

TYPE OF BUILDING: NA
 NUMBER OF PARCELS: NA
 WATER HOUSE CONNECTIONS: 0
 SEWER HOUSE CONNECTIONS: 0
 DRAINAGE AREA: LITTLE PATUXENT
 PRESSURE ZONE: 630 & 730
 WATER TEST GRADIENT: 780 (FOR 630 ZONE)
 880 (FOR 730 ZONE)

VICINITY MAP
 SCALE: 1"=600'

MARRIOTTSVILLE ROAD 16" & 12" WATER MAINS CAPITAL PROJECT NO. W8227 CONTRACT NO. 44-4508 HOWARD COUNTY, MARYLAND

BILL OF MATERIALS				
ITEM	QUANTITY	MATERIALS	AS-BUILT QUANTITY	MANUFACTURER
16" WATER MAIN	3,200 LF	PVC (PVC FTG.'S)	2,906 LF	
12" WATER MAIN	1,480 LF	PVC (PVC FTG.'S)	1,412 LF	
8" WATER MAIN	240 LF	PVC (PVC FTG.'S)	227 LF	
AIR RELEASE VALVE MANHOLE	1 EA.	--	1 EA.	
FIRE HYDRANT, VALVE & LEAD	6 EA.	DI (BODY, PIPE, FTG.'S)	6 EA.	
16" VALVE (GATE, RESILIENT SEATED)	3 EA.	DI (BODY)	3 EA.	
12" VALVE (GATE, RESILIENT SEATED)	3 EA.	DI (BODY)	3 EA.	
8" VALVE (GATE, RESILIENT SEATED)	2 EA.	DI (BODY)	2 EA.	
16" WM IN 36" CASING (J & B)	50 LF	PVC (W)/STEEL (CA.)	175 LF	
16" WM IN 36" CASING (OPEN CUT)	150 LF	PVC (W)/STEEL (CA.)	--	
12" WM IN 36" CASING (J & B)	25 LF	PVC (W)/STEEL (CA.)	--	
CATHODIC PROTECTION CONTIN. TEST. STA.	20 EA.	COPPER (ROD)	15 EA.	
BITUMINOUS CONC. PAVEMENT RESTORATION	100 TONS	HMA SUPERPAVE	119 TONS	

DRAWING/SHEET INDEX		
DWG.	SHEET	DESCRIPTION
G-1	1	VICINITY MAP, TITLE, BILL OF MATERIALS, SHEET INDEX
G-2	2	GENERAL NOTES, ABBREVIATIONS, LEGEND, PIPELINE GEOMETRY
C-1	3	PLAN AND PROFILE
C-2	4	PLAN AND PROFILES
C-2A	4A	PLAN AND PROFILE AND EROSION & SEDIMENT CONTROL PLAN
C-3	5	DETAILS
SC-1	6	EROSION & SEDIMENT CONTROL PLAN
SC-2	7	EROSION & SEDIMENT CONTROL GENERAL NOTES
SC-3	8	EROSION & SEDIMENT CONTROL GENERAL NOTES
SC-4	9	EROSION & SEDIMENT CONTROL DETAILS

NAME OF UTILITY CONTRACTOR: WF WILSON & SONS, INC.

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

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

John R. Rhoton 8/9/11
 HOWARD SOIL CONSERVATION DISTRICT DATE

ENGINEERS/ARCHITECT DESIGN CERTIFICATION

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

Debra M. Whitman P.E. 24478 7/26/11
 SIGNATURE REGISTRATION NUMBER DATE



OWNERS/DEVELOPERS CERTIFICATION:

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

Robert J. Seaman 8/9/11
 DATE

THE DRAWINGS IN THIS SET ARE RECORD DRAWINGS. THEY ARE CONSTRUCTION CONTRACT DRAWINGS WHICH HAVE BEEN REVISED ON THE BASIS OF AVAILABLE FIELD INFORMATION RECORDED BY OTHERS DURING CONSTRUCTION OF THE CONTRACT. THERE HAS BEEN NO VERIFICATION OF DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR THE ACCURACY/COMPLETENESS OF THE FIELD INFORMATION RECEIVED.

"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. 24478, EXPIRATION DATE: 10/28/11."

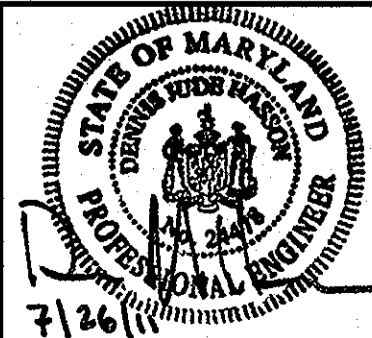
**DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.**

Robert J. Seaman 8/9/11
 CHIEF, BUREAU OF ENGINEERING DATE

Debra M. Whitman 8/9/11
 CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231

WR&A
 7/26/11



DES:	JDV			
DRN:	ACM			
CHK:	JDV	JDV	REC. DWG.: UTILITY CONTRACTOR NAME ADDED	3/9/12
		JDV	REC. DWG.: AS-BUILT QUANTITIES LISTED	3/9/12
DATE:	9/25/09	BY:	NO.	REVISION

VICINITY MAP, TITLE,
 BILL OF MATERIALS, SHEET INDEX

600' SCALE MAP NO. 16 BLOCK NO. 9 & 10

MARRIOTTSVILLE ROAD
 16" & 12" WATER MAINS
 CAPITAL PROJECT NO. W8227
 CONTRACT NO. 44-4508

ELECTION DISTRICT 3 HOWARD COUNTY, MARYLAND

DWG.
G-1

SCALE
 AS
 SHOWN

SHEET
 1 OF 9

GENERAL NOTES

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON DECEMBER 2007 BY WHITMAN, REQUARDT & ASSOCIATES, LLP.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
 THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS: 16E1: N593,250.96390; E1,340,192.70100; ELEV. 463.90600 AND BASE 'A': N598,156.2315; E1,336,841.7881; ELEV. 564.874. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE INDICATED BY BENCHMARKS, TWO PER PLAN SHEET (BM'S 212, 210, 206 & 205). DESCRIPTIONS ARE GIVEN AT EACH BENCHMARK LOCATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. AT EXISTING SANITARY LINE CROSSINGS, INCLUDING THE SEWER AT 16" WATER MAIN STA. 2+70± AND THE FORCE MAIN AND LEACHATE CROSSINGS OF THE 8" WATER MAIN, THE WATER MAIN PIPE SHALL BE INSTALLED SUCH THAT THE CROSSINGS OCCUR AT THE MIDDLE OF A STANDARD PIPE LENGTHS. 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. (FOR THIS CONTRACT, NO BRACING OF UTILITY POLES IS DEEMED NECESSARY.) 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 SITE AT ALL TIMES.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. (FOR THIS CONTRACT, NO TEST PITS WERE TAKEN AS THEY WERE NOT WARRANTED FOR DESIGN PURPOSES.) 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:
 BGE (CONSTRUCTION SERVICES).....410-850-4620
 BGE (EMERGENCY).....410-685-1400
 HOWARD COUNTY BUREAU OF UTILITIES.....410-313-4900
 MISS UTILITY.....1-800-257-7777
 MARYLAND STATE HIGHWAY ADMINISTRATION.....410-531-5533
 VERIZON.....1-800-743-0033 / 410-224-9210
 WILLIAMS GAS/TRANSCO.....410-465-0960
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE TREE PROTECTION AREAS 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 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.
- 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 AS INDICATED IN THE STANDARD DETAILS AND IN ACCORDANCE WITH THE INFORMATION PROVIDED ON THIS SHEET IN THE TABLE, "FIRE HYDRANT STANDPIPE HEIGHT". ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE 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. COORDINATE WITH COUNTY.
- THE FOLLOWING NOTE IS ADDED TO HOWARD COUNTY STANDARD DETAIL W2.22, BUTTRESSES AND ANCHORAGES FOR VERTICAL BENDS. "WHEN ANCHORING PVC PIPE, THE STRAPPING IN CONTACT WITH THE PIPE SURFACE SHALL BE 1-INCH WIDE BY 1/4-INCH THICK STEEL. THE REMAINING PORTION OF THE STRAP SHALL BE REINFORCING BAR SIZED IN ACCORDANCE WITH THE PERTINENT CHART SHOWN ON THE DETAIL."
- EXCEPT AS INDICATED OTHERWISE ON THESE DRAWINGS, ALL PUBLIC WATER MAINS SHALL BE POLYVINYLCHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR18, PRESSURE CLASS 150 FOR 4-INCH THROUGH 12-INCH DIAMETER PIPE, AWWA C905 DR18, PRESSURE CLASS 150 FOR 14-INCH THROUGH 30-INCH DIAMETER PIPE AND THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
- FOR PVC PIPE, PROVIDE PIPELINE DETECTION SYSTEM IN ACCORDANCE WITH SECTION 1002.03.04 AND 905.01.05(D) OF THE STANDARD SPECIFICATIONS. PROVIDE CONTINUITY TEST STATIONS ADJACENT TO EACH FIRE HYDRANT AND AT INTERVALS NO GREATER THAN 400 FEET ALONG THE LENGTH OF THE MAIN, AS INDICATED ON THE PLANS.
- WHEN DUCTILE PIPE WATER MAIN IS CALLED FOR, IT SHALL BE D.I.P. CLASS 54, UNLESS OTHERWISE NOTED.
- JACK-AND-BORE CASING PIPES SHALL BE STEEL AND SHALL BE 36" DIAMETER. FOR ADDITIONAL INFORMATION, SEE HOWARD COUNTY STANDARD DETAIL G-7.31.
- FOR PIPE TRENCH DETAIL, SEE HOWARD COUNTY STANDARD DETAIL G-2.12. FOR 16" WATER MAIN, THE "W" DIMENSION SHALL BE 8 INCHES.
- WATER MAINS SHALL BE FILLED WITH WATER AND BROUGHT TO 150 PSI FOR 2 HOURS, VARYING 5 PSI. SEE SPECIFICATION SPECIAL PROVISION PARAGRAPH 18.
- AT PIPE INSTALLATIONS IN THE VICINITY OF PIPE STA.'S 3+00, 23+00 AND 29+00, THE CONTRACTOR SHALL MAINTAIN AND DIRECT A MINIMUM OF ONE THROUGH LANE OF TRAFFIC ON LANDFILL ROAD AT ALL TIMES. PIPE INSTALLATION ACROSS LANDFILL ROAD AT THE LANDFILL ENTRANCE (PIPE STA. 3+25±) SHALL NOT CAUSE TRAFFIC INTO THE LANDFILL TO BACK UP ONTO MARRIOTTVILLE ROAD.
- THE CONTRACTOR IS ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY LINES AT APPROXIMATE PIPE STA.'S 0+30 (WEST SIDE OF MARRIOTTVILLE RD.), 2+30 (EAST SIDE OF LANDFILL RD.), AND 13+80 (TRANSCO R/W AREA).

ABBREVIATIONS

L	ANGLE
APPROX.	APPROXIMATE
AR, ARV	AIR RELEASE VALVE
CA	CASING
CL	CENTERLINE
CMP	CORRIGATED METAL PIPE
CONC.	CONCRETE
CONTIN.	CONTINUITY
CT	COURT
CTS	CONTINUITY TEST STATION
D	DRAIN
DI	DUCTILE IRON
DPW	DEPARTMENT OF PUBLIC WORKS
DWG	DRAWING
E	EAST, ELECTRIC
EA	EACH
ELEV.	ELEVATION
ETC.	ETCETERA
EX	EXISTING
FH	FIRE HYDRANT
FTG.	FITTING (PIPE)
G	GAS
HB	HORIZONTAL BEND
HG	HYDRAULIC GRADIENT
HMA	HOT MIX ASPHALT
HO. CO.	HOWARD COUNTY
HORIZ.	HORIZONTAL
INV.	INVERT
J & B	JACK AND BORE
L	LENGTH
LF	LINEAR FEET
LOD	LIMIT OF DISTURBANCE
MD	MARYLAND
N	NORTH
NA	NOT APPLICABLE
NAD	NORTH AMERICAN DATUM (HORIZ.)
NAVD	NORTH AMERICAN VERTICAL DATUM
NO.	NUMBER
NRCS	NATIONAL RESOURCE CONSERVATION SERVICE
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
P	PROPERTY LINE
PRC	POINT OF REVERSE CURVE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYLCHLORIDE
R	RADIUS
R/C	REBAR & CAP
RD.	ROAD
R/W	RIGHT-OF-WAY
S	SEWER
SC	SEDIMENT CONTROL
SF	SILT FENCE
SSF	SUPER SILT FENCE
STA.	STATION
STD.	STANDARD
T	TANGENT, TELEPHONE
TRANSCO	TRANSCONTINENTAL GAS PIPELINE CORPORATION
TP	TREE PROTECTION
TYP.	TYPICAL
USDA	UNITED STATES DEPARTMENT OF AGRICULTURE
V	VALVE
VB	VERTICAL BEND
VERT.	VERTICAL
W	WATER, WEST
WM	WATER MAIN

LEGEND

	EXISTING WATER LINE		NEW 12" W
	NEW 16" W		TEE, BEND, VALVE
	SEWER LINE		STORM DRAIN
	GAS LINE		ELECTRIC LINE
	UTILITY STRUCTURE		UTILITY POLE
	SEWER MANHOLE		STORM DRAIN INLET
	FENCE		TREE OR SHRUB
	HEDGE		EASEMENT LINE
	PROPERTY LINE		FIRE HYDRANT
	PROPERTY MONUMENT		WETLAND LIMITS
	CONTINUITY TEST STATION		AIR RELEASE VALVE
	FIRE HYDRANT, VALVE, AIR RELEASE VALVE, AND		CONTINUITY TEST STATION NO.
	BENCHMARK		FH
			V
			AR
			CTS

PIPELINE GEOMETRY

16" & 12" WATER MAIN STAKEOUT GEOMETRY *

APPROX. STATION	NORTH	EAST	REMARKS
0+00	597,640.27	1,340,988.24	EX. 12"W (16"W CONNECTION)
3+11	597,636.32	1,340,677.32	PC CURVE NO. 1
	597,635.49	1,340,612.11	PI CURVE NO. 1
4+41	597,617.96	1,340,549.30	PRC CURVES NO. 1 & 2
	597,602.48	1,340,493.81	PI CURVE NO. 2
5+55	597,600.02	1,340,436.25	PT CURVE NO. 2
11+07	597,576.52	1,339,885.47	PC CURVE NO. 3
	597,575.70	1,339,866.39	PI CURVE NO. 3
11+45	597,573.44	1,339,847.43	PT CURVE NO. 3
14+34	597,539.15	1,339,560.66	PC CURVE NO. 4
	597,531.90	1,339,500.05	PI CURVE NO. 4
15+55	597,510.29	1,339,442.96	PT CURVE NO. 4
16+42	597,479.53	1,339,361.74	PC CURVE NO. 5
	597,458.32	1,339,305.72	PI CURVE NO. 5
17+02	597,512.77	1,339,315.00	22.5' HB (12"W)
17+61	597,450.94	1,339,246.29	PRC CURVES NO. 5 & 6
	597,441.69	1,339,171.77	PI CURVE NO. 6
19+10	597,410.96	1,339,103.26	PT CURVE NO. 6
22+20	597,284.32	1,338,820.95	22.5' HB
22+77	597,282.65	1,338,763.36	45' HB
23+17	597,310.10	1,338,734.28	PC CURVE NO. 7
	597,391.84	1,338,647.66	PI CURVE NO. 7
25+51	597,425.76	1,338,533.48	PT CURVE NO. 7 & 22.5' HB
25+87	597,427.96	1,338,497.88	PC CURVE NO. 8
	597,432.13	1,338,430.53	PI CURVE NO. 8
27+21	597,418.31	1,338,364.49	PRC CURVES NO. 8 & 9
	597,394.49	1,338,274.65	PI CURVE NO. 9
29+04	597,404.54	1,338,182.25	PT CURVE NO. 9
29+33	597,406.99	1,338,154.33	45' HB
29+53	597,422.08	1,338,141.67	45' HB
30+00	597,469.54	1,338,145.83	LIMIT OF CONTRACT

* FOR THIS TABLE, STAKEOUT IS OF CENTERLINE OF PARALLEL DISTANCE BETWEEN THE CENTERLINES OF THE 16"W AND 12"W. WHERE ONLY 16"W, THE STAKEOUT POINT IS 5.0' PERPENDICULAR AND NORTH OF THE 16"W.

12" WATER MAIN CONNECTION STAKEOUT GEOMETRY**

APPROX. STATION	NORTH	EAST	REMARKS
0+00	597,553.41	1,339,313.31	12"W CONNECTION
0+04	597,549.73	1,339,313.56	PC CURVE NO. 4A
	597,512.78	1,339,316.37	PI CURVE NO. 4A
0+78	597,475.81	1,339,313.71	45' HB & PT CURVE NO. 4A
0+92	597,466.52	1,339,303.15	22.5' HB

** FOR THIS TABLE, STAKEOUT IS OF THE CENTERLINE OF PIPE

8" WATER MAIN STAKEOUT GEOMETRY**

APPROX. STATION	NORTH	EAST	REMARKS
0+00	597,411.44	1,338,160.81	EX. 12"W (CONNECTION)
0+09	597,402.47	1,338,160.03	11.25' VB
0+47	597,362.21	1,338,156.50	45' HB
0+51	597,359.86	1,338,153.26	45' HB & PC CURVE NO. 10
	597,378.86	1,338,073.29	PI CURVE NO. 10
2+14	597,422.45	1,338,003.61	PT CURVE NO. 10
2+20±	597,424.6±	1,337,998.0±	EX. 8"W (CROSS)

** FOR THIS TABLE, STAKEOUT IS OF THE CENTERLINE OF PIPE

FIRE HYDRANT STANDPIPE HEIGHT *

FH NO.	PIPE STA.	STANDPIPE INV.	APPROX. EX. GRADE ELEV.	STANDPIPE HEIGHT*
1	1+05	438.8	447.0	8.5'
2	12+00	521.7	527.0	5.5'
3	16+85	527.1	532.0	5.5'
4	16+90 ±	526.3	531.5	5.5'
5	22+75	485.0	493.5	9.0'
6	22+81	484.9	492.0	7.5'

* FROM STANDPIPE INV. TO C OF FH BASE FLANGE.

"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. 24478, EXPIRATION DATE: 10/28/11."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

[Signature] 8/26/11
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 8/27/11
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 8/27/11
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 8/27/11
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES: JDV			
DRN: ACM			
CHK: JDV			
DATE: 9/25/09	BY	NO.	REVISION

GENERAL NOTES,
ABBREVIATIONS, LEGEND,
PIPELINE GEOMETRY

MARRIOTTVILLE ROAD
16" & 12" WATER MAINS
CAPITAL PROJECT NO. W8227
CONTRACT NO. 44-4508

DWG.
G-2

SCALE:
N/A

SHEET
2 OF 9

NOTES FOR TRANSCONTINENTAL GAS PIPELINE CORPORATION:
 1. UNDER THE PRIVATE ACCESS ROAD, THE GAS MAIN AND FIBER-OPTIC CABLE MAY BE IN A SLEEVE.
 2. COORDINATE WITH TRANSCONTINENTAL GAS PIPELINE CORPORATION REPRESENTATIVE FOURTEEN CALENDAR DAYS PRIOR TO PERFORMING ANY WORK WITHIN THE TRANSCONTINENTAL GAS PIPELINE CORPORATION R/W.
 3. CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS OF A TRANSCONTINENTAL GAS PIPELINE CORPORATION PERMIT WHICH IS IN THE APPENDIX OF THE SPECIFICATIONS.
 4. SEE ADDITIONAL TRANSCO NOTES ON THE PROFILE.

CURVE NO. 4
 $\Delta = 13^{\circ}-55'-15"$
 $R = 500'$
 $T = 61.04'$
 $L = 121.48'$

CURVE NO. 3
 $\Delta = 04^{\circ}-22'-28"$
 $R = 500'$
 $T = 19.10'$
 $L = 38.17'$

CURVE NO. 2
 $\Delta = 13^{\circ}-08'-46"$
 $R = 500'$
 $T = 57.61'$
 $L = 114.72'$

CURVE NO. 1
 $\Delta = 14^{\circ}-51'-40"$
 $R = 500'$
 $T = 65.21'$
 $L = 129.69'$

NOTE: TYPICAL FOR ALL HORIZONTAL CURVES (EXCEPT CURVE 4A): DATA IS FOR WATER MAINS STAKEOUT LINE, WHICH IS THE MID-POINT BETWEEN $\epsilon 16"W$ & $\epsilon 12"W$, OR WHERE ONLY $16"W$, THE WATER MAIN STAKEOUT LINE $5.0'$ TO THE NORTH. DATA FOR CURVE 4A IS OF THE $\epsilon 12"W$ CONNECTION.

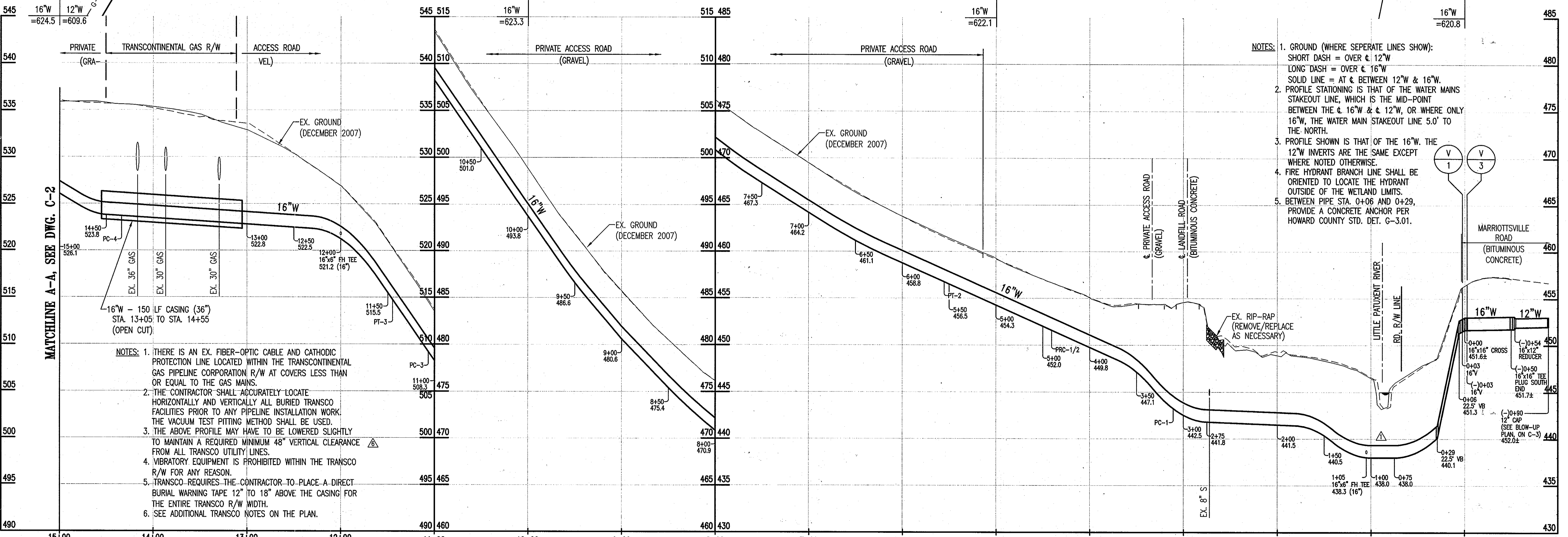
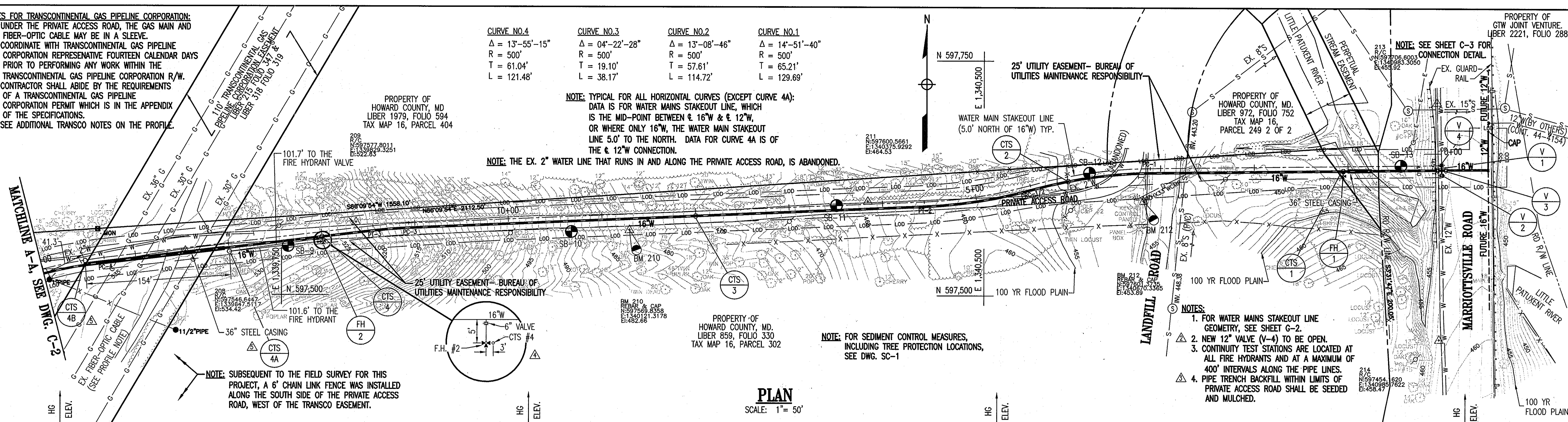
NOTE: THE EX. 2" WATER LINE THAT RUNS IN AND ALONG THE PRIVATE ACCESS ROAD, IS ABANDONED.

NOTE: FOR SEDIMENT CONTROL MEASURES, INCLUDING TREE PROTECTION LOCATIONS, SEE DWG. SC-1

- NOTES:
1. FOR WATER MAINS STAKEOUT LINE GEOMETRY, SEE SHEET G-2.
 2. NEW 12" VALVE (V-4) TO BE OPEN.
 3. CONTINUITY TEST STATIONS ARE LOCATED AT ALL FIRE HYDRANTS AND AT A MAXIMUM OF 400' INTERVALS ALONG THE PIPE LINES.
 4. PIPE TRENCH BACKFILL WITHIN LIMITS OF PRIVATE ACCESS ROAD SHALL BE SEEDED AND MULCHED.

- NOTES:
1. GROUND (WHERE SEPARATE LINES SHOW): SHORT DASH = OVER $\epsilon 12"W$; LONG DASH = OVER $\epsilon 16"W$; SOLID LINE = AT ϵ BETWEEN $12"W$ & $16"W$.
 2. PROFILE STATIONING IS THAT OF THE WATER MAINS STAKEOUT LINE, WHICH IS THE MID-POINT BETWEEN THE $\epsilon 16"W$ & $\epsilon 12"W$, OR WHERE ONLY $16"W$, THE WATER MAIN STAKEOUT LINE $5.0'$ TO THE NORTH.
 3. PROFILE SHOWN IS THAT OF THE $16"W$. THE $12"W$ INVERTS ARE THE SAME EXCEPT WHERE NOTED OTHERWISE.
 4. FIRE HYDRANT BRANCH LINE SHALL BE ORIENTED TO LOCATE THE HYDRANT OUTSIDE OF THE WETLAND LIMITS.
 5. BETWEEN PIPE STA. 0+06 AND 0+29, PROVIDE A CONCRETE ANCHOR PER HOWARD COUNTY STD. DET. G-3.01.

- NOTES:
1. THERE IS AN EX. FIBER-OPTIC CABLE AND CATHODIC PROTECTION LINE LOCATED WITHIN THE TRANSCONTINENTAL GAS PIPELINE CORPORATION R/W AT COVERS LESS THAN OR EQUAL TO THE GAS MAINS.
 2. THE CONTRACTOR SHALL ACCURATELY LOCATE HORIZONTALLY AND VERTICALLY ALL BURIED TRANSCO FACILITIES PRIOR TO ANY PIPELINE INSTALLATION WORK; THE VACUUM TEST PITTING METHOD SHALL BE USED.
 3. THE ABOVE PROFILE MAY HAVE TO BE LOWERED SLIGHTLY TO MAINTAIN A REQUIRED MINIMUM 48" VERTICAL CLEARANCE FROM ALL TRANSCO UTILITY LINES.
 4. VIBRATORY EQUIPMENT IS PROHIBITED WITHIN THE TRANSCO R/W FOR ANY REASON.
 5. TRANSCO REQUIRES THE CONTRACTOR TO PLACE A DIRECT BURIAL WARNING TAPE 12" TO 18" ABOVE THE CASING FOR THE ENTIRE TRANSCO R/W WIDTH.
 6. SEE ADDITIONAL TRANSCO NOTES ON THE PLAN.



"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. 24478, EXPIRATION DATE: 10/28/11."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.

Director of Public Works
 Chief, Bureau of Engineering
 Chief, Bureau of Utilities

PREPARED BY:
 WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Carolina Street, Baltimore, MD 21231

WR&A

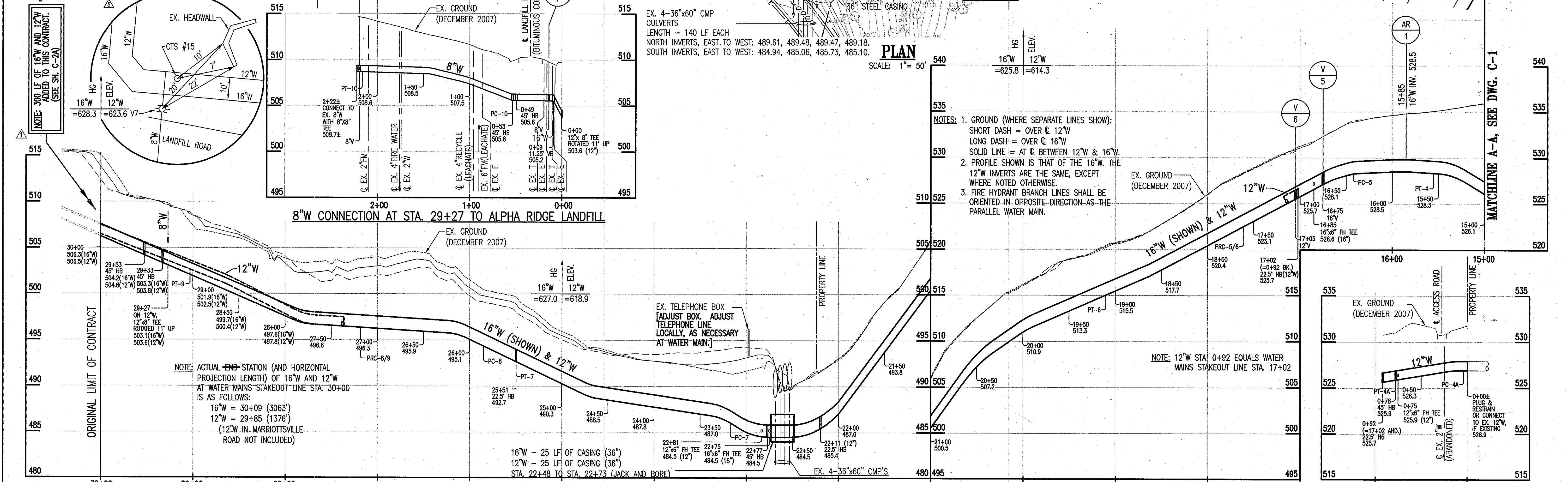
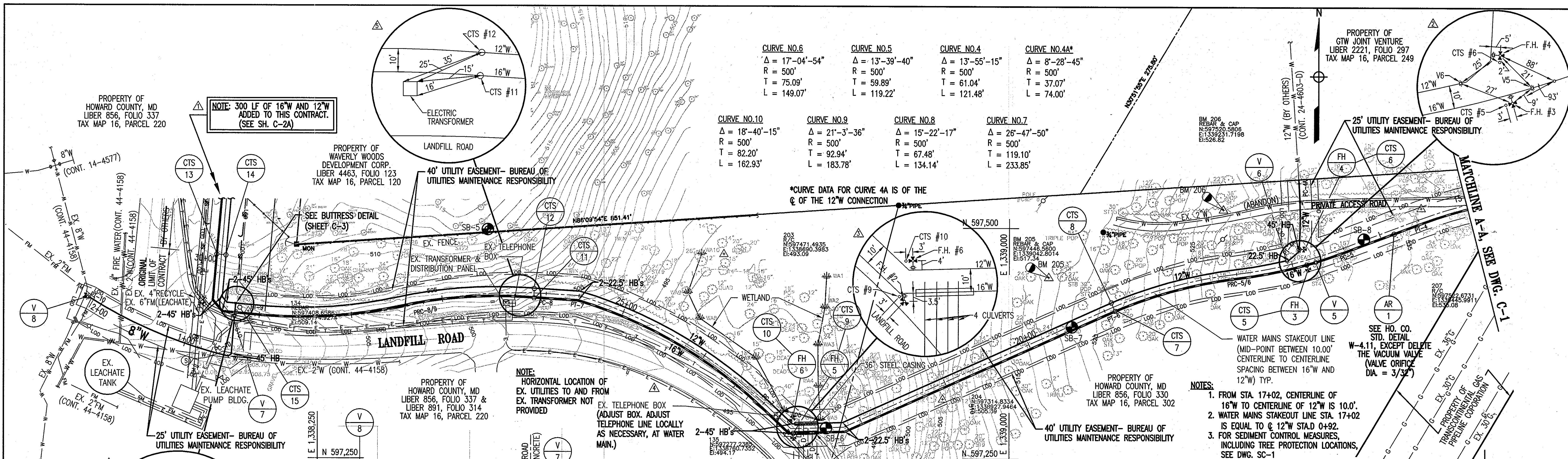
DES:	JDV	REC. DWG.: MINIMUM 48" CLEARANCE (INSTEAD OF 24")	3/9/12
DRN:	ACM	REC. DWG.: ADDED 2 CONTINUITY TEST STATIONS (4A & 4B)	3/9/12
CHK:	JDV	REC. DWG.: DETAILED FH & APPUR. LOCATIONS	3/9/12
	JDV	REC. DWG.: SEED AND MULCH (INSTEAD OF 6" CR-6 STONE)	3/9/12
	JDV	REC. DWG.: 12" TO BE OPEN (NOT CLOSED)	3/9/12
	JDV	REC. DWG.: ELIMINATED 36" JACK AND BORE CASING	3/9/12
DATE:	9/25/09		
BY:	NO.	REVISION	DATE

PLAN AND PROFILE

MARRIOTTVILLE ROAD
 16" & 12" WATER MAINS
 CAPITAL PROJECT NO. W8227
 CONTRACT NO. 44-4508

ELECTION DISTRICT 3
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 3 OF 9



"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. 24478, EXPIRATION DATE: 10/28/11."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Director of Public Works: [Signature]
 Date: [Date]

Chief, Bureau of Utilities: [Signature]
 Date: [Date]

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Carolina Street, Baltimore, MD 21231

WR&A

Professional Engineer: [Signature]
 Date: [Date]

DES:	JDV	JDV	REC. DWG.: ADDED A CONTINUITY TEST STATION ON 8"W	3/9/12
DRN:	ACM	JDV	REC. DWG.: DETAILED CONTINUITY TEST STATION LOCATIONS	3/9/12
CHK:	JDV	JDV	REC. DWG.: FOUND EX. ELEC. ON SOUTH SIDE OF ROAD (NOT NORTH)	3/9/12
DATE:	9/25/09	JDV	REC. DWG.: DETAILED FH'S & APPUR. LOCATIONS	3/9/12
BY:	NO.	JDV	REC. DWG.: DETAILED FH'S & APPUR. LOCATIONS	3/9/12
		JDV	ADDED 300 LF OF 16"W & 12"W (SEE DWG. C-2A)	5/10/11

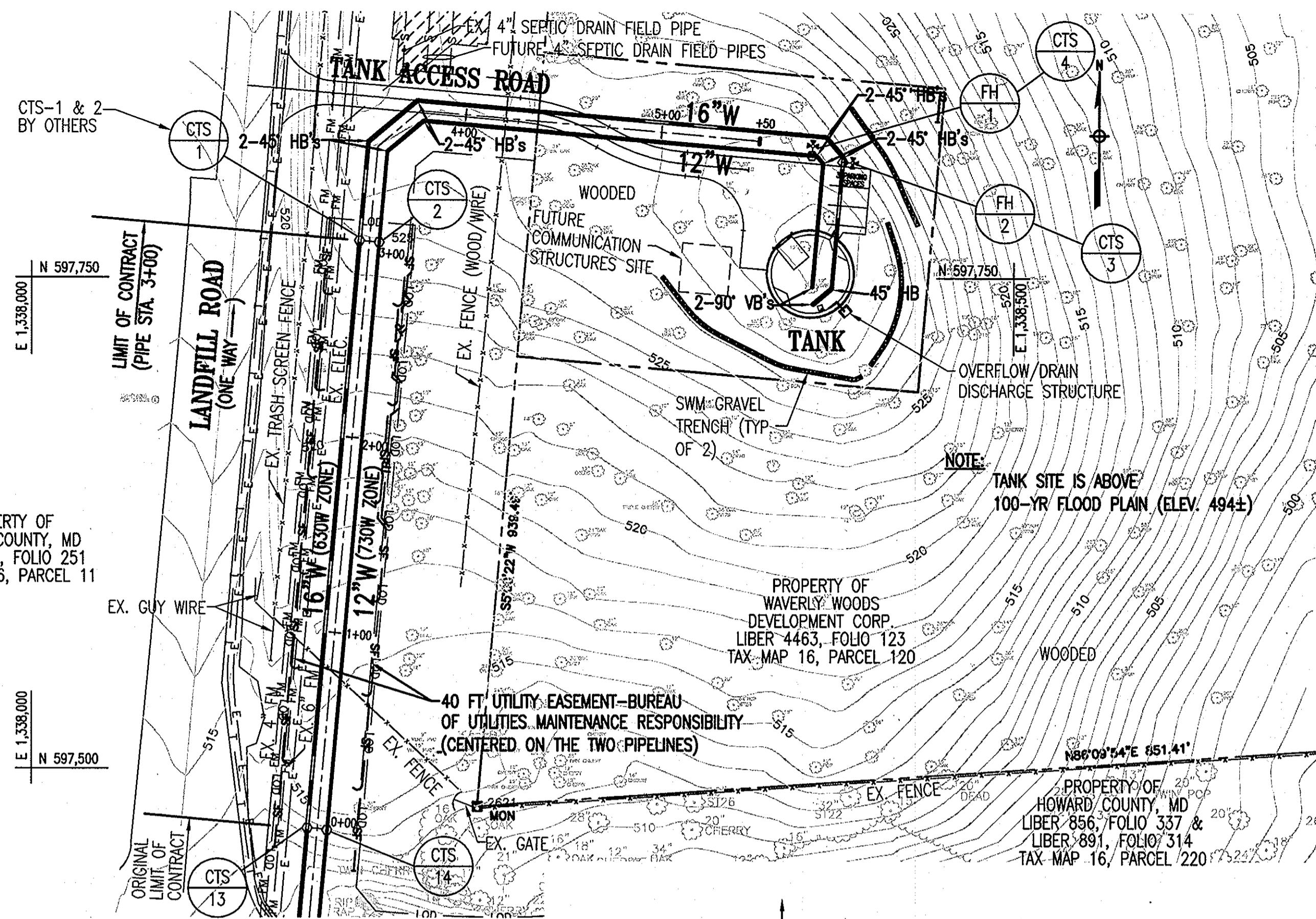
PLAN AND PROFILES

600' SCALE MAP NO. 16 BLOCK NO. 9

ELECTION DISTRICT 3
 HOWARD COUNTY, MARYLAND

MARRIOTTVILLE ROAD
 16" & 12" WATER MAINS
 CAPITAL PROJECT NO. W8227
 CONTRACT NO. 44-4508

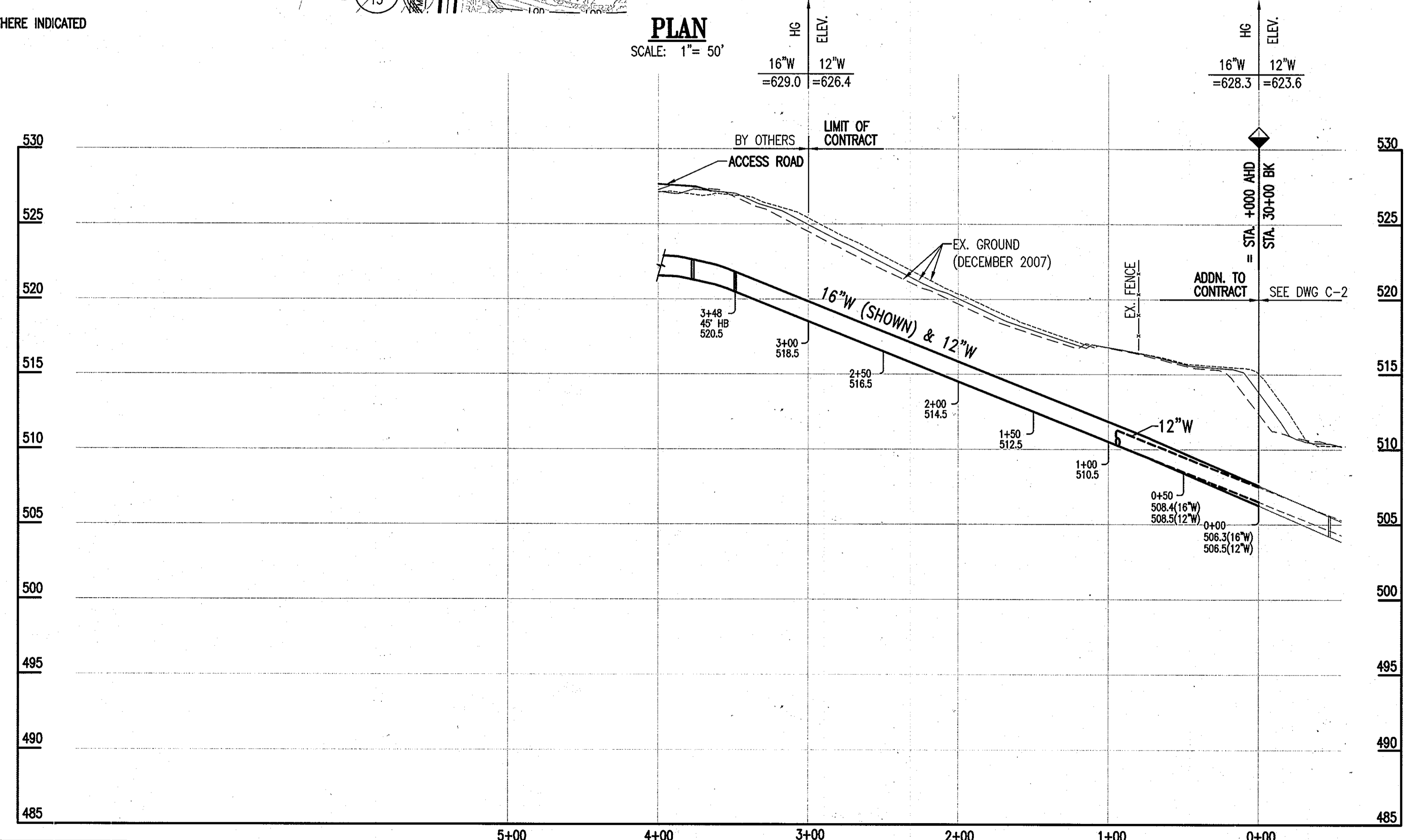
DWG. C-2
 SCALE AS SHOWN
 SHEET 4 OF 9



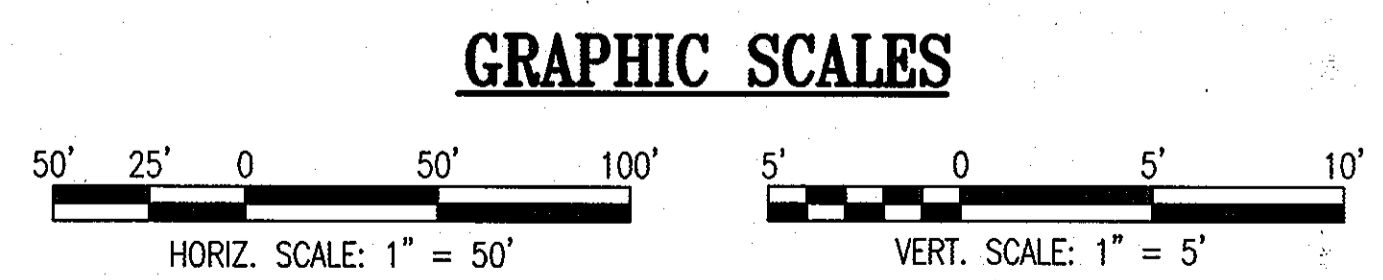
16" & 12" WATER MAIN STAKEOUT LINE GEOMETRY*			
APPROX. STATION	NORTH	EAST	REMARKS
0+00	597,469.54	1,338,145.83	ORIGINAL LIMIT OF CONTRACT
3+48	597,816.64	1,338,176.23	45' HB (BY OTHERS)

* FROM STA. 0+00 TO STA. 3+48, STAKEOUT IS OF MID-POINT OF THE 10.0' PARALLEL DISTANCE BETWEEN THE CENTERLINES OF THE 16"W AND 12"W.

- NOTES:**
- EXISTING GROUND ON PIPE PROFILE:
SHORT DASH = OVER 12"W
LONG DASH = OVER 16"W
SOLID LINE = AT 16"W & 12"W.
 - PIPE PROFILE FROM STA. 0+00 TO STA. 5+50 IS THAT OF THE WATER MAINS STAKEOUT LINE, WHICH IS THE MID-POINT BETWEEN 16"W & 12"W.
 - ALONG COMBINED PROFILE, THE PROFILE SHOWN IS THAT OF THE 16"W. THE 12"W INVERTS ARE THE SAME EXCEPT FROM STA. 0+00 TO STA. 1+00, AS SHOWN.
 - CONTINUITY TEST STATIONS LOCATED ON THE 16"W AND 12"W AT STA. 3+00 ARE TO BE BY OTHERS IN THE FUTURE.
 - THIS DRAWING ALSO SERVES AS THE EROSION AND SEDIMENT CONTROL PLAN. (REFER TO DRAWINGS SC-2, SC-3 AND SC-4).
- A. LIMIT OF DISTURBANCE (LOD) WIDTH ALONG THE PIPELINE(S) IS AS FOLLOWS:
FOR THE PARALLEL 16" AND 12" WATER MAINS (10' APART) = 45'
CENTERED ON THE CENTER OF THE PIPE SPACING. FOR THIS PARALLEL ALIGNMENT, DIMENSIONS SHOWN ARE TO THE CENTER OF THE PIPE SPACING.
- B. ALL TRENCHING OPERATIONS ARE TO BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY.
- C. SILT FENCE SHALL BE CONSTRUCTED IN "J" FORMATIONS WHERE INDICATED AT A MAXIMUM INTERVAL OF 50'.



NOTE: THIS DRAWING SHOWS THE 300 LF OF 16" AND 12" W MAINS ADDED TO THIS CONTRACT BEYOND THE ORIGINAL L.O.C. AT STA. 30+00.



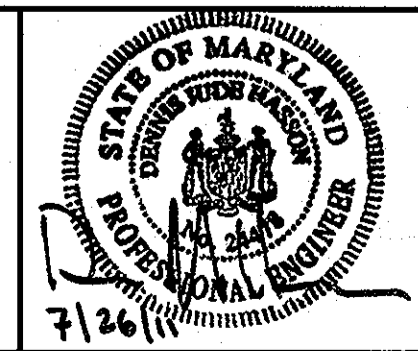
"PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24478, EXPIRATION DATE: 10/28/11."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Director of Public Works: [Signature] DATE: 3/2/11
Chief, Bureau of Engineering: [Signature] DATE: 3/2/11
Chief, Bureau of Utilities: [Signature] DATE: 3/2/11
Chief, Utility Design Division: [Signature] DATE: 3/2/11

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	JDV				
DRN:	GWG				
CHK:	JDV				
DATE:	5/10/11	BY:	NO.	REVISION	DATE

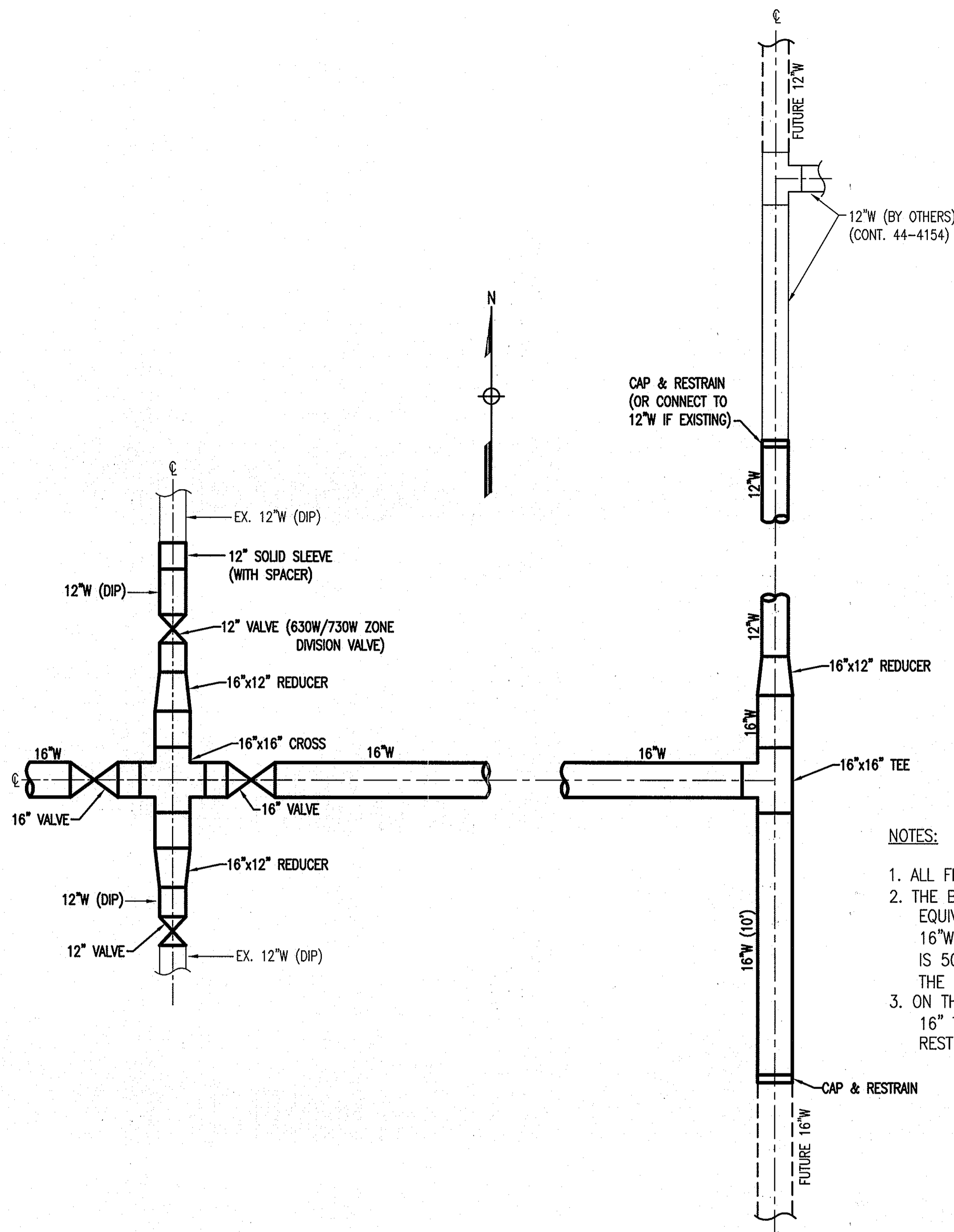
PLAN AND PROFILE AND EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 16 BLOCK NO. 9

MARRIOTTVILLE ROAD
16" & 12" WATER MAINS
CAPITAL PROJECT NO. W8227
CONTRACT NO. 44-4508

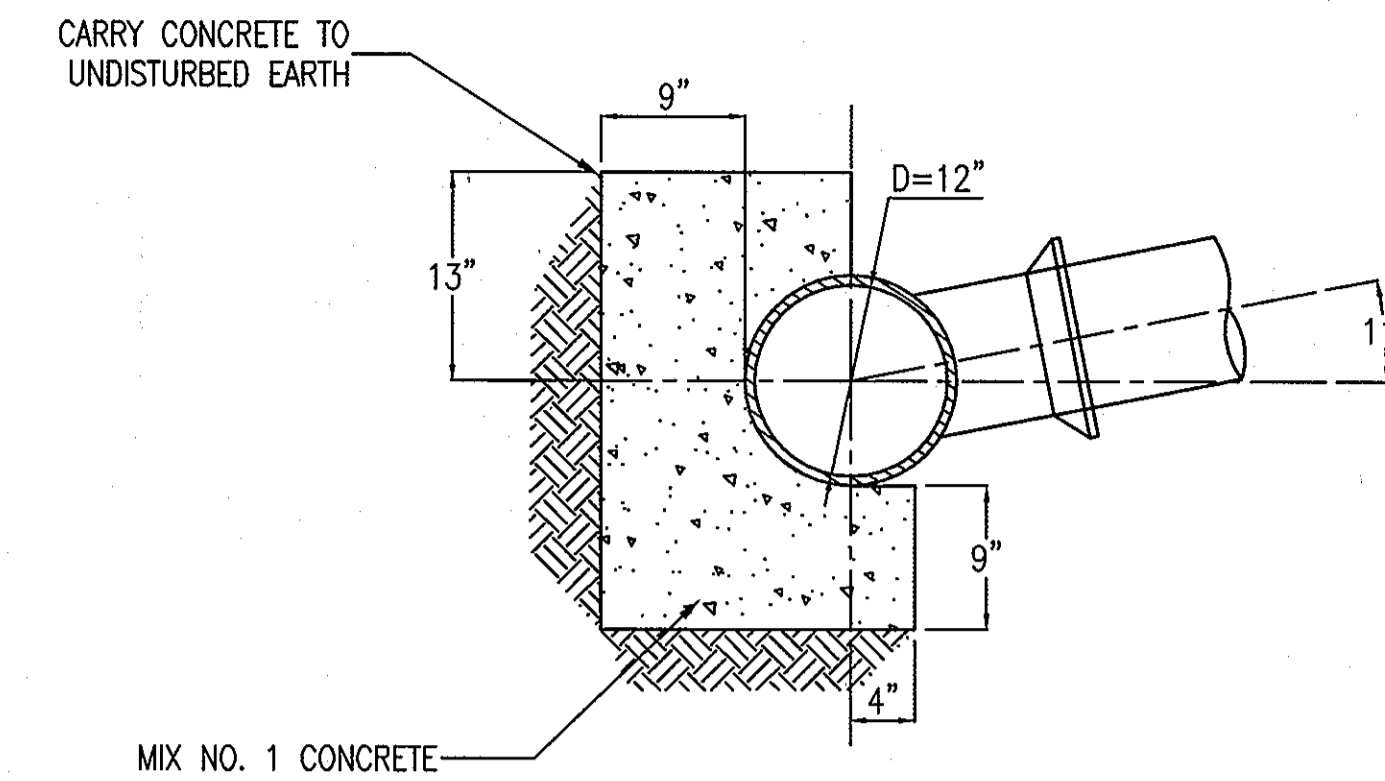
ELECTION DISTRICT 3 HOWARD COUNTY, MARYLAND

DWG. C-2A
SCALE AS SHOWN
SHEET 4A OF 9

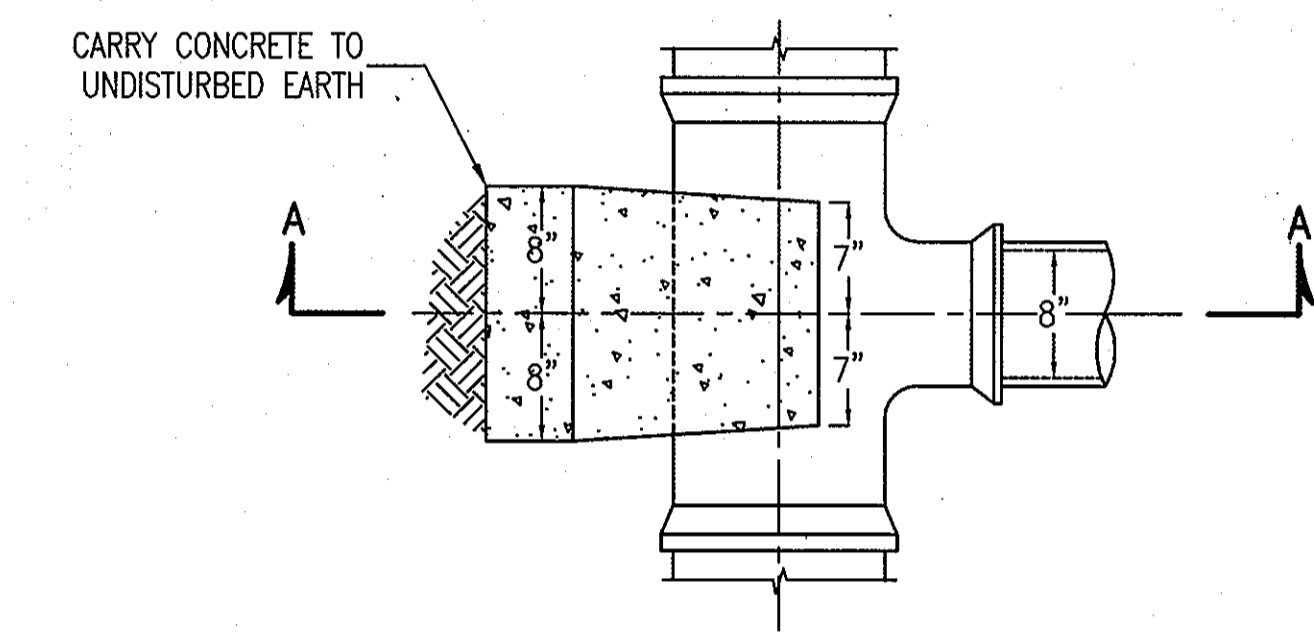


DETAIL - WATER MAIN CONNECTIONS AT MARRIOTTSVILLE ROAD

SCALE: 1" = 3'



SECTION A-A



PLAN

NOTES:

1. ALL FITTINGS ARE TO BE RESTRAINED
2. THE BREAK SHOWN IN BOTH THE 16"W AND 12"W IS EQUIVALENT TO 30 FEET. THE TOTAL LENGTH OF THE 16"W BETWEEN THE 16"x16" CROSS AND 16"x16" TEE IS 50 FEET. THE TOTAL LENGTH OF THE 12"W BETWEEN THE 16"x16" TEE AND CAP IS 40 FEET.
3. ON THE EAST SIDE OF MARRIOTTSVILLE ROAD, FROM THE 16" TEE SOUTH, INSTALL 10 FEET OF 16"W, CAP AND RESTRAIN.

NOTES:

1. BUTTRESS DIMENSIONS ARE BASED ON A WATER PRESSURE OF 150 PSI. AND A MINIMUM SOIL BEARING PRESSURE OF 3000 PSF, WHEN ACTUAL FIELD CONDITIONS ARE LESS THE AREA OF BEARING SHALL BE INCREASED AS DETERMINED BY THE ENGINEER AND SHOWN ON THE CONTRACT DOCUMENTS.

DETAIL - BUTTRESSING FOR 12" x 8" ROTATED TEE (STA. 29+27)

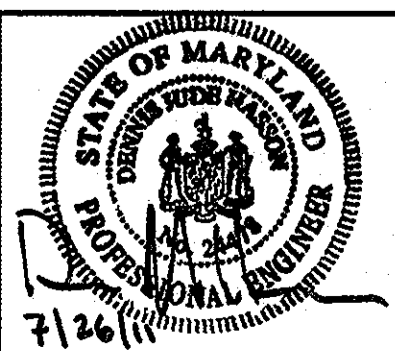
SCALE: 1" = 1'

"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. 24478, EXPIRATION DATE: 10/28/11."

DWG. **C-3**

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
 Director of Public Works: [Signature] 3/26/11
 Chief, Bureau of Engineering: [Signature] 3/27/11
 Chief, Bureau of Utilities: [Signature] 3/9/11
 Chief, Utility Design Division: [Signature]

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231
WR&A



DES:	JDV				
DRN:	ACM				
CHK:	JDV				
DATE:	9/25/09	BY:	NO.	REVISION	DATE

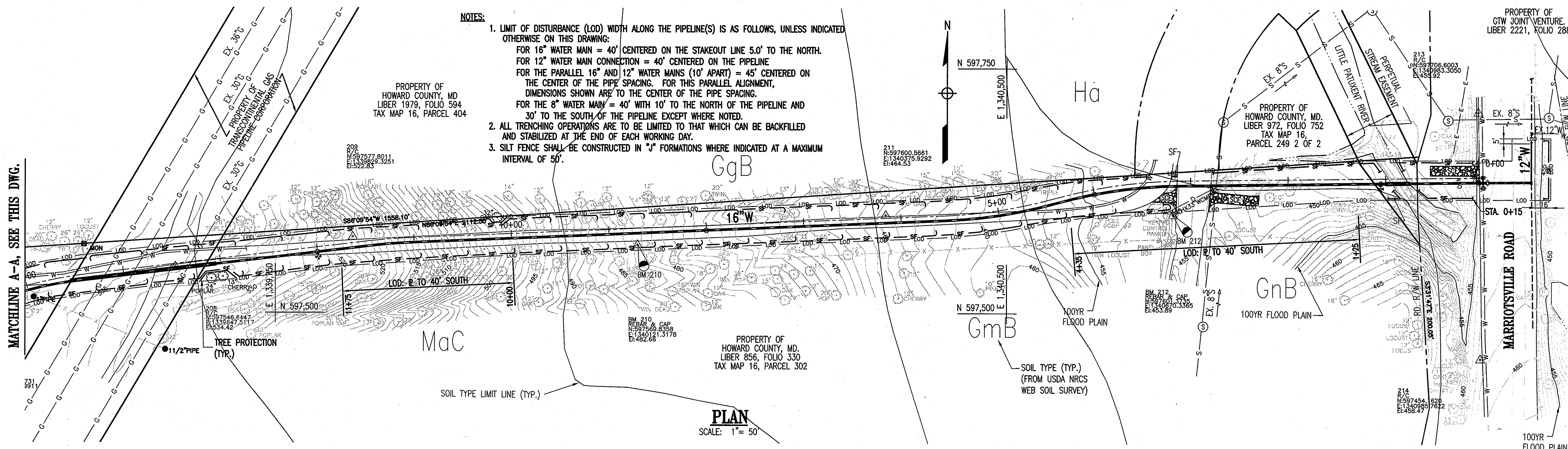
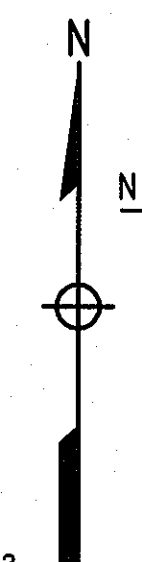
DETAILS
 600' SCALE MAP NO. 16 BLOCK NO. 9 & 10

MARRIOTTSVILLE ROAD
16" & 12" WATER MAINS
CAPITAL PROJECT NO. W8227
CONTRACT NO. 44-4508
ELECTION DISTRICT 3
HOWARD COUNTY, MARYLAND

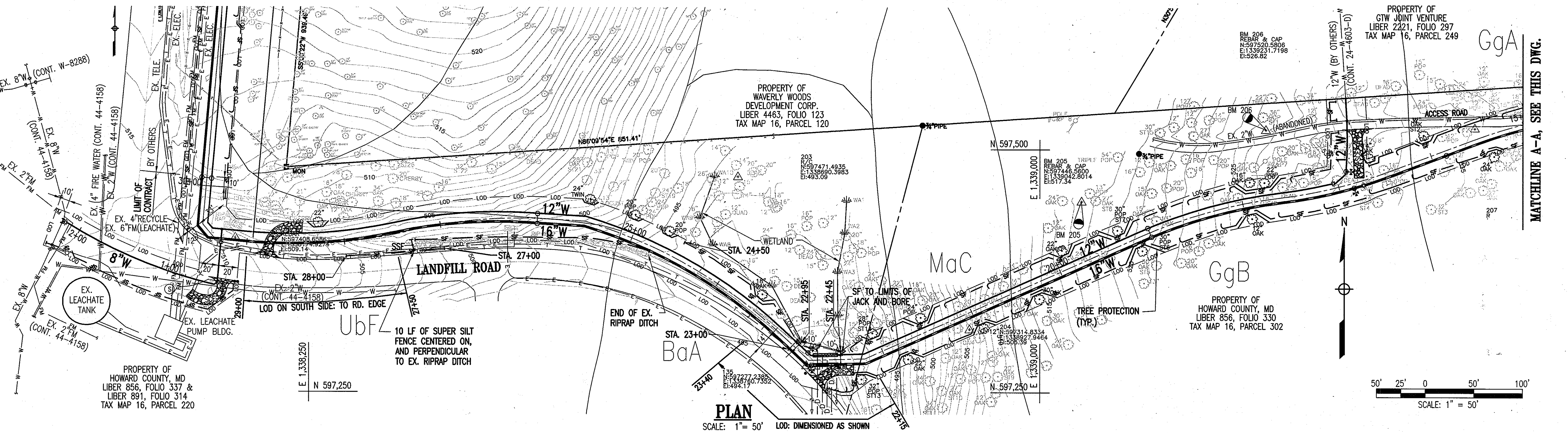
SCALE AS SHOWN
 SHEET 5 OF 9

MATCHLINE A-A, SEE THIS DWG.

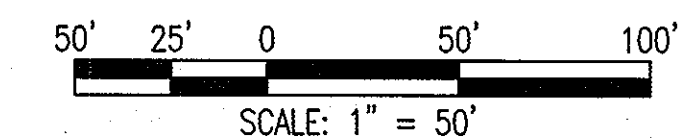
- NOTES:**
1. LIMIT OF DISTURBANCE (LOD) WIDTH ALONG THE PIPELINE(S) IS AS FOLLOWS, UNLESS INDICATED OTHERWISE ON THIS DRAWING:
 FOR 16" WATER MAIN = 40' CENTERED ON THE STAKEOUT LINE 5.0' TO THE NORTH.
 FOR 12" WATER MAIN CONNECTION = 40' CENTERED ON THE PIPELINE
 FOR THE PARALLEL 16" AND 12" WATER MAINS (10' APART) = 45' CENTERED ON THE CENTER OF THE PIPE SPACING. FOR THIS PARALLEL ALIGNMENT, DIMENSIONS SHOWN ARE TO THE CENTER OF THE PIPE SPACING.
 FOR THE 8" WATER MAIN = 40' WITH 10' TO THE NORTH OF THE PIPELINE AND 30' TO THE SOUTH OF THE PIPELINE EXCEPT WHERE NOTED.
 2. ALL TRENCHING OPERATIONS ARE TO BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY.
 3. SILT FENCE SHALL BE CONSTRUCTED IN "J" FORMATIONS WHERE INDICATED AT A MAXIMUM INTERVAL OF 50'.



PLAN
SCALE: 1" = 50'



PLAN
SCALE: 1" = 50' LOD: DIMENSIONED AS SHOWN



"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. 24478, EXPIRATION DATE: 10/28/11."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

[Signature] 8/26/11
DIRECTOR OF PUBLIC WORKS DATE
[Signature] 8/9/11
CHIEF, BUREAU OF UTILITIES DATE
[Signature] 8/9/11
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES:	JDV				
DRN:	ACM				
CHK:	JDV				
DATE:	9/25/09	BY:	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL PLAN

MARRIOTTVILLE ROAD
16" & 12" WATER MAINS
CAPITAL PROJECT NO. W8227
CONTRACT NO. 44-4508

ELECTION DISTRICT 3
HOWARD COUNTY, MARYLAND
RECORD DRAWING - MARCH 2012

DWG.
SC-1
SCALE AS SHOWN
SHEET 6 OF 9

EROSION AND SEDIMENT CONTROL - GENERAL NOTES

1. HOWARD COUNTY NOTIFICATION

THE CONTRACTOR MUST NOTIFY THE HOWARD COUNTY ENVIRONMENTAL COMPLIANCE SECTION IN WRITING AND/OR BY TELEPHONE (410) 313-1880 AT THE FOLLOWING POINTS:
 - PRE-CONSTRUCTION MEETING (MINIMUM 5 DAYS PRIOR TO START OF CONSTRUCTION)
 - FOLLOWING INSTALLATION OF INITIAL SEDIMENT CONTROL MEASURES
 - PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL DEVICE
 - PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES
 - PRIOR TO FINAL ACCEPTANCE BY COUNTY.

2. STANDARDS AND SPECIFICATIONS

THIS PLAN IS DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND ALL REVISIONS THEREOF AND ADDITIONS THERETO INCLUDED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL HAVE A COPY OF THE 1994 "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" ON THE SITE.

3. INGRESS/EGRESS CONTROLS

THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ON PUBLIC ROADS. ALL MATERIALS DEPOSITED ON PUBLIC ROADS SHALL BE MECHANICALLY REMOVED IMMEDIATELY. THE FLUSHING OF ROAD SURFACES IS PROHIBITED.

TYPICALLY, ALL INGRESS AND EGRESS POINTS SHALL BE CONTROLLED THROUGH THE USE OF A "STABILIZED CONSTRUCTION ENTRANCE."

4. INSPECTION

THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES.

5. SHUTDOWNS AND OR PENALTIES

TOTAL COMPLIANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS EXPECTED AT ALL TIMES. IN CASES WHERE THE CONTRACTOR IS FOUND TO BE IN NON-COMPLIANCE THE COUNTY MAY TAKE STEPS TO IMPOSE SELECTED OR TOTAL SHUTDOWNS AND IMPOSE PER DAY PENALTIES FOR NON-COMPLIANCE.

THE COUNTY ENGINEER CAN IMPOSE A TOTAL OR PARTIAL SHUTDOWN IF THE PROJECT MAY ADVERSELY IMPACT THE WATERS OF THE STATE.

6. RECORD KEEPING

THE PROJECT'S APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, APPROVED CHANGE REQUESTS, DAILY LOG BOOKS AND TEST REPORTS WILL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF MDE.

EROSION AND SEDIMENT CONTROL EXCAVATION

SILT REMOVED FROM CONTROL DEVICES SHALL BE PLACED IN AN APPROVED WASTE SITE EITHER ON OR OFF THE PROJECT. MATERIAL STORED ON SITE MAY BE REUSED ONCE IT IS DRIED AND IF IT MEETS COUNTY REQUIREMENTS FOR EMBANKMENT OR ANY UNSPECIFIED NEED.

1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL STANDARD REFERENCE DETAILS

DETAIL NO.	TITLE	PAGE
22	SILT FENCE	E-15-3, 3A
24	STABILIZED CONSTRUCTION ENTRANCE	F-17-3
33	SUPER SILT FENCE	H-26-3, 3A

OTHER PROTECTION MEASURES

--- TREE PROTECTION (SEE DWG. SC-3) ---

9. OFF-SITE UTILITY WORK

SEDIMENT CONTROL FOR UTILITY CONSTRUCTION IN AREAS OUTSIDE OF DESIGNED CONTROLS SHALL FOLLOW THESE ADDITIONAL BEST MANAGEMENT PRACTICES:

- (a) CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK
- (b) EXCAVATED MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
- (c) TRENCHING TO BE LIMITED TO THAT DEPTH WHICH CAN BE BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY, I.E., TRENCHES SHALL NOT BE LEFT OPEN.

10. SENSITIVE AREAS

NO CONSTRUCTION ACTIVITIES SHALL BE UNDERTAKEN WITHIN SPECIFIED SENSITIVE AREAS OF THE PROJECT WITHOUT PRIOR NOTIFICATION OF THE ENGINEER. ALL WORK IN THESE AREAS SHALL BE MONITORED BY A RESPONSIBLE PARTY DESIGNATED BY THE CONTRACTOR TO ASSURE THAT REASONABLE CARE IS TAKEN IN OR ADJACENT TO THESE AREAS. AREAS CONSIDERED SENSITIVE ARE DEFINED AS: FLOODPLAINS, WETLANDS (TIDAL, NONTIDAL AND ASSOCIATED BUFFERS) CRITICAL AREAS, FORESTED AREAS, ARCHEOLOGICAL SITES, HISTORIC SITES, PARKLAND AND OPEN WATER.

11. SITE INFORMATION * (NOT FOR BIDDING PURPOSES)

TOTAL AREA OF SITE	3.1	ACRES
AREA DISTURBED (TRENCH)	0.4	ACRES
AREA TO BE PAVED	N/A	ACRES
TOTAL CUT	N/A	CU. YDS.
TOTAL FILL	N/A	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION (IF KNOWN)	NOT KNOWN	ACRES

12. CHECKLIST FOR REQUIRED INSPECTIONS

** NOTICE **
 THIS LIST IS FOR THE SEQUENCE OF CONSTRUCTION ONLY. HOWARD COUNTY ASSUMES NO RESPONSIBILITY FOR IMPROPER INSTALLATION OF ANY ITEM ON THIS CHECKLIST. A PROFESSIONAL ENGINEER OR THEIR DESIGNEE MUST CERTIFY ALL ASPECTS OF CONSTRUCTION AND CONFORMANCE TO DESIGN REQUIREMENTS.

TYPE OF INSPECTION

1. PRE-CONSTRUCTION MEETING	<input type="checkbox"/>
2. COMPLETION OF SEDIMENT CONTROL MEASURES (IF CONSTRUCTING A BASIN, SEE #6)	<input type="checkbox"/>
3. PRIOR TO MODIFICATION OR REMOVAL OF SEDIMENT CONTROL	<input type="checkbox"/>
4. INFILTRATION SYSTEMS (NOT APPLICABLE ON THIS CONTRACT)	<input type="checkbox"/>
A. SITE READINESS PER SEQUENCE OF CONSTRUCTION	<input type="checkbox"/>
B. INFILTRATION AREA PROTECTED FROM SEDIMENTATION	<input type="checkbox"/>
C. DIMENSIONS	<input type="checkbox"/>
D. FILTERING MATERIAL (TYPE/DEPTH)	<input type="checkbox"/>
E. FILL MATERIAL	<input type="checkbox"/>
F. SIZE, PLACEMENT, TYPE OF PIPING (IF APPLICABLE)	<input type="checkbox"/>
G. OBSERVANT WELL	<input type="checkbox"/>
H. COVER/STABILIZATION	<input type="checkbox"/>
5. OPEN CHANNEL FLOW ATTENUATION (NOT APPLICABLE ON THIS CONTRACT)	<input type="checkbox"/>
A. SITE READINESS PER SEQUENCE OF CONSTRUCTION	<input type="checkbox"/>
B. CROSS-SECTION CONFORMATION	<input type="checkbox"/>
C. MATERIAL (TYPE/SIZE)	<input type="checkbox"/>
D. STABILIZATION	<input type="checkbox"/>
6. RETENTION/DETENTION STRUCTURES, BASINS/PONDS (NOT APPLICABLE ON THIS CONTRACT)	<input type="checkbox"/>

STANDARD SYMBOLS

EARTH DIKE	
TEMPORARY SWALE	
PERIMETER DIKE/SWALE	
STONE CHECK DAM	
STONE OUTLET STRUCTURE	
SILT FENCE*	
SUPER SILT FENCE*	
STRAW BALES	
STANDARD INLET PROTECTION	
AT GRADE INLET PROTECTION	
CURB INLET PROTECTION	
MEDIAN INLET PROTECTION	
GABION INFLOW PROTECTION	
RIPRAP INFLOW PROTECTION	
SUMP PIT	
REMOVABLE PUMPING STATION	
PORTABLE SEDIMENT TANK	
INTERCEPTOR BERM	
TEMPORARY BERM	
PIPE SLOPE DRAIN	
STABILIZED CONSTRUCTION ENTRANCE*	
SOIL STABILIZATION MATTING	
PLACED RIPRAP DITCH	
GABIONS	
CONCRETE GUTTER	
STONE OUTLET SEDIMENT TRAP	
RIPRAP OUTLET SEDIMENT TRAP	
STONE/RIPRAP OUTLET SEDIMENT TRAP	
PIPE OUTLET SEDIMENT TRAP	
LIMIT OF DISTURBANCE*	
EXISTING CONTOURS*	
PROPOSED CONTOURS	

* = PERTINENT TO THIS PROJECT.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS IS TO BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL MATERIAL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, OR WATERWAYS OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE.
- RECTIFY ANY NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYE GRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLOA SP.) AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT IMPORTANT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM AS FOLLOWS:

CLASS I WATERS - IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERT(S) SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

OVERALL PROJECT SEQUENCE OF CONSTRUCTION

- A GRADING PERMIT WILL BE ACQUIRED FROM THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS PRIOR TO THE CONTRACTOR INITIATING WORK.
- THE CONTRACTOR SHALL CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS BEFORE ANY CONSTRUCTION IS TO BEGIN.
- THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY ENVIRONMENTAL COMPLIANCE SECTION AT LEAST 5 DAYS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE A PRE CONSTRUCTION MEETING. NO WORK SHALL BE PERMITTED IN ANY STREAMS BETWEEN MARCH 1 AND JUNE 15.
- PLACE STABILIZED CONSTRUCTION ENTRANCES AT ALL POINTS OF EASEMENT ACCESS FROM EXISTING ROADS.
- INSTALL AND STABILIZE SEDIMENT CONTROL MEASURES, CONSISTING PRIMARILY OF SILT FENCE AT THE LOW SIDE OF THE LIMIT OF DISTURBANCE AND BOTH SIDES WHERE NOT DISTINCTLY SLOPED. SEE PLAN AND PROFILE SHEETS FOR ALL SEDIMENT AND EROSION CONTROL MEASURES.
- THE WATER MAIN DESIGN SHOWN DOES NOT INVOLVE OPEN CUT CROSSING OF STREAMS. HOWEVER, SHOULD COUNTY APPROVED FIELD REVISIONS DO SO, INSTALL SANDBAG DIVERSIONS, TEMPORARY CULVERT PIPES, OR PUMP-AROUND PRACTICES AND DEWATERING BASINS AT ALL STREAM CROSSINGS. ALL STREAM CROSSINGS SHALL BE PERFORMED IN AN EXPEDIENT MANNER. DEWATERING BASINS ON EACH BANK WILL RECEIVE WATER PUMPED FROM THE STREAM CROSSING SITE. PORTABLE SEDIMENT TANKS MAY BE USED IN PLACE OF DEWATERING BASINS SO AS TO MINIMIZE DISTURBANCE OF EXISTING TREES AND VEGETATION.
- THERE IS NO DISTURBANCE OF WETLANDS FOR THE WATER MAIN DESIGN SHOWN. HOWEVER SHOULD COUNTY APPROVED FIELD REVISIONS DO SO, STOCKPILE TOPSOIL. ALL TOPSOIL FROM THE WETLAND AREAS SHALL BE MAINTAINED SEPARATE FROM UPLAND MATERIALS AND REUSED WITHIN THE LIMITS OF THE ORIGINAL WETLAND AREA AFTER UTILITY INSTALLATION IS COMPLETED.
- EXCAVATION FROM TRENCHING OPERATIONS SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- EXCAVATE FOR AND INSTALL WATERMANS AND ASSOCIATED STRUCTURES.
- VEGETATIVELY STABILIZE BACKFILLED TRENCH AND STRUCTURE SITES AS WORK PROGRESSES.
- NOTIFY ENVIRONMENTAL COMPLIANCE SECTION (ECS, 410-313-1880) AND OBTAIN APPROVAL TO REMOVE EROSION AND SEDIMENT CONTROL MEASURES.
- PERMANENTLY STABILIZE ANY AREAS DISTURBED DURING CLEANUP ACTIVITIES.

"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. 24478, EXPIRATION DATE: 10/28/11."

DWG. SC-2

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.

[Signature] 8/26/11
 DIRECTOR OF PUBLIC WORKS DATE

[Signature] 8/26/11
 CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 8/26/11
 CHIEF, BUREAU OF UTILITIES DATE

[Signature] 8/26/11
 CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
 WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231



DES: JDV			
DRN: ACM			
CHK: JDV			
DATE: 9/25/09	BY: NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL
 GENERAL NOTES

600' SCALE MAP NO. 16 BLOCK NO. 9 & 10

MARRIOTTVILLE ROAD
 16" & 12" WATER MAINS
 CAPITAL PROJECT NO. W8227
 CONTRACT NO. 44-4508

ELECTION DISTRICT 3 HOWARD COUNTY, MARYLAND

SCALE: N/A
 SHEET 7 OF 9

SECTION II - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES - TEMPORARY SEEDING

- I. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN NRCS-MD TABLE 1 FOR THE APPROPRIATE PLANT HARDINESS ZONE 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 PLANS AND COMPLETED, THEN TABLE 1 MUST BE PUT ON THE PLANS.
- II. FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM NRCS-MD TABLE 1					FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
	ANNUAL RYEGRASS	40	MAR 1 TO MAY 15 AUG 1 TO OCT 15	0.5"	600 LB/AC (15 LB/1000 SF)	2 TONS/AC (100 LB/1000 SF)

SECTION III - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES - PERMANENT SEEDING

- I. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN NRCS-MD TABLE 4 FOR THE APPROPRIATE PLANT HARDINESS ZONE AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 4. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 4 MUST BE PUT ON THE PLANS. 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-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD AND V TURF GRASS.
- II. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, THE RATE SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
- III. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3 A/2 LBS/1000 SQ. FT. (150 LBS/AC), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM NRCS-MD TABLE 4					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
11*	CREeping RED FESCUE CHEWING FESCUE KENTUCKY BLUEGRASS ROUGH BLUEGRASS	30 30 20 15	MAR 1 TO MAY 31 AUG 1 TO SEPT 30	1/4-1/2"	90 LB/AC (2.0 LB/ 1000 SF)	175 LB/AC (4 LB/ 1000 SF)	175 LB/AC (4 LB/ 1000 SF)	2 TONS/AC (100 LB/ 1000 SF)

* SEED MIX 11 FROM THE NATURAL RESOURCES CONSERVATION SERVICE - MARYLAND, SEE TABLE 4, PAGE 342-21 FOR RECOMMENDED CULTIVARS AND TABLE 5 FOR QUALITY OF SEEDS.

MAINTENANCE FERTILIZATION FOR PERMANENT SEEDINGS

USE SOIL TEST RESULTS OR RATES SHOWN BELOW

SEEDING MIXTURE	TYPE	LB/AC	LB/1000 SF	TIME	MOWING
TALL FESCUE MAKES UP 70% OR MORE OF COVER	10-10-10 OR 30-10-10	500	11.5	YEARLY OR AS NEEDED. FALL	NOT CLOSER THAN 3" IF OCCASIONAL MOWING IS DESIRED
CROWNVEITCH SERICEA LESPEDEZA BIRDSFOOT TREFLOIL	0-20-0	400	9.2	SPRING, THE YEAR FOLLOWING ESTABLISHMENT AND EVERY 4-5 YEARS THEREAFTER	DO NOT MOW CROWNVEITCH
FAIRLY UNIFORM STAND OF TALL FESCUE AND SERICEA LESPEDEZA, OR BIRDSFOOT TREFLOIL	5-10-10	500	11.5	FALL THE YEAR FOLLOWING ESTABLISHMENT AND EVERY 4-5 YEARS THEREAFTER	NOT REQUIRED, NO CLOSER THAN 4" IN THE FALL AFTER SEED HAS MATURED.
WEeping LOVEGRASS & SERICEA LESPEDEZA FAIRLY UNIFORM PLANT DISTRIBUTION.	5-10-10	500	11.5	SPRING, THE YEAR FOLLOWING ESTABLISHMENT AND EVERY 4-5 YEARS THEREAFTER.	NOT REQUIRED, NO CLOSER THAN 4" IN THE FALL AFTER SEED HAS MATURED.
RED & CHEWING FESCUE, KENTUCKY BLUEGRASS, HARD FESCUE MIXTURES	20-10-10	250	5.8	SEPTEMBER, 30 DAYS LATER, DECEMBER, MAY 20, JUNE 30, IF NEEDED.	MOW NO CLOSER THAN 2" FOR RED FESCUE AND KENTUCKY BLUEGRASS, 3" FOR FESCUE.

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

A. GENERAL SPECIFICATIONS

- I. CLASS OF TURF GRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- II. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
- III. STANDARD SIZE SECTIONS OF SOD SHALL 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.
- IV. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- V. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

- I. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
- II. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED 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.
- III. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- IV. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

- I. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- II. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- III. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

SECTION V - TURF GRASS ESTABLISHMENT

AREAS WHERE TURF GRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE TILLED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVELED AND RAKED TO PREPARE A PROPER SEEDBED. STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDBED SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

NOTE: 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.

A. TURF GRASS MIXTURES

- I. KENTUCKY BLUEGRASS - FULL SUN MIXTURE - FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND THE EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS/1000 SQUARE FEET. A MINIMUM OF THREE BLUEGRASS CULTIVARS SHOULD BE CHOSEN RANGING FROM A MINIMUM OF 10% TO A MAXIMUM OF 35% OF THE 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 RYE GRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE/1000 SQUARE FEET. A MINIMUM OF 3 KENTUCKY BLUEGRASS CULTIVARS MUST BE CHOSEN, WITH EACH CULTIVAR RANGING FROM 10% TO 35% OF THE MIXTURE BY WEIGHT.
- III. TALL FESCUE/KENTUCKY BLUEGRASS - FULL SUN MIXTURE - FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS TO RECEIVE LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95-100% CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0-5%. SEEDING RATE: 5 TO 8 LB/1000 SF. 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 30-40% AND CERTIFIED FINE FESCUE 60-70%. SEEDING RATE: 1 1/2 - 3 LBS/1000 SQUARE FEET. A MINIMUM OF 3 KENTUCKY BLUEGRASS CULTIVARS MUST BE CHOSEN, WITH EACH CULTIVAR RANGING FROM A MINIMUM OF 10% TO A MAXIMUM OF 35% OF THE MIXTURE BY WEIGHT.

NOTE: TURF GRASS VARIETIES SHOULD BE SELECTED FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MIMEO #77, "TURF GRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".

B. IDEAL TIMES OF SEEDING

WESTERN MD: MARCH 15 - JUNE 1, AUGUST 1 - OCTOBER 1 (HARDINESS ZONES - 5B, 6A)

CENTRAL MD: MARCH 1 - MAY 15, AUGUST 15 - OCTOBER 15 (HARDINESS ZONE - 6B)

SOUTHERN MD, EASTERN SHORE: MARCH 1 - MAY 15, AUGUST 15 - OCTOBER 15 (HARDINESS ZONES - 7A, 7B)

C. IRRIGATION

IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2" - 1" EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL 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.

D. REPAIRS AND MAINTENANCE

INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

- I. ONCE THE VEGETATION IS ESTABLISHED, THE SITE SHALL HAVE 95% GROUND COVER TO BE CONSIDERED ADEQUATELY STABILIZED.
- II. IF THE STAND PROVIDES LESS THAN 40% GROUND COVERAGE, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZING, SEEDBED PREPARATION AND SEEDING RECOMMENDATIONS.
- III. IF THE STAND PROVIDES BETWEEN 40% AND 94% GROUND COVERAGE, OVER SEEDING AND FERTILIZING USING HALF OF THE RATES ORIGINALLY APPLIED MAY BE NECESSARY.
- IV. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDINGS AS SHOWN IN TABLE 24. FOR LAWNS AND OTHER MEDIUM TO HIGH MAINTENANCE TURF GRASS AREAS, REFER TO THE UNIVERSITY OF MARYLAND PUBLICATION "LAWN CARE IN MARYLAND" BULLETIN NO. 171.

"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. 24478, EXPIRATION DATE: 10/28/11."

DWG.
SC-3

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.**

Director of Public Works: *[Signature]* DATE: 8/26/11
 Chief, Bureau of Engineering: *[Signature]* DATE: 8/26/11
 Chief, Bureau of Utilities: *[Signature]* DATE: 8/26/11
 Chief, Utility Design Division: *[Signature]* DATE: 8/26/11

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



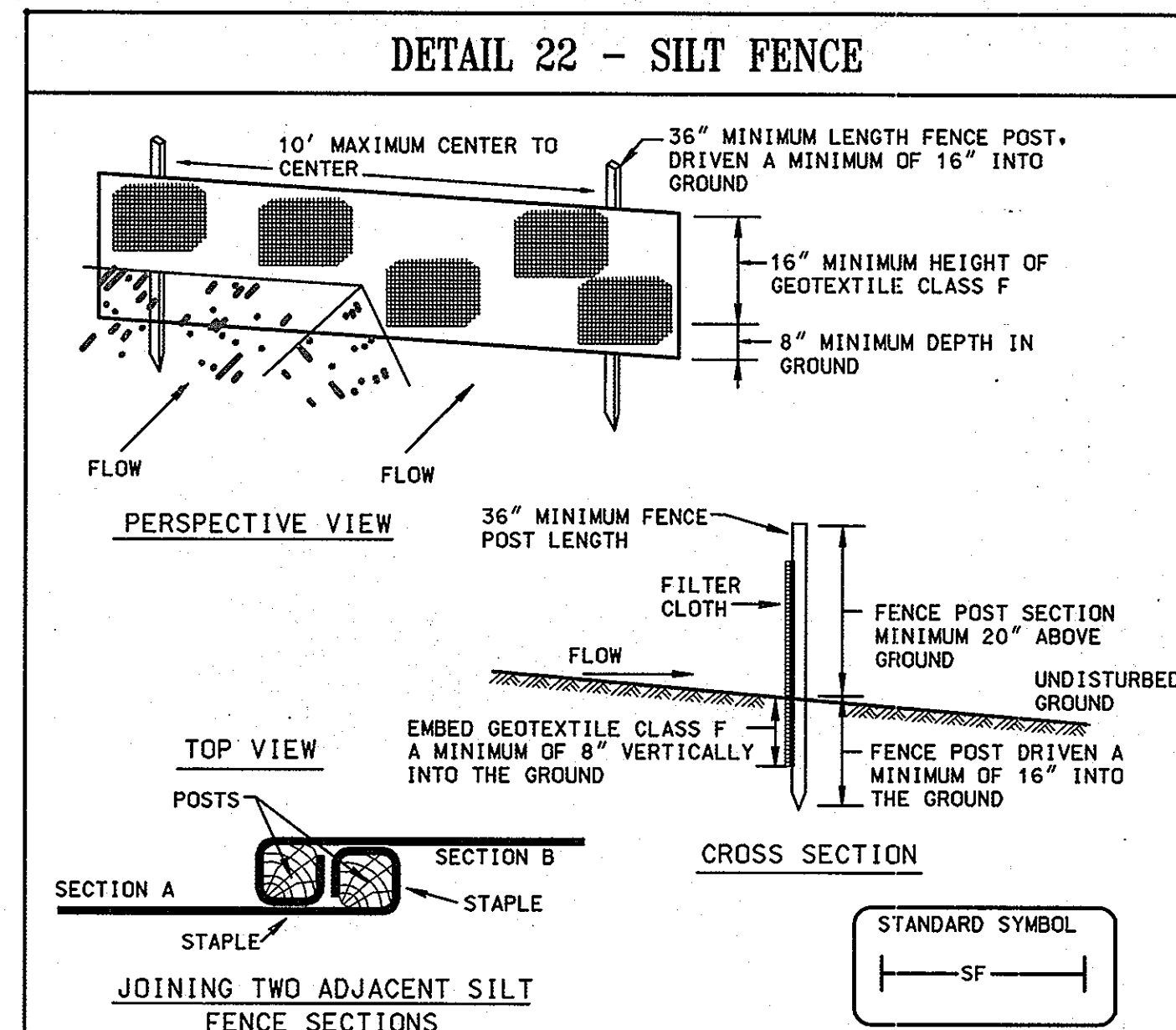
DES: JDV					
DRN: ACM					
CHK: JDV					
DATE: 9/25/09	BY	NO.	REVISION	DATE	

**EROSION AND SEDIMENT CONTROL
GENERAL NOTES**

MARRIOTTVILLE ROAD
16" & 12" WATER MAINS
CAPITAL PROJECT NO. W8227
CONTRACT NO. 44-4508

SCALE:
N/A

SHEET
8 OF 9



Construction Specifications

- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 1/2" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
- Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ² /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
---	--------------------	---

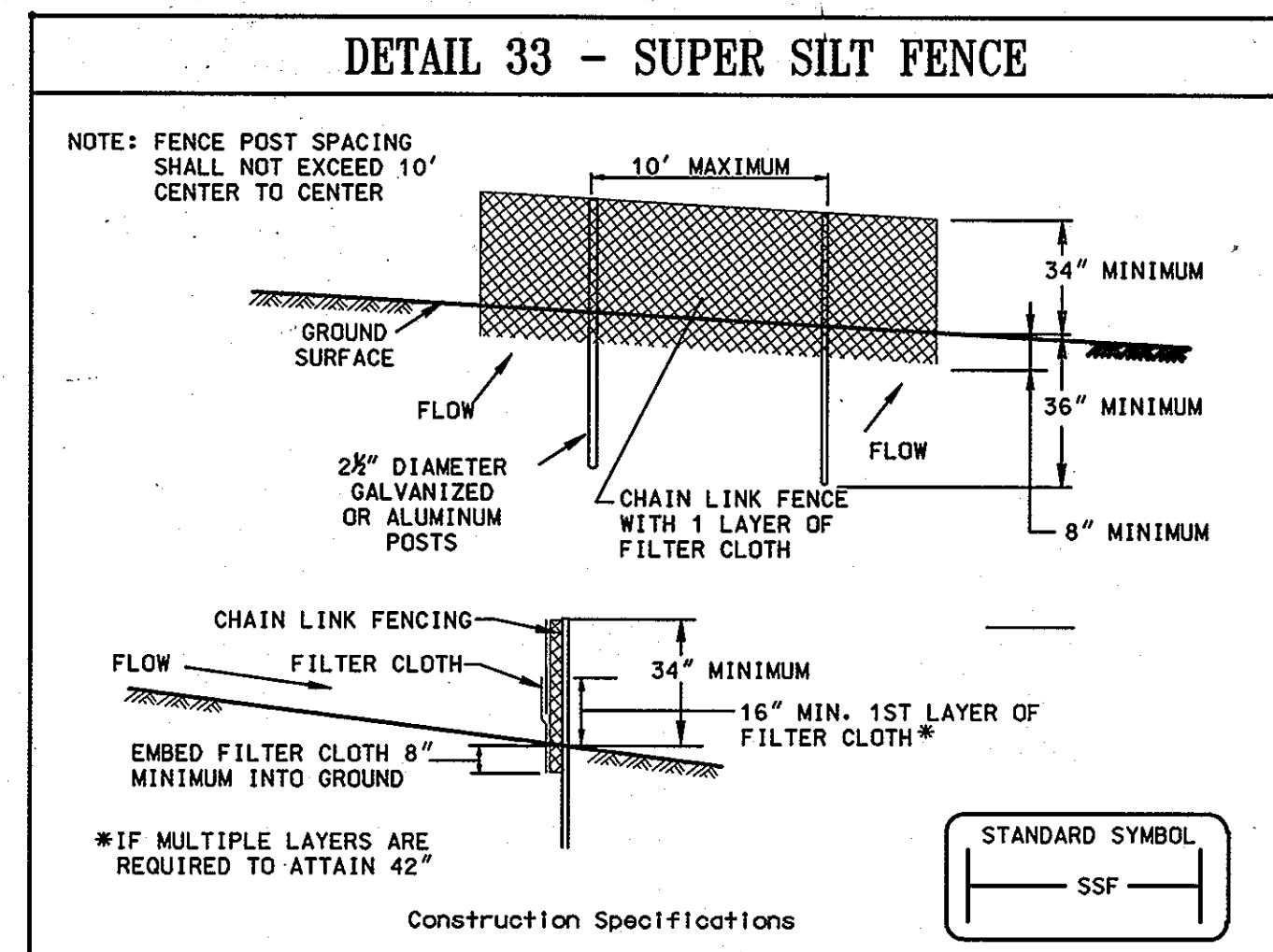
SILT FENCE

Silt Fence Design Criteria

Slope Steepness	Silt Fence Length	
	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
---	---------------------	---



- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6" fence shall be used, substituting 42" fabric and 6' length posts.
- Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
- Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
- Filter cloth shall be embedded a minimum of 8" into the ground.
- When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
- Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
- Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft ² /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

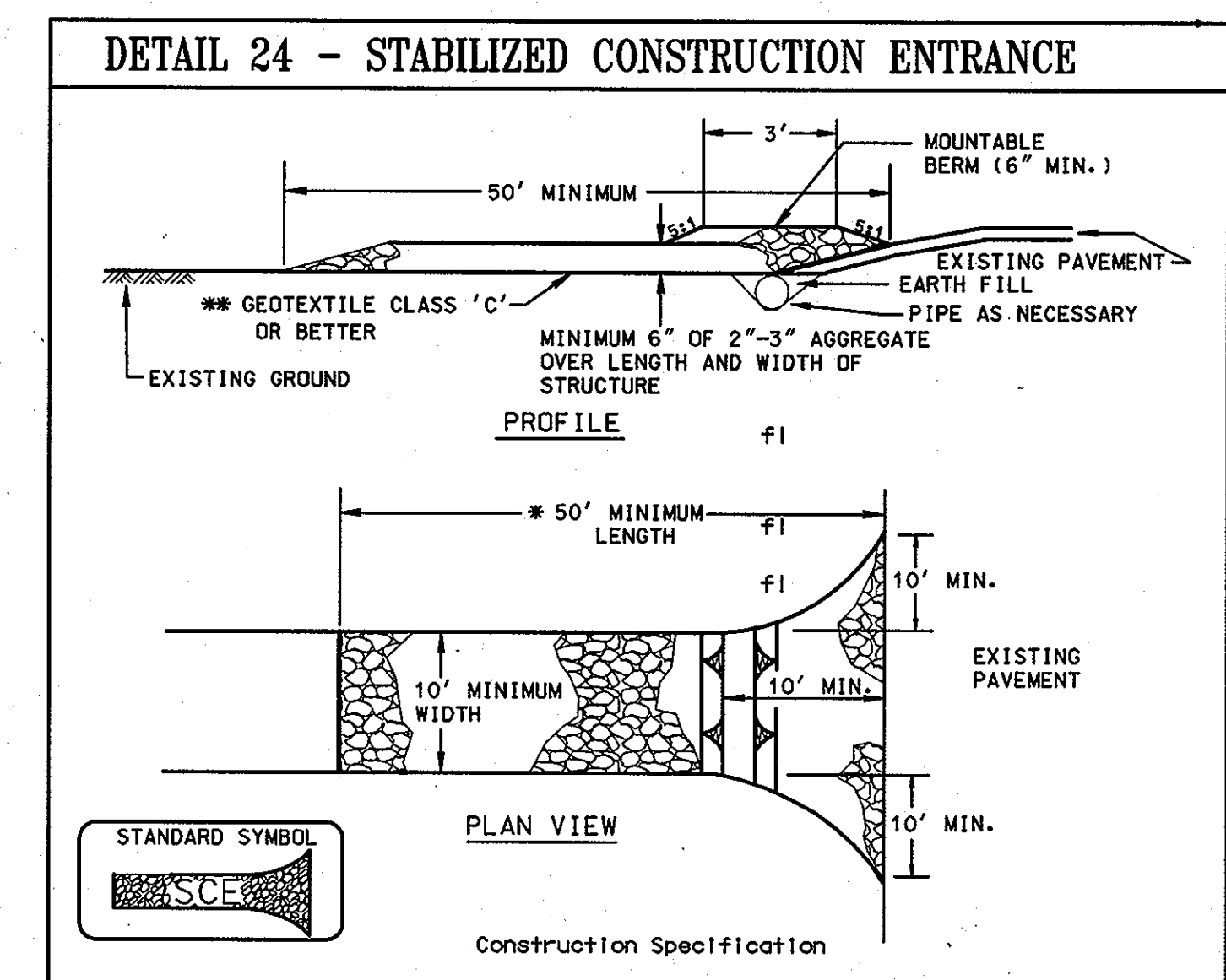
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
---	--------------------	---

SUPER SILT FENCE

Design Criteria

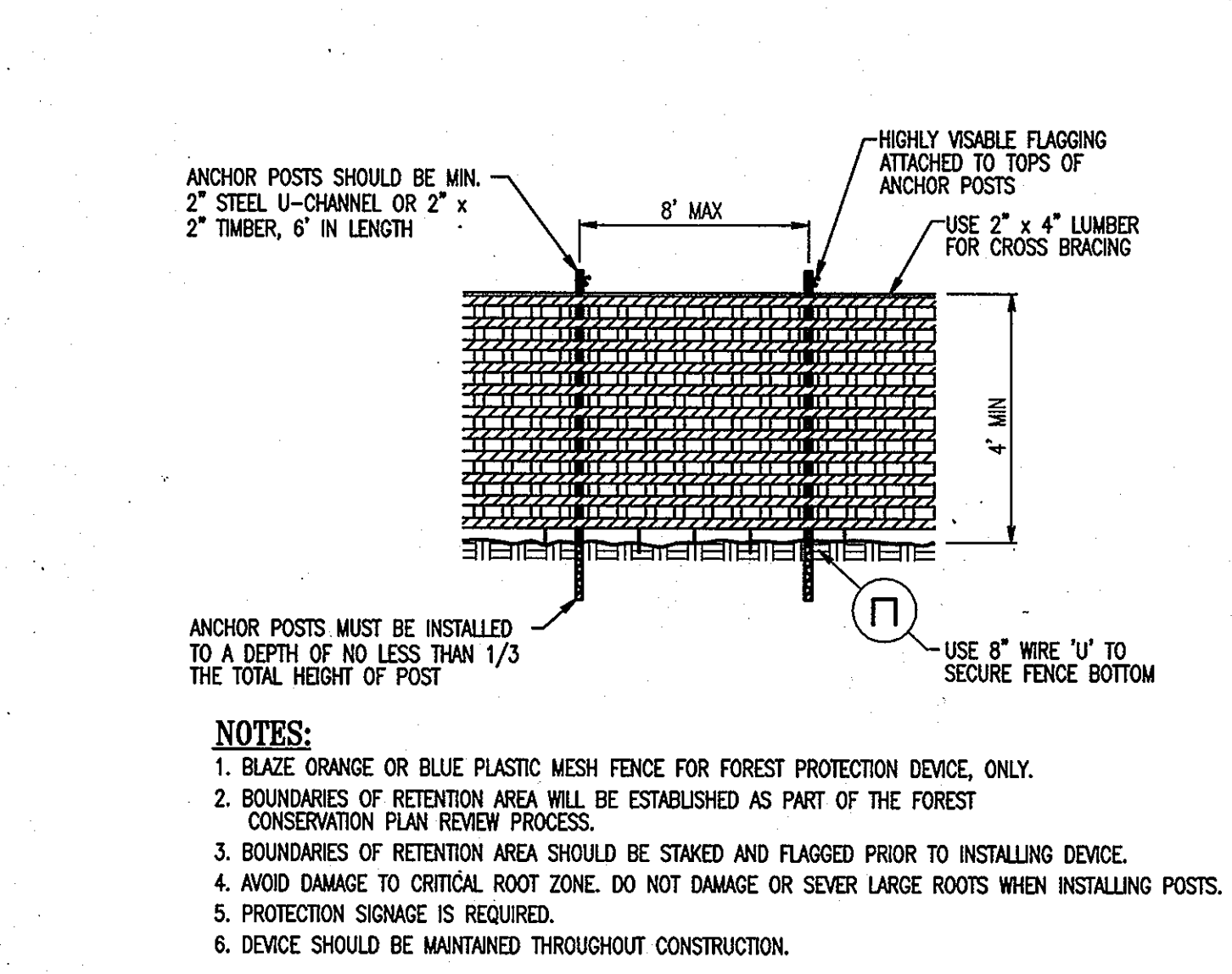
Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
---	---------------------	---

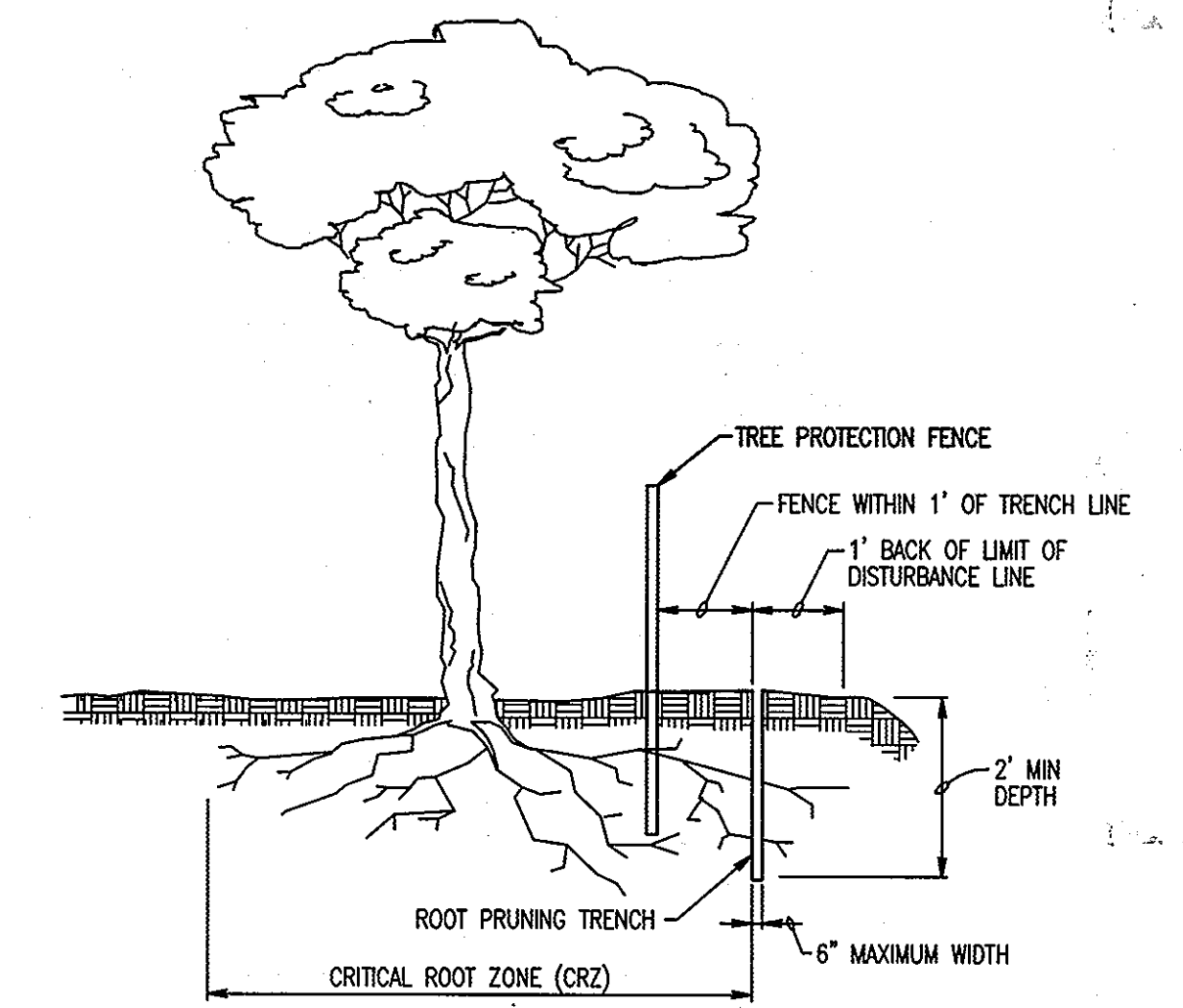


- Length - minimum of 50' (#30' for single residence lot).
- Width - 10' minimum, should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
---	--------------------	---



PLASTIC MESH TREE PROTECTION FENCE
NO SCALE



THE CRITICAL ROOT ZONE (CRZ):

FOR TREES ALONG THE EDGES OF STANDS, THE CRZ RADIUS = 1' FOR EVERY 1" OF TREE DIAMETER.

FOR RETENTION AREAS LESS THAN 10,000 SF AND ISOLATED SPECIMEN TREES, THE CRZ RADIUS = 1.5' FOR EVERY 1" OF TREE DIAMETER.

NOTES:

- RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
- BOUNDARIES OF RETENTION AREAS TO BE STAKED AND FLAGGED PRIOR TO TRENCHING.
- EXACT LOCATION OF TRENCH SHALL BE IDENTIFIED.
- TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.
- ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

ROOT PRUNING DETAIL
NO SCALE

TREE CONSERVATION NOTES

PRE-CONSTRUCTION ACTIVITIES

PRIOR TO THE START OF ANY CONSTRUCTION:

- THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD PRIOR TO ANY CONSTRUCTION ACTIVITIES. THEN INSTALL ALONG THE LOD BLAZE ORANGE FENCING. LOD SHALL BE PLACED OUTSIDE OF CRITICAL ROOT ZONES OF TREES TO BE PRESERVED WHEREVER POSSIBLE.
- BLAZE ORANGE FENCING:
 - BLAZE ORANGE FENCING SHALL BE PLACED ON ALL LIMITS OF DISTURBANCE, EXCEPT WHERE INGRESS/EGRESS IS REQUIRED.
 - ALL FENCING SHALL BE INSTALLED PRIOR TO CONSTRUCTION ACTIVITIES.
 - FENCING SHALL BE FIRMLY ANCHORED AT SPACING NO GREATER THAN EIGHT FEET AND CONSTRUCTED IN A MANNER WHICH PRECLUDES SAGGING.
 - ALL FENCING SHALL BE MAINTAINED IN A GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS, FOR THE PROTECTION OF THE ADJACENT WOODLANDS.
- SIMULTANEOUS WITH CLEARING, THE FOLLOWING STEPS SHOULD BE UNDERTAKEN TO REDUCE STRESS TO EXISTING TREES:
 - FERTILIZE TREES WITHIN 20 FEET OF THE CONSTRUCTION AREA AT THE RATE OF 3 POUNDS OF NITROGEN PER 1000 SQUARE FEET OF ROOT ZONE DISTURBED. APPLY FERTILIZER TO ENTIRE CRITICAL ROOT ZONE OUT TO THE BLAZE ORANGE FENCING.
 - FERTILIZER SHOULD BE AT LEAST 50 PERCENT SLOW RELEASE NITROGEN AND CONTAIN OTHER ESSENTIAL ELEMENTS AND MICRO-NUTRIENTS.
 - WATER CRITICAL ROOT ZONE IMMEDIATELY AFTER APPLYING FERTILIZER TO SATURATE THE TOP 6 INCHES OF SOIL.
 - A MULCH, 1 TO 4 INCHES DEEP COMPRISED OF WOOD CHIPS OR SHREDDED BARK OR LEAVES, SHALL BE APPLIED IN THE CRITICAL ROOT ZONE ADJACENT TO THE BLAZE ORANGE FENCING (SEE EXISTING TREE MULCHING DETAIL).

- CONSTRUCTION PHASE**
- EXCAVATED AND BACK FILL MATERIAL SHALL NOT BE PLACED OR SIDE CAST WITHIN THE CRITICAL ROOT ZONES OF TREES TO BE PROTECTED.
 - CONSTRUCTION EQUIPMENT SHALL NOT BE DRIVEN INTO OR THROUGH PROTECTED TREES, NOR SHALL SWING CRANES OR BACKHOES BE ALLOWED IN THEIR CANOPIES.
 - THERE SHALL BE NO STACKING OR STORING SUPPLIES WITHIN THE CRITICAL ROOT ZONES OF TREES TO BE PROTECTED.
 - TREES TO BE REMOVED SHALL BE TAKEN OUT WITHOUT DAMAGING PROTECTED TREES.
 - ALL GRADING SHALL TAKE PLACE OUTSIDE OF THE CRITICAL ROOT ZONE OF THE TREES TO BE PROTECTED.
 - ALL EQUIPMENT SHALL BE KEPT INSIDE THE BLAZE ORANGE FENCING AND WITHIN THE LIMITS OF DISTURBANCE.
 - IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION ACTIVITIES

"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. 24478, EXPIRATION DATE: 10/28/11."

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.**

 DIRECTOR OF PUBLIC WORKS DATE: 8/26/11	 CHIEF, BUREAU OF ENGINEERING DATE: 8/26/11
 CHIEF, BUREAU OF UTILITIES DATE: 8/26/11	 CHIEF, UTILITY DESIGN DIVISION DATE: 8/26/11

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231



DES: JDV			
DRN: ACM			
CHK: JDV			
DATE: 9/25/09	BY: NO.	REVISION	DATE

**EROSION AND SEDIMENT CONTROL
DETAILS**

600' SCALE MAP NO. 16 BLOCK NO. 9 & 10

MARRIOTTVILLE ROAD
 16" & 12" WATER MAINS
 CAPITAL PROJECT NO. W8227
 CONTRACT NO. 44-4508

ELECTION DISTRICT 3
 HOWARD COUNTY, MARYLAND