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2660 Fax: 240-313-2401

**PROFESSIONAL BOULEVARD  
 LANDSCAPE PLAN**



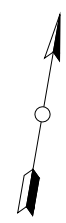
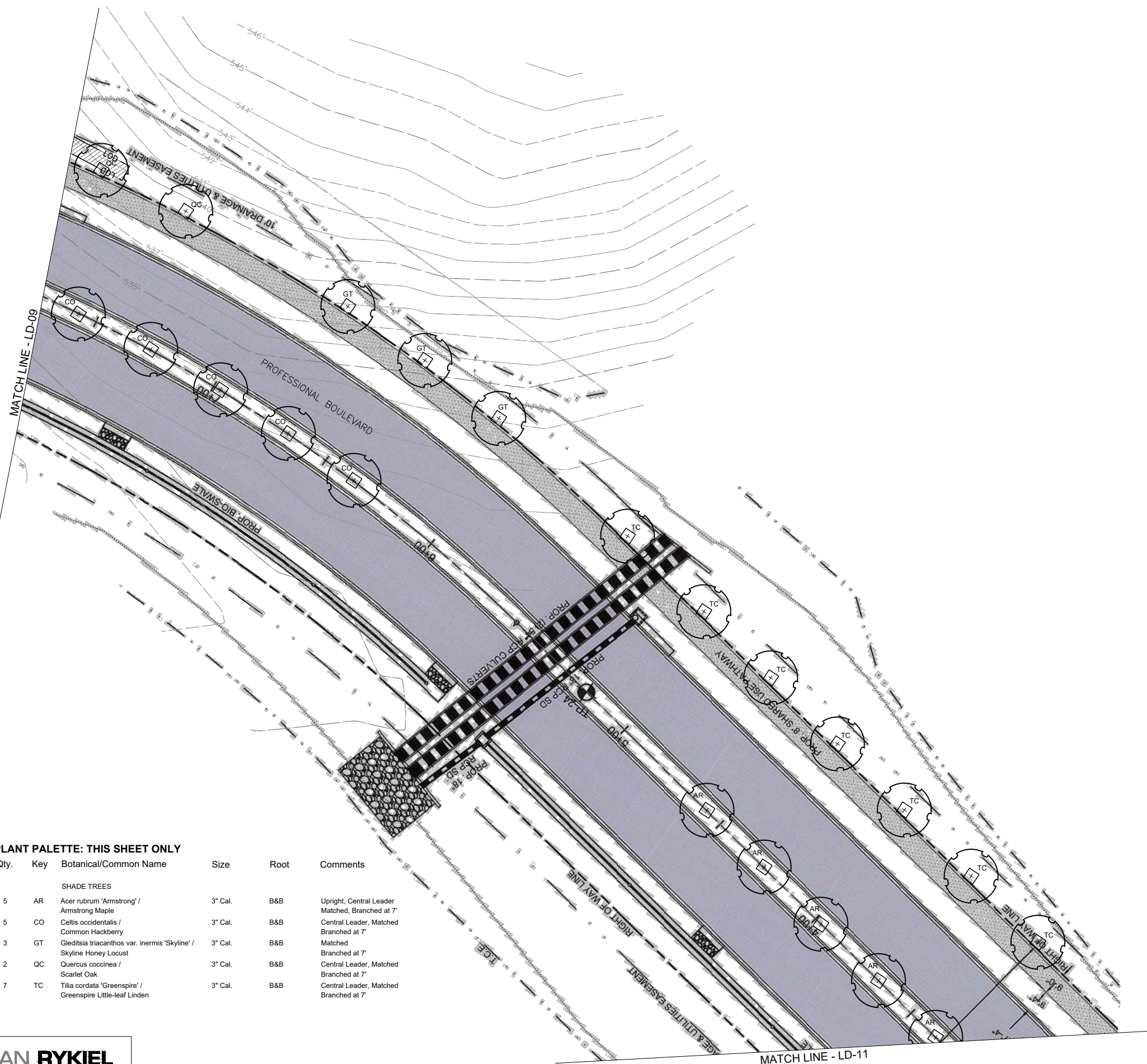
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SHEET NO.  
 70 OF 129

PROJECT NO.  
 10-270



MATCH LINE - LD-09



**PLANT PALETTE: THIS SHEET ONLY**

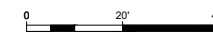
Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHADE TREES					
5	AR	Acer rubrum 'Armstrong' / Armstrong Maple	3" Cal.	B&B	Upright, Central Leader Matched, Branched at 7'
5	CO	Celtis occidentalis / Common Hackberry	3" Cal.	B&B	Central Leader, Matched Branched at 7'
3	GT	Gleditsia triacanthos var. inermis 'Skyline' / Skyline Honey Locust	3" Cal.	B&B	Matched Branched at 7'
2	QC	Quercus coccinea / Scarlet Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
7	TC	Tilia cordata 'Greenspire' / Greenspire Little-leaf Linden	3" Cal.	B&B	Central Leader, Matched Branched at 7'

**NOTES:**

1. Refer to E&S Plans for location of tree protection fencing.
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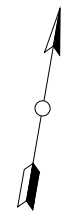
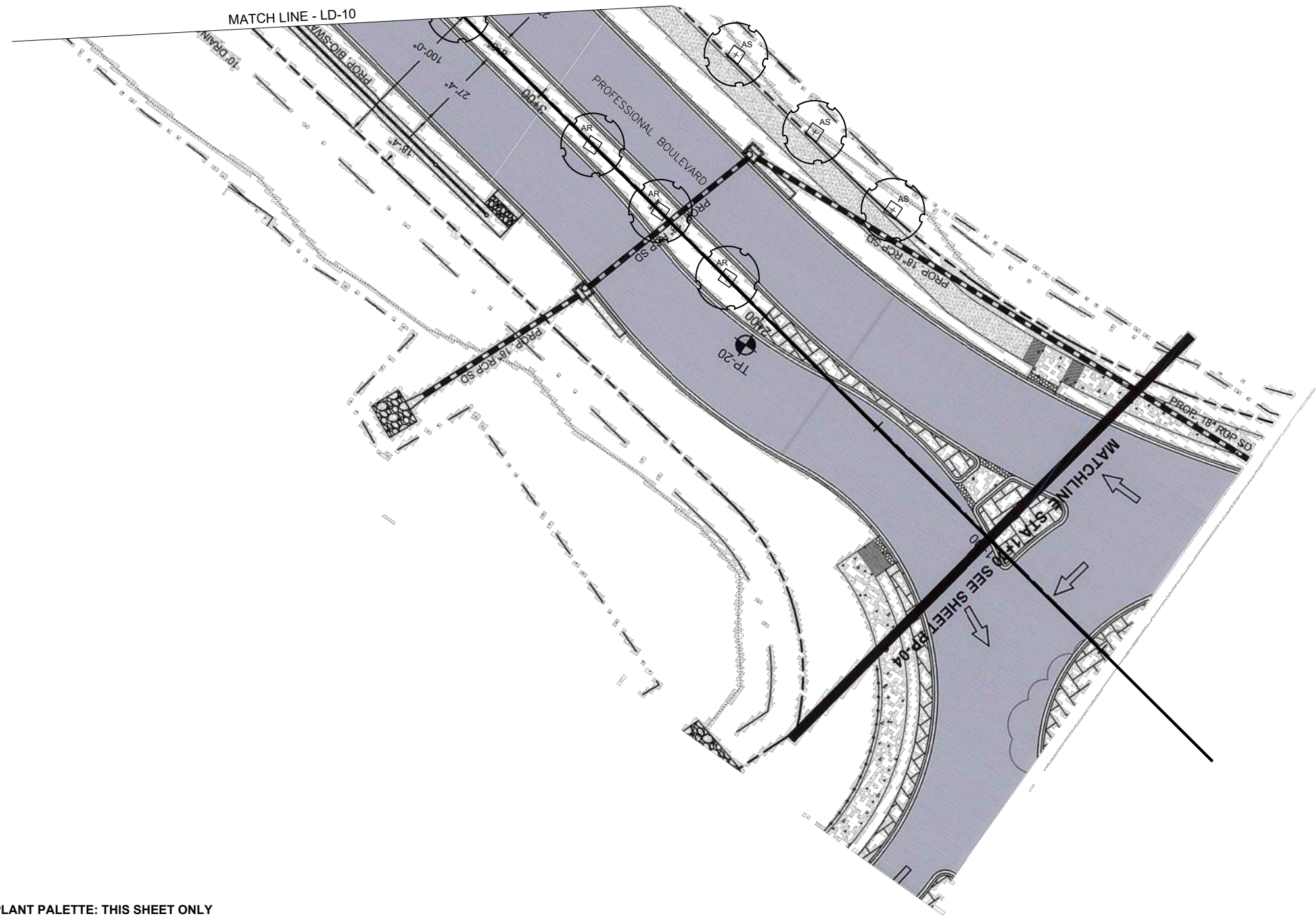
**LANDSCAPE LEGEND**

- LOD — LIMIT OF DISTURBANCE (LOD)
- - - LANDSCAPE LIMIT OF DISTURBANCE (LLOD)
- EXISTING TREE TO REMAIN
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- PROPOSED SHRUBS
- TURFGRASS ESTABLISHMENT (TE)
- TURFGRASS SOD ESTABLISHMENT (TSE)



NO.	REVISION DESCRIPTION	BY	DATE





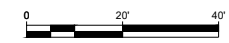
**PLANT PALETTE: THIS SHEET ONLY**

Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHADE TREES					
3	AR	Acer rubrum 'Armstrong' / Armstrong Maple	3" Cal.	B&B	Upright, Central Leader Matched, Branched at 7'
3	AS	Acer saccharum 'Fall Fiesta' / Fall Fiesta Sugar Maple	3" Cal.	B&B	Central Leader, Matched Branched at 7'

- NOTES:**
1. Refer to E&S Plans for location of tree protection fencing.
  2. Trees shown outside of the existing or proposed right of way shall only be planted with the permission of the property owner at the direction of the Engineer.
  3. Use Type A SSM for all channels where flow velocity is less than 5.0 fps or shear stress is 2.0 fps
  4. Use Type A SSM for all Turfgrass Establishment areas having slopes greater than 4:1.

**LANDSCAPE LEGEND**

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- PROPOSED SHRUBS
- TURFGRASS ESTABLISHMENT (TE)
- TURFGRASS SOD ESTABLISHMENT (TSE)



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: AS / FL  
 DRAWN BY: AS / FL  
 CHECKED BY: JKS  
 DATE: APRIL 2019

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2660 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 LANDSCAPE PLAN

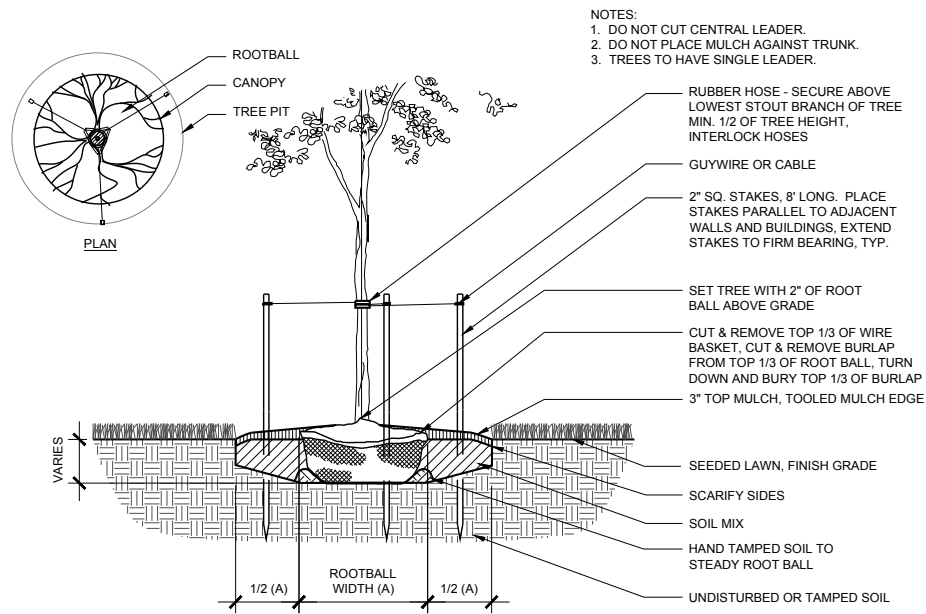


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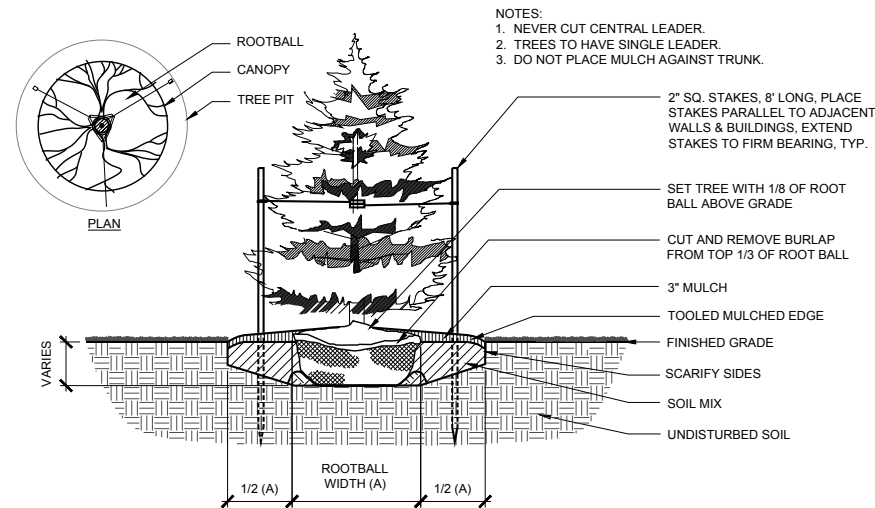
SHEET NO.  
 73 OF 129

PROJECT NO.  
 10-270

LD-11



- NOTES:  
 1. DO NOT CUT CENTRAL LEADER.  
 2. DO NOT PLACE MULCH AGAINST TRUNK.  
 3. TREES TO HAVE SINGLE LEADER.



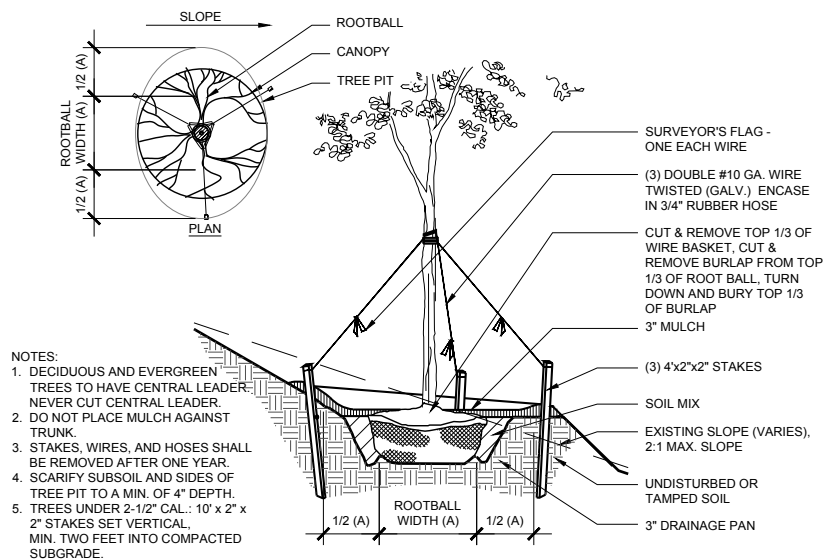
- NOTES:  
 1. NEVER CUT CENTRAL LEADER.  
 2. TREES TO HAVE SINGLE LEADER.  
 3. DO NOT PLACE MULCH AGAINST TRUNK.

### 1 DECIDUOUS TREE PLANTING

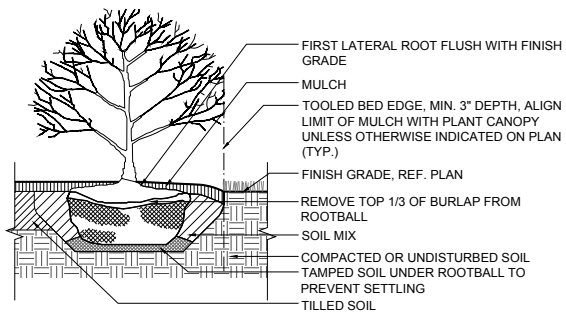
Scale: 1/2" = 1' - 0"

### 2 EVERGREEN TREE PLANTING

Scale: 1/2" = 1' - 0"



- NOTES:  
 1. DECIDUOUS AND EVERGREEN TREES TO HAVE CENTRAL LEADER. NEVER CUT CENTRAL LEADER.  
 2. DO NOT PLACE MULCH AGAINST TRUNK.  
 3. STAKES, WIRES, AND HOSES SHALL BE REMOVED AFTER ONE YEAR.  
 4. SCARIFY SUBSOIL AND SIDES OF TREE PIT TO A MIN. OF 4\"/>

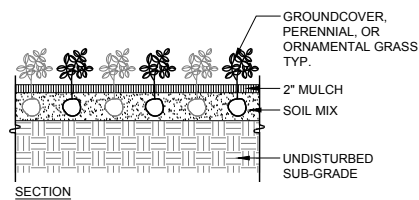


### 4 SHRUB PLANTING

Scale: 1/2" = 1' - 0"

### 3 TREE PLANTING ON SLOPE

Scale: 1/2" = 1' - 0"



### 5 HERBACEOUS PLANTING MATERIAL SPACING

Scale: 1/2" = 1' - 0"

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 DRAWN BY: AS / FL  
 CHECKED BY: JKS  
 DATE: APRIL 2019

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 DIVISION OF ENGINEERING

Washington County Administrative Annex Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD

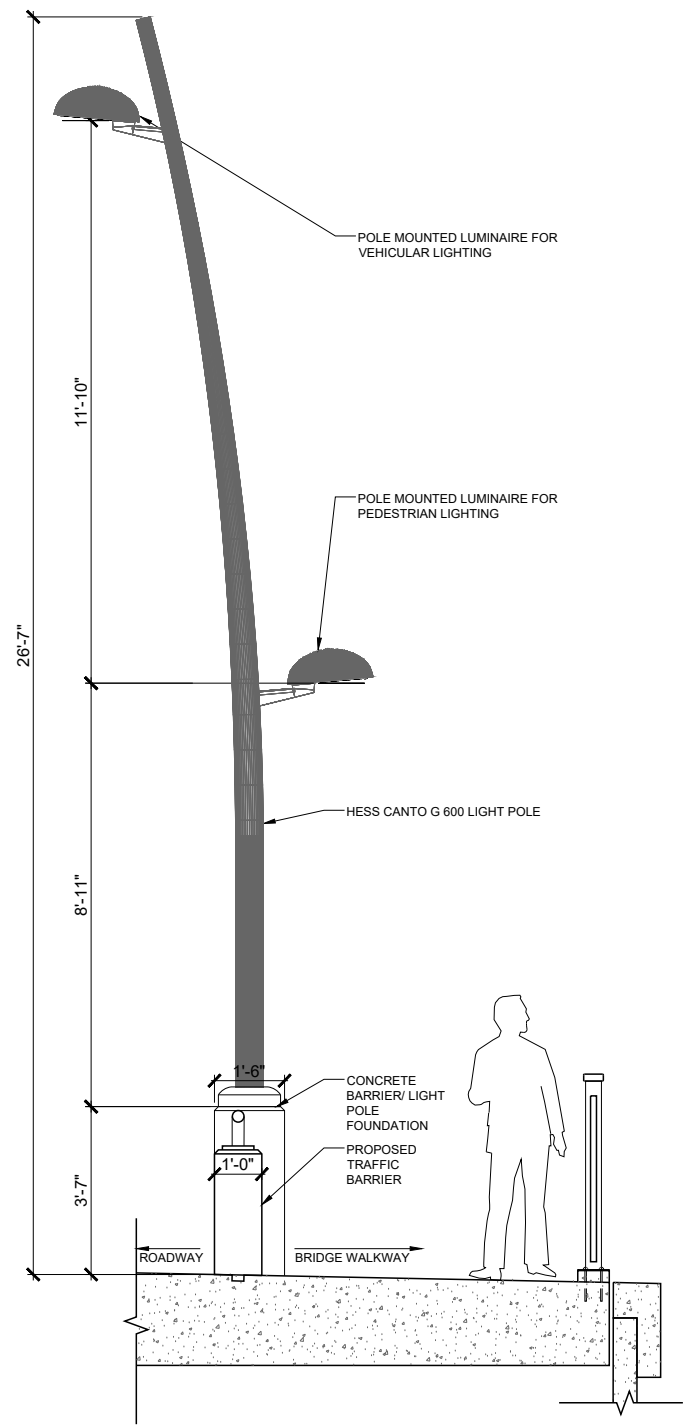
DETAILS



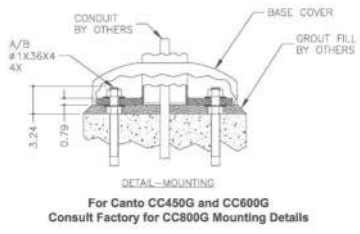
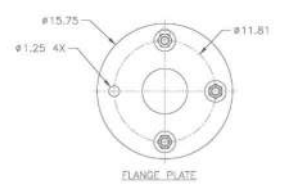
SCALE AS NOTED

SHEET NO. 74 OF 129

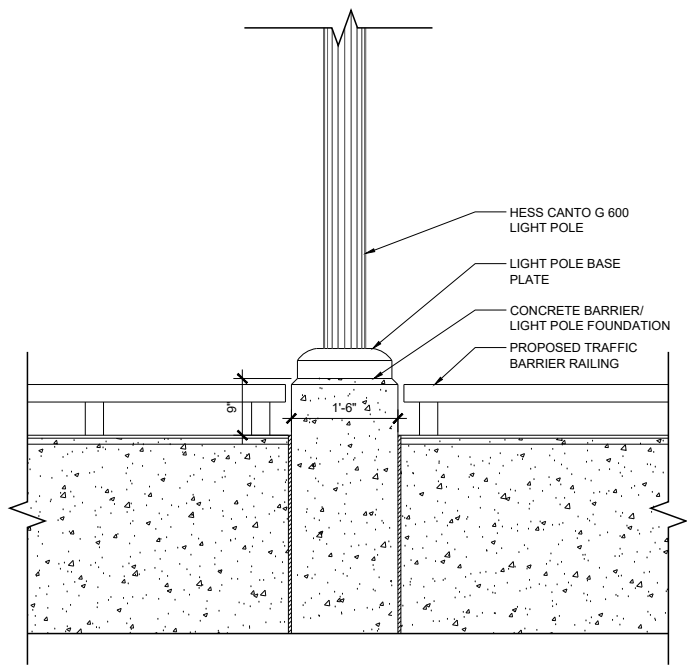
PROJECT NO. 10-270



**1** CANTO G 600 LIGHT POLE SECTION THROUGH WALKWAY  
1/2"=1'-0"



**2** CANTO G 600 LIGHT POLE BASE PLATE SECTION  
NOT TO SCALE



**3** CANTO G 600 LIGHT POLE ELEVATION ALONG ROADWAY  
3/4"=1'-0"

**MASTER PLANT SCHEDULE**

Qty.	Key	Botanical/Common Name	Size	Root	Comments
<b>SHADE TREES</b>					
22	AR	Acer rubrum 'Armstrong' / Armstrong Maple	3" Cal.	B&B	Upright, Central Leader Matched, Branched at 7'
12	ARO	Acer rubrum 'October Glory' / October Glory Red Maple	3" Cal.	B&B	Upright, Central Leader Matched, Branched at 7'
19	AS	Acer saccharum 'Fall Fiesta' / Fall Fiesta Sugar Maple	3" Cal.	B&B	Upright, Central Leader Matched, Branched at 7'
18	CC	Carpinus caroliniana / American Hornbeam	3" Cal.	B&B	Full, Central Leader Matched, Branched at 7'
24	CO	Celtis occidentalis / Common Hackberry	3" Cal.	B&B	Central Leader, Matched Branched at 7'
11	GT	Gleditsia triacanthos var. inermis 'Skyline' / Skyline Honeylocust	3" Cal.	B&B	Matched Branched at 7'
2	NS	Nyssa sylvatica / Blackgum	3" Cal.	B&B	Central Leader
23	PO	Platanus occidentalis / American Sycamore	3" Cal.	B&B	Central Leader, Matched Branched at 7'
7	QB	Quercus bicolor / Swamp White Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
6	QC	Quercus coccinea / Scarlet Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
11	QR	Quercus rubra / Red Oak	3" Cal.	B&B	Central Leader, Matched Branched at 7'
24	TC	Tilia cordata 'Greenspire' / Greenspire Little-leaf Linden	3" Cal.	B&B	Central Leader, Matched Branched at 7'
10	UA	Ulmus americana 'Princeton' / Princeton American Elm	3" Cal.	B&B	Central Leader, Matched Branched at 7'
3	ZS	Zelkova serrata 'Green Vase' / Green Vase Japanese Zelkova	3" Cal.	B&B	Central Leader, Matched Branched at 7'
<b>SHRUBS</b>					
73	JH	Juniperus horizontalis 'Blue Chip' / Blue Chip Juniper	#3	Cont.	
9,377	SY TE	Turfgrass Establishment			
1,741	SY TSE	Turfgrass Sod Establishment			

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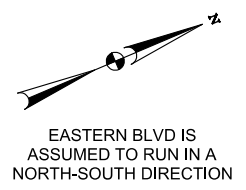
**PROFESSIONAL BOULEVARD**  
**LIGHTING DETAILS**  
**& MASTER PLANT SCHEDULE**



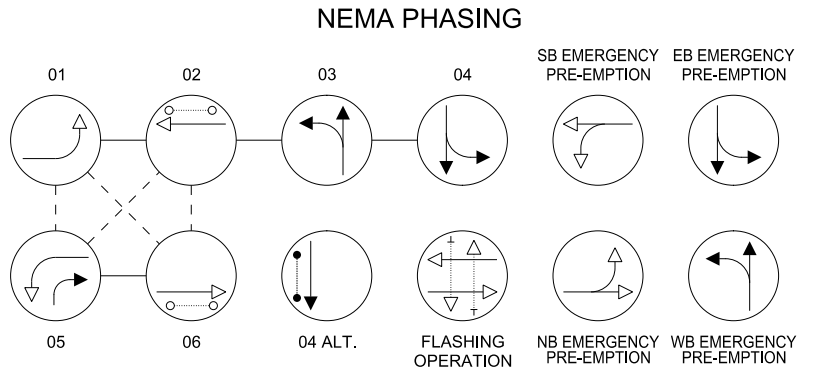
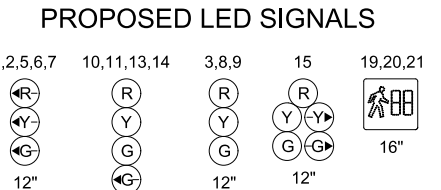
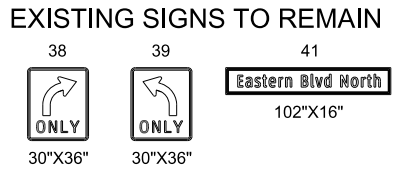
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SHEET NO.  
75 OF 129

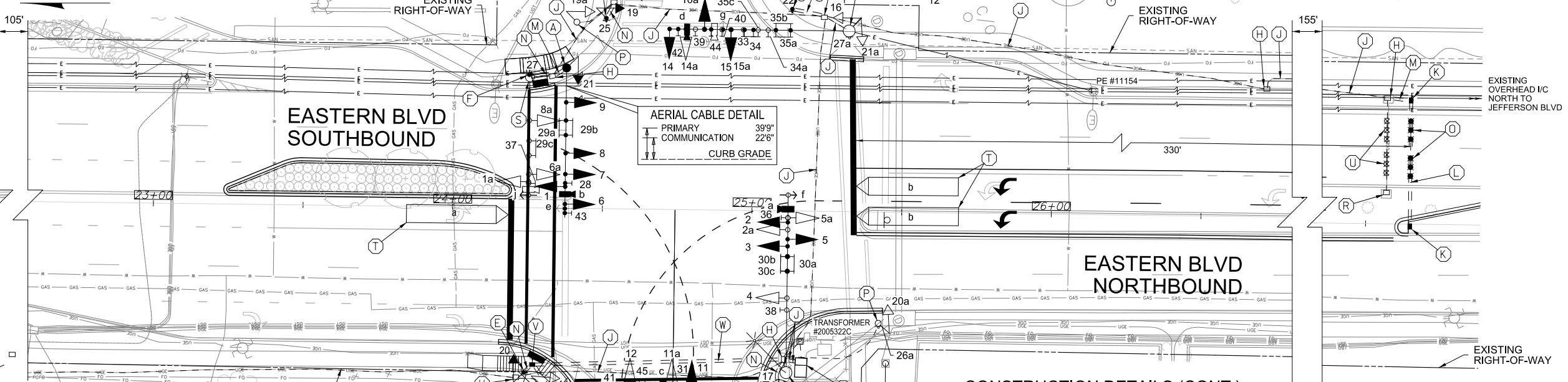
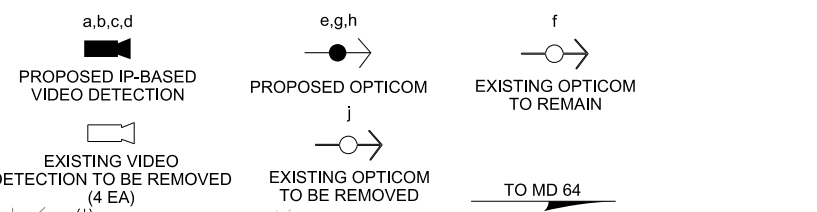
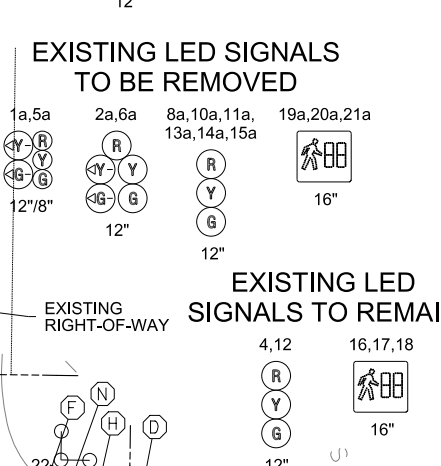
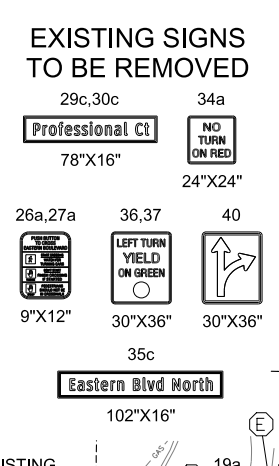
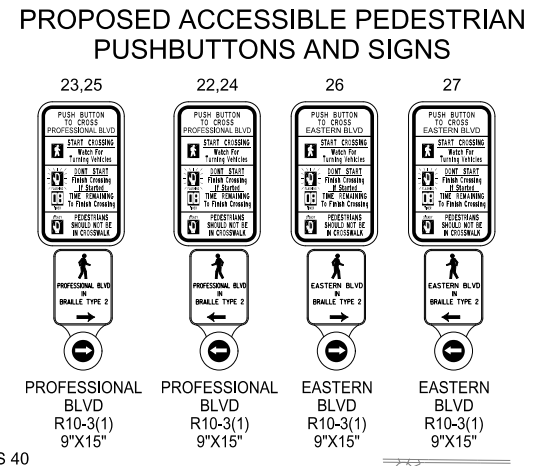
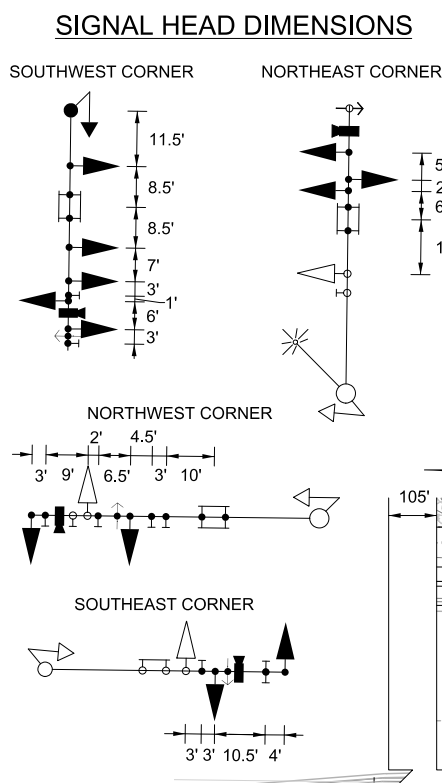
PROJECT NO.  
10-270



EASTERN BLVD IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

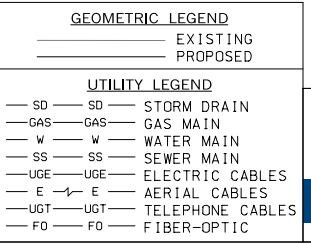


NOTE: PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY. PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.



- CONSTRUCTION DETAILS**
- A. INSTALL 27 FT. MAST ARM POLE (POWDER COATED HADCO GREEN, FEDERAL ID NO. 14066) WITH 50 FT. MAST ARM, LED SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, IP-BASED VIDEO DETECTION CAMERA, OPTICOM DETECTOR EYE, AND SIGNS. TOP OF FOUNDATION SHALL BE FLUSH WITH FINAL SIDEWALK GRADE. NOTE: INSTALL 2-3 IN. CONDUIT BENDS IN POLE BASE. PLUG UNUSED BEND. HAND DIGGING MAY BE REQUIRED. REFER TO SHA STANDARDS MD 801.01, MD 818.02, MD 818.06, AND MD 818.11 THROUGH MD 818.14 FOR POLE AND FOUNDATION DETAILS.
  - B. USE EXISTING MAST ARM POLE. INSTALL LED SIGNAL HEADS, OPTICOM DETECTOR EYE, IP-BASED VIDEO DETECTION CAMERA, AND SIGNS. REMOVE INDICATED LED SIGNAL HEADS AND EXISTING VIDEO DETECTION CAMERA. PLUG UNUSED HOLES.
  - C. USE EXISTING MAST ARM POLE. INSTALL LED SIGNAL HEADS, OPTICOM DETECTOR EYE, IP-BASED VIDEO DETECTION CAMERA, AND SIGNS. REMOVE INDICATED LED SIGNAL HEADS, EXISTING VIDEO DETECTION CAMERA, AND SIGN. PLUG UNUSED HOLES.
  - D. USE EXISTING MAST ARM POLE. INSTALL LED SIGNAL HEADS, IP-BASED VIDEO DETECTION CAMERA, AND SIGNS. REMOVE INDICATED LED SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, APS PUSHBUTTON, EXISTING VIDEO DETECTION CAMERA, AND SIGNS. PLUG UNUSED HOLES.
  - E. INSTALL 10 FT. BREAKAWAY PEDESTAL POLE (POWDER COATED HADCO GREEN, FEDERAL ID NO. 14066) WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, APS PUSHBUTTON AND SIGN (ORIENT SIGN PARALLEL TO CROSSWALK). FOUNDATION SHALL BE INSTALLED WITH TOP OF FOUNDATION FLUSH WITH FINAL SIDEWALK GRADE. REFER TO SHA STANDARDS MD 801.01-01, MD 817.01, MD 817.02, AND MD 818.16-01 FOR POLE, PUSHBUTTON, AND FOUNDATION DETAILS. NOTE: INSTALL 1-2 IN. CONDUIT BEND IN POLE BASE. HAND DIGGING MAY BE REQUIRED.
  - F. INSTALL 5 FT. BREAKAWAY PEDESTAL POLE (POWDER COATED HADCO GREEN, FEDERAL ID NO. 14066) WITH APS PUSHBUTTON AND SIGN (ORIENT SIGN PARALLEL TO CROSSWALK). FOUNDATION SHALL BE INSTALLED WITH TOP OF FOUNDATION FLUSH WITH FINAL SIDEWALK GRADE. REFER TO SHA STANDARDS MD 801.01-01, MD 817.01, MD 817.02, AND MD 818.16-01 FOR POLE, PUSHBUTTON, AND FOUNDATION DETAILS. NOTE: INSTALL 1-2 IN. CONDUIT BEND IN POLE BASE.
  - G. USE EXISTING CABINET. INSTALL 2-WIRE APS CENTRAL CONTROL UNIT, IP-BASED VIDEO DETECTION CAMERA INTERFACE, AND 4-CHANNEL OPTICOM DISCRIMINATOR MODULE (PHASE SELECTOR). REMOVE 2-CHANNEL DISCRIMINATOR MODULE, EXISTING VIDEO DETECTION CAMERA INTERFACE, AND UNUSED CABLES.
  - H. USE EXISTING HANDBOX. REMOVE UNUSED CABLES. CAP AND ABANDON UNUSED CONDUITS.
  - J. USE EXISTING CONDUIT. REMOVE UNUSED CABLES.
  - K. INSTALL SHA ELECTRICAL HANDHOLE WITH CONCRETE COLLAR. INSTALL WITH LONG DIMENSION PERPENDICULAR TO ROADWAY. REFER TO SHA STANDARDS MD 811.01, MD 811.02, AND MD 811.03 FOR DETAILS.
  - L. INSTALL 3 IN. SCHEDULE 80 RIGID PVC CONDUIT - BORED FOR CARRIER PIPE. REFER TO SHA TYPICAL TYP 815.03 FOR DETAILS.
  - M. INSTALL 3 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

- CONSTRUCTION DETAILS (CONT.)**
- N. INSTALL 2 IN. SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.
  - O. INSTALL NON-INVASIVE MICROLOOP PROBE SET IN CARRIER PIPE. PROBE SET SHALL BE CENTERED IN TRAVEL LANE.
  - P. REMOVE EXISTING SIGNAL POLE AND ASSOCIATED SIGNAL EQUIPMENT. CAP AND ABANDON EXISTING CONDUIT. REMOVE EXISTING FOUNDATION 12 IN. BELOW GRADE AND BACKFILL.
  - R. REMOVE EXISTING HANDBOX. CAP AND ABANDON EXISTING CONDUITS. BACKFILL TO GRADE.
  - S. REMOVE EXISTING SIGNAL POLE AND ASSOCIATED SIGNAL EQUIPMENT. CAP AND ABANDON EXISTING CONDUIT. REMOVE EXISTING FOUNDATION 36 IN. BELOW GRADE AND BACKFILL.
  - T. PROPOSED VIDEO DETECTION ZONE.
  - U. ABANDON EXISTING LOOP DETECTOR / MICROLOOP PROBE SET.
  - V. INSTALL TRAFFIC SIGNAL HANDBOX PER HAGERSTOWN STANDARD TS-020.
  - W. INSTALL 4 IN. SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED. CONDUIT SHALL BE INSTALLED PRIOR TO FINAL ROADWAY SURFACE.



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POLE	STATION & OFFSET
5' PED POLE	STA. 24+38 RT 67.2 FT
5' PED POLE	STA. 25+09 RT 62.2 FT
5' PED POLE	STA. 25+13 LT 67.5 FT
10' PED POLE	STA. 24+33 RT 55.1 FT
5' PED POLE	STA. 24+25 LT 44.5 FT
10' PED POLE	STA. 24+51 LT 63.7 FT
MAST ARM POLE	STA. 24+37 LT 46.9 FT

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**ENGINEER'S CERTIFICATION**

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 53359  
EXPIRATION DATE: 2022-10-22

**REVISION NOTES**

NO.	DATE	DESCRIPTION

ADD ALTERNATIVE

CITY OF HAGERSTOWN, MARYLAND  
DEPARTMENT OF  
PARKS AND ENGINEERING

LOCATION: EASTERN BLVD AT PROFESSIONAL BLVD (FORMER PROFESSIONAL CT)

TITLE: SIGNAL MODIFICATIONS APS/CPMS UPGRADES FOR GEOMETRIC IMPROVEMENTS TRAFFIC SIGNAL PLAN SHEET

SCALES: HORIZONTAL: 1"=20' VERTICAL: --

DRAWN BY: AFD DATE: JUNE 2021

SURVEY BY: AB DATE: --

REVISION BY: -- DATE: --

COUNTY PROJECT NO. 10-270 SHEET SG-01 OF 2

ADDENDUM # SHEET 76 OF 129

CHANGE ORDER # NOT USED FOR CONSTRUCTION



**PROJECT DESCRIPTION**

THIS PROJECT INVOLVES THE MODIFICATION OF THE EXISTING FULL-COLOR TRAFFIC SIGNAL AT THE INTERSECTION OF EASTERN BLVD AND PROFESSIONAL BLVD IN WASHINGTON COUNTY. THE INSTALLATION INCLUDES LED SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, APS PUSHBUTTONS AND SIGNS, VIDEO DETECTION CAMERAS, OPTICOM DETECTOR EYES, AND SIGNS. EASTERN BLVD IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

**INTERSECTION OPERATION**

THE INTERSECTION WILL OPERATE IN NEMA SIX-PHASE FULL-TRAFFIC-ACTUATED MODE WITH AN ALTERNATE PEDESTRIAN PHASE FOR THE SOUTH LEG AND CONCURRENT PEDESTRIAN PHASES FOR THE EAST AND WEST LEGS OF THE INTERSECTION. THE EASTERN BLVD NORTHBOUND LEFT TURNS AND SOUTHBOUND DUAL LEFT TURNS WILL OPERATE IN EXCLUSIVE PHASING. THE PROFESSIONAL BLVD APPROACHES WILL OPERATE IN SPLIT PHASING. PRE-EMPTION PHASES ARE PROVIDED FOR ALL APPROACHES. THERE WILL BE A RIGHT TURN OVERLAP FOR PROFESSIONAL BLVD WESTBOUND DURING PHASE 5.

**CONTROLLER REQUIREMENTS**

THE EXISTING TRAFFIC SIGNAL CONTROLLER HOUSED IN A BASE MOUNTED CABINET SHALL REMAIN. A 2-WIRE APS CENTRAL CONTROL UNIT, IP-BASED VIDEO DETECTION INTERFACE EQUIPMENT, AND 4-CHANNEL OPTICOM DISCRIMINATOR MODULE (PHASE SELECTOR) SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE LOOP DETECTOR AMPLIFIERS SHALL REMAIN. THE EXISTING 2-CHANNEL OPTICOM DISCRIMINATOR MODULE AND VIDEO DETECTION INTERFACE EQUIPMENT SHALL BE REMOVED.

**SPECIAL NOTES**

APS WILL FUNCTION AS FOLLOWS:

TO CROSS EASTERN BLVD:

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS EASTERN AT PROFESSIONAL. WAIT."
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

TO CROSS PROFESSIONAL BLVD:

- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON UNIT MESSAGE WILL BE "WAIT TO CROSS PROFESSIONAL AT EASTERN. WAIT."
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

**GENERAL NOTES**

1. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE LOCATIONS PRIOR TO INSTALLATION. ALL POLES, HANDHOLES, CONDUITS UNDER PAVEMENT, CABINETS AND METERED SERVICE PEDESTALS SHALL BE STAKED OUT AND EVERY LOCATION APPROVED BY THE ENGINEER BEFORE ANY WORK IS PERFORMED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABELING EACH CABLE. TAGS SHALL BE INSTALLED ON EACH CABLE IN THE CONTROLLER CABINET AS WELL AS EACH HANDHOLE.
3. ALL UNUSED CABLE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
4. NO. 6 AWG STRANDED BARE COPPER GROUND WIRE INSTALLED IN EACH SHA HANDHOLE SHALL CONNECT THE GROUNDING LUG ON THE LID / COLLAR TO THE GROUND ROD IN THE BASE OF THE HANDHOLE TO PROPERLY GROUND THE STRUCTURE.
5. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN SHA STANDARDS MD 816.03, MD 818.01, MD 818.02 AND MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
6. UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "MISS UTILITY" PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
7. ALL PEDESTAL FOUNDATION TOPS SHALL BE INSTALLED FLUSH WITH SIDEWALK GRADE OR BUILT INTO BACKER CURB.
8. THE CONTRACTOR SHALL INTEGRATE PROPOSED / EXISTING CONCRETE FOUNDATIONS WITH NEW CURB OR SIDEWALK RAMPS WHERE NECESSARY. THE FOUNDATIONS SHALL BE FLUSH WITH, AND PART OF, THE FINAL CURB OR SIDEWALK GRADE TO INCREASE ACCESSIBILITY FOR PEDESTRIANS.
9. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MDMUTCD CHAPTER 4E "PEDESTRIAN CONTROL FEATURES" AND FIGURES 4E-3 AND 4E-4, AND THE LATEST NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNS GUIDE TO BEST PRACTICE." IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED, APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.
10. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18" FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
11. THE 10' SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER OF POLE TO CENTER OF POLE.
12. PUSHBUTTON ARROWS AND SIGNS ARE TO BE ORIENTED PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
13. VIDEO DETECTION CAMERA ALIGNMENT SHALL BE COORDINATED WITH THE ENGINEER.
14. DURING CONSTRUCTION, PROPOSED SIGNAL EQUIPMENT SHALL NOT BLOCK EXISTING SIGNAL EQUIPMENT.
15. THE CONTRACTOR SHALL CAP AND ABANDON CONDUITS FEEDING EXISTING SIGNAL EQUIPMENT THAT IS REMOVED.
16. WITHIN 36 IN. OF UNDERGROUND UTILITY LOCATIONS, THE CONTRACTOR SHALL BE REQUIRED TO EXCAVATE FOR FOUNDATION AND CONDUIT BY HAND.
17. HAND DIGGING FOR INSTALLATION OR REMOVAL OF SIGNAL EQUIPMENT, SIGNS, CURB AND SIDEWALK SHALL BE INCIDENTAL TO THE ITEMS IN THE EQUIPMENT LIST. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR HAND DIGGING.
18. ALL PROPOSED TRAFFIC SIGNAL POLES SHALL BE POWDER COATED HADCO GREEN, FEDERAL ID NO. 14066.
19. THE CONTRACTOR SHALL EXCAVATE EXISTING CONCRETE FOUNDATIONS AS NEEDED TO INSTALL NEW FOUNDATIONS. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR EXCAVATING TO THE REQUIRED DEPTH FOR NEW FOUNDATIONS.
20. ALL PROPOSED SIGNS MOUNTED ON TRAFFIC SIGNAL STRUCTURES SHALL BE MOUNTED IN ACCORDANCE WITH SHA TYPICAL TYP 813.99.01 AND TYP 813.99.04. ALL PROPOSED R10-3(1) SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH SHA STANDARD MD 813.07. ALL MOUNTING HARDWARE SHALL BE INCIDENTAL TO SHEET ALUMINUM, TRAFFIC SIGNAL SIGNS ITEM.

**EQUIPMENT LIST**

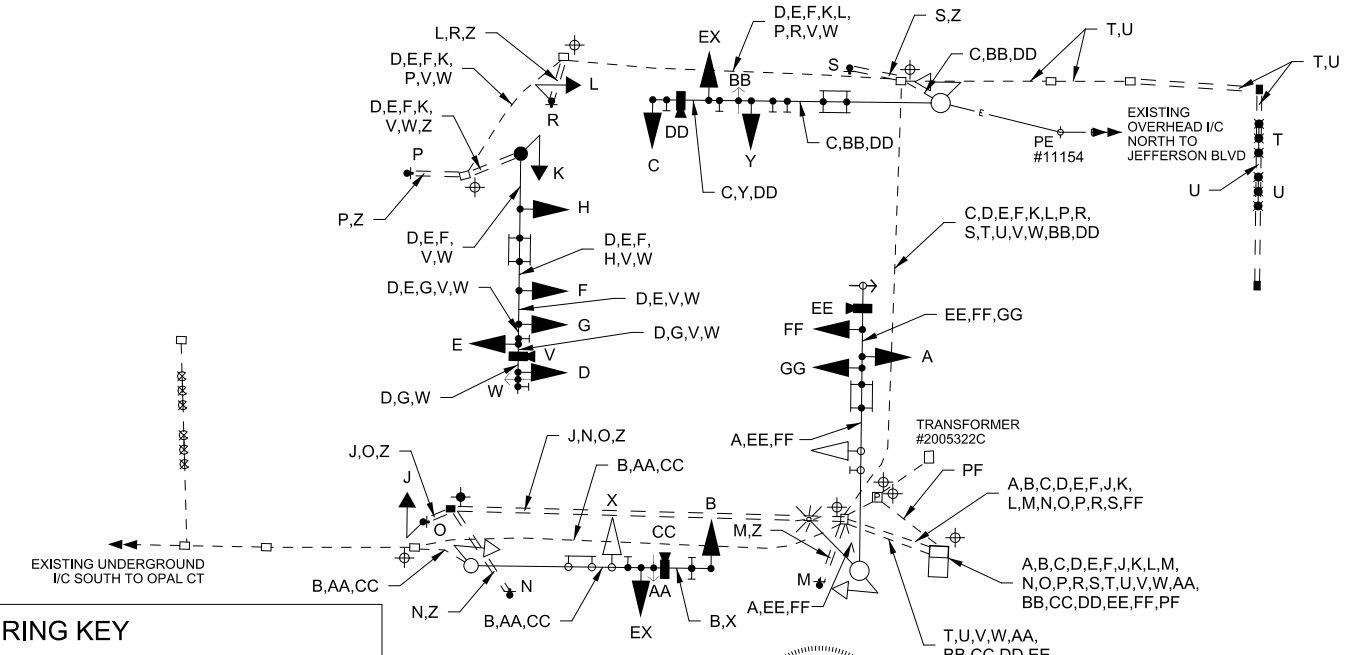
EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR:

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
8002	5 FOOT BREAKAWAY PEDESTAL POLE (POWDER COATED HADCO GREEN)	EA	4
8003	10 FOOT BREAKAWAY PEDESTAL POLE (POWDER COATED HADCO GREEN)	EA	2
8004	STEEL POLE WITH A SINGLE 50 FOOT MAST ARM (POWDER COATED HADCO GREEN)	EA	1
8005	SHEET ALUMINUM TRAFFIC SIGNAL SIGNS	SF	135
8006	TRAFFIC SIGNAL HANDBOX - 20.5 INCH X 13.5 INCH X 12.75 INCH (TS-020)	EA	1
8016	CONCRETE FOR SIGNAL FOUNDATION	CY	4
8019	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	200
8021	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-BORED	LF	45
8022	2 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	LF	90
8023	3 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED	LF	35
8025	4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED	LF	90
8027	NONINVASIVE DETECTOR, 1000 FOOT LEAD IN CABLE	EA	2
8028	ELECTRICAL HANDHOLE (SHA STANDARD)	EA	2
8033	IP-BASED VIDEO DETECTION CAMERA & ANY LENGTH LEAD-IN CABLE	EA	4
8034	IP-BASED VIDEO INTERFACE EQUIPMENT	EA	1
8035	DISCRIMINATOR MODULE, 4 CHANNEL, NO. 764	EA	1
8036	OPTICOM NO. 721 DETECTOR EYE	EA	3
8042	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH	EA	1
8043	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION	EA	48
8044	16 INCH LED COUNTDOWN PEDESTRIAN SIGNAL HEAD	EA	3
8045	4 CONDUCTOR OPTICOM CABLE	LF	740
8046	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	1100
8047	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	965
8048	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	1715
8049	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGN	EA	7
8050	2-WIRE APS CENTRAL CONTROL UNIT	EA	1
8051	REMOVE AND DISPOSE OF EXISTING SIGNAL EQUIPMENT	LS	1

THE EXISTING VIDEO DETECTION CAMERAS TO BE REMOVED SHALL BE RETURNED TO THE CITY OF HAGERSTOWN. ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

**PHASING CHART**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
PHASE 1 AND 5	←G-	←G-	R	R	←G-	←G-	←G-	R	R	R	R	R	R	R	R	←G-	DW	DW	DW	DW	DW	DW
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6																						
PHASE 1 AND 6	←G-	←G-	G	G	←R-	←R-	←R-	R	R	R	R	R	R	R	R	R	DW	WK	WK	DW	DW	DW
1 AND 6 CHANGE																						
PHASE 2 AND 5	←R-	←R-	R	R	←G-	←G-	←G-	G	G	R	R	R	R	R	R	←G-	WK	DW	DW	WK	DW	DW
2 AND 5 CHANGE																						
PHASE 2 AND 6	←R-	←R-	G	G	←R-	←R-	←R-	G	G	R	R	R	R	R	R	R	WK	WK	WK	WK	DW	DW
PHASE 2 AND 6																						
PED CLEARANCE																	FL/DW	FL/DW	FL/DW	FL/DW	DW	DW
2 AND 6 CHANGE																						
PHASE 3	←R-	←R-	R	R	←R-	←R-	←R-	R	R	R	R	R	R	R	R	←G-	G	DW	DW	DW	DW	DW
3 CHANGE																						
PHASE 4	←R-	←R-	R	R	←R-	←R-	←R-	R	R	R	R	R	R	R	R	←G-	G	DW	DW	DW	DW	DW
4 CHANGE																						
PHASE 4 ALT																						
PED CLEARANCE																						
4 ALT CHANGE																						
SB PRE-EMPTION																						
SB PRE-EMPTION CHANGE																						
NB PRE-EMPTION																						
NB PRE-EMPTION CHANGE																						
EB PRE-EMPTION																						
EB PRE-EMPTION CHANGE																						
WB PRE-EMPTION																						
WB PRE-EMPTION CHANGE																						
FLASHING OPERATION	FL/←R-	FL/←R-	FL/Y	FL/Y	FL/←R-	FL/←R-	FL/←R-	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK	DARK	DARK



**WIRING KEY**

A,B,C,D,E,FF	7-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
G,H,J,K,L,X,Y,GG	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
M,N,O,P,R,S	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
T,U	NON-INVASIVE MICROLOOP PROBE SET WITH 1000 FT. LEAD-IN CABLE
V,CC,DD,EE	IP-BASED VIDEO DETECTION CAMERA LEAD-IN CABLE (3 CONDUCTOR, NO. 18 AWG)
W,AA,BB	4-CONDUCTOR OPTICOM DETECTOR CABLE
Z	STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
EX	USE EXISTING WIRING
PF	EXISTING UNDERGROUND POWER FEED
⊕	PROPOSED GROUND ROD
⊖	EXISTING GROUND ROD

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**ENGINEER'S CERTIFICATION**

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY 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. 53359 EXPIRATION DATE: 2022-10-22

**REVISION NOTES**

NO.	DATE	DESCRIPTION

CITY OF HAGERSTOWN, MARYLAND  
DEPARTMENT OF PARKS AND ENGINEERING

LOCATION: EASTERN BLVD AT PROFESSIONAL BLVD (FORMER PROFESSIONAL CT)

TITLE: SIGNAL MODIFICATIONS APS/CPS UPGRADES FOR GEOMETRIC IMPROVEMENTS TRAFFIC SIGNAL GENERAL INFORMATION SHEET

SCALES: HORIZONTAL: NONE VERTICAL: -

DRAWN BY: AFD DATE: JUNE 2021

SURVEY BY: - DATE: -

REVISED BY: - DATE: -

COUNTY PROJECT NO. 10-270 SHEET SG-02 OF 2

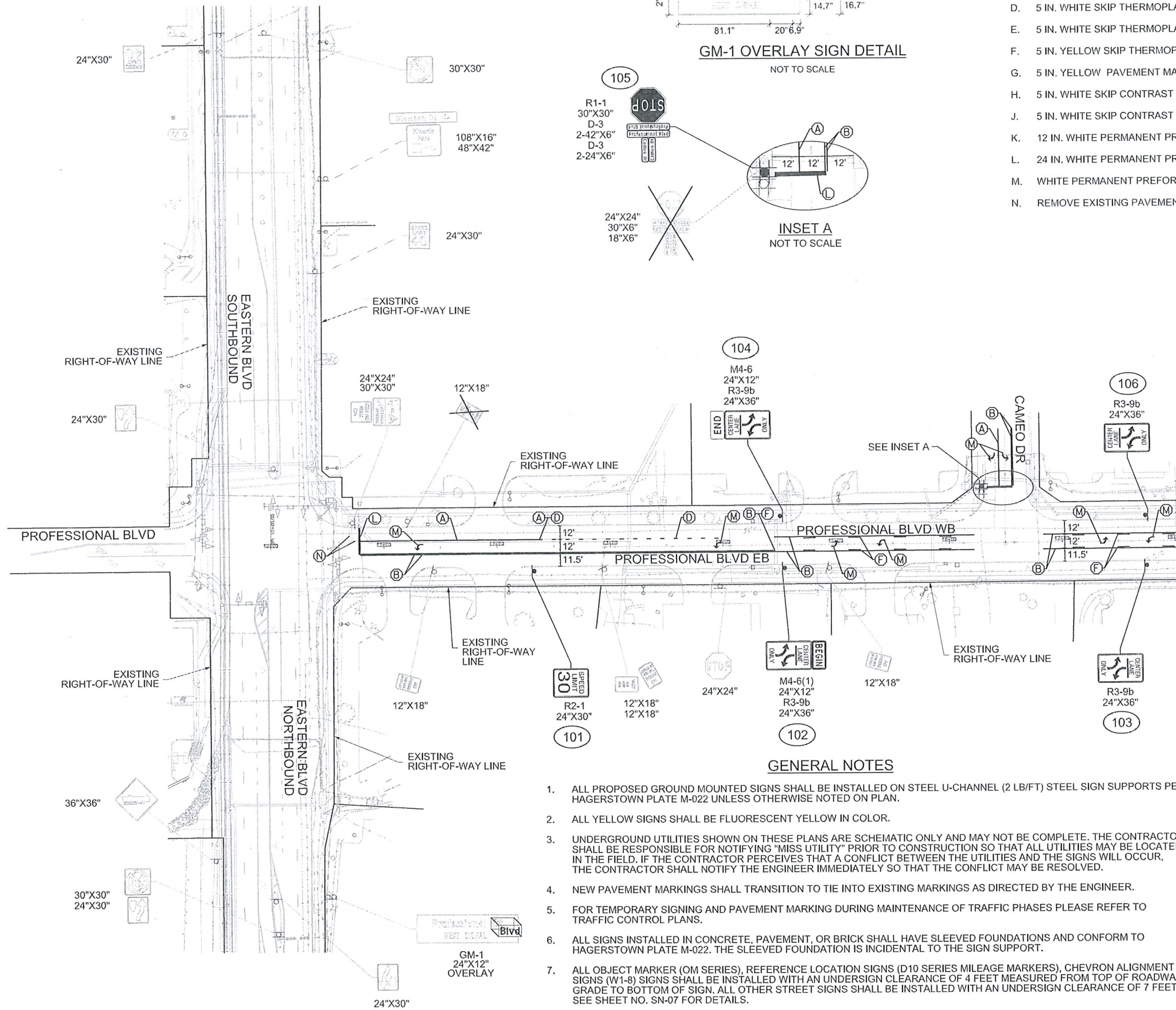
ADDENDUM # \_\_\_\_\_ SHEET 77 OF 129 NOT USED FOR CONSTRUCTION

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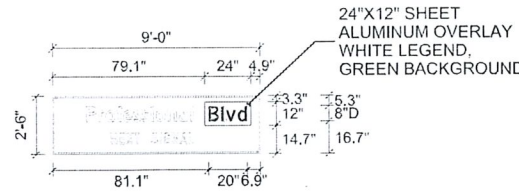


**PAVEMENT MARKING LEGEND**

- A. 5 IN. WHITE SOLID THERMOPLASTIC PAVEMENT MARKING LINE
- B. 5 IN. YELLOW SOLID THERMOPLASTIC PAVEMENT MARKING LINE
- C. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (10 FT. LINE, 30 FT. GAP)
- D. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE, 9 FT. GAP)
- E. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE, 3 FT. GAP)
- F. 5 IN. YELLOW SKIP THERMOPLASTIC PAVEMENT MARKING LINE (10 FT. LINE, 30 FT. GAP)
- G. 5 IN. YELLOW PAVEMENT MARKING TAPE
- H. 5 IN. WHITE SKIP CONTRAST PAVEMENT MARKING TAPE (10 FT. LINE, 30 FT. GAP)
- J. 5 IN. WHITE SKIP CONTRAST PAVEMENT MARKING TAPE (3 FT. LINE, 9 FT. GAP)
- K. 12 IN. WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
- L. 24 IN. WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
- M. WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING SYMBOL/ARROW
- N. REMOVE EXISTING PAVEMENT MARKING LINE, ARROW, OR SYMBOL

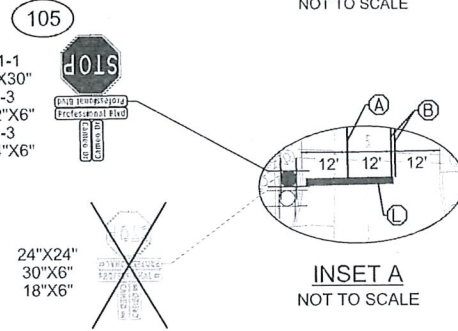
**GM-1 OVERLAY SIGN DETAIL**

NOT TO SCALE



**INSET A**

NOT TO SCALE



**ARROW LOCATIONS:**

STATION	OFFSET (FT)
11+27	0
13+91	0
15+04	0
15+36	0
16+38	71 LT
16+51	71 LT
17+42	0
17+74	0

START SKIP AT STA. 12+40, OFFSET 6.0' LEFT  
STOP SKIP AT STA 13+96, OFFSET 6.0' LEFT

**GENERAL NOTES**

1. ALL PROPOSED GROUND MOUNTED SIGNS SHALL BE INSTALLED ON STEEL U-CHANNEL (2 LB/FT) STEEL SIGN SUPPORTS PER HAGERSTOWN PLATE M-022 UNLESS OTHERWISE NOTED ON PLAN.
2. ALL YELLOW SIGNS SHALL BE FLUORESCENT YELLOW IN COLOR.
3. UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "MISS UTILITY" PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE SIGNS WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
4. NEW PAVEMENT MARKINGS SHALL TRANSITION TO TIE INTO EXISTING MARKINGS AS DIRECTED BY THE ENGINEER.
5. FOR TEMPORARY SIGNING AND PAVEMENT MARKING DURING MAINTENANCE OF TRAFFIC PHASES PLEASE REFER TO TRAFFIC CONTROL PLANS.
6. ALL SIGNS INSTALLED IN CONCRETE, PAVEMENT, OR BRICK SHALL HAVE SLEEVED FOUNDATIONS AND CONFORM TO HAGERSTOWN PLATE M-022. THE SLEEVED FOUNDATION IS INCIDENTAL TO THE SIGN SUPPORT.
7. ALL OBJECT MARKER (OM SERIES), REFERENCE LOCATION SIGNS (D10 SERIES MILEAGE MARKERS), CHEVRON ALIGNMENT SIGNS (W1-8) SIGNS SHALL BE INSTALLED WITH AN UNDERSIGN CLEARANCE OF 4 FEET MEASURED FROM TOP OF ROADWAY GRADE TO BOTTOM OF SIGN. ALL OTHER STREET SIGNS SHALL BE INSTALLED WITH AN UNDERSIGN CLEARANCE OF 7 FEET. SEE SHEET NO. SN-07 FOR DETAILS.
8. RIGHT-OF-WAY SHOWN ON THE PLANS IS APPROXIMATE AND BASED ON THE BEST AVAILABLE INFORMATION.
9. PROPOSED SIGN SUPPORTS SHALL BE INSTALLED WITHIN EXISTING RIGHT-OF-WAY BEHIND THE PROPOSED SIDEWALK. SIGN SYMBOLS ARE SHOWN LARGER THAN ACTUAL FOR CLARITY.

**ENGINEER'S CERTIFICATION**

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 53359 EXPIRATION DATE: 2020-10-22

**LEGEND**

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- EXISTING GROUND MOUNTED SIGN
- PROPOSED GROUND MOUNTED SIGN

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

PROFESSIONAL BOULEVARD  
SIGNING & PAVEMENT  
MARKING PLAN

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-315-2401

SCALE  
1"=50'

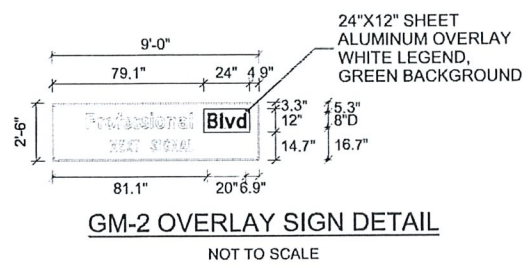
SHEET NO.  
SN-01  
SHEET 78 OF 129

PROJECT NO.  
10-270

NO.	REVISION DESCRIPTION	BY	DATE
1	LOCATION INFO FOR ARROWS / SKIPS	PJM	5.31.22

PAVEMENT MARKING LEGEND

- A. 5 IN. WHITE SOLID THERMOPLASTIC PAVEMENT MARKING LINE
- B. 5 IN. YELLOW SOLID THERMOPLASTIC PAVEMENT MARKING LINE
- C. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (10 FT. LINE, 30 FT. GAP)
- D. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE, 9 FT. GAP)
- E. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE, 3 FT. GAP)
- F. 5 IN. YELLOW SKIP THERMOPLASTIC PAVEMENT MARKING LINE (10 FT. LINE, 30 FT. GAP)
- G. 5 IN. YELLOW PAVEMENT MARKING TAPE
- H. 5 IN. WHITE SKIP CONTRAST PAVEMENT MARKING TAPE (10 FT. LINE, 30 FT. GAP)
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- L. 24 IN. WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE
- M. WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING SYMBOL/ARROW
- N. REMOVE EXISTING PAVEMENT MARKING LINE, ARROW, OR SYMBOL



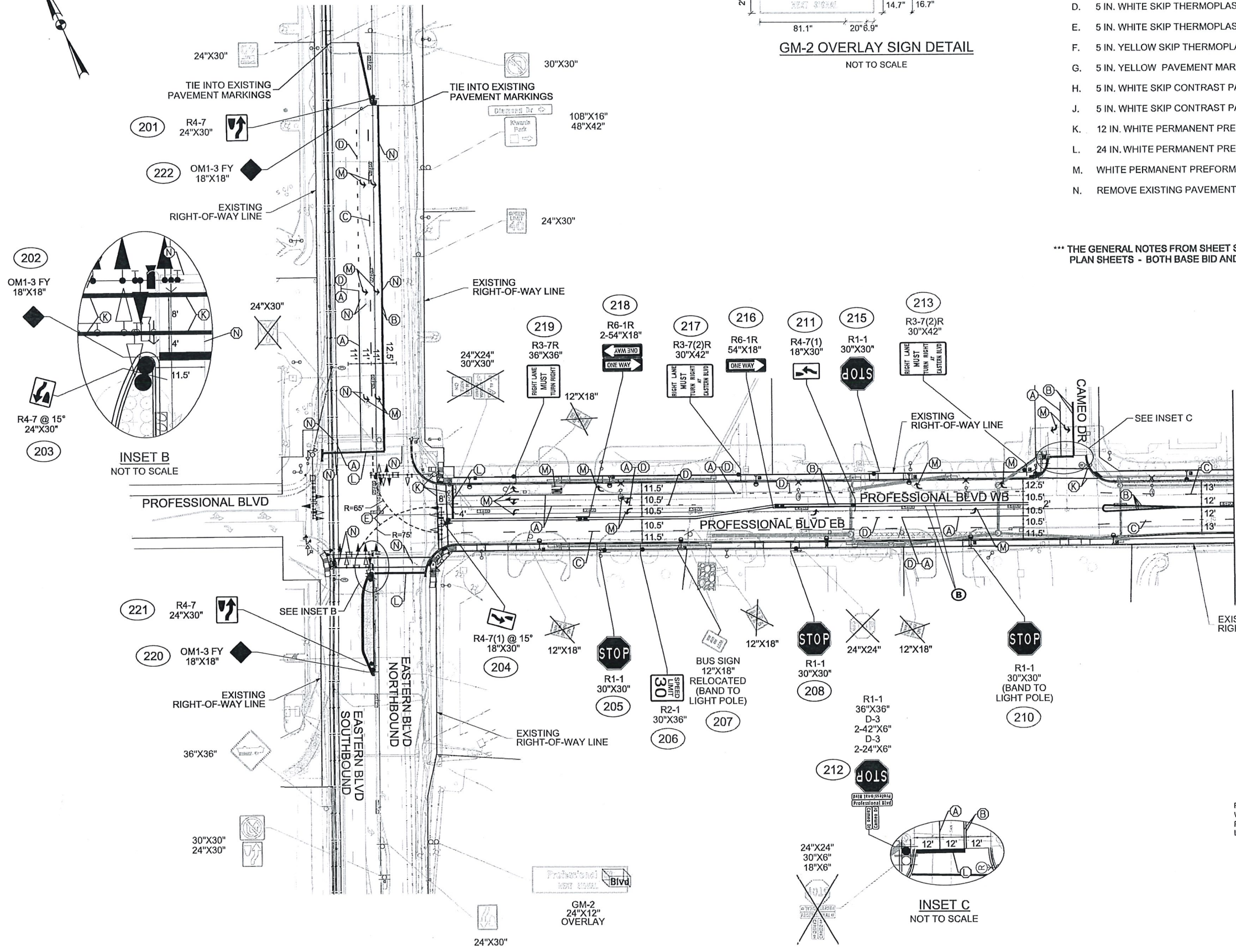
\*\*\* THE GENERAL NOTES FROM SHEET SN-01 APPLY TO ALL SIGNING & PAVEMENT MARKING PLAN SHEETS - BOTH BASE BID AND ADD ALTERNATE.

ARROW LOCATIONS:

STATION	OFFSET (FT)
9+91	308 LT, 207 LT, 106 LT
10+02	308 LT, 207 LT, 106 LT
11+21	14 LT
11+27	1 LT, 23 LT
12+05	23 LT
12+27	14 LT
12+33	1 LT
15+06	23 LT
15+66	1 RT
15+86	23 LT

START SKIP AT STA. 12+40, OFFSET 6.75' LEFT  
 STOP SKIP AT STA. 13+96, OFFSET 6.75' LEFT  
 START SKIP AT STA. 13+37, OFFSET 17.25' LEFT  
 STOP SKIP AT STA. 16+04, OFFSET 16.35' LEFT  
 START SKIP AT STA. 15+12, OFFSET 6.75' RIGHT  
 STOP SKIP AT STA. 15+60, OFFSET 6.75' RIGHT

MATCHLINE - SEE SHEET NO. SN-04



ENGINEER'S CERTIFICATION

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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. 53359, EXPIRATION DATE: 2022-10-22

LEGEND

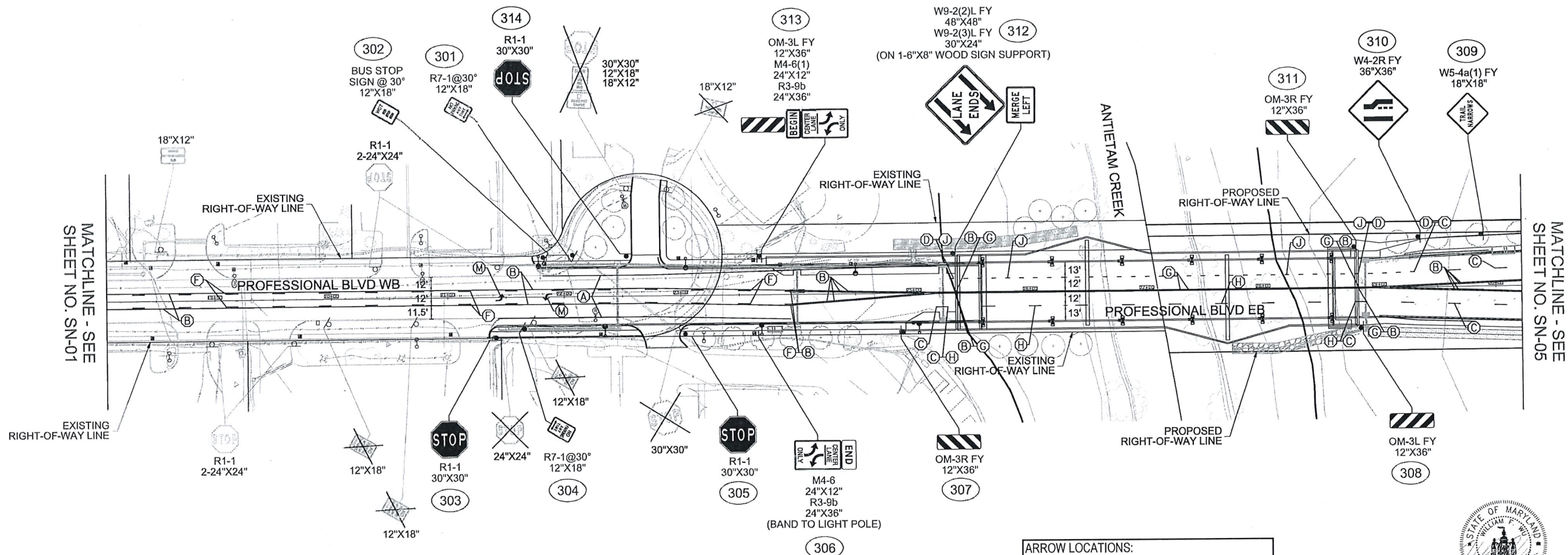
- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- EXISTING GROUND MOUNTED SIGN
- PROPOSED GROUND MOUNTED SIGN

DESIGNED BY: AFD DRAWN BY: AFD CHECKED BY: WFW DATE: JUNE 2021	REVISION DESCRIPTION 1 ADDED GENERAL NOTE STATEMENT 2 LOCATION INFO FOR ARROWS/SKIPS	BY: PJM PJM PJM	DATE: 5.31.22 5.31.22 5.31.22
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2400 Fax: 240-313-2401			
PROFESSIONAL BOULEVARD SIGNING & PAVEMENT MARKING PLAN (ADD ALTERNATIVE)			
SCALE 1"=50' SHEET NO. SN-02 SHEET 79 OF 129 PROJECT NO. 10-270			



**PAVEMENT MARKING LEGEND**

- A. 5 IN. WHITE SOLID THERMOPLASTIC PAVEMENT MARKING LINE
- B. 5 IN. YELLOW SOLID THERMOPLASTIC PAVEMENT MARKING LINE
- C. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (10 FT. LINE, 30 FT. GAP)
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- E. 5 IN. WHITE SKIP THERMOPLASTIC PAVEMENT MARKING LINE (3 FT. LINE, 3 FT. GAP)
- F. 5 IN. YELLOW SKIP THERMOPLASTIC PAVEMENT MARKING LINE (10 FT. LINE, 30 FT. GAP)
- G. 5 IN. YELLOW PAVEMENT MARKING TAPE
- H. 5 IN. WHITE SKIP CONTRAST PAVEMENT MARKING TAPE (10 FT. LINE, 30 FT. GAP)
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- M. WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING SYMBOL/ARROW
- N. REMOVE EXISTING PAVEMENT MARKING LINE, ARROW, OR SYMBOL



MATCHLINE - SEE SHEET NO. SN-01

MATCHLINE - SEE SHEET NO. SN-05

**ARROW LOCATIONS:**

STATION	OFFSET (FT)
21+49	0
21+81	0

START SKIP AT STA. 25+31, OFFSET 12.0' LEFT  
 STOP SKIP AT STA. 29+30, OFFSET 13.28' LEFT

START SKIP AT STA. 25+19, OFFSET 12.0' RIGHT  
 CONTINUE SKIP TO MATCHLINE, OFFSET 16.24' RIGHT



**ENGINEER'S CERTIFICATION**

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**LEGEND**

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- EXISTING GROUND MOUNTED SIGN
- PROPOSED GROUND MOUNTED SIGN

DESIGNED BY: AFD	DRAWN BY: AFD	CHECKED BY: WFW	DATE: JUNE 2021	REVISION DESCRIPTION NO. 1 LOCATION INFO FOR ARROWS / SKIPS	DATE 5.31.22
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING					
PROFESSIONAL BOULEVARD SIGNING & PAVEMENT MARKING PLAN					
SCALE 1"=50'					
SHEET NO. SN-03 SHEET 80 OF 129					
PROJECT NO. 10-270					



**PAVEMENT MARKING LEGEND**

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- M. WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING SYMBOL/ARROW
- N. REMOVE EXISTING PAVEMENT MARKING LINE, ARROW, OR SYMBOL

NO.	REVISION DESCRIPTION	BY	DATE
1	LOCATION INFO FOR ARROWS / SKIPS	PJM	5.31.22

DESIGNED BY: AFD  
 DRAWN BY: AFD  
 CHECKED BY: WFW  
 DATE: JUNE 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

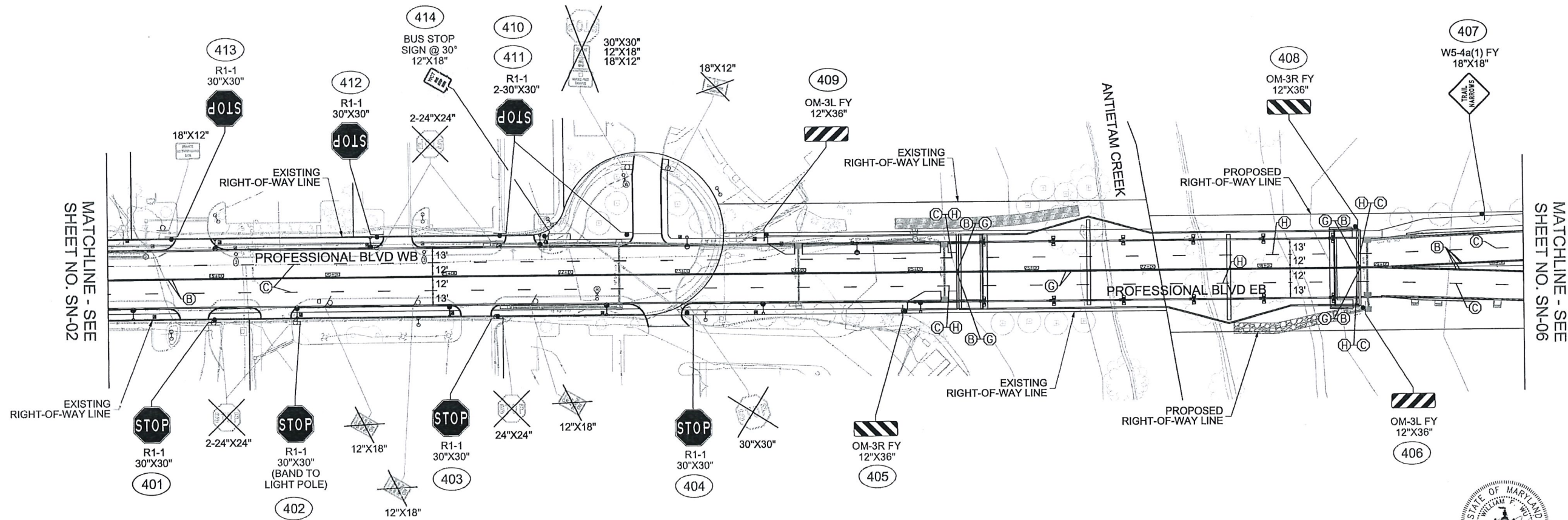
Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2400 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 SIGNING & PAVEMENT  
 MARKING PLAN (ADD ALTERNATIVE)

SCALE  
 1"=50'

SHEET NO.  
 SN-04  
 SHEET 81 OF 129

PROJECT NO.  
 10-270



**ENGINEER'S CERTIFICATION**

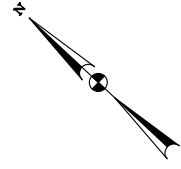
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 53359, EXPIRATION DATE: 2022-10-22.

**LEGEND**

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- EXISTING GROUND MOUNTED SIGN
- PROPOSED GROUND MOUNTED SIGN

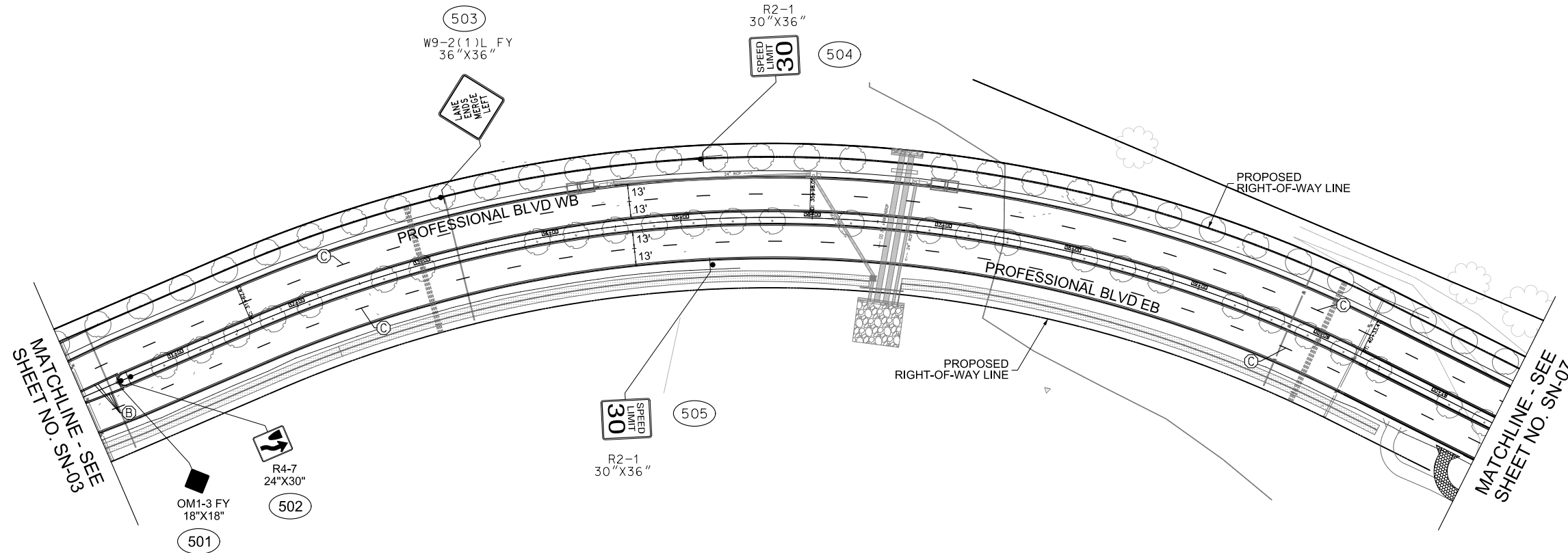
**SKIP LOCATION:**  
 START SKIP AT MATCHLINE TO STA. 28+96, OFFSET 12.0' LEFT  
 CONTINUE TO MATCHLINE, OFFSET 16.24' LEFT

START SKIP AT MATCHLINE TO STATION 28+96, OFFSET 12.0' RIGHT  
 CONTINUE TO MATCHLINE, OFFSET 16.24' RIGHT



**PAVEMENT MARKING LEGEND**

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**ENGINEER'S CERTIFICATION**

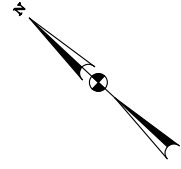
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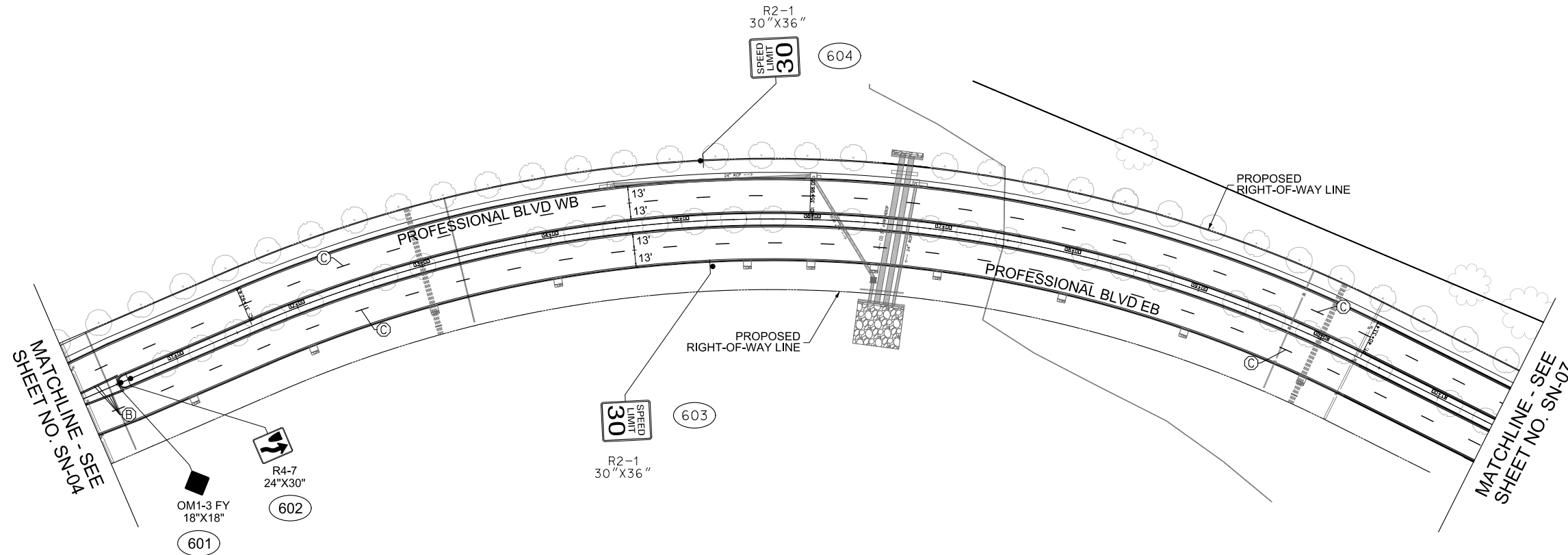
DESIGNED BY: AFD	NO.	REVISION DESCRIPTION	BY	DATE
DRAWN BY: AFD				
CHECKED BY: WFW				
DATE: JUNE 2021				
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING 				
PROFESSIONAL BOULEVARD SIGNING & PAVEMENT MARKING PLAN				
SCALE 1"=50' SHEET NO. SN-05 SHEET 82 OF 129 PROJECT NO. 10-270				

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401



**PAVEMENT MARKING LEGEND**

- A. 5 IN. WHITE SOLID THERMOPLASTIC PAVEMENT MARKING LINE
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DESIGNED BY: AFD	DRAWN BY: AFD	CHECKED BY: WFW	DATE: JUNE 2021
			NO.
REVISION DESCRIPTION			DATE
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING			
Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2460 Fax: 240-313-2401			
<b>PROFESSIONAL BOULEVARD</b> <b>SIGNING &amp; PAVEMENT</b> <b>MARKING PLAN (ADD ALTERNATIVE)</b>			
SCALE			
1"=50'			
SHEET NO. SN-06			
SHEET 83 OF 129			
PROJECT NO.			
10-270			

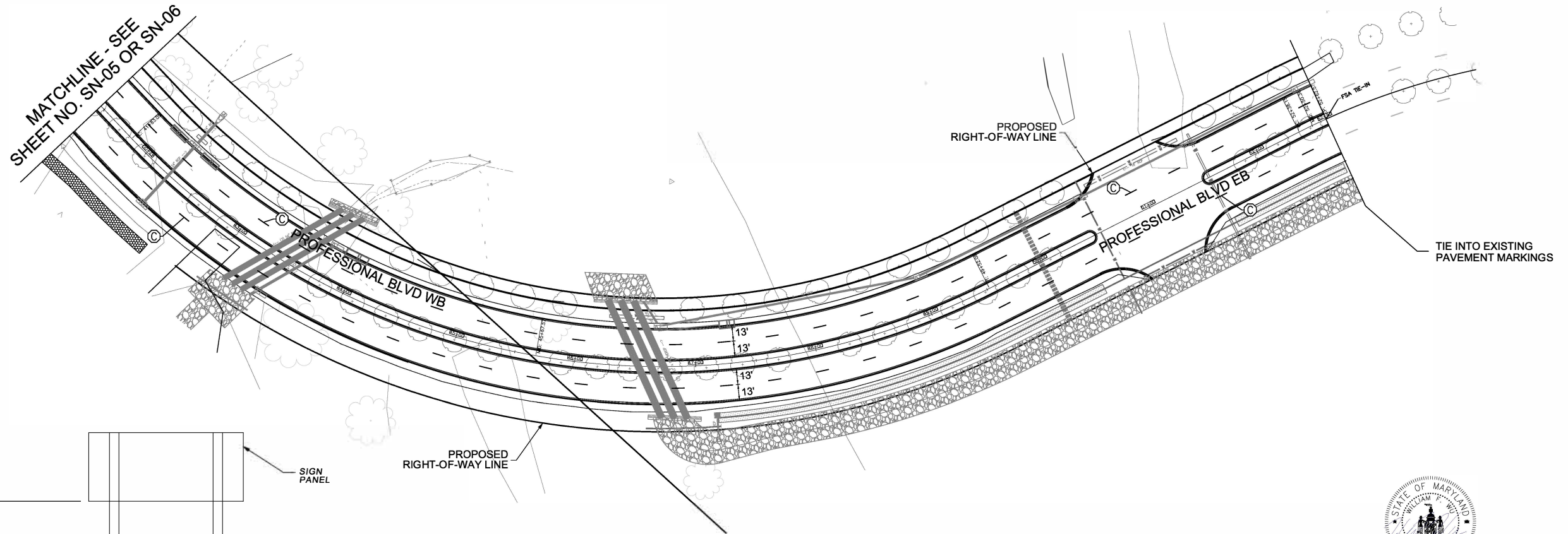


**EQUIPMENT LIST**

PAVEMENT MARKING	UNIT	BASE QUANTITY ONLY	ADD ALTERNATE QUANTITY	BASE & ADD ALTERNATE QUANTITY
5 INCH WHITE CONTRAST PAVEMENT MARKING TAPE	LF	210	0	210
5 INCH YELLOW CONTRAST PAVEMENT MARKING TAPE	LF	790	0	790
5 INCH WHITE THERMOPLASTIC PAVEMENT MARKING LINES	LF	2170	1620	2800
5 INCH YELLOW THERMOPLASTIC PAVEMENT MARKING LINES	LF	3990	2860	3490
12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	0	400	400
24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES	LF	50	120	120
WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LEGENDS AND SYMBOLS	SF	155	134	134
REMOVAL OF EXISTING PAVEMENT MARKING LINES, ANY WIDTH	LF	100	670	670
REMOVAL OF EXISTING PAVEMENT LETTERS, SYMBOLS, ARROW, AND NUMBERS	SF	0	31	31
<b>SIGNAGE</b>				
2 LBS. PER FOOT STEEL LI-CHANNEL POST	EA	23	31	36
SHEET ALUMINUM SIGNS	SF	160	189	213
REMOVE EXISTING GROUND MOUNTED SIGNS AND SUPPORTS	SF	33	40	40
WOOD SIGN SUPPORT 6 INCH X 8 INCH	LF	14	0	0
BAND SIGN TO SIGN SUPPORT	EA	1	3	3
OVERLAY EXISTING GROUND MOUNTED SIGNS	SF	2	0	2
RELOCATE EXISTING GROUND MOUNTED SIGNS	SF	0	2	2

**PAVEMENT MARKING LEGEND**

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**VERTICAL CLEARANCES FOR SIGNS**

- A. ALL OBJECT MARKER (OM SERIES), REFERENCE LOCATION SIGNS (D10 SERIES MILEAGE MARKERS), CHEVRON ALIGNMENT SIGNS (W1-8) SIGNS SHALL BE INSTALLED WITH AN UNDERSIGN CLEARANCE OF 4 FEET FROM TOP OF CURB
- ALL OTHER TRAFFIC SIGNS TO BE INSTALLED WITH AN UNDERSIGN CLEARANCE OF 7 FEET FROM TOP OF CURB

**ENGINEER'S CERTIFICATION**

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**LEGEND**

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- EXISTING GROUND MOUNTED SIGN
- PROPOSED GROUND MOUNTED SIGN



THIS PLAN SHEET APPLIES TO BOTH WASHINGTON COUNTY PROJECT NO. 10-270 AND 10-270 ADD ALTERNATE.

DESIGNED BY: AFD DRAWN BY: AFD CHECKED BY: WFW DATE: JUNE 2021	REVISION DESCRIPTION 1 REVISED E PAVEMENT LIST	BY: PJM DATE: 5.31.22	WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING  Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-319-2460 Fax: 240-313-2401
PROFESSIONAL BOULEVARD SIGNING & PAVEMENT MARKING PLAN		SCALE 1"=50' SHEET NO. SN-07 SHEET 84 OF 129 PROJECT NO. 10-270	

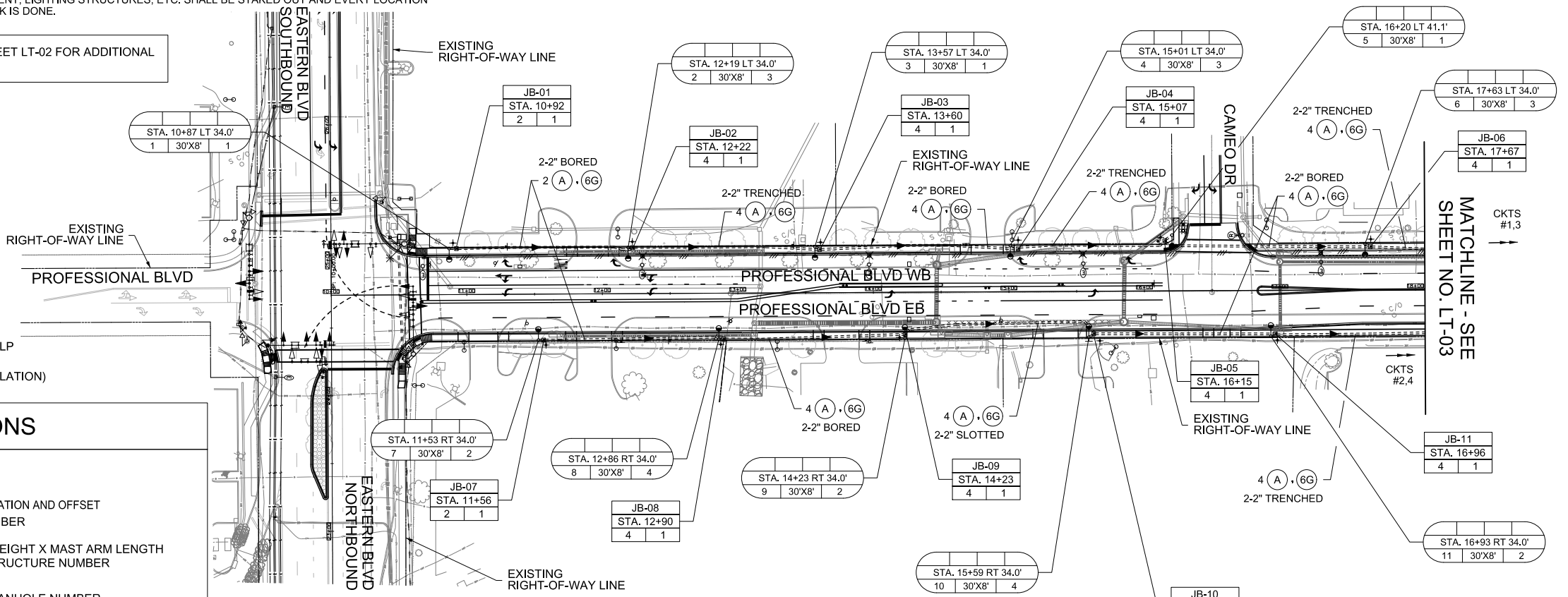


## GENERAL NOTES

1. THE PROPOSED ROADWAY LIGHTING SHALL BE 120/240V WITH AN OPERATING VOLTAGE OF 120V.
2. THE CONTRACTOR SHALL CAP AND ABANDON ALL EXISTING CONDUITS AND REMOVE ALL EXISTING CABLES THAT ARE NO LONGER IN USE.
3. THE CONTRACTOR SHALL INSTALL ALL LIGHT POLE FOUNDATIONS AND JUNCTION BOXES AT FINAL GRADE.
4. THE CONTRACTOR SHALL CONTACT HAGERSTOWN LIGHT DEPARTMENT (HLD) TO ENSURE THAT ALL PROPOSED ELECTRICAL SERVICE FEEDS ARE APPROVED PRIOR TO THE INSTALLATION OF LIGHTING CABINETS. THE CONTRACTOR SHALL COORDINATE WITH HLD TO ARRANGE FOR THE EQUIPMENT TO BE ENERGIZED UPON COMPLETION OF WORK.
5. ALL FUSING AND SPLICING OF ELECTRICAL CABLES SHALL TAKE PLACE IN JUNCTION BOXES PER HLD CONSTRUCTION STANDARD H4.2. CONNECTOR KITS SHALL BE TYCO GTAP1 OR GTAP2; FUSES SHALL BE MERSEN TYPE ATDR, 30 AMP CARTRIDGE FUSES; FUSE HOLDERS SHALL BE MERSEN FEB-82-82-BA OR FEB-11-11 WITH 2 INSULATING BOOTS FSB1 PER HLD STREET LIGHT INSTALLATION SPECIFICATIONS.
6. UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "MISS UTILITY" PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE LIGHTING EQUIPMENT WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
7. EXISTING LIGHTING SHALL BE MAINTAINED AS MUCH AS POSSIBLE UNTIL PROPOSED LIGHTING IS FUNCTIONAL. THE CONTRACTOR SHALL MINIMIZE OUTAGE TIME BY USING TEMPORARY SPLICES, IF NECESSARY. TEMPORARY ROADWAY LIGHTING SHALL BE PAID FOR AS THE LUMP SUM BID ITEM MAINTAIN EXISTING ROADWAY LIGHTING.
8. ALL CABLE ENERGIZING PROPOSED LIGHTING STRUCTURES SHALL BE NEW.
9. ALL JUNCTION BOXES SHALL INCLUDE A MINIMUM 6" CRUSHED STONE BASE BENEATH AND AROUND THE JUNCTION BOX PER HLD CONSTRUCTION STANDARD H3.
10. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN CASE OF DAMAGE TO AN EXISTING FACILITY.
11. THE CONTRACTOR SHALL REPLACE ALL CONCRETE GUTTERS, FLUMES, UNDERDRAINS AND OTHER CONCRETE STRUCTURES DAMAGED OR REMOVED DURING THE INSTALLATION OF FOUNDATIONS AND CABLE.
12. ALL JUNCTION BOXES, CONDUITS UNDER PAVEMENT, LIGHTING STRUCTURES, ETC. SHALL BE STAKED OUT AND EVERY LOCATION APPROVED BY THE ENGINEER BEFORE ANY WORK IS DONE.
13. UPON RECEIVING NOTICE TO PROCEED, THE CONTRACTOR SHALL ARRANGE A MEETING WITH THE LOCAL UTILITY COMPANY AND THE PROJECT ENGINEER TO INSURE THAT POWER IS AVAILABLE WHEN REQUIRED.
14. ALL TRENCHING MUST BE BACKFILLED AND RESTORED TO ITS ORIGINAL CONDITION ON THE SAME WORKING DAY ON WHICH IT WAS OPENED. AREAS WHICH ARE NOT RESEED, MULCHED OR SODDED MUST BE COVERED TO PREVENT EROSION. ALL SOIL NOT USED FOR BACKFILL MUST BE REMOVED ON THE SAME WORKING DAY.
15. ALL SOIL REMOVED FOR HANDBOXES, FOUNDATIONS, ETC. MUST BE COVERED TO PREVENT EROSION. SOIL NOT USED FOR BACKFILL MUST BE DISPOSED OF TO THE ENGINEER'S SATISFACTION ON THE SAME WORKING DAY THE BACKFILL IS COMPLETED.
16. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF LIGHT POLE FOUNDATIONS, MANHOLES, CONDUITS AND DUCT CABLES WITH THE INSTALLATION OF PROPOSED DRAINAGE STRUCTURES. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
17. THE PROPOSED ROADWAY LUMINAIRES SHALL BE 108 WATT LED PHILIPS LUMEC ROAD FOCUS RFM-108W32LED3K-T-R2M-HS WITH TYPE III DISTRIBUTION AND PHOTOCCELL AS APPROVED BY HLD.
18. THE PROPOSED BRIDGE LUMINAIRES SHALL BE 50 WATT LED HESS CANTO G600LED CG600G-2LV-NW-ME-23RC 3000°K WITH TYPE III DISTRIBUTION AND PHOTOCCELL AS APPROVED BY HLD.
19. THE EXISTING LIGHTING SYSTEM SHALL REMAIN OPERATIONAL UNTIL THE PROPOSED LIGHTING SYSTEM HAS BEEN COMPLETED.
20. REMOVAL AND DISPOSAL OF EXISTING LIGHTING INFRASTRUCTURE INCLUDING CONDUITS, CABLES, JUNCTION BOXES, LIGHTING STRUCTURES, STRUCTURE FOUNDATIONS 1 FT. BELOW GRADE, ELECTRICAL SERVICE EQUIPMENT, LAMPS AND LUMINAIRES, BACKFILL AND GRADING SHALL BE INCIDENTAL TO THE LUMP SUM REMOVAL AND DISPOSAL OF LIGHTING EQUIPMENT ITEM IN THE CONTRACT. COORDINATION WITH HLD TO REMOVE EXISTING LIGHTING AND EXISTING ELECTRICAL SERVICES SHALL BE INCIDENTAL TO THIS ITEM.
21. BARRIER EMBEDDED CONDUIT SHALL BE INCIDENTAL TO THE PERTINENT CONCRETE BARRIER BID ITEMS. JUNCTION BOXES EMBEDDED IN BARRIER ARE QUANTIFIED AND INSTALLED UNDER WASHINGTON COUNTY PROJECT NO. 10-244.
22. RIGHT OF WAY SHOWN ON THE PLANS IS APPROXIMATE AND BASED ON THE BEST AVAILABLE INFORMATION.
23. ALL LIGHT POLES AND JUNCTION BOXES TO BE REMOVED SHALL HAVE THE FOUNDATION/STRUCTURE REMOVED 1 FT. BELOW GRADE AND BACKFILLED. THIS WORK SHALL BE INCIDENTAL TO THE PERTINENT REMOVAL ITEM.
24. PVC CONDUITS UNDER ROADWAYS AND DRIVEWAY SHALL BE SCHEDULE 80. ALL OTHER PVC CONDUIT SHALL BE SCHEDULE 40.
25. ALL CABLES SHALL INCLUDE 30 IN. OF SLACK IN EACH JUNCTION BOX.
26. THROUGHOUT THE SYSTEM, WIRING SHALL BE COLOR-CODED BY TAPE TO IDENTIFY THE NEUTRAL AND EACH HOT LEG UNLESS COLORED THHN IS USED. THE GROUND WIRE SHALL BE COLORED GREEN, THE NEUTRAL WIRE SHALL BE COLORED WHITE, AND THE HOT WIRES SHALL BE COLORED RED AND BLACK.
27. WIRING FROM THE JUNCTION BOX TO EACH INDIVIDUAL LUMINAIRE SHALL CONSIST OF 3 - #10 AWG.
28. CABLES SHALL PASS THROUGH CONCRETE BARRIER EMBEDDED JUNCTION BOXES UNSPLICED, WHERE POSSIBLE.
29. SLOTTED CONDUITS SHALL BE INSTALLED PRIOR TO FINAL ROADWAY OR DRIVEWAY SURFACE.
30. AT-GRADE LIGHT POLES SHALL BE INSTALLED PER HLD CONSTRUCTION STANDARDS H5 AND H6. SEE LT-05 FOR ADDITIONAL DETAILS.
31. POWER SUPPLY CONNECTIONS AND WIRING IN PROPOSED JUNCTION BOX ADJACENT TO THE ELECTRICAL TRANSFORMER SHALL BE COORDINATED WITH HLD. EQUIPMENT TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR. FINAL CONNECTIONS TO BE PERFORMED BY HLD OR POTOMAC EDISON.



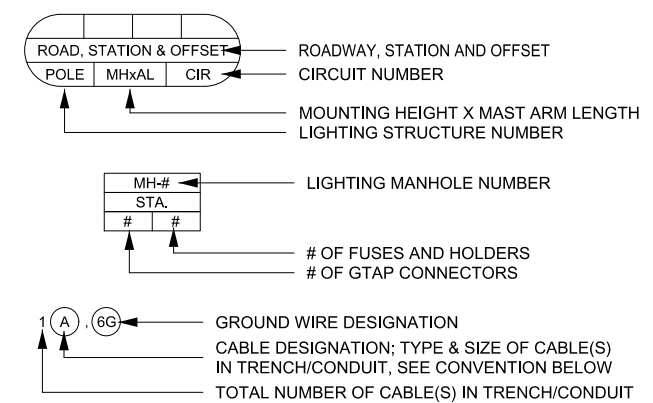
NOTE: REFER TO SHEET LT-02 FOR ADDITIONAL DETAILS.



### WIRING LEGEND

- (A) 1-CONDUCTOR NO. 6 AWG COPPER, TYPE XLP
- (6G) NO. 6 COPPER GROUND WIRE (GREEN INSULATION)

### CONVENTIONS



### LEGEND

- PROPOSED ALUMINUM LIGHT POLE WITH 108W LED ROADWAY LUMINAIRE AND PHOTOCCELL
- PROPOSED 23 FT. DECORATIVE HESS CANTO G STEEL LIGHT POLE WITH 2-50W LED LUMINAIRES AND PHOTOCELLS (SEE LD-13)
- EXISTING WOOD POLE WITH LIGHTING ARM AND LUMINAIRE TO BE REMOVED
- EXISTING WOOD POLE WITH HPS ROADWAY LUMINAIRE TO REMAIN
- EXISTING LEASED LIGHT TO REMAIN
- PROPOSED JUNCTION BOX (13"X24"X18" UNLESS OTHERWISE NOTED ON THE PLANS)
- EXISTING JUNCTION BOX TO REMAIN
- EXISTING JUNCTION BOX TO BE REMOVED
- PROPOSED PVC CONDUITS (SEE PLANS FOR SIZE AND TYPE)
- PROPOSED PVC CONDUIT EMBEDDED IN TRAFFIC BARRIER
- EXISTING CONDUIT TO REMAIN
- EXISTING CONDUIT TO BE ABANDONED/REMOVED
- PROPOSED GROUND ROD
- DIRECTION TOWARDS TRANSFORMER
- CIRCUIT MATCHLINE DIRECTION ARROW

48 HRS.  
Before You Dig  
Call  
"MISS UTILITY"  
Service Protection Center

CALL TOLL FREE  
1-800-257-7777



**ENGINEER'S CERTIFICATION**

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY 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. 53359  
EXPIRATION DATE: 2022-10-22

REVISION NOTES			
DRAWN BY	AFD	DATE	JUNE 2021
SURVEY BY	-	DATE	--
REVISED BY	-	DATE	--

**ADD ALTERNATIVE**

CITY OF HAGERSTOWN, MARYLAND  
DEPARTMENT OF  
PARKS AND ENGINEERING

LOCATION: PROFESSIONAL BLVD BETWEEN EASTERN BLVD AND WASHINGTON COUNTY LINE

TITLE: ROADWAY LIGHTING UPGRADES FOR PROFESSIONAL BLVD WIDENING (LIGHTING PLAN SHEET)

SCALES	HORIZONTAL: 1"=50'	VERTICAL: --	
DRAWN BY	AFD	DATE	JUNE 2021
SURVEY BY	-	DATE	--
REVISED BY	-	DATE	--

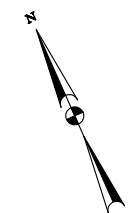
COUNTY PROJECT NO. 10-270  
SHEET 85 OF 129  
DRAWING NUMBER  
NOT USED FOR CONSTRUCTION

GEOMETRIC LEGEND	
	EXISTING
	PROPOSED

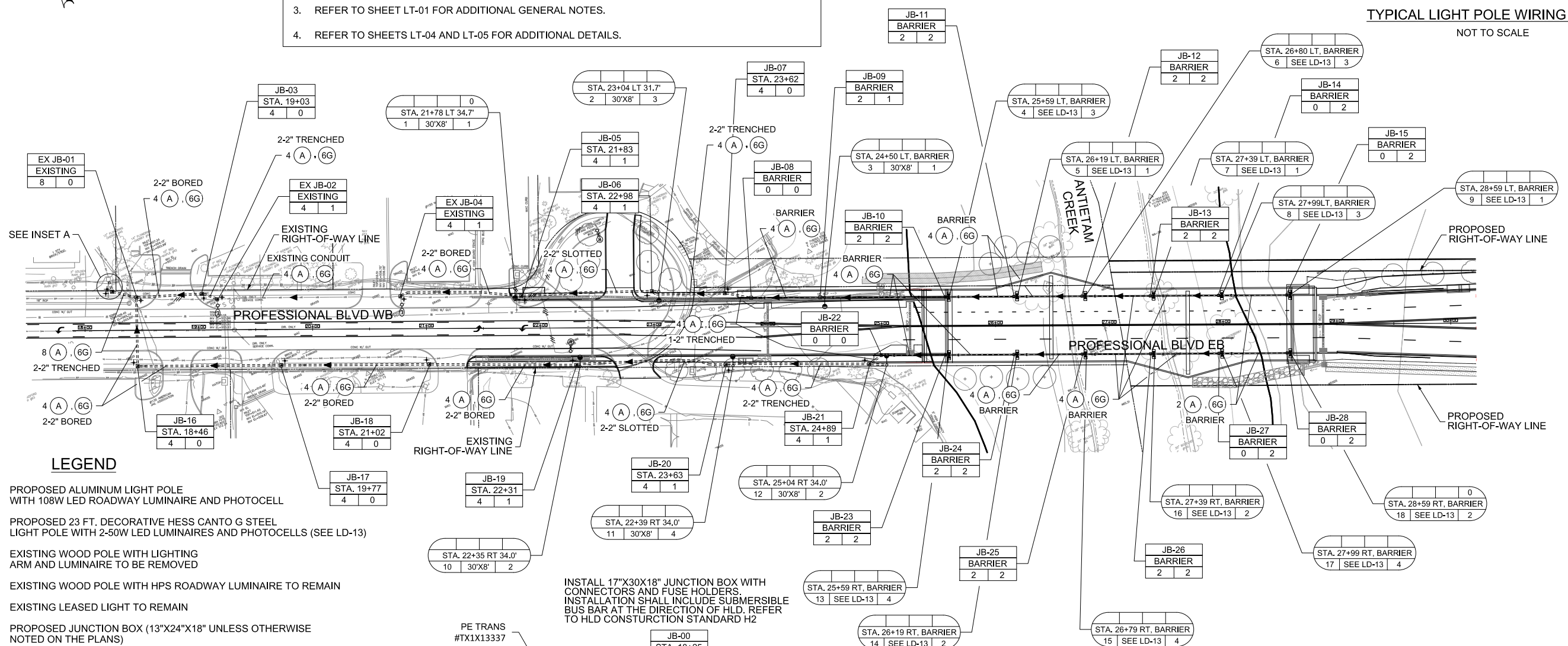
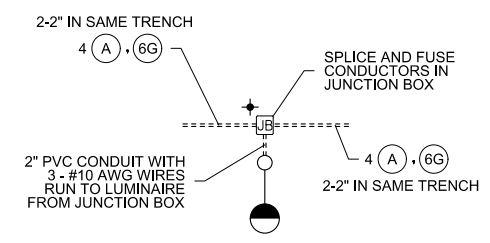
UTILITY LEGEND	
	SD STORM DRAIN
	GAS GAS MAIN
	W WATER MAIN
	SS SEWER MAIN
	UGE ELECTRIC CABLES
	E AERIAL CABLES
	UGT TELEPHONE CABLES
	FO FIBER-OPTIC

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**SPECIAL NOTES**

- POLE FOUNDATIONS IN THE BARRIER SHALL BE INSTALLED AND QUANTIFIED IN THE BRIDGE PLANS FOR WASHINGTON COUNTY PROJECT NO. 10-244. POLE FOUNDATIONS WILL INCLUDE SLEEVES FOR FUTURE ANCHOR BOLTS, BUT NO MOUNTING HARDWARE. ALL MOUNTING HARDWARE SHALL BE INSTALLED UNDER WASHINGTON COUNTY PROJECT NO. 10-270. MOUNTING HARDWARE INCLUDING, BUT NOT LIMITED TO, ANCHOR BOLTS, WASHERS, NUTS, AND FABRIC PADS SHALL BE INCIDENTAL TO THE CONTRACT UNIT PRICE FOR DECORATIVE LIGHT POLES.
- PROPOSED JUNCTION BOXES AND CONDUIT EMBEDDED IN BARRIER ON BRIDGE WILL BE INSTALLED AND QUANTIFIED IN THE BRIDGE PLANS FOR WASHINGTON COUNTY PROJECT NO. 10-244.
- REFER TO SHEET LT-01 FOR ADDITIONAL GENERAL NOTES.
- REFER TO SHEETS LT-04 AND LT-05 FOR ADDITIONAL DETAILS.

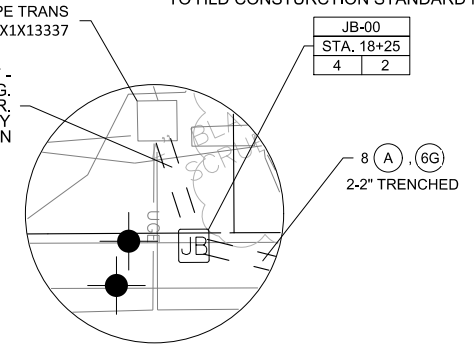


**LEGEND**

- PROPOSED ALUMINUM LIGHT POLE WITH 108W LED ROADWAY LUMINAIRE AND PHOTOCELL
- PROPOSED 23 FT. DECORATIVE HESS CANTO G STEEL LIGHT POLE WITH 2-50W LED LUMINAIRES AND PHOTOCELLS (SEE LD-13)
- EXISTING WOOD POLE WITH LIGHTING ARM AND LUMINAIRE TO BE REMOVED
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- EXISTING LEASED LIGHT TO REMAIN
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- EXISTING JUNCTION BOX TO REMAIN
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- PROPOSED PVC CONDUITS (SEE PLANS FOR SIZE AND TYPE)
- PROPOSED PVC CONDUIT EMBEDDED IN TRAFFIC BARRIER
- EXISTING CONDUIT TO REMAIN
- EXISTING CONDUIT TO BE ABANDONED/REMOVED
- PROPOSED GROUND ROD
- DIRECTION TOWARDS TRANSFORMER
- CIRCUIT MATCHLINE DIRECTION ARROW

INSTALL 17"x30"x18" JUNCTION BOX WITH CONNECTORS AND FUSE HOLDERS. INSTALLATION SHALL INCLUDE SUBMERSIBLE BUS BAR AT THE DIRECTION OF HLD. REFER TO HLD CONSTRUCTION STANDARD H2

INSTALL 1-3" PVC CONDUIT - TRENCHED WITH PULL STRING. STUB AT TRANSFORMER. CABLE TO BE INSTALLED BY POTOMAC EDISON



**WIRING LEGEND**

- 1-CONDUCTOR NO. 6 AWG COPPER, TYPE XLP
- NO. 6 COPPER GROUND WIRE (GREEN INSULATION)

GEOMETRIC LEGEND	
	EXISTING
	PROPOSED

UTILITY LEGEND	
	STORM DRAIN
	GAS MAIN
	WATER MAIN
	SEWER MAIN
	ELECTRIC CABLES
	AERIAL CABLES
	TELEPHONE CABLES
	FIBER-OPTIC

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**REVISION NOTES**

NO.	DATE	DESCRIPTION

CITY OF HAGERSTOWN, MARYLAND  
DEPARTMENT OF  
PARKS AND ENGINEERING

LOCATION: PROFESSIONAL BLVD BETWEEN EASTERN BLVD AND WASHINGTON COUNTY LINE

TITLE: ROADWAY LIGHTING UPGRADES FOR PROFESSIONAL BLVD WIDENING (LIGHTING PLAN SHEET)

SCALES	HORIZONTAL: 1"=50'	VERTICAL: --
DRAWN BY	AFD	DATE
SURVEY BY	--	DATE
REVISED BY	--	DATE

COUNTY PROJECT NO. 10-270  
SHEET LT-02 OF 5

ADDENDUM #  
CHANGE ORDER #

DRAWING NUMBER  
**SHEET 86 OF 129**  
NOT USED FOR CONSTRUCTION

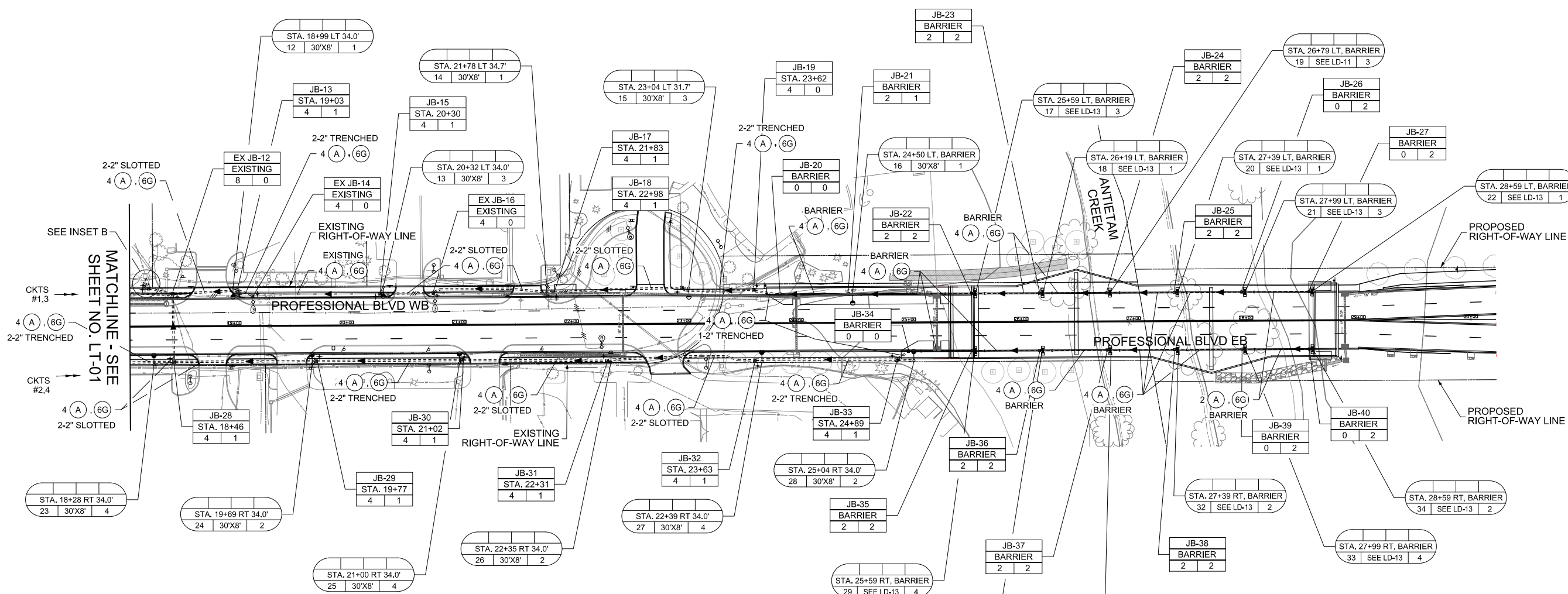


**SPECIAL NOTES**

- POLE FOUNDATIONS IN THE BARRIER SHALL BE INSTALLED AND QUANTIFIED IN THE BRIDGE PLANS FOR WASHINGTON COUNTY PROJECT NO. 10-244. POLE FOUNDATIONS WILL INCLUDE SLEEVES FOR FUTURE ANCHOR BOLTS, BUT NO MOUNTING HARDWARE. ALL MOUNTING HARDWARE SHALL BE INSTALLED UNDER WASHINGTON COUNTY PROJECT NO. 10-270. MOUNTING HARDWARE INCLUDING, BUT NOT LIMITED TO, ANCHOR BOLTS, WASHERS, NUTS, AND FABRIC PADS SHALL BE INCIDENTAL TO THE CONTRACT UNIT PRICE FOR DECORATIVE LIGHT POLES.
- PROPOSED JUNCTION BOXES AND CONDUIT EMBEDDED IN BARRIER ON BRIDGE WILL BE INSTALLED AND QUANTIFIED IN THE BRIDGE PLANS FOR WASHINGTON COUNTY PROJECT NO. 10-244.
- REFER TO SHEET LT-01 FOR ADDITIONAL GENERAL NOTES.
- REFER TO SHEETS LT-04 AND LT-05 FOR ADDITIONAL DETAILS.

**LEGEND**

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- PROPOSED 23 FT. DECORATIVE HESS CANTO G STEEL LIGHT POLE WITH 2-50W LED LUMINAIRES AND PHOTOCELLS (SEE LD-13)
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**WIRING LEGEND**

- (A) 1-CONDUCTOR NO. 6 AWG COPPER, TYPE XLP
- (6G) NO. 6 COPPER GROUND WIRE (GREEN INSULATION)

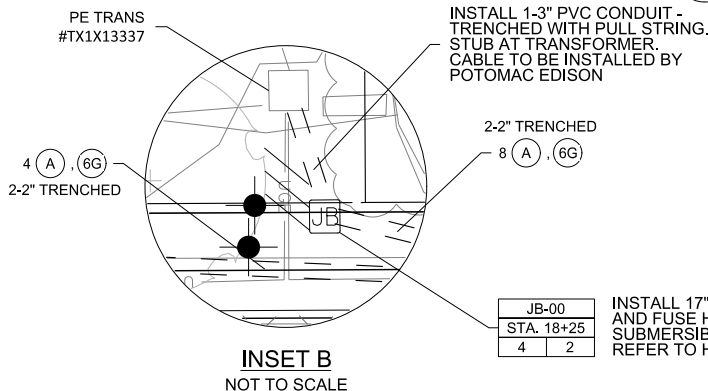
**GEOMETRIC LEGEND**

- EXISTING
- - - - - PROPOSED

**UTILITY LEGEND**

- SD — STORM DRAIN
- GAS — GAS MAIN
- W — WATER MAIN
- SS — SEWER MAIN
- UGE — ELECTRIC CABLES
- E — AERIAL CABLES
- UGT — TELEPHONE CABLES
- FO — FIBER-OPTIC

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 EXPIRATION DATE: 2022-10-22

**REVISION NOTES**

NO.	DATE	DESCRIPTION

**ADD ALTERNATIVE**

**CITY OF HAGERSTOWN, MARYLAND**  
 DEPARTMENT OF  
 PARKS AND ENGINEERING

LOCATION: PROFESSIONAL BLVD BETWEEN EASTERN BLVD AND WASHINGTON COUNTY LINE

TITLE: ROADWAY LIGHTING UPGRADES FOR PROFESSIONAL BLVD WIDENING (LIGHTING PLAN SHEET)

SCALES: HORIZONTAL: 1"=50' VERTICAL: --

DRAWN BY: AFD DATE: JUNE 2021

SURVEY BY: -- DATE: --

REVISED BY: -- DATE: --

COUNTY PROJECT NO. 10-270 SHEET LT-03 OF 5

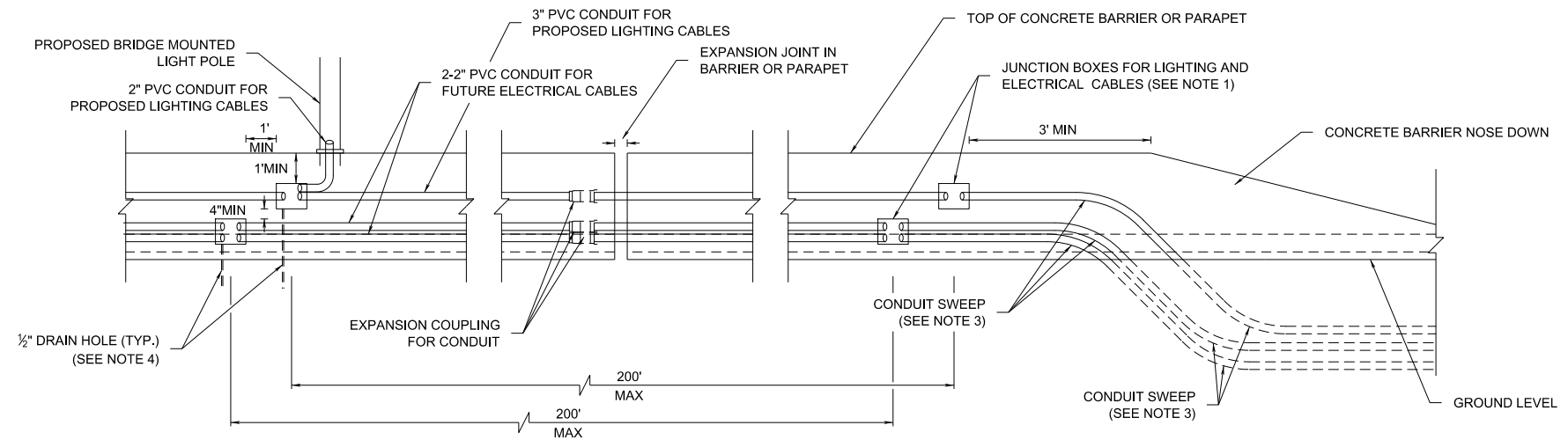
ADDENDUM #

CHANGE ORDER #

DRAWING NUMBER: **SHEET 87 OF 129**  
NOT USED FOR CONSTRUCTION

**EQUIPMENT LIST**

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	ADD ALT QUANTITY
2008	TEST PIT EXCAVATION	CY	10	17
8007	2 INCH SCHEDULE 40 RIGID PVC CONDUIT-TRENCHED	LF	785	2,150
8008	23 FOOT DECORATIVE HESS CANTO G STEEL LIGHT POLE - DOUBLE BRACKET ARM	EA	14	14
8009	30 FOOT ALUMINUM LIGHT POLE - 8 FOOT BRACKET ARM	EA	6	22
8010	50W LED LUMINAIRE AND PHOTOCELL FOR DECORATIVE HESS CANTO G	EA	26	26
8011	108W LED COBRAHEAD ROADWAY LUMINAIRE AND PHOTOCELL	EA	6	22
8012	CABLE - 1 CONDUCTOR, NO 6 AWG, TYPE XLP	LF	12,390	19,480
8013	GROUND ROD - 5/8 INCH DIAMETER X 8 FOOT LENGTH	EA	13	25
8014	LIGHTING JUNCTION BOX - 13 INCH X 24 INCH X 18 INCH (H3)	EA	11	22
8015	CONCRETE FOR LIGHT FOUNDATION	CY	4	15
8019	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	200	400
8020	2 INCH SCHEDULE 80 RIGID PVC CONDUIT-BORED	LF	1,340	2,105
8024	2 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED	LF	530	1,650
8026	LIGHTING JUNCTION BOX - 17 INCH X 30 INCH X 18 INCH (H3)	EA	1	1
8037	REMOVE AND DISPOSE OF EXISTING LIGHTING INFRASTRUCTURE	LS	1	1
8038	MAINTAIN EXISTING ROADWAY LIGHTING	LS	1	1
8039	CABLE - 1 CONDUCTOR, NO 10 AWG, TYPE THWN/THHN, 600V	LF	2,250	4,650
8040	GTAP CONNECTOR KIT	EA	78	122
8041	FUSE WITH HOLDER	EA	36	48

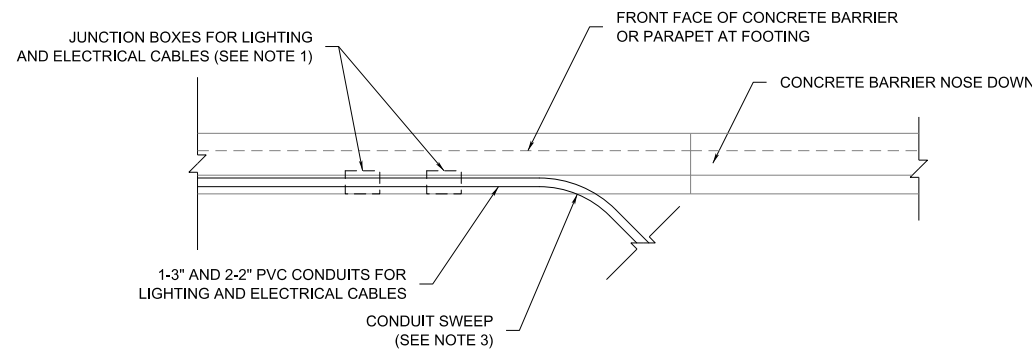


**ELEVATION VIEW**

**CONDUIT AND JUNCTION BOXES AT END OF PARAPET OR CONCRETE BARRIER**

**NOTES**

- BRIDGE PARAPET EMBEDDED JUNCTION BOXES ARE TO BE INSTALLED UNDER WASHINGTON COUNTY PROJECT NO. 10-244. JUNCTION BOXES INSTALLED IN BRIDGE PARAPET WALL SHALL BE 12"X10"X8".
- BARRIER EMBEDDED CONDUITS ARE INCIDENTAL TO THE PERTINENT CONCRETE BARRIER BID ITEMS.
- CONDUIT SHALL EXIT CONCRETE BARRIER OR BRIDGE PARAPET USING CONDUIT BENDS AND SWEEPS, NOT BY EXISTING THROUGH THE BOTTOM OF THE JUNCTION BOX. BEND RADII SHALL MEET THE MINIMUM REQUIREMENTS OF THE CABLE MANUFACTURER.
- AT LOW POINT TO ALLOW FOR PROPER DRAINAGE.
- MAXIMUM JUNCTION BOX SPACING IS 200'.
- ALL PIPE AND EXPANSION FITTINGS SHALL BE U.L. APPROVED FOR ENCASEMENT IN CONCRETE.
- REFER TO LANDSCAPE PLANS FOR ADDITIONAL DETAILS ON BRIDGE MOUNTED LIGHT POLES.
- LIGHTING QUANTITIES INCLUDE AN ADDITIONAL TWO (2) HESS CANTO G POLES AND TWO (2) 50W LED LUMINAIRES TO BE PROVIDED BY THE CONTRACTOR AND DELIVERED TO HAGERSTOWN LIGHT DEPARTMENT (HLD) FOR FUTURE MAINTENANCE. DELIVERY IS INCIDENTAL TO THE POLE.
- ANCHOR BOLTS AND MOUNTING HARDWARE FOR LIGHT POLES MOUNTED ON THE BRIDGE STRUCTURES SHALL BE INCIDENTAL TO THE LIGHT POLE BID ITEMS.



**PLAN VIEW**

**CONDUIT AND JUNCTION BOXES AT END OF PARAPET OR CONCRETE BARRIER**

48 HRS.  
Before You Dig  
Call  
"MISS UTILITY"  
Service Protection Center



CALL TOLL FREE  
1-800-257-7777



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**REVISION NOTES**

CITY OF HAGERSTOWN, MARYLAND  
DEPARTMENT OF  
PARKS AND ENGINEERING

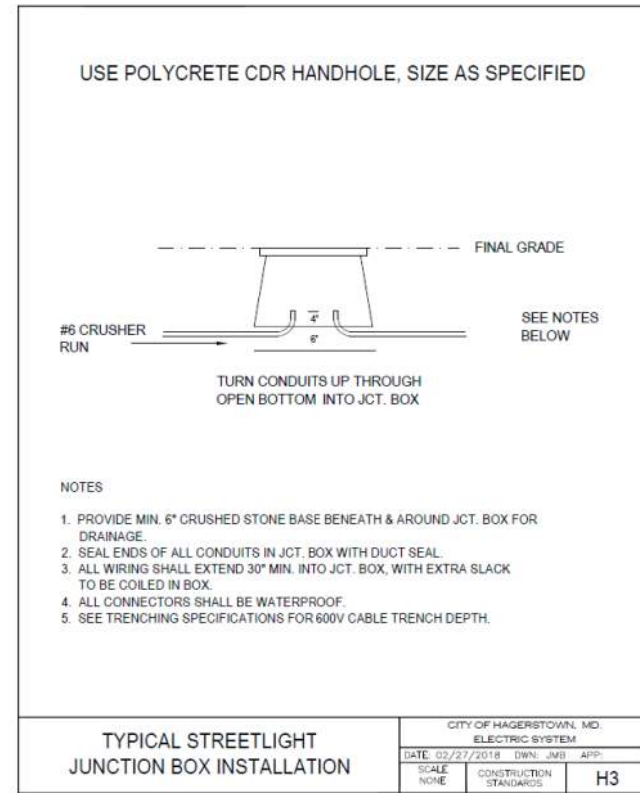
LOCATION: PROFESSIONAL BLVD  
BETWEEN EASTERN BLVD AND  
WASHINGTON COUNTY LINE

TITLE: ROADWAY LIGHTING UPGRADES  
FOR PROFESSIONAL BLVD WIDENING  
(LIGHTING DETAILS)

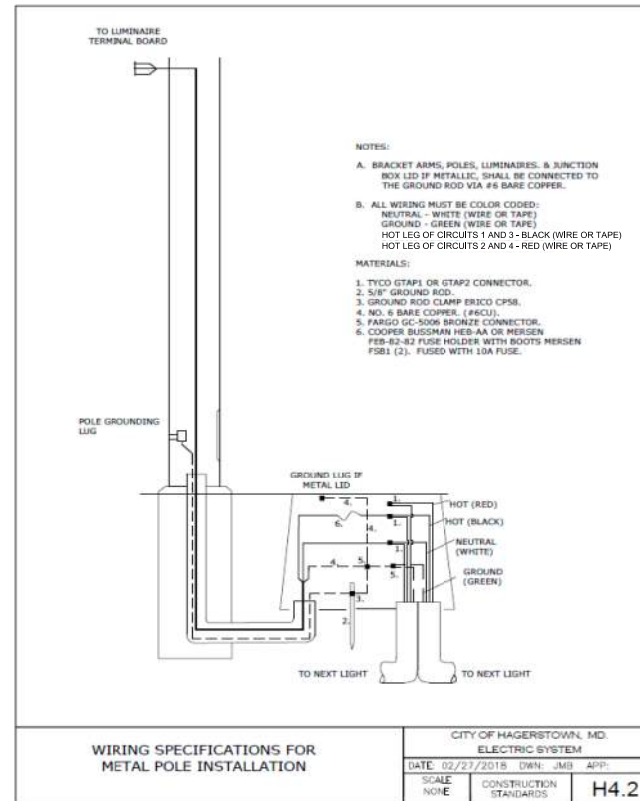
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DRAWN BY	AFD	DATE: JUNE 2021
SURVEY BY	-	DATE: -
REVISED BY	-	DATE: -

COUNTY PROJECT NO. 10-270

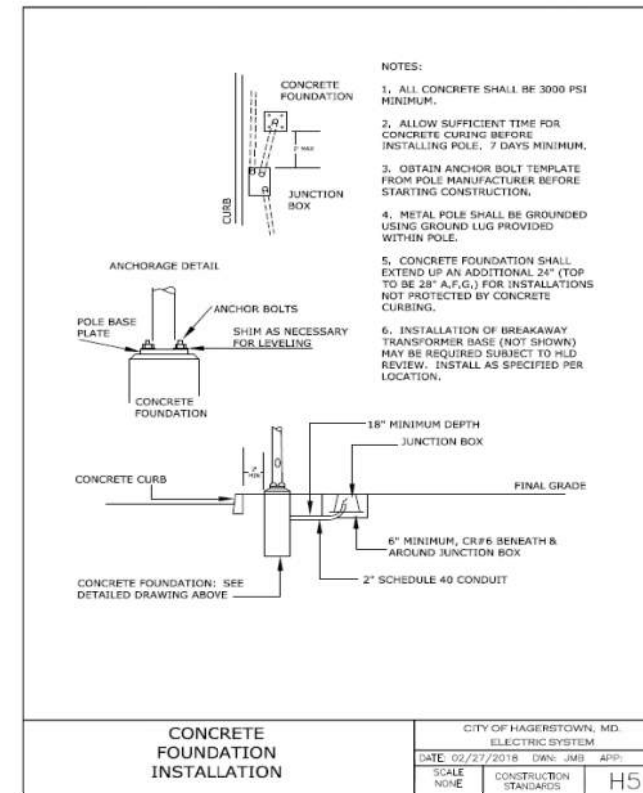
ADDENDUM # \_\_\_\_\_ SHEET 88 OF 129  
CHANGE ORDER # \_\_\_\_\_ NOT USED FOR CONSTRUCTION



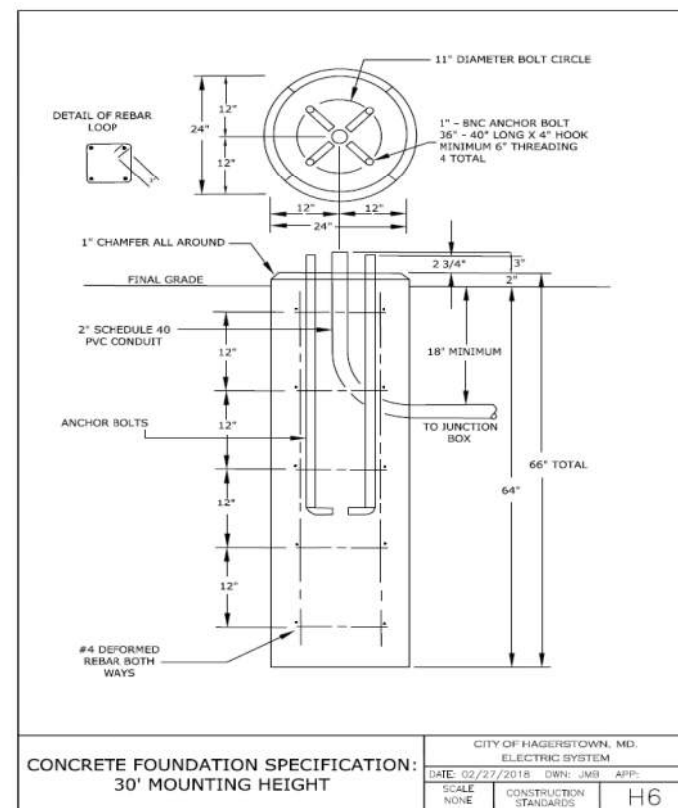
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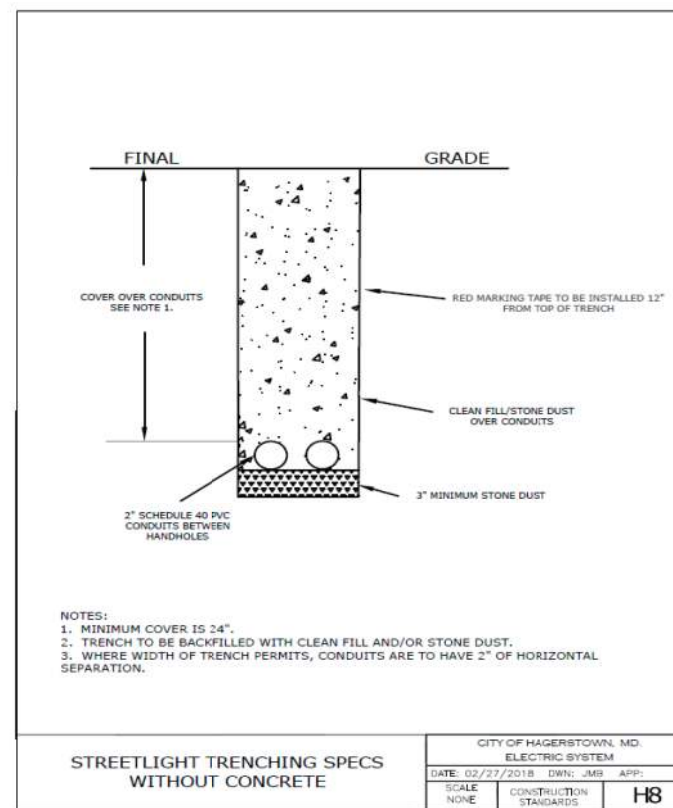
18



19



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22

NOTES

1. REFER TO BRIDGE PLANS FROM WASHINGTON COUNTY PROJECT NO. 10-244 FOR DETAILS FOR LIGHT POLE FOUNDATIONS, CONDUITS, AND JUNCTION BOXES EMBEDDED IN THE BARRIER.
2. REFER TO LANDSCAPE DESIGN PLANS FROM WASHINGTON COUNTY PROJECT NO. 10-244 FOR ADDITIONAL DETAILS ON DECORATIVE BRIDGE MOUNTED LIGHT POLES.

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REVISION NOTES

CITY OF HAGERSTOWN, MARYLAND  
DEPARTMENT OF  
PARKS AND ENGINEERING

LOCATION: PROFESSIONAL BLVD  
BETWEEN EASTERN BLVD AND  
WASHINGTON COUNTY LINE

TITLE: ROADWAY LIGHTING UPGRADES  
FOR PROFESSIONAL BLVD WIDENING  
(LIGHTING DETAILS)

SCALES	HORIZONTAL: NONE	VERTICAL: -
DRAWN BY	AFD	DATE: JUNE 2021
SURVEY BY	-	DATE: -
REVISED BY	-	DATE: -

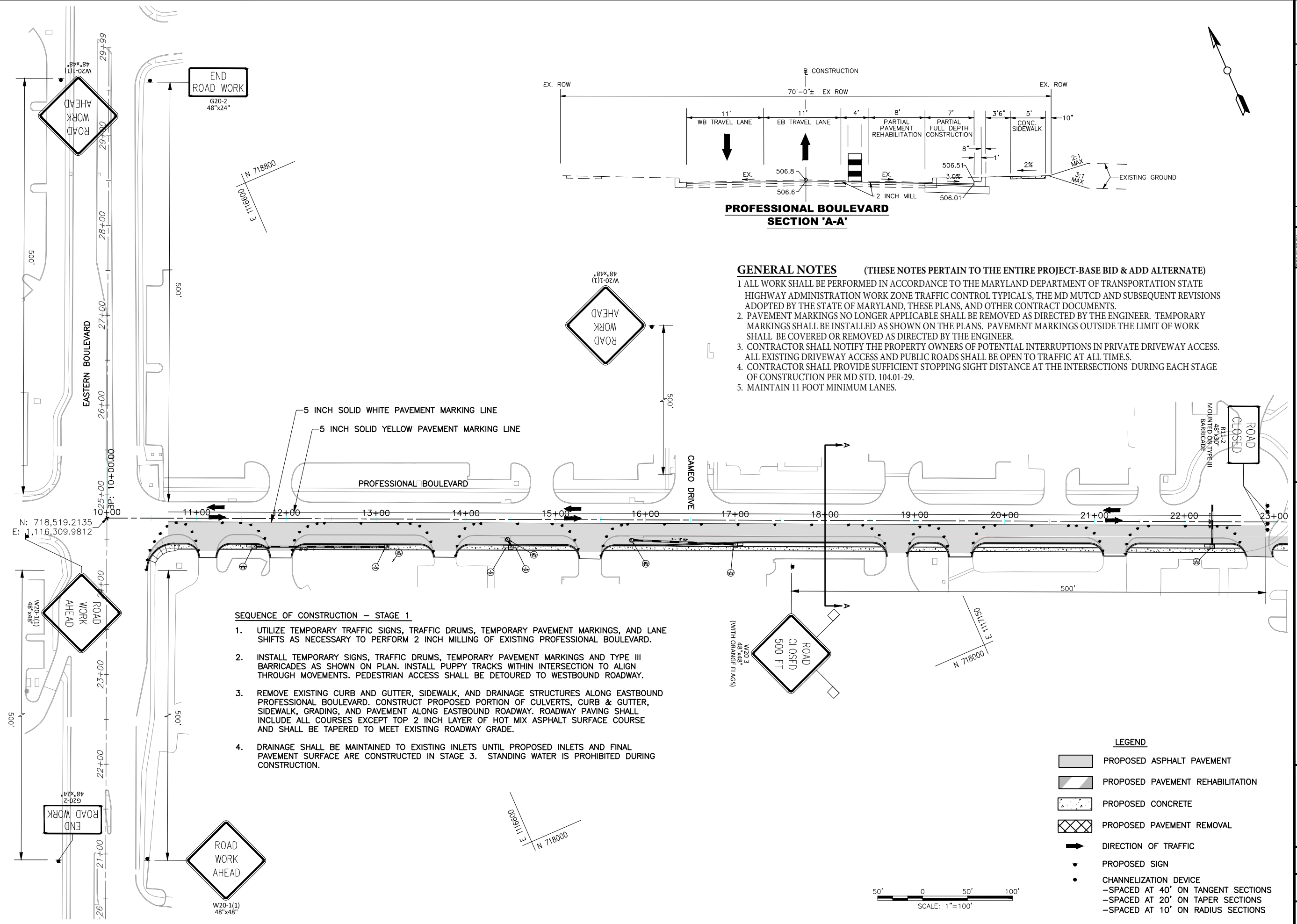
COUNTY PROJECT NO. 10-270

SHEET LT-05 OF 5

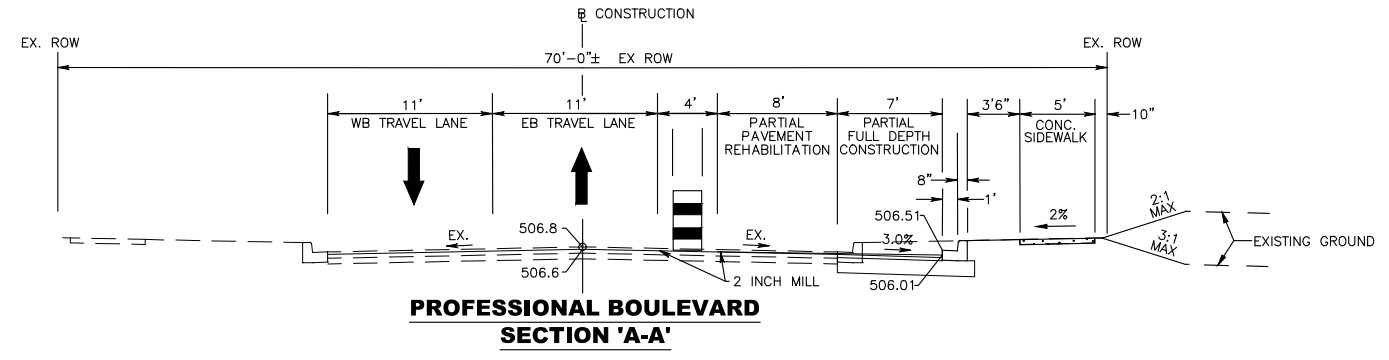
ADDENDUM # \_\_\_\_\_ DRAWING NUMBER SHEET 89 OF 129

CHANGE ORDER # \_\_\_\_\_ NOT USED FOR CONSTRUCTION

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- SEQUENCE OF CONSTRUCTION – STAGE 1**
1. UTILIZE TEMPORARY TRAFFIC SIGNS, TRAFFIC DRUMS, TEMPORARY PAVEMENT MARKINGS, AND LANE SHIFTS AS NECESSARY TO PERFORM 2 INCH MILLING OF EXISTING PROFESSIONAL BOULEVARD.
  2. INSTALL TEMPORARY SIGNS, TRAFFIC DRUMS, TEMPORARY PAVEMENT MARKINGS AND TYPE III BARRICADES AS SHOWN ON PLAN. INSTALL PUPPY TRACKS WITHIN INTERSECTION TO ALIGN THROUGH MOVEMENTS. PEDESTRIAN ACCESS SHALL BE DETOURED TO WESTBOUND ROADWAY.
  3. REMOVE EXISTING CURB AND GUTTER, SIDEWALK, AND DRAINAGE STRUCTURES ALONG EASTBOUND PROFESSIONAL BOULEVARD. CONSTRUCT PROPOSED PORTION OF CULVERTS, CURB & GUTTER, SIDEWALK, GRADING, AND PAVEMENT ALONG EASTBOUND ROADWAY. ROADWAY PAVING SHALL INCLUDE ALL COURSES EXCEPT TOP 2 INCH LAYER OF HOT MIX ASPHALT SURFACE COURSE AND SHALL BE TAPERED TO MEET EXISTING ROADWAY GRADE.
  4. DRAINAGE SHALL BE MAINTAINED TO EXISTING INLETS UNTIL PROPOSED INLETS AND FINAL PAVEMENT SURFACE ARE CONSTRUCTED IN STAGE 3. STANDING WATER IS PROHIBITED DURING CONSTRUCTION.



- GENERAL NOTES** (THESE NOTES PERTAIN TO THE ENTIRE PROJECT-BASE BID & ADD ALTERNATE)
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE TO THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION WORK ZONE TRAFFIC CONTROL TYPICALS, THE MD MUTCD AND SUBSEQUENT REVISIONS ADOPTED BY THE STATE OF MARYLAND, THESE PLANS, AND OTHER CONTRACT DOCUMENTS.
  2. PAVEMENT MARKINGS NO LONGER APPLICABLE SHALL BE REMOVED AS DIRECTED BY THE ENGINEER. TEMPORARY MARKINGS SHALL BE INSTALLED AS SHOWN ON THE PLANS. PAVEMENT MARKINGS OUTSIDE THE LIMIT OF WORK SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
  3. CONTRACTOR SHALL NOTIFY THE PROPERTY OWNERS OF POTENTIAL INTERRUPTIONS IN PRIVATE DRIVEWAY ACCESS. ALL EXISTING DRIVEWAY ACCESS AND PUBLIC ROADS SHALL BE OPEN TO TRAFFIC AT ALL TIME.S.
  4. CONTRACTOR SHALL PROVIDE SUFFICIENT STOPPING SIGHT DISTANCE AT THE INTERSECTIONS DURING EACH STAGE OF CONSTRUCTION PER MD STD. 104.01-29.
  5. MAINTAIN 11 FOOT MINIMUM LANES.

**LEGEND**

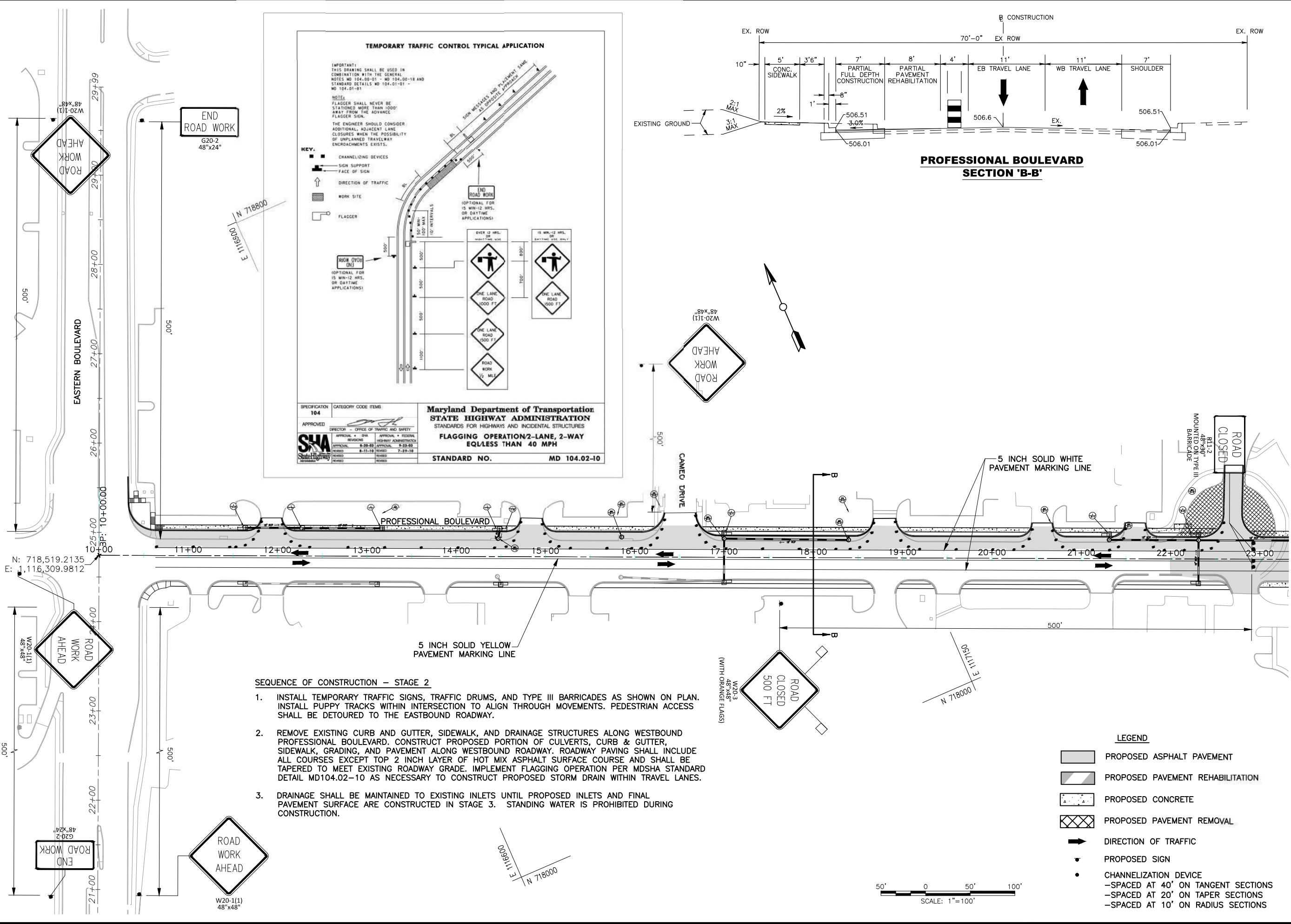
- PROPOSED ASPHALT PAVEMENT
- PROPOSED PAVEMENT REHABILITATION
- PROPOSED CONCRETE
- PROPOSED PAVEMENT REMOVAL
- DIRECTION OF TRAFFIC
- PROPOSED SIGN
- CHANNELIZATION DEVICE
  - SPACED AT 40' ON TANGENT SECTIONS
  - SPACED AT 20' ON TAPER SECTIONS
  - SPACED AT 10' ON RADIUS SECTIONS

SCALE: 1"=50'

SCALE: 1"=100'

DESIGNED BY:	TMB	DATE:	5.31.22
DRAWN BY:	TMB	REVISION DESCRIPTION:	ADDED GENERAL NOTES FOR TC
CHECKED BY:		NO.	1
DATE:		BY:	PJM
PROJECT NO.:	10-270	SHEET NO.:	90 OF 129
<b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-315-2460 Fax: 240-313-2401			
<b>PROFESSIONAL BOULEVARD</b> (ADD ALT ONLY) <b>TRAFFIC CONTROL PLAN</b>			

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**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**

IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES NO 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-01

NOTES:  
 1. FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.  
 2. THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:  
 - CHANNELIZING DEVICES  
 - SIGN SUPPORT  
 - FACE OF SIGN  
 - DIRECTION OF TRAFFIC  
 - WORK SITE  
 - FLAGGER

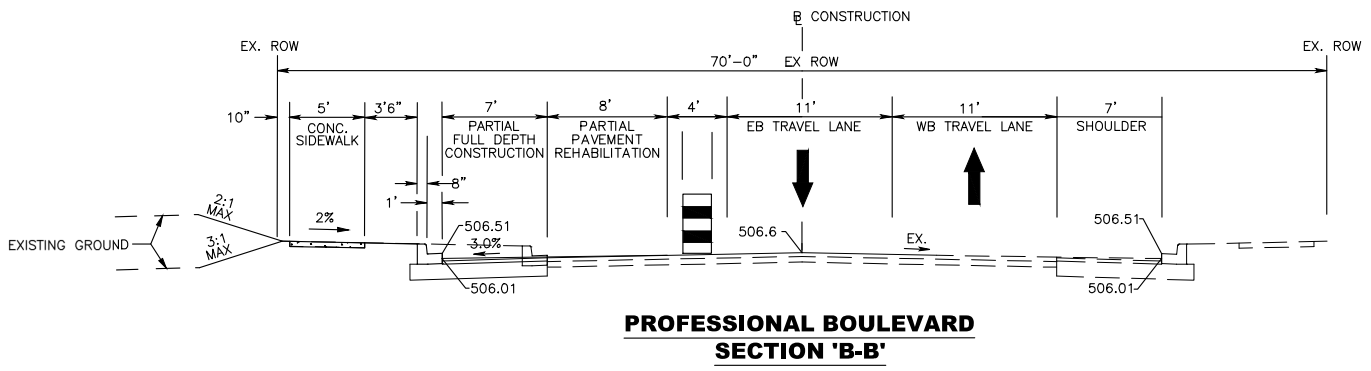
OVER 12 HRS. OF NIGHTTIME USE  
 15 MIN.-12 HRS. OF DAYTIME USE ONLY

ONE LANE ROAD 1000 FT  
 ONE LANE ROAD 500 FT  
 ROAD WORK 1/2 MILE

APPROVED: *[Signature]*  
 DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVALS:  
 APPROVAL - SHA: *[Signature]* APPROVAL - FEDERAL HIGHWAY ADMINISTRATION  
 APPROVAL - 8-29-20: *[Signature]* APPROVAL - 8-29-20  
 REVISION - 8-11-18: *[Signature]* REVISION - 7-29-18

Maryland Department of Transportation  
 STATE HIGHWAY ADMINISTRATION  
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
 FLAGGING OPERATION/2-LANE, 2-WAY  
 EQUALLY LESS THAN 40 MPH  
 STANDARD NO. MD 104.02-10



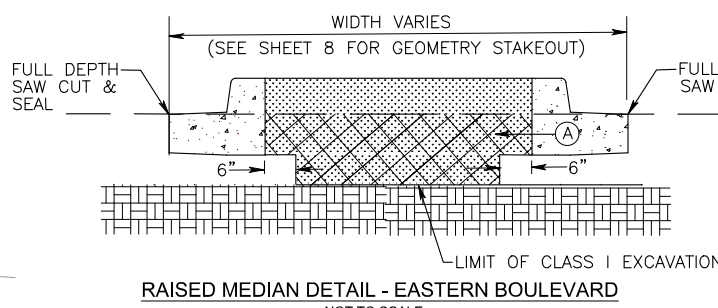
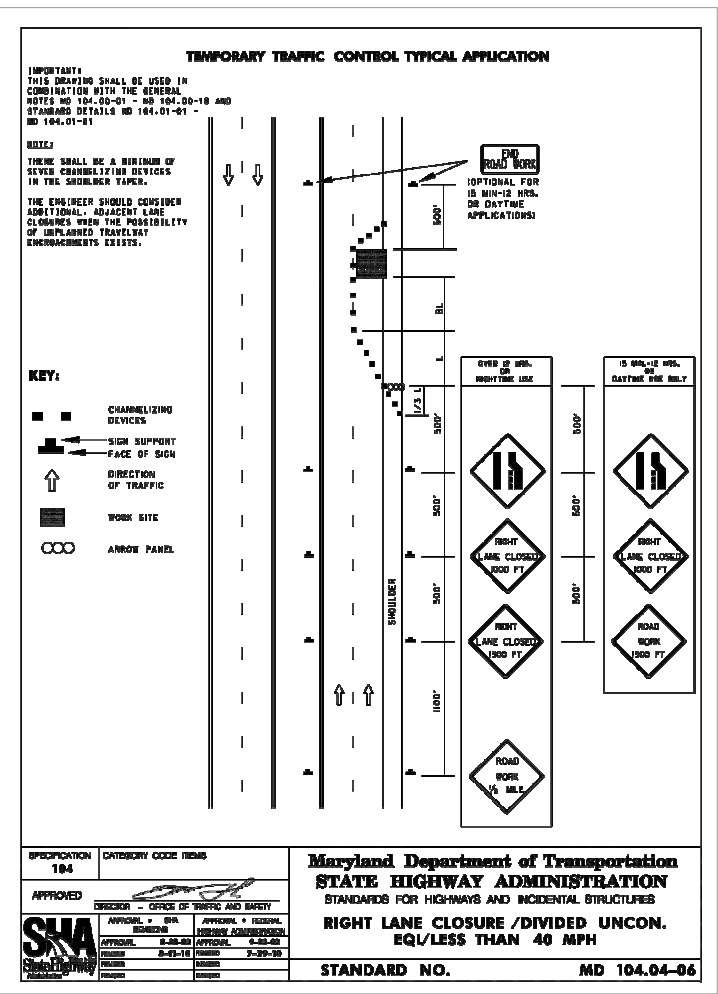
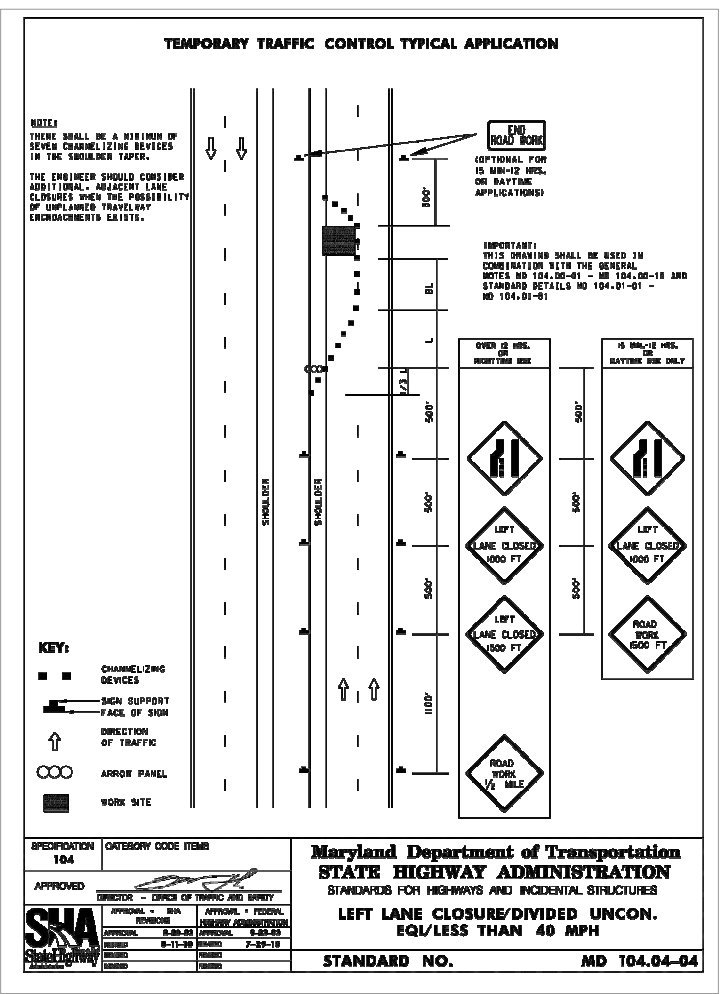
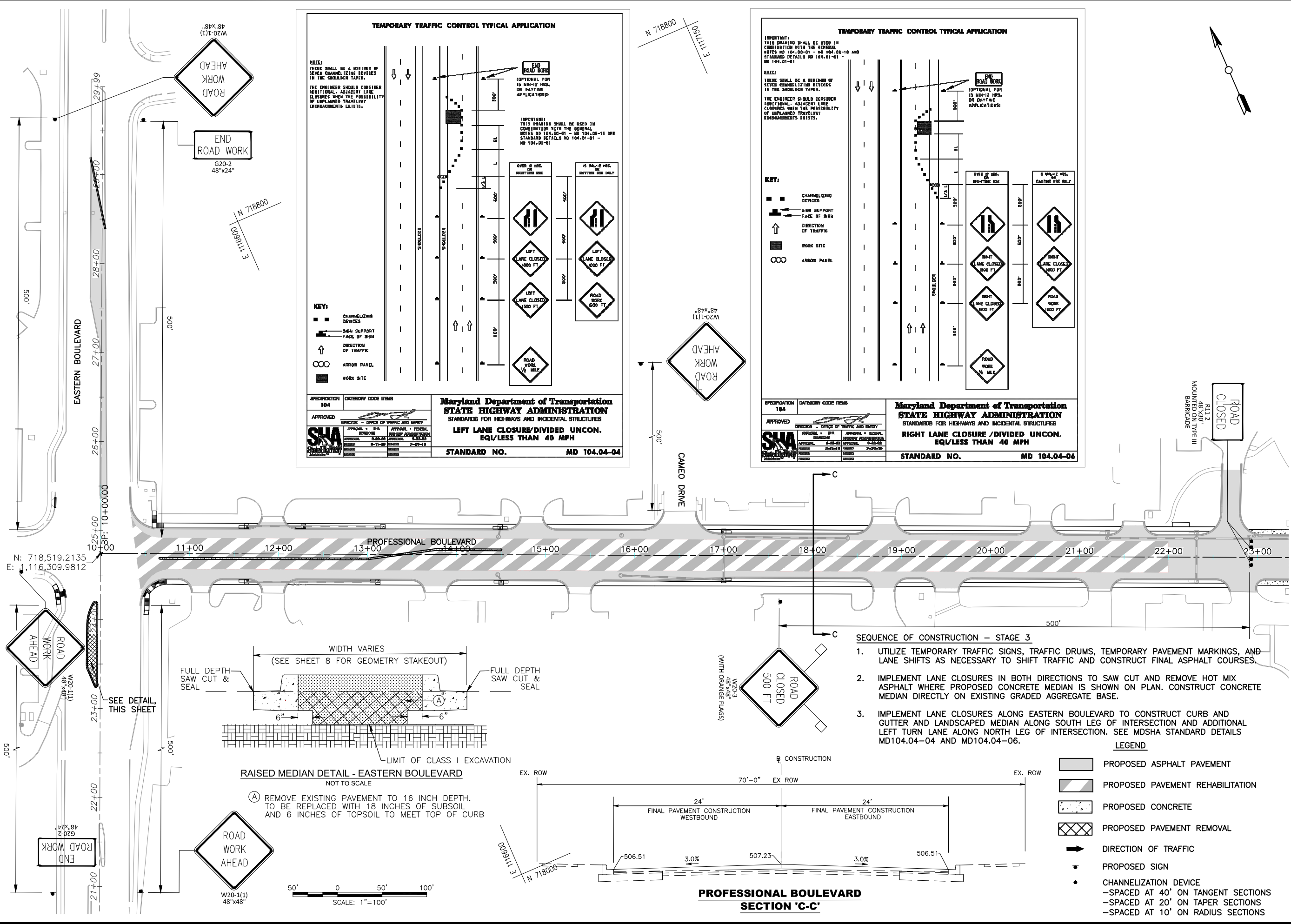
- SEQUENCE OF CONSTRUCTION - STAGE 2**
1. INSTALL TEMPORARY TRAFFIC SIGNS, TRAFFIC DRUMS, AND TYPE III BARRICADES AS SHOWN ON PLAN. INSTALL PUPPY TRACKS WITHIN INTERSECTION TO ALIGN THROUGH MOVEMENTS. PEDESTRIAN ACCESS SHALL BE DETOURED TO THE EASTBOUND ROADWAY.
  2. REMOVE EXISTING CURB AND GUTTER, SIDEWALK, AND DRAINAGE STRUCTURES ALONG WESTBOUND PROFESSIONAL BOULEVARD. CONSTRUCT PROPOSED PORTION OF CULVERTS, CURB & GUTTER, SIDEWALK, GRADING, AND PAVEMENT ALONG WESTBOUND ROADWAY. ROADWAY PAVING SHALL INCLUDE ALL COURSES EXCEPT TOP 2 INCH LAYER OF HOT MIX ASPHALT SURFACE COURSE AND SHALL BE TAPERED TO MEET EXISTING ROADWAY GRADE. IMPLEMENT FLAGGING OPERATION PER MDSA STANDARD DETAIL MD104.02-10 AS NECESSARY TO CONSTRUCT PROPOSED STORM DRAIN WITHIN TRAVEL LANES.
  3. DRAINAGE SHALL BE MAINTAINED TO EXISTING INLETS UNTIL PROPOSED INLETS AND FINAL PAVEMENT SURFACE ARE CONSTRUCTED IN STAGE 3. STANDING WATER IS PROHIBITED DURING CONSTRUCTION.

**LEGEND**

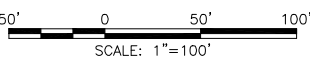
- PROPOSED ASPHALT PAVEMENT
- PROPOSED PAVEMENT REHABILITATION
- PROPOSED CONCRETE
- PROPOSED PAVEMENT REMOVAL
- DIRECTION OF TRAFFIC
- PROPOSED SIGN
- CHANNELIZATION DEVICE
  - SPACED AT 40' ON TANGENT SECTIONS
  - SPACED AT 20' ON TAPER SECTIONS
  - SPACED AT 10' ON RADIUS SECTIONS

NO.	REVISION DESCRIPTION	DATE
DESIGNED BY:	TMB	
DRAWN BY:	TMB	
CHECKED BY:		
DATE:		
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-315-2460 Fax: 240-313-2401		
PROFESSIONAL BOULEVARD (ADD ALT ONLY) TRAFFIC CONTROL PLAN		
SCALE	1"=50'	
SHEET NO.	91 OF 129	
PROJECT NO.	10-270	

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(A) REMOVE EXISTING PAVEMENT TO 16 INCH DEPTH. TO BE REPLACED WITH 18 INCHES OF SUBSOIL AND 6 INCHES OF TOPSOIL TO MEET TOP OF CURB



- ### SEQUENCE OF CONSTRUCTION - STAGE 3
- UTILIZE TEMPORARY TRAFFIC SIGNS, TRAFFIC DRUMS, TEMPORARY PAVEMENT MARKINGS, AND LANE SHIFTS AS NECESSARY TO SHIFT TRAFFIC AND CONSTRUCT FINAL ASPHALT COURSES.
  - IMPLEMENT LANE CLOSURES IN BOTH DIRECTIONS TO SAW CUT AND REMOVE HOT MIX ASPHALT WHERE PROPOSED CONCRETE MEDIAN IS SHOWN ON PLAN. CONSTRUCT CONCRETE MEDIAN DIRECTLY ON EXISTING GRADED AGGREGATE BASE.
  - IMPLEMENT LANE CLOSURES ALONG EASTERN BOULEVARD TO CONSTRUCT CURB AND GUTTER AND LANDSCAPED MEDIAN ALONG SOUTH LEG OF INTERSECTION AND ADDITIONAL LEFT TURN LANE ALONG NORTH LEG OF INTERSECTION. SEE MDSA STANDARD DETAILS MD104.04-04 AND MD104.04-06.

- ### LEGEND
- PROPOSED ASPHALT PAVEMENT
  - ▨ PROPOSED PAVEMENT REHABILITATION
  - ▤ PROPOSED CONCRETE
  - ▩ PROPOSED PAVEMENT REMOVAL
  - ➔ DIRECTION OF TRAFFIC
  - PROPOSED SIGN
  - CHANNELIZATION DEVICE  
 - SPACED AT 40' ON TANGENT SECTIONS  
 - SPACED AT 20' ON TAPER SECTIONS  
 - SPACED AT 10' ON RADIUS SECTIONS

**PROFESSIONAL BOULEVARD  
 SECTION 'C-C'**

DESIGNED BY:	NO.	REVISION DESCRIPTION	DATE
DRAWN BY:			
CHECKED BY:			
DATE:			
APPROVAL:			
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING			
Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-315-2460 Fax: 240-313-2401			
PROFESSIONAL BOULEVARD (ADD ALT ONLY) TRAFFIC CONTROL PLAN			
SCALE	1"=50'		
SHEET NO.	92 OF 129		
PROJECT NO.	10-270		



**TEST BORING LOG** Boring No. RB-01  
Page 1 of 1

PROJECT: Professional Boulevard		COMMISSION NO.: 14187-03.4	
SITE: Washington County, Maryland		NORTH: 718271	
DRILLING CO.: AB		EAST: 1116802	
RIG/HAMMER: Mohr B57 ATV / Safety		ELEVATION: 497 - ft	
EQUIPMENT		START DATE: 5/2/2016	
CASING		END DATE: 5/2/2016	
SAMPLER		DRILLER: K. Monos	
CORE		LOGGED BY: ACR	

DATE	TIME	GROUNDWATER DATA (ft)		EQUIPMENT	CASING	SAMPLER	CORE
		Blow	Case				
5/2/2016	10:18:00 AM	By	3	MS	3.25	1.375	
				HAMMER WT. (lb)	140	-	
				HAMMER FALL (ft)	30	-	

SAMPLE NUMBER	TYPE	DEPTH (ft)	ELEV. (ft)	DESCRIPTION AND CLASSIFICATION	NOTES
5-1	8	28.4X	47	5-inch Blotting Concrete 4-inch Graded Aggregate Base (Crushed Stone) Moist, Very Stiff, Brown, High Plasticity CLAY, Little Coarse to Fine Sand, Trace Coarse to Fine Gravel (CL) [A-7-G]	Bulk Sample Taken From Auger Cuttings (1.5 to 6.0-ft)  Rockfilled with auger cuttings and patched upon completion
5-2	4	28.7X	5	Sample 5-2: Stiff	
5-3	6	37.4X	10	Sample 5-3: Reddish Brown, Trace Fine Sand	
5-4	18	37.4X	10	Sample 5-4: Stiff, Reddish Brown	
			10.0	Bottom of Boring @ 10.0 ft	

DEPTH (ft)	LABORATORY TEST RESULTS
47	WUC = 118.1-pcf DMC = 15.5% CBR = 8.7

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S - SPLIT SPOON	NSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-4	VERY SOFT	TRACE 1 TO 10
T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	5-10	SOFT	LITTLE 11 TO 20
SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	11-15	MEDIUM STIFF	SOME 21 TO 35
D - DENSON	WD - WILD DRILLING	31-50	DENSE	16-30	VERY STIFF	SOME 36 TO 50
BC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	

Boring No. RB-01

TEST BORING LOGS  
SCALE: NOT TO SCALE

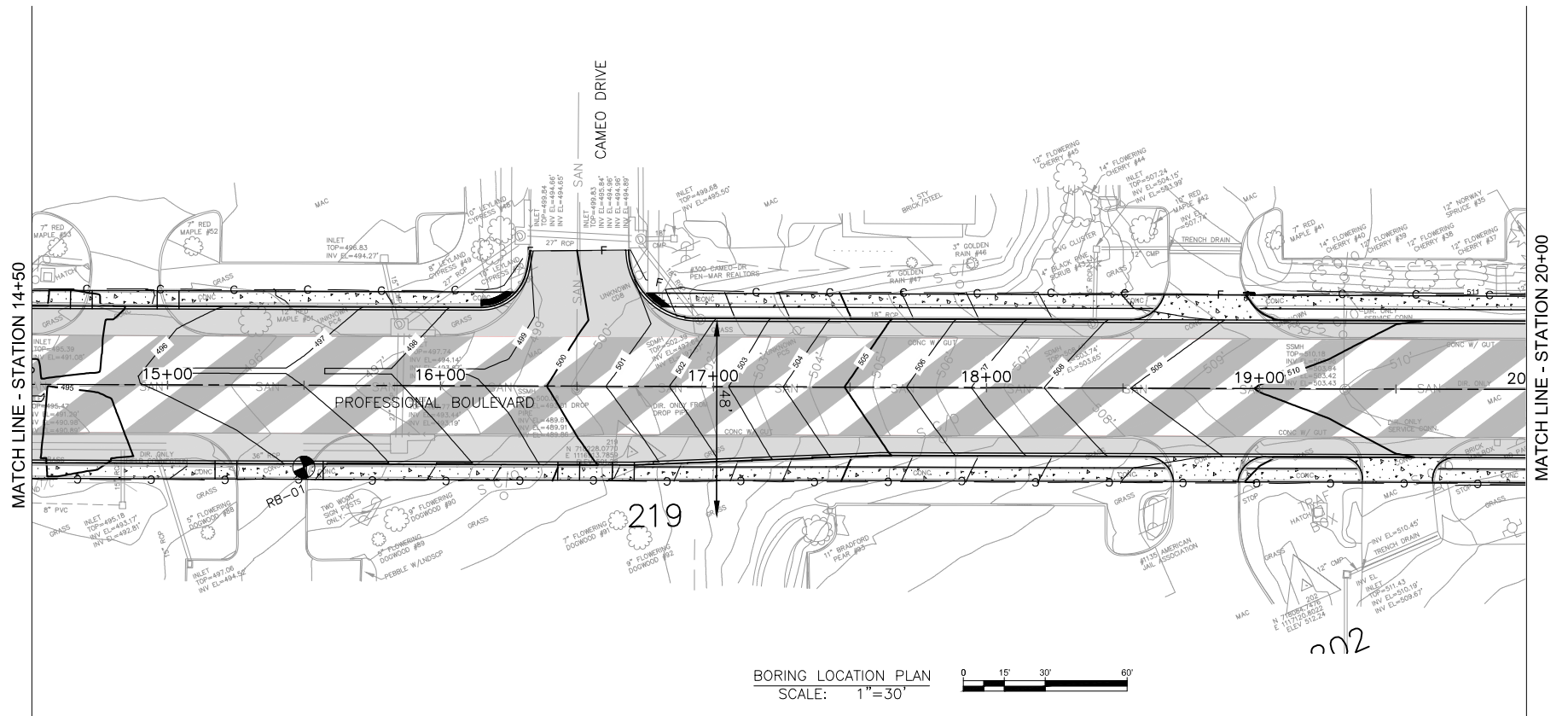
**SOIL CLASSIFICATION CHART**

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
CLEAN GRAVELS AND GRAVELLY SANDS	GW	WELL-SORTED GRAVEL, GRAVEL-SAND MIXTURES, LITTLE OR NO FINE	FINE GRAINED SOILS	ML	MEDIUM TO VERY FINE SANDS, SANDY SILTS OR CLAYS, FINE SANDS OR CLAYS
	GP	POORLY-SORTED GRAVEL, GRAVEL-SAND MIXTURES, LITTLE OR NO FINE		CL	MEDIUM CLAYS OF LOW TO MEDIUM PLASTICITY, SANDY SILTS, SILTY CLAYS, SILTY CLAYS, LEAN CLAYS
GRAVELS WITH FINE SANDS	GM	SILT GRAVELS, GRAVEL-SAND MIXTURES	SILTS AND CLAYS	MH	MEDIUM TO HIGH PLASTICITY SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	GC	CLAY GRAVELS, GRAVEL-SAND MIXTURES		OH	ORGANIC CLAYS OF HIGH PLASTICITY
CLEAN SANDS	SW	WELL-SORTED SANDS, GRAVELLY SANDS, LITTLE OR NO FINE	HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, DRIFT SOILS WITH HIGH ORGANIC CONTENTS
	SP	POORLY-SORTED SANDS, GRAVELLY SANDS, LITTLE OR NO FINE			
SANDS WITH FINE SANDS	SM	SILT SANDS, SAND-SILT MIXTURES			
	SC	CLAY SANDS, SAND-CLAY MIXTURES			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

**NOTES:**

- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
- TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



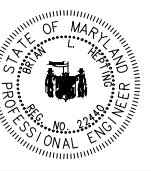
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WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401



**PROFESSIONAL BOULEVARD  
BRIDGE OVER ANTIETAM CREEK  
BORING AND DRIVE TESTS**



SCALE  
AS SHOWN  
SHEET NO.  
93 OF 129  
PROJECT NO.  
10-270

TEST BORING LOG										TEST BORING LOG										TEST BORING LOG										TEST BORING LOG										TEST BORING LOG									
Boring No. AR-01										Boring No. RB-02										Boring No. SWM-26										Boring No. SWM-27																			
PROJECT: Professional Boulevard										PROJECT: Professional Boulevard										PROJECT: Professional Boulevard										PROJECT: Professional Boulevard																			
SITE: Washington County, Maryland										SITE: Washington County, Maryland										SITE: Washington County, Maryland										SITE: Washington County, Maryland																			
DRILLING CO.: AB										DRILLING CO.: AB										DRILLING CO.: AB										DRILLING CO.: AB																			
RIG/HAMMER: Mobil B57 ATV / Safety										RIG/HAMMER: Mobil B57 ATV / Safety										RIG/HAMMER: Mobil B57 ATV / Safety										RIG/HAMMER: Mobil B57 ATV / Safety																			
COMMISSION NO.: 14187-03.4										COMMISSION NO.: 14187-03.4										COMMISSION NO.: 14187-03.4										COMMISSION NO.: 14187-03.4																			
NORTH: 717932										NORTH: 718126										NORTH: 718074										NORTH: 718116																			
EAST: 1117647										EAST: 1117268										EAST: 1117436										EAST: 1117465																			
ELEVATION: 493 - ft										ELEVATION: 510 - ft										ELEVATION: 506.3 - ft										ELEVATION: 500.5 - ft																			
START DATE: 4/25/2016										START DATE: 5/2/2016										START DATE: 5/17/2016										START DATE: 5/17/2016																			
END DATE: 4/25/2016										END DATE: 5/2/2016										END DATE: 5/17/2016										END DATE: 5/17/2016																			
DRILLER: K. Monos										DRILLER: K. Monos										DRILLER: K. Monos										DRILLER: K. Monos																			
LOGGED BY: ACR										LOGGED BY: ACR										LOGGED BY: ACR										LOGGED BY: ACR																			
GROUNDWATER DATA (G)										GROUNDWATER DATA (G)										GROUNDWATER DATA (G)										GROUNDWATER DATA (G)																			
Date	Time	Water	Coast	Flow	TYPE	HA	SA	SS	SP	Date	Time	Water	Coast	Flow	TYPE	HA	SA	SS	SP	Date	Time	Water	Coast	Flow	TYPE	HA	SA	SS	SP	Date	Time	Water	Coast	Flow	TYPE	HA	SA	SS	SP										
4/29/2016	10:00 AM	Dry								5/2/2016	10:00 AM	Dry									5/17/2016	11:00 AM	Dry								5/17/2016	12:00 PM	Dry																
DATE	TIME	WATER	COAST	FLOW	TYPE	HA	SA	SS	SP	DATE	TIME	WATER	COAST	FLOW	TYPE	HA	SA	SS	SP	DATE	TIME	WATER	COAST	FLOW	TYPE	HA	SA	SS	SP	DATE	TIME	WATER	COAST	FLOW	TYPE	HA	SA	SS	SP										
4/29/2016	10:00 AM	Dry								5/2/2016	10:00 AM	Dry									5/17/2016	11:00 AM	Dry								5/17/2016	12:00 PM	Dry																
LABORATORY TEST RESULTS	DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES	LABORATORY TEST RESULTS	DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES	LABORATORY TEST RESULTS	DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES	LABORATORY TEST RESULTS	DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES																																		
18	2	Moist, Medium Stiff, Brown, High Plasticity CLAY, Trace Fine Sand (CH) [A-7-6]		14	2	5-Inches Recycled Concrete		14	2	Moist, Medium Stiff, Brownish Gray, CLAY, Some Fine Sand (t) [a-7-6]		14	2	Moist, Medium Stiff, Brownish Gray, CLAY, Some Fine Sand (t) [a-7-6]																																			
18	4	Sample S-2: SHH		18	0	Sample S-2: Very SHH		18	0	Sample S-2: Very SHH		18	0	Sample S-2: Very SHH																																			
18	6	Sample S-3: SHH		18	2	Sample S-3: Reddish Brown, Very SHH		18	2	Sample S-3: SHH, Reddish Brown, Trace Fine Sand		18	2	Sample S-3: SHH, Reddish Brown, Trace Fine Sand																																			
18	7			18	3	Sample S-4: Reddish Brown		18	3	Sample S-4: SHH, Reddish to Yellowish Brown, Trace Fine Sand		18	3	Sample S-4: SHH, Reddish to Yellowish Brown, Trace Fine Sand																																			
18	8			18	4	Bottom of Boring @ 10.0 ft		18	4	Sample S-5: Reddish Brown, Trace Fine Sand		18	4	Sample S-5: Reddish Brown, Trace Fine Sand																																			
18	9			18	5			18	5	Sample S-6: Reddish Brown, Trace Fine Sand		18	5	Sample S-6: Reddish Brown, Trace Fine Sand																																			
18	10			18	6			18	6	Bottom of Boring @ 11.0 ft		18	6	Bottom of Boring @ 11.0 ft																																			
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18	101			18	97																																												

TEST BORING LOG Boring No. SWM-28 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Society

COMMISSION NO.: 14187-03.4  
 NORTH: 718057  
 EAST: 1117538  
 ELEVATION: 503.0 - ft  
 START DATE: 5/17/2016  
 END DATE: 5/17/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Casing	Cone-In	TYPE	EQUIPMENT	CASING	SAMPLER	CORE
5/17/2016	10:30:00 AM	Dry		3.5	1.5	1.375	1.375	1.375	

DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES:
0	EL. 502.8	CL	3-Inches Topsoil/Grass	
1	EL. 501.0		FILL Sampled As: Moist, Shff, Gray to Dark Brown, CLAY, Some Coarse to Fine Sand, Trace Gravel, Trace Roots	
2	EL. 501.0		Moist, Medium Stiff, Yellowish to Reddish Brown, CLAY, Little Coarse to Fine Sand (s) [a-7-6]	
3	EL. 498.0		Sample S-3: Reddish Brown, Trace Fine Angular Gravel in a Pocket	
4	EL. 498.0		Sample S-4: Shff, Reddish Brown, Trace Fine Angular Gravel in a Pocket	
5	EL. 498.0		Sample S-5: Reddish Brown	
10	EL. 493.0		Bottom of Boring @ 10.0 ft	Backfilled with auger cuttings upon completion

LABORATORY TEST RESULTS:

DEPTH	TEST	RESULTS
1	Moisture	14.0
1	Density	1.375
1	Specific Gravity	2.65

LEGEND:

SYMBOL	DESCRIPTION
○	S - SPLIT SPOON
○	T - THIN WALL TUBE
○	SS - 3" SPLIT SPOON
○	D - DENSON
○	RC - ROCK CORE

TEST BORING LOGS SCALE: NOT TO SCALE

TEST BORING LOG Boring No. SWM-29 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Society

COMMISSION NO.: 14187-03.4  
 NORTH: 717940  
 EAST: 1117557  
 ELEVATION: 500.6 - ft  
 START DATE: 5/17/2016  
 END DATE: 5/17/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Casing	Cone-In	TYPE	EQUIPMENT	CASING	SAMPLER	CORE
5/17/2016	10:30:00 AM	Dry		4	1.5	1.375	1.375	1.375	

DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES:
0	EL. 500.1		6-Inches Topsoil	
1	EL. 498.0		FILL Sampled As: Moist, Very Shff, Grayish Brown, CLAY, And Medium to Fine SAND, Trace Roots	
2	EL. 498.0		Sample S-2: Little Coarse to Fine Subangular Gravel	
3	EL. 498.0		Moist, Very Shff, Reddish Brown, CLAY, Some Coarse to Fine Sand (s) [a-7-6]	
4	EL. 498.0		Sample S-3: Little Coarse to Fine Subangular Gravel	
5	EL. 498.0		Sample S-4: Trace Fine Sand	
10	EL. 491.6		Bottom of Boring @ 9.0 ft	Backfilled with auger cuttings upon completion

LABORATORY TEST RESULTS:

DEPTH	TEST	RESULTS
1	Moisture	14.0
1	Density	1.375
1	Specific Gravity	2.65

TEST BORING LOG Boring No. SWM-30 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Society

COMMISSION NO.: 14187-03.4  
 NORTH: 717889  
 EAST: 1117672  
 ELEVATION: 495.7 - ft  
 START DATE: 5/17/2016  
 END DATE: 5/17/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Casing	Cone-In	TYPE	EQUIPMENT	CASING	SAMPLER	CORE
5/17/2016	9:40:00 AM	Dry		2.0	1.5	1.375	1.375	1.375	

DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES:
0	EL. 495.2		6-Inches Topsoil	
1	EL. 493.7		Moist, Shff, Brownish Gray, SILT, Little Fine Sand (s) [a-7-6]	
2	EL. 493.7		Moist, Shff, Reddish Brown, CLAY, Trace Fine Sand (s) [a-7-6]	
5	EL. 498.7		Sample S-4: Very Shff	
10	EL. 498.7		Bottom of Boring @ 7.0 ft	Backfilled with auger cuttings upon completion

LABORATORY TEST RESULTS:

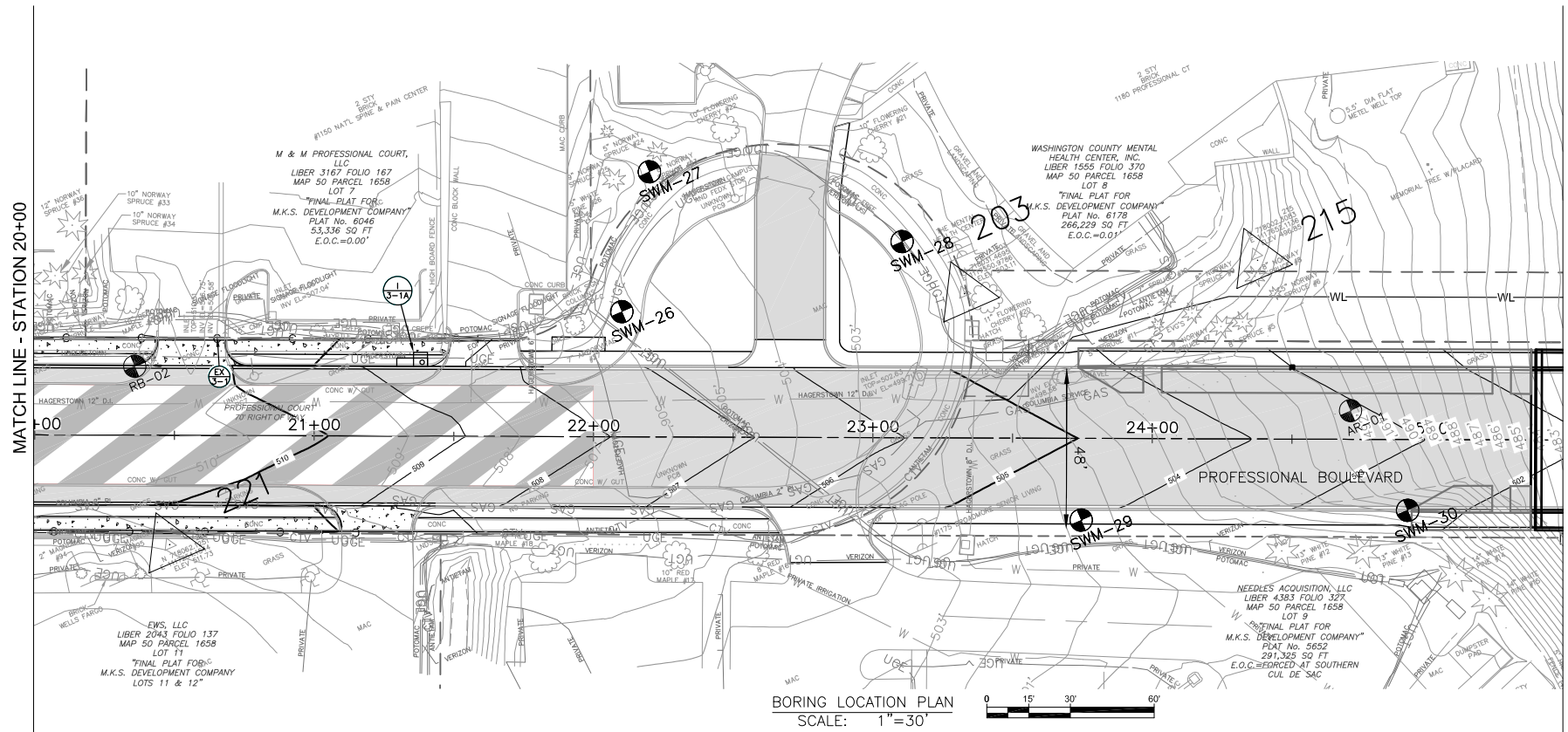
DEPTH	TEST	RESULTS
1	Moisture	14.0
1	Density	1.375
1	Specific Gravity	2.65

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SANDS	GW	WELL-GRADED GRAVEL, SAND, SILT, CLAY, OR FINE SANDS	CLAYS	CL	CLAYEY SILT TO VERY FINE SANDS
GRAVELS WITH FINES	GP	POORLY-GRADED GRAVEL, SAND, SILT, CLAY, OR FINE SANDS	SILTS AND CLAYS	CL	CLAYEY SILT TO VERY FINE SANDS
CLAYEY GRAVELS	GC	CLAYEY GRAVELS, SAND, SILT, CLAY, OR FINE SANDS	SILTS AND CLAYS	CH	CLAYEY SILT TO VERY FINE SANDS
CLEAN SANDS	SW	WELL-GRADED SANDS, SILT, CLAY, OR FINE SANDS	SILTS AND CLAYS	CH	CLAYEY SILT TO VERY FINE SANDS
SANDS WITH FINES	SP	POORLY-GRADED SANDS, SILT, CLAY, OR FINE SANDS	PT	PEATS, MUCKS, AND OTHER ORGANIC SOILS	
CLEAN SANDS	SM	WELL-GRADED SANDS, SILT, CLAY, OR FINE SANDS			
SANDS WITH FINES	SC	CLAYEY SANDS, SILT, CLAY, OR FINE SANDS			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY:	TMB
DRAWN BY:	TMB
CHECKED BY:	TMB
DATE:	APRIL 2016

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOUNDARY

BORING AND DRIVE TESTS

SCALE AS SHOWN

SHEET NO. 95 OF 129

PROJECT NO. 10-270

\\balsrv01\2014\2014\14187\_WashCoProf\Geotech\CADD\Boring Log Plans\bo02\_PP-07 - PHZ.dwg

TEST BORING LOG		Boring No. AB-01		TEST BORING LOG		Boring No. AB-02		TEST BORING LOG		Boring No. AB-03		TEST BORING LOG		Boring No. AB-04																																																																																																																																																																	
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COMMISSION NO.: 14187-03.4 NORTH: 717914 EAST: 1117748 ELEVATION: 481 - ft START DATE: 4/25/2016 END DATE: 4/25/2016 DRILLER: K. Monos LOGGED BY: ACR				COMMISSION NO.: 14187-03.4 NORTH: 717782 EAST: 1117730 ELEVATION: 481 - ft START DATE: 4/25/2016 END DATE: 4/26/2016 DRILLER: K. Monos LOGGED BY: ACR				COMMISSION NO.: 14187-03.4 NORTH: 717782 EAST: 1118022 ELEVATION: 482 - ft START DATE: 5/9/2016 END DATE: 5/9/2016 DRILLER: K. Monos LOGGED BY: ACR				COMMISSION NO.: 14187-03.4 NORTH: 717752 EAST: 1118004 ELEVATION: 490 - ft START DATE: 5/10/2016 END DATE: 5/10/2016 DRILLER: K. Monos LOGGED BY: ACR																																																																																																																																																																			
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43	45.5		Run R-4: Unweathered Sound, Wide Fracture Spacing 25.5-ft to 25.8-ft Completely Weathered Rock RMR=52																																																																																																																																																																												
25.4	45.4		V5.8-in to 28.4-in VOID (Based on Core Barrel Drop)																																																																																																																																																																												
25.5	45.5		Bottom of Boring @ 25.5 ft	Grouted on 4/27/16																																																																																																																																																																											
DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES																																																																																																																																																																											
12	49.6		6-Inches Topsoil Moist, Medium Silty, Reddish Brown, High Plasticity CLAY, Trace Fine Sand (CH) [A-7-G]																																																																																																																																																																												
59	49.0		Light Gray, LIMESTONE, Unweathered, Fine Grained, Sound, Wide Fracture Spacing, Medium Strong RMR=59	Auger Refusal of 3.0-ft Laboratory MCC=9,550-pal of 5-ft																																																																																																																																																																											
59	48.5		Run R-2: Unweathered, Sound, Wide Fracture Spacing (No Joints) RMR=67																																																																																																																																																																												
60	48.5		Run R-3: Moderately Fractured to Sound, Close to Wide Fracture Spacing, Outlined Joint Faces RMR=61	Water Loss From 13 to 25-in																																																																																																																																																																											
60	48.5		Run R-4: Unweathered, Sound, Wide Fracture Spacing RMR=58																																																																																																																																																																												
23.0	46.0		Bottom of Boring @ 23.0 ft	Grouted on 5/18/16																																																																																																																																																																											
DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES																																																																																																																																																																											
1	50.1		6-Inches Topsoil COMPLETELY WEATHERED ROCK Sampling to: Moist, Very Dense, Gray, Coarse Subangular Gravel-sized ROCK FRAGMENT (G) [1-1-4]	Auger Refusal of 3.0-ft Laboratory MCC=12,000-pal of 3-ft																																																																																																																																																																											
58	48.2		Light Gray, LIMESTONE, Slightly Weathered to Unweathered, Fine Grained, Slightly Fractured to Sound, Close to Wide Fracture Spacing, Medium Strong RMR=40	Note: Void Encountered from 5.0-ft to 5.8-ft																																																																																																																																																																											
58	48.2		Run R-2: Unweathered, Sound, Moderate Fracture Spacing RMR=53																																																																																																																																																																												
60	48.2		Run R-3: Unweathered, Sound, Wide Fracture Spacing RMR=55																																																																																																																																																																												
60	48.2		Run R-4: Unweathered, Sound, Wide Fracture Spacing RMR=68																																																																																																																																																																												
23.0	46.7		Bottom of Boring @ 23.0 ft	Grouted on 5/18/16																																																																																																																																																																											
<b>SAMPLE IDENTIFICATION</b> S - SPLIT SPOON T - THIN WALL TUBE SS - 3" SPLIT SPOON D - DISECTION HA - HAND AUGER RC - ROCK CORE				<b>SAMPLE IDENTIFICATION</b> S - SPLIT SPOON T - THIN WALL TUBE SS - 3" SPLIT SPOON D - DISECTION HA - HAND AUGER RC - ROCK CORE				<b>SAMPLE IDENTIFICATION</b> S - SPLIT SPOON T - THIN WALL TUBE SS - 3" SPLIT SPOON D - DISECTION HA - HAND AUGER RC - ROCK CORE				<b>SAMPLE IDENTIFICATION</b> S - SPLIT SPOON T - THIN WALL TUBE SS - 3" SPLIT SPOON D - DISECTION HA - HAND AUGER RC - ROCK CORE																																																																																																																																																																			
<b>DRILLING METHOD</b> HSA - HOLLOW STEM AUGERS SSA - SOLID STEM AUGERS DC - DRIVING CASING MD - HAND DRILLING HA - HAND AUGER				<b>DRILLING METHOD</b> HSA - HOLLOW STEM AUGERS SSA - SOLID STEM AUGERS DC - DRIVING CASING MD - HAND DRILLING HA - HAND AUGER				<b>DRILLING METHOD</b> HSA - HOLLOW STEM AUGERS SSA - SOLID STEM AUGERS DC - DRIVING CASING MD - HAND DRILLING HA - HAND AUGER				<b>DRILLING METHOD</b> HSA - HOLLOW STEM AUGERS SSA - SOLID STEM AUGERS DC - DRIVING CASING MD - HAND DRILLING HA - HAND AUGER																																																																																																																																																																			
<b>BLOWS/FT</b> 0-4 VERY LOOSE 5-10 LOOSE 11-30 MEDIUM DENSE 31-50 DENSE OVER 50 VERY DENSE				<b>BLOWS/FT</b> 0-4 VERY LOOSE 5-10 LOOSE 11-30 MEDIUM DENSE 31-50 DENSE OVER 50 VERY DENSE				<b>BLOWS/FT</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD				<b>BLOWS/FT</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD																																																																																																																																																																			
<b>DENSITY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD				<b>DENSITY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD				<b>DENSITY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD				<b>DENSITY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD																																																																																																																																																																			
<b>CONSISTENCY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD				<b>CONSISTENCY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD				<b>CONSISTENCY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD				<b>CONSISTENCY</b> 0-2 VERY SOFT 3-4 SOFT 5-8 MEDIUM STIFF 9-15 STIFF 16-30 VERY STIFF OVER 30 HARD																																																																																																																																																																			
<b>SAMPLE PROPORTIONS (PERCENT)</b> TRACE 1 to 10 LITTLE 11 to 20 SOME 21 to 35 AND 36 to 50				<b>SAMPLE PROPORTIONS (PERCENT)</b> TRACE 1 to 10 LITTLE 11 to 20 SOME 21 to 35 AND 36 to 50				<b>SAMPLE PROPORTIONS (PERCENT)</b> TRACE 1 to 10 LITTLE 11 to 20 SOME 21 to 35 AND 36 to 50				<b>SAMPLE PROPORTIONS (PERCENT)</b> TRACE 1 to 10 LITTLE 11 to 20 SOME 21 to 35 AND 36 to 50																																																																																																																																																																			

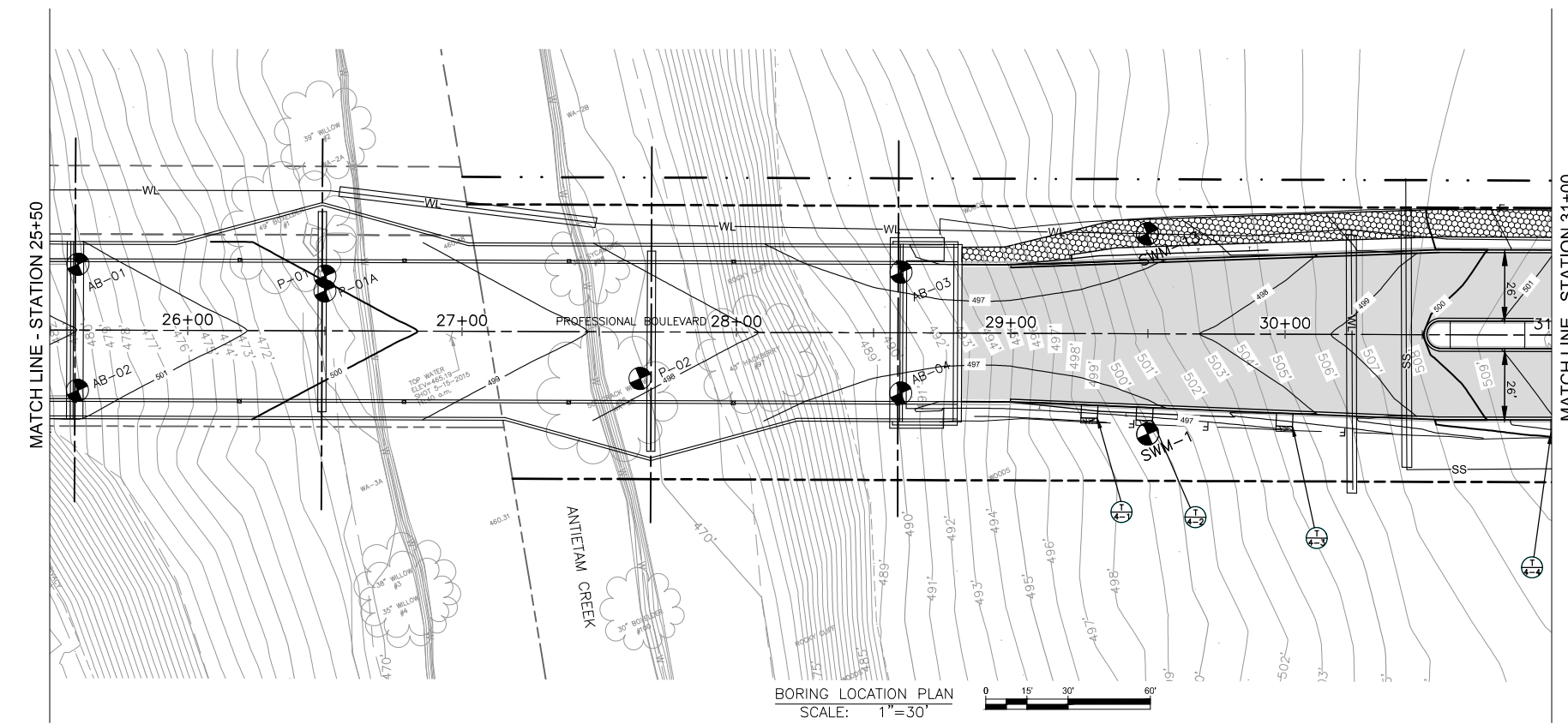
TEST BORING LOGS  
SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SOILS	GW	WELL-GRADED SANDS, GRAVEL - SAND MIXTURE, LITTLE OR NO FINE	CLAYS AND SILTS	ML	ORGANIC SILTS AND VERY FINE SANDS, LITTLE OR NO SILT
LITTLE OR NO FINE	GP	POORLY-GRADED SANDS, GRAVEL - SAND MIXTURE, LITTLE OR NO FINE	CLAYS AND SILTS	CL	ORGANIC CLAYS OF LOW PLASTICITY
GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURE	CLAYS AND SILTS	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
APPROXIMATE AVERAGE OF FINES	GC	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURE	CLAYS AND SILTS	MH	ORGANIC SILTS, MEDIUM TO HIGH PLASTICITY
CLEAN SANDS	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS AND SILTS	OH	ORGANIC CLAYS OF HIGH PLASTICITY
LITTLE OR NO FINES	SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS AND SILTS	OH	ORGANIC CLAYS OF HIGH PLASTICITY
SANDS WITH FINES	SM	SILTY SANDS, SAND - SILT MIXTURE	HIGHLY ORGANIC SOILS	PT	PEAT, MARL, MUCK, SLUDGE WITH HIGH ORGANIC CONTENTS
APPROXIMATE AVERAGE OF FINES	SC	CLAYEY SANDS, SAND - CLAY MIXTURE			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



DATE: \_\_\_\_\_

BY: \_\_\_\_\_

REVISION DESCRIPTION:

DESIGNED BY: \_\_\_\_\_

DRAWN BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

DATE: APRIL 2016

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

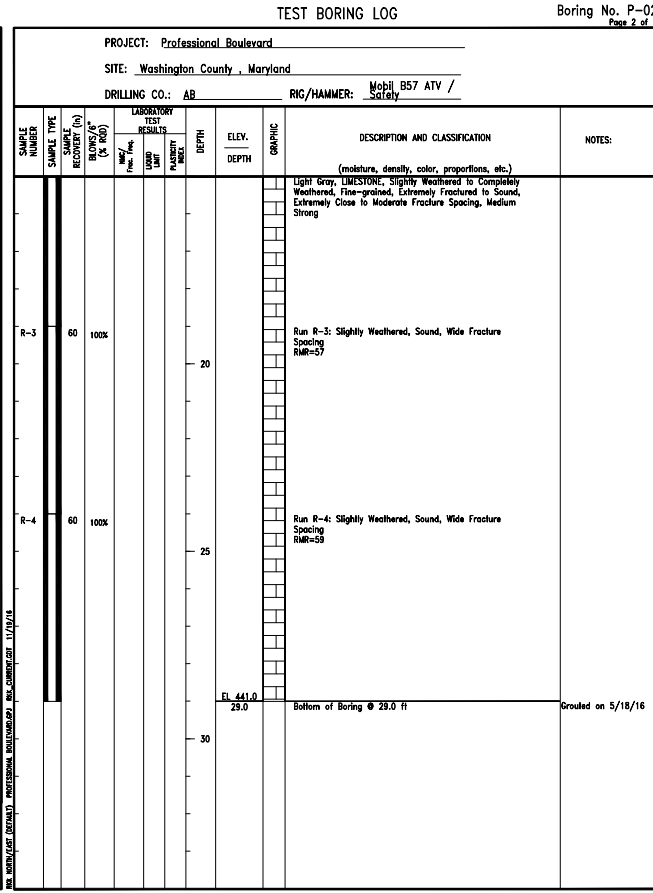
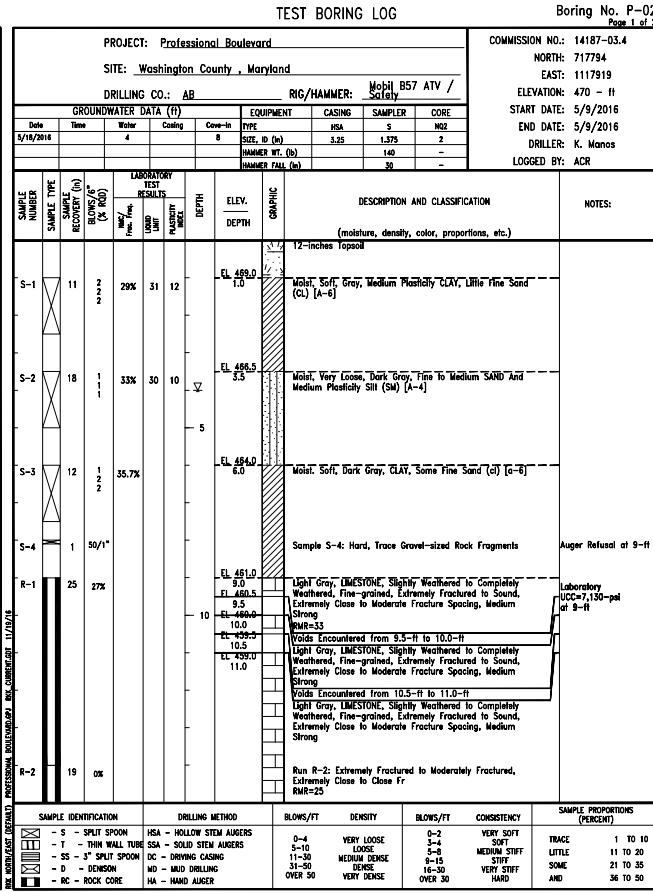
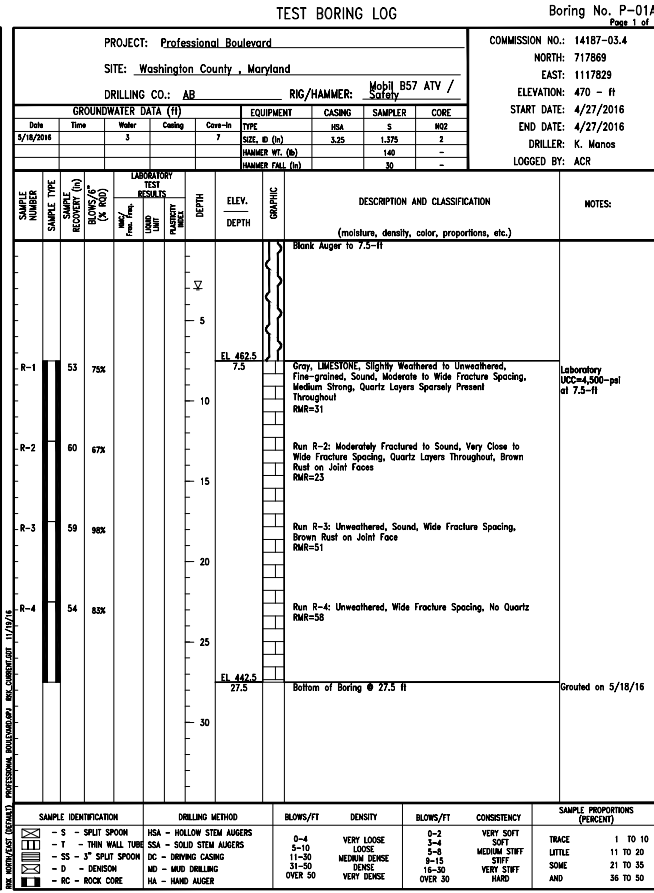
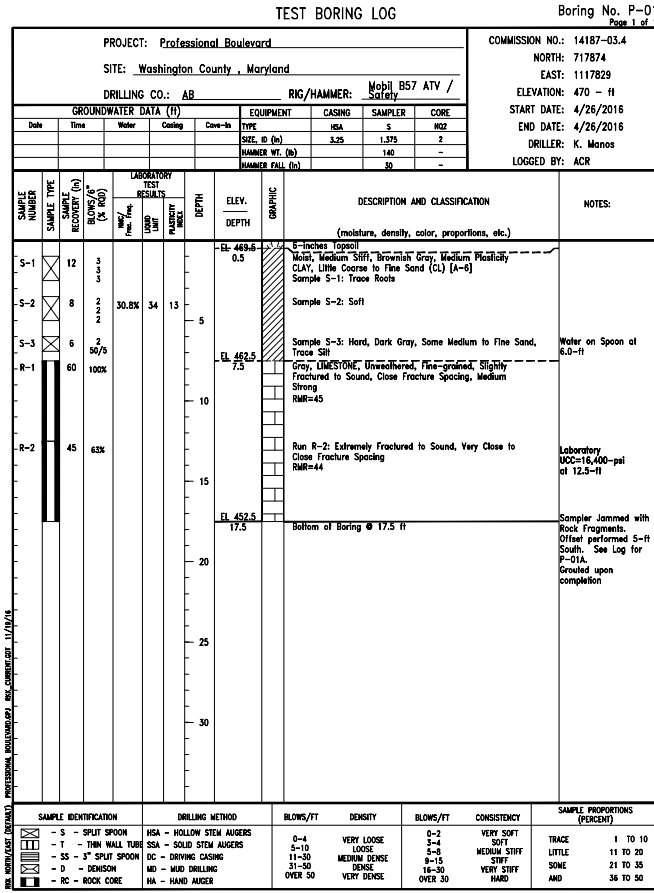
SCALE  
AS SHOWN

SHEET NO.  
96 OF 129

PROJECT NO.  
10-270

BORING AND DRIVE TESTS

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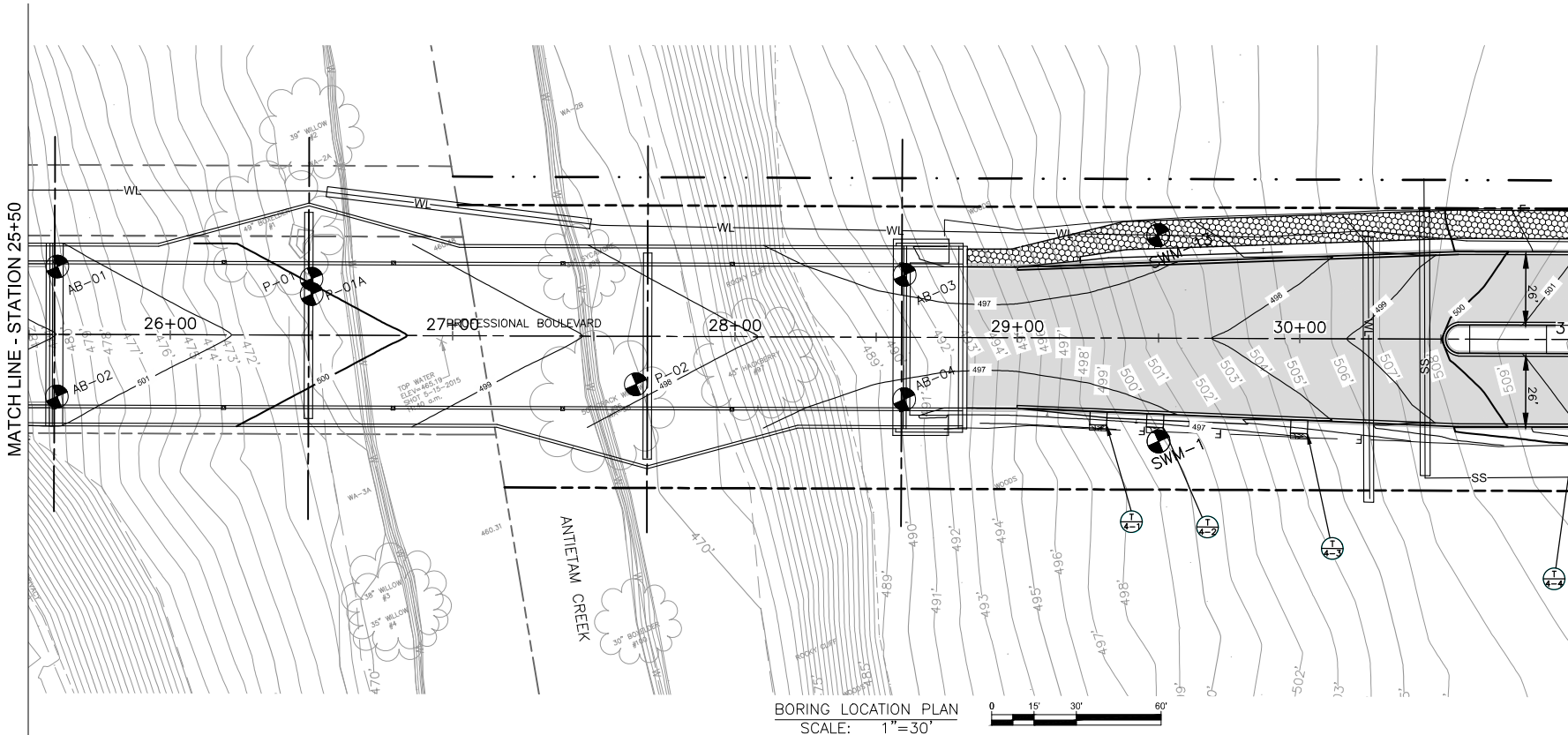
TEST BORING LOGS  
 SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SOILS	GW	WELL-GRADED GRAVEL, GRAVEL - SAND MIXTURE, LITTLE OR NO FINE	FINE GRAINED SOILS	ML	MODERATE TO HIGH PLASTICITY SILT AND VERY FINE SANDS, LITTLE OR NO FINE
GRAVELS WITH FINE SANDS	GM	POORLY-GRADED GRAVEL, GRAVEL - SAND MIXTURE, LITTLE OR NO FINE	CLAYS	CL	MODERATE TO HIGH PLASTICITY CLAY, LITTLE OR NO FINE SAND
CLEAN SANDS	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINE	CLAYS WITH SILT	CL	MODERATE TO HIGH PLASTICITY CLAY, LITTLE OR NO FINE SAND
SANDS WITH FINE SANDS	SM	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINE	CLAYS WITH SILT	CH	MODERATE TO HIGH PLASTICITY CLAY, LITTLE OR NO FINE SAND
CLAYEY SANDS	SC	CLAYEY SANDS, SAND - CLAY MIXTURE	CLAYS WITH SILT	OH	MODERATE TO HIGH PLASTICITY CLAY, LITTLE OR NO FINE SAND
			CLAYS WITH SILT	PT	MODERATE TO HIGH PLASTICITY CLAY, LITTLE OR NO FINE SAND

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
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  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



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SCALE AS SHOWN  
 SHEET NO. 97 OF 129  
 PROJECT NO. 10-270

TEST BORING LOG Boring No. SWM-01

PROJECT: Professional Boulevard  
 COMMISSION NO.: 14187-03.4  
 NORTH: 717702  
 EAST: 1118081  
 ELEVATION: 500 - ft  
 START DATE: 5/3/2016  
 END DATE: 5/3/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

DATE	TIME	WATER	CAUSE	COVER	TYPE	NO.	DEPTH	LABORATORY TEST RESULTS	DESCRIPTION AND CLASSIFICATION	NOTES
5/3/2016	4:00:00 PM	Dry			7.5	3.35	1.375	1.40	30	
5-1	18	2	0.2	3-inches (open)	Moist, Medium SHFT, Brown, CLAY (C) [c-7-8]					
5-2	10	6	2.0	Moist, SHFT, Gray, Brown, Slightly Plastic SILT, Some Coarse to Fine Sand, Trace Fine Gravel (M) [s-4]						
5-3	8	20	5	Sample S-3: Very SHFT, Brown, And Coarse to Fine SAND						
5-4	18	4	6.0	Moist, SHFT, Medium Brown, CLAY (C) [c-7-8]						
5-5	18	4	6	Sample S-5: Brown, Little Fine Angular Gravel						
5-6	24	4	10	Sample S-6: Brown, Little Fine Angular Gravel						
5-7	17	4	10	Sample S-7: Brown, Little Fine Sand, Little Fine Angular Gravel						
5-8	18	6	15	Sample S-8: Very SHFT, Trace Fine Sand						
5-9	12	8	15	Sample S-9: Very SHFT, And Medium to Fine SAND						
Bottom of Boring @ 18.0 ft										

Backfilled with auger cuttings upon completion

TEST BORING LOG Boring No. SWM-13

PROJECT: Professional Boulevard  
 COMMISSION NO.: 14187-03.4  
 NORTH: 717769  
 EAST: 1118110  
 ELEVATION: 502.5 - ft  
 START DATE: 5/3/2016  
 END DATE: 5/3/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

DATE	TIME	WATER	CAUSE	COVER	TYPE	NO.	DEPTH	LABORATORY TEST RESULTS	DESCRIPTION AND CLASSIFICATION	NOTES
5/3/2016	4:00:00 PM	Dry			7.5	3.35	1.375	1.40	30	
5-1	8	0.5	5-inches (open)	Moist, Medium SHFT, Grayish Brown, CLAY, And SILT, Trace Fine Sand (c-m) [c-4]						
5-2	12	6	2.0	Moist, Very SHFT, Medium Brown, High Plasticity CLAY, Trace Coarse to Fine Sand (M) [s-7-8]						
5-3	8	25.8%	5	Sample S-3: Little SILT						
5-4	12	7	5	Sample S-4: Brown, Little SILT						
5-5	21	4	10	Sample S-5: Medium SHFT, Brown, Some SILT						
5-6	5	50.5%	10	Completely Weathered Rock, Sampled As: Moist, Hard, Light Gray, CLAY, And SILT, Trace Coarse to Fine Sand, Trace Fine Gravel-And Rock Fragments						
Bottom of Boring @ 11.0 ft										

Auger Refusal at 11.0-ft  
 Back-filled with auger cuttings upon completion

SYMBOL	IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
⊖	S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	TRACE 1 TO 10
⊖	T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	LITTLE 11 TO 20
⊖	SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	8-15	SOME 21 TO 35
⊖	D - DIBSON	HD - HAND DRILLING	31-50	DENSE	16-30	YEST STIFF 36 TO 50
⊖	RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	AND 56 TO 50

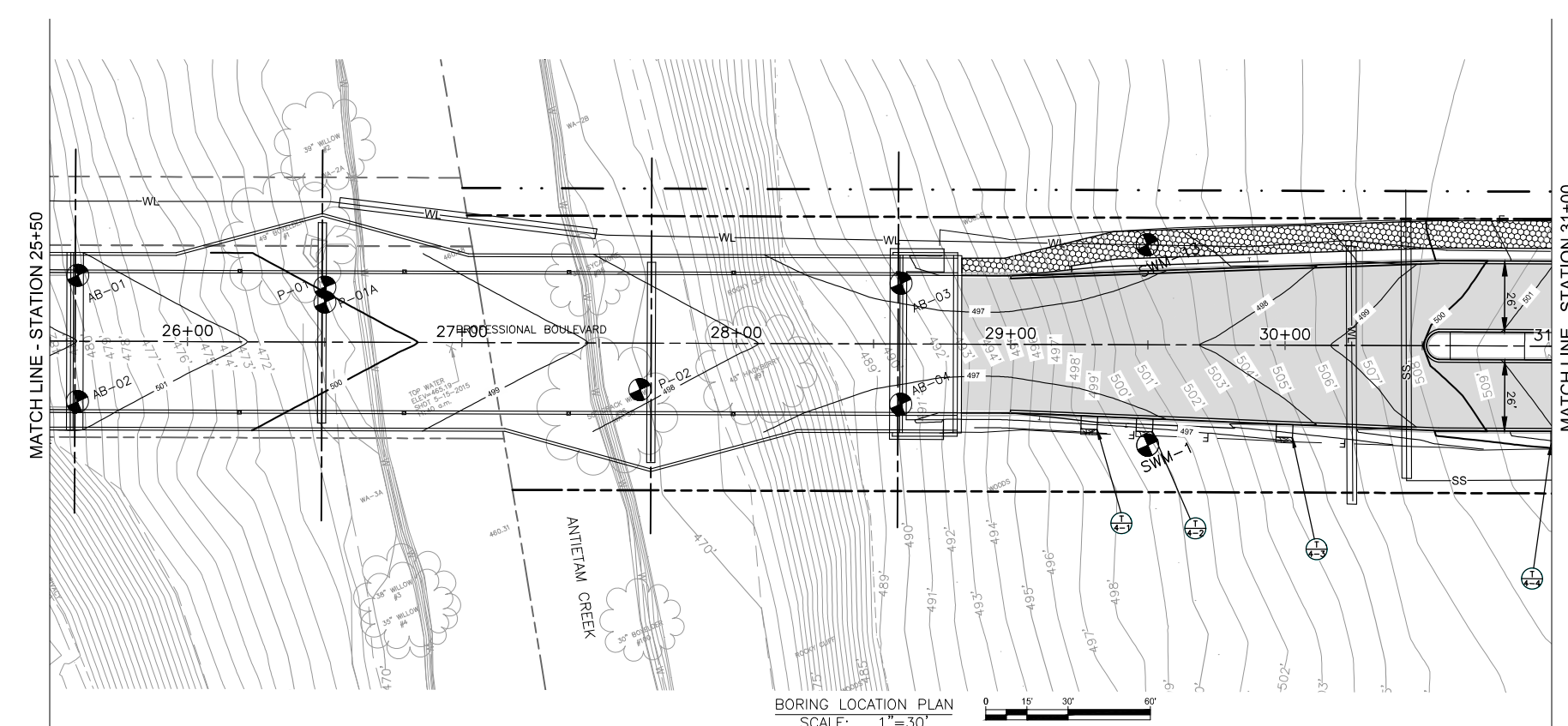
TEST BORING LOGS  
 SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SOILS	GW	WELL-GRADED GRAVELS, GRAVELS - SAND MIXTURES, LITTLE OR NO FINES	CLAYS	ML	MODERATE TO HIGH PLASTICITY CLAYS, LITTLE OR NO SILT
LITTLE OR NO FINES	GP	POORLY-GRADED GRAVELS, GRAVELS - SAND MIXTURES, LITTLE OR NO FINES	CLAYS	CL	LOW PLASTICITY CLAYS, LITTLE OR NO SILT
GRAVELS WITH FINES	GM	SILT-GRAVELS, GRAVELS - SAND - SILT MIXTURES	CLAYS	OL	ORGANIC CLAYS OF LOW TO HIGH PLASTICITY
GRAVELS WITH FINES	GC	CLAYEY GRAVELS, GRAVELS - SAND - CLAY MIXTURES	CLAYS	MH	MODERATE TO HIGH PLASTICITY CLAYS, LITTLE OR NO SILT
CLEAN SANDS	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS	CH	ORGANIC CLAYS OF HIGH PLASTICITY
LITTLE OR NO FINES	SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
SANDS WITH FINES	SM	SILT SANDS, SAND - SILT MIXTURES	PT	PT	PEAT, MARLS, MUDS, SOILS WITH HIGH ORGANIC CONTENTS
SANDS WITH FINES	SC	CLAYEY SANDS, SAND - CLAY MIXTURES			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

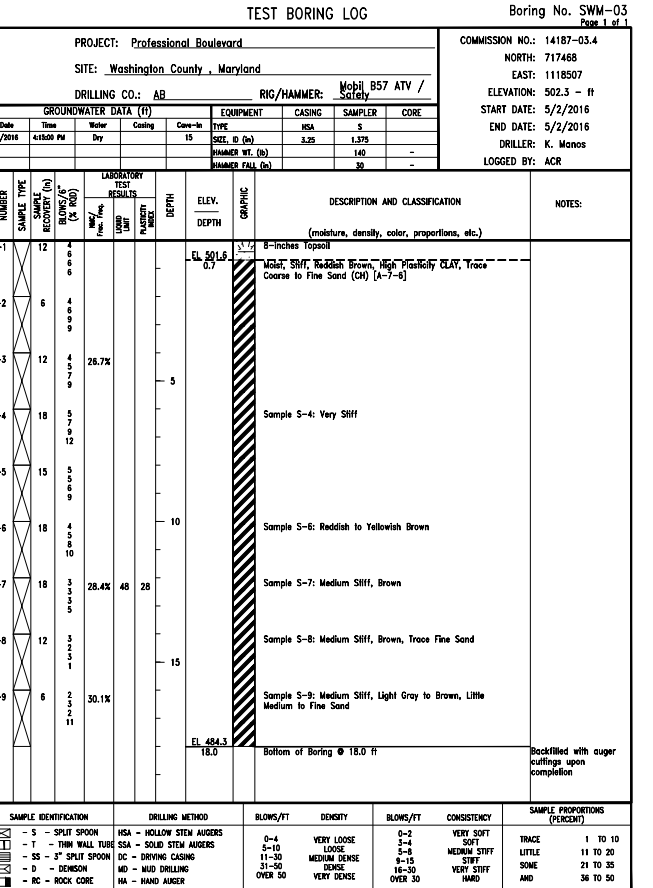
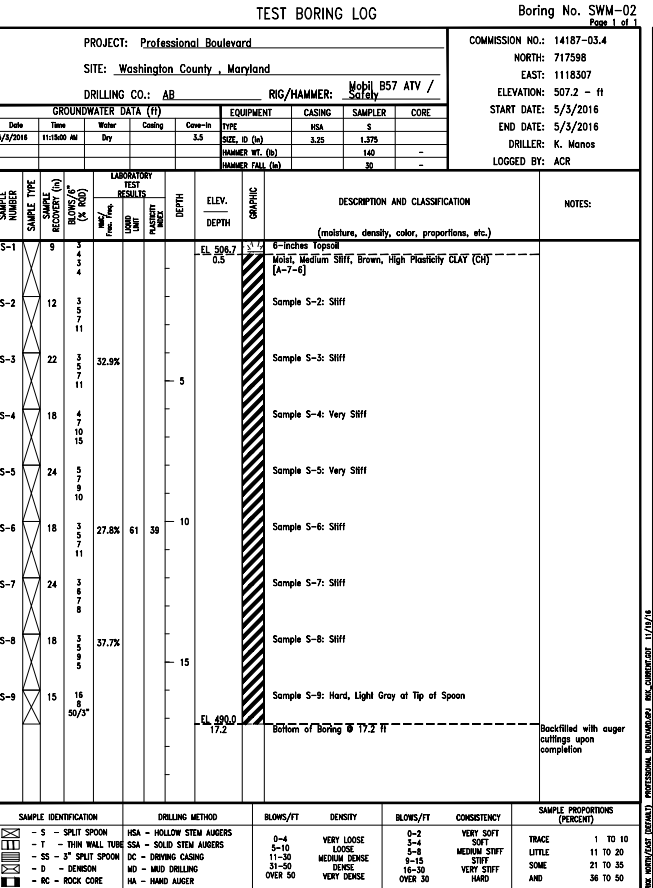
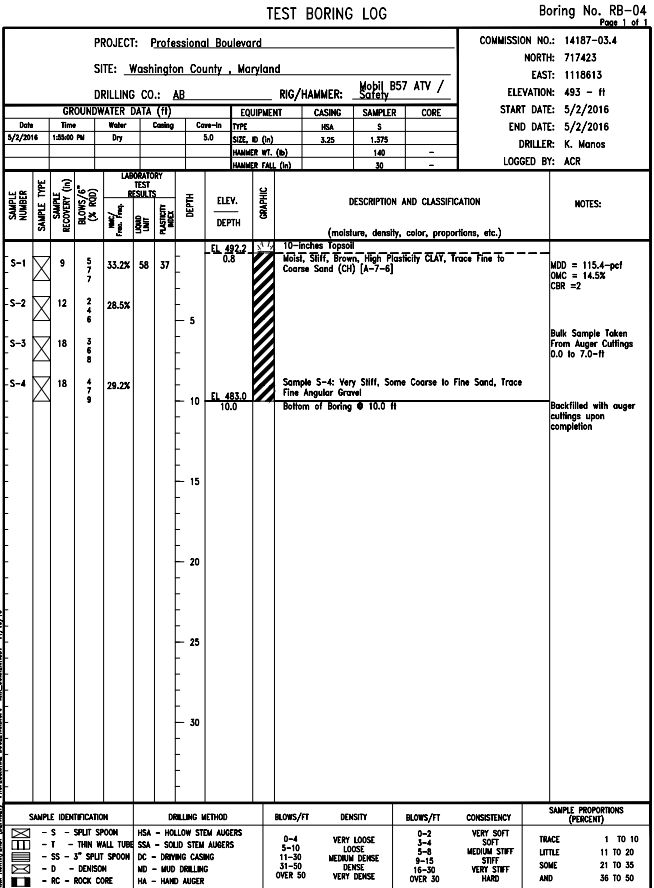
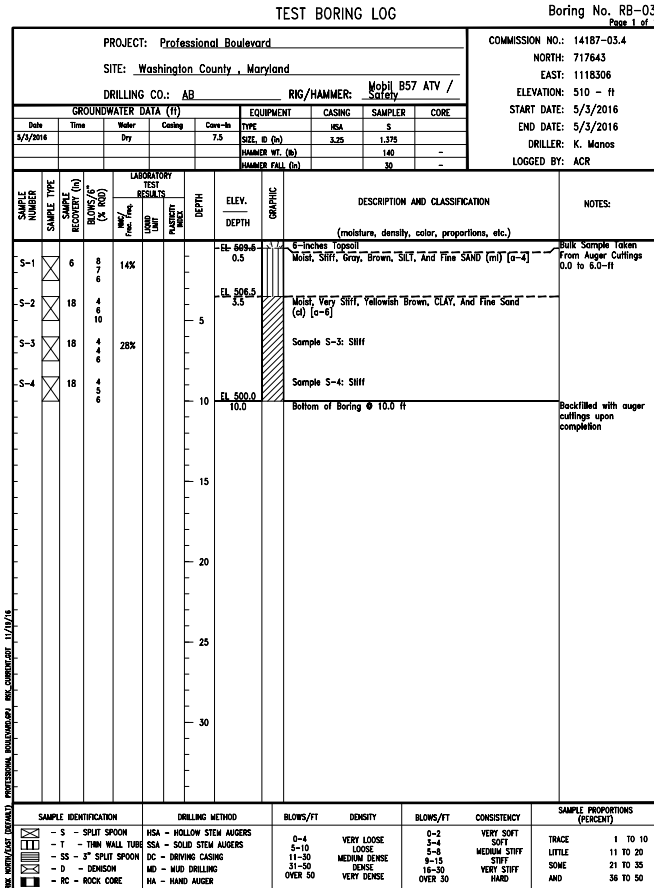
- NOTES:
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  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
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 Phone: 240-313-2460 Fax: 240-313-2401

SCALE AS SHOWN  
 SHEET NO. 98 OF 129  
 PROJECT NO. 10-270

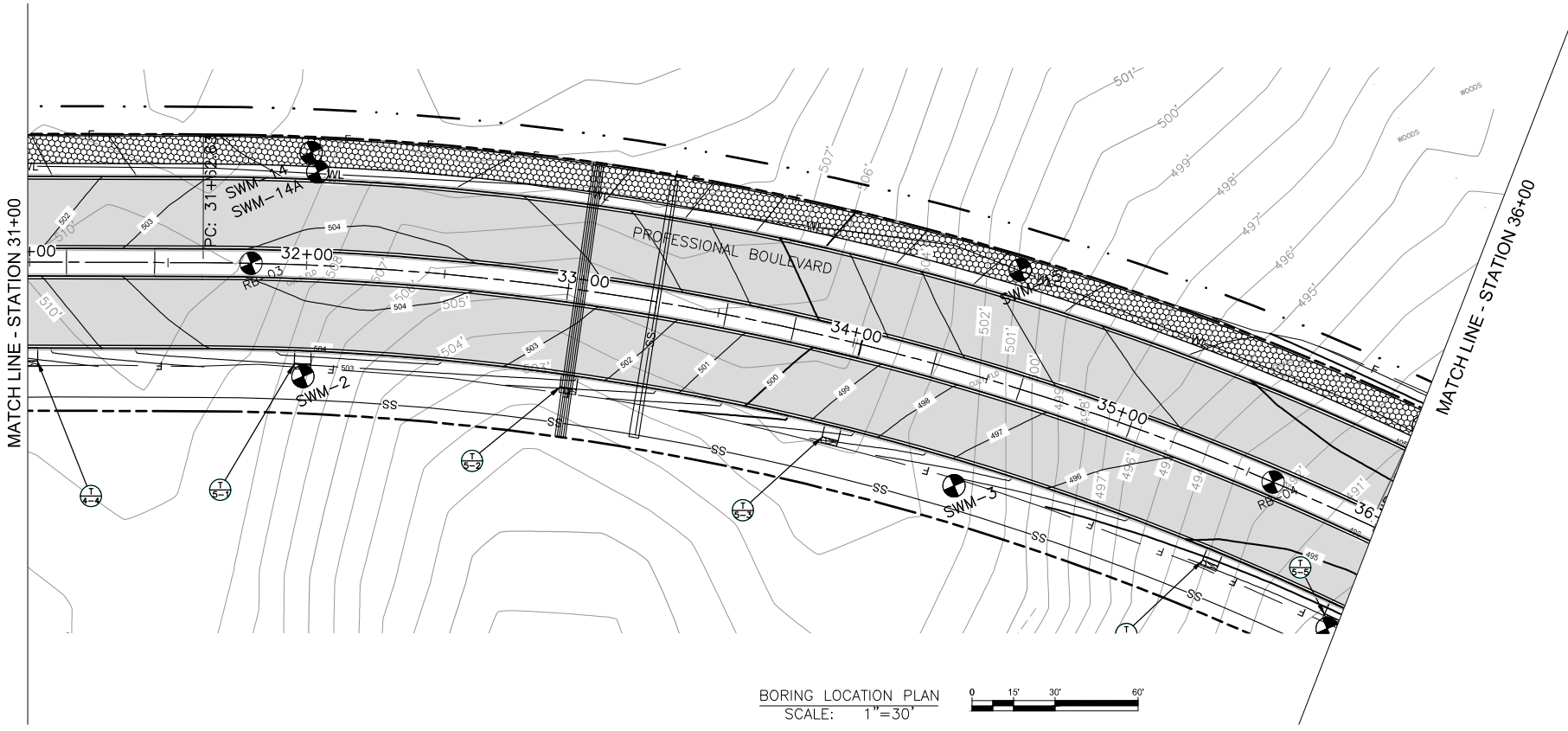


TEST BORING LOGS  
 SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	LETTER	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	Clean Gravels	GW	WELL-SORTED GRAVELS, SANDS, SILTS, AND CLAYS, LITTLE OR NO FINES	FINE GRAINED SOILS	ML	MEDIUM STIFF TO VERY STIFF SILTS AND CLAYS	BORING SILTS AND CLAYS OF LOW PLASTICITY
	Gravels with fines	GM	POORLY-SORTED GRAVELS, SANDS, SILTS, AND CLAYS, LITTLE OR NO FINES		CL	MEDIUM STIFF TO VERY STIFF CLAYS	BORING CLAYS OF LOW PLASTICITY
	Sand and gravel	GC	GRAVELS WITH SANDS, SILTS, AND CLAYS, APPROXIMATELY 50% SANDS		OL	MEDIUM STIFF TO VERY STIFF CLAYS	BORING CLAYS OF MEDIUM TO HIGH PLASTICITY
	Sand with fines	GP	GRAVELS WITH SANDS, SILTS, AND CLAYS, APPROXIMATELY 25% SANDS		MH	MEDIUM STIFF TO VERY STIFF CLAYS	BORING CLAYS OF HIGH PLASTICITY
FINE GRAINED SOILS	Clean sands	SW	WELL-SORTED SANDS, SILTS, AND CLAYS, LITTLE OR NO FINES	CH	MEDIUM STIFF TO VERY STIFF CLAYS	BORING CLAYS OF HIGH PLASTICITY	
	Sands with fines	SM	POORLY-SORTED SANDS, SILTS, AND CLAYS, LITTLE OR NO FINES	OH	MEDIUM STIFF TO VERY STIFF CLAYS	BORING CLAYS OF MEDIUM TO HIGH PLASTICITY	
	Silt and clay	SH	SANDS WITH SILTS, AND CLAYS, APPROXIMATELY 50% SANDS	PT	MEDIUM STIFF TO VERY STIFF CLAYS	BORING CLAYS OF MEDIUM TO HIGH PLASTICITY	
	Clay with sand	SC	SANDS WITH SILTS, AND CLAYS, APPROXIMATELY 25% SANDS				

- NOTES:
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  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2017

Washington County Administrative Annex, Building  
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 Phone: 240-319-2480 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 BORING AND DRIVE TESTS

SCALE  
 AS SHOWN

SHEET NO.  
 99 OF 129

PROJECT NO.  
 10-270

TEST BORING LOG Boring No. SWM-14  
Page 1 of 1

PROJECT: Professional Boulevard		COMMISSION NO.: 14187-03.4	
SITE: Washington County, Maryland		NORTH: 717671	
DRILLING CO.: AB		EAST: 1118342	
RIG/HAMMER: Mobil B57 ATV / Safety		ELEVATION: 509 - ft	
EQUIPMENT: Casing		START DATE: 5/3/2016	
SAMPLER: S		END DATE: 5/3/2016	
CORE: -		DRILLER: K. Manos	
LOGGED BY: ACR			

Date	Time	Water	Coating	Cave-in	TYPE	ISPA	SAMPLER	CORE
5/2/2016	12:30 PM				6.5	3.25	1.375	
					SIZE, Ø (in)	3.25	1.375	
					HAMMER Wt. (lb)	140		
					HAMMER FALL (ft)	30		

SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	DEPTH (ft)	ELEV. (ft)	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES	LABORATORY TEST RESULTS					
								Wt. %	Wt. %	Wt. %	Wt. %		
S-1	12	100	1.0	508.5	10'	6-inches Topsoil							
S-2	8	5	5.0	505.0	5'	Mol. Medium SHFT, Brown, CLAY (A) [A-7-3]	Sample S-2: SHFT						
S-3	2	50	5.5	504.5	5'	COMPLETELY WEATHERED ROCK Sampled At: Mol. Hard, Light Gray, CLAY	Auger Refusal at 5.5-ft Backfilled with auger cuttings upon completion Offset performed 5-ft East. See Log for SWM-14A						
				5.5	504.5	Bottom of Boring @ 5.5 ft							

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME 21 TO 35
D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	SOME 21 TO 35
RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF	HARD 36 TO 50

TEST BORING LOG Boring No. SWM-14A  
Page 1 of 1

PROJECT: Professional Boulevard		COMMISSION NO.: 14187-03.4	
SITE: Washington County, Maryland		NORTH: 717671	
DRILLING CO.: AB		EAST: 1118342	
RIG/HAMMER: Mobil B57 ATV / Safety		ELEVATION: 509 - ft	
EQUIPMENT: Casing		START DATE: 5/3/2016	
SAMPLER: S		END DATE: 5/3/2016	
CORE: -		DRILLER: K. Manos	
LOGGED BY: ACR			

Date	Time	Water	Coating	Cave-in	TYPE	ISPA	SAMPLER	CORE
5/2/2016	12:30 PM				6.5	3.25	1.375	
					SIZE, Ø (in)	3.25	1.375	
					HAMMER Wt. (lb)	140		
					HAMMER FALL (ft)	30		

SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	DEPTH (ft)	ELEV. (ft)	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES	LABORATORY TEST RESULTS					
								Wt. %	Wt. %	Wt. %	Wt. %		
S-1	18	4	60	503.0	60'	Blank Auger to 6.0-ft							
			7.5	501.5	7.5'	Mol. SHFT, Brown, High Plasticity CLAY, Trace Coarse to Fine Sand (CH) [A-7-6]	Auger Refusal at 7.5-ft Backfilled with auger cuttings upon completion						
				7.5	501.5	Bottom of Boring @ 7.5 ft							

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME 21 TO 35
D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	SOME 21 TO 35
RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF	HARD 36 TO 50

TEST BORING LOG Boring No. SWM-15  
Page 1 of 1

PROJECT: Professional Boulevard		COMMISSION NO.: 14187-03.4	
SITE: Washington County, Maryland		NORTH: 717530	
DRILLING CO.: AB		EAST: 1118560	
RIG/HAMMER: Mobil B57 ATV / Safety		ELEVATION: 509.9 - ft	
EQUIPMENT: Casing		START DATE: 5/2/2016	
SAMPLER: S		END DATE: 5/2/2016	
CORE: -		DRILLER: K. Manos	
LOGGED BY: ACR			

Date	Time	Water	Coating	Cave-in	TYPE	ISPA	SAMPLER	CORE
5/2/2016	12:30 PM				6.5	3.25	1.375	
					SIZE, Ø (in)	3.25	1.375	
					HAMMER Wt. (lb)	140		
					HAMMER FALL (ft)	30		

SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	DEPTH (ft)	ELEV. (ft)	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES	LABORATORY TEST RESULTS					
								Wt. %	Wt. %	Wt. %	Wt. %		
S-1	18	2	2.0	509.1	10'	10-inches Topsoil							
S-2	12	3	4.0	507.1	40'	Mol. SHFT, Brownish Gray, High Plasticity CLAY, Trace Coarse to Fine Sand (CH) [A-7-6]	Sample S-2: SHFT, Grayish Brown						
S-3	12	6	7.0	505.1	5'	Sample S-3: SHFT, Reddish Brown							
S-4	24	6	11.0	503.1	5'	Sample S-4: Very SHFT, Reddish Brown							
S-5	24	4	7.0	501.1	5'	Sample S-5: SHFT, Reddish Brown							
S-6	24	6	9.0	499.1	10'	Sample S-6: Very SHFT, Reddish Brown							
S-7	24	4	4.0	497.1	15'	Sample S-7: Medium SHFT, Brown							
S-8	18	5	4.0	495.1	15'	Sample S-8: SHFT, Brown							
				16.0	494.8	Bottom of Boring @ 16.0 ft	Backfilled with auger cuttings upon completion						

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME 21 TO 35
D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	SOME 21 TO 35
RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF	HARD 36 TO 50

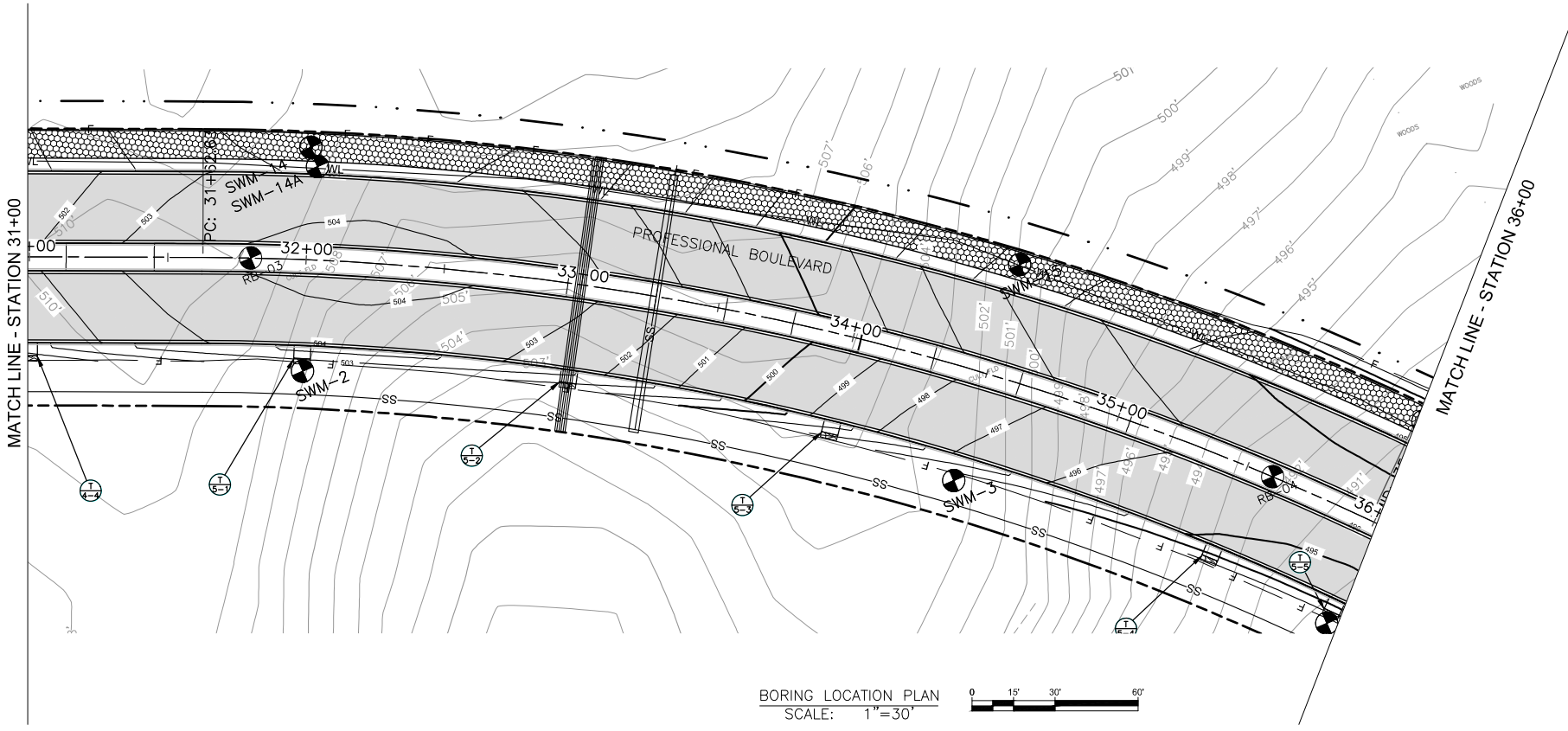
TEST BORING LOGS  
SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GW GM GC	CLEAN GRAVELS (LITTLE OR NO FINES) POORLY GRADED GRAVELS, SAND, SILT, CLAY OR FINES SILTY GRAVELS, SAND - SILT MATURES CLAYEY GRAVELS, SAND - SILT MATURES	FINE GRAINED SOILS	ML CL OL MH CH	MEDIUM SANDS AND SILTS SANDS WITH SILT SANDS WITH CLAY SANDS WITH SILT AND CLAY ORGANIC SILTS AND SILTS ORGANIC SILTS AND SILTS
FINE SANDS	SW SP	CLEAN SANDS (LITTLE OR NO FINES) POORLY GRADED SANDS, GRAVELLY SANDS, SILT OR FINES	CLAYS	CL ML OL MH CH	CLAYS WITH SILT CLAYS WITH SILT AND CLAY CLAYS WITH SILT AND CLAY CLAYS WITH SILT AND CLAY CLAYS WITH SILT AND CLAY
SANDS WITH FINES	SM SC	SANDS WITH FINES (APPROXIMATE AMOUNT OF FINES)	ORGANIC SOILS	PT	PEATS AND OTHER ORGANIC SOILS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



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<p>DESIGNED BY: TMB</p> <p>DRAWN BY: TMB</p> <p>CHECKED BY: TMB</p> <p>DATE: APRIL 2016</p>	<p>DATE</p> <p>BY</p> <p>REVISION DESCRIPTION</p> <p>NO.</p>
<p>WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING</p> <p>Washington County Administrative Annex, Building 80 W. Baltimore St. Hagerstown, MD 21740 Phone: 240-313-2480 Fax: 240-313-2401</p>	
<p>PROFESSIONAL BOULEVARD BORING AND DRIVE TESTS</p>	
<p>SCALE AS SHOWN</p> <p>SHEET NO. 100 OF 129</p> <p>PROJECT NO. 10-270</p>	





**TEST BORING LOG**      Boring No. SWM-17  
Page 1 of 1

PROJECT: Professional Boulevard		COMMISSION NO.: 14187-03.4	
SITE: Washington County, Maryland		NORTH: 716401	
DRILLING CO.: AB		EAST: 1119711	
RIG/HAMMER: Mobil B57 ATV / Safety		ELEVATION: 525.1 - ft	
GROUNDWATER DATA (ft)		START DATE: 5/10/2016	
Date	Time	Water	Quality
EQUIPMENT		CASING	
SAMPLER		CORE	
LABORATORY TEST RESULTS		NOTES:	

SAMPLE NUMBER	DEPTH (ft)	LABORATORY TEST RESULTS	DESCRIPTION AND CLASSIFICATION	NOTES
S-1	12		2 1/2-Inch In Situ Most, Medium Stiff, Reddish Brown, CLAY, Trace Fine Sand (s) [a-7-6]	
S-2	20		Sample S-2: Very Stiff, Some Fine Gravel-sized Rock Fragments	
			EL 521.1	Bottom of Boring @ 4.0 ft
				Auger Refusal at 4.0-ft
				Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	VERY SOFT	TRACE 1 TO 10
T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	SOFT	LITTLE 11 TO 20
SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-20	MEDIUM DENSE	MEDIUM STIFF	SOME 21 TO 30
D - DENISON	MD - MUD DRILLING	21-30	DENSE	VERY STIFF	HARD 36 TO 50
RC - ROCK CORE	HA - HAND AUGER	OVER 30	VERY DENSE	OVER 50	AND

**TEST BORING LOG**      Boring No. SWM-18  
Page 1 of 1

PROJECT: Professional Boulevard		COMMISSION NO.: 14187-03.4	
SITE: Washington County, Maryland		NORTH: 717769	
DRILLING CO.: AB		EAST: 1118110	
RIG/HAMMER: Mobil B57 ATV / Safety		ELEVATION: 502.5 - ft	
GROUNDWATER DATA (ft)		START DATE: 5/10/2016	
Date	Time	Water	Quality
EQUIPMENT		CASING	
SAMPLER		CORE	
LABORATORY TEST RESULTS		NOTES:	

SAMPLE NUMBER	DEPTH (ft)	LABORATORY TEST RESULTS	DESCRIPTION AND CLASSIFICATION	NOTES
S-1	18		2 1/2-Inch In Situ Most, Medium Stiff, Reddish Brown, CLAY, Trace Fine Sand (s) [a-7-6]	
S-2	20			
S-3	24		Sample S-2: SHH, Little Sand	
S-4	24		Sample S-3: Very SHH	
S-5	16		Sample S-4: SHH	
S-6	10		Sample S-5: SHH	
			EL 491.0	Auger Refusal at 12.0-ft
			EL 490.0	Bottom of Boring @ 12.0 ft
				Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	VERY SOFT	TRACE 1 TO 10
T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	SOFT	LITTLE 11 TO 20
SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-20	MEDIUM DENSE	MEDIUM STIFF	SOME 21 TO 30
D - DENISON	MD - MUD DRILLING	21-30	DENSE	VERY STIFF	HARD 36 TO 50
RC - ROCK CORE	HA - HAND AUGER	OVER 30	VERY DENSE	OVER 50	AND

Boring No. SWM-17

Boring No. SWM-18

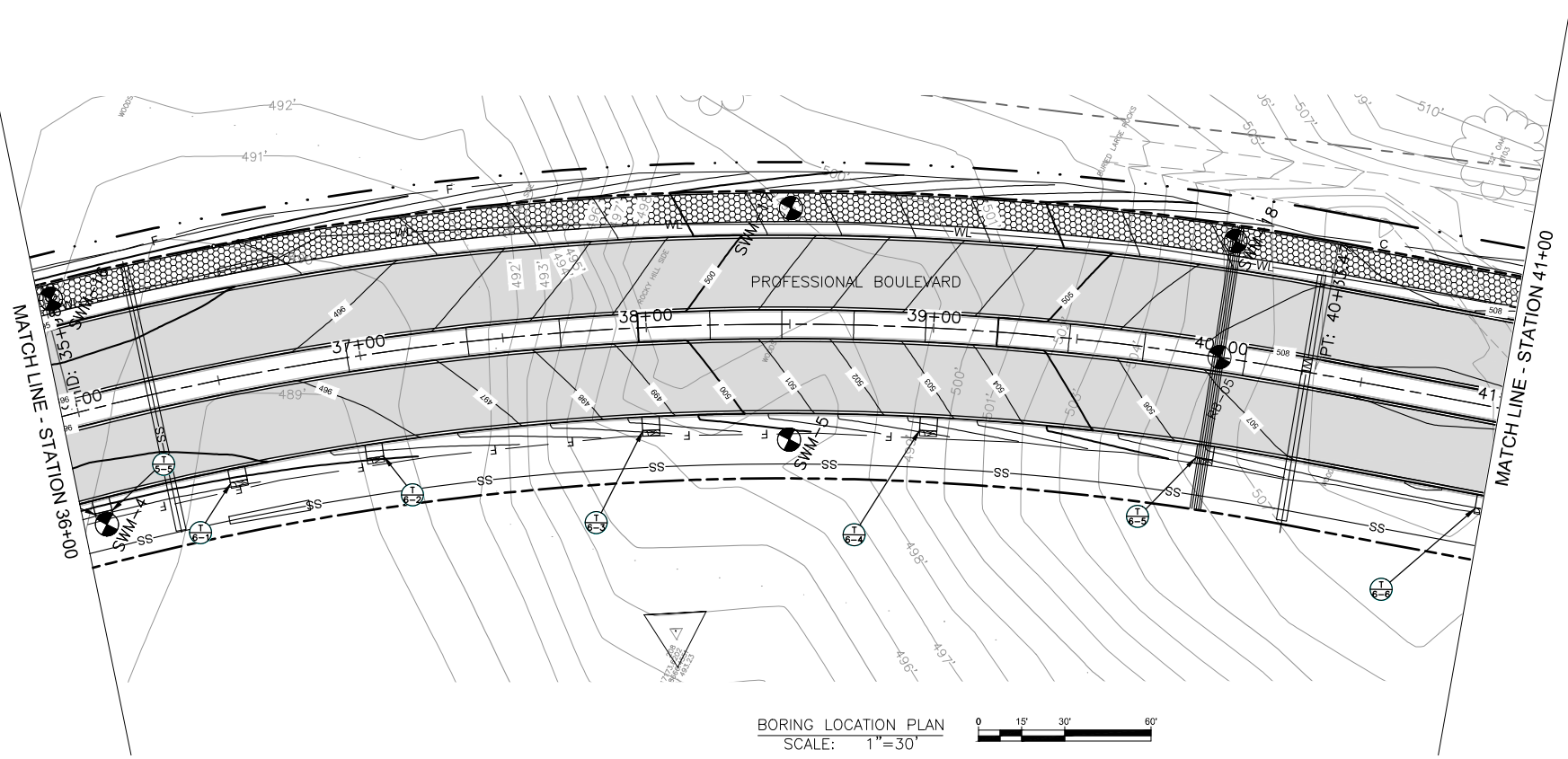
TEST BORING LOGS  
SCALE: NOT TO SCALE

**SOIL CLASSIFICATION CHART**

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	Clean Gravels	GW	FINE GRAINED SOILS	ML	MARGING SILTS AND VERY FINE SANDS, VERY LOW PLASTICITY
	Silt or no fines	GP		CL	MARGING CLAYS OF LOW TO MEDIUM PLASTICITY
	Gravels with fines	GM		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	Impure (more than 5% fines)	GC		MH	MARGING SILTS, MARGING OR ORGANIC SILTS OF MEDIUM TO HIGH PLASTICITY
SANDS AND SANDY SILTS	Clean Sands	SW	HIGHLY ORGANIC SOILS	CH	MARGING CLAYS OF HIGH PLASTICITY
	Silt or no fines	SP		OH	MARGING CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
	Sands with fines	SM		PT	PEAT, MARSH MUCK SOILS WITH HIGH ORGANIC CONTENTS
	Impure (more than 5% fines)	SC			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



<p><b>WASHINGTON COUNTY, MARYLAND</b> DIVISION OF ENGINEERING</p> <p>Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2460 Fax: 240-313-2401</p>	<p><b>PROFESSIONAL ENGINEER</b></p> <p>STATE OF MARYLAND PROFESSIONAL ENGINEER No. 22448 EXPIRES 12/31/2016</p>
<p><b>PROFESSIONAL BOULEVARD</b></p> <p><b>BORING AND DRIVE TESTS</b></p>	<p>SCALE AS SHOWN</p> <p>SHEET NO. 102 OF 129</p> <p>PROJECT NO. 10-270</p>

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TEST BORING LOG Boring No. RB-06 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716810  
 EAST: 1118912  
 ELEVATION: 502 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-in	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:30 AM	Dry		4.5		3.25	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

LABORATORY TEST RESULTS	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
Moisture (%)	0.5	501.4		6-inches Topsoil	
Moisture (%)	2	501.2		Main, Shif, reddish brown, thin plasticity CLAY, some coarse to fine sand, trace fine gravel (CL) [A-7-6]	MDD = 115.8 - pcf OCMC = 14.8% CBR = 3.3
Moisture (%)	3	501.0		Sample S-2: Very Shif, Brown, Gray, Little coarse to fine sand, little gravel-sized rock fragments at the tip of spoon	
Moisture (%)	4	500.8		Sample S-3: Medium Shif, Grayish Brown, Trace gravel-sized rock fragments	Bulk Sample Taken From Auger Cuttings 0.0 to 10.0 ft
Moisture (%)	5	500.6		Sample S-4: Soft, Grayish Brown	
Moisture (%)	10	492.0		Bottom of Boring @ 10.0 ft	Rockfilled with auger cuttings upon completion

LEGEND:  
 S - SPLIT SPOON  
 T - THIN WALL TUBE  
 SS - 3" SPLIT SPOON  
 D - DENSOM  
 RC - ROCK CORE  
 HSA - HOLLOW STEM AUGERS  
 SSA - SOLID STEM AUGERS  
 DC - DRIVING CASING  
 HD - HAND DRILLING  
 HA - HAND AUGER  
 0-2 VERY LOOSE  
 3-4 LOOSE  
 5-10 MEDIUM DENSE  
 11-30 DENSE  
 31-50 VERY DENSE  
 0-2 VERY SOFT  
 3-4 SOFT  
 5-10 MEDIUM STIFF  
 11-30 STIFF  
 15-30 VERY STIFF  
 OVER 30 HARD  
 TRACE 1 TO 10  
 LITTLE 11 TO 30  
 SOME 21 TO 35  
 AND 36 TO 50

TEST BORING LOG Boring No. RB-08 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716906  
 EAST: 1119053  
 ELEVATION: 511.7 - ft  
 START DATE: 5/16/2016  
 END DATE: 5/16/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-in	TYPE	HSA	SAMPLER	CORE
5/16/2016	8:30 AM			11		20	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

LABORATORY TEST RESULTS	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
Moisture (%)	0	511.7		Light gray to gray, LIMESTONE, limonite-stained	Laboratory UCC-2,076 - pcf at 0-ft
Moisture (%)	5	511.2		Fine-grained, sound, moderate fracture spacing, medium strong to strong	Rock outcrops observed in the vicinity of boring
Moisture (%)	10	510.7		Run R-3: Wide Fracture Spacing	
Moisture (%)	15	510.2		Run R-4: Very Wide Fracture Spacing	
Moisture (%)	20	491.7		Bottom of Boring @ 20.0 ft	Grouted on 5/18/16

LEGEND:  
 S - SPLIT SPOON  
 T - THIN WALL TUBE  
 SS - 3" SPLIT SPOON  
 D - DENSOM  
 RC - ROCK CORE  
 HSA - HOLLOW STEM AUGERS  
 SSA - SOLID STEM AUGERS  
 DC - DRIVING CASING  
 HD - HAND DRILLING  
 HA - HAND AUGER  
 0-2 VERY LOOSE  
 3-4 LOOSE  
 5-10 MEDIUM DENSE  
 11-30 DENSE  
 31-50 VERY DENSE  
 0-2 VERY SOFT  
 3-4 SOFT  
 5-10 MEDIUM STIFF  
 11-30 STIFF  
 15-30 VERY STIFF  
 OVER 30 HARD  
 TRACE 1 TO 10  
 LITTLE 11 TO 30  
 SOME 21 TO 35  
 AND 36 TO 50

TEST BORING LOG Boring No. SWM-06 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716942  
 EAST: 1118827  
 ELEVATION: 502.1 - ft  
 START DATE: 5/10/2016  
 END DATE: 5/10/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-in	TYPE	HSA	SAMPLER	CORE
5/10/2016	8:30 AM			4.0		3.25	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

LABORATORY TEST RESULTS	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
Moisture (%)	0.1	502.0		4-inches Topsoil	
Moisture (%)	0.1	501.9		Main, Shif, reddish brown, CLAY, trace fine sand (CL) [a-7-6]	
Moisture (%)	5	501.4		Sample S-3: Very Shif	
Moisture (%)	10	494.0		Sample S-4: Light Gray to Reddish Brown, Little coarse to fine sand, little coarse to fine angular gravel-sized rock fragments at the tip of spoon	
Moisture (%)	10	494.0		Bottom of Boring @ 8.1 ft	Auger refusal at 8.0 ft Rockfilled with auger cuttings upon completion

LEGEND:  
 S - SPLIT SPOON  
 T - THIN WALL TUBE  
 SS - 3" SPLIT SPOON  
 D - DENSOM  
 RC - ROCK CORE  
 HSA - HOLLOW STEM AUGERS  
 SSA - SOLID STEM AUGERS  
 DC - DRIVING CASING  
 HD - HAND DRILLING  
 HA - HAND AUGER  
 0-2 VERY LOOSE  
 3-4 LOOSE  
 5-10 MEDIUM DENSE  
 11-30 DENSE  
 31-50 VERY DENSE  
 0-2 VERY SOFT  
 3-4 SOFT  
 5-10 MEDIUM STIFF  
 11-30 STIFF  
 15-30 VERY STIFF  
 OVER 30 HARD  
 TRACE 1 TO 10  
 LITTLE 11 TO 30  
 SOME 21 TO 35  
 AND 36 TO 50

TEST BORING LOG Boring No. SWM-07 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716746  
 EAST: 1118897  
 ELEVATION: 495 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-in	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:30 AM			4.0		3.25	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

LABORATORY TEST RESULTS	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
Moisture (%)	0.2	495.2		1-inches Topsoil	
Moisture (%)	0.2	495.1		Main, Shif, gray, CLAY, trace fine sand (CL) [a-7-6]	
Moisture (%)	5	494.7		Sample S-2: Medium Shif, Brownish Gray, and Medium to Fine Sand	
Moisture (%)	10	487.5		Sample S-3: Shif, Brownish Gray, Some Medium to Fine Sand, Trace Angular Gravel	
Moisture (%)	10	487.5		Sample S-4: Hard, Brown, Little Fine Sand	
Moisture (%)	10	487.5		Bottom of Boring @ 7.5 ft	Rockfilled with auger cuttings upon completion

LEGEND:  
 S - SPLIT SPOON  
 T - THIN WALL TUBE  
 SS - 3" SPLIT SPOON  
 D - DENSOM  
 RC - ROCK CORE  
 HSA - HOLLOW STEM AUGERS  
 SSA - SOLID STEM AUGERS  
 DC - DRIVING CASING  
 HD - HAND DRILLING  
 HA - HAND AUGER  
 0-2 VERY LOOSE  
 3-4 LOOSE  
 5-10 MEDIUM DENSE  
 11-30 DENSE  
 31-50 VERY DENSE  
 0-2 VERY SOFT  
 3-4 SOFT  
 5-10 MEDIUM STIFF  
 11-30 STIFF  
 15-30 VERY STIFF  
 OVER 30 HARD  
 TRACE 1 TO 10  
 LITTLE 11 TO 30  
 SOME 21 TO 35  
 AND 36 TO 50

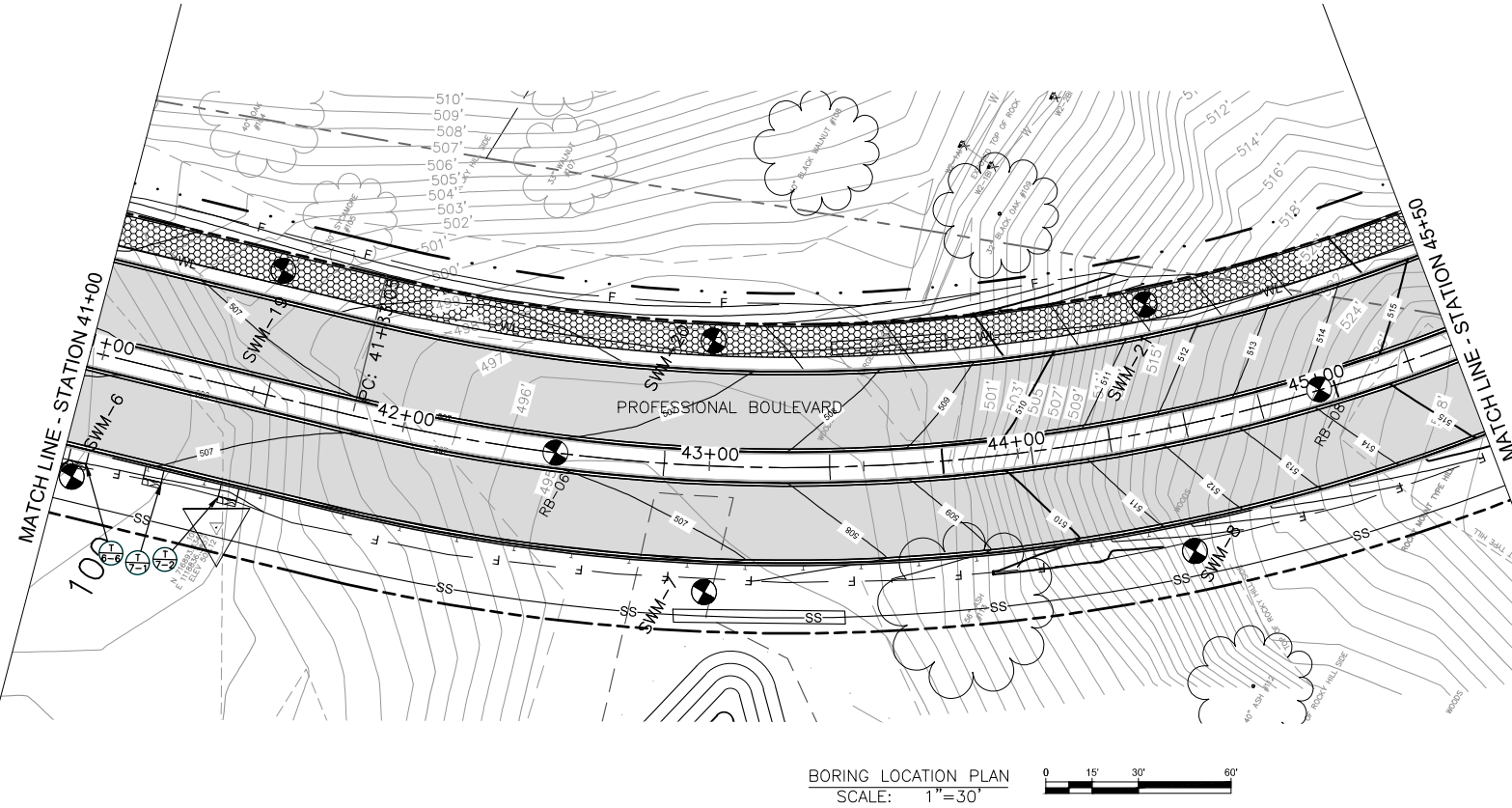
TEST BORING LOGS  
 SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GW	WELL-SORTED GRAVELS, SANDS, SILTS AND CLAYS	FINE GRAINED SOILS	ML	MODERATE TO HIGH PLASTICITY SILTS AND CLAYS
	GP	POORLY SORTED GRAVELS, SANDS, SILTS AND CLAYS		CL	LOW TO MEDIUM PLASTICITY SILTS AND CLAYS
	GM	SILT GRAVELS, SANDS, SILTS AND CLAYS		OL	ORGANIC SILTS AND CLAYS
	GC	CLAY GRAVELS, SANDS, SILTS AND CLAYS		MH	MEDIUM TO HIGH PLASTICITY SILTS AND CLAYS
SANDS AND SILTS	SW	WELL-SORTED SANDS, SILTS AND CLAYS	HIGHLY ORGANIC SOILS	OH	ORGANIC SILTS AND CLAYS
	SP	POORLY SORTED SANDS, SILTS AND CLAYS		PT	PEATS, MARLS, MUDS AND SILTS WITH HIGH ORGANIC CONTENTS
	SM	SILT SANDS, SANDS, SILTS AND CLAYS			
	SC	CLAY SANDS, SANDS, SILTS AND CLAYS			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



\\balsrv01\2014\14187\_WashCoProf\Geotech\CADD\Boring\_Log\_Plans\bo06\_PP-11 - PH2.dwg

DATE: \_\_\_\_\_ BY: \_\_\_\_\_

REVISION DESCRIPTION:

NO. \_\_\_\_\_

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2016

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 BORING AND DRIVE TESTS

SCALE AS SHOWN  
 SHEET NO. 103 OF 129  
 PROJECT NO. 10-270

TEST BORING LOG Boring No. SWM-08 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solety

COMMISSION NO.: 14187-03.4  
 NORTH: 716615  
 EAST: 1118968  
 ELEVATION: 517.9 - ft  
 START DATE: 5/16/2016  
 END DATE: 5/16/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Casing	Cave-in	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:30 AM	Dry	5.3		4.8	3.25	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
0	516.9		12-inches Topsoil	
1.0	516.9		Bottom of Boring @ 1.0 ft	Rock outcrop observed in the vicinity of boring
5				Auger refusal of 1-ft
10				Backfilled with auger cuttings upon completion
15				

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	8-15	STIFF	SOME 21 TO 35
- D - DISECTION	HD - HAND DRILLING	31-50	DENSE	16-30	VERY STIFF	SOME 36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

TEST BORING LOG Boring No. SWM-19 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solety

COMMISSION NO.: 14187-03.4  
 NORTH: 716916  
 EAST: 1118919  
 ELEVATION: 502.1 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Casing	Cave-in	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:30 AM	Dry	5.3		4.8	3.25	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
0	501.9		6-inches Topsoil	
0.5	501.9		Molat. Soil, Gray to Brown, CLAY, Trace Fine Sand, Trace Roots (r) [a-7-8]	
2.0	501.9		Molat. Soil, Reddish Brown, CLAY, Trace Fine Sand, Trace Lignite (c) [a-7-8]	
5			Sample S-3: Reddish Brown to Yellow Brown	
10			Sample S-4: Reddish Brown to Yellow Brown	
15			Sample S-5: Reddish Brown to Yellow Brown	
14.0	488.1		Bottom of Boring @ 14.0 ft	Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	8-15	STIFF	SOME 21 TO 35
- D - DISECTION	HD - HAND DRILLING	31-50	DENSE	16-30	VERY STIFF	SOME 36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

TEST BORING LOG Boring No. SWM-20 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solety

COMMISSION NO.: 14187-03.4  
 NORTH: 716784  
 EAST: 1118969  
 ELEVATION: 486.8 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Casing	Cave-in	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:40 AM	Dry	5.3		4.8	3.25	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
0	486.3		6-inches Topsoil	
0.5	486.3		Molat. Soil, Gray to Brown, CLAY, and Medium to Fine SAND (s) [a-7-8]	
5			Sample S-2: Medium SHFI, Some Coarse to Fine Sand, Little Coarse to Fine Angular Gravel	
10			Sample S-3: SHFI, Reddish Brown, Trace Fine Sand	
15			Sample S-4: Very SHFI, Reddish Brown, Trace Fine Sand, Little Lignite	
18			Sample S-5: Very SHFI, Reddish Brown, Trace Fine Sand, Trace Lignite	
9.0	457.8		Bottom of Boring @ 9.0 ft	Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	8-15	STIFF	SOME 21 TO 35
- D - DISECTION	HD - HAND DRILLING	31-50	DENSE	16-30	VERY STIFF	SOME 36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

TEST BORING LOG Boring No. SWM-21 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB RIG/HAMMER: Mobil B57 ATV / Solety

COMMISSION NO.: 14187-03.4  
 NORTH: 716669  
 EAST: 1119049  
 ELEVATION: 497.6 - ft  
 START DATE: 5/16/2016  
 END DATE: 5/16/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Casing	Cave-in	TYPE	HSA	SAMPLER	CORE
5/16/2016	8:40 AM	Dry	5.3		4.8	3.25	1.375	
					SIZE, ID (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (in)			

DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
0	496.6		12-inches Topsoil	
1.0	496.6		Bottom of Boring @ 1.0 ft	Rock outcrop observed in the vicinity of boring
5				Auger Refusal of 1-ft
10				Backfilled with auger cuttings upon completion
15				

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	8-15	STIFF	SOME 21 TO 35
- D - DISECTION	HD - HAND DRILLING	31-50	DENSE	16-30	VERY STIFF	SOME 36 TO 50
- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2011

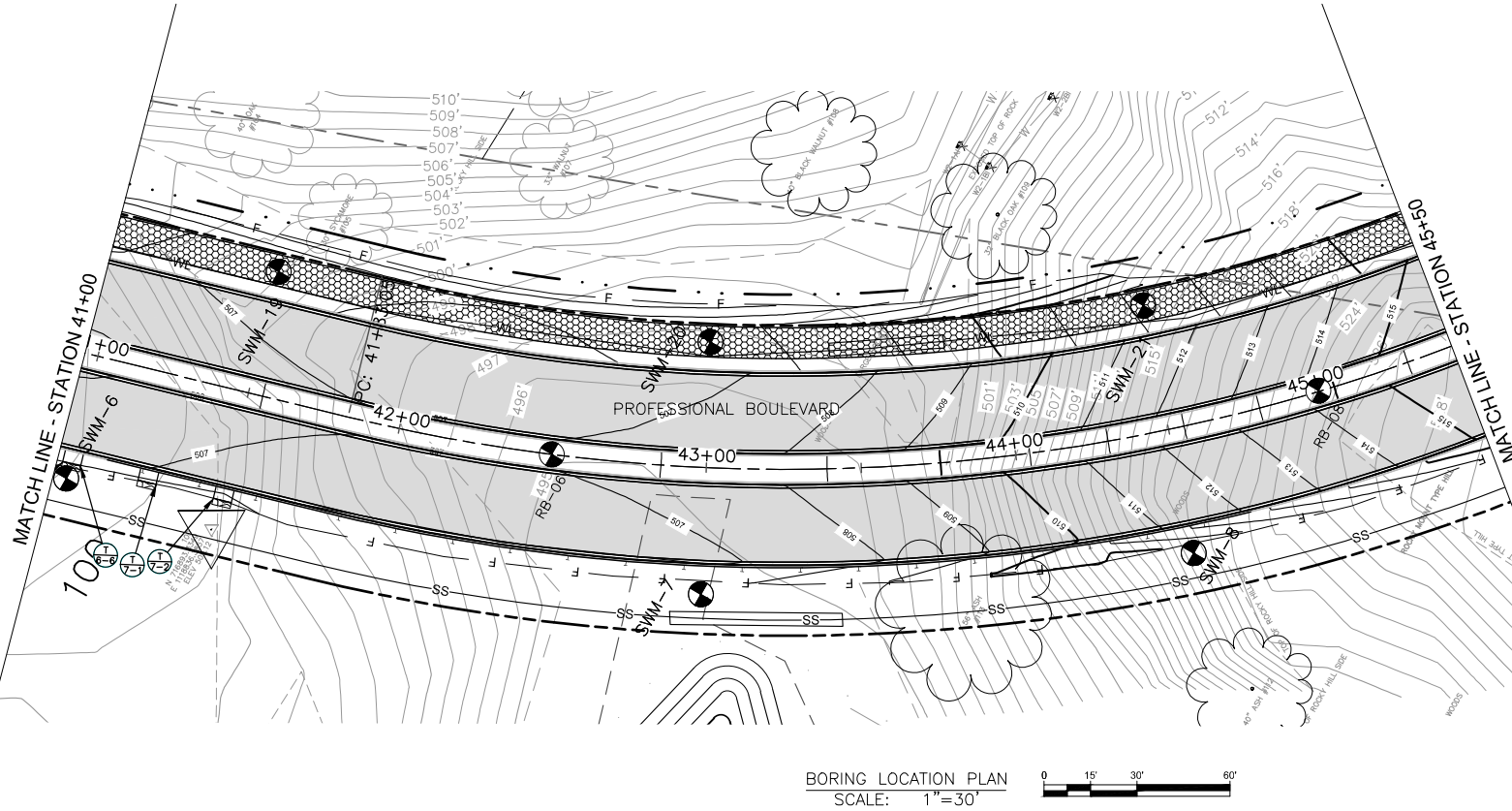
TEST BORING LOGS  
 SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SOILS	GW	WELL-GRADED GRAVELS, GRAVELS - SAND MIXTURES, LITTLE OR NO FINES	CLAYS AND SILTS	ML	LOW PLASTICITY CLAYS AND SILTS WITH LESS THAN 5% SILT WITH SOIL PLASTICITY
LITTLE OR NO FINES	GP	POORLY-GRADED GRAVELS, LITTLE OR NO FINES	CLAYS AND SILTS	CL	CLAYEY SILTS AND CLAYS WITH SOIL PLASTICITY
MORE THAN 5% FINES (APPROXIMATE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	CLAYS AND SILTS	OL	ORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY
	GC	CLAYEY GRAVELS, GRAVEL - SAND - SILT MIXTURES	CLAYS AND SILTS	MH	MEDIUM PLASTICITY CLAYS AND SILTS WITH SOIL PLASTICITY
	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS AND SILTS	CH	HIGH PLASTICITY CLAYS AND SILTS WITH SOIL PLASTICITY
	SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS AND SILTS	OH	ORGANIC CLAYS OF HIGH TO MEDIUM PLASTICITY
	SM	SANDS WITH FINES	CLAYS AND SILTS	PT	PEAT, MARLS, MUDS, SOILS WITH HIGH ORGANIC CONTENTS
	SC	CLAYEY SANDS, SAND - CLAY MIXTURES			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



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PROFESSIONAL BOULEVARD  
 BORING AND DRIVE TESTS

SCALE AS SHOWN  
 SHEET NO. 104 OF 129  
 PROJECT NO. 10-270

TEST BORING LOG										Boring No. RB-07			
PROJECT: Professional Boulevard					COMMISSION NO.: 14187-03.4								
SITE: Washington County, Maryland					NORTH: 716492								
DRILLING CO.: AB					EAST: 1119270								
RIG/HAMMER: Mobil B57 ATV / Solety					ELEVATION: 517.5 - ft								
GROUNDWATER DATA (ft)					START DATE: 5/12/2016								
DATE: 5/12/2016					END DATE: 5/12/2016								
DRILLER: K. Manos					LOGGED BY: ACR								
Date	Time	Water	Casing	Cave-in	TYPE	HS	SAMPLER	CORE	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
5/12/2016	8:00 AM	Dry		5.3	7.0	3.25	1.375					6-inches Topsoil Moist, Very Silty, Reddish Brown, High Plasticity CLAY, Trace Fine to Coarse Sand (G) [A-7-6]	
					14	27.7K			0.5	EL 517.0		Sample S-1: Yellowish Brown	
					18	28K			49			Sample S-2: Yellowish Brown	
					18	29.5K			5			Sample S-3: Reddish to Yellowish Brown	
					18				11			Sample S-4: Hard, Reddish to Yellowish Brown	
					16	50.5"			10	EL 507.4		Bottom of Boring @ 9.9 ft	Backfilled with auger cuttings upon completion

TEST BORING LOG										Boring No. SWM-09			
PROJECT: Professional Boulevard					COMMISSION NO.: 14187-03.4								
SITE: Washington County, Maryland					NORTH: 716510								
DRILLING CO.: AB					EAST: 1119109								
RIG/HAMMER: Mobil B57 ATV / Solety					ELEVATION: 524.7 - ft								
GROUNDWATER DATA (ft)					START DATE: 5/12/2016								
DATE: 5/12/2016					END DATE: 5/12/2016								
DRILLER: K. Manos					LOGGED BY: ACR								
Date	Time	Water	Casing	Cave-in	TYPE	HS	SAMPLER	CORE	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
					20					EL 523.7		12-inches Topsoil Moist, Silty, Gray to Reddish Brown, CLAY, Trace Fine Sand (d) [a-7-6]	
					24				11			Sample S-2: Very Silty, Reddish Brown	
					24				11			Sample S-3: Very Silty, Reddish Brown	
									5	EL 518.7		Bottom of Boring @ 8.0 ft	Auger Refusal at 8.0-ft Backfilled with auger cuttings upon completion

TEST BORING LOG										Boring No. SWM-10			
PROJECT: Professional Boulevard					COMMISSION NO.: 14187-03.4								
SITE: Washington County, Maryland					NORTH: 716423								
DRILLING CO.: AB					EAST: 1119303								
RIG/HAMMER: Mobil B57 ATV / Solety					ELEVATION: 520.2 - ft								
GROUNDWATER DATA (ft)					START DATE: 5/12/2016								
DATE: 5/12/2016					END DATE: 5/12/2016								
DRILLER: K. Manos					LOGGED BY: ACR								
Date	Time	Water	Casing	Cave-in	TYPE	HS	SAMPLER	CORE	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
5/12/2016					7.0	3.25	1.375					6-inches Topsoil Moist, Silty, Reddish Brown, CLAY, and Fine SAND (d) [a-7-6]	
					9				11	EL 519.7		Sample S-1: Trace Fine Sand	
					15				11			Sample S-2: Trace Fine Sand	
					18				11			Sample S-3: Yellowish Brown, Little Fine Sand	
					18				10			Sample S-4: Yellowish Brown	
					18				10			Sample S-5: Brown, Trace Fine Sand	
					20				10			Sample S-6: Medium Silty, Grayish Brown, Trace Fine Sand	
					18				10			Sample S-7: Trace Fine Sand	
					12				15	EL 509.2		Sample S-8: Hard, Brown, Gray, and Coarse to Fine Angular Gravel-sized Rock Fragments, Trace Fine Sand	
									15			Bottom of Boring @ 15.0 ft	Backfilled with auger cuttings upon completion

TEST BORING LOG										Boring No. SWM-22			
PROJECT: Professional Boulevard					COMMISSION NO.: 14187-03.4								
SITE: Washington County, Maryland					NORTH: 716578								
DRILLING CO.: AB					EAST: 1119154								
RIG/HAMMER: Mobil B57 ATV / Solety					ELEVATION: 514.2 - ft								
GROUNDWATER DATA (ft)					START DATE: 5/12/2016								
DATE: 5/12/2016					END DATE: 5/12/2016								
DRILLER: K. Manos					LOGGED BY: ACR								
Date	Time	Water	Casing	Cave-in	TYPE	HS	SAMPLER	CORE	DEPTH	ELEV.	GRAPHIC	DESCRIPTION AND CLASSIFICATION	NOTES
					18					EL 513.8		6-inches Topsoil Moist, Silty, Grayish Brown, CLAY, Little Fine Sand (d) [a-7-6]	
					0	50.0"			2.5	EL 511.7		Bottom of Boring @ 2.5 ft	Auger Refusal at 2.5-ft Backfilled with auger cuttings upon completion

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

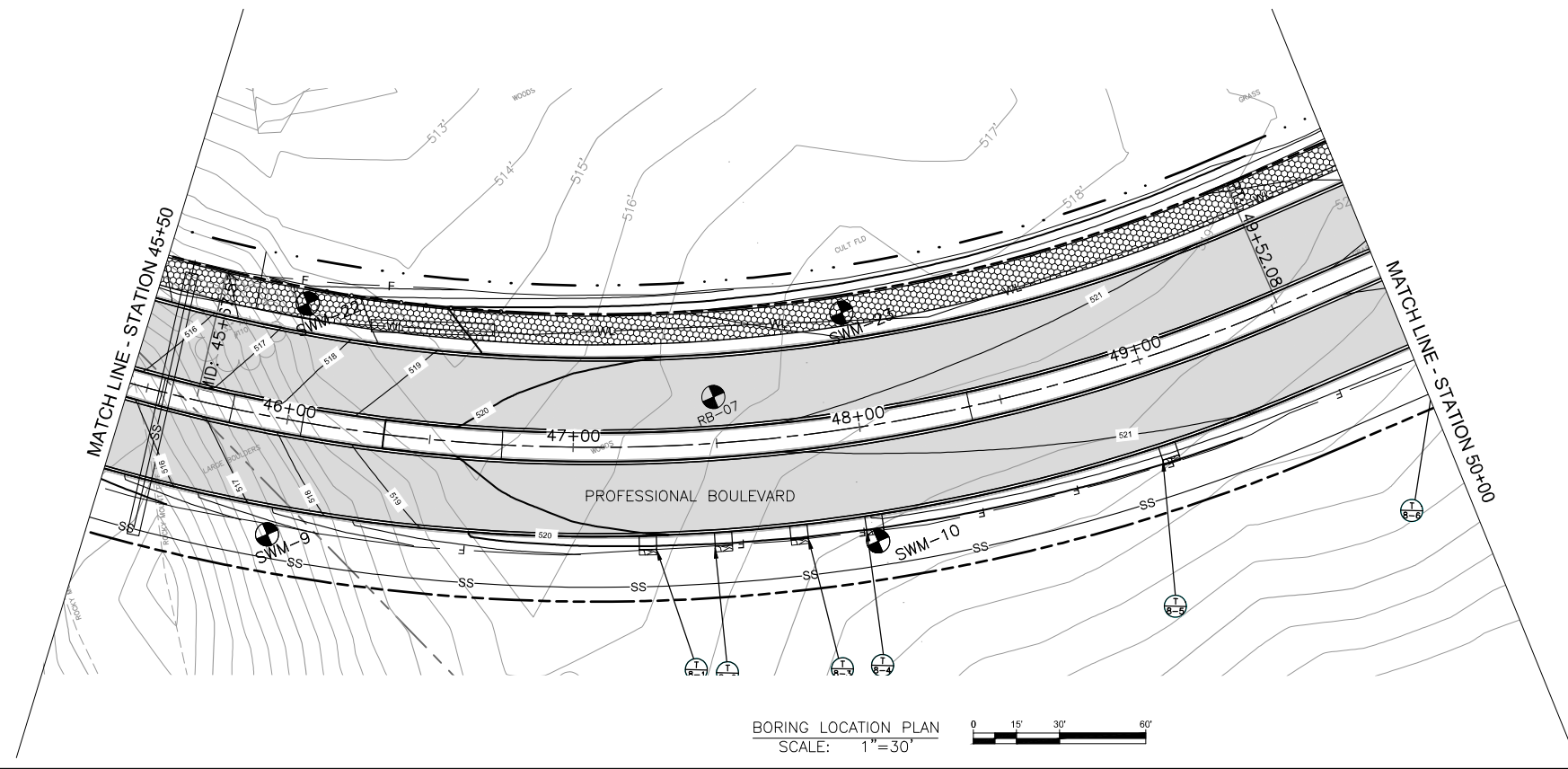
PROFESSIONAL BOULEVARD  
BORING AND DRIVE TESTS

SCALE: AS SHOWN  
SHEET NO. 105 OF 129  
PROJECT NO. 10-270

TEST BORING LOGS  
SCALE: NOT TO SCALE

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SOILS	GW	WELL-SORTED GRAVEL, GRAVEL - SAND MIXTURE, LITTLE OR NO FINES	FINE GRAINED SOILS	ML	MODERATE TO VERY FINE SANDS, LITTLE OR NO FINE SILT, LITTLE OR NO CLAY
GRAVELS WITH FINES	GM	POORLY-SORTED GRAVEL, GRAVEL - SAND - SILT MIXTURE	CLAYS	CL	MODERATE TO VERY FINE SANDS, LITTLE OR NO SILT, LITTLE OR NO CLAY
CLEAN SANDS	SW	WELL-SORTED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS WITH SILT	ML	MODERATE TO VERY FINE SANDS, LITTLE OR NO SILT, LITTLE OR NO CLAY
SANDS WITH FINES	SM	POORLY-SORTED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	CLAYS WITH SILT AND CLAY	MH	MODERATE TO VERY FINE SANDS, LITTLE OR NO SILT, LITTLE OR NO CLAY
CLAYEY SANDS	SC	SANDS WITH FINES	CLAYS WITH SILT AND CLAY	OH	MODERATE TO VERY FINE SANDS, LITTLE OR NO SILT, LITTLE OR NO CLAY
			CLAYS WITH SILT AND CLAY	OH	MODERATE TO VERY FINE SANDS, LITTLE OR NO SILT, LITTLE OR NO CLAY

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



\\balsrv01\v2014\2014\14187\_WashCoProf\Geotech\CAOD\Boring\_Log\_Plans\bo07\_PP-12 - PH2.dwg

TEST BORING LOG

Boring No. SWM-23

PROJECT: Professional Boulevard		COMMISSION NO.: 14187-03.4	
SITE: Washington County, Maryland		NORTH: 718501	
DRILLING CO.: AB		EAST: 111823	
RIG/HAMMER: Mohr B57 ATV / 3014VZ		ELEVATION: 518.4 - ft	
EQUIPMENT		START DATE: 5/11/2016	
CASING		END DATE: 5/11/2016	
SAMPLER		DRILLER: K. Manos	
CORE		LOGGED BY: ACR	
Date	Time	Water	Condition
5/11/2016	4:40:00 PM	Dry	7
Equipment	Case No.	TYPE	NO.
		HA	5
Size, ID (in)	3.25	Sampler	1.375
Hammer WT. (lb)	140		
Hammer Fall (ft)	30		

DEPTH	ELEV.	DESCRIPTION AND CLASSIFICATION	NOTES
0	518.4	6-inches Topsoil	
1	518.3	Mult. Medium Shif. Gray, Reddish Brown, CLAY, Trace	
2	518.2	Fine Sand (s) [a-7-6]	
3	518.1	Sample S-1: Trace Roots	
4	518.0	Sample S-2: Very SHIF	
5	517.9	Sample S-3: SHIF, Reddish Brown	
6	517.8	Sample S-4: SHIF	
7	517.7	Sample S-5: Hard, Trace Gravel-sized Rock Fragments of the Top of Spoon	Sample S-5: Gravel-sized Rock Fragments may have exaggerated SPT N-value.
8	517.6	Sample S-6: Reddish Brown	
9	517.5	Sample S-7: Very SHIF, Reddish Brown	
10	517.4	Bottom of Boring @ 13.0 ft	Backfilled with auger cuttings upon completion

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	- SPLIT SPOON	HA	- HOLLOW STEM AUGERS
T	- THIN WALL TUBE	SA	- SOLID STEM AUGERS
SS	- 3" SPLIT SPOON	DC	- DRIVING CASING
D	- DOWNSON	HD	- HAND DRILLING
RC	- ROCK CORE	HA	- HAND AUGER

BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
5-10	LOOSE	3-4	SOFT	LITTLE 11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SMALL 21 TO 35
31-50	DENSE	8-15	STIFF	MOD. 36 TO 50
OVER 50	VERY DENSE	OVER 30	VERY STIFF	HARD

Boring No. SWM-23

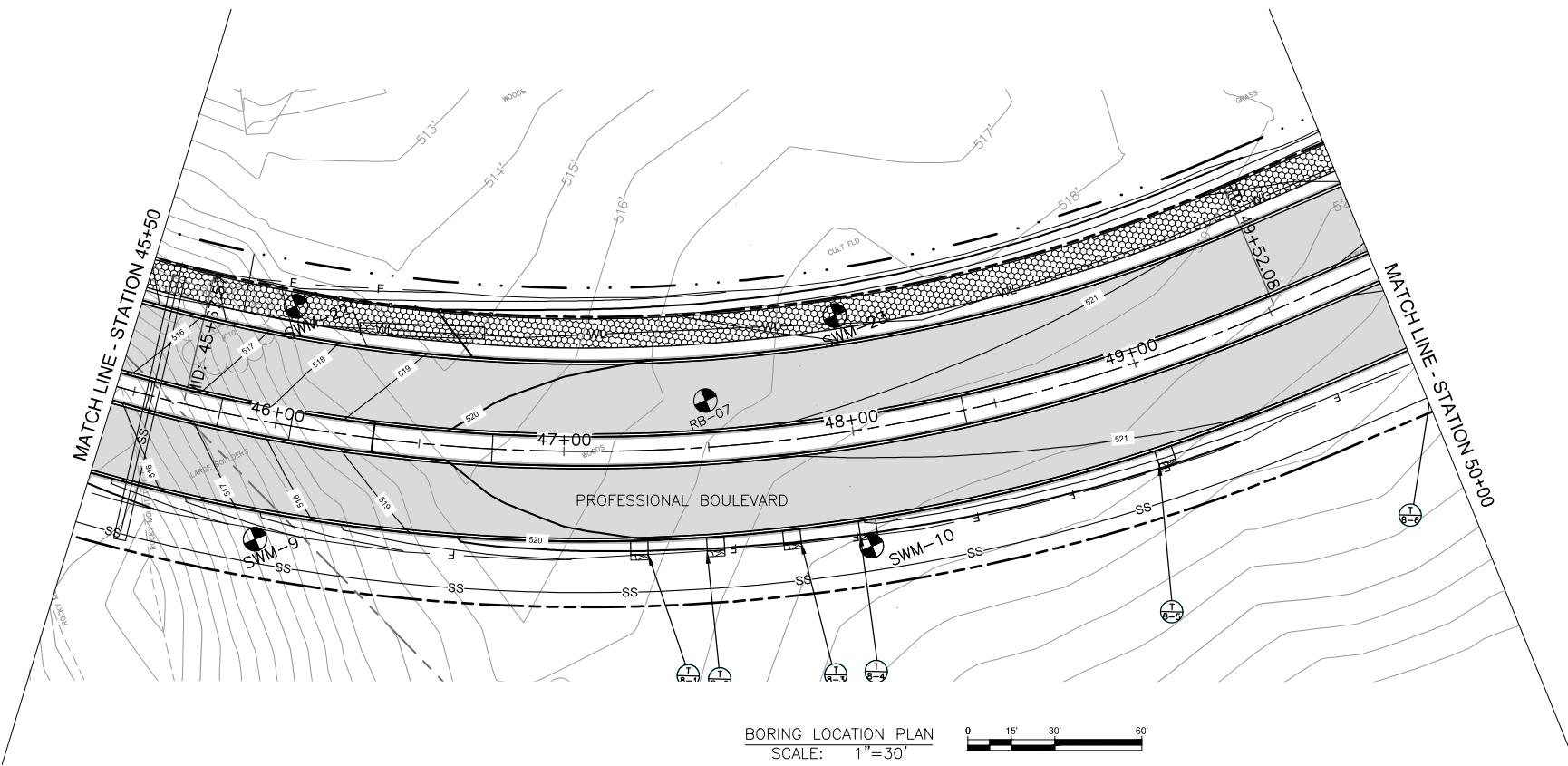
TEST BORING LOGS  
SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GW	WELL-SORTED GRAVELS, SANDS, SILTS, LITTLE OR NO FINES	FINE GRAINED SOILS	ML	MODERATE TO HIGH PLASTICITY SILTS AND CLAYS
	GP	POORLY-SORTED GRAVELS, SANDS, SILTS, LITTLE OR NO FINES		CL	LOW TO MEDIUM PLASTICITY SILTS AND CLAYS
	GM	SILT CLAYEY GRAVELS, SANDS, SILTS, LITTLE OR NO FINES		OL	ORGANIC SILTS AND CLAYS
	GC	CLAYEY GRAVELS, SANDS, SILTS, LITTLE OR NO FINES		MH	MEDIUM TO HIGH PLASTICITY SILTS AND CLAYS
FINE GRAINED SOILS	SW	WELL-SORTED SANDS, SILTS, LITTLE OR NO FINES	HIGHLY ORGANIC SOILS	OH	ORGANIC CLAYS OF HIGH PLASTICITY
	SP	POORLY-SORTED SANDS, SILTS, LITTLE OR NO FINES		PT	PEAT, MARL, HUMUS SOILS WITH HIGH ORGANIC CONTENTS
	SM	SILT CLAYEY SANDS, SILTS, LITTLE OR NO FINES			
	SC	CLAYEY SANDS, SILTS, LITTLE OR NO FINES			

NOTES:

- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
- TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



BORING LOCATION PLAN  
SCALE: 1"=30'

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
DRAWN BY: TMB  
CHECKED BY: TMB  
DATE: APRIL 2016

WASHINGTON COUNTY, MARYLAND  
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
80 W. Baltimore St., Hagerstown, MD 21740  
Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
BORING AND DRIVE TESTS

SCALE AS SHOWN  
SHEET NO. 106 OF 129  
PROJECT NO. 10-270

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TEST BORING LOG Boring No. SWM-11 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB  
 RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716402  
 EAST: 1119511  
 ELEVATION: 522.4 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-In	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:00 AM	Dry		4.2		3.25	1.375	
					SIZE, # (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (ft)			

DEPTH	ELEV.	DESCRIPTION AND CLASSIFICATION	NOTES
0	EL. 524.9	6-inches Topsoil	
0-7.6	EL. 520.4	Med. Medium SHF, Gray, CLAY, Little Fine Sand (G)	
7.6-11.2	EL. 520.4	Med. SHF, Reddish Brown, CLAY, Trace Fine Sand (G)	
11.2-15.0	EL. 520.4	Sample S-4: Very SHF, Brown, Little Coarse to Fine Angular Black Gravel	
15.0-18.8	EL. 520.4	Sample S-5: Very SHF, Brown	
18.8-22.6	EL. 520.4	Sample S-6: Brown	
22.6-26.4	EL. 520.4	Bottom of Boring @ 26.0 ft	Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S-1	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
S-2	T - THIN WALL TUBE	5-10	LOOSE	3-4	LITTLE	11 TO 20
S-3	SS - 3" SPLIT SPOON	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	LITTLE 11 TO 20
S-4	D - DRIVEN CASING	31-50	DENSE	8-15	STIFF	SOME 21 TO 35
S-5	H - HAND DRILLING	OVER 50	VERY DENSE	16-30	VERY STIFF	SOME 21 TO 35
S-6	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

TEST BORING LOG Boring No. SWM-12 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB  
 RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716401  
 EAST: 1119711  
 ELEVATION: 525.1 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-In	TYPE	HSA	SAMPLER	CORE
5/11/2016	2:30 PM	Dry		4.0		3.25	1.375	
					SIZE, # (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (ft)			

DEPTH	ELEV.	DESCRIPTION AND CLASSIFICATION	NOTES
0	EL. 526.9	6-inches Topsoil	
0-7.6	EL. 523.3	Med. Medium SHF, Brown, SILT, Little Fine Sand (m)	
7.6-11.2	EL. 523.3	Med. Very SHF, Reddish Brown, CLAY, AND Coarse to Fine Sand (G)	
11.2-15.0	EL. 523.3	Sample S-2: Little Coarse to Fine Subangular Gravel	
15.0-18.8	EL. 523.3	Sample S-3: Some Medium to Fine Sand	
18.8-22.6	EL. 523.3	Sample S-4: SHF, Reddish to Yellowish Brown, Little Fine Sand	
22.6-26.4	EL. 523.3	Sample S-5: SHF, Yellowish Brown, Little Fine Sand	
26.4-30.2	EL. 515.1	Bottom of Boring @ 30.0 ft	Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S-1	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
S-2	T - THIN WALL TUBE	5-10	LOOSE	3-4	LITTLE	11 TO 20
S-3	SS - 3" SPLIT SPOON	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	LITTLE 11 TO 20
S-4	D - DRIVEN CASING	31-50	DENSE	8-15	STIFF	SOME 21 TO 35
S-5	H - HAND DRILLING	OVER 50	VERY DENSE	16-30	VERY STIFF	SOME 21 TO 35
S-6	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

TEST BORING LOG Boring No. SWM-24 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB  
 RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716483  
 EAST: 1119511  
 ELEVATION: 519.9 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-In	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:00 AM	Dry		4.5		3.25	1.375	
					SIZE, # (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (ft)			

DEPTH	ELEV.	DESCRIPTION AND CLASSIFICATION	NOTES
0	EL. 519.9	6-inches Topsoil	
0-7.6	EL. 517.9	Med. Medium SHF, Gray, CLAY, Little Fine Sand (G)	
7.6-11.2	EL. 517.9	Med. SHF, Yellowish Brown, CLAY, Trace Fine Sand (G)	
11.2-15.0	EL. 517.9	Sample S-2: Trace Ligulite	
15.0-18.8	EL. 517.9	Sample S-4: Hard, Brown, Little Coarse to Fine Sand, Little Angular Gravel-sized Rock Fragments of the Tip of Spoon	
18.8-22.6	EL. 517.9	Bottom of Boring @ 7.0 ft	Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S-1	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
S-2	T - THIN WALL TUBE	5-10	LOOSE	3-4	LITTLE	11 TO 20
S-3	SS - 3" SPLIT SPOON	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	LITTLE 11 TO 20
S-4	D - DRIVEN CASING	31-50	DENSE	8-15	STIFF	SOME 21 TO 35
S-5	H - HAND DRILLING	OVER 50	VERY DENSE	16-30	VERY STIFF	SOME 21 TO 35
S-6	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

TEST BORING LOG Boring No. SWM-25 Page 1 of 1

PROJECT: Professional Boulevard  
 SITE: Washington County, Maryland  
 DRILLING CO.: AB  
 RIG/HAMMER: Mobil B57 ATV / Solidity

COMMISSION NO.: 14187-03.4  
 NORTH: 716482  
 EAST: 1119711  
 ELEVATION: 529.4 - ft  
 START DATE: 5/11/2016  
 END DATE: 5/11/2016  
 DRILLER: K. Manos  
 LOGGED BY: ACR

Date	Time	Water	Coating	Cave-In	TYPE	HSA	SAMPLER	CORE
5/11/2016	8:00 AM	Dry		3.5		3.25	1.375	
					SIZE, # (in)			
					HAMMER WT. (lb)			
					HAMMER FALL (ft)			

DEPTH	ELEV.	DESCRIPTION AND CLASSIFICATION	NOTES
0	EL. 529.4	6-inches Topsoil	
0-7.6	EL. 526.9	Med. Medium SHF, Brown, CLAY, Trace Fine Sand (G)	
7.6-11.2	EL. 526.9	Sample S-2: Very SHF, Reddish Brown	
11.2-15.0	EL. 526.9	Sample S-3: Very SHF, Light Gray to Brown, Some Fine Sand	
15.0-18.8	EL. 526.9	Sample S-4: SHF, Reddish Brown, Trace Ligulite	
18.8-22.6	EL. 526.9	Sample S-5: SHF, Yellowish Brown	
22.6-26.4	EL. 526.9	Sample S-6: SHF, Reddish Brown	
26.4-30.2	EL. 515.4	Bottom of Boring @ 14.0 ft	Backfilled with auger cuttings upon completion

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)
S-1	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE 1 TO 10
S-2	T - THIN WALL TUBE	5-10	LOOSE	3-4	LITTLE	11 TO 20
S-3	SS - 3" SPLIT SPOON	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	LITTLE 11 TO 20
S-4	D - DRIVEN CASING	31-50	DENSE	8-15	STIFF	SOME 21 TO 35
S-5	H - HAND DRILLING	OVER 50	VERY DENSE	16-30	VERY STIFF	SOME 21 TO 35
S-6	HA - HAND AUGER	OVER 50	VERY DENSE	OVER 30	HARD	AND 36 TO 50

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 80 W. Baltimore St., Hagerstown, MD 21740  
 Phone: 240-313-2460 Fax: 240-313-2401

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2011

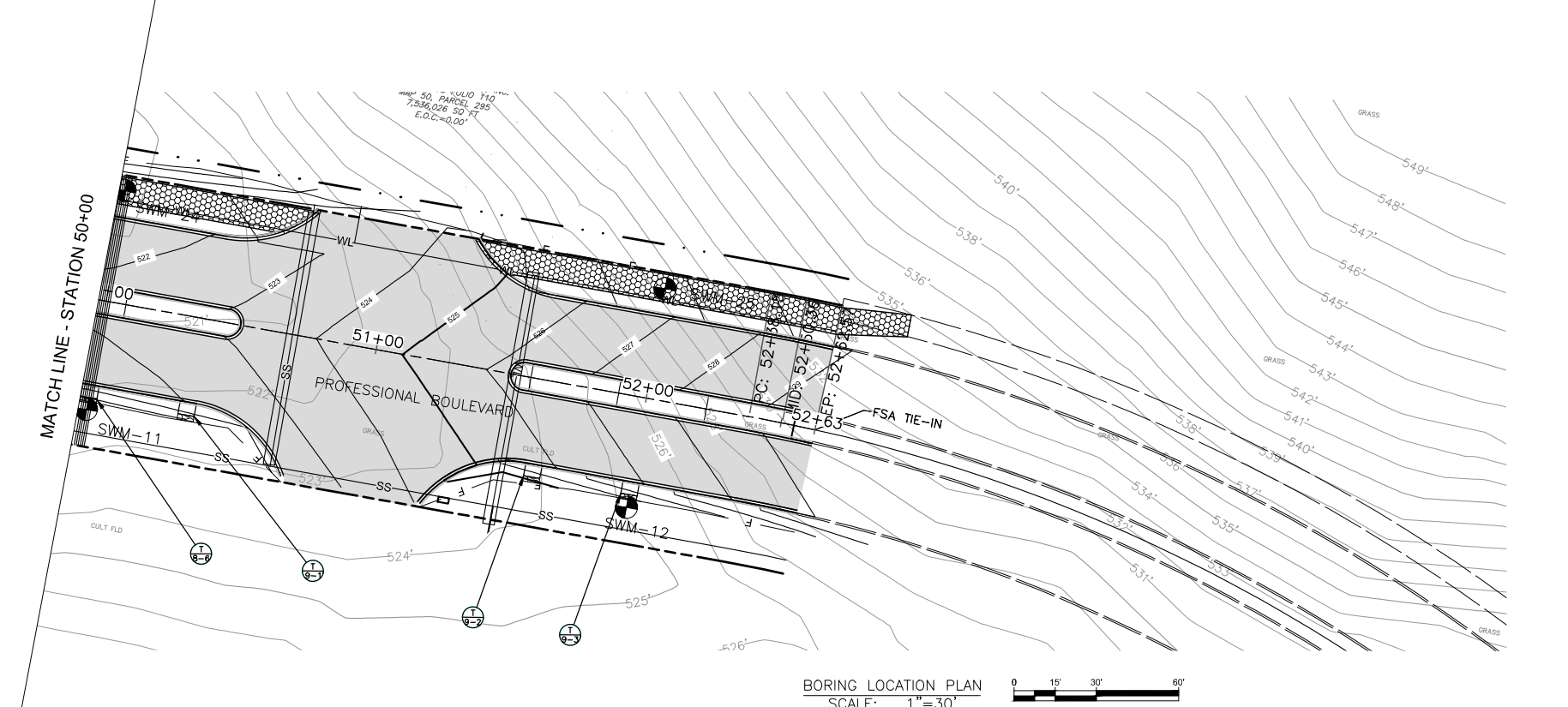
TEST BORING LOGS  
 SCALE: NOT TO SCALE

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS	MAJOR DIVISIONS	SYMBOLS	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SOILS	GW	WELL-GRADED GRAVELS, GRAVELS - SAND MIXTURES, LITTLE OR NO FINES	CLAYS	CL	CLAYEY SILTS AND SILTY CLAYS
POORLY GRADED GRAVELS, GRAVELS WITH FINE SAND	GP	POORLY GRADED GRAVELS, GRAVELS WITH FINE SAND	CLAYS	CH	CLAYEY SILTS AND SILTY CLAYS OF HIGH PLASTICITY
GRAVELS WITH FINES	GM	SILT GRAVELS, GRAVEL - SAND - SILT MIXTURES	CLAYS	OH	ORGANIC CLAYS OF HIGH PLASTICITY
CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	PT	PT	PEAT, MARLS, MUCKS, SOILS WITH HIGH ORGANIC CONTENTS
CLEAN SANDS	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES			
POORLY GRADED SANDS, GRAVELLY SANDS WITH FINE SAND	SP	POORLY GRADED SANDS, GRAVELLY SANDS WITH FINE SAND			
SANDS WITH FINES	SM	SILT SANDS, SAND - SILT MIXTURES			
CLAYEY SANDS, SAND - CLAY MIXTURES	SC	CLAYEY SANDS, SAND - CLAY MIXTURES			

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

- NOTES:
- THE TEST BORINGS WERE TAKEN IN APRIL AND MAY 2016 BY AB CONSULTANTS, INC.
  - TEST BORINGS AND SAMPLES CONFORM TO AASHTO DESIGNATION T-206.



PROFESSIONAL BOULEVARD  
 BORING AND DRIVE TESTS

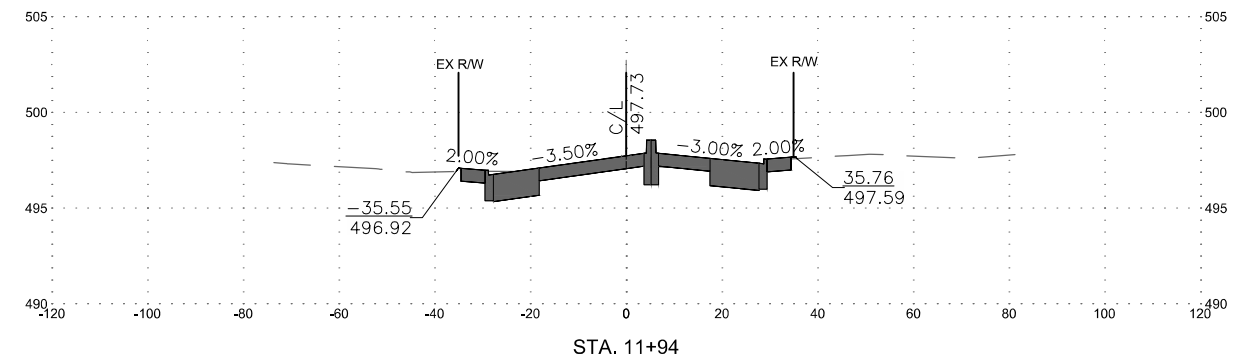
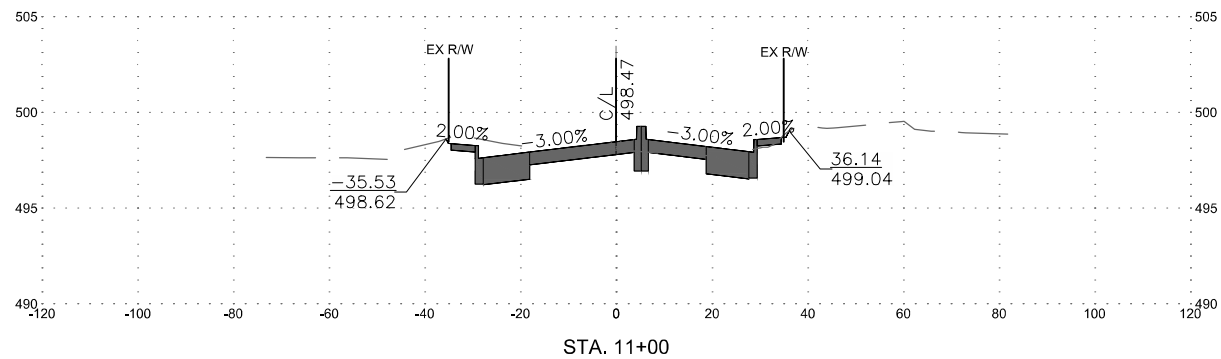
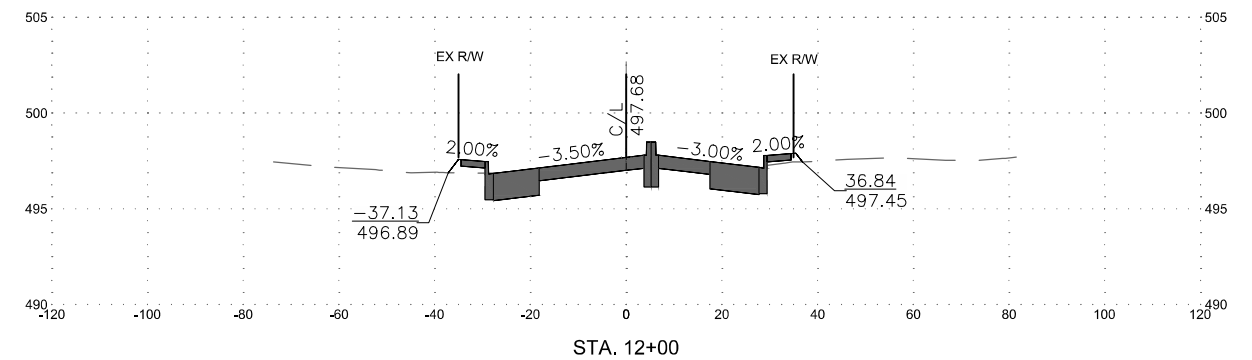
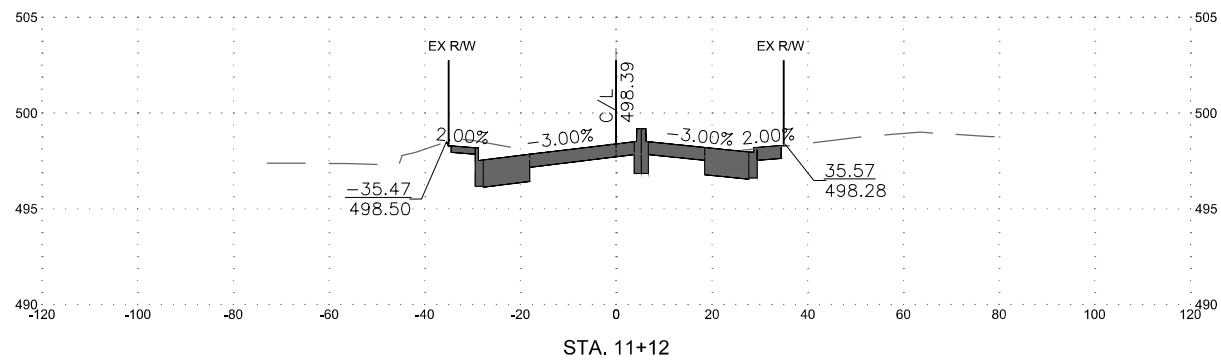
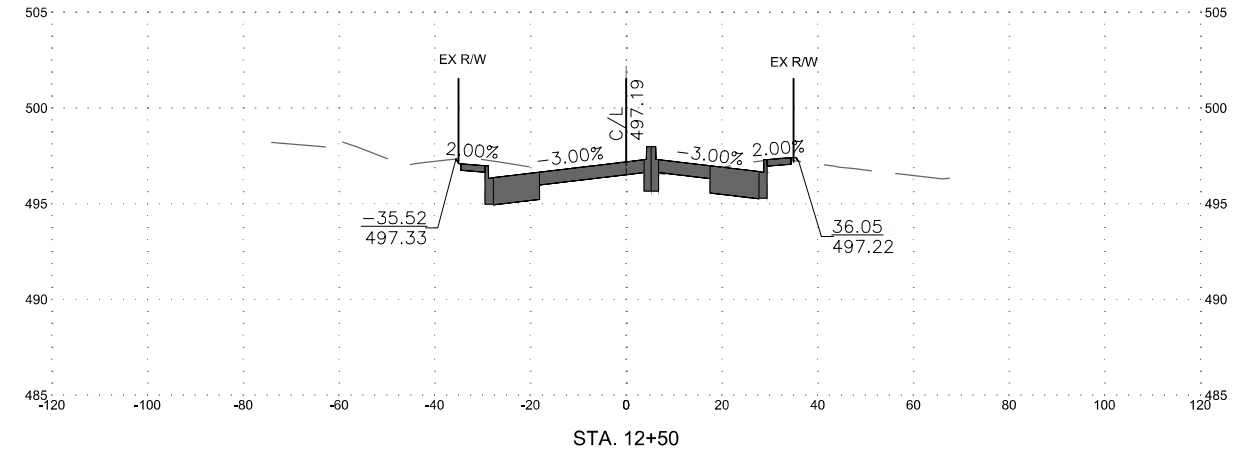
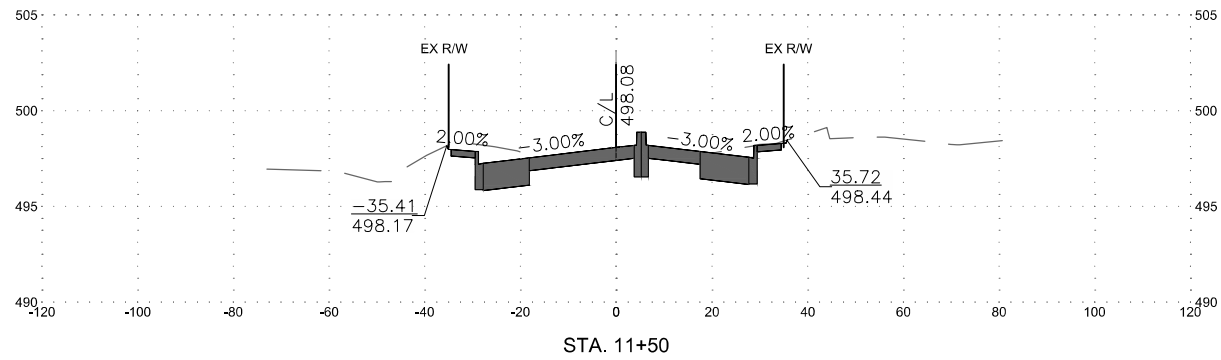
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 SHEET NO. 107 OF 129  
 PROJECT NO. 10-270

\\balsrv01\2014\14187\_WashCoProf\Geotech\CAOD\Boring\_Log\_Plans\bo08\_PP-13 - PH2.dwg









NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building 40  
 Phone: 240-313-2460 Fax: 240-313-2401

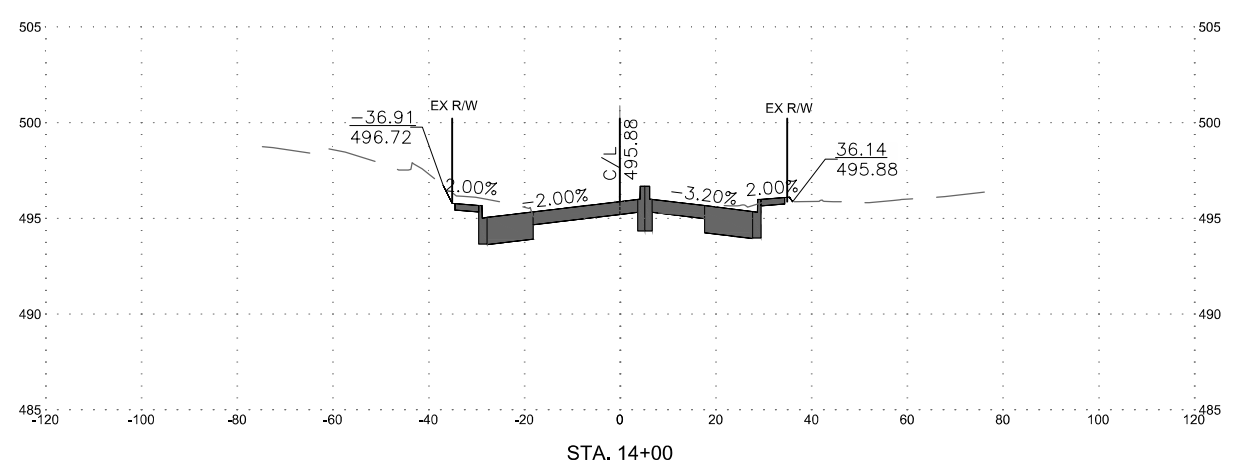
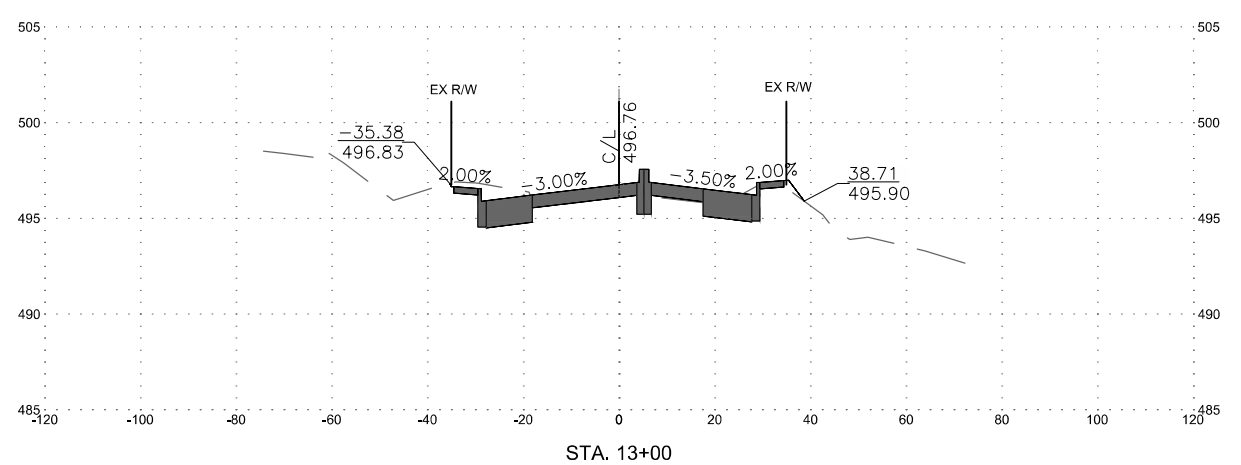
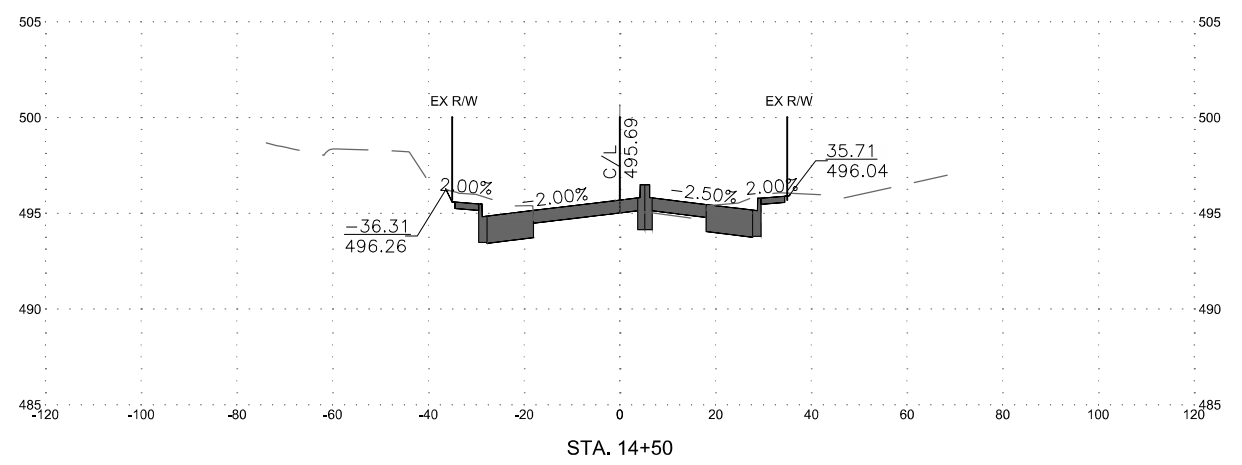
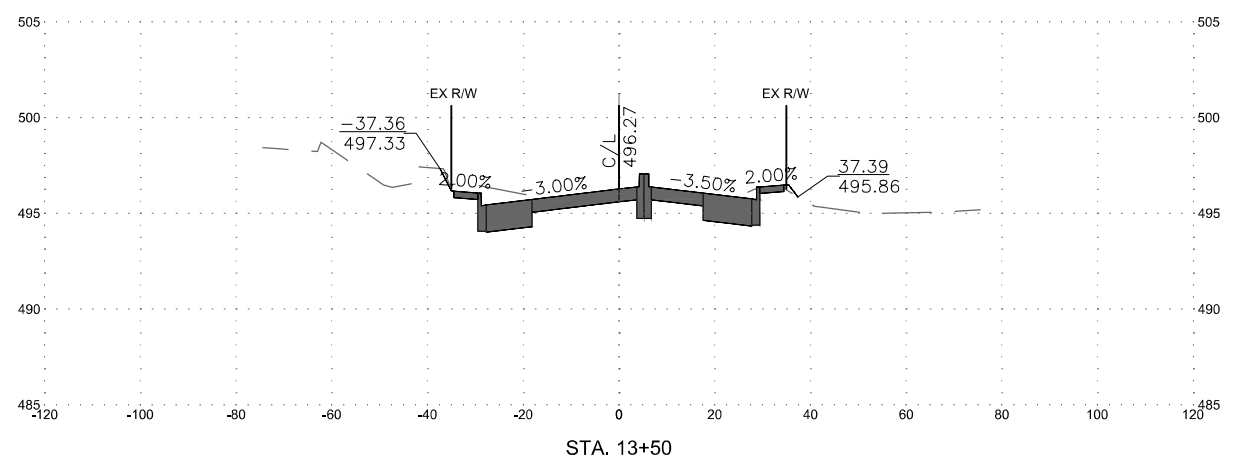
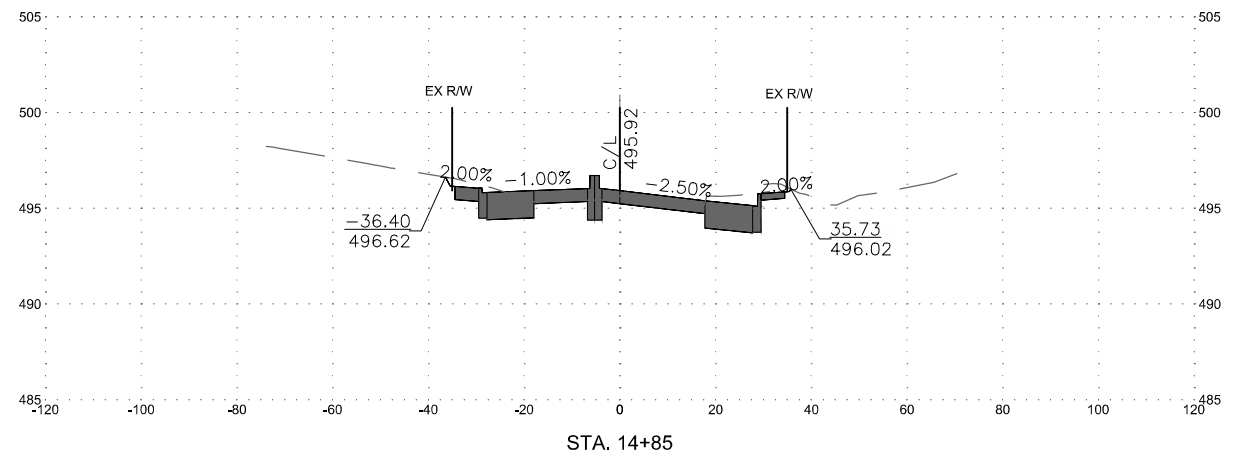
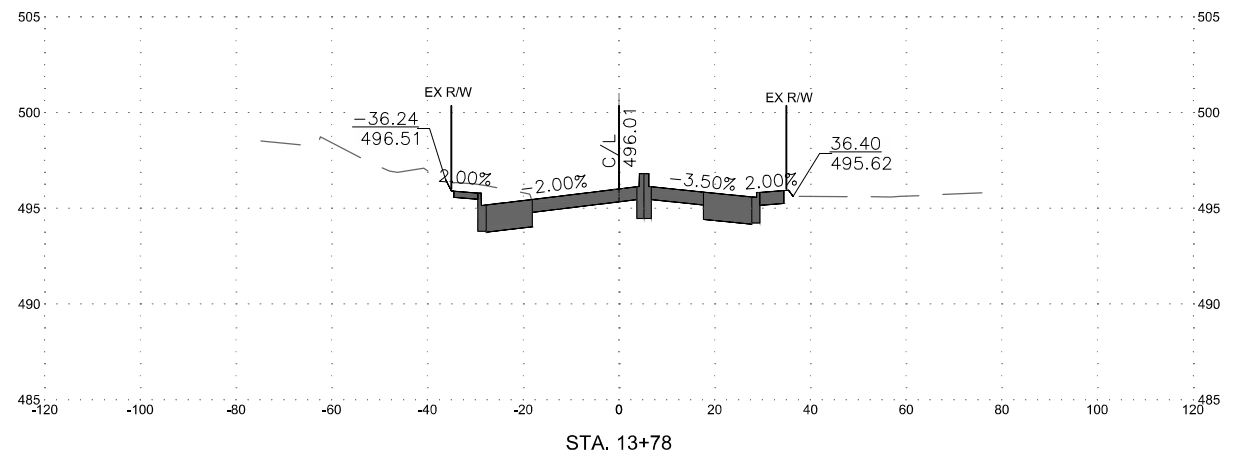


PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 110 OF 129

PROJECT NO.  
 10-270



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 201

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

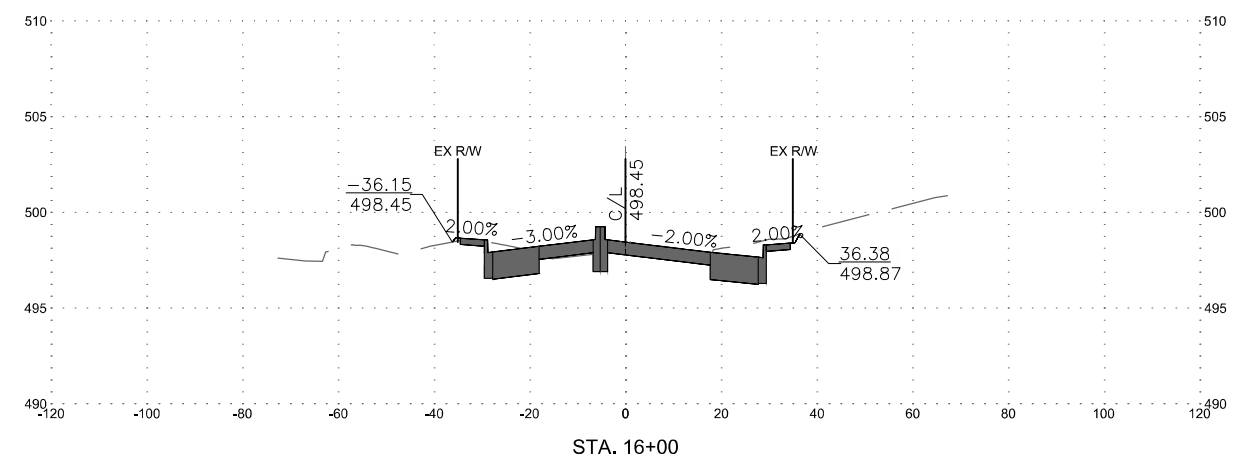
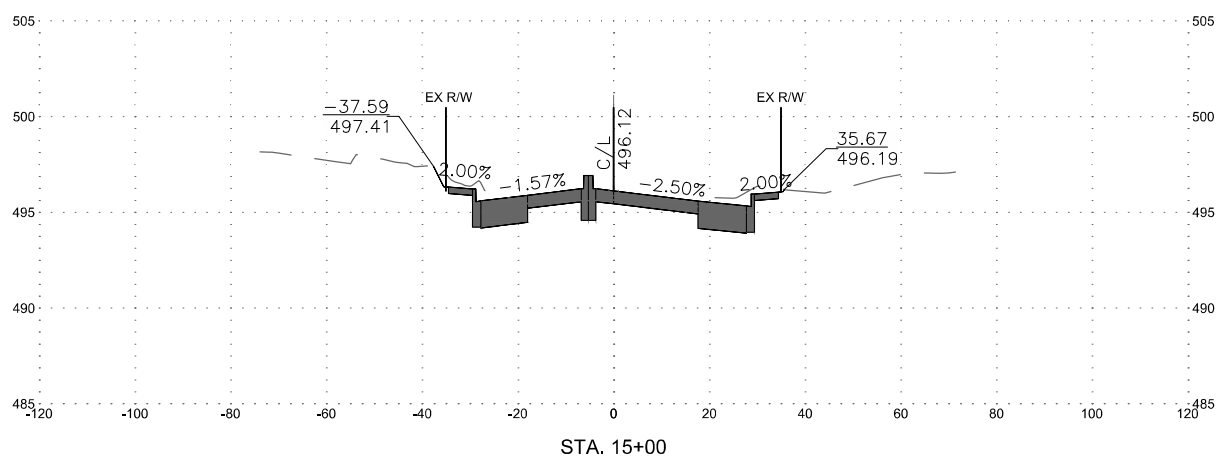
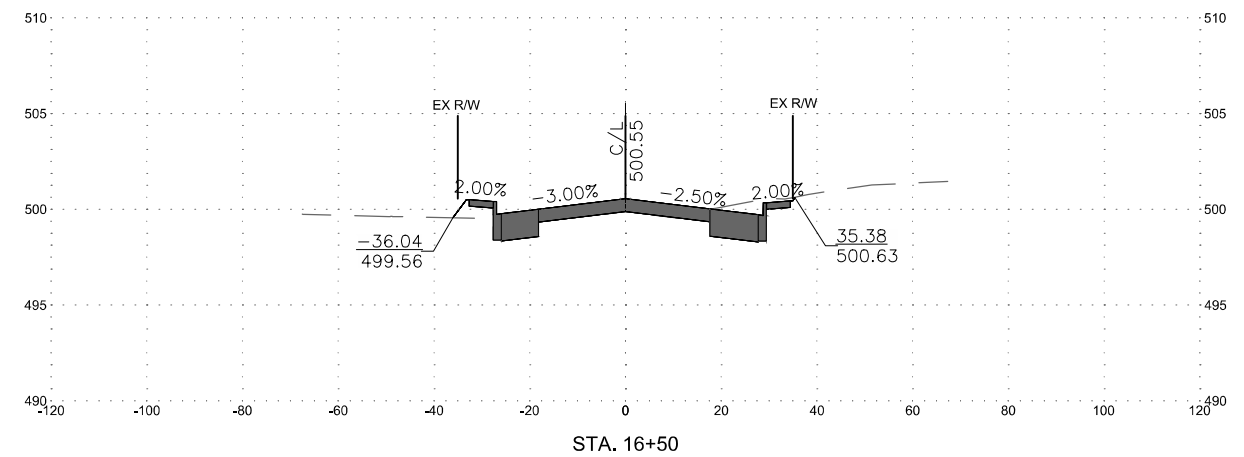
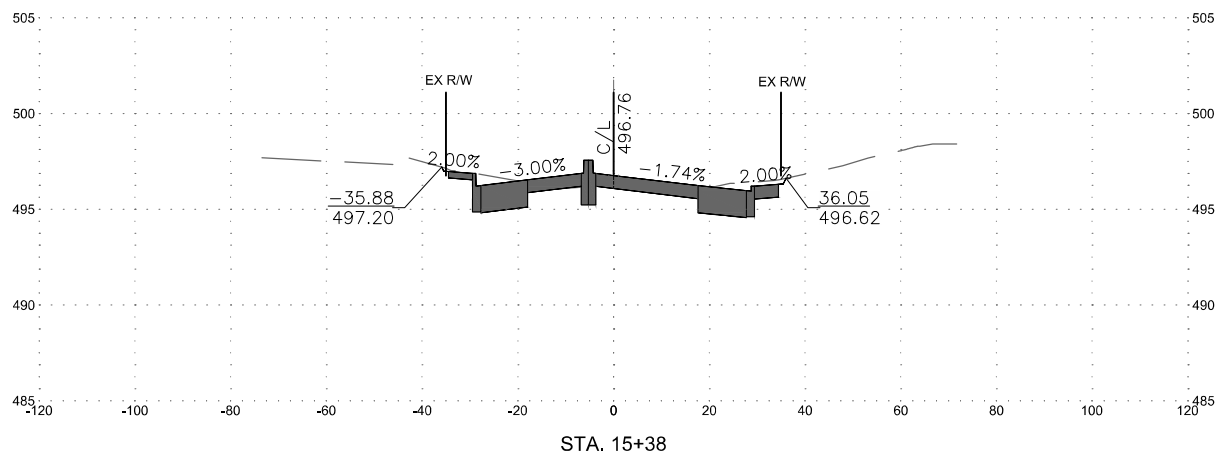
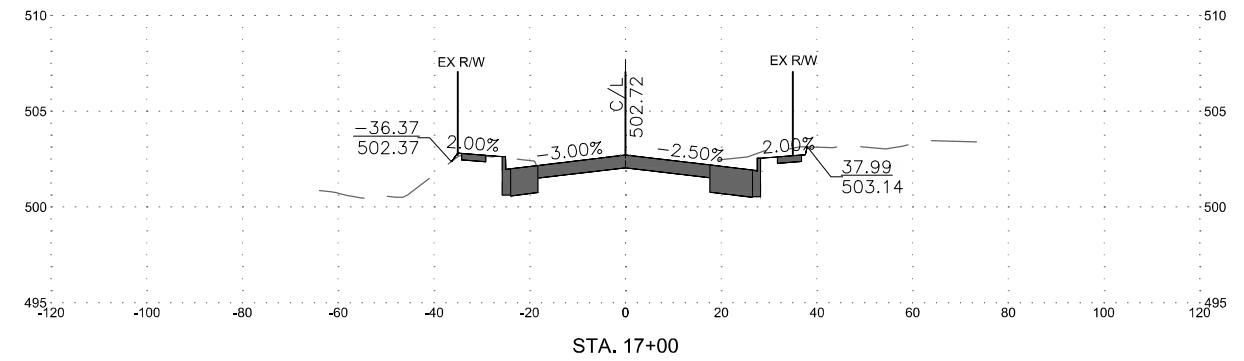
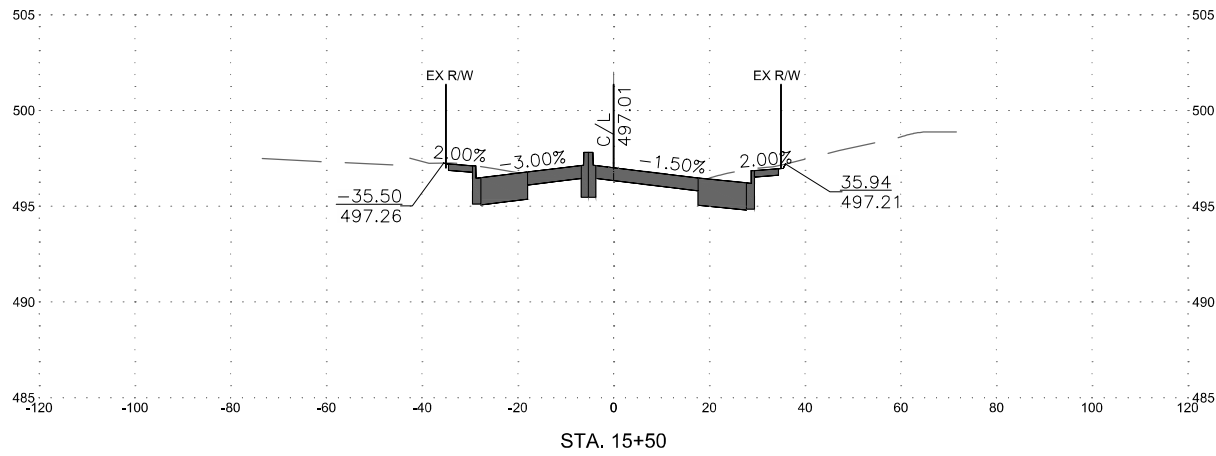
Washington County Administrative Annex, Building  
 800 Main Street, P.O. Box 240  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 111 OF 129

PROJECT NO.  
 10-270



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

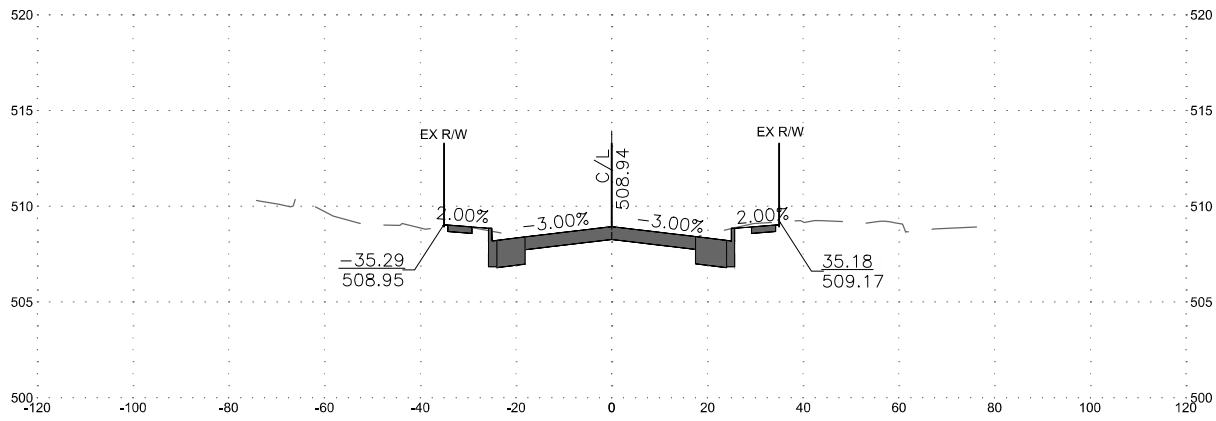
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 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
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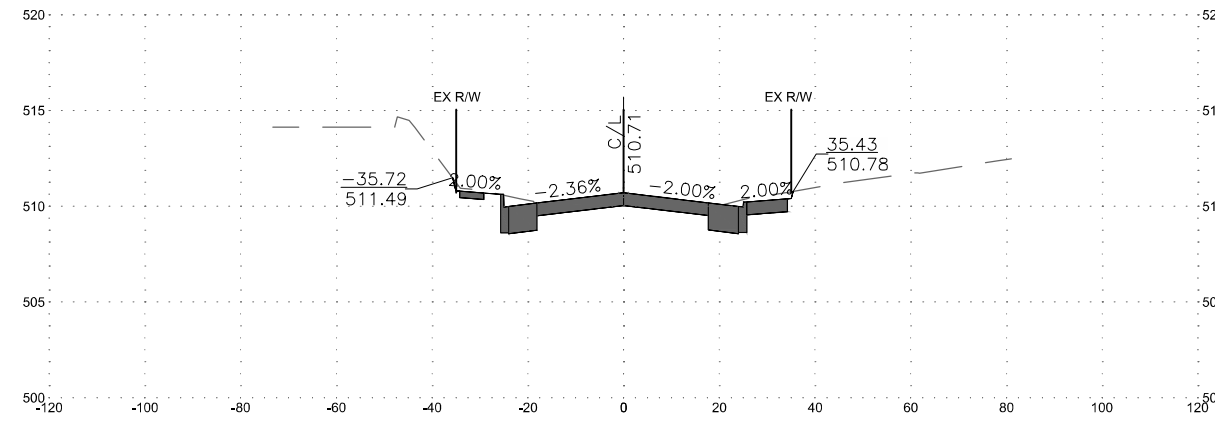
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SHEET NO.  
 112 OF 129

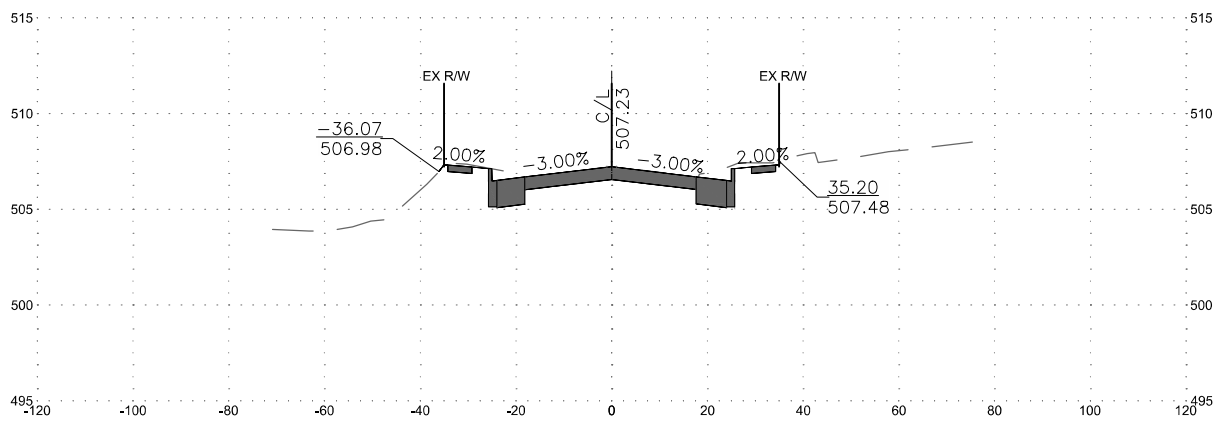
PROJECT NO.  
 10-270



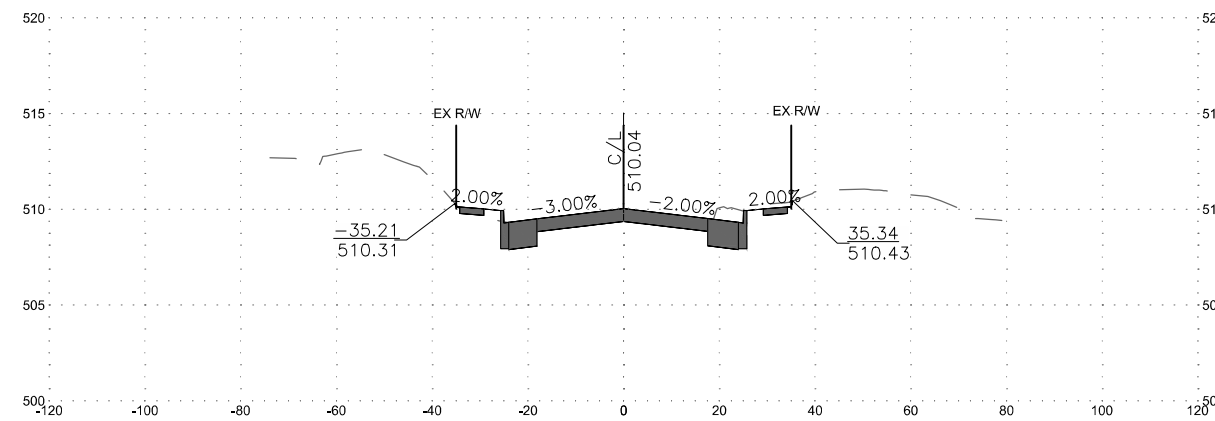
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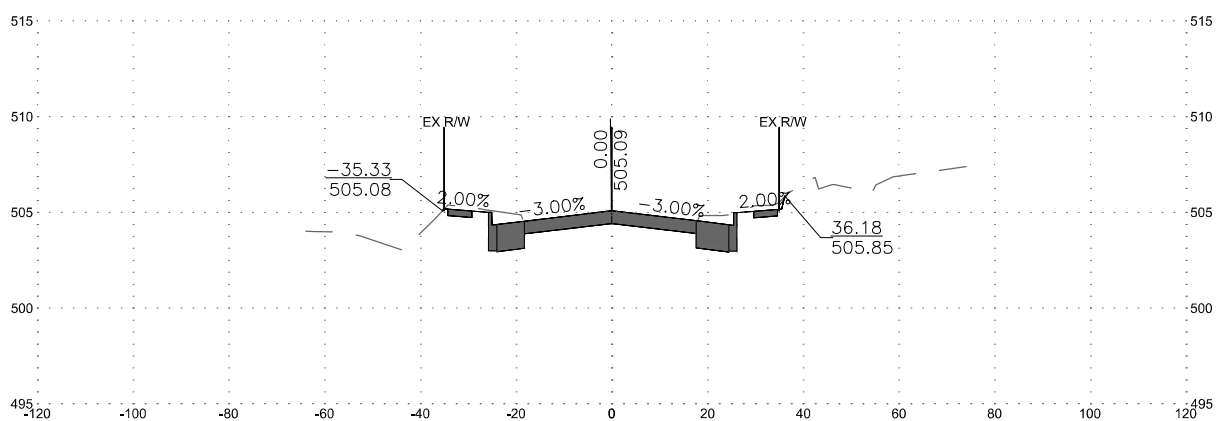
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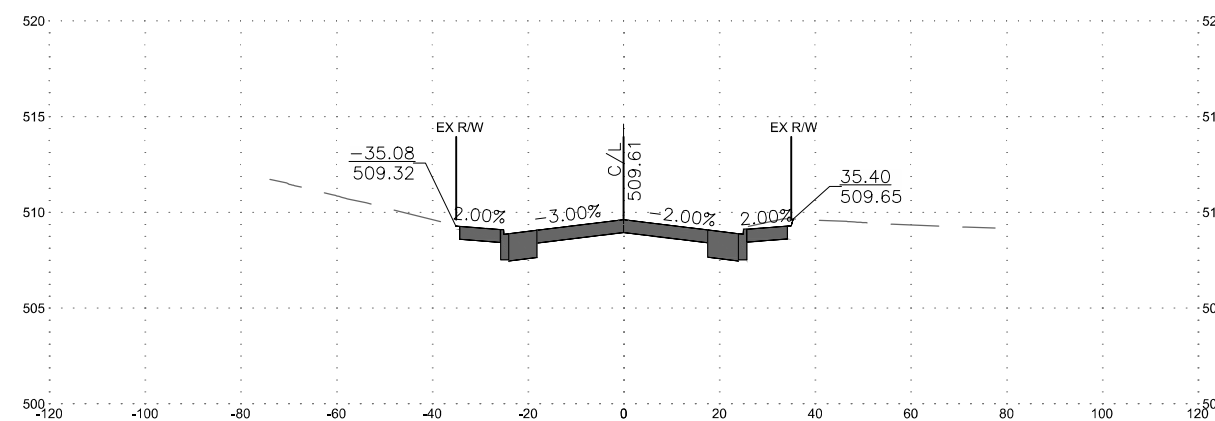
STA. 18+00



STA. 19+00



STA. 17+00



STA. 18+00

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

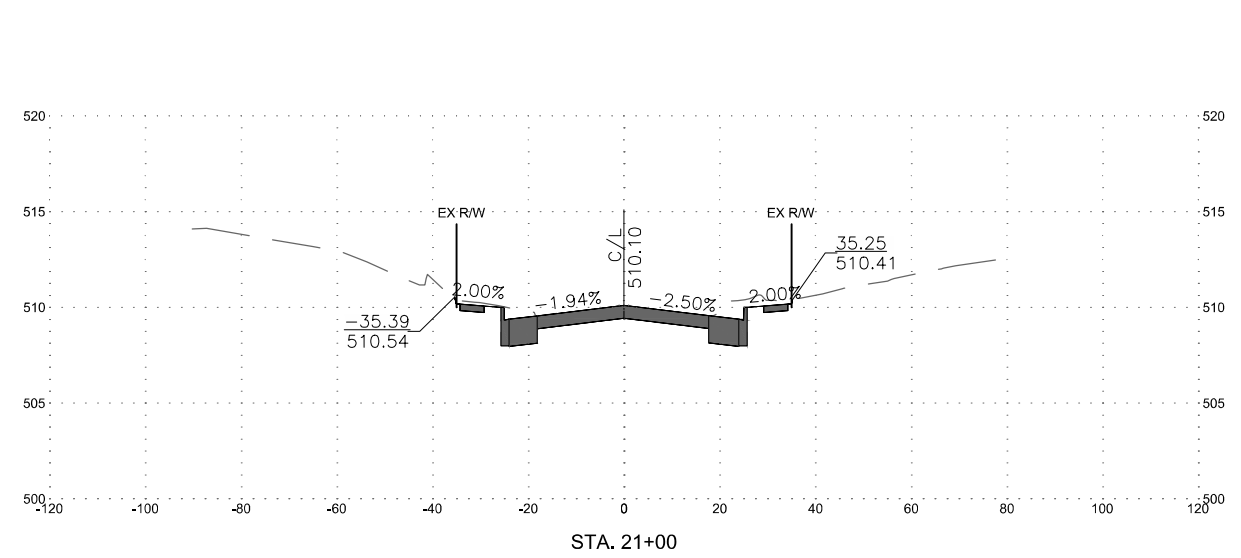
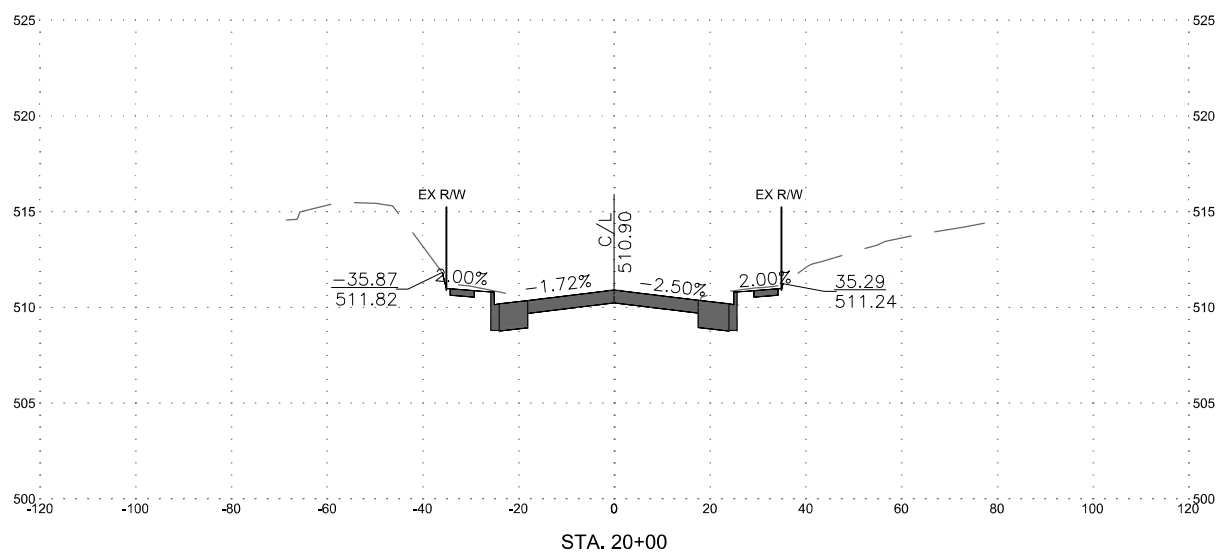
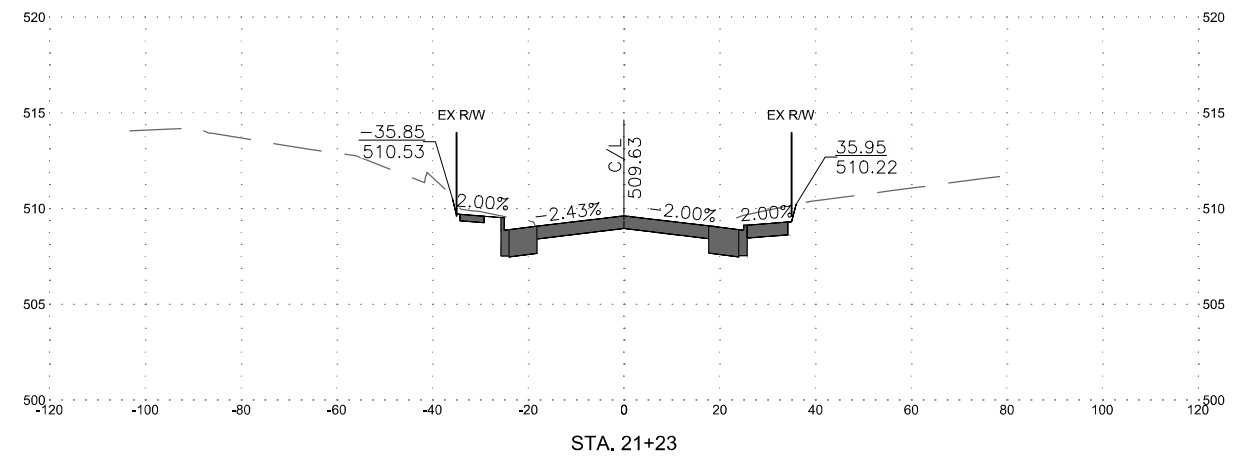
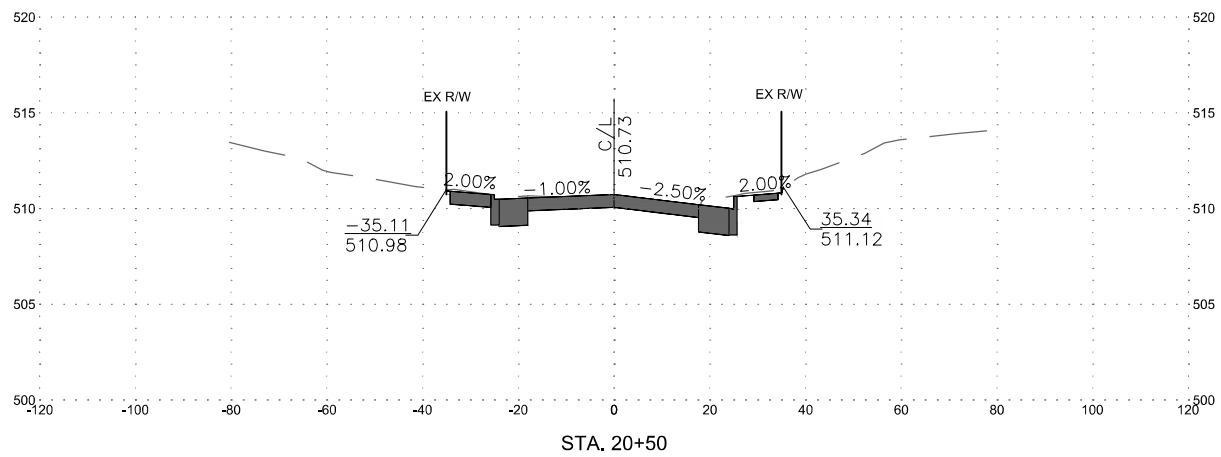
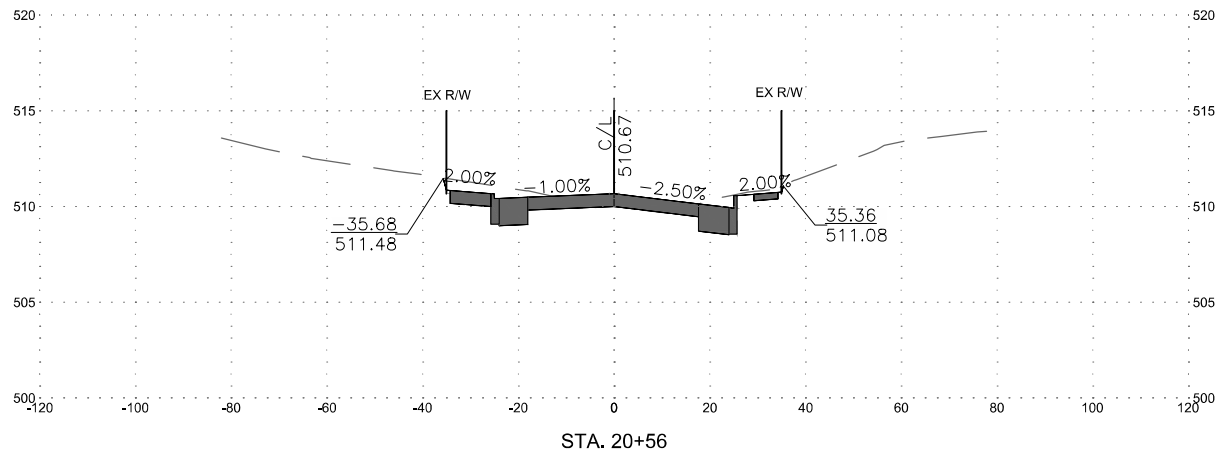
Washington County Administrative Annex, Building  
 800 Main Street, 4th Floor  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 113 OF 129

PROJECT NO.  
 10-270



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY:  
 DATE: APRIL 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 800 West Virginia Ave., P.O. Box 40  
 Phone: 240-313-2460 Fax: 240-313-2401

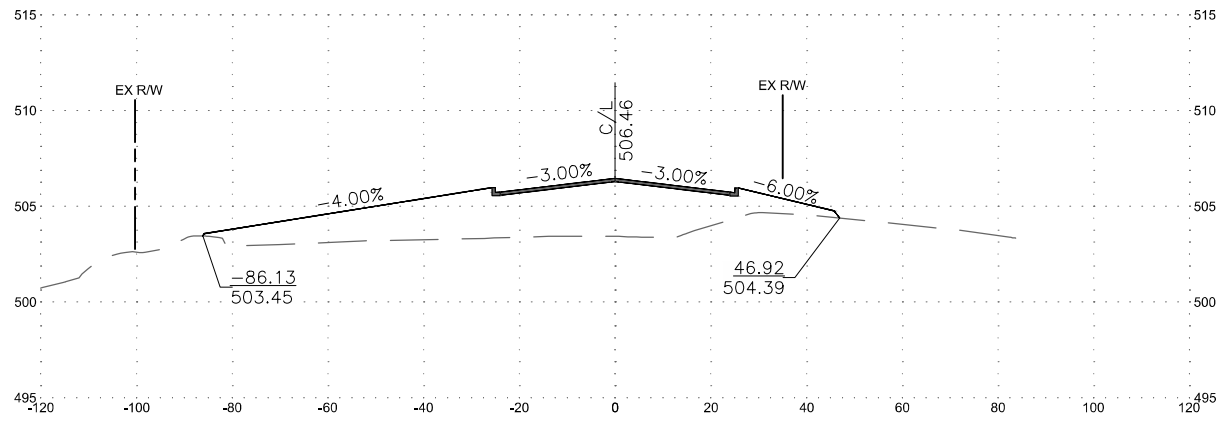
PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

SCALE  
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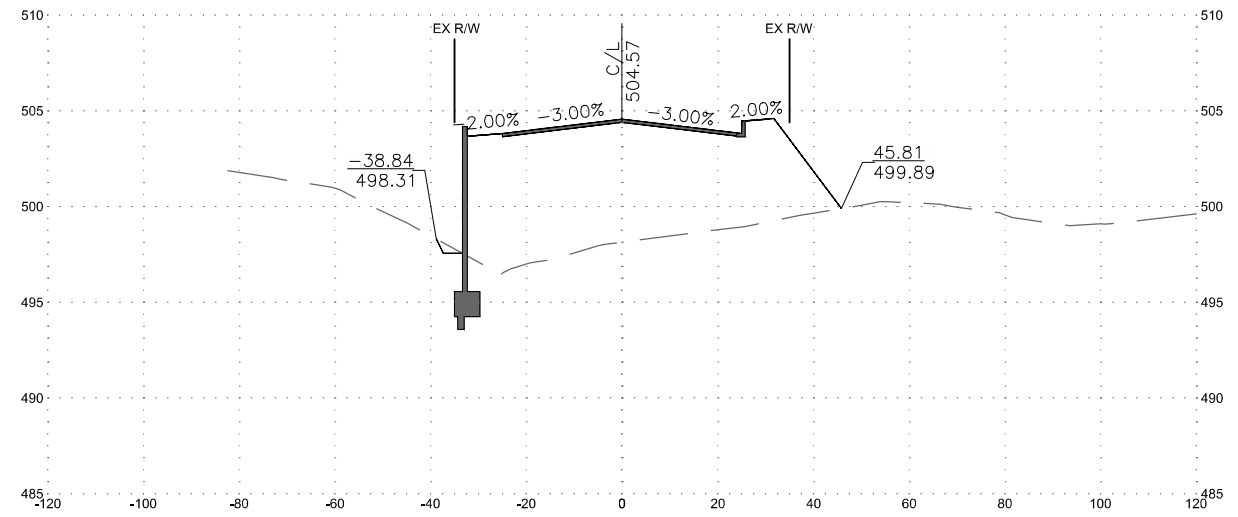
SHEET NO.  
 114 OF 129

PROJECT NO.  
 10-270

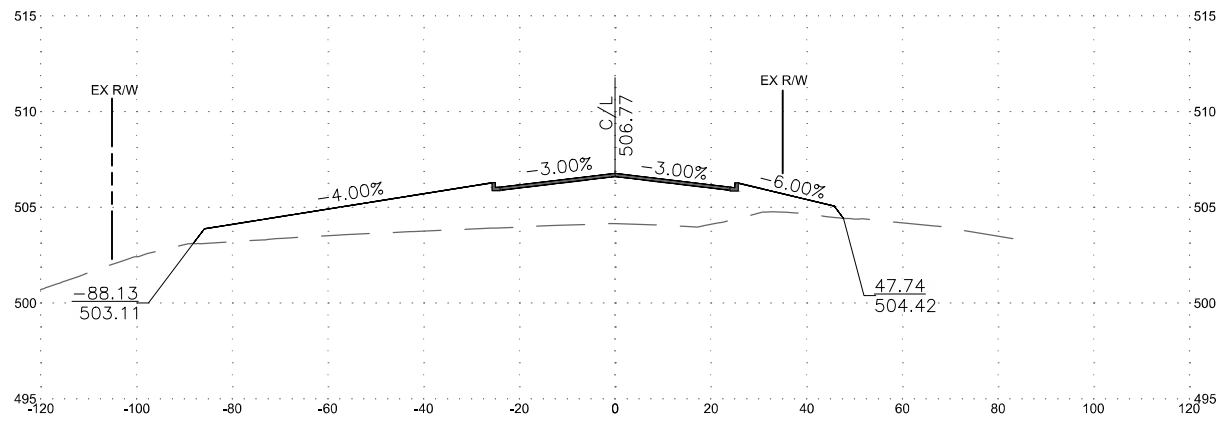




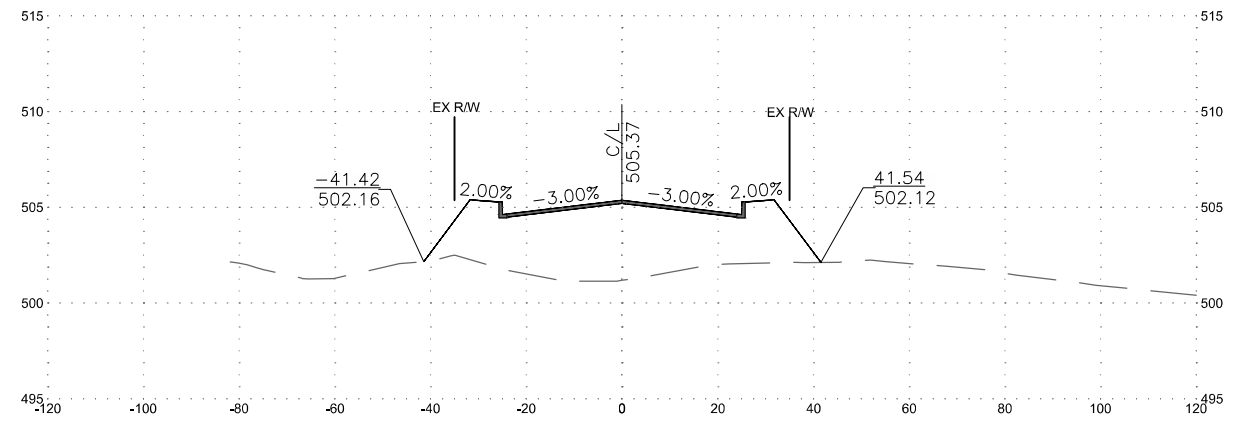
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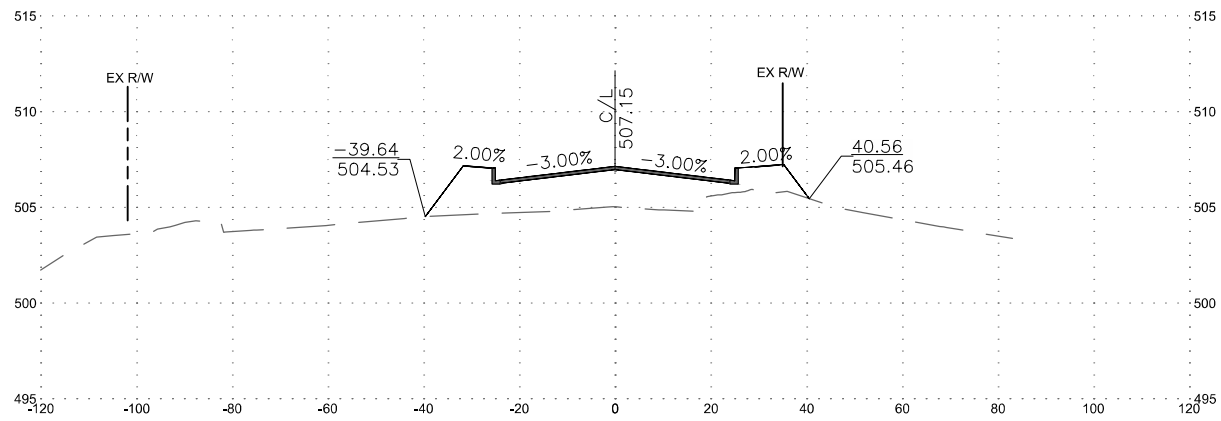
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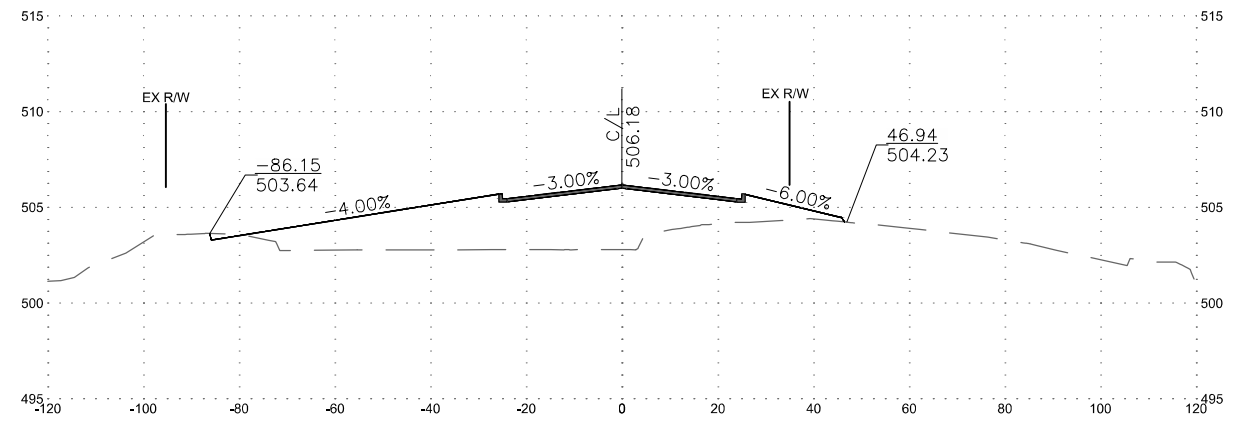
STA. 22+70



STA. 23+50



STA. 22+50



STA. 23+00

NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 800 Millersville Road, Millersville, MD 21768  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD

CROSS SECTIONS

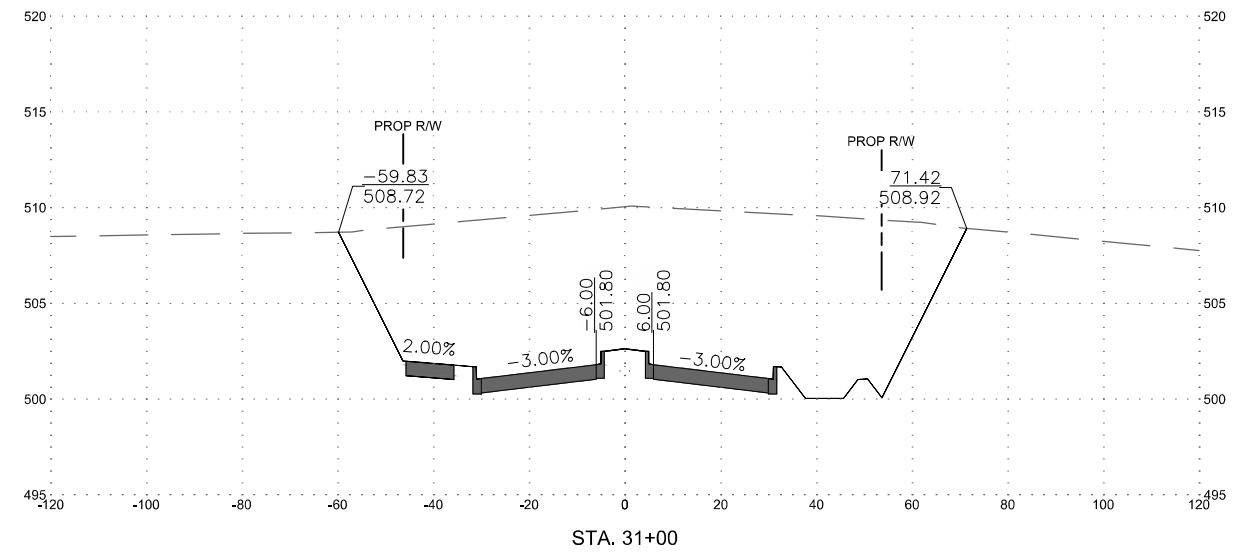
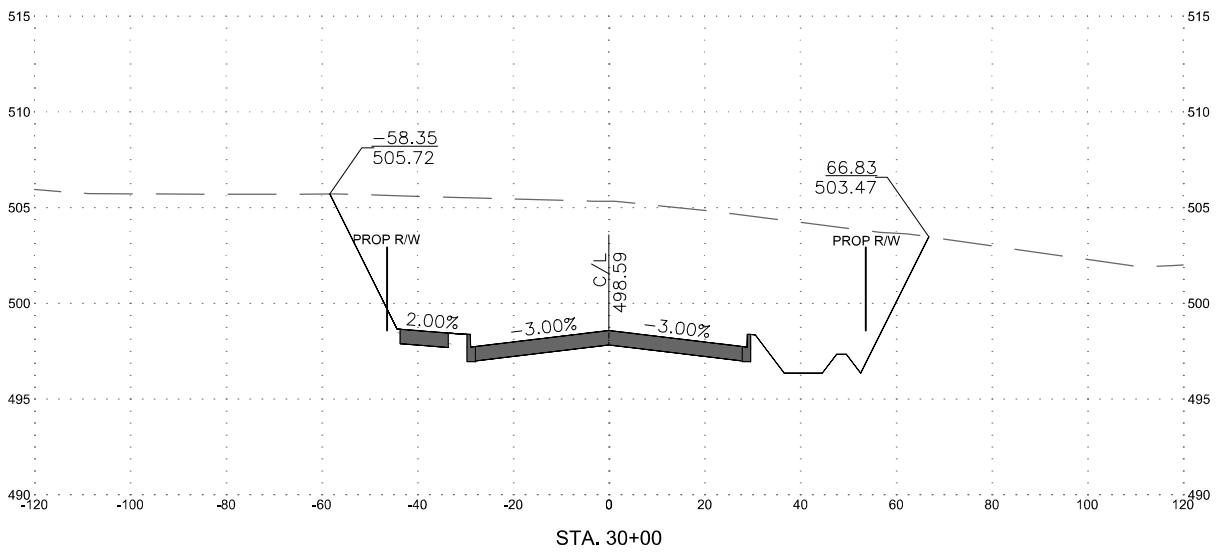
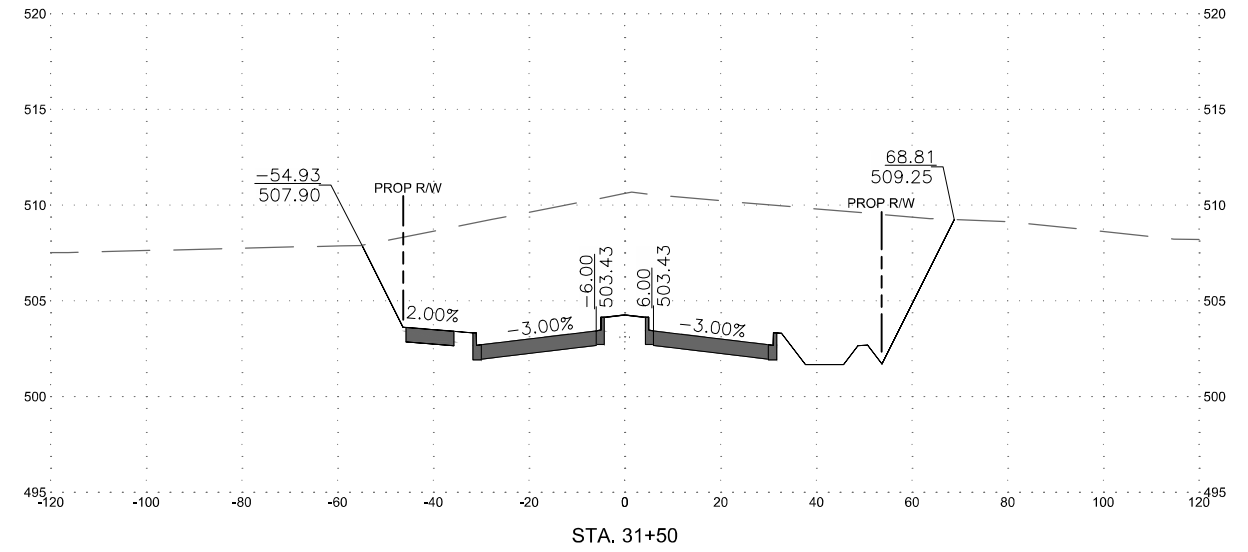
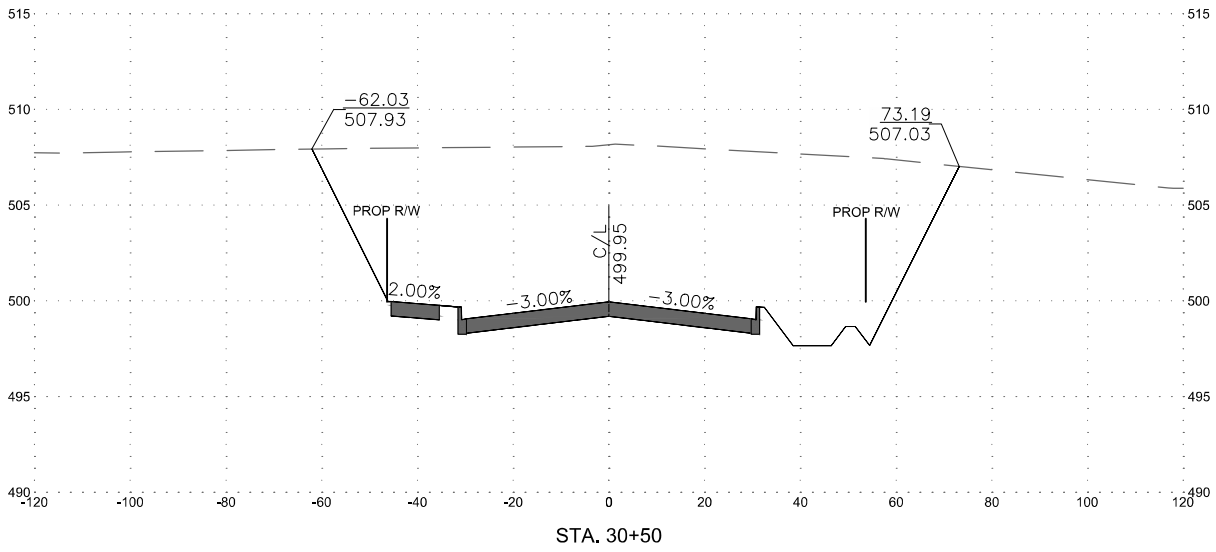
SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 116 OF 129

PROJECT NO.  
 10-270







NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2021

**WASHINGTON COUNTY, MARYLAND**  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building 40  
 800 North Main Street, P.O. Box 40  
 Phone: 240-313-2460 Fax: 240-313-2401



**PROFESSIONAL BOULEVARD**  
**CROSS SECTIONS**

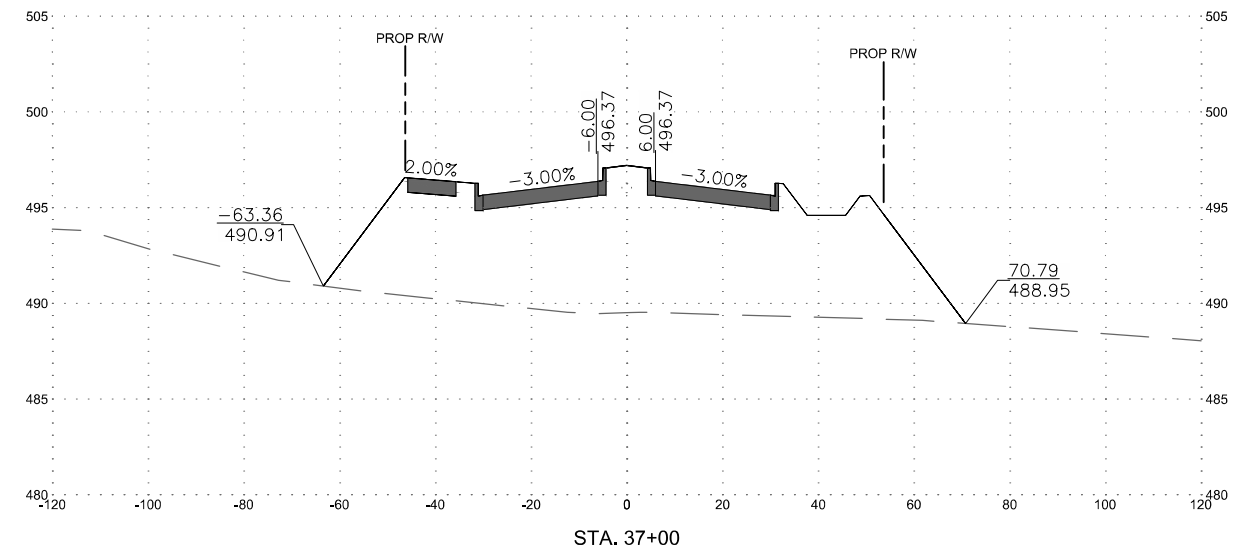
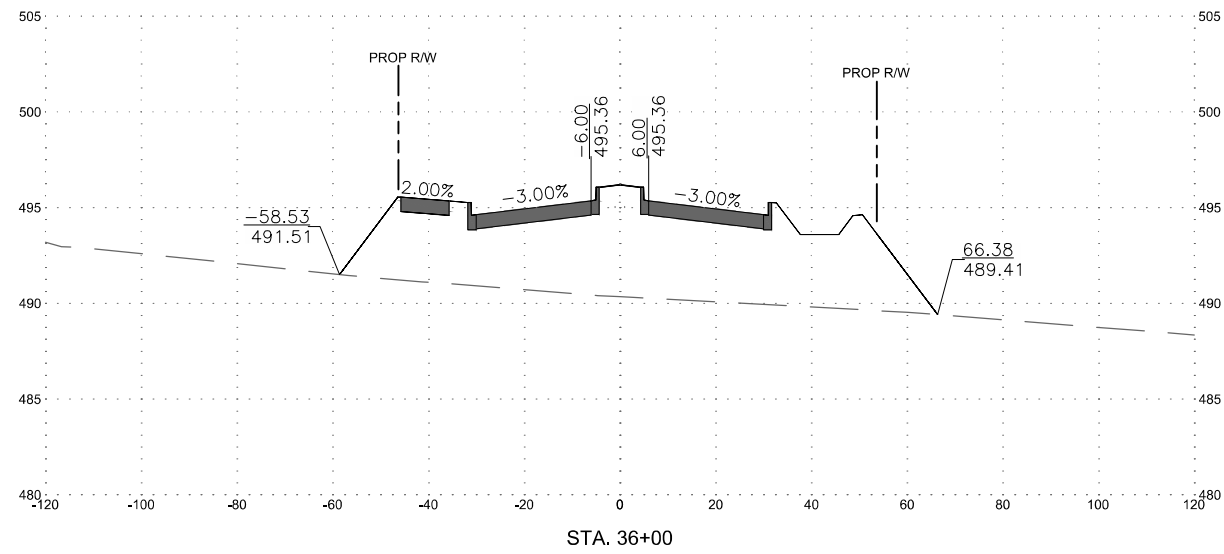
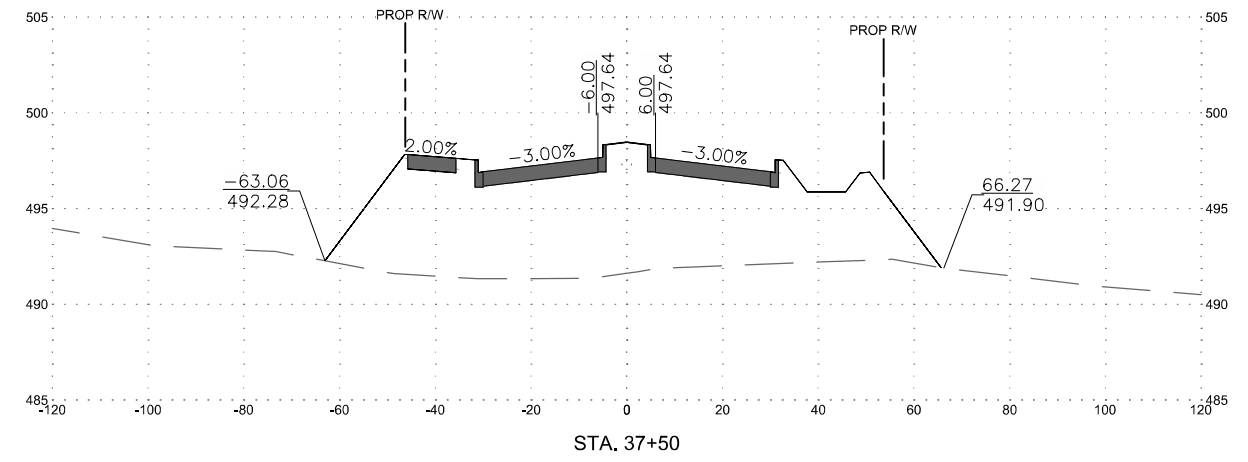
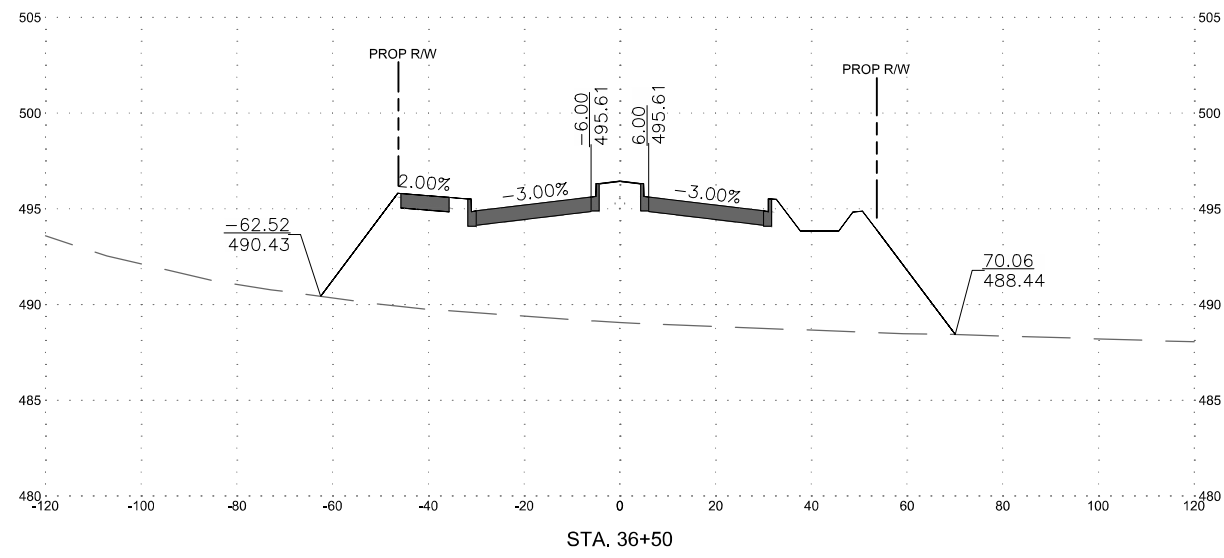
SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 118 OF 129

PROJECT NO.  
 10-270







NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
 DRAWN BY: TMB  
 CHECKED BY: TMB  
 DATE: APRIL 2021

WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 800 West Main Street, P.O. Box 140  
 Phone: 240-313-2460 Fax: 240-313-2401

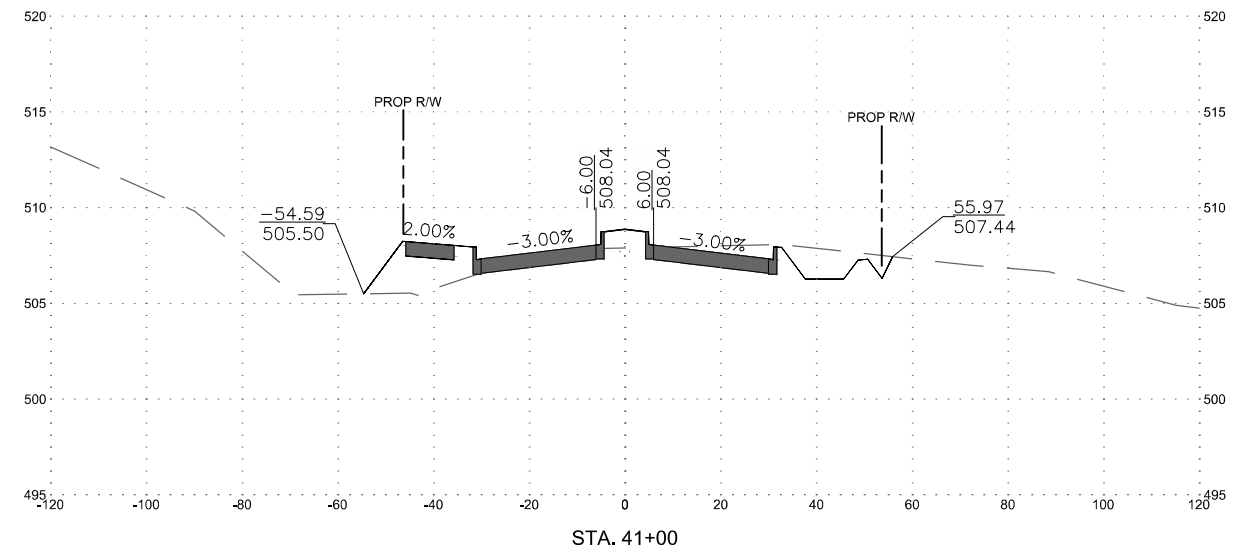
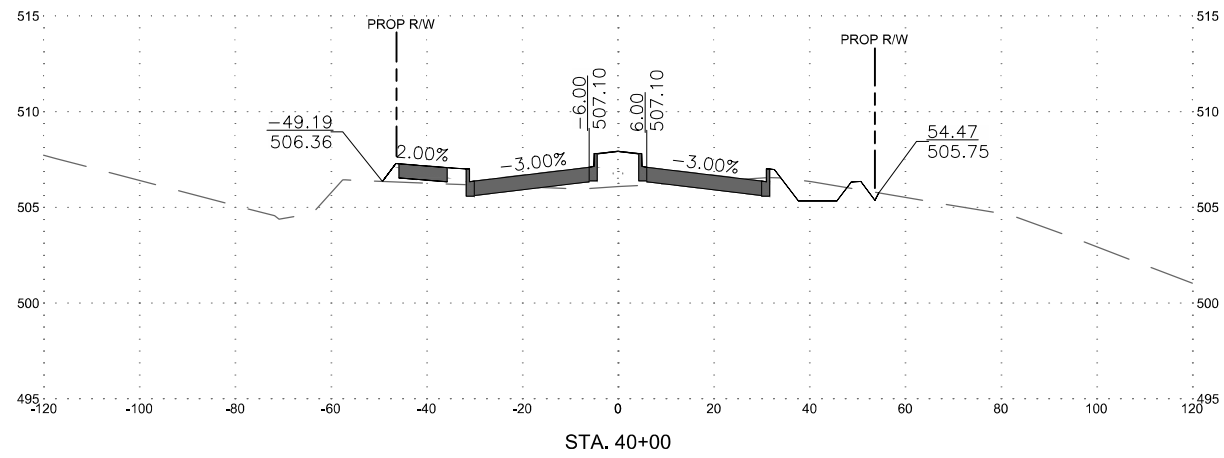
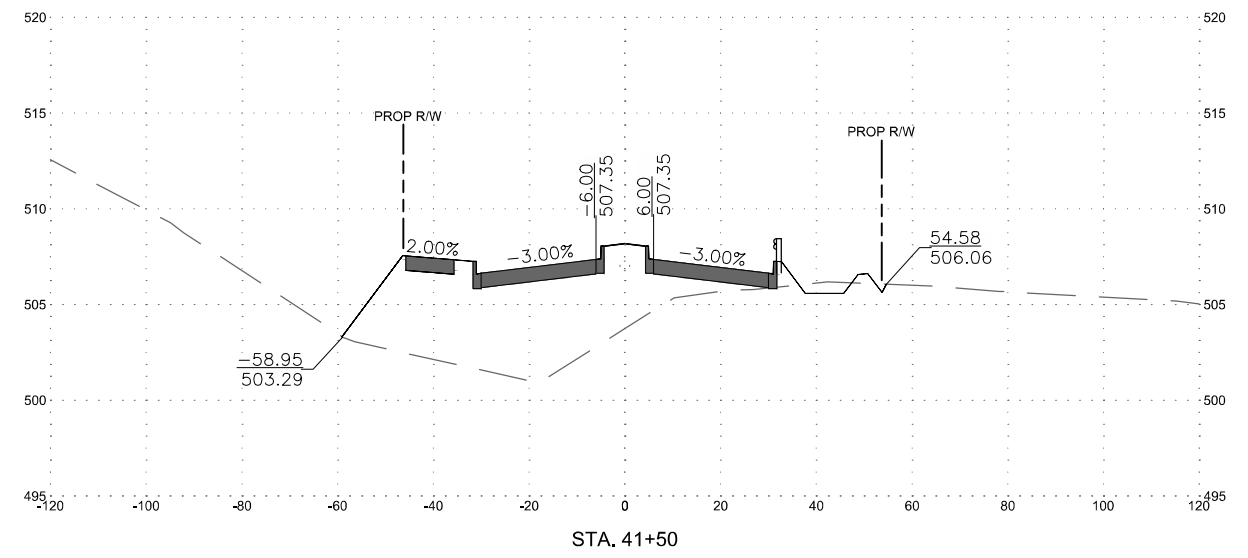
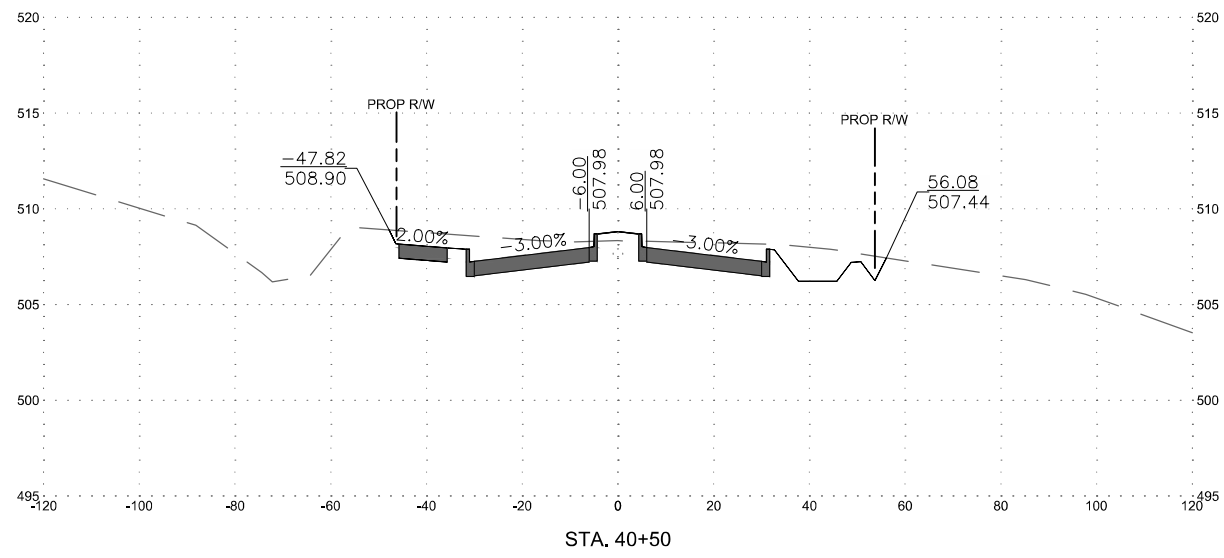
PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 121 OF 129

PROJECT NO.  
 10-270





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DESIGNED BY: TMB  
 DRAWN BY: TMB  
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WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building 80  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

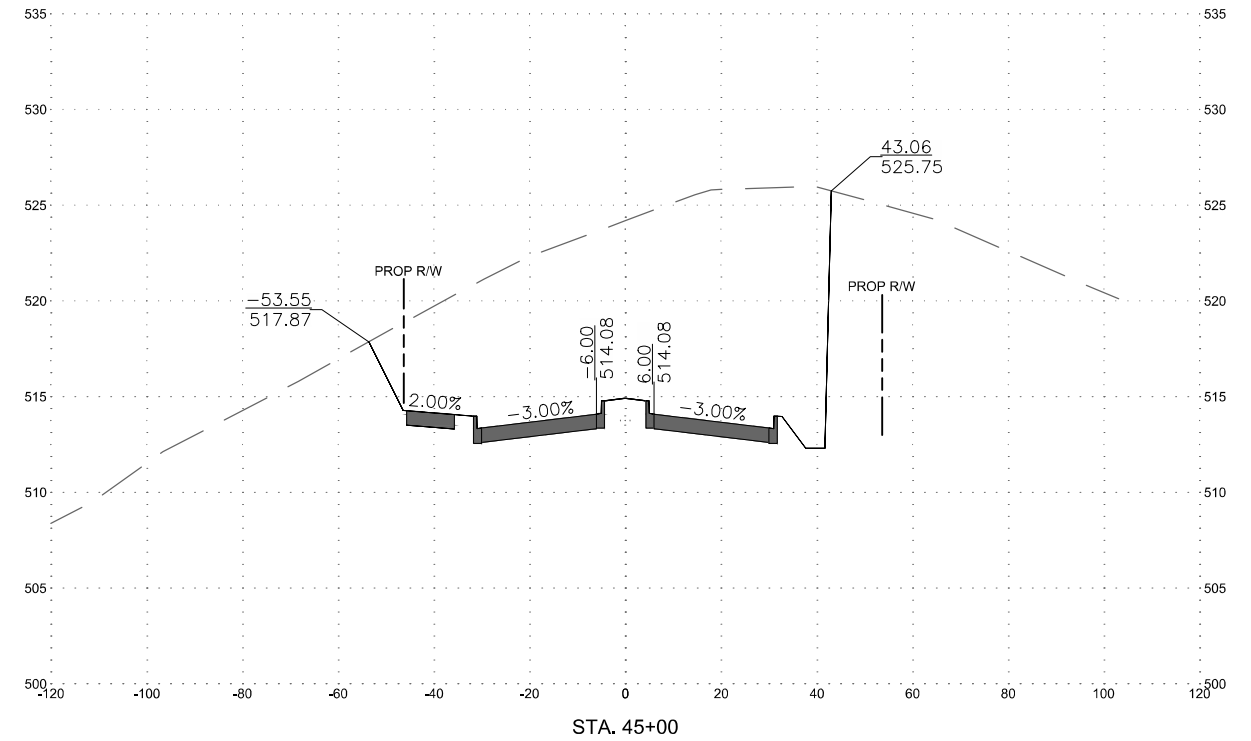
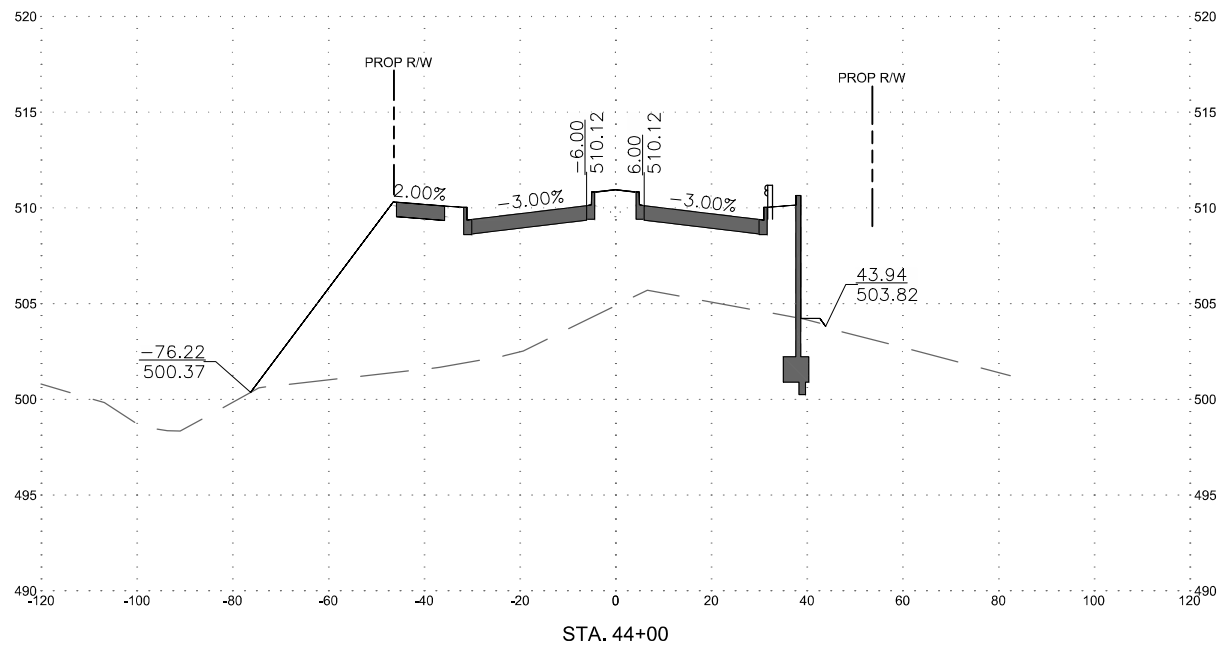
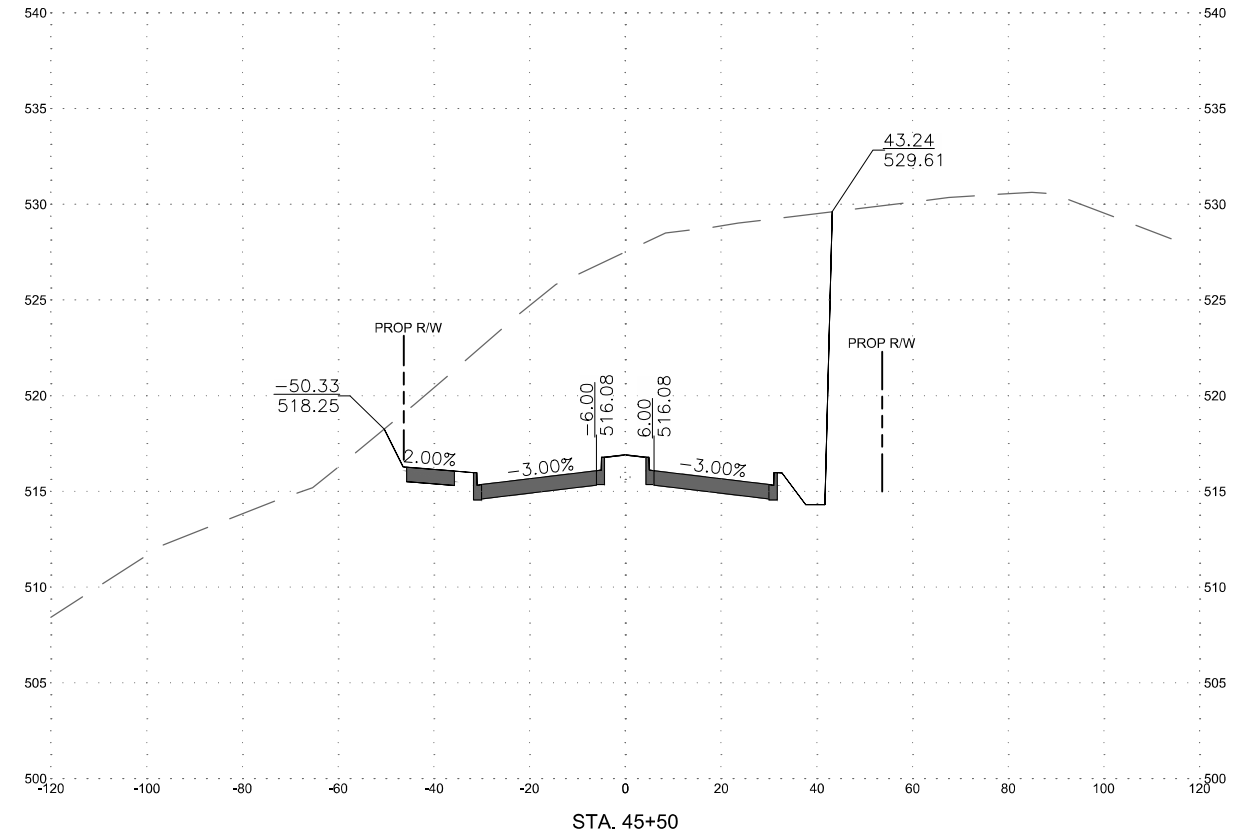
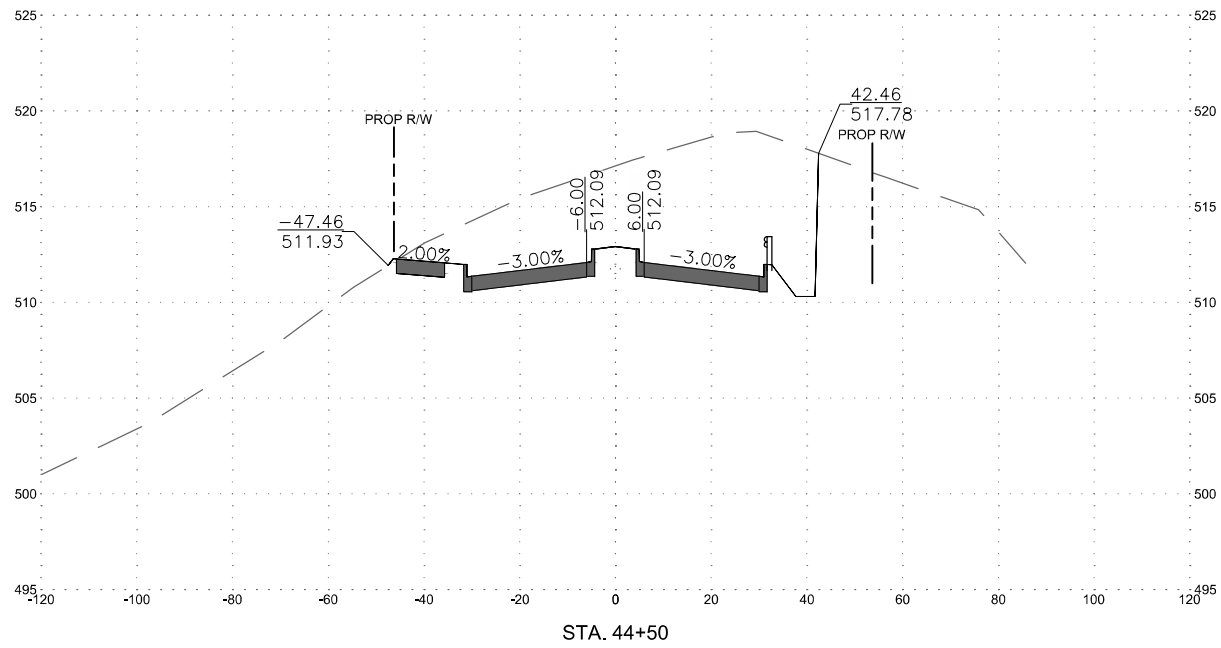
SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 123 OF 129

PROJECT NO.  
 10-270







NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
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WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

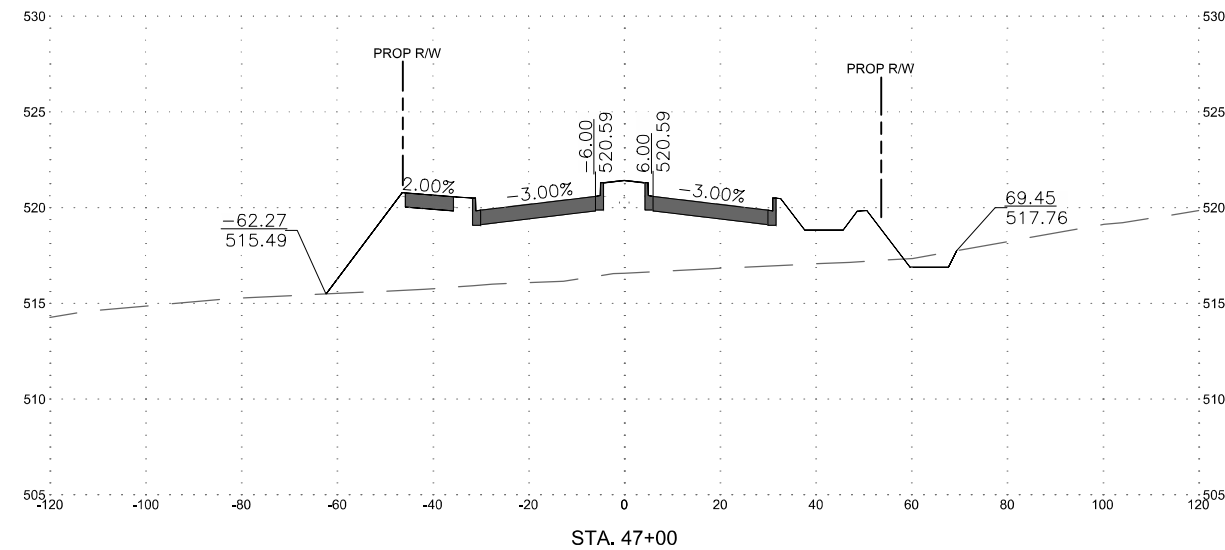
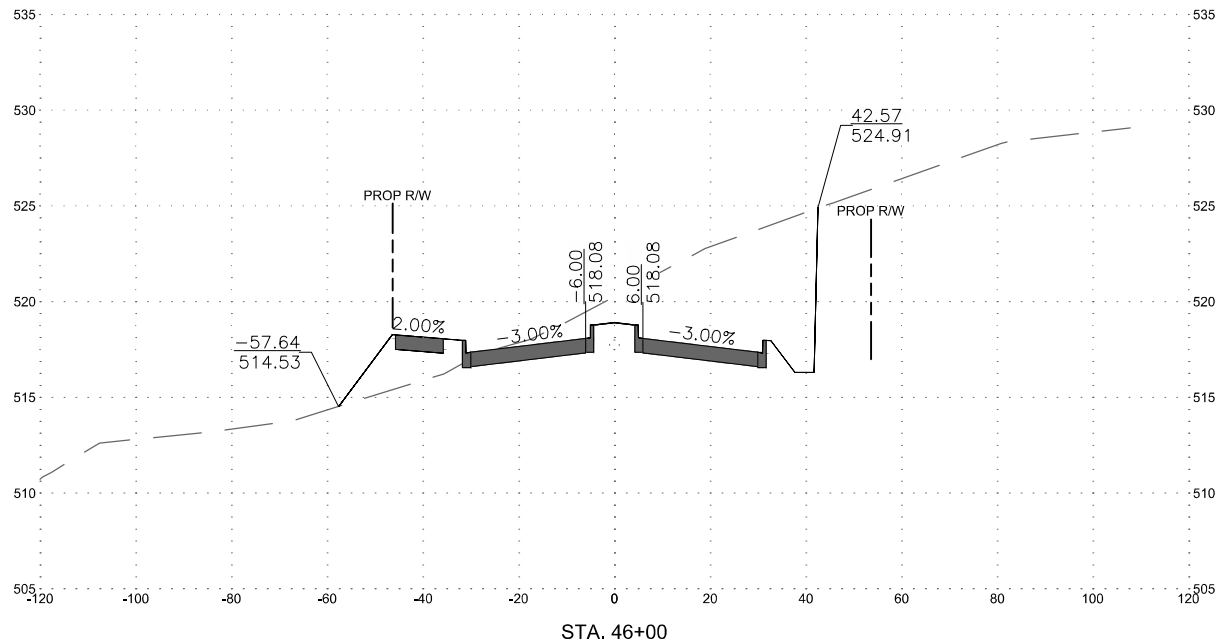
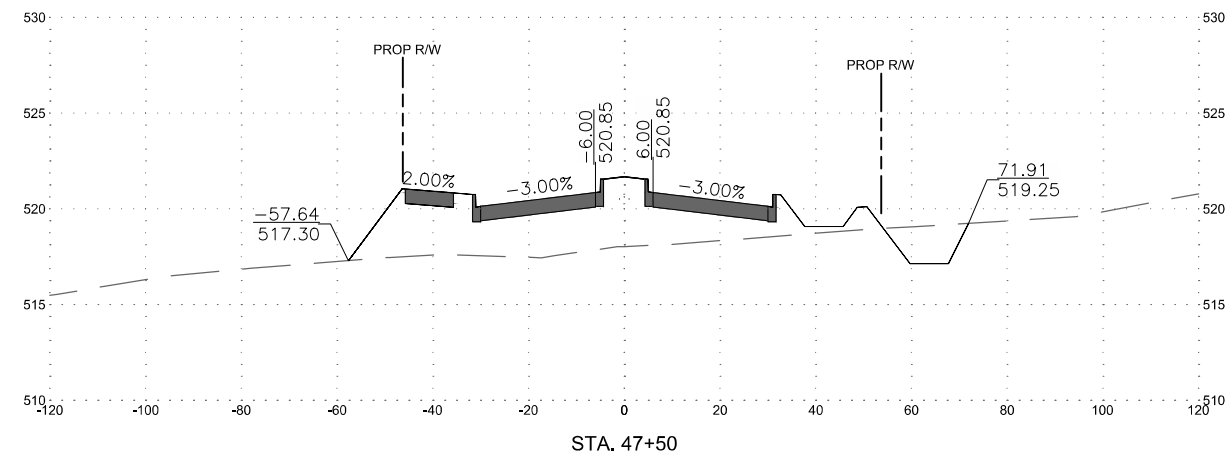
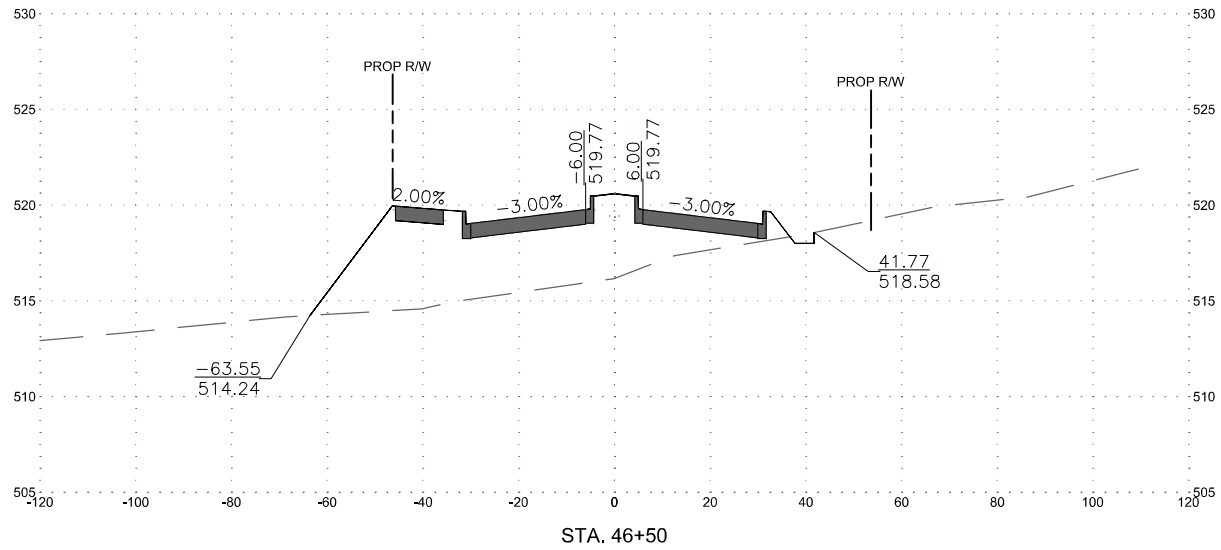
Washington County Administrative Annex, Building 809  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 125 OF 129

PROJECT NO.  
 10-270



NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
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 DATE: APRIL 2021

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 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building  
 800  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

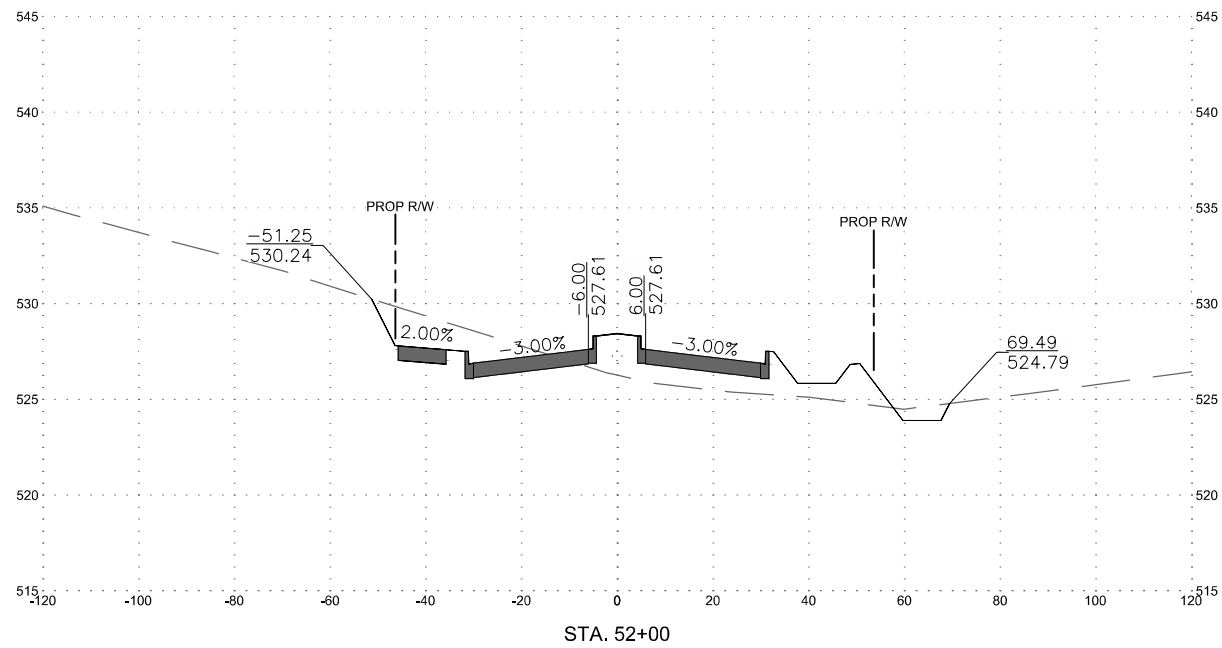
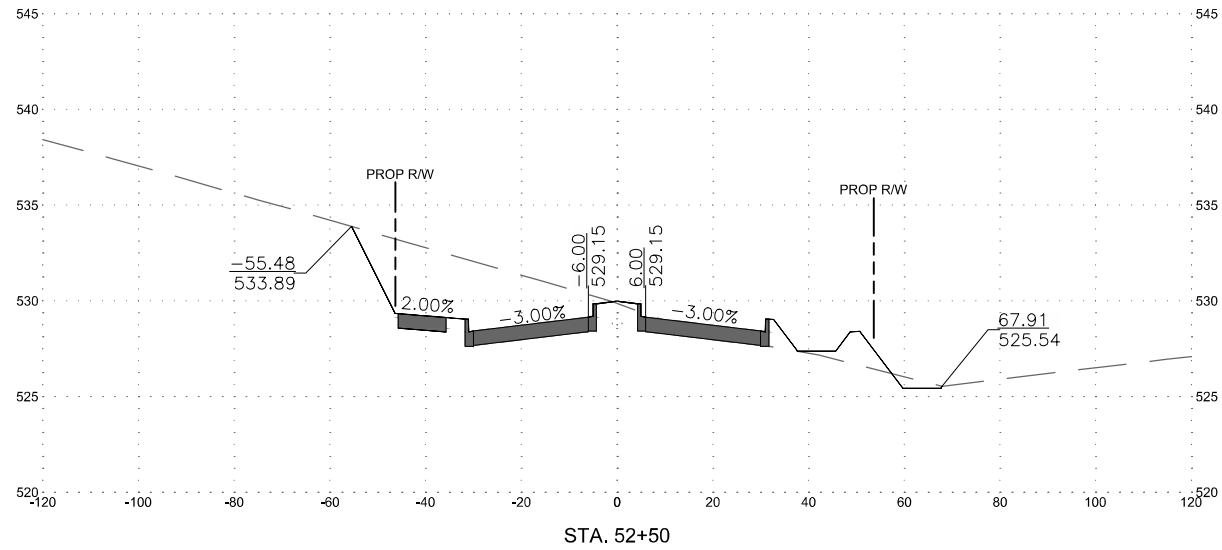
SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 126 OF 129

PROJECT NO.  
 10-270







NO.	REVISION DESCRIPTION	BY	DATE

DESIGNED BY: TMB  
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WASHINGTON COUNTY, MARYLAND  
 DIVISION OF ENGINEERING

Washington County Administrative Annex - Building  
 80 West Liberty Avenue  
 Phone: 240-313-2460 Fax: 240-313-2401

PROFESSIONAL BOULEVARD  
 CROSS SECTIONS

SCALE  
 H:1"=20' V:1"=5'

SHEET NO.  
 129 OF 129

PROJECT NO.  
 10-270