

WATER NOTES:

- ALL WATER MAINS SHALL BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- ALL FITTINGS SHALL BE DUCTILE IRON FITTINGS IN ACCORDANCE WITH AWWA C151.
- ALL DI PIPE SHALL BE FURNISHED WITH A ZINC COATING APPLIED AT A MINIMUM OF 200 GRAMS PER SQUARE CENTIMETER IN ACCORDANCE WITH ISO 8179. ZINC COATING SHALL BE APPLIED TO DI PIPE BY ARC-SPRAY. FITTINGS AND VALVES SHALL BE FUSION-BONDED EPOXY COATED IN ACCORDANCE WITH COUNTY STANDARDS.
- BOND ALL DI PIPE, FITTINGS, AND VALVES IN ACCORDANCE WITH COUNTY STANDARD DETAIL C-3.01.
- ALL VALVES, FITTINGS, RESTRAINTS, AND HARNESSSES SHALL BE INSTALLED WITH 17-LB MAGNESIUM ANODES BONDED IN ACCORDANCE WITH COUNTY STANDARD DETAILS.
- INSTALL V-BIO POLYWRAP ON ALL PIPE AND FITTINGS PER AWWA C105. SECURE WITH COMPATIBLE ADHESIVE TAPE, TWO LAYERS, MINIMUM OVERLAP POLYWRAP AT JOINTS. TAKE UP SLACK IN POLYWRAP ALONG PIPE BARREL AND SECURE WITH ADHESIVE TAPE EVERY THREE TO FOUR FEET. AT VALVES AND OTHER SHAPES, INSTALL V-BIO SHEETS AND SECURE ENDS AROUND POLYWRAP TUBES AND AT TOP OF VALVE.
- ALL HYDRANTS, MAINLINE GATE VALVES, WATER SERVICE VALVES AND PIPING, AND SIMILAR APPURTENANCES (FOR BOTH PERMANENT AND TEMPORARY INSTALLATIONS) SHALL BE RATED FOR A MINIMUM OPERATING PRESSURE OF 350 PSI.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS RESTRAINED JOINTS ARE INSTALLED AS SPECIFIED ON THE DRAWINGS.
- ALL TIE-INS TO EXISTING WATER MAINS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE WORK.
- SALVAGEABLE VALVES AND APPURTENANCES TO BE REMOVED SHALL BE DELIVERED TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - BUREAU OF UTILITIES, AS DIRECTED BY THE ENGINEER OR THE COUNTY.
- IN ACCORDANCE WITH THE 10 STATES STANDARDS, WATER MAINS SHALL MAINTAIN A MINIMUM 18-INCH VERTICAL CLEARANCE ABOVE ANY SEWER MAIN AT ANY CROSSING. THE SEWER PIPELINE MUST REMAIN BELOW THE WATER MAIN AT ALL LOCATIONS WITHIN 10 FEET OF THE WATER MAIN. AT ALL WATER AND SEWER CROSSINGS, A FULL LENGTH OF WATER PIPE SHALL BE CENTERED OVER THE SEWER PIPE SO THE PIPE JOINT ON EACH END OF THE WATER PIPE IS LOCATED AS FAR AS POSSIBLE FROM THE SEWER PIPE.
- NO WATER SHALL BE DISCHARGED FROM THE EXISTING WATER MAIN TO THE ENVIRONMENT, WITHOUT FIRST DECHLORINATING. THE CONTRACTOR SHALL SUBMIT THE DECHLORINATION METHOD TO THE ENGINEER FOR REVIEW.
- CATHODIC INSULATING JOINTS OR FITTINGS SHALL BE PROVIDED AT ALL CONNECTIONS TO EXISTING WATER MAINS. ALL JOINTS OF NEW DIP PIPING SYSTEM SHALL BE BONDED IN ACCORDANCE WITH COUNTY STANDARD DETAILS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING IN WRITING OR BY DOOR HANGERS ALL CUSTOMERS AT LEAST 4 DAYS PRIOR TO ANY SERVICE INTERRUPTION. SERVICE INTERRUPTIONS WILL BE NECESSARY FOR TRANSFERRING CONNECTIONS TO NEW MAIN OR FOR RELOCATION OF WATER METERS OR SEWER SERVICE CONNECTIONS. IN THE EVENT OF AN UNPLANNED OUTAGE THE CONTRACTOR SHALL NOTIFY IMPACTED BUSINESS IN PERSON.

ABBREVIATIONS

EX	EXISTING	S	SANITARY
WHC	WATER HOUSE CONNECTION	EL	ELEVATION
SHC	SEWER HOUSE CONNECTION	INV	INVERT
W	WATER	TH	TEST HOLE
DI	DUCTILE IRON	SD	STORM DRAIN
V	VALVE	HB	HORIZONTAL BEND
PC	POINT OF CURVATURE	FO	FIBER OPTIC
PT	POINT OF TANGENT	FH	FIRE HYDRANT
POT	POINT ON TANGENT	ROW	RIGHT OF WAY
PRC	POINT OF REVERSE CURVATURE		
RCP	REINFORCED CONCRETE PIPE		
POB	POINT OF BEGINNING		
POE	POINT OF ENDING		
G	GAS		
E	ELECTRICAL		

LEGEND

	EXISTING WATER MAIN		PROPOSED WATER MAIN
	VALVE		GATE VALVE
	HYDRANT		FIRE HYDRANT
	GAS		WATER HOUSE CONNECTION
	ELECTRIC		CAP
	FIBER OPTIC		THRUST BLOCK
	TELEPHONE		
	COMMUNICATIONS		
	STORM DRAIN		PROPOSED STORM DRAIN
	SANITARY SEWER		CURB LINE
	TREE/SHRUB		PROPOSED ROW
	TEST HOLE LOCATION		

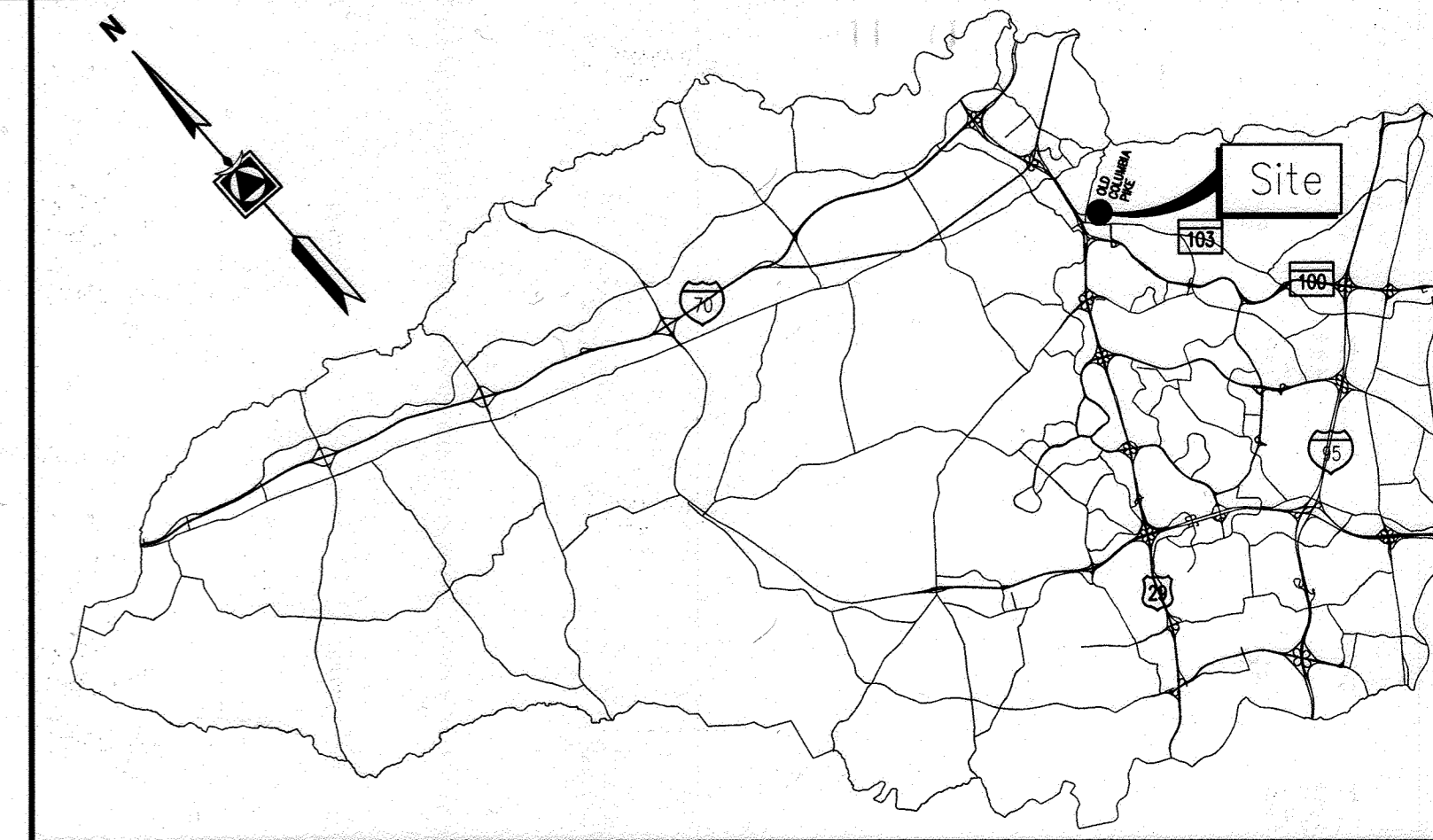
PURPOSE STATEMENT:

CONTRACT NO. 44-5131 INVOLVES THE RELOCATION OF A 16-INCH WATER MAIN AND SERVICE CONNECTIONS AHEAD OF THE MARYLAND DEPARTMENT OF TRANSPORTATION CONTRACT HO2275187 FOR MD 103 WIDENING. ALL WATER MAINS IN THE PROJECT AREA ARE IN THE 550 NORTH PRESSURE ZONE. THIS PROJECT IS NEEDED TO AVOID CONFLICTS WITH PROPOSED MD 103 IMPROVEMENTS. ADDITIONALLY THIS PROJECT WILL ABANDON AN EXISTING 8-INCH WATER MAIN IN OLD COLUMBIA PIKE AND SERVICES WILL BE TRANSFERRED TO THE EXISTING PARALLEL 16-INCH MAIN. EXISTING WATER SERVICES WITHIN THE SHA PROJECT AREA WITHIN MD 103 WILL BE TRANSFERRED TO THE NEW MAIN.

MD 103 WIDENING AT ROUTE 29

WATER MAIN RELOCATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CAPITAL PROJECT NO. W8602 CONTRACT NO. 44-5131



LOCATION MAP

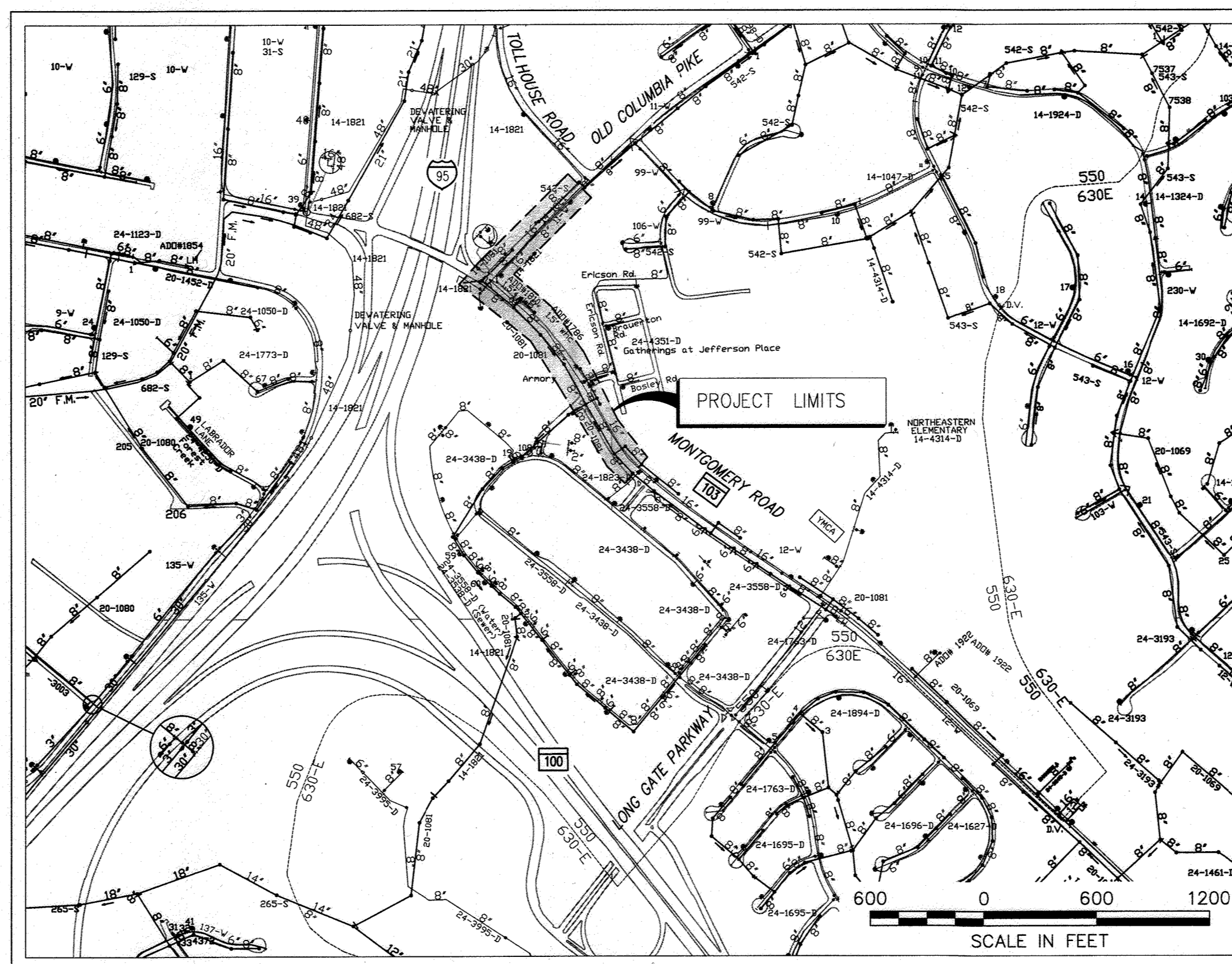
SCALE: NOT TO SCALE

GENERAL NOTES:

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAINS UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- BASE TOPOGRAPHIC MAPPING IS BASED ON PLANS PROVIDED BY MARYLAND STATE DEPARTMENT OF TRANSPORTATION FOR CONTRACT HO2275187, MD 103 - US 29 TO LONG GATE SHOPPING CENTER ENTRANCE.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. CONTROL POINTS, (I.E., IRON BARS, CROSS CUTS ON CONCRETE STRUCTURES) ARE PROVIDED ON SHEET 2 OF THIS PLANSET.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	800-252-1133
BGE (CONTRACTOR SERVICES)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILITY	800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	800-743-0033

- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE (5) WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.
- THE MARYLAND DEPARTMENT OF TRANSPORTATION DISTRICT 7 ENGINEER SHALL BE CONTACTED AT LEAST FIVE (5) WORKING DAYS BEFORE ANY WORK IN THE STATE RIGHT OF WAY. WORK SCHEDULE AND MAINTENANCE OF TRAFFIC MEASURES SHALL BE REVIEWED WITH THE DISTRICT ENGINEER PRIOR TO BEGINNING WORK.



WATER ZONE: 550 NORTH
TEST GRADIENT: 780 FT
TEST PRESSURE: 165 PSI
TYPE OF BUILDINGS: N/A
NUMBER OF PARCELS: N/A
NO. OF WATER CONNECTIONS: 10
NO. OF SEWER CONNECTIONS: N/A
DRAINAGE AREA: PATAPSCO

VICINITY MAP

SCALE: 1"=600'

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
01	G-1 TITLE SHEET, GENERAL NOTES AND INDEX OF DRAWINGS
02	G-2 MDT SHA GEOMETRY PLAN AND TRAVERSE POINTS (REFERENCE)
03	C-1 WATER PLAN
04	C-2 WATER PROFILE
05	C-3 WATER PROFILES AND DETAILS
06	ES-1 EROSION AND SEDIMENT CONTROL PLAN
07	ES-2 EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
08	ES-3 VEGETATIVE STABILIZATION NOTES-1
09	ES-4 VEGETATIVE STABILIZATION NOTES-2
10	MT-1 MAINTENANCE OF TRAFFIC PLAN
11	MT-2 MAINTENANCE OF TRAFFIC PLAN

HOWARD COUNTY GEODETIC SURVEY CONTROL POINTS:

(SEE MDT HIGHWAY GEOMETRY PLAN ON SHEET 02 FOR TRAVERSE POINT LOCATIONS AND DATA)

QUANTITIES

ITEM	UNIT	ESTIMATE	AS-BUILT	MATERIAL SUPPLIER
16" WATER (DIP)	L.F.	1380	1364	U.S. PIPE
8" WATER (DIP)	L.F.	138	132	U.S. PIPE
FIRE HYDRANT	EACH	5	5	AMERICAN DARLING
6" GATE VALVE	EACH	5	5	AM FLOW CONTROL
8" GATE VALVE	EACH	1	2	AM FLOW CONTROL
16" GATE VALVE	EACH	2	2	AM FLOW CONTROL
2" AIR RELEASE VALVE	EACH	1		
RECON. 2" WHC (COPPER)	L.F.	6	6	CAMBRIDGE LEE
RECON. 1 1/2" WHC (COPPER)	L.F.	20	20	CAMBRIDGE LEE
RECON. 1" WHC (COPPER)	L.F.	21	21	CAMBRIDGE LEE
RECON. 3/4" WHC (COPPER)	L.F.	33	33	CAMBRIDGE LEE
4" SAN CLEANOUT	EACH	1	1	NORTH AMERICAN

AS-BUILT
03/01/2022

STANDARD STABILIZATION NOTE:

- FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY 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.

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

Owner's/Developer's Signature: *[Signature]* Date: 3/30/2021

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

Engineer's Signature - Registration Number: *[Signature]* 20021 Date: 3/30/21

EP-21-04
HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION
THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Howard Soil Conservation District: *[Signature]* Date: 3/30/21

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS: *[Signature]* DATE: 3/30/2021
CHIEF, BUREAU OF ENGINEERING: *[Signature]* DATE: 4/5/2021
CHIEF, BUREAU OF UTILITIES: *[Signature]* DATE: 3/31/21
CHIEF, UTILITY DESIGN DIVISION: *[Signature]* DATE: 3/31/21

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. 19646, EXPIRATION DATE: 5/19/2020

Gannett Fleming
BALTIMORE, MARYLAND

DES:	BY:	NO.	REVISION	DATE
SJM				
DRN:	KDJ	GF	HSCD PERMIT REVISIONS	3/21
CHK:	DRF		AS-BUILT	3/22
SIGN DATE:				4/16/20

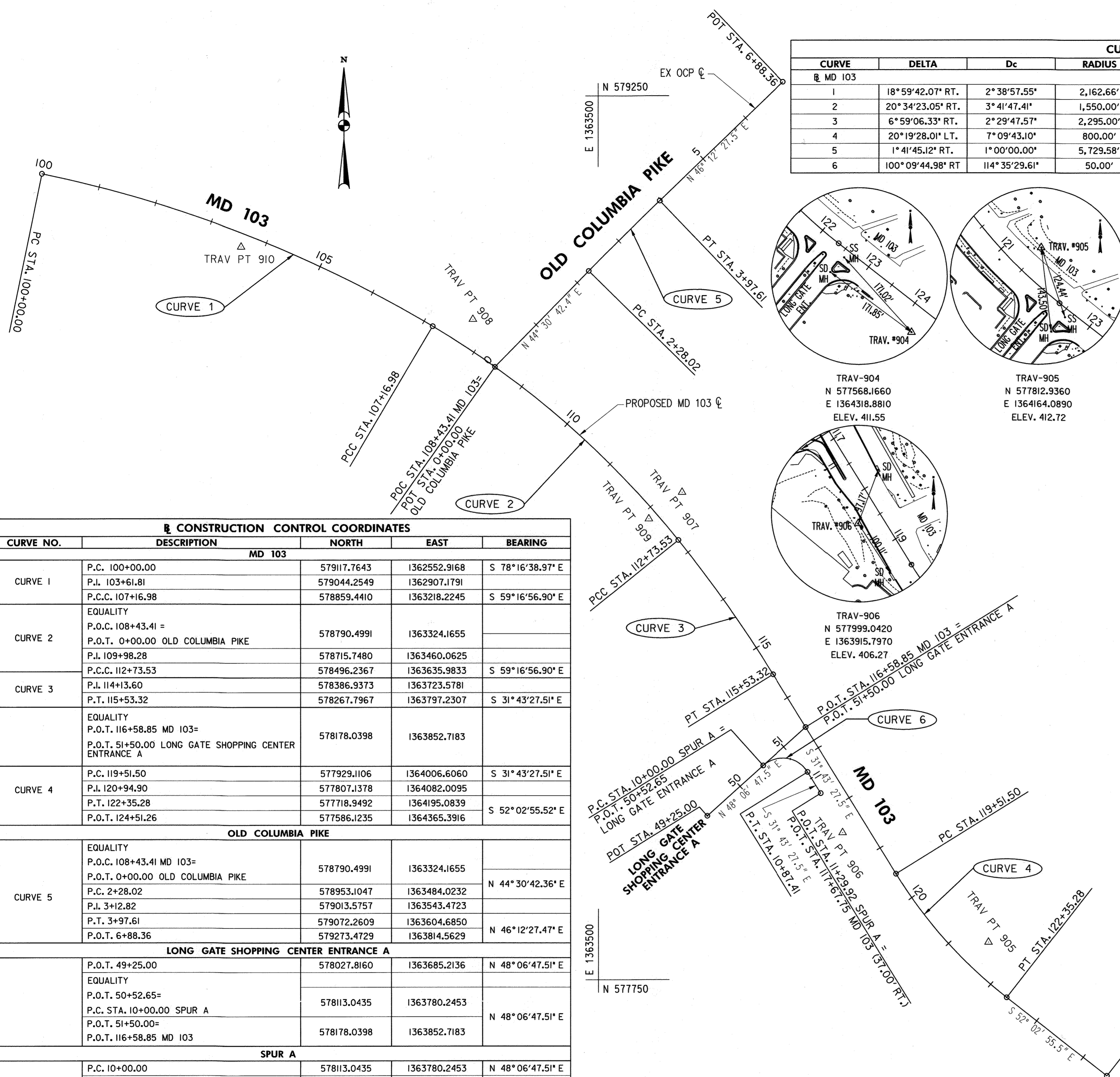
APRIL 2020

TITLE SHEET, GENERAL NOTES, AND INDEX OF DRAWINGS

600' SCALE MAP NO. 24 BLOCK NO. 24 ELECTION DISTRICT NO. 2

CAPITAL PROJECT NO. W8602
CONTRACT NO. 44-5131
MD 103 WIDENING AT ROUTE 29
WATER MAIN RELOCATION

SCALE: AS SHOWN
SHEET NO. 1 OF 11

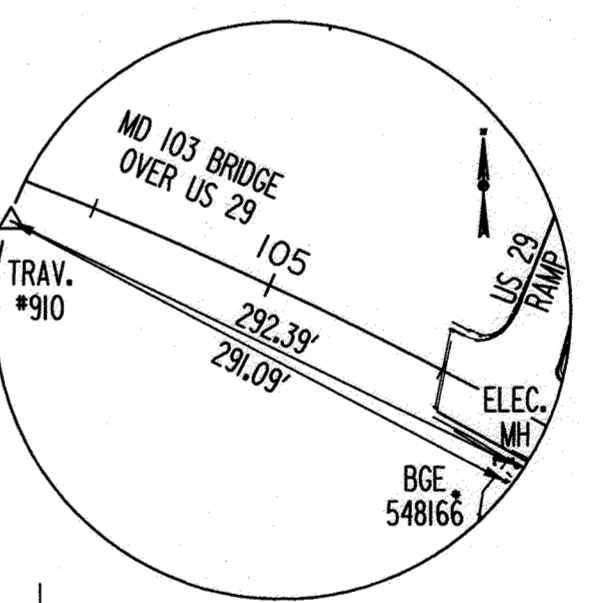
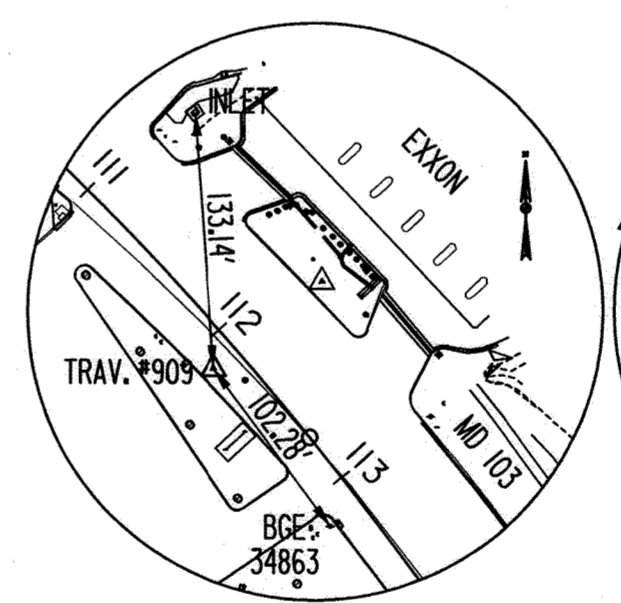
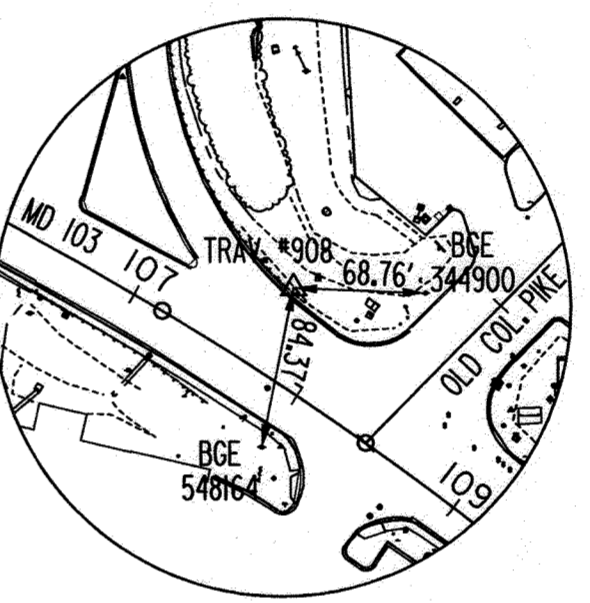
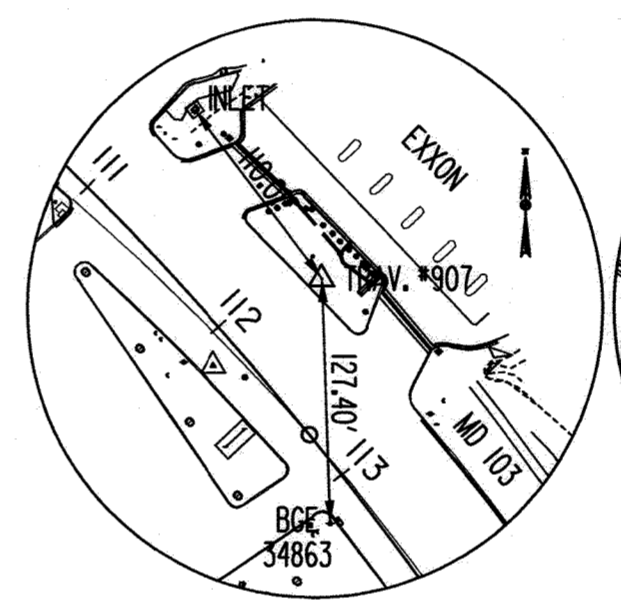
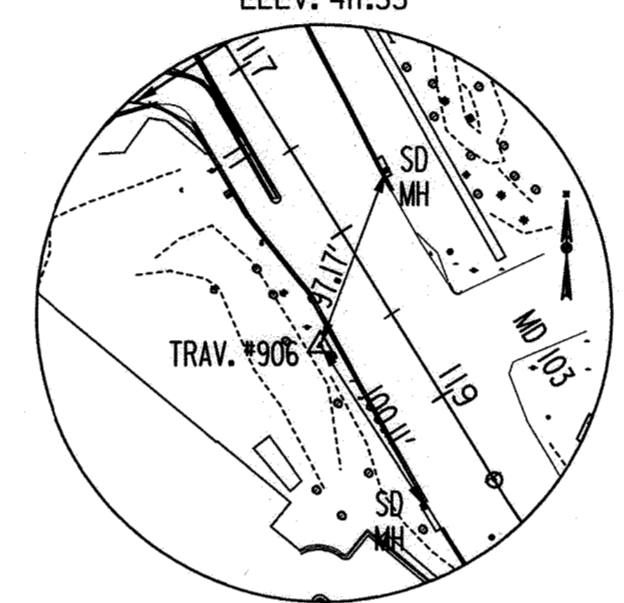
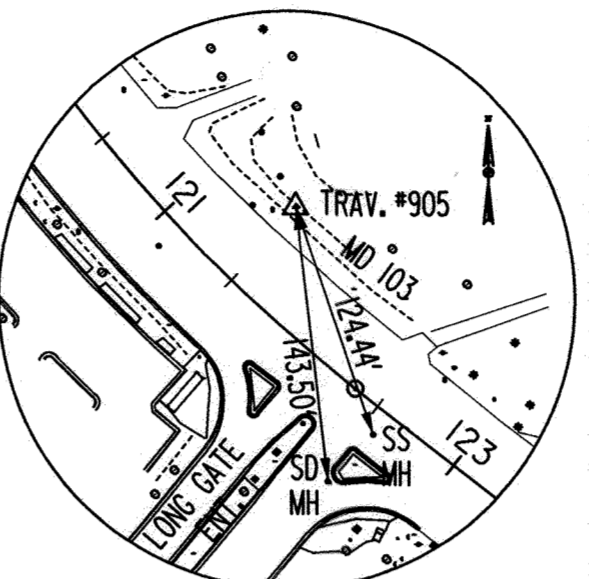
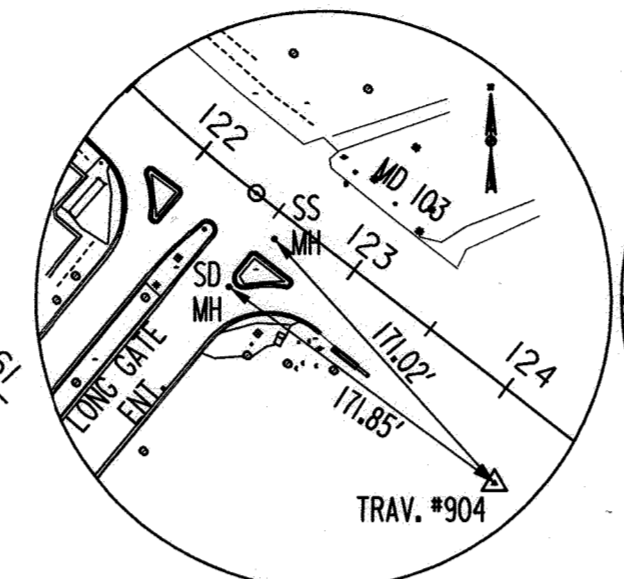


CURVE DATA							
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL	LONG CHORD
MD 103							
1	18°59'42.07" RT.	2°38'57.55"	2,162.66'	361.81'	716.98'	30.06'	713.70'
2	20°34'23.05" RT.	3°41'47.41"	1,550.00'	281.32'	556.56'	25.32'	553.57'
3	6°59'06.33" RT.	2°29'47.57"	2,295.00'	140.07'	279.79'	4.27'	279.62'
4	20°19'28.01" LT.	7°09'43.10"	800.00'	143.40'	283.78'	12.75'	282.30'
5	1°41'45.12" RT.	1°00'00.00"	5,729.58'	84.80'	169.59'	0.63'	169.58'
6	100°09'44.98" RT	114°35'29.61"	50.00'	59.76'	87.41'	27.92'	76.70'

TRAVERSE POINTS			
POINT NO.	NORTH	EAST	ELEVATION
TRAV 900 N.S.	576599.0810	1364758.1750	419.94
TRAV 901 N.S.	575628.9940	1364013.6960	408.47
TRAV 902 N.S.	575656.2670	1364038.4440	409.71
TRAV 903 N.S.	577130.5570	1365111.4350	421.72
TRAV 904	577568.1660	1364318.8810	411.55
TRAV 905	577812.9360	1364164.0890	412.72
TRAV 906	577999.0420	1363915.7970	406.27
TRAV 907	578577.2420	1363642.4310	407.14
TRAV 908	578871.1830	1363286.6480	407.95
TRAV 909	578532.2500	1363585.8720	404.60
TRAV 910	578994.0910	1362891.8170	414.84
TRAV 911 N.S.	579157.2490	1362441.4370	402.14
TRAV 912 N.S.	579178.2890	1362117.1550	393.45
TRAV 913 N.S.	578788.7120	1363279.9640	406.01
TRAV 914 N.S.	578260.2850	1363944.2400	408.22
TRAV 950 N.S.	578753.5260	1362302.8980	390.54

* N.S. = NOT SHOWN

CONSTRUCTION CONTROL COORDINATES				
CURVE NO.	DESCRIPTION	NORTH	EAST	BEARING
MD 103				
CURVE 1	P.C. 100+00.00	579117.7643	1362552.9168	S 78°16'38.97" E
	P.L. 103+61.81	579044.2549	1362907.1791	
	P.C.C. 107+16.98	578859.4410	1363218.2245	S 59°16'56.90" E
CURVE 2	EQUALITY			
	P.O.C. 108+43.41 =	578790.4991	1363324.1655	
	P.O.T. 0+00.00 OLD COLUMBIA PIKE			
	P.L. 109+98.28	578715.7480	1363460.0625	
CURVE 3	P.C.C. 112+73.53	578496.2367	1363635.9833	S 59°16'56.90" E
	P.L. 114+13.60	578386.9373	1363723.5781	
	P.T. 115+53.32	578267.7967	1363797.2307	S 31°43'27.51" E
CURVE 4	EQUALITY			
	P.O.T. 116+58.85 MD 103 =	578178.0398	1363852.7183	
	P.O.T. 51+50.00 LONG GATE SHOPPING CENTER ENTRANCE A			
	P.C. 119+51.50	577929.1106	1364006.6060	S 31°43'27.51" E
CURVE 5	P.L. 120+94.90	577807.1378	1364082.0095	
	P.T. 122+35.28	577718.9492	1364195.0839	S 52°02'55.52" E
	P.O.T. 124+51.26	577586.1235	1364365.3916	
	OLD COLUMBIA PIKE			
CURVE 6	EQUALITY			
	P.O.C. 108+43.41 MD 103 =	578790.4991	1363324.1655	
	P.O.T. 0+00.00 OLD COLUMBIA PIKE			N 44°30'42.36" E
	P.C. 2+28.02	578953.1047	1363484.0232	
	P.L. 3+12.82	579013.5757	1363543.4723	
LONG GATE SHOPPING CENTER ENTRANCE A	P.T. 3+97.61	579072.2609	1363604.6850	N 46°12'27.47" E
	P.O.T. 6+88.36	579273.4729	1363814.5629	
	P.O.T. 49+25.00	578027.8160	1363685.2136	N 48°06'47.51" E
	SPUR A			
CURVE 6	EQUALITY			
	P.O.T. 50+52.65 =	578113.0435	1363780.2453	
	P.C. STA. 10+00.00 SPUR A			N 48°06'47.51" E
	P.O.T. 51+50.00 =	578178.0398	1363852.7183	
CURVE 6	P.O.T. 116+58.85 MD 103	578178.0398	1363852.7183	
	P.C. 10+00.00	578113.0435	1363780.2453	N 48°06'47.51" E
	P.L. 10+59.76	578152.9427	1363824.7342	
CURVE 6	P.T. 10+87.41	578102.1119	1363856.1577	
	P.O.T. 11+29.92	578065.9531	1363878.5110	S 31°43'27.51" E



SHEET NOTES:

- THIS DRAWING IS INCORPORATED FOR TRAVERSE REFERENCE ONLY. THIS FILE HAS BEEN REPRODUCED FROM THE MDOT SHA CONTRACT H02275187. CONSTRUCTION CONTROL SHOWN ON THIS SHEET IS REFERENCED ON THE WATER PLANS.

AS-BUILT
03/01/2022

DATUM: NAD 83/91 Horizontal
NAVD 88 Vertical

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

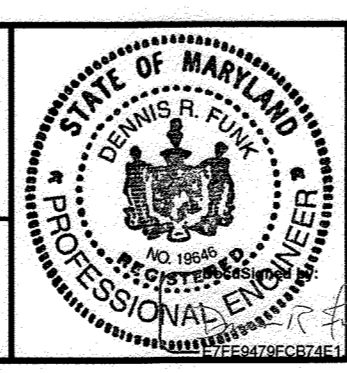
Director of Public Works: *5/7/20*
Date: *5-6-2020*

Chief, Bureau of Engineering: *5/6/20*
Date: *5/6/20*

Chief, Utility Design Division: *5/6/20*
Date: *5/6/20*

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. 19646, EXPIRATION DATE: 5/19/2020

Gannett Fleming
BALTIMORE, MARYLAND



DES:	BY:	NO.	REVISION	DATE
SJM	GF	1	AS-BUILT	3/22
DRN:	KDJ			
CHK:	DRF			
SIGN DATE:				5/1/2020

APRIL 2020

MDOT SHA GEOMETRY PLAN AND TRAVERSE POINTS (REFERENCE)

600' SCALE MAP NO. 24

CAPITAL PROJECT NO. W8602
CONTRACT NO. 44-5131

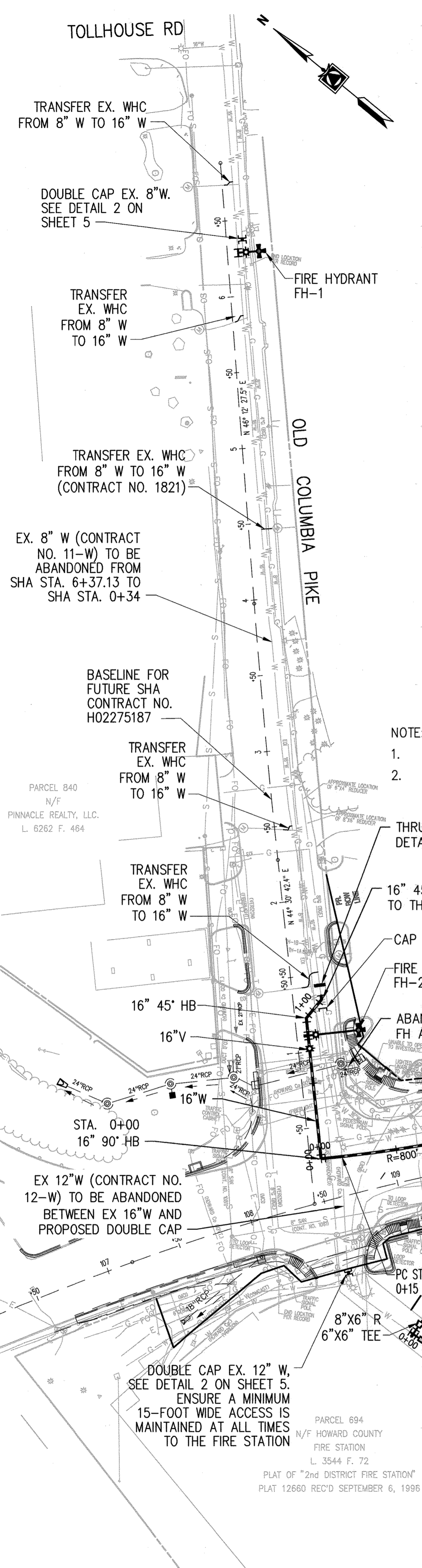
MD ROUTE 103 WIDENING AT ROUTE 29
WATER MAIN RELOCATION

ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

SCALE: NTS

SHEET NO. 2 OF 11



WATER MAIN STAKEOUT				
OLD COLUMBIA PIKE				
STATION	NORTHING	EASTING	DESCRIPTION	
0+00	POB	N 578806.0352	E 1363349.9564	16" - 90' HB
0+73.00	N	578858.0865	E 1363401.1391	16" V
0+81.60	N	578864.2159	E 1363407.1675	16" X 6" TEE (FH-2)
0+93.11	POT	N 578872.4260	E 1363415.2408	16" - 45' HB
1+09.32	POT	N 578872.5429	E 1363431.3876	16" - 45' HB
1+11.82	POE	N 578877.6648	E 1363436.1580	CONNECT TO EX. 16" W
6+29.00	(SHA)	N 579232.0942	E 1363771.4016	16" X 6" TEE (FH-1)
6+37.13	(SHA)	N 579233.6845	E 1363776.8268	8" DOUBLE CAP

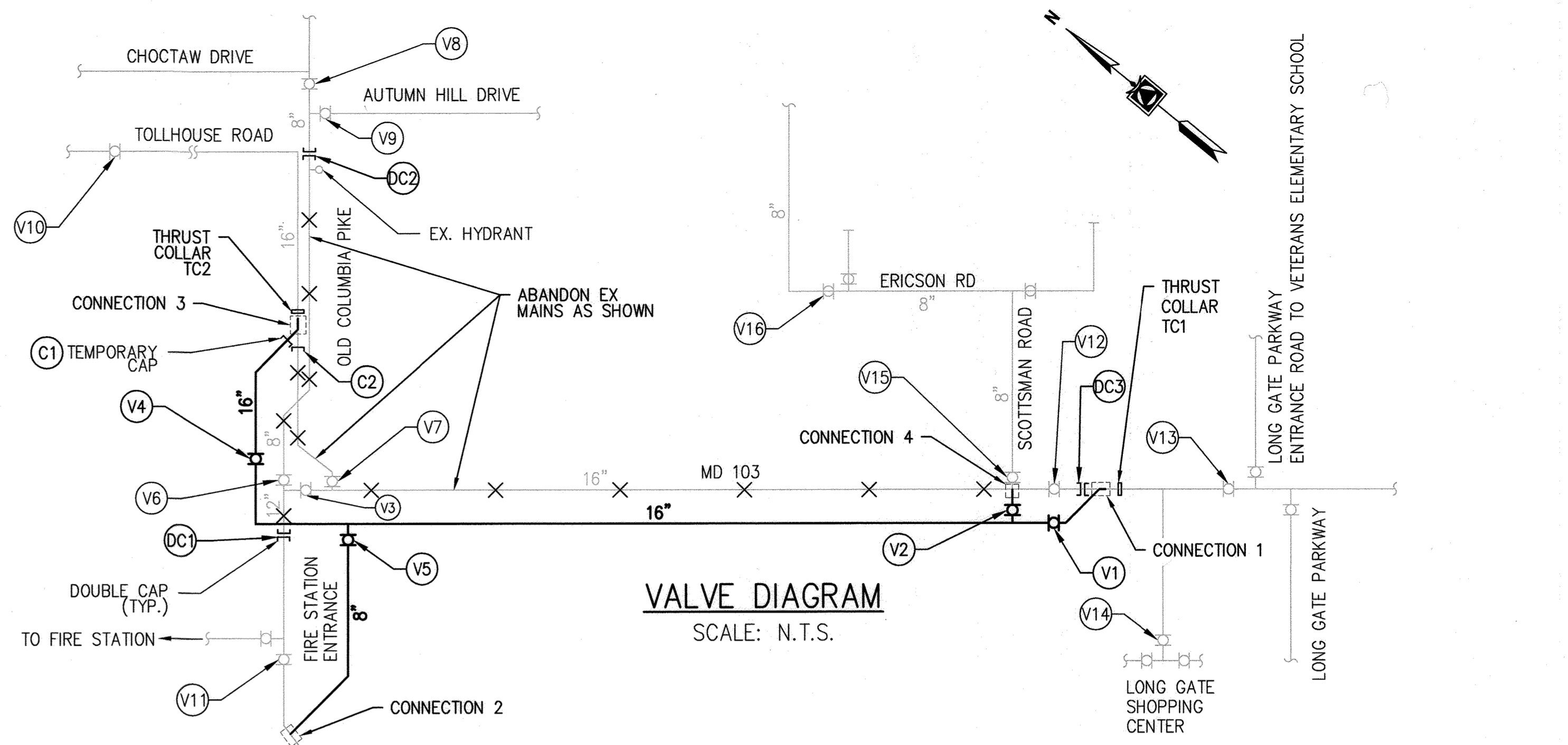
WATER MAIN STAKEOUT				
MD 103 (MONTGOMERY ROAD)				
STATION	NORTHING	EASTING	DESCRIPTION	
0+00	POB	N 578806.0352	E 1363349.9564	16" - 90' HB
0+15.00	PC	N 578795.5194	E 1363360.6530	16" X 8" TEE
0+79.40	N	578752.2642	E 1363408.3477	16" X 8" TEE
1+04.03	PRC	N 578736.7469	E 1363427.4988	16" X 6" TEE (FH-3)
3+95.26	N	578537.5706	E 1363639.4070	16" X 6" TEE (FH-4)
6+46.14	N	578338.5737	E 1363791.7492	16" X 6" TEE (FH-4)
7+46.54	N	578258.0307	E 1363840.9122	16" X 8" TEE
8+05.16	PT	N 578201.2933	E 1363871.8951	16" X 6" TEE (FH-5)
9+26.53	N	578093.5822	E 1363927.8424	16" X 6" TEE (FH-5)
10+27.08	PC	N 578004.4445	E 1363974.4464	16" X 6" TEE (FH-5)
11+67.46	PT	N 577886.4994	E 1364050.7221	16" V
11+75.00	N	577880.5967	E 1364055.3793	16" V
12+49.72	POT	N 577822.8808	E 1364103.4561	16" - 45' HB
12+68.00	POE	N 577819.4989	E 1364120.2602	CONNECT TO EX. 16" W

FIRE HYDRANT LINE ELEVATIONS			
ID	LEAD LENGTH	FH INVERT EL.	FH BURY LINE EL.
FH-1	13.84 LF	409.63	417.00
FH-2	33.45 LF	398.78	408.30
FH-3	26.00 LF	400.77	406.61
FH-4	24.41 LF	400.99	408.00
FH-5	29.04 LF	397.83	405.60

- NOTE:
- INSTALL FIRE HYDRANTS IN ACCORDANCE WITH COUNTY STANDARD DETAIL W-1.11.
 - INSTALL CONTINUITY TEST STATION AT FIRE HYDRANTS IN ACCORDANCE WITH COUNTY STANDARD DETAIL W-1.15.

SHEET NOTES

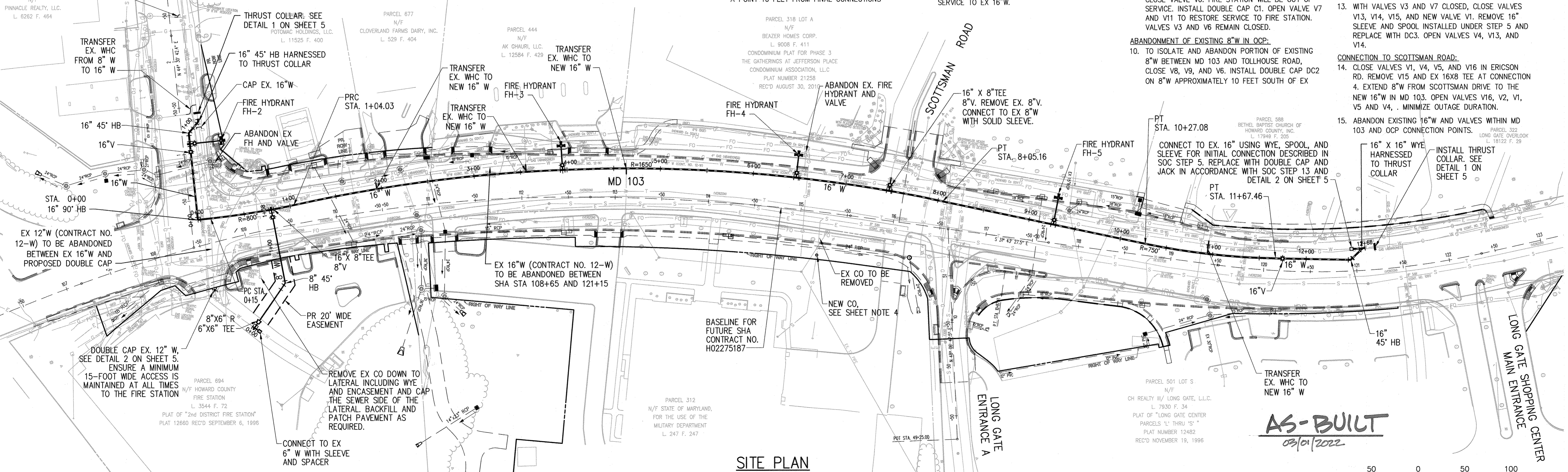
- INSTALL CONCRETE BUTTRESS AT ALL TEES IN ACCORDANCE WITH COUNTY STANDARD DETAIL W-2.23. RESTRAIN ALL FIRE HYDRANTS IN ACCORDANCE WITH COUNTY STANDARD DETAIL W-2.11.
- INSTALL CAST IN PLACE CONCRETE COLLARS ON EXISTING PIPE IN ADVANCE OF PROPOSED CONNECTIONS SO THAT CONCRETE DESIGN STRENGTH IS ACHIEVED PRIOR SUBJECTING TO RESTRAINING FORCES.
- ELEMENTS SHOWN IN THIN BLACK DASHED LINEWORK IS SHOWN FOR REFERENCE ONLY AND IS WORK PROPOSED UNDER SHA CONTRACT HO2275187.
- EXCAVATE EXISTING SANITARY CLEANOUT TO EXPOSE BASE WYE AND LATERAL. REMOVE EXISTING WYE, CONCRETE ENCASMENT, AND 15 FEET OF UPSTREAM LATERAL PIPE TO NEW CLEANOUT LOCATION. CONFIRM PIPE MATERIAL AND PROVIDE SIMILAR MATERIAL FOR NEW CLEANOUT AND LATERAL SEGMENT. INSTALL NEW CLEANOUT BEHIND PROPOSED SHA IMPROVEMENTS USING A 6" X 4" WYE IN ACCORDANCE WITH COUNTY STANDARD DETAIL S-2.22. INSTALL NEW 6" LATERAL PIPE TO RECONNECT SANITARY SERVICE TO THE SYSTEM. ACCORDING TO AVAILABLE RECORDS, THE EXISTING LATERAL IS A 6" DIAMETER SERVICE WITH 7 FEET OF COVER AT THE PROPERTY LINE.
- SUGGESTED SEQUENCE OF CONSTRUCTION IS PROVIDED FOR CONTRACTOR'S CONVENIENCE. CONTRACTOR SHALL SUBMIT HIS INTENDED CONSTRUCTION SEQUENCE TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION.



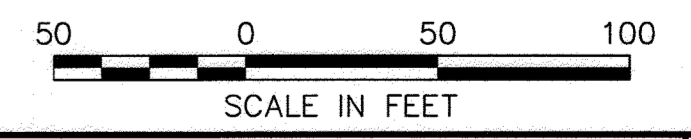
VALVE DIAGRAM
SCALE: N.T.S.

SUGGESTED SEQUENCE OF CONSTRUCTION

- INSTALL ALL EROSION AND SEDIMENT CONTROL AND MAINTENANCE OF TRAFFIC DEVICES IN ACCORDANCE WITH THE DRAWINGS AND PERMIT CONDITIONS. COORDINATE WITH RESPECTIVE AGENCIES AS REQUIRED.
- EXCAVATE AND INSTALL THRUST COLLAR TC1 ON EX. 16" W IN MD103 AT EAST END OF PROJECT AND TC2 AT THE WEST END IN OLD COLUMBIA PIKE (OCP).
- CONSTRUCT NEW 16" W IN MD 103 AND OCP UP TO A POINT 10 FEET FROM FINAL CONNECTIONS INCLUDING FIRE HYDRANTS AND VALVES. INSTALL TEMPORARY CAP C1 AT OPEN END IN OCP.
- CLOSE NEW VALVES V1, V2, V4 AND V5.
- CLOSE VALVES V3, V7, V12, V13, V14 AND V15. THIS WILL TAKE THE EX 16" W OUT OF SERVICE BETWEEN OCP AND V12. CONNECT THE NEW AND EXISTING 16" W NEAR THE THRUST COLLAR TC1 IN MD 103 WITH WYE, SPOOL, AND SLEEVE. SHUTDOWN SHALL NOT EXCEED ONE OVERNIGHT SHIFT.
- WITH V12, V2, V4, AND V5 STILL CLOSED, OPEN V1, V3, V7, V13, V14, AND V15 TO CHARGE NEW 16" W BETWEEN CONNECTION POINT AND V4 AND RESTORE SERVICE TO EX 16" W.
- TRANSFER SERVICES IN MD 103 TO NEW 16" W. TRANSFER SERVICES IN OCP FROM 8" W TO EX 16" W. ABANDON EX FIRE HYDRANT NEAR SHA STA 115+00.
- CONNECTION TO FIRE STATION:
CONSTRUCT NEW 8" W TO FIRE STATION UP TO A POINT 10 FEET FROM CONNECTION 2. CLOSE V3, V7 AND V11. THIS ALLOWS THE FIRE STATION TO CONTINUE TO RECEIVE WATER BUT THE FIRE HYDRANT WILL BE TEMPORARILY OUT OF SERVICE. COMPLETE NEW 8" W TO EX 12" W CONNECTION 2.
- OPEN VALVE V5; V3 AND V11 REMAIN CLOSED. CLOSE VALVE V6. FIRE STATION WILL BE OUT OF SERVICE. INSTALL DOUBLE CAP C1. OPEN VALVE V7 AND V11 TO RESTORE SERVICE TO FIRE STATION. VALVES V3 AND V6 REMAIN CLOSED.
- ABANDONMENT OF EXISTING 8" W IN OCP:
TO ISOLATE AND ABANDON PORTION OF EXISTING 8" W BETWEEN MD 103 AND TOLLHOUSE ROAD, CLOSE V8, V9, AND V6. INSTALL DOUBLE CAP DC2 ON 8" W APPROXIMATELY 10 FEET SOUTH OF EX. FIRE HYDRANT. OPEN VALVES V8 AND V9. ABANDON EX 8" W BETWEEN DC2 AND MD 103.
- CONNECTION OF EXISTING AND NEW 16" W IN OCP:
CLOSE VALVES V7 AND V10 TO ISOLATE EXISTING 16" W IN OCP.
- REMOVE TEMPORARY CAP C2 (STEP 3) AND CONNECT NEW 16" W IN OCP TO EXISTING 16" W (CONNECTION 3) AND INSTALL CAP C2. INSTALL NEW FIRE HYDRANTS FH-2 AND FH-1 ON EXISTING 16" W. OPEN VALVES V4 AND V10. ABANDON EX FIRE HYDRANT AT GAS STATION. VALVE V7 TO REMAIN CLOSED.
- WITH VALVES V3 AND V7 CLOSED, CLOSE VALVES V13, V14, V15, AND NEW VALVE V1. REMOVE 16" SLEEVE AND SPOOL INSTALLED UNDER STEP 5 AND REPLACE WITH DC3. OPEN VALVES V4, V13, AND V14.
- ABANDON EXISTING 16" W AND VALVES WITHIN MD 103 AND OCP CONNECTION POINTS.
- CONNECTION TO SCOTTSMAN ROAD:
CLOSE VALVES V1, V4, V5, AND V16 IN ERICSON RD. REMOVE V15 AND EX 16X8 TEE AT CONNECTION 4. EXTEND 8" W FROM SCOTTSMAN DRIVE TO THE NEW 16" W IN MD 103. OPEN VALVES V16, V2, V1, V5 AND V4. MINIMIZE OUTAGE DURATION.
- ABANDON EXISTING 16" W AND VALVES WITHIN MD 103 AND OCP CONNECTION POINTS.



SITE PLAN
SCALE: 1"=50'



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Randy Van 5/7/20
DIRECTOR OF PUBLIC WORKS DATE

Thomas E. Buller 5/6/20
CHIEF, BUREAU OF ENGINEERING DATE

John 5-6-2020
CHIEF, BUREAU OF UTILITIES DATE

John 5/6/20
CHIEF, UTILITY DESIGN DIVISION 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. 19646, EXPIRATION DATE: 5/19/2020

Gannett Fleming
BALTIMORE, MARYLAND

STATE OF MARYLAND
PROFESSIONAL ENGINEER

DES:	BY:	NO.	REVISION	DATE
SJM	GF	1	AS-BUILT	5/22
DRN:	SJM			
CHK:	DRF			
SIGN DATE:				5/1/2020

APRIL 2020

WATER PLAN

600' SCALE MAP NO. 24

BLOCK NO. 24

ELECTION DISTRICT NO. 2

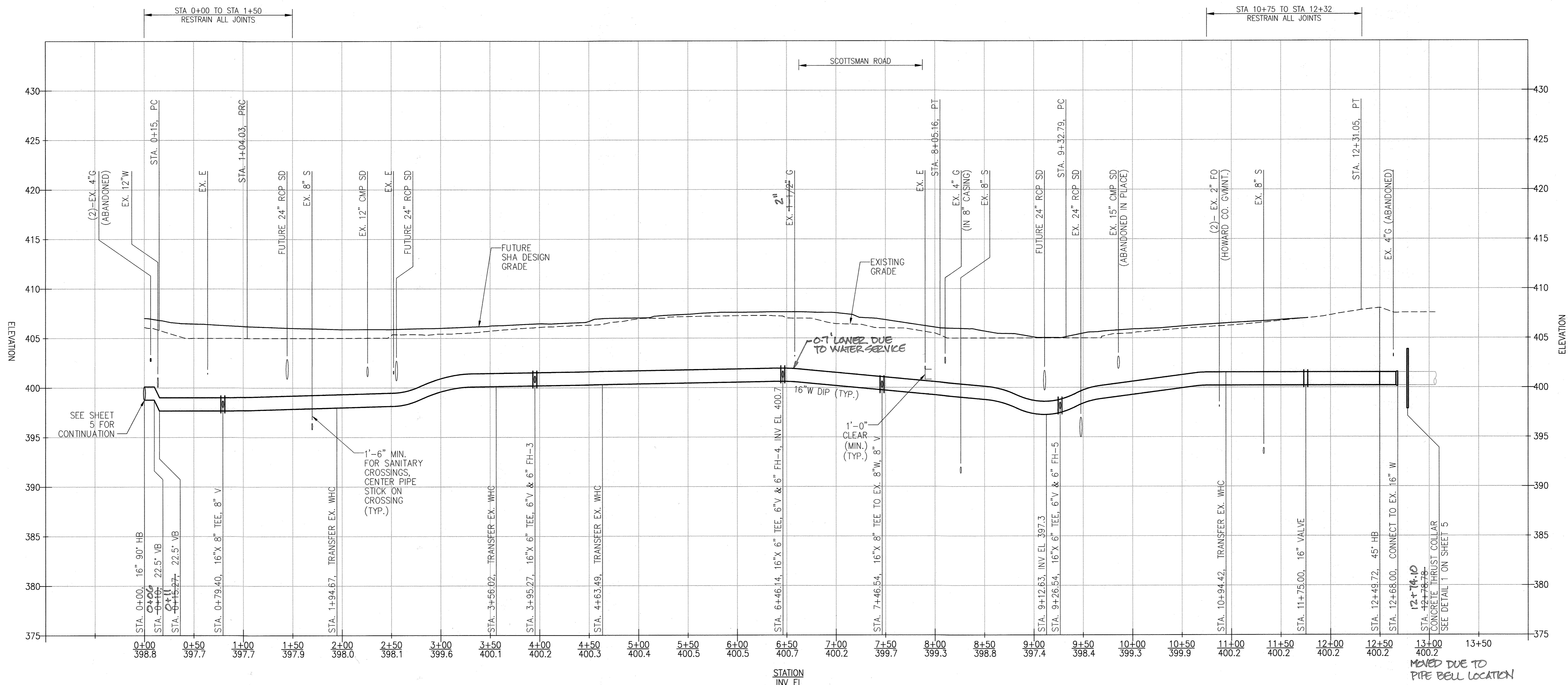
HOWARD COUNTY, MARYLAND

CAPITAL PROJECT NO. W8602
CONTRACT NO. 44-5131

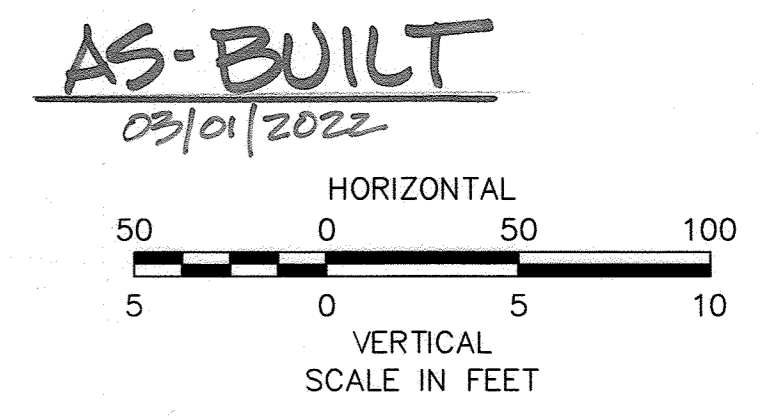
MD ROUTE 103 WIDENING AT ROUTE 29
WATER MAIN RELOCATION

SCALE:
AS SHOWN

SHEET NO.
3 OF 11



MD 103 16" WATER MAIN PROFILE
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

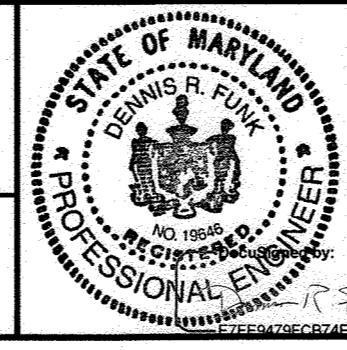
[Signature] 5/7/20
 DIRECTOR OF PUBLIC WORKS DATE

[Signature] 5/6/20
 CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 5/6/20
 CHIEF, UTILITY DESIGN DIVISION DATE

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Gannett Fleming
 BALTIMORE, MARYLAND



DES:	BY:	NO.:	REVISION:	DATE:
SJM	GF	1	AS-BUILT	3/22
DRN:				
CHK:				
SIGN DATE:				5/1/2020

APRIL 2020

WATER PROFILE

600' SCALE MAP NO. 24

CAPITAL PROJECT NO. W8602
 CONTRACT NO. 44-5131

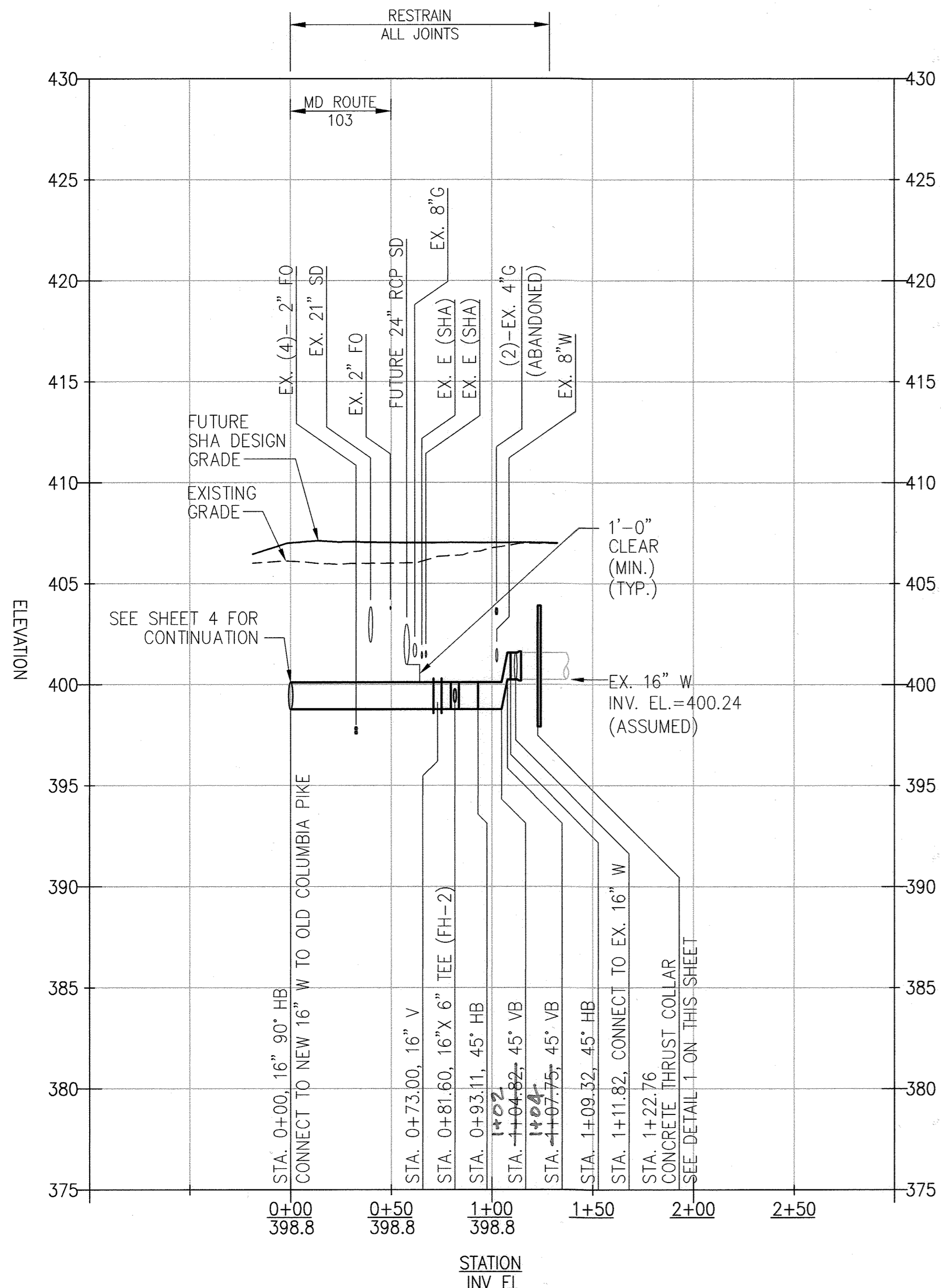
**MD ROUTE 103 WIDENING AT ROUTE 29
 WATER MAIN RELOCATION**

ELECTION DISTRICT NO. 2

SCALE:
 AS SHOWN

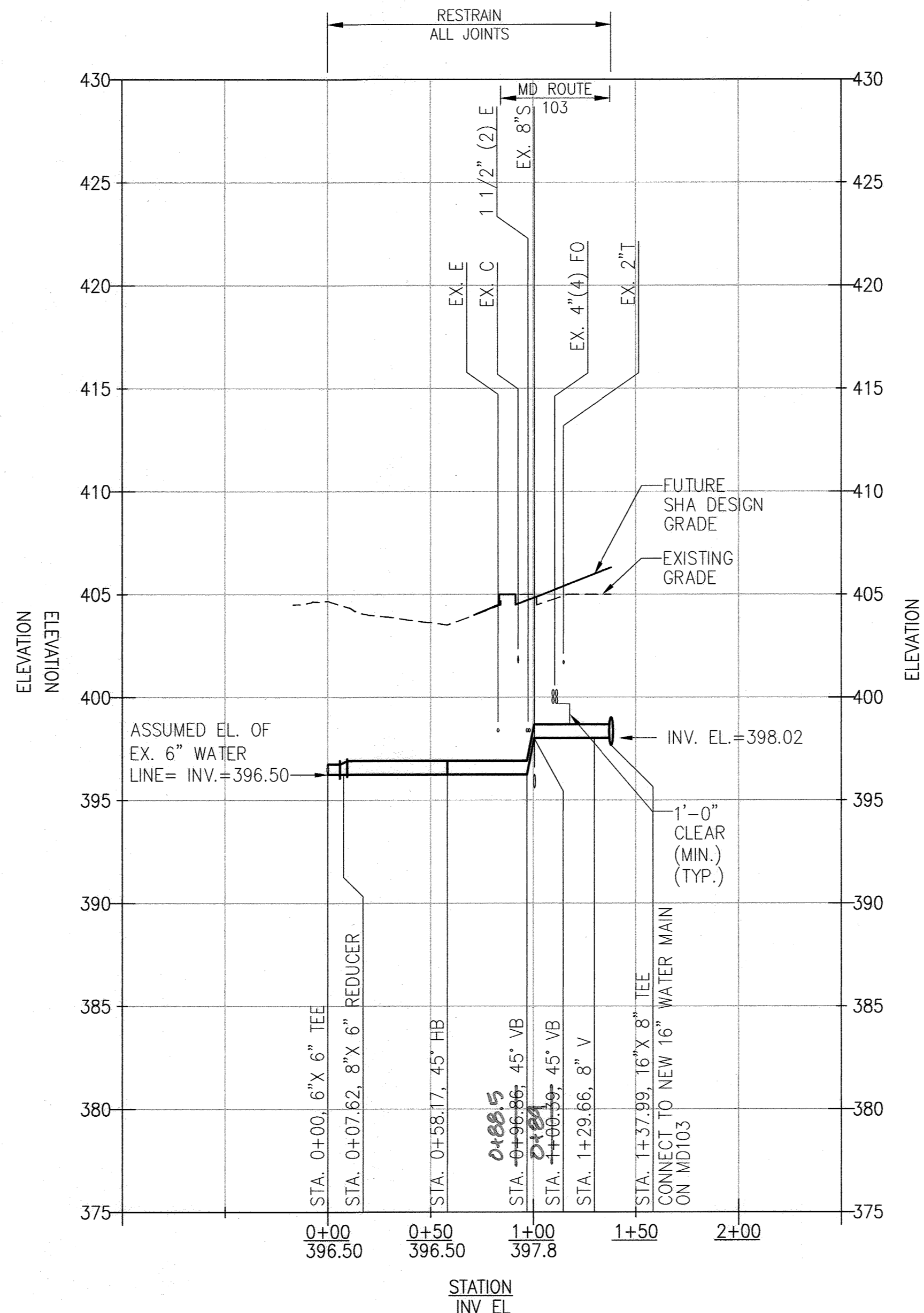
SHEET NO.
 4 OF 11

4112 OLD COLUMBIA 1" WATER SERVICE CORP = 5+80
 4205 OLD COLUMBIA 1.5" WATER SERVICE CORP = 1+39



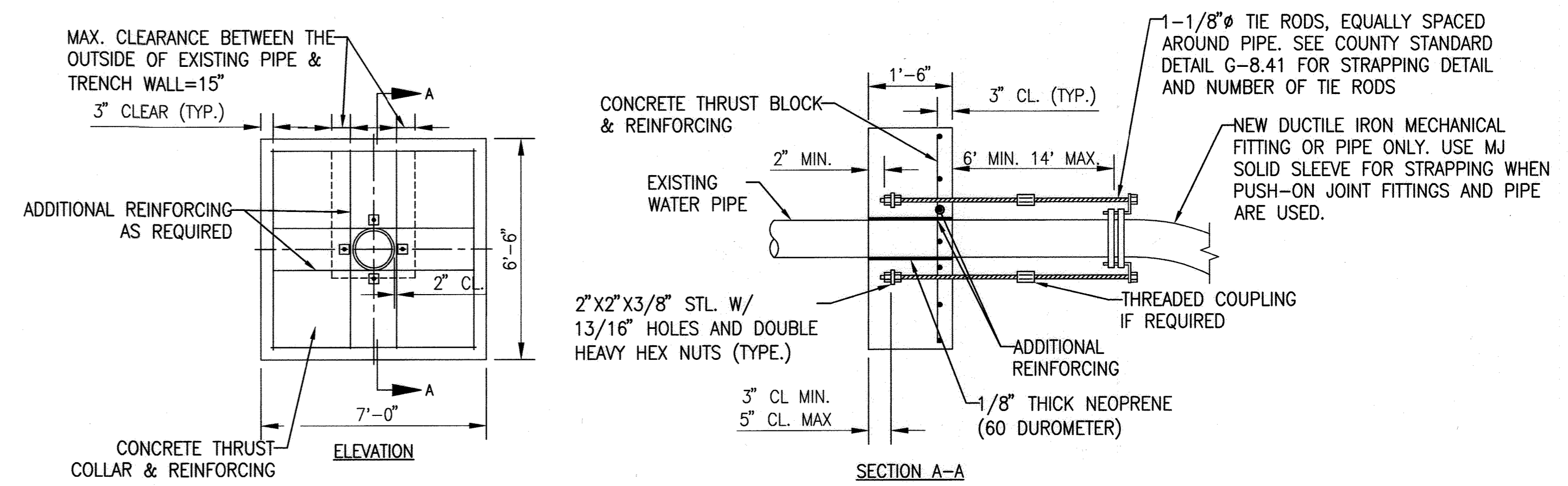
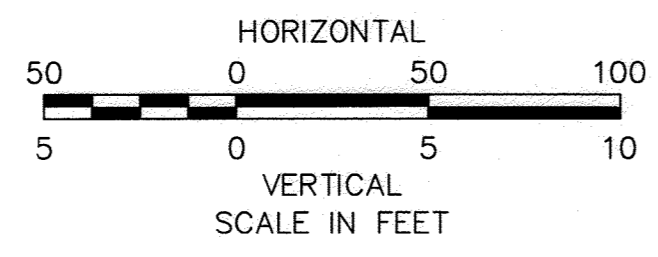
OLD COLUMBIA PIKE 16" WATER MAIN PROFILE

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



2ND DISTRICT FIRE STATION 8" WATER SERVICE PROFILE

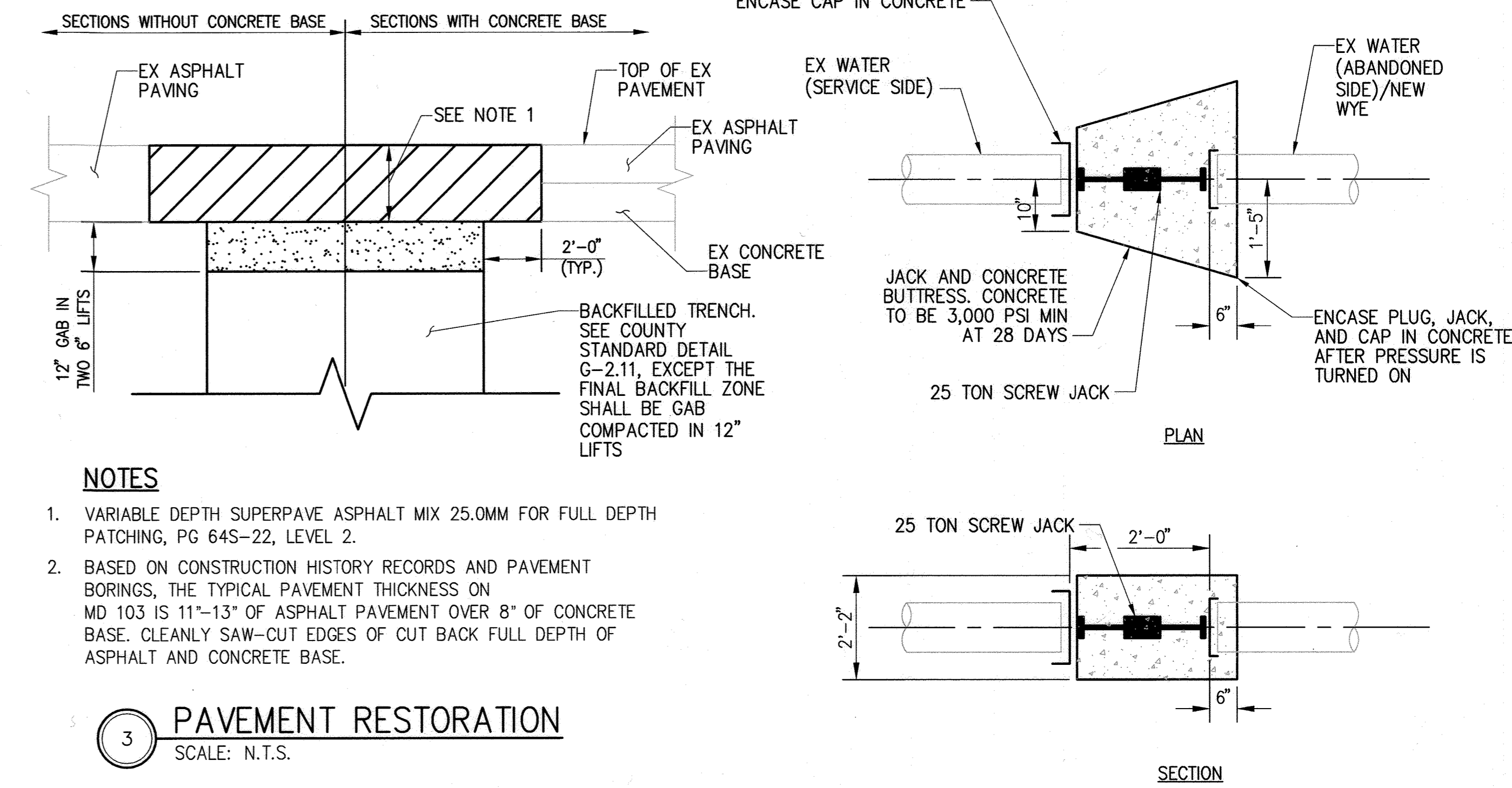
SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



NOTES:

1. ALL CONCRETE SHALL BE 4000 PSI. PIPELINE SHALL NOT BE PRESSURIZED UNTIL CONCRETE STRENGTH REACHES 4000 PSI.
2. ALL REBARS SHALL BE ASTM A615 GRADE 80. REINFORCING TO BE #5@8" C/C EW. ADDITIONAL REINFORCING SHALL BE FOUR #5 BARS AT THE LOCATIONS SHOWN.
3. STEEL PLATES SHALL BE ASTM A36.
4. MAINTAIN 2" CLEAR BETWEEN ALL REBARS AND PIPE.
5. WHERE GALVANIZED COATING IS DAMAGED, COVER WITH BITUMINOUS MATERIAL.
6. BOLT CIRCLE FOR TIE RODS AT THRUST COLLAR SHALL EQUAL BOLT CIRCLE AT TIE BOLTS.
7. ALL TIE RODS SHALL BE PARALLEL TO AXIS OF PIPE.
8. TIE RODS SHALL BE 1-1/8" DIAMETER.

1 THRUST COLLAR
 SCALE: N.T.S.



NOTES

1. VARIABLE DEPTH SUPERPAVE ASPHALT MIX 25.0MM FOR FULL DEPTH PATCHING, PG 64S-22, LEVEL 2.
2. BASED ON CONSTRUCTION HISTORY RECORDS AND PAVEMENT BORINGS, THE TYPICAL PAVEMENT THICKNESS ON MD 103 IS 11"-13" OF ASPHALT PAVEMENT OVER 8" OF CONCRETE BASE. CLEANLY SAW-CUT EDGES OF CUT BACK FULL DEPTH OF ASPHALT AND CONCRETE BASE.

3 PAVEMENT RESTORATION
 SCALE: N.T.S.

2 DOUBLE CAP AND BUTTRESS
 SCALE: N.T.S.

AS-BUILT
 09/01/2022

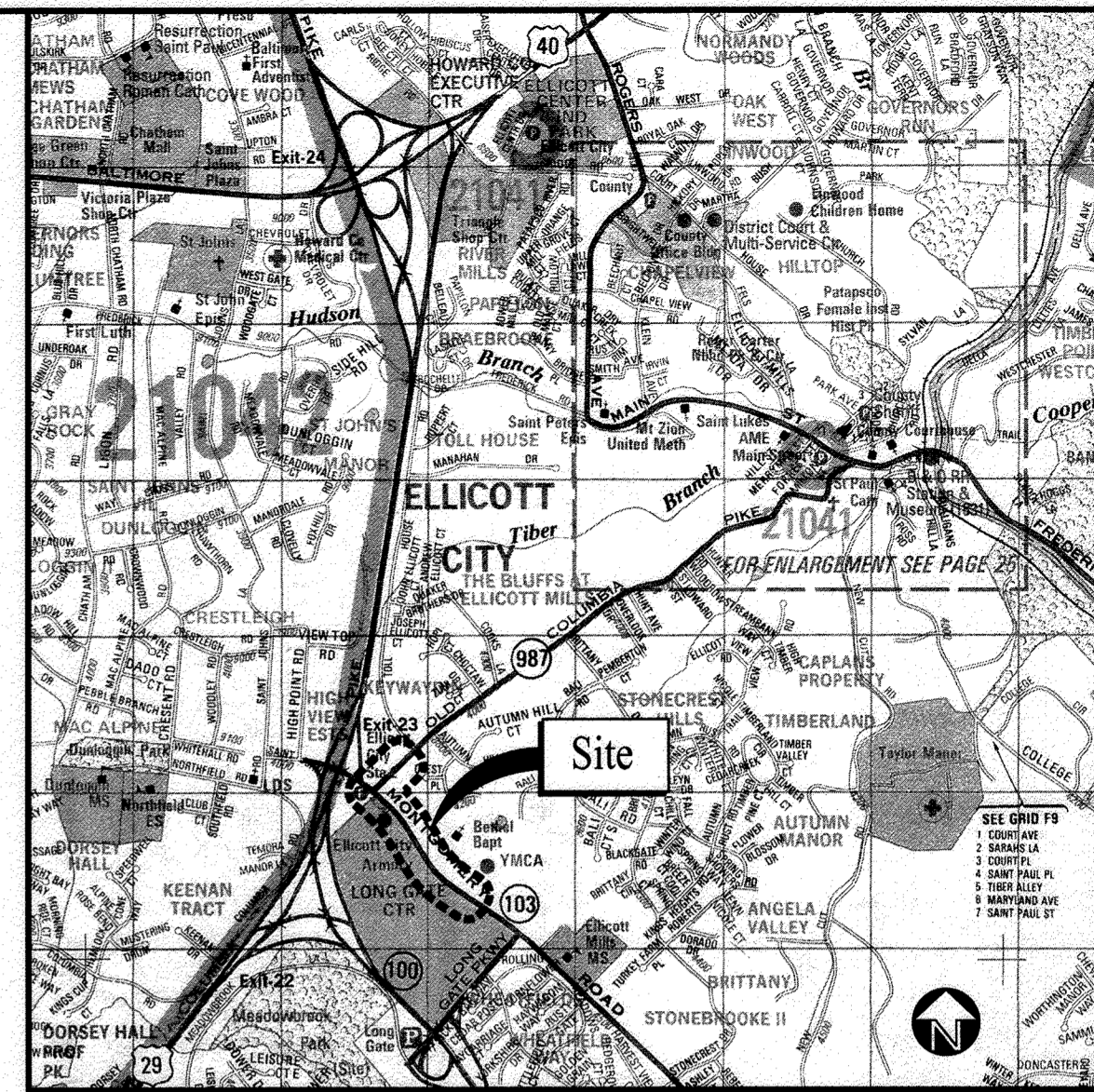
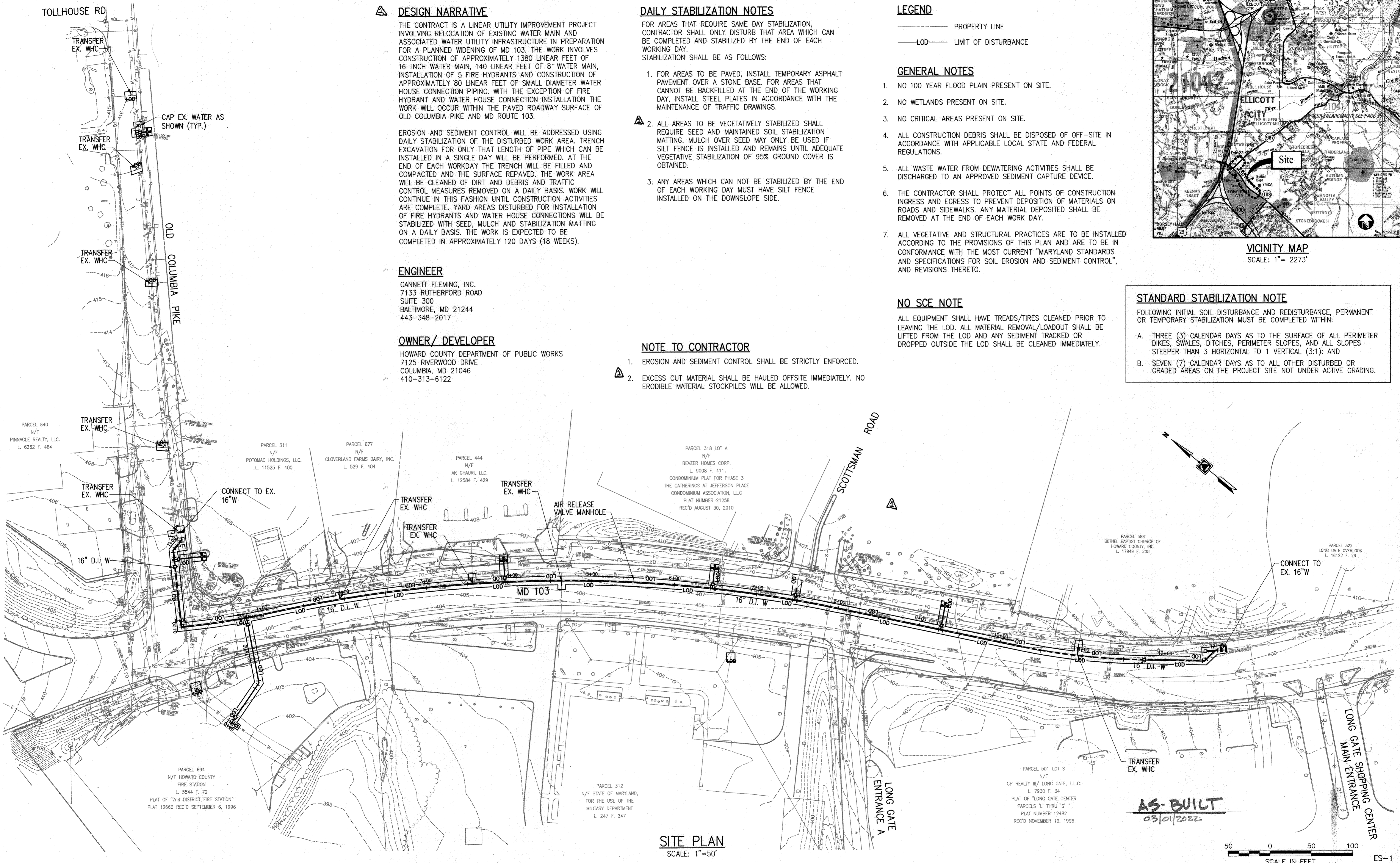
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: [Signature] 5/6/20
 Chief, Bureau of Engineering: [Signature] 5/6/20
 Chief, Bureau of Utilities: [Signature] 5-6-2020
 Chief, Utility Design Division: [Signature] 5/6/20

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Gannett Fleming
 BALTIMORE, MARYLAND



DES:	BY:	NO.	REVISION	DATE
SJM	GF	1	AS BUILT	3/22
DRN:				
CHK:				
SJM				
DRF				
SIGN DATE:	5/1/2020			

APRIL 2020
 WATER PROFILES AND DETAILS
 600' SCALE MAP NO. 24
 BLOCK NO. 24
 CAPITAL PROJECT NO. W8602
 CONTRACT NO. 44-5131
 MD ROUTE 103 WIDENING AT ROUTE 29 WATER MAIN RELOCATION
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN
 SHEET NO. 5 OF 11



VICINITY MAP
SCALE: 1" = 2273'

DESIGN NARRATIVE

THE CONTRACT IS A LINEAR UTILITY IMPROVEMENT PROJECT INVOLVING RELOCATION OF EXISTING WATER MAIN AND ASSOCIATED WATER UTILITY INFRASTRUCTURE IN PREPARATION FOR A PLANNED WIDENING OF MD 103. THE WORK INVOLVES CONSTRUCTION OF APPROXIMATELY 1380 LINEAR FEET OF 16-INCH WATER MAIN, 140 LINEAR FEET OF 8" WATER MAIN, INSTALLATION OF 5 FIRE HYDRANTS AND CONSTRUCTION OF APPROXIMATELY 80 LINEAR FEET OF SMALL DIAMETER WATER HOUSE CONNECTION PIPING. WITH THE EXCEPTION OF FIRE HYDRANT AND WATER HOUSE CONNECTION INSTALLATION THE WORK WILL OCCUR WITHIN THE PAVED ROADWAY SURFACE OF OLD COLUMBIA PIKE AND MD ROUTE 103.

EROSION AND SEDIMENT CONTROL WILL BE ADDRESSED USING DAILY STABILIZATION OF THE DISTURBED WORK AREA. TRENCH EXCAVATION FOR ONLY THAT LENGTH OF PIPE WHICH CAN BE INSTALLED IN A SINGLE DAY WILL BE PERFORMED. AT THE END OF EACH WORKDAY THE TRENCH WILL BE FILLED AND COMPACTED AND THE SURFACE REPAVED. THE WORK AREA WILL BE CLEANED OF DIRT AND DEBRIS AND TRAFFIC CONTROL MEASURES REMOVED ON A DAILY BASIS. WORK WILL CONTINUE IN THIS FASHION UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETE. YARD AREAS DISTURBED FOR INSTALLATION OF FIRE HYDRANTS AND WATER HOUSE CONNECTIONS WILL BE STABILIZED WITH SEED, MULCH AND STABILIZATION MATTING ON A DAILY BASIS. THE WORK IS EXPECTED TO BE COMPLETED IN APPROXIMATELY 120 DAYS (18 WEEKS).

ENGINEER

GANNETT FLEMING, INC.
7133 RUTHERFORD ROAD
SUITE 300
BALTIMORE, MD 21244
443-348-2017

OWNER / DEVELOPER

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
7125 RIVERWOOD DRIVE
COLUMBIA, MD 21046
410-313-6122

DAILY STABILIZATION NOTES

FOR AREAS THAT REQUIRE SAME DAY STABILIZATION, CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.
STABILIZATION SHALL BE AS FOLLOWS:

- FOR AREAS TO BE PAVED, INSTALL TEMPORARY ASPHALT PAVEMENT OVER A STONE BASE. FOR AREAS THAT CANNOT BE BACKFILLED AT THE END OF THE WORKING DAY, INSTALL STEEL PLATES IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC DRAWINGS.
- ALL AREAS TO BE VEGETATIVELY STABILIZED SHALL REQUIRE SEED AND MAINTAINED SOIL STABILIZATION MATTING. MULCH OVER SEED MAY ONLY BE USED IF SILT FENCE IS INSTALLED AND REMAINS UNTIL ADEQUATE VEGETATIVE STABILIZATION OF 95% GROUND COVER IS OBTAINED.
- ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE.

LEGEND

- PROPERTY LINE
- LOD - LIMIT OF DISTURBANCE

GENERAL NOTES

- NO 100 YEAR FLOOD PLAIN PRESENT ON SITE.
- NO WETLANDS PRESENT ON SITE.
- NO CRITICAL AREAS PRESENT ON SITE.
- ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE LOCAL STATE AND FEDERAL REGULATIONS.
- ALL WASTE WATER FROM DEWATERING ACTIVITIES SHALL BE DISCHARGED TO AN APPROVED SEDIMENT CAPTURE DEVICE.
- THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT DEPOSITION OF MATERIALS ON ROADS AND SIDEWALKS. ANY MATERIAL DEPOSITED SHALL BE REMOVED AT THE END OF EACH WORK DAY.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.

NO SCE NOTE

ALL EQUIPMENT SHALL HAVE TREADS/TIRES CLEANED PRIOR TO LEAVING THE LOD. ALL MATERIAL REMOVAL/LOADOUT SHALL BE LIFTED FROM THE LOD AND ANY SEDIMENT TRACKED OR DROPPED OUTSIDE THE LOD SHALL BE CLEANED IMMEDIATELY.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

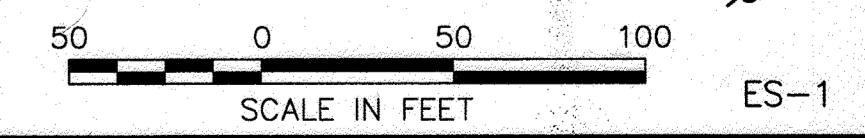
- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

NOTE TO CONTRACTOR

- EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
- EXCESS CUT MATERIAL SHALL BE HAULED OFFSITE IMMEDIATELY. NO ERODIBLE MATERIAL STOCKPILES WILL BE ALLOWED.

SITE PLAN
SCALE: 1"=50'

AS-BUILT
03/01/2022



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 3/30/2021 DATE
DIRECTOR OF PUBLIC WORKS

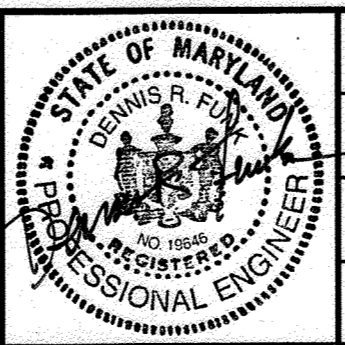
[Signature] 4/5/2021 DATE
CHIEF - BUREAU OF ENGINEERING

[Signature] 3/30/2021 DATE
CHIEF, BUREAU OF UTILITIES

[Signature] 3/30/2021 DATE
CHIEF, UTILITY DESIGN DIVISION

PROFESSIONAL CERTIFICATION:
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Gannett Fleming
BALTIMORE, MARYLAND



DES:	BY:	NO.:	REVISION:	DATE:
SJM			HSCB PERMIT REVISIONS	3/21
DRN:	SJM	GF	AS-BUILT	3/22
CHK:	DRF			
SIGN DATE:	4/16/20			

APRIL 2020

EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 24

BLOCK NO. 24

CAPITAL PROJECT NO. W8602
CONTRACT NO. 44-5131

**MD ROUTE 103 WIDENING AT ROUTE 29
WATER MAIN RELOCATION**

ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

SCALE: 1"=50'
SHEET NO. 6 OF 11

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

- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF EARTH DISTURBANCE.
 - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
 - PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.

6. SITE ANALYSIS:
 TOTAL AREA OF SITE: 4.1 ACRES (178,596 SQ FT)
 AREA DISTURBED: 0.42 ACRES (18,295.20 SQ FT)
 AREA TO BE ROOFED OR PAVED: 0 ACRES
 AREA TO BE VEGETATIVELY STABILIZED: 0.01 ACRES (435.60 SQ FT)
 TOTAL CUT: 970 CU. YDS.
 TOTAL FILL: 840 CU. YDS.
 OFFSITE WASTE/BORROW AREA LOCATION: TO BE DETERMINED

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:

- INSPECTION DATE
- INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
- NAME AND TITLE OF INSPECTOR
- WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
- BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
- EVIDENCE OF SEDIMENT DISCHARGES
- IDENTIFICATION OF PLAN DEFICIENCIES
- IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
- IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
- COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
- PHOTOGRAPHS
- MONITORING/SAMPLING
- MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
- OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDSS, MDE).

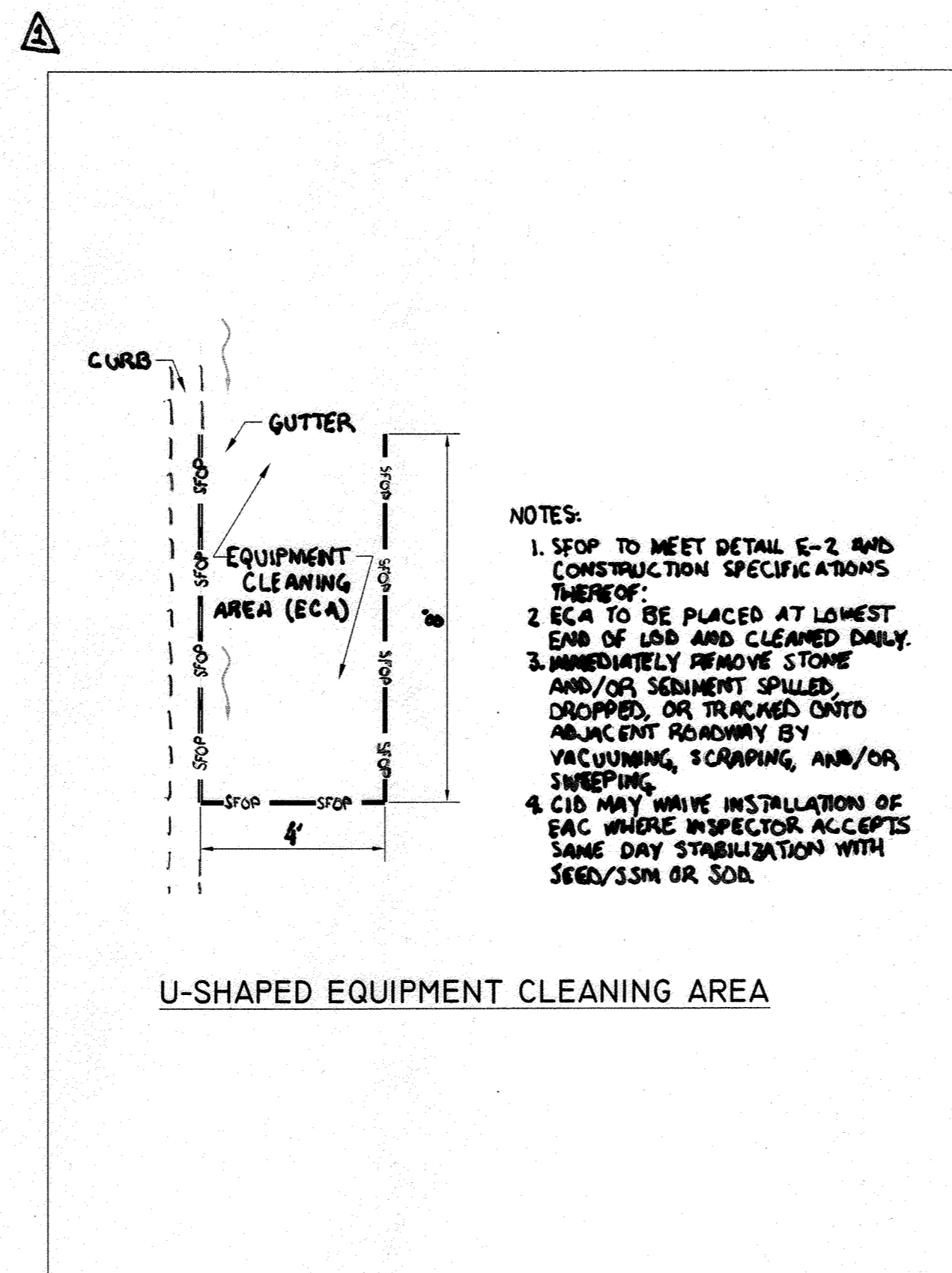
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
- DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.

- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UP HILL BY 2' IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
 - USE I AND IP MARCH 1 - JUNE 15
 - USE III AND IIP OCTOBER 1 - APRIL 30
 - USE IV MARCH 1 - MAY 31
- A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

STANDARD STABILIZATION NOTE:

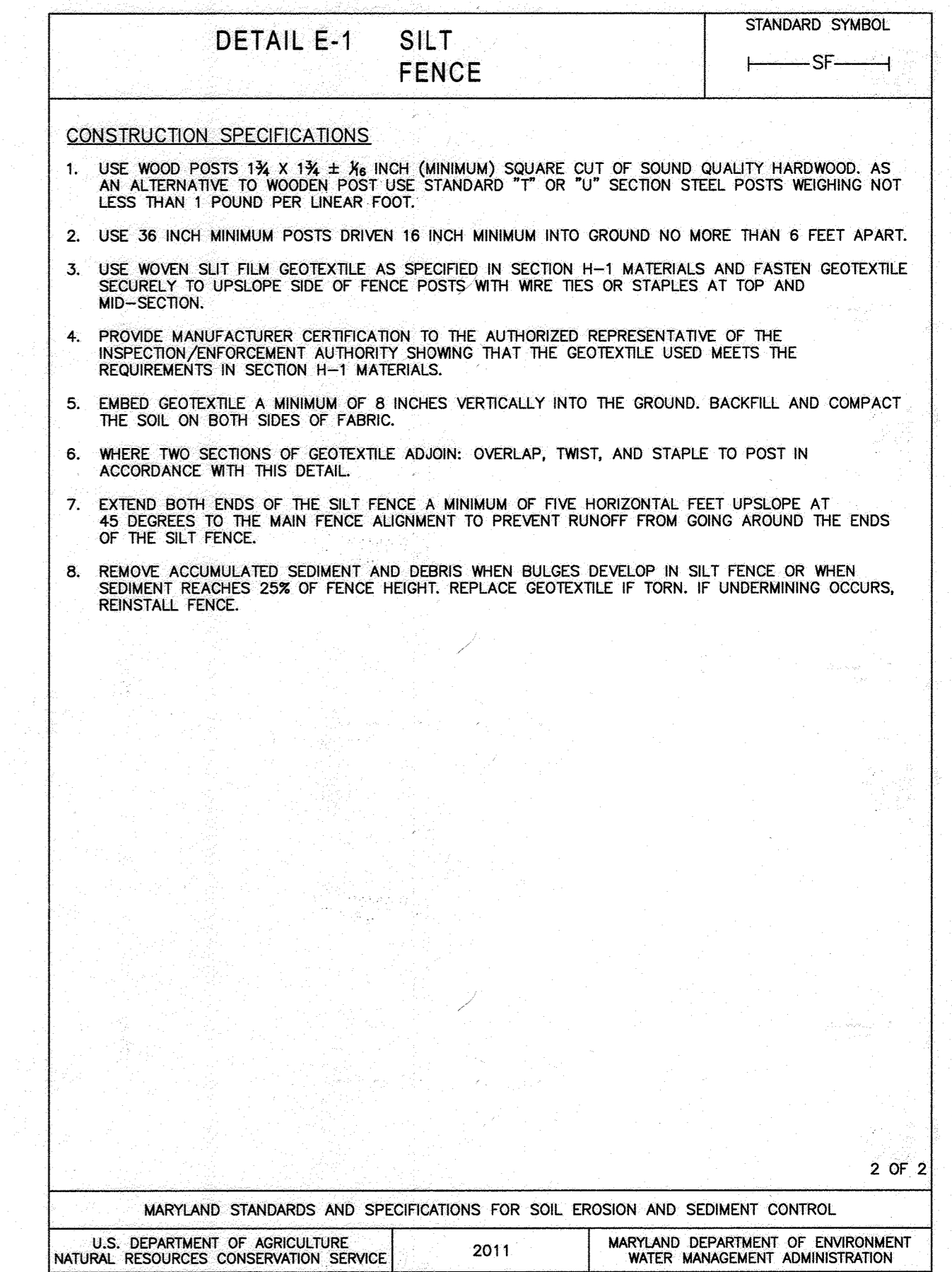
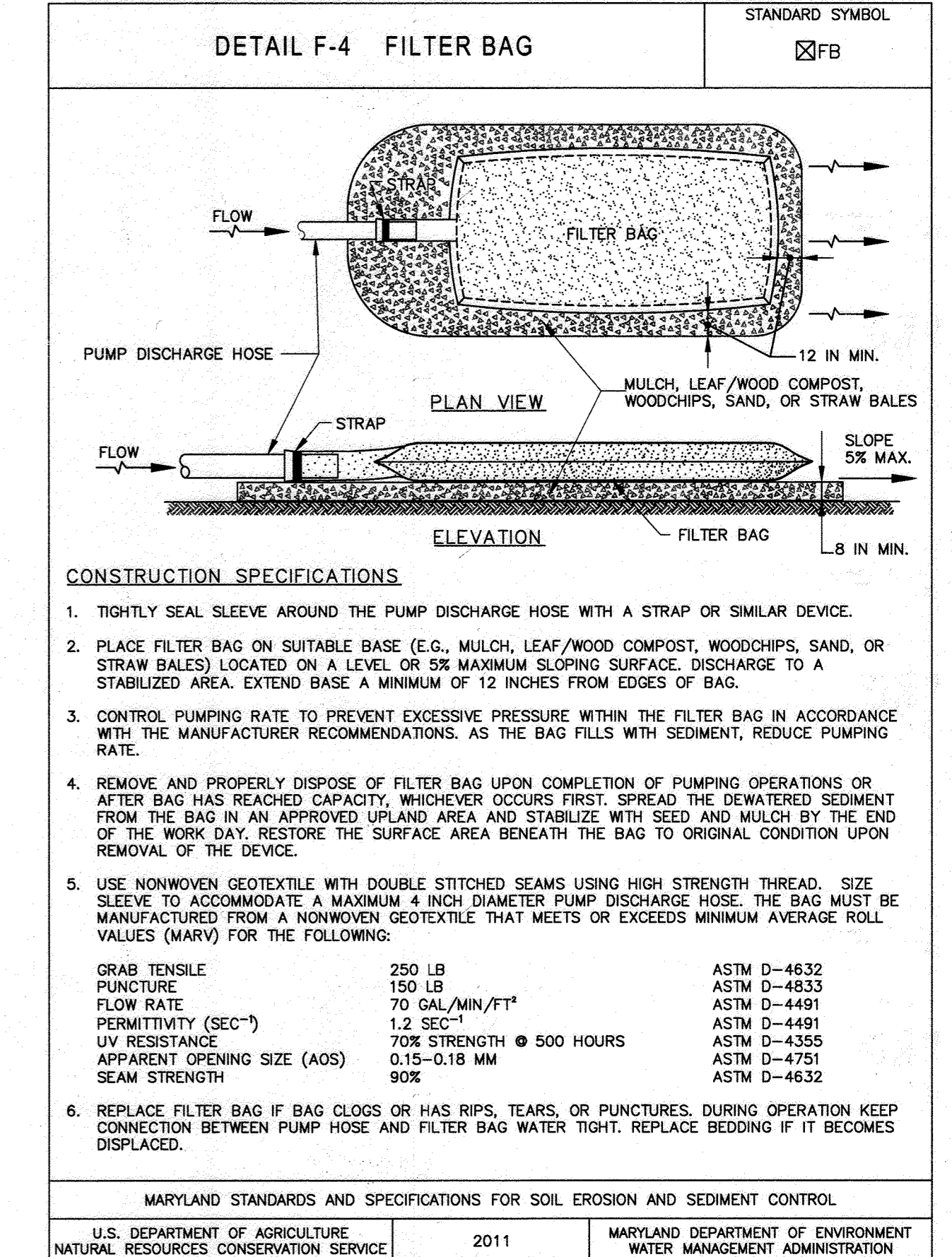
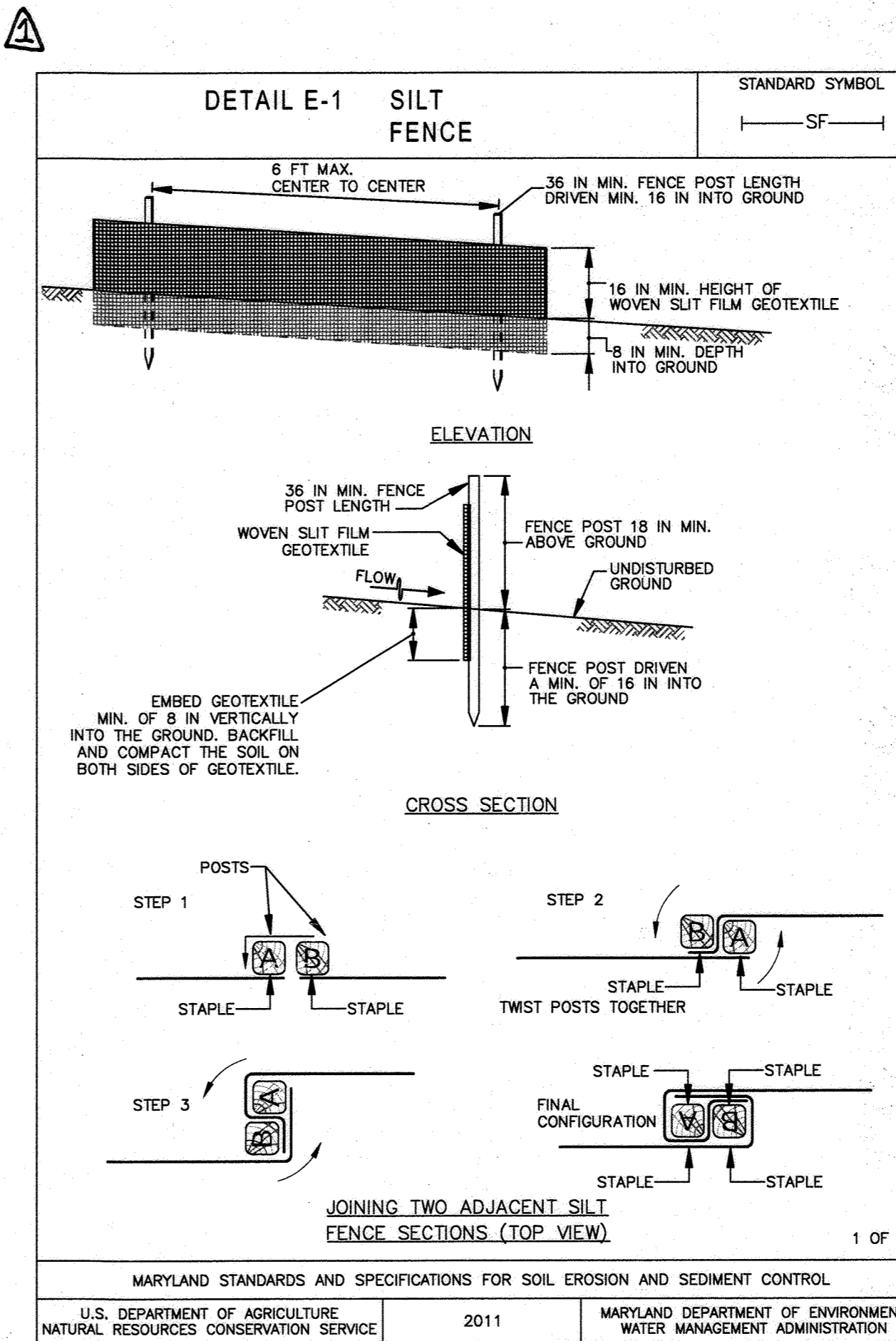
FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- 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.



SEQUENCE OF CONSTRUCTION

ITEM	DURATION
1. THE CONTRACTOR SHALL OBTAIN THE GRADING PERMIT AND NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID) AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EARTH DISTURBANCE ACTIVITIES.	1 DAY
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1-800-257-7777 FOR FIELD LOCATION OF ALL PUBLIC AND PRIVATE UTILITY LINES, PIPES, CABLES AND ASSOCIATED FEATURES AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION WORK. THE CONTRACTOR SHALL UTILIZE THE SERVICES OF A PRIVATE UTILITY LOCATOR TO LOCATE AND MARK EXISTING UNDERGROUND UTILITIES NOT MARKED BY "MISS UTILITY". NO WORK MAY BEGIN WITHOUT CLEAR UTILITY MARKINGS AND A DIG PERMIT AUTHORIZATION FROM MISS UTILITY AND THE CONTRACTING OFFICER.	1 DAY
3. THE CONTRACTOR SHALL SCHEDULE AN ONSITE COORDINATION MEETING BETWEEN THE CID AND ENGINEER TO DISCUSS PROJECT SCOPE AND OBJECTIVES, ON-SITE CONDITIONS, ADDRESS, COORDINATION WITH ON-GOING WORK AND NECESSARY PRACTICES TO PROTECT EXISTING RESOURCES AND PROPERTY.	1 DAY
4. STAKEOUT LIMITS OF DISTURBANCE PRIOR TO INITIATING WORK.	1 DAY
5. INSTALL TRAFFIC CONTROL AND/OR DIRECTIONAL SIGNAGE AS REQUIRED.	1 DAY
6. INSTALL INDIVIDUAL SECTIONS OF WATER MAIN INCLUDING TRENCH EXCAVATION, PIPE INSTALLATION, BACKFILL, COMPACTION AND TEMPORARY TRENCH REPAIR. WORK IS LIMITED TO THE EXTENT THAT CAN BE COMPLETED AND STABILIZED EACH DAY. COMPLETE INDIVIDUAL SECTIONS AND STABILIZE TRENCH BEFORE PROCEEDING TO THE NEXT SECTION. SWEEP PAVED SURFACES CLEAN OF ANY REMAINING SOIL RESIDUE AT THE END OF EACH WORKDAY.	120 DAYS
7. PERFORM SLOPE GRADING, TOPSOIL, SEED AND SOIL STABILIZATION MATTING ON ANY AREAS DISTURBED BY WATER MAIN INSTALLATION OUTSIDE OF ROADWAY PAVING.	3 DAYS
8. FOLLOWING COMPLETION OF ALL PIPELINE CONSTRUCTION PERFORM FINAL TRENCH REPAIR OF ALL PAVING UTILITY CUTS.	7 DAYS
9. WITH WRITTEN APPROVAL OF THE CID INSPECTOR ADDRESS ANY REMAINING ISSUES AND DEMOBILIZE FROM SITE.	3 DAYS



AS-BUILT
03/01/2022

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DIRECTOR OF PUBLIC WORKS: [Signature] 3/30/2022 CHIEF, BUREAU OF UTILITIES: [Signature] 3/30/2022		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. 19646, EXPIRATION DATE: 5/19/2020 Gannett Fleming BALTIMORE, MARYLAND		DES: SJM BY: [Signature] NO. [Blank] REVISION: HSCD PERMIT REVISIONS DATE: 3/21 AS-BUILT 3/22		APRIL 2020 CAPITAL PROJECT NO. W8602 CONTRACT NO. 44-5131 MD ROUTE 103 WIDENING AT ROUTE 29 WATER MAIN RELOCATION ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND		SCALE: NONE SHEET NO. 7 OF 11
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SECTION B-4: VEGETATIVE STABILIZATION

DEFINITION: USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE: TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES: ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION, SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING, SEEDING AND MULCHING, TEMPORARY STABILIZATION, AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY:

STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.

SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT: INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUND COVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUND COVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUND COVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

SECTION B-4-1: INCREMENTAL STABILIZATION

DEFINITION: ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE: TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES: ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA:

A. INCREMENTAL STABILIZATION - CUT SLOPES

1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS WORK PROGRESSES.
2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
 - b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
 - c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

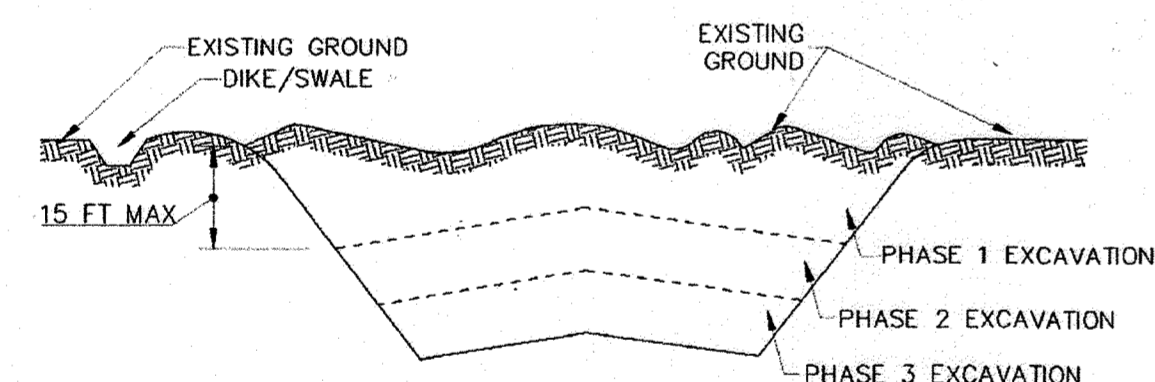


Figure B.1: Incremental Stabilization - Cut

B. INCREMENTAL STABILIZATION - FILL SLOPES

1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.
2. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
3. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
4. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.

- c. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.
- d. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
- e. PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

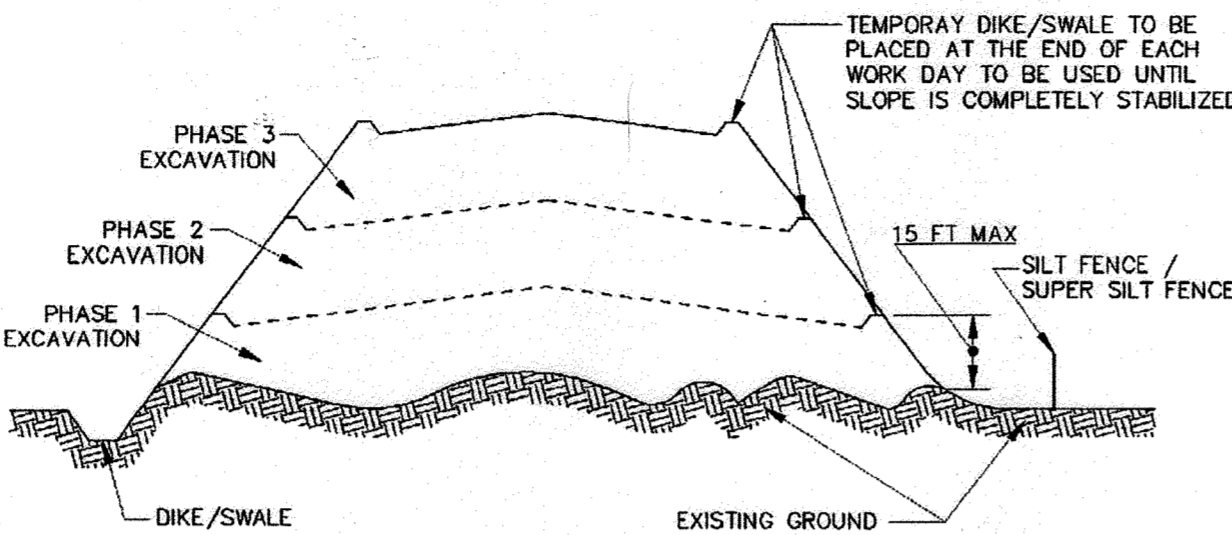


Figure B.2: Incremental Stabilization - Fill

SECTION B-4-2: SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION: THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION

PURPOSE: TO PROVIDE SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH

CONDITIONS WHERE PRACTICE APPLIES: WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED

CRITERIA:

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION

- a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
- b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
- c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

2. PERMANENT STABILIZATION

- a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - I. SOIL PH BETWEEN 6.0 AND 7.0.
 - II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOWGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
- b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
- c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
- d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
- e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING

1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

- a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:

- a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER.
- b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

6. TOPSOIL APPLICATION

- a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

SECTION B-4-3: SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

A. SEEDING

1. SPECIFICATIONS

- a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
- b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
- c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
- d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

2. APPLICATION

- a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
- b. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

- a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
- b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

2. APPLICATION

- a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
- c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

3. ANCHORING

- a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

STANDARD STABILIZATION NOTE:

FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- A. 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
- B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

AS-BUILT
03/01/2022

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. J. McManis 3/30/2021 DATE
DIRECTOR OF PUBLIC WORKS

H. J. Hoff 4/5/2021 DATE
CHIEF, BUREAU OF ENGINEERING

R. J. ... 3/31/2021 DATE
CHIEF, BUREAU OF UTILITIES

... 3/31/2021 DATE
CHIEF, UTILITY DESIGN DIVISION

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. 19646, EXPIRATION DATE: 5/19/2020

Gannett Fleming
BALTIMORE, MARYLAND

DES:	BY:	NO.:	REVISION:	DATE:
SJM	RF	Δ	AS-BUILT	3/22
DRN:	SJM			
CHK:	DRF			
SIGN DATE:				4/16/20

APRIL 2020

VEGETATIVE STABILIZATION NOTES- 2

600' SCALE MAP NO. 24

BLOCK NO. 24

ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

CAPITAL PROJECT NO. W8602
CONTRACT NO. 44-5131

MD ROUTE 103 WIDENING AT ROUTE 29
WATER MAIN RELOCATION

SCALE: NONE

SHEET NO. 8 OF 11

SECTION B-4-4: TEMPORARY STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE: TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OR PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA:

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY					FERTILIZER RATE (10-20-20)	LIME RATE
HARDINESS ZONE (from Figure B.3):	SEED MIXTURE (from Table B.1):	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
7a						
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
	ANNUAL RYEGRASS	40	2/15 - 4/30 8/15 - 11/30	0.5 in.	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	FOXTAIL MILLET	30	5/1 - 8/14	0.5 in.		

SECTION B-4-5: PERMANENT STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE: TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA:

A. SEED MIXTURES

1. GENERAL USE

- a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
- b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
- c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
- d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

2. TURFGRASS MIXTURES

- a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
- b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:

SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.

- c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)
- d. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
- e. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY							
HARDINESS ZONE (from Figure B.3):	SEED MIXTURE (from Table B.3):	APPLICATION RATE (lbs/ac)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)	LIME RATE	
7a							
NO.	SPECIES	APPLICATION RATE (lbs/ac)	SEEDING DATES	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60 40 20	2/15 - 4/30 8/15 - 11/30	1/4" - 1/2"	45 lb/ac (1 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)

** FOR SEEDING DATES 5/1-8/14, ADD 6 LBS PER ACRE OF FOXTAIL MILLET TO SEED MIX NO.9

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS

- a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- b. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
- c. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
- d. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- e. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

- a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
- b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
- c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- d. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

- a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/2 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE.

STANDARD STABILIZATION NOTE:

FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- A. 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
- B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

AS-BUILT
02/01/2022

ES-4

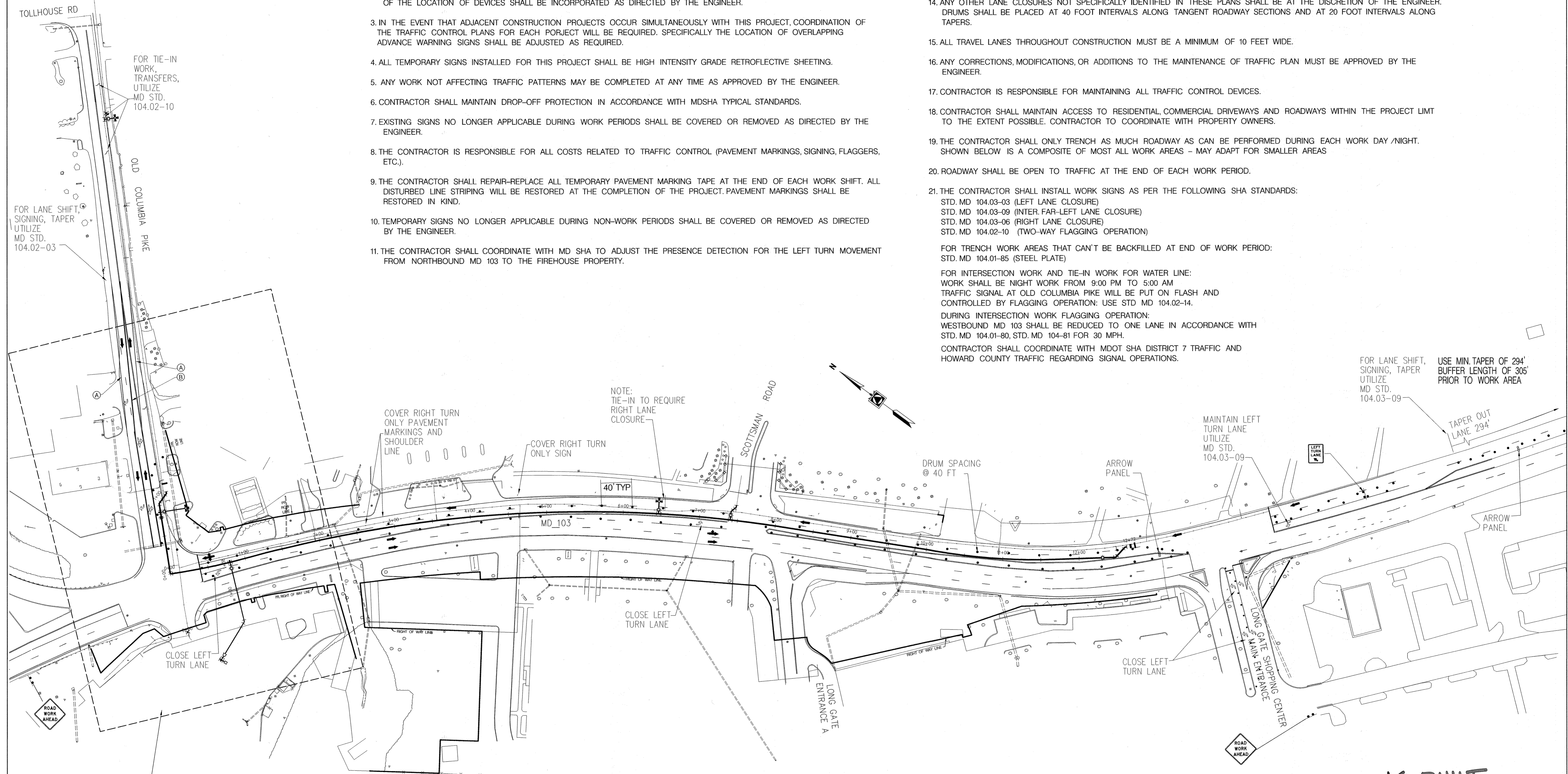
<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>[Signature]</i> 2/30/2021 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>[Signature]</i> 4/5/2021 CHIEF, BUREAU OF ENGINEERING DATE</p> <p><i>[Signature]</i> 3/30/2021 CHIEF, BUREAU OF UTILITIES DATE</p> <p><i>[Signature]</i> 2/21/2021 CHIEF, UTILITY DESIGN DIVISION DATE</p>		<p>PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19646, EXPIRATION DATE: 5/19/2020</p> <p>Gannett Fleming BALTIMORE, MARYLAND</p>	<p>DES: SJM BY: <i>[Signature]</i> NO. <i>[Signature]</i></p> <p>DRN: SJM</p> <p>CHK: DRF</p> <p>SIGN DATE: 4/16/20</p>	<p>REVISION</p> <p>AS-BUILT</p>	<p>DATE: 3/22</p>	<p>APRIL 2020</p> <p>VEGETATIVE STABILIZATION NOTES- 2</p> <p>600' SCALE MAP NO. 24</p>	<p>CAPITAL PROJECT NO. W8602 CONTRACT NO. 44-5131</p> <p>MD ROUTE 103 WIDENING AT ROUTE 29 WATER MAIN RELOCATION</p> <p>ELECTION DISTRICT NO. 2</p> <p>HOWARD COUNTY, MARYLAND</p>	<p>SCALE: NONE</p> <p>SHEET NO. 9 OF 11</p>
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MOT GENERAL NOTES:

- ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL CONFORM TO THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MD MUTCD-2011) AS WELL AS THE MARYLAND STATE HIGHWAY ADMINISTRATION'S STANDARD SIGN BOOK -STANDARD SIGNS-2009 REVISION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING THE LATEST EDITIONS AND SUPPLEMENTS TO THE MD MUTCD.
- THE TRAFFIC CONTROL SEQUENCE DEPICTS THE MINIMUM TRAFFIC CONTROLS REQUIRED DURING CONSTRUCTION TO MAINTAIN VEHICULAR TRAFFIC FLOW AND THE SAFETY OF VEHICLES AND WORKERS. ADDITIONAL DEVICES OR ADJUSTMENT OF THE LOCATION OF DEVICES SHALL BE INCORPORATED AS DIRECTED BY THE ENGINEER.
- IN THE EVENT THAT ADJACENT CONSTRUCTION PROJECTS OCCUR SIMULTANEOUSLY WITH THIS PROJECT, COORDINATION OF THE TRAFFIC CONTROL PLANS FOR EACH PROJECT WILL BE REQUIRED. SPECIFICALLY THE LOCATION OF OVERLAPPING ADVANCE WARNING SIGNS SHALL BE ADJUSTED AS REQUIRED.
- ALL TEMPORARY SIGNS INSTALLED FOR THIS PROJECT SHALL BE HIGH INTENSITY GRADE RETROREFLECTIVE SHEETING.
- ANY WORK NOT AFFECTING TRAFFIC PATTERNS MAY BE COMPLETED AT ANY TIME AS APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL MAINTAIN DROP-OFF PROTECTION IN ACCORDANCE WITH MDSHA TYPICAL STANDARDS.
- EXISTING SIGNS NO LONGER APPLICABLE DURING WORK PERIODS SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS RELATED TO TRAFFIC CONTROL (PAVEMENT MARKINGS, SIGNING, FLAGGERS, ETC.).
- THE CONTRACTOR SHALL REPAIR-REPLACE ALL TEMPORARY PAVEMENT MARKING TAPE AT THE END OF EACH WORK SHIFT. ALL DISTURBED LINE STRIPING WILL BE RESTORED AT THE COMPLETION OF THE PROJECT. PAVEMENT MARKINGS SHALL BE RESTORED IN KIND.
- TEMPORARY SIGNS NO LONGER APPLICABLE DURING NON-WORK PERIODS SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE WITH MD SHA TO ADJUST THE PRESENCE DETECTION FOR THE LEFT TURN MOVEMENT FROM NORTHBOUND MD 103 TO THE FIREHOUSE PROPERTY.

- PORTABLE VARIABLE MESSAGE SIGNS SHALL BE LOCATED AND DISPLAY MESSAGES AS DIRECTED BY THE ENGINEER. PROTECT AND DELINEATE PORTABLE VARIABLE MESSAGE SIGNS IN ACCORDANCE WITH MDSHA STANDARD NO. MD 104.01-22.
- PORTABLE VARIABLE MESSAGE SIGNS SHALL BE INSTALLED AND OPERATIONAL ALERTING THE PUBLIC OF UPCOMING CONSTRUCTION AND NEW TRAFFIC PATTERNS AT LEAST 7 DAYS PRIOR TO BEGINNING CONSTRUCTION AND SHALL BE USED PRIOR TO ANY NEW PHASE.
- ANY OTHER LANE CLOSURES NOT SPECIFICALLY IDENTIFIED IN THESE PLANS SHALL BE AT THE DISCRETION OF THE ENGINEER. DRUMS SHALL BE PLACED AT 40 FOOT INTERVALS ALONG TANGENT ROADWAY SECTIONS AND AT 20 FOOT INTERVALS ALONG TAPERS.
- ALL TRAVEL LANES THROUGHOUT CONSTRUCTION MUST BE A MINIMUM OF 10 FEET WIDE.
- ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THE MAINTENANCE OF TRAFFIC PLAN MUST BE APPROVED BY THE ENGINEER.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES.
- CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENTIAL, COMMERCIAL DRIVEWAYS AND ROADWAYS WITHIN THE PROJECT LIMIT TO THE EXTENT POSSIBLE. CONTRACTOR TO COORDINATE WITH PROPERTY OWNERS.
- THE CONTRACTOR SHALL ONLY TRENCH AS MUCH ROADWAY AS CAN BE PERFORMED DURING EACH WORK DAY /NIGHT. SHOWN BELOW IS A COMPOSITE OF MOST ALL WORK AREAS - MAY ADAPT FOR SMALLER AREAS
- ROADWAY SHALL BE OPEN TO TRAFFIC AT THE END OF EACH WORK PERIOD.
- THE CONTRACTOR SHALL INSTALL WORK SIGNS AS PER THE FOLLOWING SHA STANDARDS:
 STD. MD 104.03-03 (LEFT LANE CLOSURE)
 STD. MD 104.03-09 (INTER. FAR-LEFT LANE CLOSURE)
 STD. MD 104.03-06 (RIGHT LANE CLOSURE)
 STD. MD 104.02-10 (TWO-WAY FLAGGING OPERATION)
 FOR TRENCH WORK AREAS THAT CAN'T BE BACKFILLED AT END OF WORK PERIOD:
 STD. MD 104.01-85 (STEEL PLATE)
 FOR INTERSECTION WORK AND TIE-IN WORK FOR WATER LINE:
 WORK SHALL BE NIGHT WORK FROM 9:00 PM TO 5:00 AM
 TRAFFIC SIGNAL AT OLD COLUMBIA PIKE WILL BE PUT ON FLASH AND CONTROLLED BY FLAGGING OPERATION: USE STD MD 104.02-14.
 DURING INTERSECTION WORK FLAGGING OPERATION:
 WESTBOUND MD 103 SHALL BE REDUCED TO ONE LANE IN ACCORDANCE WITH STD. MD 104.01-80, STD. MD 104-81 FOR 30 MPH.
 CONTRACTOR SHALL COORDINATE WITH MDOT SHA DISTRICT 7 TRAFFIC AND HOWARD COUNTY TRAFFIC REGARDING SIGNAL OPERATIONS.



FOR TIE-IN WORK, TRANSFERS, UTILIZE MD STD. 104.02-10

FOR LANE SHIFT, SIGNING, TAPER UTILIZE MD STD. 104.02-03

FOR LANE SHIFT, SIGNING, TAPER UTILIZE MD STD. 104.03-09

USE MIN. TAPER OF 294' BUFFER LENGTH OF 305' PRIOR TO WORK AREA

NOTE: TIE-IN TO REQUIRE RIGHT LANE CLOSURE

COVER RIGHT TURN ONLY PAVEMENT MARKINGS AND SHOULDER LINE

COVER RIGHT TURN ONLY SIGN

MAINTAIN LEFT TURN LANE UTILIZE MD STD. 104.03-09

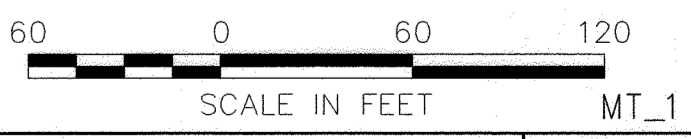
TAPER OUT LANE 294'

SEE DETAIL SHEET MT_2

SITE PLAN
SCALE: 1"=60'

LEGEND	
●	DRUM
●	TEMPORARY SIGN AND POST
⇄	ARROW PANEL
→	PROPOSED TRAFFIC FLOW ARROW
⇄	EXISTING TRAFFIC FLOW ARROW
ⓐ	5 IN WHITE PAVEMENT MARKING PAINT - SOLID
ⓑ	5 IN YELLOW PAVEMENT MARKING PAINT - SOLID
⚠	PROPOSED SIGN

AS-BUILT
09/01/2022



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

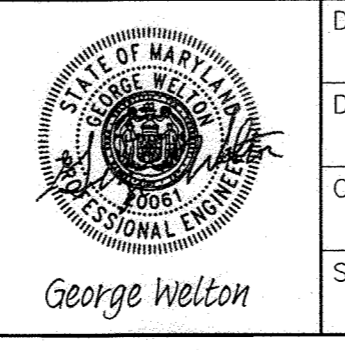
James L. Butler 5/6/20
DIRECTOR OF PUBLIC WORKS DATE
CHIEF, BUREAU OF ENGINEERING

Chris 5-6-2020
CHIEF, BUREAU OF UTILITIES DATE

Chris 5/6/20
CHIEF, UTILITY DESIGN DIVISION 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. 20061, EXPIRATION DATE: MAY 30, 2021.

Gannett Fleming
BALTIMORE, MARYLAND



DES:	BY:	NO.:	REVISION:	DATE:
GSW	GP	AS-BUILT		3/22
DRN:				
GSW				
CHK:				
GSW				
SIGN DATE:				
4-15-2020				

APRIL 2020

MAINTENANCE OF TRAFFIC PLAN
ROUTE 103 AND ROUTE 29

600' SCALE MAP NO. 24

CAPITAL PROJECT NO. W8602
CONTRACT NO. 44-5131

MD ROUTE 103 WIDENING AT ROUTE 29
WATER MAIN RELOCATION

ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET NO.
10 OF 11

OLD COLUMBIA PIKE CONSTRUCTION

1. SHIFT SOUTHBOUND TRAFFIC ONTO SHOULDER AND EXISTING RIGHT TURN LANE.
2. NORTHBOUND TRAFFIC WILL OCCUPY THE EXISTING SOUTHBOUND THROUGH /LEFT LANE AND TRANSITION TO EXISTING NORTHBOUND LANE FOLLOWING THE WORK ZONE.
3. CONTRACTOR SHALL INSTALL TYPE III BARRICADES AT DRIVEWAYS WITHIN THE WORK ZONE FOLLOWING COORDINATION WITH THE PROPERTY OWNER. THE CONTRACTOR, TO THE EXTENT POSSIBLE, SHALL MINIMIZE ACCESS IMPACTS.
4. FIREHOUSE INGRESS / EGRESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
5. THE CONTRACTOR SHALL ONLY TRENCH AS MUCH ROADWAY AS CAN BE PERFORMED DURING EACH WORK DAY /NIGHT. ROADWAY SHALL BE OPEN TO TRAFFIC AT END OF EACH WORK PERIOD.
6. INTERSECTION WORK IS RECOMMENDED DURING NIGHT TIME OPERATIONS. TO MAXIMIZE WORK PERIOD AND MINIMIZE TRAFFIC FLOW AND PROPERTY ACCESS IMPACTS.

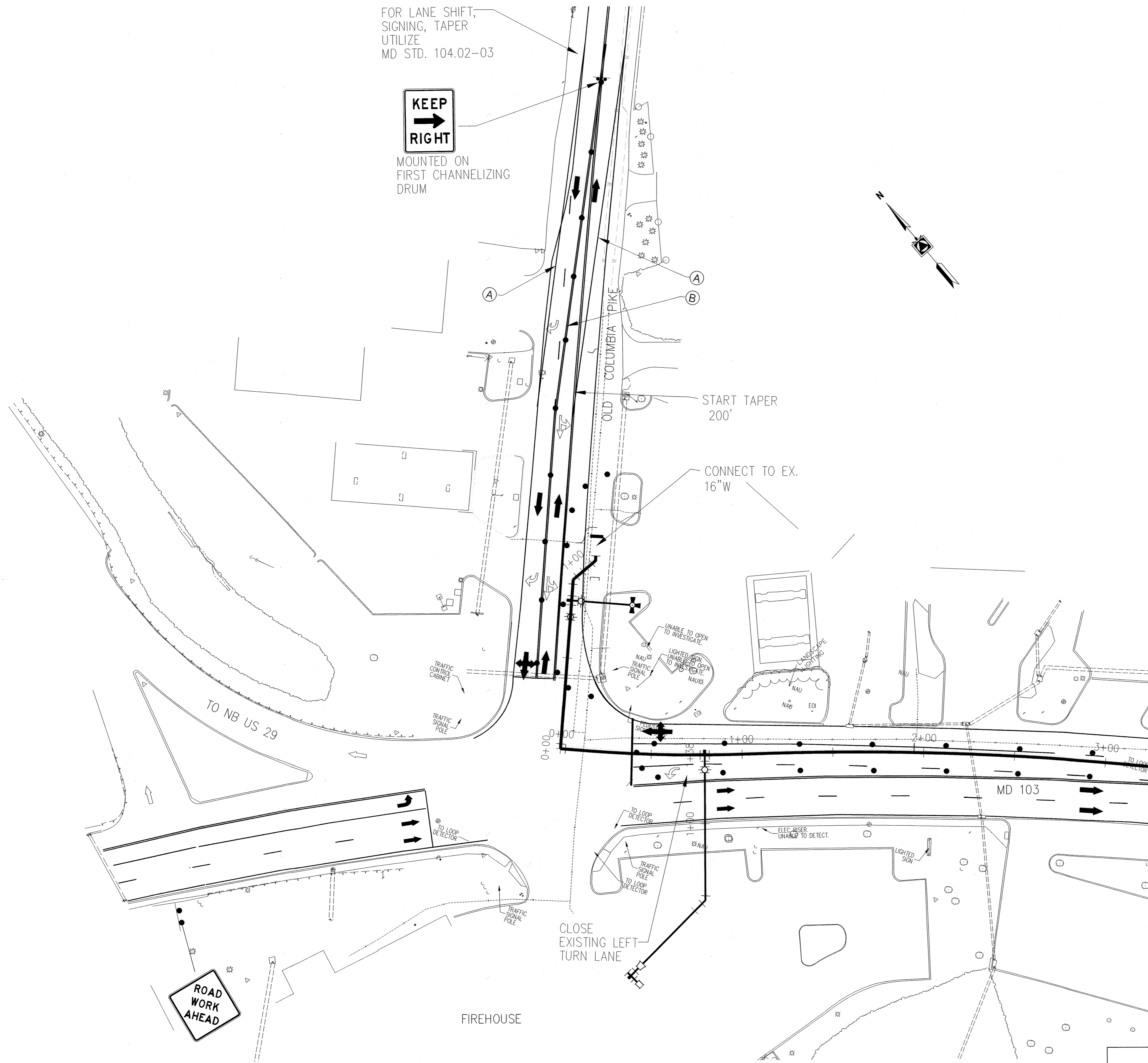
NIGHT WORK DURING HOURS: 9:00 PM TO 5:00 AM
 TRAFFIC SIGNAL AT OLD COLUMBIA PK TO BE PLACED ON FLASH AND CONTROLLED BY FLAGGING OPERATIONS AS PER STD MD 104.02-14

DURING INTERSECTION WORK FLAGGING OPERATION:
 WB MD 103 SHALL BE REDUCED TO ONE LANE IN ACCORDANCE WITH STD. MD 104.01-80, MD 104.01-81 FOR 30 MPH.

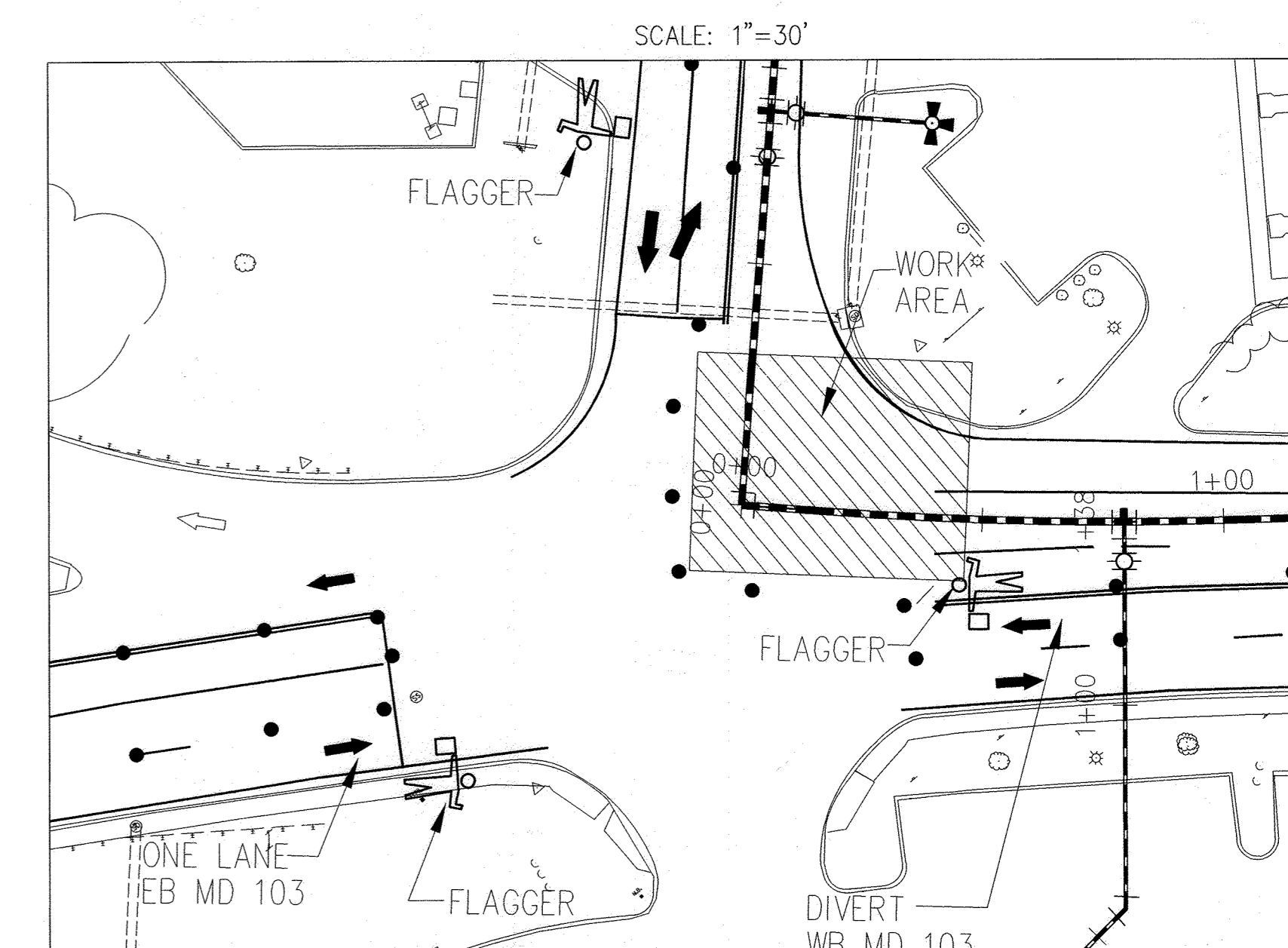
FOR LANE SHIFT,
 SIGNING, TAPER
 UTILIZE
 MD STD. 104.02-03

**KEEP
 RIGHT**

MOUNTED ON
 FIRST CHANNELIZING
 DRUM



INTERSECTION WORK DETAIL UNDER FLAGGING

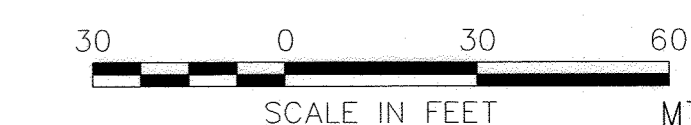


SITE PLAN
 SCALE: 1"=30'

LEGEND

- DRUM
- TEMPORARY SIGN AND POST
- ◻ ARROW PANEL
- ➔ PROPOSED TRAFFIC FLOW ARROW
- ➞ EXISTING TRAFFIC FLOW ARROW
- ⓐ 5 IN WHITE PAVEMENT MARKING PAINT - SOLID
- ⓑ 5 IN YELLOW PAVEMENT MARKING PAINT - SOLID
- ⬠ PROPOSED SIGN

AS-BUILT
 03/01/2022



SCALE IN FEET MT_2

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *George Wilson* DATE: 5-6-2020
 Chief, Bureau of Engineering: *Thomas P. Butler* DATE: 5/6/20
 Chief, Bureau of Utilities: *Gregory* DATE: 5/6/20
 Chief, Utility Design Division: *Gregory* DATE: 5/6/20

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. 20051 EXPIRATION DATE: MAY 30, 2021
Gannett Fleming
 BALTIMORE, MARYLAND

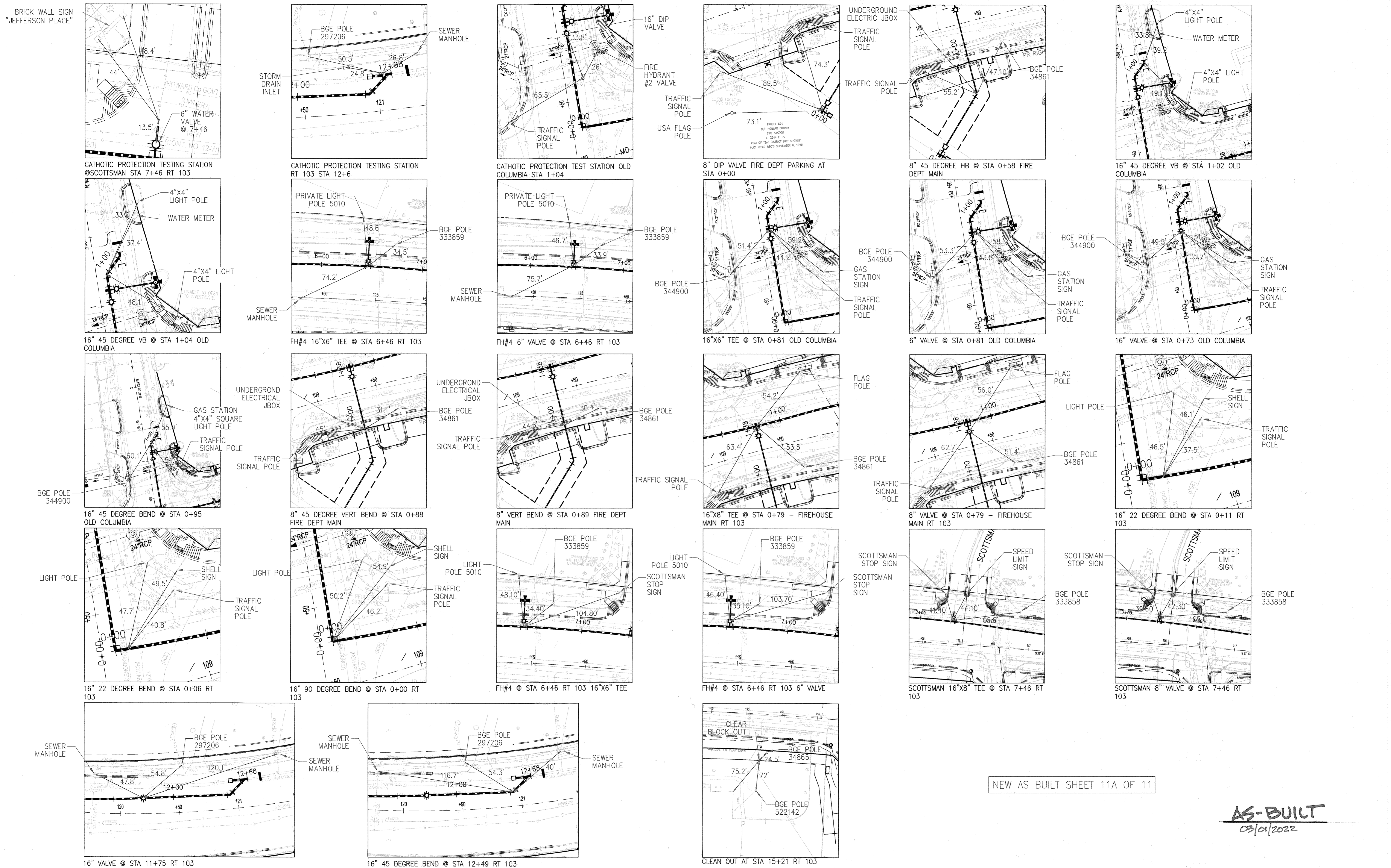
STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 George Welton

DES:	BY:	NO.:	REVISION:	DATE:
GSW	GF	1	AS-BUILT	3/22
DRN:				
GSW				
CHK:				
TCC				
SIGN DATE:				
4-15-2020				

APRIL 2020
 MAINTENANCE OF TRAFFIC PLAN
 ROUTE 103 AND ROUTE 29
 600' SCALE MAP NO. 24

CAPITAL PROJECT NO. W8602
 CONTRACT NO. 44-5131
 MD ROUTE 103 WIDENING AT ROUTE 29
 WATER MAIN RELOCATION
 BLOCK NO. 24
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE:
 AS SHOWN
 SHEET NO.
 11 OF 11



NEW AS BUILT SHEET 11A OF 11

AS-BUILT
09/01/2022

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 3-8-2022 DATE
DIRECTOR OF PUBLIC WORKS

[Signature] 3/4/22 DATE
CHIEF, BUREAU OF ENGINEERING

[Signature] 3-8-22 DATE
CHIEF, BUREAU OF UTILITIES

[Signature] 3/4/2022 DATE
CHIEF, UTILITY DESIGN DIVISION

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. 19646, EXPIRATION DATE: 5/19/2020

Gannett Fleming
BALTIMORE, MARYLAND

DES:	BY:	NO.:	REVISION:	DATE:
	GF	1	AS-BUILT	3/22
DRN:				
CHK:				
SIGN DATE:				

APRIL 2020

AS BUILT LOCATIONS

600' SCALE MAP NO. 24

BLOCK NO. 24

ELECTION DISTRICT NO. 2

CAPITAL PROJECT NO. W8602
CONTRACT NO. 44-5131

MD ROUTE 103 WIDENING AT ROUTE 29
WATER MAIN RELOCATION

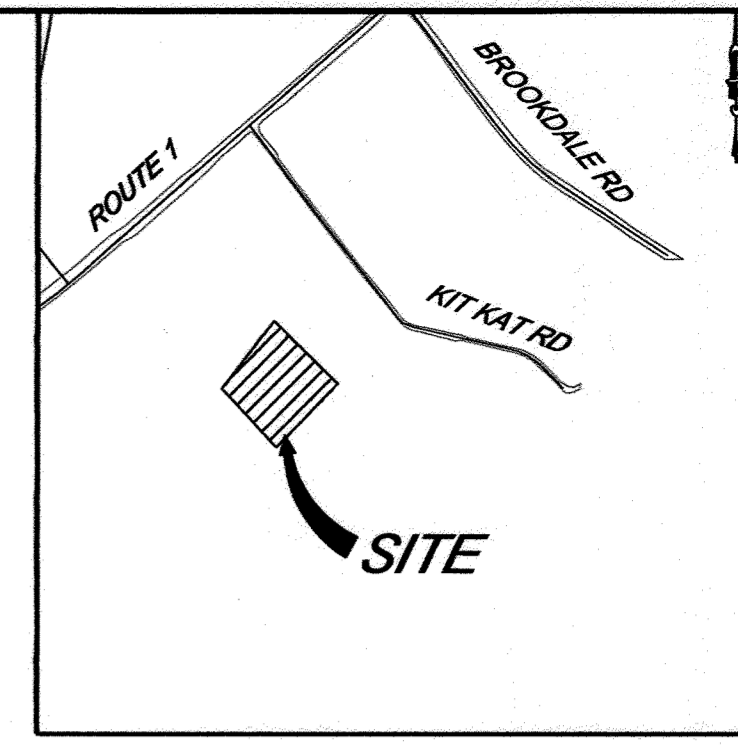
SCALE: N.T.S.

SHEET NO. 11A OF 11

HOWARD COUNTY, MARYLAND

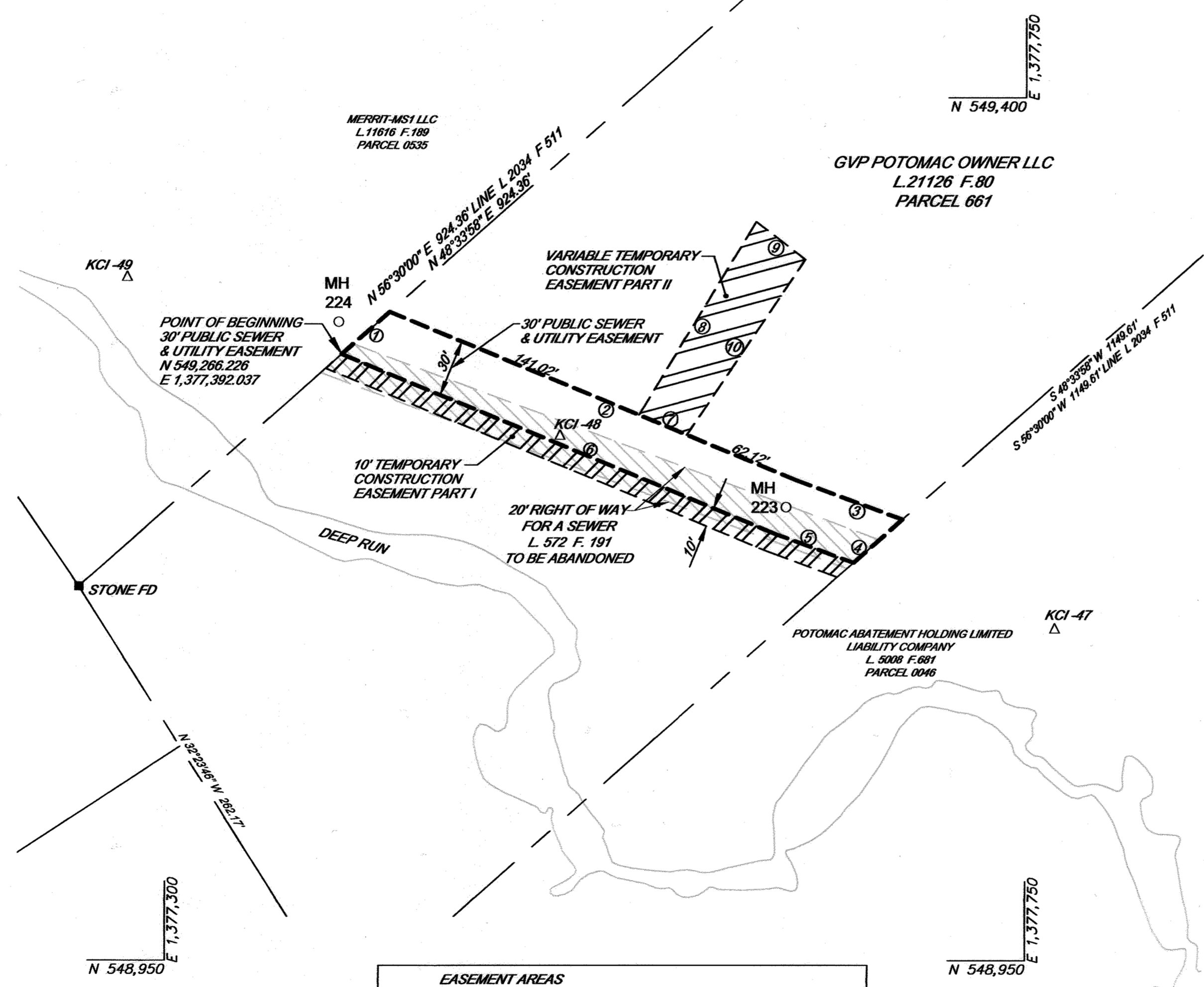
30' PUBLIC SEWER & UTILITY EASEMENT		
	BEARING	DISTANCE
1	N 48°33'58" E	33.42'
2	S 67°33'50" E	230.58'
3	S 69°51'17" E	59.09'
4	N 69°51'17" W	340.52'
5	N 48°34'35" E	34.11'
6	S 69°51'17" E	324.20'

TEMPORARY CONSTRUCTION EASEMENT		
	BEARING	DISTANCE
7	S 30°57'06" W	30.52'
8	N 69°40'27" W	4.72'
9	N 70°09'21" W	252.33'
10	N 69°51'17" W	340.52'



VICINITY MAP
SCALE: 1" = 1000'

- NOTES:
- COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND STATE PLANE COORDINATE NAD83 (2011) AS PROJECTED BY KCI PROJECT CONTROL FOR DEEP RUN AND SHALLOW RUN INTERCEPTOR IMPROVEMENTS PROJECT S-6284.
 - THIS PLAT IS BASED ON A FIELD SURVEY CONDUCTED BY DEWBERRY ENGINEERS, INC. IN 2014 FOR THE PURPOSE OF ESTABLISHING THE EASEMENTS AND/OR ABANDONING THE EXISTING EASEMENTS IN RELATION TO THE LIMITS OF THE LAND SHOWN HEREON.
 - THIS PLAT MEETS THE MARYLAND MINIMUM STANDARDS OF PRACTICE FOR EASEMENT SURVEYS (COMAR 09.13.06.09).
 - IMPROVEMENTS AND PLANIMETRIC INFORMATION SHOWN HEREON IS BASED ON AERIAL TOPOGRAPHY PROVIDED BY OTHERS.

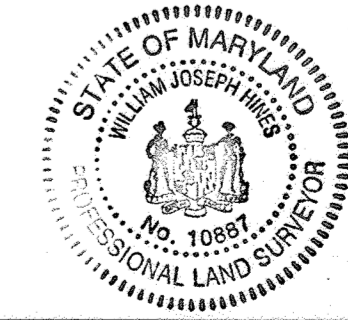


LEGEND	
	30' PUBLIC SEWER & UTILITY EASEMENT
	VARIABLE TEMPORARY CONSTRUCTION EASEMENT
	EXISTING 20' EASEMENT TO BE ABANDONED BY THIS PLAT
	PROPERTY LINE
	TRAVERSE POINT
	IRON PIPE FOUND
	EX. SEWER MANHOLE
	PROPOSED SEWER MANHOLE

EASEMENT AREAS	
30' PUBLIC SEWER & UTILITY EASEMENT	8,685 SQ. FT. OR 0.1994 AC.
VARIABLE TEMPORARY CONSTRUCTION EASEMENTS	
10' PART I	2,893 SQ. FT. OR 0.0664 AC.
VARIABLE PART II	3,377 SQ. FT. OR 0.0775 AC.
TOTAL	6,270 SQ. FT. OR 0.1439 AC.
20' RIGHT OF WAY FOR A SEWER TO BE ABANDONED BY THIS PLAT L. 572 F. 191	5,878 SQ. FT. OR 0.1349 AC.

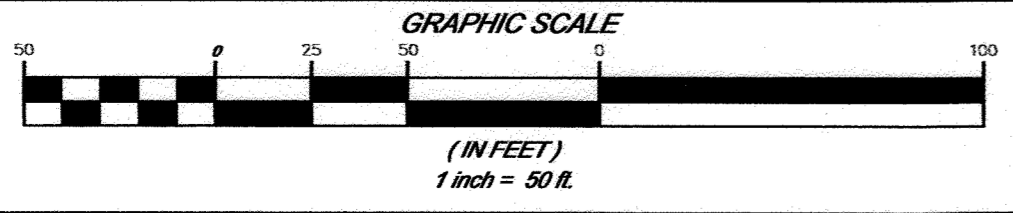
SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT I WAS IN RESPONSIBLE CHARGE OF THE PREPARATION OF THIS DOCUMENT, AND ANY SURVEY WORK REFLECTED IN IT, AND THAT IT HAS BEEN PREPARED IN ACCORDANCE WITH COMAR 09.13.06.09.

W. Joseph Hines 03-01-22
W. JOSEPH HINES DATE
PROFESSIONAL LAND SURVEYOR
MARYLAND REGISTRATION NO. 10887
LICENSE EXPIRES 05-08-2022



REVISION
APPROVED: BUREAU OF ENGINEERING <i>[Signature]</i> DATE 3/4/22
REAL ESTATE SERVICES DIVISION <i>[Signature]</i> DATE 3/16/2022

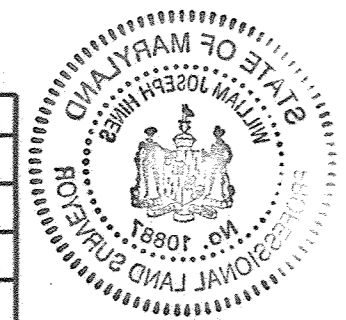
Dewberry
Dewberry Engineers, Inc.
10461 MILL RUN CIRCLE - SUITE #300
OWINGS MILLS, MARYLAND 21117
PHONE: (410) 265-9500 FAX: (410) 265-9875



HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS GRANT OF EASEMENT PLAT
LAND NOW OR FORMERLY OF GVP POTOMAC OWNER LLC
LIBER 21126 FOLIO 80
TAX MAP 43 GRID 11 PARCEL 661
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

PROJECT NO. S-6284
DEEP RUN
PLAT NO. S-6284-34
SCALE: 1" = 50'
DATE: MARCH 2022
DRAWN: RLJ
CHECKED: WIJH

DATE: 3/16/2012
 REAL ESTATE SERVICES DIVISION
 BUREAU OF ENGINEERING
 APPROVED: [Signature]
 REVISION:



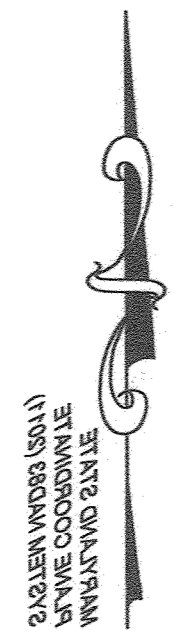
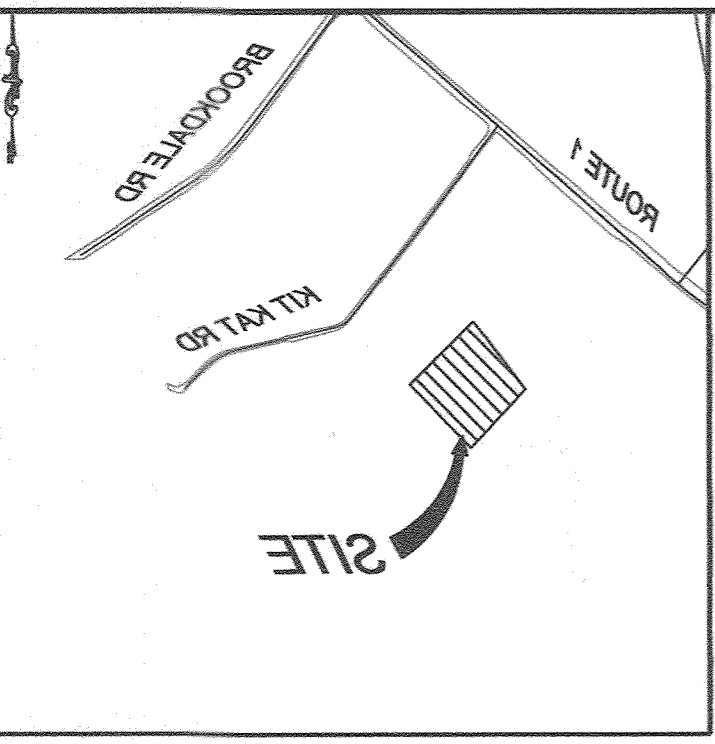
LICENSE EXPIRES 08-08-2023
 MARYLAND REGISTRATION NO. 10887
 PROFESSIONAL LAND SURVEYOR
 W. JOSEPH HINES
 DATE: 03.01.12
 I HEREBY CERTIFY THAT I WAS IN RESPONSIBLE CHARGE
 OF THE PREPARATION OF THIS DOCUMENT, AND ANY
 SURVEY WORK REFLECTED IN IT, AND THAT IT HAS BEEN
 PREPARED IN ACCORDANCE WITH COMAR 08.13.08.08
 SURVEYOR'S CERTIFICATE

LEGEND

	PROPOSED SEWER MANHOLE
	EXISTING SEWER MANHOLE
	IRON PIPE FOUND
	TRAVERSE POINT
	PROPERTY LINE
	EXISTING 30' EASEMENT TO BE ABANDONED BY THIS PLAT
	VARIABLE TEMPORARY CONSTRUCTION EASEMENT
	30' PUBLIC SEWER & UTILITY EASEMENT

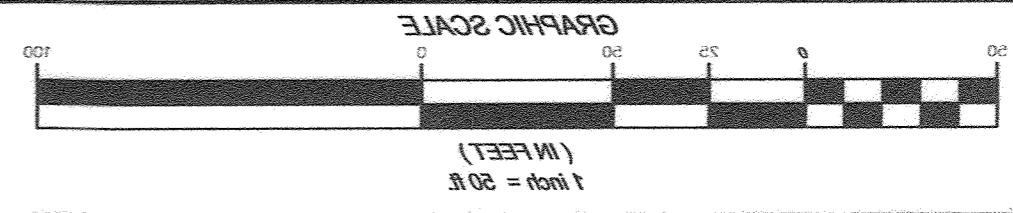
NOTES:
 1) COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND STATE PLANE COORDINATE MADS (2011) AS PROJECTED BY KCI PROJECT CONTROL FOR DEEP RUN AND SHALLOW RUN INTERCEPTOR IMPROVEMENTS PROJECT 2-8284.
 2) THIS PLAT IS BASED ON A FIELD SURVEY CONDUCTED BY DEWBERRY ENGINEERS, INC. IN 2014 FOR THE PURPOSE OF ESTABLISHING THE EASEMENTS AND/OR ABANDONING THE EXISTING EASEMENTS IN RELATION TO THE LIMITS OF THE LAND SHOWN HEREON.
 3) THIS PLAT MEETS THE MARYLAND MINIMUM STANDARDS OF PRACTICE FOR EASEMENT SURVEYS (COMAR 08.13.08.08).
 4) IMPROVEMENTS AND PLANNOMETRIC INFORMATION SHOWN HEREON IS BASED ON AERIAL TOPOGRAPHY PROVIDED BY OTHERS.

VICINITY MAP
 SCALE: 1" = 1000'



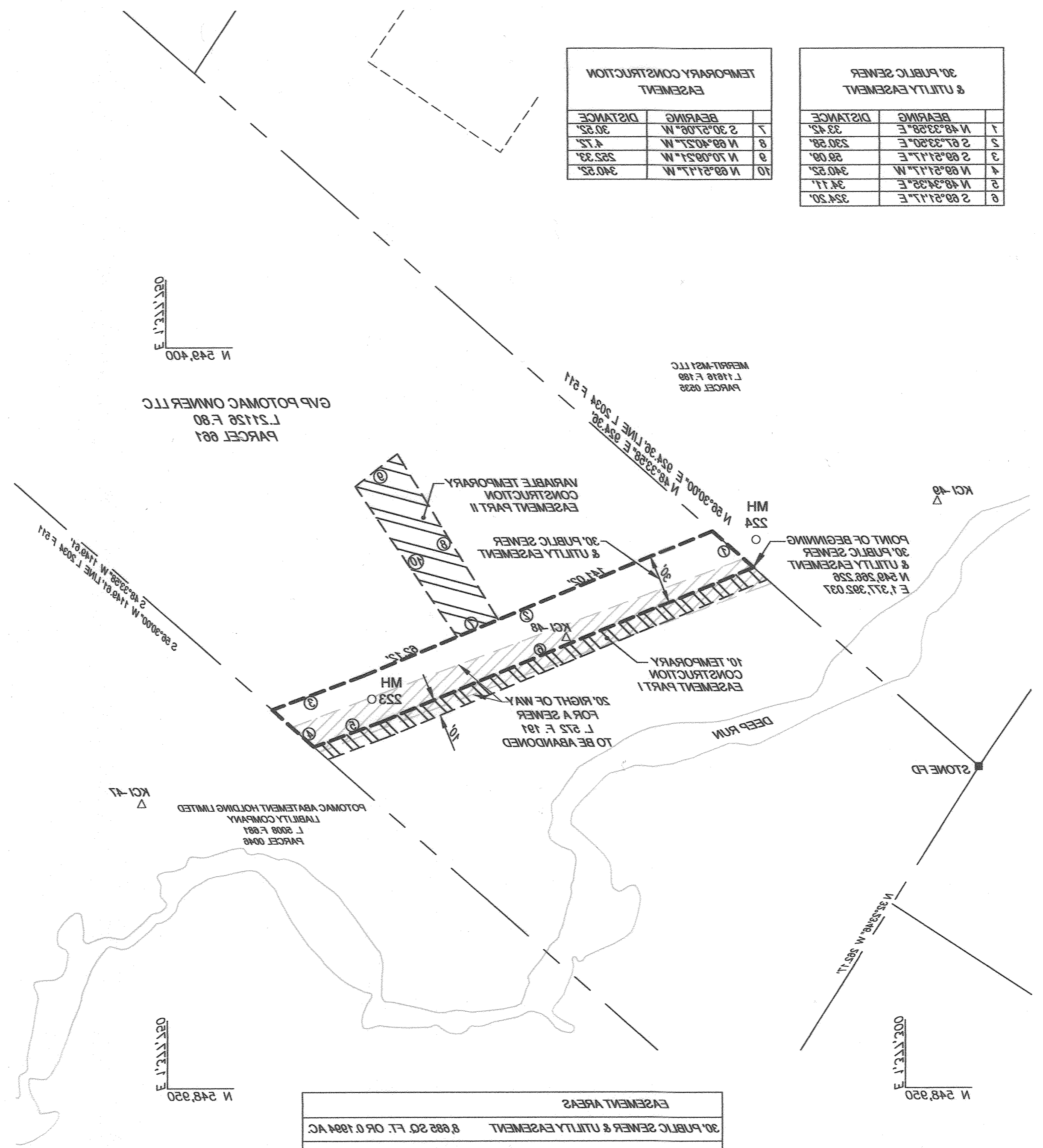
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 TAX MAP 43 GRID 11 PARCEL 681
 LIBER 21128 FOLIO 80
 LAND NOW OR FORMERLY OF GVP POTOMAC OWNER LLC
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS GRANT OF EASEMENT PLAT

EASEMENT AREAS	
30' PUBLIC SEWER & UTILITY EASEMENT	8,682 SQ. FT. OR 0.1984 AC.
VARIABLE TEMPORARY CONSTRUCTION EASEMENTS	
10' PART I	2,883 SQ. FT. OR 0.0664 AC.
VARIABLE PART II	3,377 SQ. FT. OR 0.0775 AC.
TOTAL	6,270 SQ. FT. OR 0.1439 AC.
20' RIGHT OF WAY FOR A SEWER TO BE ABANDONED BY THIS PLAT	2,878 SQ. FT. OR 0.1340 AC.



Dewberry
 Dewberry Engineers, Inc.
 1087 MILL RUN CIRCLE - SUITE #300
 OWINGS MILLS, MARYLAND 21117
 PHONE: (410) 268-8800 FAX: (410) 268-8875

PROJECT NO. 2-8284
 DEEP RUN
 PLAT NO. 2-8284-34
 SCALE: 1" = 80'
 DATE: MARCH 2023
 CHECKED: WJH
 DRAWN: RLJ



TEMPORARY CONSTRUCTION EASEMENT		
7	BEARING	2 30°27'08" W
	DISTANCE	30.25'
8	BEARING	N 89°40'27" W
	DISTANCE	4.72'
9	BEARING	N 70°08'21" W
	DISTANCE	252.33'
10	BEARING	N 89°21'17" W
	DISTANCE	340.25'

30' PUBLIC SEWER & UTILITY EASEMENT		
1	BEARING	N 48°33'58" E
	DISTANCE	33.42'
2	BEARING	S 87°33'50" E
	DISTANCE	230.58'
3	BEARING	S 89°21'17" E
	DISTANCE	88.08'
4	BEARING	N 89°21'17" W
	DISTANCE	340.25'
5	BEARING	N 48°34'35" E
	DISTANCE	34.11'
6	BEARING	S 89°21'17" E
	DISTANCE	324.20'